

GROUNDWATER MONITORING EVENT AND UPDATED RISK ASSESSMENT

SITE NAME Southdown Oil
Supplies - Thatcham

CLIENT Watson Fuels Limited

**CLIENT
REFERENCE** N/A

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REVIEWS AND REVISIONS

REVISION NUMBER	DATE	DETAILS	OHES CONSULTANT

EXECUTIVE SUMMARY

CONTEXT AND OBJECTIVES

OHES Environmental Ltd (OHES) was instructed by Watson Fuels Limited (Watson) (the 'client') to complete an additional groundwater monitoring event and updated risk assessment for the Southdown Oils oil depot site, Thatcham (hereafter referred to as 'the site').

It is understood that Watson are now seeking to sell the freehold of the site and, as such, require a suitable survey of the site to determine current contamination levels and associated risks. Given the level of previous site investigation and the number of monitoring wells that remain on site, OHES considers that an update groundwater monitoring event to incorporate groundwater sample analysis will be appropriate to achieve this objective without the need for further intrusive site investigation.

PREVIOUS CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

Based on the results of the previous phases of investigation, the following key risks were identified at the site:

- ✱ Exceedances of soil saturation limits indicating the potential presence of entrained NAPL within these materials
- ✱ Risks to controlled waters (underlying Secondary A Aquifer).

Risks to potential future site users / visitors or ground workers.

WORKS COMPLETED

- ✱ One round of groundwater monitoring and sampling was completed on all accessible wells (31No. in total) at the site on 5th September 2018 using an oil / water interface probe and a peristaltic pump.
- ✱ 21 No. groundwater samples were scheduled for chemical testing including TPH CWG/Banded TPH, VOCs, SVOCs, and PAHs.
- ✱ 6 No. product samples were scheduled for whole oil analysis.

CONTAMINATION FINDINGS

Soils

Extensive evidence (visual and olfactory) of hydrocarbon contamination was identified in soil during both previous phases of site investigation completed by OHES. Strong odours and staining were noted to persist down to the head of the shallow groundwater with the heaviest contamination (based on observation and PID results) generally present within the capillary fringe immediately above groundwater. Elevated PID concentrations generally reduce with depth to the maximum depth of the investigation locations (4.00m bgl).

Analysis of representative soil samples identified concentrations of petroleum hydrocarbons and Naphthalene above the relevant published GACs for a residential end use. Soil saturation limits have also been exceeded for several hydrocarbon compounds indicating the potential presence of entrained NAPL within these materials. The presence of entrained NAPL within soils above the water table represents a potential on-going source for the impaction of groundwater within the underlying superficial deposits. This is assessed / discussed further in the following sections.

The presence of high-level hydrocarbon contamination (including entrained NAPL) within the near surface soils could also pose a potential risk to future site occupiers via permeation into drinking water supply pipes and via subsequent ingestion of the potable water supply. This is also discussed further in the following sections of this report.

Groundwater

Elevated concentrations of TPH (listed Aliphatic and Aromatic splits), EPH splits and PAHs have been identified at concentrations in excess of Tier 1 screening levels protective of groundwater receptors (Secondary A Aquifer). As the concentrations recorded are in excess of Tier 1 screening values protective of groundwater receptors, there is an identified risk to the shallow groundwater (Secondary A Aquifer) beneath the site.

Exceedances of residential SoBRA screening values have been identified at the site and consequently there are potential risks to the proposed future residential development on site from volatilization to indoor air.

Free product

During the groundwater monitoring visit, LNAPL (free product) was recorded in WS01, WS201, WS202, WS203 and WS302 with a maximum thickness of 251mm identified within WS202. Product was also identified within BH08 after approximately 4litres of groundwater had been purged from the monitoring well.

UPDATED CSM AND RISK ASSESSMENT

The investigation and subsequent CSM has confirmed that the viable pollutant linkages relate to:

- * The continuing impaction of shallow groundwater from hydrocarbon saturated soils and pockets of free product.
- * Possible impact of future site operatives via the volatilisation to indoor air pathway from residual hydrocarbon impacted soils beneath the site.
- * Possible contact between future Groundworkers (direct contact, ingestion, and inhalation).
- * Possible impaction to potable water supply pipes and ingestion by future site residents.

RECOMMENDATIONS

Based upon the results of this assessment, the site poses a potential risk to human health receptors (future commercial or residential development) and further risk assessment (including a human health DQRA) is considered necessary to assess the extent of remedial action required to mitigate associated risks to acceptable levels.

Once the additional risk assessments are complete and the extent of remediation is defined, a Remediation Options Appraisal (ROA) should be completed with the aim of producing a suitable remediation strategy to mitigate identified risks to acceptable levels (Remedial Target Values and / or Soil Saturation Limits).

At present, OHES considers that the minimum remedial requirement for the site would be the removal / treatment of free product and hydrocarbon saturated soils from beneath the site areas with the additional soil / groundwater remediation likely to be required to meet any remedial targets set by the DQRA. Based upon OHES' current understanding of the site, it is estimated that the excavation of hydrocarbon saturated soils would cover an area of 40m x 20m and extend up to 3.0m bgl (based upon existing soil saturation data). Depending on findings during the works this excavation may be extended or reduced as areas of gross contamination will need to be 'chased out' during the works.

1.0 INTRODUCTION

1.1 Context and Purpose

OHES Environmental Ltd (OHES) was instructed by Watson Fuels Limited (Watson) (the 'client') to complete a groundwater monitoring event and updated risk assessment for the Southdown Oils oil depot site, Thatcham (hereafter referred to as 'the site').

It is understood that Watson are now seeking to sell the freehold of the site for likely future residential development and, as such, require a suitable survey of the site to determine current contamination levels and associated risks. Given the level of previous site investigation and the number of monitoring wells that remain on site, OHES considered that an updated groundwater monitoring event to incorporate groundwater sample analysis would be appropriate to achieve this objective without the need for further intrusive site investigation.

This assessment has been designed on order to meet the requirements for such assessment as detailed within '*Model Procedures for the Management of Land Contamination*' (CLR11) and '*Guidance for the Safe Development of Housing on Land Affected by Contamination*' (R&D Publication 66: 2008). The latter guidance is particularly focussed on the development of housing on land affected by contamination. However, the advice is generally applicable to other forms of development and to sites where no developments is proposed.

1.2 Site Details

SITE INFORMATION	
Name and Address	Southdown Oil Supplies, Pound Lane, Thatcham, Berkshire, RG19 3TQ.
Location	The site is located off Pound Lane within a predominantly residential setting and is located in the town of Thatcham circa 3.0km East of Newbury.
Surrounding Land Use	The property is surrounded by residential land use with the closest buildings located adjacent to the south and west, 25m north and 50m east. A small grass field is located adjacent to the eastern boundary of the site and a sewage works is located 80m south.
Grid Reference	SU 5023 6728
Current Land Use	The site is a broadly square plot of land comprising an inactive fuel oil storage and distribution depot previously operated by Watson Fuels.
Site Size	0.12 Ha
Proposed Development / End Use	It is understood that the site is to be sold for likely future residential development

1.3 Previous Assessments

A number of previous assessments and reports have been completed for the site, which includes the following:

- ✱ Environmental Review – Southdown Oil Supplies Ltd'' (Ref: MC2101A) by Aspinwall and Company, dated November 1997.
- ✱ 'Phase Two Site Investigation – Southdown Oil Supplies, Thatcham' (Ref: MC2101A) by Aspinwall and Company, dated April 1998.

- ✱ 'Environmental Review – Southdown Oil Supplies Ltd' (Ref: SO038001A) by Enviros Aspinwall, dated August 2000.
- ✱ 'Remediation Strategy' (Reported as a letter to Southdown Oils) by Enviros, dated 21st August 2005.
- ✱ 'Site Inspection Report' by OHES, dated 20th June 2011.
- ✱ 'Project Alex Land Quality Assessment' by SKM Enviros, dated October 2013.
- ✱ 'Environmental Site Assessment' (Ref: R001BC – 14.6977.06) by OHES, dated October 2014.
- ✱ 'Remediation Options Appraisal' (Ref: R002BC – 14.6977.06) by OHES dated December 2014.
- ✱ 'Remediation Verification Report' (Ref: R003LD – 15.6977.06) by OHES dated October 2015.

In addition to the reports relating to the site, OHES has been provided with a number of reports (both partial and full copies) relating to adjacent properties that were undertaken prior to redevelopment as residential properties. These reports include:

- ✱ 'Preliminary Contamination Investigation – William Jacks Group, Lower Way, Thatcham', by Southern Testing, dated 1996 (Full Copy).
- ✱ 'Soil Sampling Report (Phase III Development) – Lower Way, Thatcham' (William Jacks Site)', by Arcadis Geraghty and Miller, dated December 1999 (Full Copy).
- ✱ 'Remedial Action Plan – Former Milk Distribution Depot, Pound Lane, Thatcham', by Arcadis Geraghty and Miller, dated December 1999 (Partial Copy).
- ✱ 'Phase I/II Environmental Assessment – Lower Way, Thatcham' (Former William Jacks Site), by Arcadis Geraghty and Miller, dated April 2000 (Partial Copy).

A summary of the key findings of these reports is provided in previous reports, most notably OHES Environmental Site Assessment dated October 2014. A summary of the key findings is presented in the following section and the results contained within have been used to inform the risk assessment detailed herein.

Summary of Previous Works

Previous site investigation works (as detailed in the above referenced reports) identified widespread soil and groundwater contamination at the site, principally to the area south of the bunded tank farm inclusive of the area occupied by the store room/vehicle repair garage and extending to the southern site boundary. Evidence of impact was also noted around the current and former loading gantries located to the west of the bunded tank farm.

Previous correspondence with the Local Authority and Environment Agency prior to the acquisition of the Southdown Oil business by Watson Fuels confirmed their concern relating to contamination levels on site and, as such, small scale remedial action was undertaken to manage the risk. During the acquisition of the Watson Fuels business by World Fuels Services the issues surrounding land contamination were raised and this process provided the driver further assessment and remedial action to be undertaken under an agreed Remediation Implementation Plan and Monitoring Programme (RMIP).

Following detailed site investigation works, remedial action was deemed to be required and, following a comprehensive Remediation Options Appraisal (ROA), a Dual Phase Vacuum Extraction (DPVE) was considered the most appropriate method of remediation. A remedial target was agreed with the regulators which comprised the reduction of LNAPL in all areas of the plume.

DPVE was commenced at the site in January 2015 and operated for a period of approximately nine months until September 2015. Following a period of post remedial monitoring the site was considered suitable for ongoing use as an oil storage and distribution depot and the data was provided to the regulators for review in September 2015. The regulator confirmed their acceptance to this in correspondence and a site meeting and, as such, the DPVE system was decommissioned.

It was recommended that residual LNAPL should be monitored on an annual basis during continued operation of the site as a fuel oil storage and distribution depot and this has been ongoing since.

1.4 Objectives and Scope of Works

The previous remediation works had reduced contamination levels to a point at which the site was considered to be suitable for ongoing use as an oil storage and distribution depot subject to ongoing annual monitoring to confirm contamination levels. However, it is now understood that Watson Fuels intend to cease operations on site and sell the property freehold for proposed residential development to match what has been constructed on neighbouring properties over the last 10 to 15 years. As such, an updated assessment of environmental risks was required in the context of this proposal.

In the context of the above, the objectives of the assessment are:

- * Complete a Generic Quantitative Risk Assessment (GQRA) to assess the significance of the chemical analysis results with respect to controlled waters risk. Results will also be screened against commercial and residential human health assessment criteria along with a comment on human health risks based on historical soil data.
- * Review previous assessments and update previous detailed conceptual site model (CSM) defining all potential pollutant linkages that may be present on site in order to enable an updated assessment of environmental risks.
- * Provide recommendations for further site investigation, risk assessment and / or remedial works required for the proposed end-use. Detailed scopes of work and associated costs will be provided separately.

In order to achieve the objectives of the assessment, the following works were undertaken at the site:

- * Detailed review of previous assessments undertaken at the site.
- * 1 No. visit to the site to complete groundwater monitoring on all accessible existing monitoring wells.
- * Sampling of groundwater from all accessible monitoring wells using low flow sampling techniques.
- * Submission of groundwater samples to an approved UKAS and MCERTS accredited laboratory for an appropriate suite of chemical analysis.

1.5 Guidance and Standards

In order to achieve the objectives set out in Section 1.2, OHES has designed and delivered a suitable level and method of investigation and assessment in accordance with industry best practice, the documents referenced in Section 1.0 and the following technical guidelines:

- * BS10175:2011 '*Investigation of Potentially Contaminated Sites Code of Practice*'.
- * BS 5930:2015, '*Code of practice for ground investigations*'.

✱ Technical Report P5-065/TR, 'Technical Aspects of Site Investigation'.

The scope and methodology completed as part of this assessment has been designed to meet the requirements of the above documents.

1.6 Project Information and Limitations

This report has been produced solely for Watson Fuels Ltd based upon the instruction received from Matthew Brown on 28th August 2018. This assessment has been completed in the context of the agreed scope of works as detailed in OHES proposal dated 21st August 2018.

This assessment has been completed in the context of the agreed scope of work and should not be used in a different context or for a different purpose. Furthermore, should any new information, changes in best practices and / or changes in legislation arise in the future then this may require re-assessment of the findings of the assessment.

The information and conclusions contained within the ESA have been made based upon information provided by Watson, Exova Jones Environmental (laboratory analysis results) and Landmark Envirocheck Ltd (Environmental Desk Study Information).

OHES cannot be held responsible for inaccuracies in the data supplied or published by any other party. In addition, no responsibility can be accepted by OHES for any variations in environmental liabilities which arise from information or reports not provided at the time of the assessment and where the presence of such information could not be foreseen.

The updated risk assessment, its conclusions and recommendations are based upon the proposed future residential end use of the site. In addition, the assessment has been based upon the nature of the surrounding area at the time of completing the assessment and with consideration of any reasonably foreseeable potential future changes. Should the site or surrounding area be redeveloped in the future then this may change environmental risks identified and require review of this assessment.

2.0 PREVIOUS CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

2.1 Summary of Contaminant Sources

A summary of the known contamination at the site is summarised in the following sections.

Gross Soil Contamination

Visual and olfactory evidence of hydrocarbon contamination was identified in all investigation locations (WS201 to WS210) during the previous OHES site investigations and as part of the additional site investigation (BH301 to BH310) most notably to the south of the bunded tank farm (inclusive of the area beneath the internal storage/former vehicle repair part of the site and in the area of the former loading gantry. Generally, the highest PID concentrations were identified at shallow depths (0.50 – 2.50m bgl) in the area of the former loading gantry, reducing with depth to the maximum depth of the investigation locations (4.00m bgl).

Analysis of representative soil samples identified no concentrations of Petroleum Hydrocarbons above the relevant published GACs for a commercial / industrial end use. However, the soil saturation limits were exceeded for certain hydrocarbons compounds in the Made Ground and shallow superficial deposits beneath the site indicating the potential presence of entrained NAPL within these materials. The presence of entrained NAPL within soils above the water table represents a potential on-going source for the impaction of groundwater within the underlying superficial deposits and a potential risk to the Moor Ditch.

The presence of high-level hydrocarbon contamination (including entrained NAPL) within the near surface soils could also pose a potential risk to future users via permeation into drinking water supply pipes and via subsequent ingestion of the potable water supply.

Groundwater

The main controlled waters receptor has previously been identified as shallow groundwater beneath the site, although groundwater in the area is not considered to be highly sensitive due to the following:

- * There are no known potable abstractions or abstractions for other purposes within the vicinity of the site.
- * There is minimal potential for future use for public or private abstractions given the use of the area (no individual residential properties with gardens, presence of a large sewage works, etc).
- * Groundwater in the surrounding area has been proven to be impacted by contamination from a wider variety of sources.
- * There are a number of other sources which are likely to have affected local groundwater quality including the sewage works to the south and landfill sites to the west and south-east.

Elevated concentrations of dissolved phase contamination were identified across the site (principally in the south-east) during previous groundwater monitoring events, however dissolved phase hydrocarbon concentrations were significantly reduced across the area of the treatment zone upon completion of the DPVE remediation.

Free Product

The main driver for remediation works (DPVE) at the site was the identification of a widespread LNAPL plume in south eastern areas of the site. Upon completion of the remediation works, a round of validation monitoring was completed and identified the following:

- * Residual LNAPL was present at thicknesses in excess of the remedial target of 5mm in WS201 (10mm), WS202 (94mm) and BH302 (29mm).
- * The exceedances identified in WS202 and BH302 were significantly elevated however it was noted that surrounding wells were absent of LNAPL and recharge testing highlighted a very slow recharge of LNAPL into these wells. On this basis residual LNAPL in WS202 and BH302 was considered to be of very low volume and very limited mobility.
- * The validation data was submitted to the regulator for review in September 2015 and subsequent to approval the DPVE system was decommissioned.

Based on post DPVE groundwater conditions the CSM was refined and risks to the underlying Secondary A Aquifer with respect to LNAPL were considered to be significantly reduced. Potential risks were considered to remain with respect to hydrocarbon contamination within soils and dissolved phase hydrocarbon contamination in groundwater. However, the remaining risks were considered to be acceptable in the context of ongoing use of the site as a fuel oil storage and distribution depot.

The table overleaf presents the updated conceptual site model following completion of the DPVE remediation. The table includes details of the potential pollutant linkages considered to be present at the site and an associated risk assessment completed in accordance with the methodology as detailed in Appendix 1.

IDENTIFIED POLLUTANT LINKAGES			PRELIMINARY RISK ASSESSMENT		
SOURCE	PATHWAY	RECEPTOR	PROBABILITY	SEVERITY	RISK ASSESSMENT AND JUSTIFICATION
1) Gross soil contamination present in soils. 2) Elevated concentrations of dissolved phase hydrocarbons in groundwater, principally in the south-east 3) Residual LNAPL remaining in WS202 and WS302.	Leaching of contaminants into shallow groundwater	Shallow groundwater in sand and gravel deposits beneath the site (designated as a Secondary A Aquifer)	<i>Likely</i>	<i>Medium</i>	Moderate / Low Risk -Based on significant reduction in LNAPL across south eastern areas of the site and the limited extent and mobility of residual LNAPL, the risk rating has been downgraded from High.
	Lateral migration through groundwater	Shallow groundwater in sand and gravel deposits beyond the site boundary (designated as a Secondary A Aquifer)	<i>Low Likelihood</i>	<i>Medium</i>	Moderate / Low Risk -Based on significant reduction in LNAPL across south eastern areas of the site and the limited extent and mobility of residual LNAPL, the risk rating has been downgraded from moderate.
	Lateral migration along sub-surface utilities		<i>Low Likelihood</i>	<i>Medium</i>	Low/moderate risk – Contamination is typically present at depths greater than 1.0 to 1.5 in the area where off-site trending services are present.
	Lateral migration through groundwater	Moor Ditch	<i>Unlikely</i>	<i>Medium</i>	Low Risk
	Lateral migration through groundwater	Thatcham Reed Bed SSSI	<i>Unlikely</i>	<i>Medium</i>	Low Risk
	Direct contact / soil ingestion	Site users	<i>Unlikely</i>	<i>Medium</i>	Low Risk
	Inhalation of volatile vapours / dust		<i>Unlikely</i>	<i>Medium</i>	Low Risk
	Direct contact / soil ingestion	Groundworkers / sub-surface maintenance workers	<i>Likely</i>	<i>Mild</i>	Moderate/Low Risk
	Inhalation of volatile vapours / dust		<i>Likely</i>	<i>Mild</i>	Moderate/Low Risk
	Direct contact / soil ingestion		<i>Unlikely</i>	<i>Medium</i>	Low Risk

	Inhalation of volatile vapours / dust	Occupiers of adjacent residential properties (3 storey flats)	<i>Unlikely</i>	<i>Medium</i>	Low Risk - Based on significant reduction in LNAPL across south eastern areas of the site and the limited extent and mobility of residual LNAPL, the risk rating has been downgraded from moderate / Low.
Contamination sourced from off-site sources	Migration through shallow soils and groundwater	Shallow Groundwater underlying the site	<i>Low Likelihood</i>	<i>Mild</i>	Low Risk

3.0 GROUNDWATER INFORMATION

3.1 Monitoring and Sampling Methodology

One round of groundwater monitoring and sampling was completed at the site on 5th September 2018 using an oil / water interface probe. The groundwater monitoring included the following:

- * Measurement of volatile vapour levels using a photo-ionisation detector (PID).
- * Measurement of depth and thickness of any Light Non-Aqueous Phase Liquids (LNAPL) and/or Dense Non-Aqueous Phase Liquids (DNAPL) as well as depths to groundwater and base of monitoring wells.

Groundwater monitoring was completed on all accessible wells (31 No. wells in total) and upon completion of monitoring, representative groundwater or product samples were collected from each well (where sufficient water / product was present). Prior to sampling of groundwater, each well was purged of three well volumes (where possible) using a peristaltic pump. Once three well volumes had been removed from the well a representative sample was collected and placed directly into appropriate glass bottles for the analysis required.

Additional bottles were also filled to allow headspace readings for volatile organic compounds (VOC) using a PID and assessment of visual or olfactory evidence of impact. Once collected, the samples from the site were transferred in chilled cool boxes to Exova Jones Environmental Laboratory Ltd with an appropriate chain of custody for analysis.

The water samples collected from the site were scheduled for chemical testing to allow an assessment of the severity and vertical/lateral extent of contamination present.

The scope of testing scheduled was based on the likely Contaminants of Concern (CoC) likely to be present as identified in the previous phases of investigation and remediation at the site. The extent of testing undertaken was as follows:

CONTAMINANTS	NUMBER OF SAMPLES ANALYSED
Speciated Petroleum Hydrocarbons (TPH-CWG)	13
Banded and Total Petroleum Hydrocarbons	8
Polycyclic Aromatic Hydrocarbons (PAH)	6
Volatile Organic Compounds (VOC)	10
Semi Volatile Organic Compounds (SVOC)	10
Whole Oil Analysis	6

3.2 Groundwater Monitoring Data

The results of groundwater monitoring are presented in Appendix 2. In summary, groundwater was encountered at depths ranging between 1.722m and 2.500m bgl which is broadly comparable with that identified previously.

The monitoring data from the groundwater monitoring / sampling completed on 5th September 2018 is summarised in the following table.

LOCATION	BOREHOLE LEVEL (M AOD)	DEPTH TO PRODUCT (M BGL)	DEPTH TO GROUNDWATER (M BGL)	REDUCED GROUNDWATER LEVEL (M AOD)
BH01	98.520	NP	2.202	96.318
BH02	98.420	NP	2.198	96.222
BH04	98.160	NP	2.265	95.895
BH05	97.980	NP	2.243	95.737
BH06	98.439	NP	2.333	96.106
BH07	98.551	NP	2.313	96.238
BH08	98.424	NP	2.320	96.104
BH09	98.446	NP	2.190	96.256
BH10	98.471	NP	2.222	96.249
BHA	NL	NP	2.255	N/A
BHB	NL	NP	2.367	N/A
BHC	NL	NP	2.310	N/A
WS01	98.474	2.260	2.500	95.974
WS02	98.469	NP	2.432	96.037
WS201	98.472	2.253	2.308	96.164
WS202	98.424	1.925	2.176	96.248
WS203	98.387	1.705	1.722	96.665
WS204	98.474	NP	2.270	96.204
WS205	98.469	NP	2.362	96.107
WS206	98.480	NP	2.295	96.185
WS207	98.506	NP	2.380	96.126
WS207A	NL	NP	2.375	N/A
WS208	98.393	NP	2.268	96.125
WS209	98.405	NP	2.208	96.197
WS211	NL	NP	2.220	N/A
WS212	NL	NP	2.312	N/A
WS301	NL	NP	2.413	N/A
WS302	NL	2.353	2.356	N/A

The observations from the monitoring suggest that the shallow groundwater body encountered in the monitoring wells at the site represents a single continuous body of water within the underlying superficial deposits.

Relative ground water resting levels were calculated based on the levelling undertaken of the monitoring wells and the groundwater level data recorded during monitoring. A groundwater flow direction towards the south could be inferred from the data.

4.0 CONTAMINATION ASSESSMENT

4.1 Evidence of Contamination Encountered

4.1.1 Soils

Visual and olfactory evidence of hydrocarbon contamination was identified in all investigation locations (WS201 to WS210 and BH301 to BH310) during the previous phases of OHES investigation. Generally, the highest PID concentrations were identified at shallow depths (0.50 – 2.50m bgl) in the area of the former loading gantry, reducing with depth to the maximum depth of the investigation locations (4.00m bgl).

4.1.2 Groundwater

Details of contamination observations and volatile vapour readings are presented in the groundwater monitoring sheets presented in Appendix 2.

During the groundwater monitoring visit, Light Non-Aqueous Phase Liquid (LNAPL) was identified within 5No. monitoring wells (WS01, WS201, WS202, WS203 and WS302), all located to the south of the tank farm towards the south-east of the site, with a maximum thickness of 251mm identified within WS202. Product was also identified within BH08 after approximately 4 litres of groundwater had been purged from the monitoring well. Samples of LNAPL were obtained from all monitoring wells containing product and were submitted for Whole Oil identification.

Visual evidence of hydrocarbon impact was identified in the form of a sheen on purged groundwater within BH06, BH10 and WS212. Olfactory evidence of hydrocarbon impact was identified in the form of elevated PID readings and odours in all monitoring well locations.

4.2 Chemical Analysis – Soils

As part of this assessment, the laboratory results from the previous phases of OHES investigation at the site are presented in the laboratory analysis certificates in Appendix 3 and are summarised on the Tier 1 screening sheets in Appendix 4 (determinants recording concentrations above LLD) where they are compared against relevant Tier 1 screening criteria.

Where possible the soil results have been compared to the respective Human Health guidance criteria for residential end use including LQM/CIEH S4ULs, Tier 1 Generic Assessment Criteria (VOC/SVOC) produced by CL:AIRE/AGS and Soil Guideline Values (SGV). These are considered the most suitable given the proposed future residential use of the site.

Guideline values for 1% SOM, where available, have been used in this assessment to assess risks to Human Health as they are considered the most suitably conservative based upon the range of SOM values between 0.3 and 0.6% obtained from representative soil samples collected from the site.

4.2.1 Hydrocarbon Contamination

Based on field screening results and to provide an indication of lateral and vertical assessment of soils at the site, a total of 68 no. soil samples were submitted for either banded TPH or speciated TPH analysis depending on the PID readings recorded.

28 no. samples recorded concentrations of total, banded or speciated hydrocarbons above the Tier 1 screening levels for human health receptors associated with residential end use. Tier 1 screening sheets are presented in Appendix 4 and are summarised in the table below:

DETERMINANT	TIER 1 RESIDENTIAL VALUE (MG/KG)	NUMBER OF EXCEEDANCES	RANGE OF RECORDED EXCEEDANCES (MG/KG)	LOCATION OF HIGHEST CONCENTRATION
TPH Aliphatic C8-C10	27	14	36.2 – 107.8	WS203 at 1.40 – 1.50m
TPH Aliphatic C10-C12	130	19	142.7 – 1,054.7	WS203 at 3.70 – 3.80m
TPH Aliphatic C12-C16	1,100	10	1,171 – 2,589	WS208 at 1.90 – 2.00m
TPH Aromatic C10-C12	74	14	81.5 – 346.3	WS203 at 3.70 – 3.80m
TPH Aromatic C12-C16	140	17	147 – 1,225	WS203 at 3.70 – 3.80m
TPH Aromatic C16-C21	260	16	295 – 1,616	WS308 at 0.50m
EPH C8-C10	27	8	101 – 2,095	WS210 at 1.20 – 1.30m
EPH C10-C12	74	8	174 – 2,616	WS210 at 1.20 – 1.30m
EPH C12-C16	140	8	431 – 6,500	WS210 at 1.20 – 1.30m
EPH C16-C21	260	8	384 – 5,775	WS210 at 1.20 – 1.30m
EPH C21-C35	1,100	2	3762 – 4,045	WS204 at 2.70 – 2.80m

Exceedances of soil saturation levels for certain TPH fractions were present in the following samples:

- ✱ WS201 at 1.50 to 1.60m – located within the garage building in the south-east of the site.
- ✱ WS204 at 1.90 to 2.00m – located within the garage building in the south-east of the site.
- ✱ WS206 at 2.40 to 2.50m – located within the garage building in the south-east of the site.
- ✱ WS207 at 2.40 to 2.50m - located within the garage building in the south of the site.
- ✱ WS302 at 2.50m - located within the garage building in the south of the site.
- ✱ WS303 at 2.00m - located within the garage building in the south of the site.
- ✱ WS304 at 0.50m – located to the west of the tank farm in the vicinity of the former loading gantry.
- ✱ WS306 at 1.90m – located to the west of the tank farm in the vicinity of the former loading gantry.
- ✱ WS309 at 1.00m – located to the west of the tank farm in the vicinity of the former loading gantry.
- ✱ WS310 at 2.50m – located to the west of the tank farm in the vicinity of the former loading gantry.

The presence of TPH concentrations that exceed soil saturation levels indicates that free product is likely to be present within the soils beneath the site in the vicinity of these locations. Soils saturated with hydrocarbons are also likely to represent a source for the impaction of underlying groundwater and a risk to controlled water receptors. This is discussed further in Sections 5.0 and 6.0.

Laboratory interpretation of the identified hydrocarbons suggests that they are likely to be of degraded diesel, degraded kerosene and possible lubricating oil which is consistent with the known current and historical use of the site.

4.2.2 Volatile and Semi-Volatile Organic Compounds

BTEX and MTBE Analysis

20 No. samples were analysed for BTEX compounds and MTBE. Concentrations of Ethylbenzene and m/p-Xylene were elevated above the LLD however all concentrations are below residential Tier 1 screening levels for human health.

SVOC/VOC Analysis

7 No. samples were scheduled for SVOC and 10 No. samples were scheduled for VOC analysis. Concentrations of multiple SVOCs and VOCs were elevated above the LLD however all concentrations are below Tier 1 screening levels for human health receptors associated with residential end use with the exception of 2 No. exceedances of Naphthalene in samples obtained from WS202 at 1.30m and WS203 between 0.50 and 0.60m (both located to the south of the tank farm) as summarised in the table below:

DETERMINANT	TIER 1 RESIDENTIAL VALUE (MG/KG)	NUMBER OF EXCEEDANCES	RANGE OF RECORDED EXCEEDANCES (MG/KG)	LOCATION OF HIGHEST CONCENTRATION
Naphthalene	2.3	2	10.373 – 17.967	WS203 at 0.50 – 0.60m

4.3 Chemical Analysis – Groundwater

The laboratory results for the monitoring event completed on 5th September 2018 are presented in the laboratory analysis certificates in Appendix 3 and are summarised on the Tier 1 screening sheets in Appendix 4 (determinants recording concentrations above LLD) where they are compared against relevant Tier 1 screening criteria.

For the purpose of assessing risks to controlled waters, consideration needs to be given to the risks to shallow groundwater within the Secondary A Aquifer (Superficial Deposits) beneath the site. Risks to the nearest offsite receptor (Moor Ditch approximately 310m south) have previously been identified as low given the distance to the Moor Ditch, the intervening land uses (including sewage works) and the identified reduction in contamination with distance from the site boundary from assessments on the property to the south. Consequently, the lab results have been compared against the following Tier 1 Criteria:

- ✱ UK Drinking Water Standards (DWS) for the protection of groundwater or the Water Supply Regulations (1989).
- ✱ WHO Drinking Water Standards
- ✱ EPA Towards Setting Groundwater Guideline Values for Ireland.

In addition to the above, the results have been assessed against SoBRA screening values for residential end use (taken from SoBRA Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater, Version 1.0, dated February 2017) to determine potential human health risks from dissolved phase impact.

21 No. representative samples of groundwater were obtained during monitoring and submitted for a suite of analyses comprising banded EPH, TPH CWG, SVOC/VOC, PAH and BTEX and MTBE.

Risks to Groundwater within the Secondary A Aquifer (Drift Deposits)

The concentrations exceeding Tier 1 levels protective of groundwater receptors are summarised in the following table:

DETERMINANT	TIER 1 SCREENING VALUE (µG/L)	NUMBER OF EXCEEDANCES	RANGE OF RECORDED EXCEEDANCES (µG/L)	LOCATION OF HIGHEST CONCENTRATION
TPH Aliphatic C8-C10	10	5	21 – 246	WS207
TPH Aliphatic C10-C12	10	6	130 – 3,412	WS205
TPH Aliphatic C12-C16	10	7	70 – 9,850	WS207A
TPH Aliphatic C16-C21	10	6	180 – 10,810	WS207A
TPH Aliphatic C21-C35	10	7	30 – 5,700	WS207A
TPH Aromatic C10-C12	10	9	80 – 487	WS207A
TPH Aromatic C12-C16	10	10	60 – 3,790	WS207A
TPH Aromatic C16-C21	10	5	800 – 8,090	WS207A
TPH Aromatic C21-C35	10	5	240 – 4,180	WS207A
EPH C8-C10	10	6	20 – 140	BHA
EPH C10-C12	10	7	70 – 630	WS211
EPH C12-C16	10	7	230 – 1,850	WS211
EPH C16-C21	10	7	150 – 2,090	WS211
EPH C21-C35	10	5	110 – 1,610	WS211
Acenaphthylene	0.2	1	0.303	BH10
Acenaphthene	0.2	5	0.459 – 2	BH02
Fluorene	0.2	10	0.327 - 5	BH02
Phenanthrene	0.2	5	0.554 – 4.2	BH02
Fluoranthene	0.1	1	0.243	WS207A
Pyrene	0.2	1	1.666	WS207A
Chrysene	0.2	1	0.382	WS207A

Elevated concentrations of EPH bands, TPH (listed Aliphatic and Aromatic splits) and listed PAHs have been identified across the site in excess of the Tier 1 Screening values for groundwater receptors (Secondary A Aquifer).

The values detected in groundwater have been assessed against SoBRA screening values to determine potential risks to the proposed future residential development on site (considered to be the receptor most at risk given the proximity of identified contamination). Concentrations of Aliphatic C8 to C10 and Aliphatic C10-C12 have been found to exceed these screening values within WS212 (located at the northwest corner of the office building in the south), WS207, WS207A (located in the garage building in the south of the site), WS205, WS02 and WS208 (all located in the south-east of the site). These exceedances are summarised in the table below.

DETERMINANT	SOBRA RESIDENTIAL VALUE (µG/L)	NUMBER OF EXCEEDANCES	RANGE OF RECORDED EXCEEDANCES (µG/L)	LOCATION OF HIGHEST CONCENTRATION
TPH Aliphatic C8-C10	57	1	246	WS207
TPH Aliphatic C10-C12	37	6	130 – 3,412	WS205

The potential risks to groundwater receptors are discussed further in sections 5.0 and 6.0.

LNAPL Analysis

Whole oil analysis was undertaken on samples of LNAPL collected during the first monitoring visit.

The results of this analysis are summarised in the following table:

LOCATION	DESCRIPTION	IDENTIFICATION	APPROXIMATE AGE
BH08	Brown Oil	Degraded Diesel	20 years
WS201	Dark Brown Oil	Degraded Diesel	20 years
WS202	Brown Oil	Degraded Diesel	20 years
WS203	Brown Oil	Degraded Diesel	20 years
WS302	Dark Brown Oil	Degraded Diesel	20 years
WS01	Brown Oil	Degraded Diesel	20 years

The results of the testing are consistent with that identified during previous assessments and remediation works.

5.0 ENVIRONMENTAL RISK ASSESSMENT

5.1 Identified Contamination

Soils

Extensive evidence (visual and olfactory) of hydrocarbon contamination was identified in soil during both previous phases of site investigation completed by OHES. Strong odours and staining were noted to persist down to the head of the shallow groundwater with the heaviest contamination (based on observation and PID results) generally present within the capillary fringe immediately above groundwater. Elevated PID concentrations generally reduce with depth to the maximum depth of the investigation locations (4.00m bgl).

Analysis of representative soil samples identified concentrations of petroleum hydrocarbons and Naphthalene, to the south of the tank farm and to the west of the tank farm in the vicinity of the former loading gantry, above the relevant published GACs for a residential end use. Soil saturation limits have also been exceeded for several hydrocarbon compounds in the same areas of the site, indicating the potential presence of entrained NAPL within these materials. The presence of entrained NAPL within soils above the water table represents a potential on-going source for the impactation of groundwater within the underlying superficial deposits. This is assessed / discussed further in the following sections.

The presence of high-level hydrocarbon contamination (including entrained NAPL) within the near surface soils could also pose a potential risk to future site occupiers via permeation into drinking water supply pipes and via subsequent ingestion of the potable water supply. This is also discussed further in the following sections of this report.

Groundwater

Secondary A Aquifer

Elevated concentrations of TPH (listed Aliphatic and Aromatic splits), EPH splits and PAHs have been identified across the site at concentrations in excess of Tier 1 screening levels protective of groundwater receptors (Secondary A Aquifer). A comparison of the levels of dissolved phase contamination from the post remediation monitoring event carried out in 2015 and the groundwater monitoring event completed in 2018 shows that the levels of dissolved contamination have slightly reduced over time. However, as the concentrations recorded remain in excess of Tier 1 screening values protective of groundwater receptors, there is an identified risk to the shallow groundwater (Secondary A Aquifer) beneath the site.

Exceedances of residential SoBRA screening values have been identified in the south, south-west and south-east of the site and consequently there are potential risks to the proposed future residential development on site from volatilization to indoor air.

The associated risks are discussed further in Section 6.0.

LNAPL

During the groundwater monitoring visit, LNAPL (free product) was recorded in WS01, WS201, WS202, WS203 and WS302 (all located in the south and south-east of the site, to the south of the tank farm) with a maximum thickness of 251mm identified within WS202. Product was also identified within BH08 after approximately 4litres of groundwater had been purged from the monitoring well. Samples of LNAPL were obtained from all monitoring wells containing product and were submitted for Whole

Oil identification. Interpretation of the 6No. LNAPL samples obtained from the site returned interpretations of degraded diesel.

A comparison of the thicknesses of LNAPL from 2015 and 2018 was also completed and is summarised in the table below.

MONITORING WELL	LNAPL THICKNESS (M)				
	4 TH SEPTEMBER 2015	19 TH JANUARY 2016	15 TH MARCH 2017	31 ST JANUARY 2018	5 TH SEPTEMBER 2018
WS01	0.004	0.442	Not Located	ND	0.240
WS201	0.010	0.189	0.016	0.021	0.055
WS202	0.094	0.410	ND	ND	0.251
WS203	ND	Not Located	ND	0.011	0.017
WS205	ND	0.015	ND	0.009	ND
WS207	ND	ND	0.002	Not Located	ND
WS301	ND	ND	ND	0.001	ND
WS302	0.175	0.265	Not Located	Not Located	0.003

Note: All thicknesses in metres. ND – None Detected

The data appears to show that the presence of product within the monitoring wells is variable between monitoring visits (with the exception of WS201), although the maximum thickness of product has not varied significantly since remediation took place at site.

The presence of LNAPL (as an immiscible layer on groundwater) is likely to represent an ongoing source and risk to groundwater receptors. Entrained free product in soil will continue to act as a source for the dissolved phase impaction (constituent compounds) of shallow groundwater. Groundwater receptors are at risk from resulting dissolved phase contamination via lateral migration of groundwater through the near surface soils.

5.2 Identified Receptors

Potential receptors likely to be at risk from site sourced contamination are as follows:

- ✱ Groundwater in the underlying Secondary A Aquifer.
- ✱ Future occupiers of residential properties.
- ✱ Potable water supply pipes.
- ✱ Groundworkers / sub-surface maintenance works.
- ✱ Off-site residential premises (with associated human health receptors).
- ✱ The Moor Ditch 310m south of the site.

5.3 Identified Pathways

Potential pathways along which contamination may impact the identified receptors are as follows:

- ✱ Leaching of contaminants from soil.
- ✱ Lateral migration along sub-surface utilities.

- ✱ Breakdown of plastic pipework and ingestion of contaminated water supply (future site occupiers).
- ✱ Vertical migration and lateral migration via shallow groundwater within the Superficial Deposits.
- ✱ Inhalation, ingestion and direct contact by humans (future on-site and current off-site receptors).

5.4 Updated Conceptual Site Model

The table overleaf presents an updated conceptual site model following completion of the additional groundwater monitoring event. The table includes details of the potential pollutant linkages considered to present and an associated risk assessment completed in accordance with the same methodology as the preliminary risk assessment as detailed in Section 2.0 and as detailed in Appendix 1.

IDENTIFIED POLLUTANT LINKAGES			UPDATED RISK ASSESSMENT		
SOURCE	PATHWAY	RECEPTOR	PROBABILITY	SEVERITY	RISK ASSESSMENT AND JUSTIFICATION
Contaminated soils beneath the site	Volatilisation to indoor air	Human Health – Residential end use	Likely	Severe	High risk –In-situ PID screening identified elevated VOC levels within shallow soils indicating that strong hydrocarbon vapours are present in the near surface soils. Exceedances of residential screening values also represent potential risks to the proposed future residential development on site from volatilisation to indoor air.
	Soil Ingestion		Likely	Medium	Moderate risk – Exposure through direct contact is likely in a residential scenario as it is likely that there will be some areas of soft landscaped areas. However, based on the assumption that the proposed development will match the surrounding area, garden areas are unlikely and the extent of landscaping is limited.
	Dermal Contact / Dust				
	Potable Water Supply		Likely	Severe	High risk – At this stage the routes of future water supply pipes are unknown, however, it is likely that there will be a high risk unless upgraded water supply pipes be installed at the site.
	Migration along service routes	Shallow Groundwater (Secondary Aquifer) A	Low Likelihood	Medium	Low to Moderate Risk – The proposed development is likely to include new and revised routes for services with older routes capped or removed. The design of service should be done in such a way as to limit the potential for creation of preferential migration routes.
	Leaching of contaminants from soil and migration into groundwater		Likely	Medium	Moderate Risk – Previous remediation works was aimed at removing LNAPL from groundwater. The DPVE system is likely to have achieved some betterment in soil conditions but it has to be assumed that high contamination levels remain on site and also within previously inaccessible areas. Impact over the long term cannot be ruled out, especially if conditions change post development (ie increased infiltration).
	Leaching of contaminants from soil and lateral migration through groundwater	Moor Ditch Surface Water Receptor	Unlikely	Medium	Low Risk - Given the distance to the Moor Ditch, the intervening land uses (including sewage works) and the identified reduction in contamination with distance from the site boundary from assessments on the property to the south.

	Volatilisation, ingestion, dermal contact and dust inhalation	Construction Workers	Likely	Medium	Low to Moderate risk – appropriate RAMS in accordance with CDM regulations and correct PPE should mitigate any risk to construction workers at the site.
Dissolved phase in groundwater contamination	Volatilisation to indoor air	Human Health – Residential end use	Likely	Severe	High risk –PID screening of monitoring wells identified elevated VOC levels indicating that strong hydrocarbon vapours are present. Exceedances of SoBRA residential screening values also represent potential risks to the proposed future residential development on site from volatilisation to indoor air.
	Migration via drainage routes	Shallow Groundwater (Secondary Aquifer) A	Unlikely	Medium	Low Risk – The proposed development is likely to include new and revised routes for services with older routes capped or removed. The design of service should be done in such a way as to limit the potential for creation of preferential migration routes
	Lateral migration in shallow groundwater		Likely	Medium	Moderate Risk – After the completion of remediation in 2015, there was a significant reduction in dissolved phase contamination across the site. Investigations on the site to the south identified that the extent and mobility of dissolved phase contamination was limited. However, impact over the long term cannot be ruled out, especially if conditions change post development (i.e. increased infiltration).
	Lateral migration through groundwater	Moor Ditch Surface Water Receptor	Unlikely	Medium	Low Risk - Given the distance to the Moor Ditch, the intervening land uses (including sewage works) and the identified reduction in contamination with distance from the site boundary from assessments on the property to the south.
	Lateral migration in groundwater followed by volatilization to indoor air	Human Health – Off-site receptors	Unlikely	Medium	Low Risk – Significant reductions in LNAPL across south eastern areas of the site has occurred following previous remediation works. Investigations on the site to the south identified that the extent and mobility of LNAPL and dissolved phase contamination was limited. On this basis no further assessment of this pollutant linkage is required.
LNAPL and saturated soils	Volatilisation to indoor air	Human Health – Residential end use	Likely	Severe	High risk –The presence of LNAPL is likely to continue to contribute to elevated levels of dissolved phase contamination that may contribute to exceedances of SoBRA residential screening values.
	Migration via drainage routes	Shallow Groundwater (Secondary Aquifer) A	Low Likelihood	Medium	Low to Moderate Risk – The proposed development is likely to include new and revised routes for services with older routes capped or removed. The design of service should be done in such a way as to limit the potential for creation of preferential migration routes.

	Lateral migration in shallow groundwater		Likely	Medium	Moderate Risk – After the completion of remediation in 2015, there was a significant reduction in LNAPL across south eastern areas of the site. Investigations on the site to the south identified that the extent and mobility of LNAPL and dissolved phase contamination was limited. Given that levels of contamination in groundwater have not changed significantly, risk is considered to be moderate.
	Lateral migration through groundwater	Moor Ditch Surface Water Receptor	Unlikely	Medium	Low Risk - Given the distance to the Moor Ditch, the intervening land uses (including sewage works) and the identified reduction in contamination with distance from the site boundary from assessments on the property to the south.
	Lateral migration in groundwater followed by volatilization to indoor air	Human Health – Off-site receptors	Unlikely	Medium	Low Risk – Given the significant reduction in LNAPL across south eastern areas of the site. Investigations on the site to the south identified that the extent and mobility of LNAPL and dissolved phase contamination was limited. On this basis no further assessment of this pollutant linkage is required.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

Contamination Summary

An assessment of the findings of this investigation has confirmed the presence of the following:

- ✱ Hydrocarbon saturated soils beneath the site with levels indicative of the presence of free product entrained within the soil matrix.
- ✱ Extensive dissolved phase contamination within shallow groundwater across the site.
- ✱ LNAPL within WS01, WS201, WS202, WS203 and WS302 (located in the southeast of the site and south of the tank farm).
- ✱ Elevated hydrocarbon vapours (as per the PID results) are present in soils across the site.

The previous phases of OHES site investigation identified hydrocarbon contamination within the shallow soils above the water table with the most significant contamination generally located across the capillary fringe. Contamination levels generally reduce with depth towards the base of the exploratory boreholes (as shown by the in-situ PID results). The saturated soils / capillary fringe is likely to represent an on-going source of groundwater contamination that is likely to result in dissolved phase impact to groundwater and product layers (where present).

Analysis of representative soil samples identified concentrations of petroleum hydrocarbons and Naphthalene above the relevant published GACs for a residential end use. Soil saturation limits have also been exceeded for several hydrocarbon compounds indicating the potential presence of entrained NAPL within these materials. The presence of entrained NAPL within soils above the water table represents a potential on-going source for the impaction of groundwater within the underlying superficial deposits.

In-situ PID screening identified elevated VOC levels within shallow soils indicating that strong hydrocarbon vapours are present. Exceedances of SoBRA residential screening values within groundwater samples obtained at the site also represent potential risks to the proposed future residential development on site from volatilisation to indoor air. Further assessment of potential vapour inhalation risks will be required. However, risks associated with vapour ingress should be mitigated by the inclusion of suitable protection measures such as hydrocarbon resistant membranes and sub-floor venting etc within any buildings constructed on site.

During the groundwater monitoring visit, LNAPL was recorded in WS01, WS201, WS202, WS203 and WS302 (all located in the south and south-east of the site, to the south of the tank farm) with a maximum thickness of 251mm identified within WS202. LNAPL was also identified within BH08 after approximately 4litres of groundwater had been purged from the monitoring well. Samples of LNAPL were obtained from all monitoring wells containing product and were submitted for Whole Oil identification. Interpretation of the 6No. LNAPL samples obtained from the site returned interpretations of degraded diesel. The presence of free product (as an immiscible layer on groundwater) is likely to represent an ongoing source and risk to groundwater receptors. Entrained free product in soil will continue to act as a source for the dissolved phase impaction (constituent compounds) of shallow groundwater.

Following completion of the CSM, an assessment of risk has been undertaken based on the likelihood of impact and the severity should impact occur. The results of this assessment are also included in the CSM for reference. Justification for the assessment of risk is presented below.

Human Health Risks – Residential End-Use

With respect to a residential end use, analysis of representative soil samples has identified concentrations of petroleum hydrocarbons and Naphthalene above the relevant published Tier 1 Screening Values protective of human health receptors associated with a potential residential end use. Therefore, future residential occupiers may be at risk from the identified contamination via the following pathways:

- * Volatilisation to indoor air.
- * Soil ingestion, dermal contact and dust inhalation
- * Impaction of water supply pipes and ingestion of contaminated water

The assessment of risks associated with the above pollutant linkages has determined that the potential risk to future residential occupiers of the site via volatilisation to indoor air and impaction to water supply pipes is high and direct contact (soil ingestion etc.) is moderate.

It is anticipated that in the event of future residential development that risks via the direct contact pathways (soil ingestion etc.) can be mitigated via the inclusion of hard landscaping (roads, parking areas and the buildings themselves etc.) and capping layers to soft landscaped/garden areas within the development plan. The inclusion of these will effectively break the identified pollutant linkages for direct contact pathways and are likely to reduce associated risks to acceptable levels. These measures will need to be included within a remediation strategy document with suitable validation provided upon completion.

Hydrocarbon contamination has the potential to breakdown standard plastic water supply pipes causing contamination of potable supplies and subsequent impact via ingestion. It is anticipated that high risks to future residential occupiers of the site would be mitigated by the installation of hydrocarbon resistant “Protectaline” water supply pipework laid in clean lined trenches. These measures will need to be included within a remediation strategy document with suitable validation provided upon completion.

The volatilisation to indoor air pathway is considered to be the primary risk pathway for the impaction of human health receptors associated with a future residential development of the site. Risks to human health receptors from soil sourced, volatile hydrocarbon contamination can be mitigated by remedial action aimed at source removal and/or the installation of appropriate soil vapour barriers (hydrocarbon resistant membranes and suitable sub-floor venting etc.). However, in the absence of a firm development proposal this cannot be considered and assessed further at this stage.

Prior to confirming what mitigation measures are required, it is recommended that a site investigation be completed post demolition so full access to the bunded area and office is provided and to obtain up to date information on contaminant levels across other parts of the site. The results of this investigation would then be used to inform a human health detailed quantitative risk assessment (DQRA) with the aim of producing site specific remedial targets which can then inform future remediation design.

Human Health Risks – Groundworkers

It is likely that future groundworks or sub-surface maintenance works will be undertaken during future redevelopment works, during which the groundworkers may encounter contamination via direct contact and vapour / dust inhalation pathways. However, it is considered that the risk can be sufficiently mitigated by good working practices including the provision of appropriate PPE and good hygiene practise.

Human Health Risks – Offsite Residential Properties

The site investigation and subsequent results assessment has identified shallow groundwater impact across most of the site extending up to the boundaries with adjacent third-party properties. However, investigations on the site to the south and south-east of the site identified that the extent and mobility of LNAPL and dissolved phase contamination was limited and consequently risks to off-site human health are considered to be low.

It is anticipated that in the event of future residential development, increased infiltration rates, particularly after the removal of the hardstanding currently present across the entire footprint of the site, may lead to the mobilisation of free product and dissolved phase contamination. The risk of this will need to be assessed further as part of future risk assessment and could potential require remedial action to address this.

Controlled Waters Risks - Groundwater

The main controlled waters receptor has previously been identified as shallow groundwater beneath the site, although groundwater in the area is not considered to be highly sensitive due to the following:

- ✱ There are no known potable abstractions or abstractions for other purposes within the vicinity of the site.
- ✱ There is minimal potential for future use for public or private abstractions given the use of the area (no individual residential properties with gardens, presence of a large sewage works, etc).
- ✱ Groundwater in the surrounding area has been proven to be impacted by contamination from a wider variety of sources.
- ✱ There are a number of other sources which are likely to have affected local groundwater quality including the sewage works to the south and landfill sites to the west and south-east.

Elevated concentrations of dissolved phase contamination were identified across the site (principally in the south-east) during previous groundwater monitoring events, however dissolved phase hydrocarbon concentrations were significantly reduced across the area of the treatment zone upon completion of the DPVE remediation. On this basis, risks to the underlying Secondary A Aquifer with respect to LNAPL and dissolved phase contamination were considered to be significantly reduced.

A comparison of the levels of dissolved phase contamination from the post remediation monitoring event carried out in 2015 and the groundwater monitoring event completed in 2018 shows that the levels of dissolved contamination have slightly reduced.

A similar comparison of the thicknesses of LNAPL from 2015 and 2018 was also completed and the data appears to show that the presence of product within the monitoring wells is variable between monitoring visits (with the exception of WS201), although the maximum thickness of product has not varied significantly since remediation took place at site.

The proposed development is likely to include new and revised routes for services with older routes capped or removed. Given that the design of service routes should be done in such a way as to limit the potential for creation of preferential migration routes, impacts to controlled waters should be limited via this pathway.

On this basis, risks to controlled waters are not considered to have significantly changed since remediation took place at the site and consequently are considered to be moderate. However, the future development will change site conditions, specifically around infiltration rates and, therefore, further assessment of this risk, including potential controlled waters DQRA will be required.

Controlled Waters Risks – Surface water – Moor Ditch 310m south

Risks to the nearest offsite receptor (Moor Ditch approximately 310m south) have been identified as low given the distance to the Moor Ditch, the intervening land uses (including sewage works) and the identified reduction in contamination with distance from the site boundary from assessments on the property to the south.

6.2 Recommendations

Based upon the results of this assessment, the site poses a potential unacceptable risk to human health receptors in the context of the proposed future residential development and further investigation (including beneath currently inaccessible areas and risk assessment (including a human health DQRA) is considered necessary to assess the extent of remedial action required to mitigate associated risks to acceptable levels.

Once the additional risk assessments are complete and the extent of remediation is defined, a Remediation Options Appraisal (ROA) should be completed with the aim of producing a suitable remediation strategy to mitigate identified risks to acceptable levels (Remedial Target Values and / or Soil Saturation Limits). The remediation strategy should also include other mitigation proposed to render the site suitable for use including capping of landscaped areas, installation of upgraded water supply pipes and potential vapour membrane installation.

At present, OHES considers that the minimum remedial requirement for the site would be the removal / treatment of LNAPL and hydrocarbon saturated soils from beneath the site areas with the additional soil / groundwater remediation likely to be required to meet any remedial targets set by the DQRA. At this stage, it is anticipated that remediation would comprise a mixture of in-situ chemical oxidation and ex-situ treatment of groundwater, however this would be confirmed as part of the ROA. Based upon OHES' current understanding of the site, it is estimated that the area of hydrocarbon saturated soils that require treatment would cover an area of 1,200m² and extend up to 3.0m bgl (based upon existing soil saturation data). Depending on findings during the works this may be extended or reduced as areas of gross contamination will need to be 'chased out' during the works.

The success of any remediation works will be needed to be verified through a programme of validation testing (soils and water) and post remedial monitoring. The timeframe of any post remedial monitoring will be dependent upon the nature of remedial action undertaken.

FIGURES



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LEGEND



End Of Trace

Do Not Drill / Banded Pipes

T TANK* - W=Water F=Foam U=Unknown
P=Product C=Concrete

Borehole

Trial Pit Location

Excavated Area

Window Sample

Sump

ABBREVIATIONS

AR	Assured Route	MP	Monitoring Well
BO	Bollard	NV	No Pipes Visible
BOILL	Illuminated Bollard	OH	Overhead Service
BH	Borehole	OSA	Off Survey Area
BTB	British Telecom Box	OSM	Ordnance Survey Benchmark
BTIC	British Telecom Cover	PR	Pipe Riser
CBOX	Control Box	P	Post
CB	Cable	PAR	Fence Post & Rail Fence
CBENCE	Cableobed Fence	RET	Water Retaining Wall
CR	Cable Riser	RWP	Rain Water Pipe
CATV	Cable TV	RS	Road Sign
CP	Catch Pit	RE	Rodding Eye
Co	Concrete	S	Sinkaway
CON	Conduit	S/BURCH	Silver Birch
CL	Cover Level	SAP	Sapling
d	Depth (in metres)	SEC	Security Fence
DCHAN	Drainage Channel	SL	Spot Light
DP	Down Pipe	SP	Spot Pipe
ER	Earth Road	ST	Stop Tap
EIC	Electricity IC	SV	Service Valve
EP	Electricity Pole	SVS	Spot Vent Pipe
ECC	Edge of Canopy	SVP	Soil Vapour Sample
EOT	End of Trac	STM	Temporary Barrier Mark
F.BED	Flower Bed	TFR	Taken From Records
FI	Fire Hydrant	TL	Traffic Light
FS	Fire Switch	TP	Telephone Pole
GS	Gas Valve	TS	Traffic Sensor
G	Gully	UTL	Unable to Locate
GPR	Ground Probing Radar	UTR	Unable to Raise
GRUN	Gully Run	UTS	Unable to Survey
HT	Height	UTR	Unable to Trace
HCHESHTNUT	Horse Chestnut	VP	Vapour Recovery
HTHORN	Hawthorn	VP	Vent Pipe
IC	Inspection Cover	WM	Water Meter
I	Invert Level	WFC	Water Filled Chamber
INT	Interceptor	WS	Waste Pipe
KO	Kerb Outlet	WR	Water Riser
LP	Lamp Post	WS	Window Mark
LC	Lighting Column	US	Understore
LH	Lamp Hole	Ø	Pipe Diameter
MH	Manhole Cover		

NOTE

1. Site drawing and data supplied by Avoiv Maa Surveys Ltd.



Site name:
Thatcham

Job no.:
6977.06

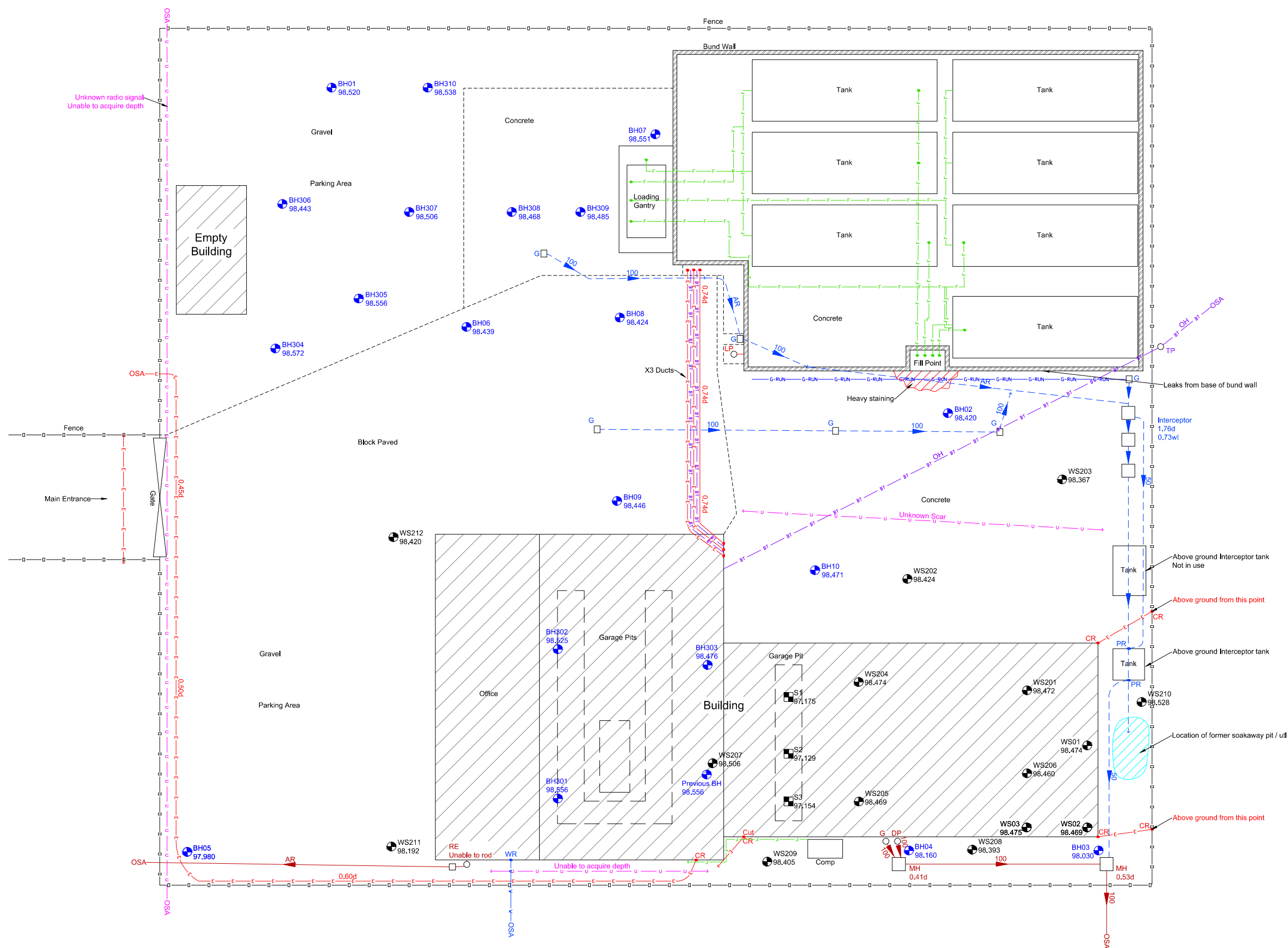
Figure:
Figure 2: Site Layout & Intrusive Location
Plan

Scale:
1:200 @ A3

Date:
01/10/2014

Drawing Reference:	6977.06_THA_2.1
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Drawn:	Checked:
IG	CM



APPENDIX 1

RISK ASSESSMENT METHODOLOGY
AND CLASSIFICATIONS

BASIS FOR QUALITATIVE RISK ASSESSMENT

The criteria used for risk assessment are broadly based on those presented in Section 6.3 of the CIRIA Report 'Contaminated Land Risk Assessment: A Guide to Good Practice' (CIRIA Report C552). The Severity of the risk is classified according to the criteria provided in the table below:

SEVERE	Acute risks to human health. Catastrophic damage to buildings/property (e.g. by explosion). Major pollution of controlled waters (watercourses or groundwater).
MEDIUM	Chronic (long-term) risk to human health. Pollution of sensitive controlled waters (surface waters or aquifers). Significant effects on sensitive ecosystems or species.
MILD	Pollution of non-sensitive waters. Significant damage to buildings or structures. Requirement for protective equipment during site works to mitigate health effects.
MINOR	Damage to non-sensitive ecosystems or species. Minor damage to buildings or structures.

The probability of the risk occurring is classified according to criteria given in the table below:

HIGH LIKELIHOOD	Pollutant linkage may be present, and risk is almost certain to occur in the long term, or there is evidence of harm to the receptor.
LIKELY	Pollutant linkage may be present, and it is probable that the risk will occur over the long term.
LOW LIKELIHOOD	Pollutant linkage may be present and there is a possibility of the risk occurring, although there is no certainty that it will do so.
UNLIKELY	Pollutant linkage may be present but the circumstances under which harm would occur are improbable.

An overall evaluation of level of risk is gained from a comparison of the severity and probability, as shown below:

		SEVERITY			
		SEVERE	MEDIUM	MILD	MINOR
PROBABILITY	HIGH LIKELIHOOD	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	LIKELY	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	LOW LIKELIHOOD	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	UNLIKELY	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

The various risk rankings provide guidance for recommended actions, whether this is:

AR - Action Required. Remediation, mitigation or site investigation works required

SIR - Site Investigation / Further Assessment Required.

NAR - No Action Required.

A description of the evaluated risk is as follows:

EVALUATED RISK	RECOMMENDED ACTIONS
Very High Risk	AR: There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High Risk	AR: Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the long term.
Moderate Risk	SIR: It is possible that harm could arise to a designated receptor from an identified hazard. However, it is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low Risk	NAR: It is possible that harm could arise to a designated receptor from an identified hazard, but there is a low likelihood of this hazard occurring and if realised, harm would at worst normally be mild.
Very Low Risk	NAR: There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

APPENDIX 2
GROUNDWATER MONITORING
RESULTS

GROUNDWATER MONITORING RECORD SHEET																					
PROJECT PARTICULARS									EQUIPMENT		QTY USED		MOBILISATION		TIME / MILES						
Project Name:		Southdown Oil - Thatcham							Interface Probe:		x1		Left Base:				Sheet:				
Project Number:		13053							PID:		x1		On Site:								
Personnel:		PR & DP							New Bailers:		X5		Off Site:				1 of 1 1				
Weather Conditions:		Overcast, clear							Pump:		Peristaltic		Back to Base:				Date:				
Pressure (mb):				Temperature (°C):					Tubing (m):				Mileage:				05/09/2018				
LOCATION	TIME	BOREHOLE / WELL OBSERVATIONS								PURGING				SAMPLING				BAILER / SAMPLE OBSERVATIONS			
		Well I.D.	Reference Point (+ bgl / - agl)	Borehole Headspace PID	Depth to Product (DTP)	Depth to Water (DTW)	Depth to Base (DTB)	Product Thickness	Height of Water Column	Method	Volume	Bailer I.D.	Balls	500 ml Glass	250 ml Glass	VOC Vial	Other	Sample Headspace PID	Product Thickness	NOTES	
		mm	m	ppm	m	m	m	mm	m	-	litres	mm	no.	no.	no.	no.	no.	ppm	mm	Product / Sheens / Colours / Odours / Water / Sediment	
BH01		50		0.0	NP	2.202	4.775	NP	2.573	P				1	2				Slightly firm base. Clear, slight odour, no sheen.		
BH02		50		69.0	NP	2.198	3.928	NP	1.730	P				1	2				Clear, slight odour, no sheen.		
BH03		50		ND	ND	ND	ND	ND	ND										Appears to be decommissioned.		
BH04		50		0.0	NP	2.265	4.193	NP	1.928	P				1	2				Water in well head. Oily probe. Clear, slight odour, no sheen.		
BH05		50		0.0	NP	2.243	4.045	NP	1.802	P				1	2				Clear, slight odour, no sheen.		
BH06		100		92.7	NP	2.333	4.030	NP	1.697	P				1	2				Poor recharge, sampled post running dry. Cloudy brown slight sheen, no odour.		
BH07		100		0.5	NP	2.313	3.675	NP	1.362	P				1	2				Slightly sludgy base. Clear, slight chemical odour, no sheen.		
BH08		100		38.1	NP	2.320	3.872	NP	1.552	P					2				Product in sample post 4L purge. Oil sample taken from from BH. Amber orange product.		
BH09		100		0.0	NP	2.190	3.495	NP	1.305	P				1	2				Slightly cloudy grey, slight odour.		
BH10		100		0.0	NP	2.222	3.000	NP	0.778	P				1	2				Clear, odour, slightly oily.		
BHA		50		0.0	NP	2.255	2.340	NP	0.085	P				1	2				Firm base. Clear stagnant odour, no sheen.		
BHB		50		1.1	NP	2.367	2.645	NP	0.278	P				1	2				Clear, some suspended sed, stagnant odour, no sheen.		
BHC		50		92.9	NP	2.310	2.320	NP	0.010										Very sludgy base. Insufficient water column to sample.		
WS01		50		75.6	2.260	2.500	3.450	240	0.950	B					2				Product sample. Thick black.		
WS02		50		27.4	NP	2.432	3.032	NP	0.600	P				1	2				Odour on probe. Clear, slight yellow tinge, no odour, no sheen.		
WS03		50		ND	ND	ND	ND	ND	ND										Under assorted furniture in storage area. Unable to access.		
WS201		50		51.2	2.253	2.308	3.860	55	1.552	B					2				Product sample. Thick black.		
WS202		50		112.9	1.925	2.176	2.886	251	0.710	B					2				Product sample. Dark red amber brown.		
WS204		50		0.0	NP	2.270	3.457	NP	1.187	P				1	2				Slightly oily probe. Clear, slight yellow tinge, slight odour, no seen.		
WS203		50		173.5	1.705	1.722	2.282	17	0.560	B					2				Product sample taken. Grey brown product.		
WS205		50		0.0	NP	2.362	3.392	NP	1.030	P				1	2				Oily probe. Poor recharge. Clear, slight yellow tinge, slight odour, no seen.		
WS206		50		19.1	NP	2.295	3.310	NP	1.015	P				1	2				Slightly oily probe. Clear, slight yellow tinge, slight odour, no seen.		
WS207		50		0.0	NP	2.380	3.502	NP	1.122	P				1	2				Oily probe. Orange suspended sed. Dark grey cloudy with black suspended sed, slight sheen, odour.		
WS207A		50		0.0	NP	2.375	3.000	NP	0.625	P				1	2				Oily probe. Poor recharge. Dark grey cloudy slight odour, no sheen.		
WS208		50		4.6	NP	2.268	2.825	NP	0.557	P				1	2				Oily probe. Cloudy grey, slight sheen, slight odour.		
WS209		50		0.0	NP	2.208	3.006	NP	0.798	P				1	2				Clear, slight odour, no sheen.		
WS210		50		ND	ND	ND	ND	ND	ND										Appears to be decommissioned.		
WS211		50		2.9	NP	2.220	4.000	NP	1.780	P				1	2				Orange suspended sed on probe. Cloudy grey, suspended sed. slight odour, no sheen.		
WS212		50		1.3	NP	2.312	3.005	NP	0.693	P				1	2				Orange suspended sed on probe. Cloudy grey, slight sheen, slight odour.		
WS301		50		0.0	NP	2.413	2.730	NP	0.317	P				1	2				Oily probe. Cloudy brown, slight odour, no sheen.		
WS302		50		3.5	2.353	2.356	3.080	3	0.724	B					2				Product sample. Dark amber brown.		
PURGING: READY REFERENCE										NOTES											
Borehole / well I.D. (mm)		19	35	50	50	75	100	Ground Level (gl): Use negative values for above (agl), use positive values for below (bgl), use 0.000 for at gl.													
Bailer I.D. (mm)		18	19	19	38	38	38	Purging requires removing 3 well volumes prior to sampling. Method: B = Bailer, L = Litres via pump / footvalve.													
No. bails to purge per m		4	12	23	6	13	23	Where r = radius in mm and h = height in m, the volume of a cylinder in litres is calculated by: $\pi r^2 h / 1000$.													
3 well volumes per m (litres)		1	2	6	6	14	24	Assumed bailer length: 0.95 m Grey shaded columns are calculated automatically.													

APPENDIX 3
CHEMICAL ANALYSIS
REPORTS



Exova Jones Environmental

Registered Office: Exova Environmental UK Limited, 10 Lower Grosvenor Place, London, SW1W 0EN. Reg No. 11371415

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

OHES Environmental
Unit 3, Forest Court
Off Fishponds Road
Wokingham
Berkshire
RG41 2FD

Tel: +44 (0) 1244 833780

Fax: +44 (0) 1244 833781



Attention :	Philippa Rawbone
Date :	14th September, 2018
Your reference :	13053
Our reference :	Test Report 18/14139 Batch 1
Location :	Thatcham
Date samples received :	6th September, 2018
Status :	Final report
Issue :	1

Twenty seven samples were received for analysis on 6th September, 2018 of which twenty seven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied. All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Bruce Leslie
Project Co-ordinator

Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone
JE Job No.: 18/14139

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	1-3	4-6	7-9	10-12	17-19	20-22	23-25	26-28	29-31	34-36	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BHA	BHB	BH07	BH10	BH09	WS212	WS211	BH05	WS301			
Depth													
COC No / misc													
Containers	V G	V G	V G	V G	V G	V G	V G	V G	V G	V G			
Sample Date	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	LOD/LOR	Units	Method No.
PAH MS													
Naphthalene #	-	-	<0.1	-	0.2	0.4	-	<0.1	-	-	<0.1	ug/l	TM4/PM30
Acenaphthylene #	-	-	0.095	-	0.303	0.174	-	0.032	-	-	<0.013	ug/l	TM4/PM30
Acenaphthene #	-	-	0.683	-	1.729	0.708	-	0.050	-	-	<0.013	ug/l	TM4/PM30
Fluorene #	-	-	2.022	-	3.537	1.619	-	0.327	-	-	<0.014	ug/l	TM4/PM30
Phenanthrene #	-	-	0.041	-	1.136	0.740	-	0.059	-	-	<0.011	ug/l	TM4/PM30
Anthracene #	-	-	0.045	-	0.022	0.016	-	0.016	-	-	<0.013	ug/l	TM4/PM30
Fluoranthene #	-	-	0.017	-	0.026	0.014	-	0.097	-	-	<0.012	ug/l	TM4/PM30
Pyrene #	-	-	0.035	-	0.062	0.036	-	0.114	-	-	<0.013	ug/l	TM4/PM30
Benzo(a)anthracene #	-	-	<0.015	-	<0.015	<0.015	-	0.021	-	-	<0.015	ug/l	TM4/PM30
Chrysene #	-	-	<0.011	-	<0.011	<0.011	-	0.035	-	-	<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	-	-	<0.018	-	<0.018	<0.018	-	0.029	-	-	<0.018	ug/l	TM4/PM30
Benzo(a)pyrene #	-	-	<0.016	-	<0.016	<0.016	-	<0.016	-	-	<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene #	-	-	<0.011	-	<0.011	<0.011	-	<0.011	-	-	<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	-	-	<0.01	-	<0.01	<0.01	-	<0.01	-	-	<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene #	-	-	<0.011	-	<0.011	<0.011	-	<0.011	-	-	<0.011	ug/l	TM4/PM30
PAH 16 Total #	-	-	2.938	-	7.015	3.707	-	0.780	-	-	<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	-	-	<0.01	-	<0.01	<0.01	-	0.02	-	-	<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	-	-	<0.01	-	<0.01	<0.01	-	<0.01	-	-	<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	-	-	85	-	92	84	-	84	-	-	<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	-	-	-	-	-	-	<0.1	-	-	<0.1	<0.1	ug/l	TM15/PM10
Benzene #	-	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	ug/l	TM15/PM10
Toluene #	-	-	-	-	-	-	<5	-	-	<5	<5	ug/l	TM15/PM10
Ethylbenzene #	-	-	-	-	-	-	<1	-	-	<1	<1	ug/l	TM15/PM10
p/m-Xylene #	-	-	-	-	-	-	<2	-	-	<2	<2	ug/l	TM15/PM10
o-Xylene #	-	-	-	-	-	-	<1	-	-	<1	<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	-	-	-	-	-	-	104	-	-	102	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	-	-	-	-	-	-	113	-	-	111	<0	%	TM15/PM10
EPH >C8-C10	<10	140	20	30	-	-	-	120	<10	-	<10	ug/l	TM5/PM30
EPH >C10-C12 #	70	510	180	160	-	-	-	630	<10	-	<10	ug/l	TM5/PM30
EPH >C12-C16 #	230	1520	670	630	-	-	-	1850	<10	-	<10	ug/l	TM5/PM30
EPH >C16-C21 #	150	1660	730	770	-	-	-	2090	<10	-	<10	ug/l	TM5/PM30
EPH >C21-C35 #	<10	620	200	440	-	-	-	1610	<10	-	<10	ug/l	TM5/PM30
EPH >C21-C40 #	<10	620	200	440	-	-	-	1610	<10	-	<10	ug/l	TM5/PM30
EPH >C35-C40 #	<10	<10	<10	<10	-	-	-	<10	<10	-	<10	ug/l	TM5/PM30
EPH >C8-C40	450	4450	1800	2030	-	-	-	6300	<10	-	<10	ug/l	TM5/PM30

Client Name: OHES Environmental
 Reference: 13053
 Location: Thatcham
 Contact: Philippa Rawbone
 JE Job No.: 18/14139

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	1-3	4-6	7-9	10-12	17-19	20-22	23-25	26-28	29-31	34-36	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BHA	BHB	BH07	BH10	BH09	WS212	WS211	BH05	WS301			
Depth													
COC No / misc													
Containers	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG			
Sample Date	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018			
TPH CWG													
Aliphatics													
>C5-C6 #	-	-	-	-	<10	<10	<10	-	-	<10	<10	ug/l	TM36/PM12
>C6-C8 #	-	-	-	-	<10	<10	<10	-	-	<10	<10	ug/l	TM36/PM12
>C8-C10 #	-	-	-	-	40	21	<10	-	-	<10	<10	ug/l	TM36/PM12
>C10-C12 #	-	-	-	-	<5	<5	347	-	-	<5	<5	ug/l	TM5/PM16/PM30
>C12-C16 #	-	-	-	-	<10	<10	1250	-	-	70	<10	ug/l	TM5/PM16/PM30
>C16-C21 #	-	-	-	-	<10	<10	1260	-	-	180	<10	ug/l	TM5/PM16/PM30
>C21-C35 #	-	-	-	-	<10	<10	300	-	-	30	<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	-	-	-	-	40	21	3157	-	-	280	<10	ug/l	TM5/PM16/PM30
Aromatics													
>C5-EC7 #	-	-	-	-	<10	<10	<10	-	-	<10	<10	ug/l	TM36/PM12
>EC7-EC8 #	-	-	-	-	<10	<10	<10	-	-	<10	<10	ug/l	TM36/PM12
>EC8-EC10 #	-	-	-	-	<10	<10	<10	-	-	<10	<10	ug/l	TM36/PM12
>EC10-EC12 #	-	-	-	-	371	184	<5	-	-	80	<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	-	-	-	-	240	150	350	-	-	60	<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	-	-	-	-	<10	<10	800	-	-	<10	<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	-	-	-	-	<10	<10	290	-	-	<10	<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	-	-	-	-	611	334	1440	-	-	140	<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) #	-	-	-	-	651	355	4597	-	-	420	<10	ug/l	TM5/PM16/PM30
MTBE #	-	-	-	-	<5	<5	-	-	-	-	<5	ug/l	TM31/PM12
Benzene #	-	-	-	-	<5	<5	-	-	-	-	<5	ug/l	TM31/PM12
Toluene #	-	-	-	-	<5	<5	-	-	-	-	<5	ug/l	TM31/PM12
Ethylbenzene #	-	-	-	-	<5	<5	-	-	-	-	<5	ug/l	TM31/PM12
m/p-Xylene #	-	-	-	-	<5	<5	-	-	-	-	<5	ug/l	TM31/PM12
o-Xylene #	-	-	-	-	<5	<5	-	-	-	-	<5	ug/l	TM31/PM12

Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone
JE Job No.: 18/14139

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	39-41	42-44	45-47	48-50	53-55	58-60	61-63	64-66	67-69	70-72	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS207	WS207A	WS204	WS205	WS206	WS02	BH04	WS208	WS209	BH02			
Depth													
COC No / misc													
Containers	V G	V G	V G	V G	V G	V G	V G	V G	V G	V G			
Sample Date	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	LOD/LOR	Units	Method No.
PAH MS													
Naphthalene #	-	<0.1	-	-	-	-	<0.1	-	-	-	<0.1	ug/l	TM4/PM30
Acenaphthylene #	-	<0.013	-	-	-	-	0.177	-	-	-	<0.013	ug/l	TM4/PM30
Acenaphthene #	-	0.068	-	-	-	-	0.459	-	-	-	<0.013	ug/l	TM4/PM30
Fluorene #	-	0.114	-	-	-	-	1.037	-	-	-	<0.014	ug/l	TM4/PM30
Phenanthrene #	-	<0.011	-	-	-	-	0.554	-	-	-	<0.011	ug/l	TM4/PM30
Anthracene #	-	<0.013	-	-	-	-	<0.013	-	-	-	<0.013	ug/l	TM4/PM30
Fluoranthene #	-	0.243	-	-	-	-	0.034	-	-	-	<0.012	ug/l	TM4/PM30
Pyrene #	-	1.666	-	-	-	-	0.064	-	-	-	<0.013	ug/l	TM4/PM30
Benzo(a)anthracene #	-	0.058	-	-	-	-	<0.015	-	-	-	<0.015	ug/l	TM4/PM30
Chrysene #	-	0.382	-	-	-	-	<0.011	-	-	-	<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	-	0.165	-	-	-	-	<0.018	-	-	-	<0.018	ug/l	TM4/PM30
Benzo(a)pyrene #	-	0.059	-	-	-	-	<0.016	-	-	-	<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene #	-	0.035	-	-	-	-	<0.011	-	-	-	<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	-	<0.01	-	-	-	-	<0.01	-	-	-	<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene #	-	0.050	-	-	-	-	<0.011	-	-	-	<0.011	ug/l	TM4/PM30
PAH 16 Total #	-	2.840	-	-	-	-	2.325	-	-	-	<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	-	0.12	-	-	-	-	<0.01	-	-	-	<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	-	0.05	-	-	-	-	<0.01	-	-	-	<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	-	92	-	-	-	-	89	-	-	-	<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	-	0.6	<0.1	0.1	<0.1	-	<0.1	-	0.7	<0.1	ug/l	TM15/PM10
Benzene #	<0.5	-	2.4	<0.5	1.2	<0.5	-	<0.5	-	4.4	<0.5	ug/l	TM15/PM10
Toluene #	<5	-	<5	<5	<5	<5	-	<5	-	<5	<5	ug/l	TM15/PM10
Ethylbenzene #	<1	-	<1	<1	<1	<1	-	<1	-	<1	<1	ug/l	TM15/PM10
p/m-Xylene #	<2	-	<2	<2	<2	<2	-	<2	-	<2	<2	ug/l	TM15/PM10
o-Xylene #	<1	-	<1	<1	<1	<1	-	<1	-	<1	<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	102	-	104	105	106	104	-	108	-	107	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	109	-	111	109	109	108	-	111	-	110	<0	%	TM15/PM10
EPH >C8-C10	-	-	-	-	-	-	130	-	50	-	<10	ug/l	TM5/PM30
EPH >C10-C12 #	-	-	-	-	-	-	430	-	140	-	<10	ug/l	TM5/PM30
EPH >C12-C16 #	-	-	-	-	-	-	890	-	370	-	<10	ug/l	TM5/PM30
EPH >C16-C21 #	-	-	-	-	-	-	470	-	210	-	<10	ug/l	TM5/PM30
EPH >C21-C35 #	-	-	-	-	-	-	110	-	<10	-	<10	ug/l	TM5/PM30
EPH >C21-C40 #	-	-	-	-	-	-	110	-	<10	-	<10	ug/l	TM5/PM30
EPH >C35-C40 #	-	-	-	-	-	-	<10	-	<10	-	<10	ug/l	TM5/PM30
EPH >C8-C40	-	-	-	-	-	-	2030	-	770	-	<10	ug/l	TM5/PM30

Client Name: OHES Environmental
 Reference: 13053
 Location: Thatcham
 Contact: Philippa Rawbone
 JE Job No.: 18/14139

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	39-41	42-44	45-47	48-50	53-55	58-60	61-63	64-66	67-69	70-72	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS207	WS207A	WS204	WS205	WS206	WS02	BH04	WS208	WS209	BH02			
Depth													
COC No / misc													
Containers	V G	V G	V G	V G	V G	V G	V G	V G	V G	V G			
Sample Date	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10	<10	<10	<10	<10	-	<10	-	<10	<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10	<10	<10	<10	<10	-	<10	-	13	<10	ug/l	TM36/PM12
>C8-C10 #	246	36	<10	<10	13	<10	-	<10	-	54	<10	ug/l	TM36/PM12
>C10-C12 #	1563	2123	<5	3412	<5	1837	-	130	-	<5	<5	ug/l	TM5/PM16/PM30
>C12-C16 #	3760	9850	<10	7760	<10	1480	-	610	-	<10	<10	ug/l	TM5/PM16/PM30
>C16-C21 #	3040	10810	<10	6780	<10	<10	-	980	-	<10	<10	ug/l	TM5/PM16/PM30
>C21-C35 #	1720	5700	<10	2220	<10	350	-	380	-	<10	<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	10329	28519	<10	20172	13	3667	-	2100	-	67	<10	ug/l	TM5/PM16/PM30/PM12/PM15
Aromatics													
>C5-EC7 #	<10	<10	<10	<10	<10	<10	-	<10	-	<10	<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	<10	<10	<10	<10	-	<10	-	<10	<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10	<10	<10	<10	<10	-	<10	-	<10	<10	ug/l	TM36/PM12
>EC10-EC12 #	390	487	145	377	237	<5	-	112	-	324	<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	1040	3790	220	1940	240	<10	-	400	-	290	<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	1180	8090	<10	3440	30	<10	-	810	-	30	<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	550	4180	<10	1240	<10	<10	-	240	-	<10	<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	3160	16547	365	6997	507	<10	-	1562	-	644	<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) #	13489	45066	365	27169	520	3667	-	3662	-	711	<10	ug/l	TM5/PM16/PM30/PM12/PM15
MTBE #	-	<5	-	-	-	-	-	-	-	-	<5	ug/l	TM31/PM12
Benzene #	-	<5	-	-	-	-	-	-	-	-	<5	ug/l	TM31/PM12
Toluene #	-	<5	-	-	-	-	-	-	-	-	<5	ug/l	TM31/PM12
Ethylbenzene #	-	<5	-	-	-	-	-	-	-	-	<5	ug/l	TM31/PM12
m/p-Xylene #	-	<5	-	-	-	-	-	-	-	-	<5	ug/l	TM31/PM12
o-Xylene #	-	<5	-	-	-	-	-	-	-	-	<5	ug/l	TM31/PM12

Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone
JE Job No.: 18/14139

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	73-75												
Sample ID	BH06												
Depth													
COC No / misc													
Containers	V G												
Sample Date	05/09/2018												
Sample Type	Ground Water												
Batch Number	1												
Date of Receipt	06/09/2018												
											Please see attached notes for all abbreviations and acronyms		
											LOD/LOR	Units	Method No.
PAH MS													
Naphthalene #	-										<0.1	ug/l	TM4/PM30
Acenaphthylene #	-										<0.013	ug/l	TM4/PM30
Acenaphthene #	-										<0.013	ug/l	TM4/PM30
Fluorene #	-										<0.014	ug/l	TM4/PM30
Phenanthrene #	-										<0.011	ug/l	TM4/PM30
Anthracene #	-										<0.013	ug/l	TM4/PM30
Fluoranthene #	-										<0.012	ug/l	TM4/PM30
Pyrene #	-										<0.013	ug/l	TM4/PM30
Benzo(a)anthracene #	-										<0.015	ug/l	TM4/PM30
Chrysene #	-										<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	-										<0.018	ug/l	TM4/PM30
Benzo(a)pyrene #	-										<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene #	-										<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	-										<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene #	-										<0.011	ug/l	TM4/PM30
PAH 16 Total #	-										<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	-										<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	-										<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	-										<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1										<0.1	ug/l	TM15/PM10
Benzene #	<0.5										<0.5	ug/l	TM15/PM10
Toluene #	<5										<5	ug/l	TM15/PM10
Ethylbenzene #	<1										<1	ug/l	TM15/PM10
p/m-Xylene #	<2										<2	ug/l	TM15/PM10
o-Xylene #	<1										<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	106										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	109										<0	%	TM15/PM10
EPH >C8-C10	-										<10	ug/l	TM5/PM30
EPH >C10-C12 #	-										<10	ug/l	TM5/PM30
EPH >C12-C16 #	-										<10	ug/l	TM5/PM30
EPH >C16-C21 #	-										<10	ug/l	TM5/PM30
EPH >C21-C35 #	-										<10	ug/l	TM5/PM30
EPH >C21-C40 #	-										<10	ug/l	TM5/PM30
EPH >C35-C40 #	-										<10	ug/l	TM5/PM30
EPH >C8-C40	-										<10	ug/l	TM5/PM30

Client Name: OHES Environmental
 Reference: 13053
 Location: Thatcham
 Contact: Philippa Rawbone
 JE Job No.: 18/14139

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HN0₃

J E Sample No.	73-75										Please see attached notes for all abbreviations and acronyms			
Sample ID	BH06													
Depth														
COC No / misc														
Containers	V G													
Sample Date	05/09/2018													
Sample Type	Ground Water													
Batch Number	1													LOD/LOR
Date of Receipt	06/09/2018													
TPH CWG														
Aliphatics														
>C5-C6 #	<10										<10	ug/l	TM36/PM12	
>C6-C8 #	<10										<10	ug/l	TM36/PM12	
>C8-C10 #	<10										<10	ug/l	TM36/PM12	
>C10-C12 #	<5										<5	ug/l	TM5/PM16/PM30	
>C12-C16 #	<10										<10	ug/l	TM5/PM16/PM30	
>C16-C21 #	<10										<10	ug/l	TM5/PM16/PM30	
>C21-C35 #	<10										<10	ug/l	TM5/PM16/PM30	
Total aliphatics C5-35 #	<10										<10	ug/l	TM5/PM16/PM30	
Aromatics														
>C5-EC7 #	<10										<10	ug/l	TM36/PM12	
>EC7-EC8 #	<10										<10	ug/l	TM36/PM12	
>EC8-EC10 #	<10										<10	ug/l	TM36/PM12	
>EC10-EC12 #	<5										<5	ug/l	TM5/PM16/PM30	
>EC12-EC16 #	<10										<10	ug/l	TM5/PM16/PM30	
>EC16-EC21 #	<10										<10	ug/l	TM5/PM16/PM30	
>EC21-EC35 #	<10										<10	ug/l	TM5/PM16/PM30	
Total aromatics C5-35 #	<10										<10	ug/l	TM5/PM16/PM30	
Total aliphatics and aromatics(C5-35) #	<10										<10	ug/l	TM5/PM16/PM30	
MTBE #	-										<5	ug/l	TM31/PM12	
Benzene #	-										<5	ug/l	TM31/PM12	
Toluene #	-										<5	ug/l	TM31/PM12	
Ethylbenzene #	-										<5	ug/l	TM31/PM12	
m/p-Xylene #	-										<5	ug/l	TM31/PM12	
o-Xylene #	-										<5	ug/l	TM31/PM12	

Please see attached notes for all abbreviations and acronyms

Please see attached notes for all abbreviations and acronyms

Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone
JE Job No.: 18/14139

VOC Report : Liquid

J E Sample No.	23-25	34-36	39-41	45-47	48-50	53-55	58-60	64-66	70-72	73-75	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS212	WS301	WS207	WS204	WS205	WS206	WS02	WS208	BH02	BH06			
Depth													
COC No / misc Containers	V G	V G	V G	V G	V G	V G	V G	V G	V G	V G			
Sample Date	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018	05/09/2018			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018	06/09/2018			
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	<0.1	0.6	<0.1	0.1	<0.1	<0.1	0.7	<0.1	<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	2.4	<0.5	1.2	<0.5	<0.5	4.4	<0.5	<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
cis-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM15/PM10
trans-1-3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
p/m-Xylene #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	3	6	<3	<3	3	<3	<3	6	<3	<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	3	<3	<3	<3	<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	3	<3	<3	<3	<3	<3	3	<3	<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	104	102	102	104	105	106	104	108	107	106	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	113	111	109	111	109	109	108	111	110	109	<0	%	TM15/PM10

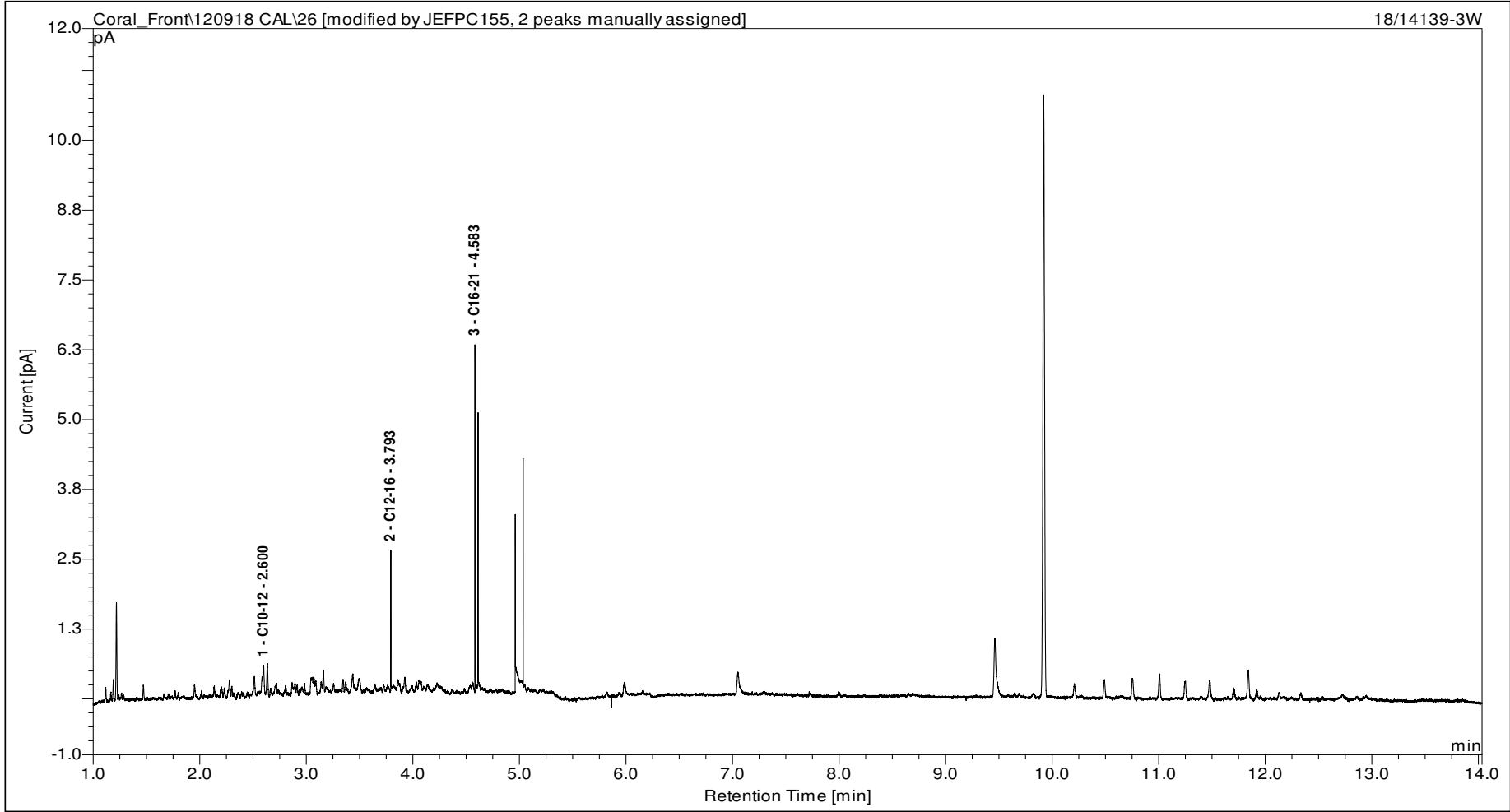
Please include all sections of this report if it is reproduced

Matrix : Liquid

QF-PM 3.1.8 v10

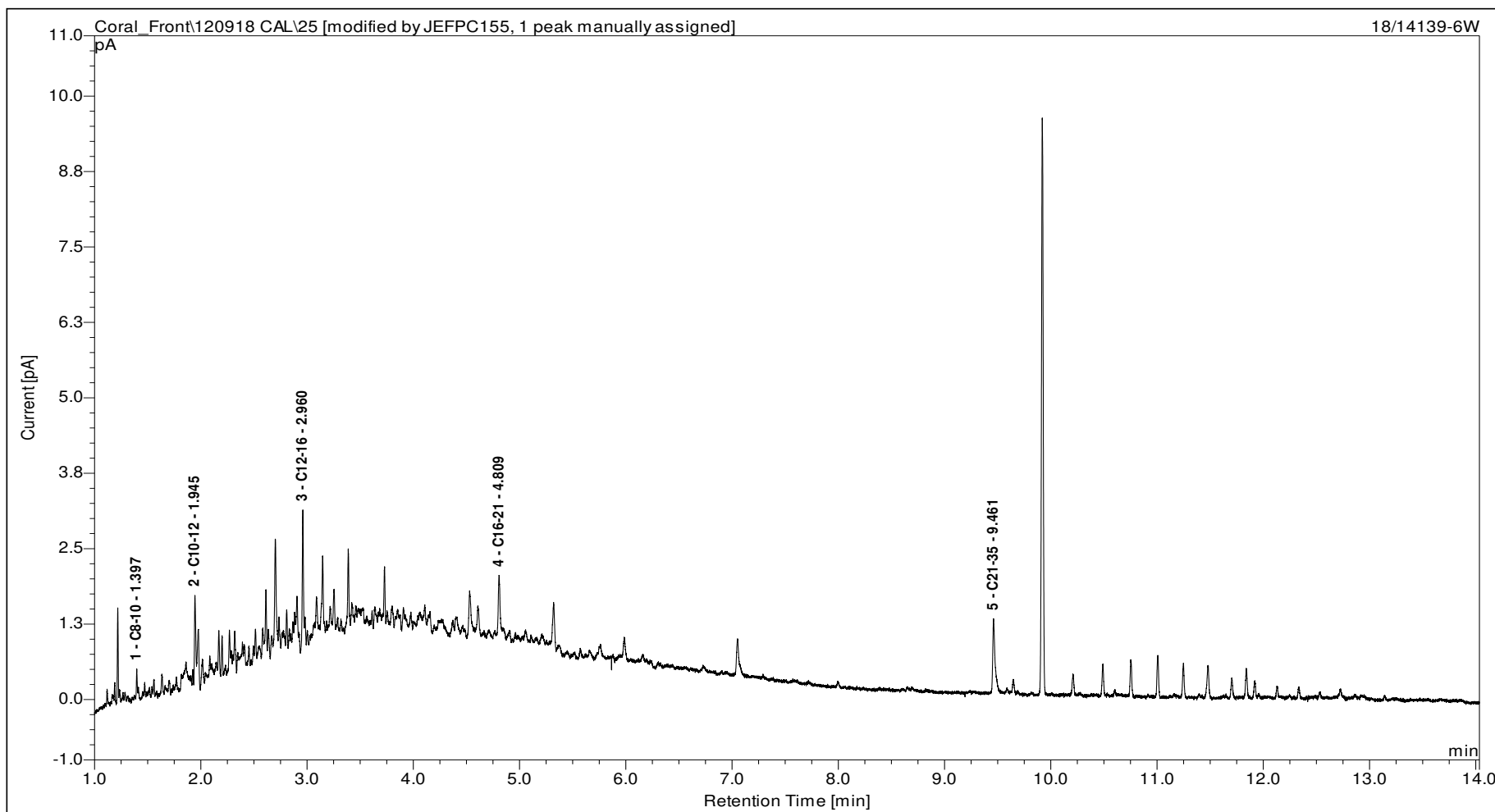
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 3
Sample Identity: BH01
Depth:
Matrix: Liquid



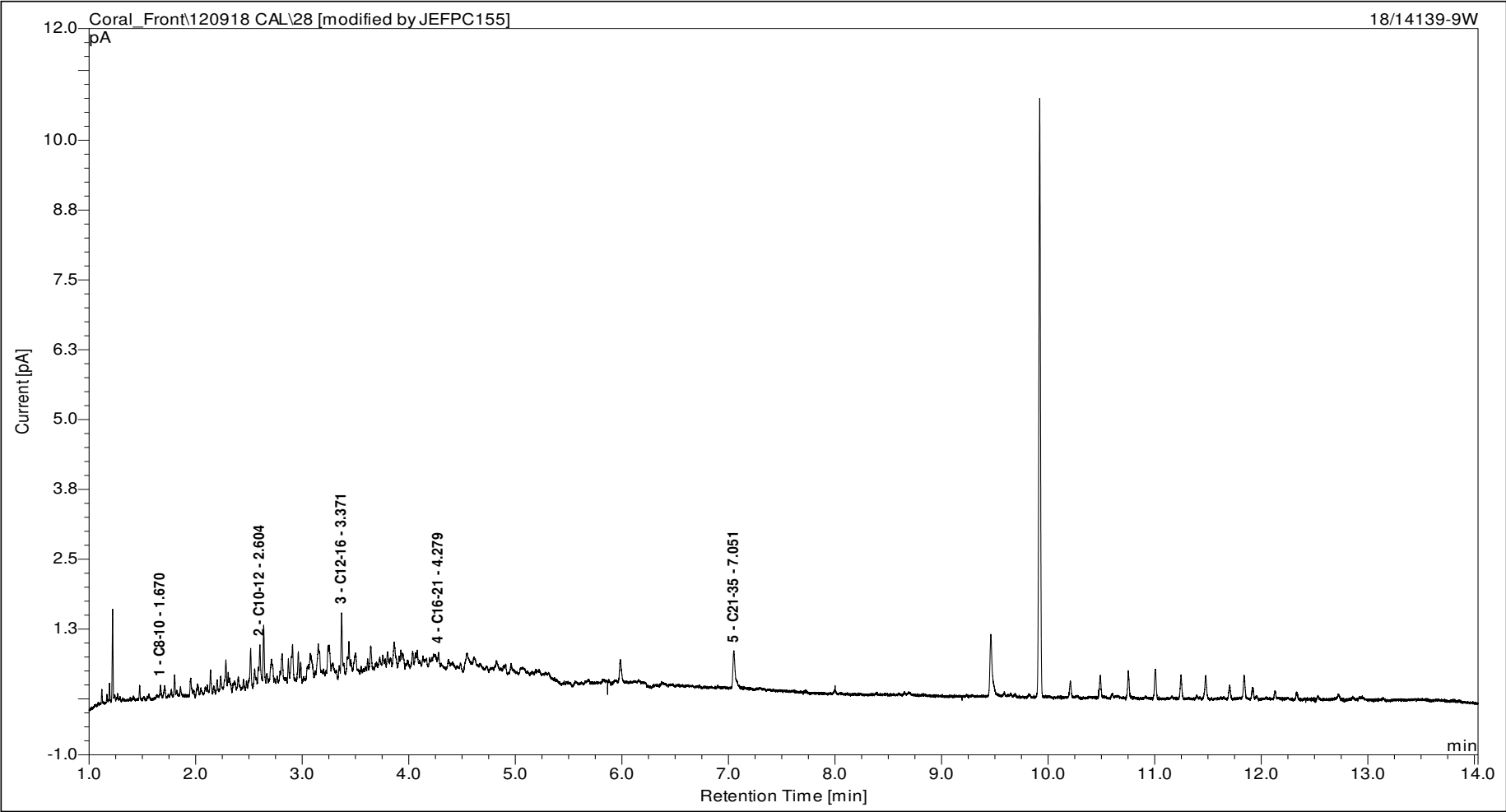
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 6
Sample Identity: BHA
Depth:
Matrix: Liquid



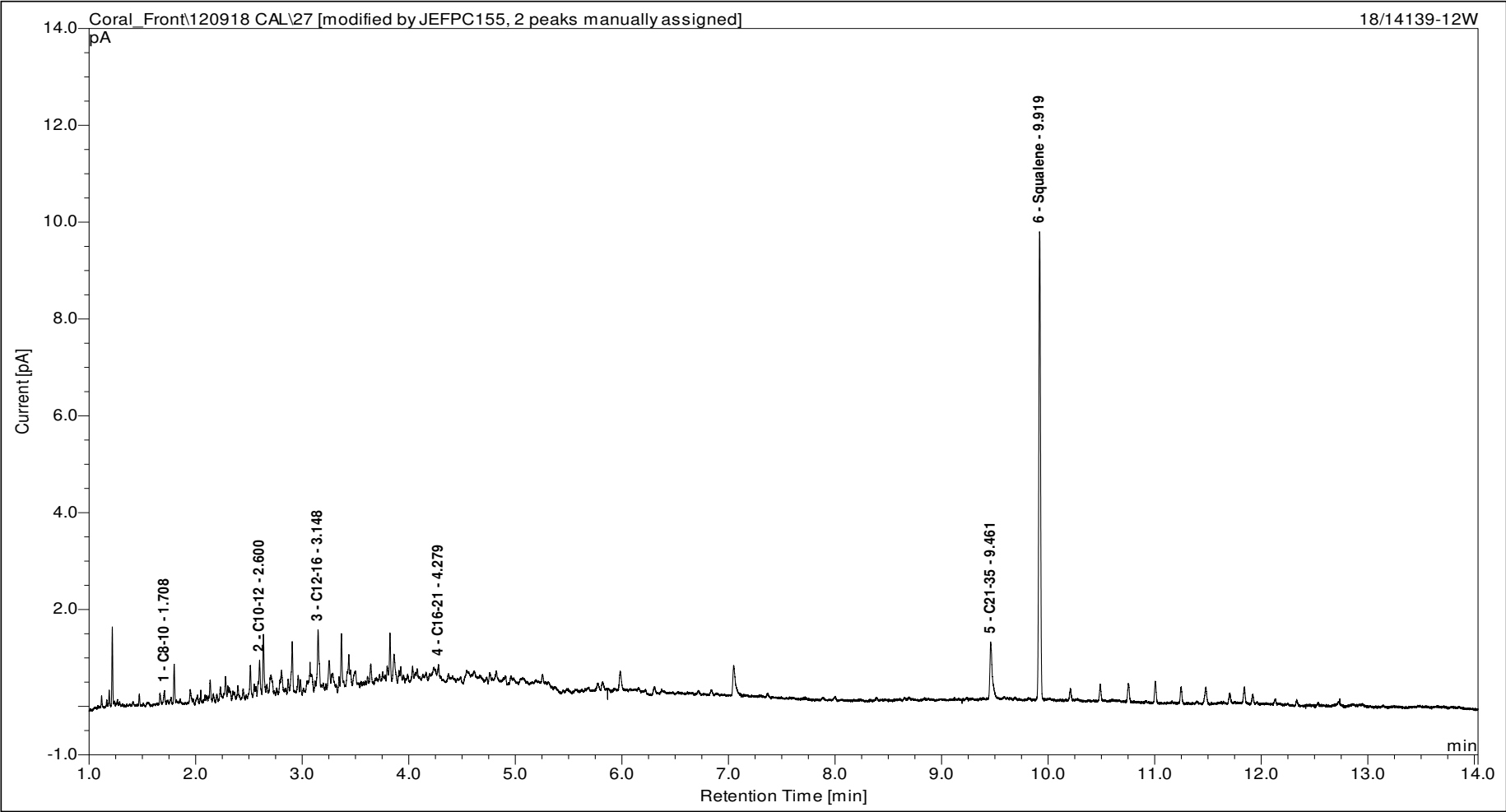
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 9
Sample Identity: BHB
Depth:
Matrix: Liquid



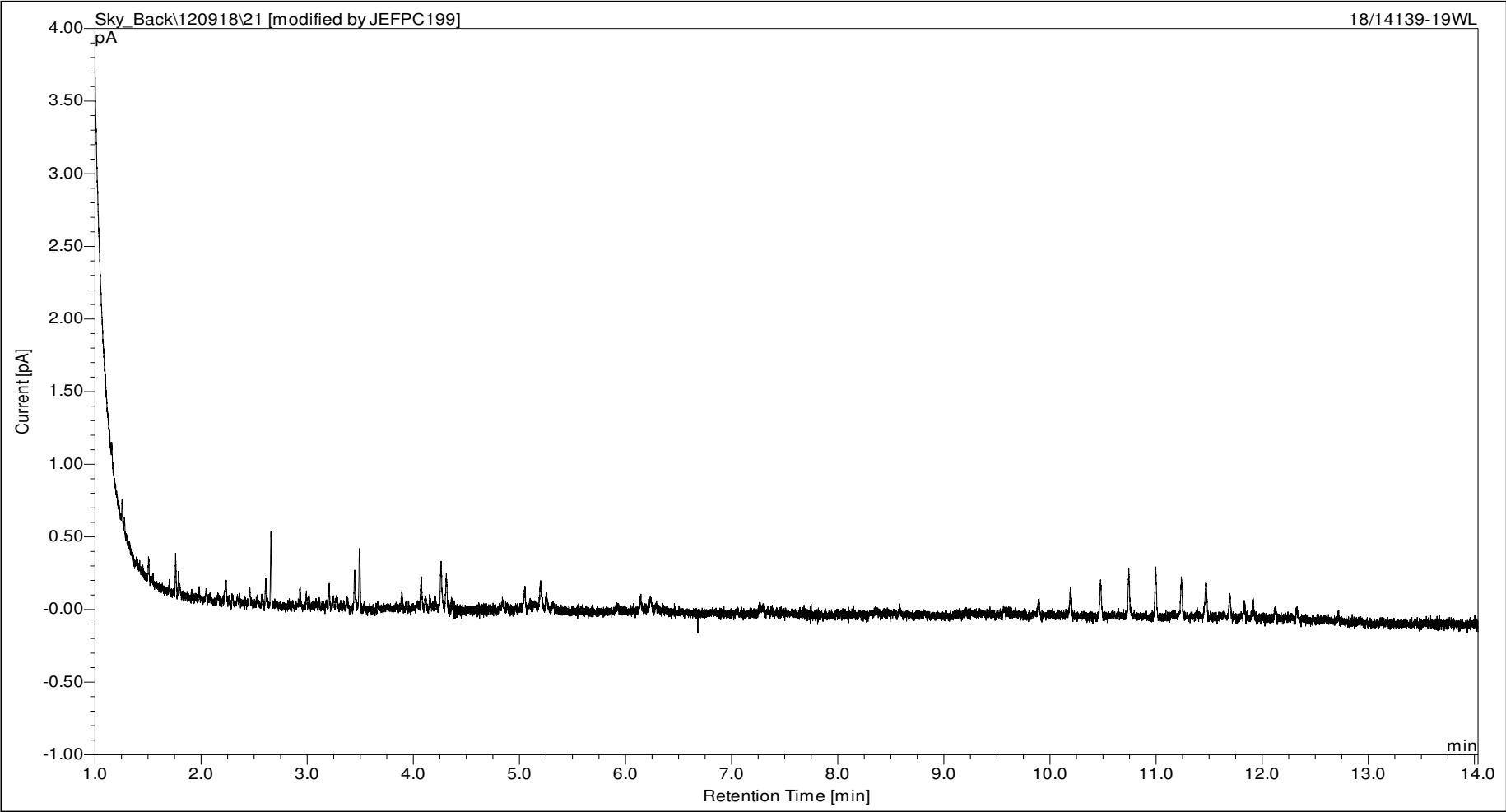
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 12
Sample Identity: BH07
Depth:
Matrix: Liquid



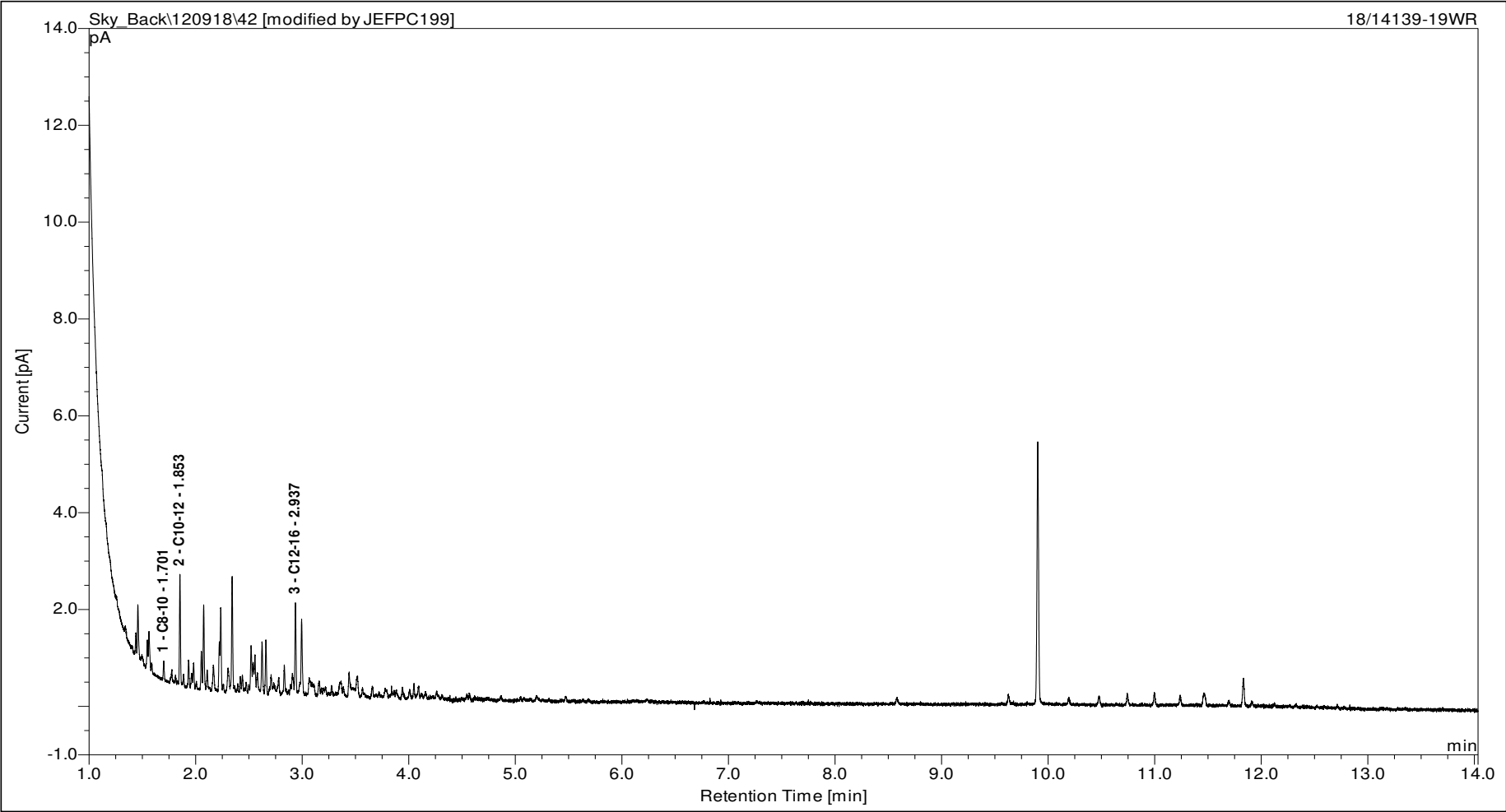
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 19
Sample Identity: BH10
Depth:
Matrix: Liquid



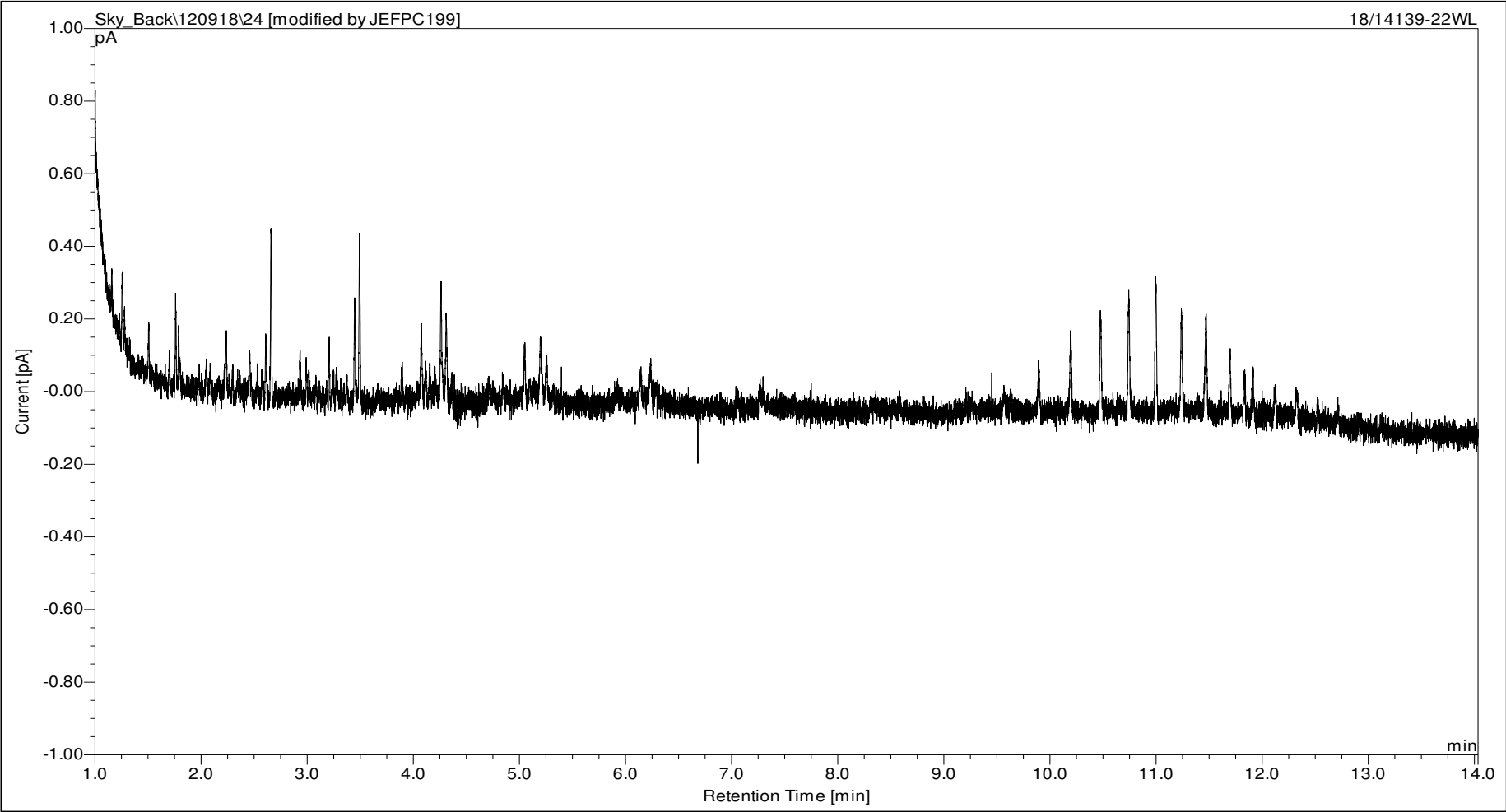
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 19
Sample Identity: BH10
Depth:
Matrix: Liquid



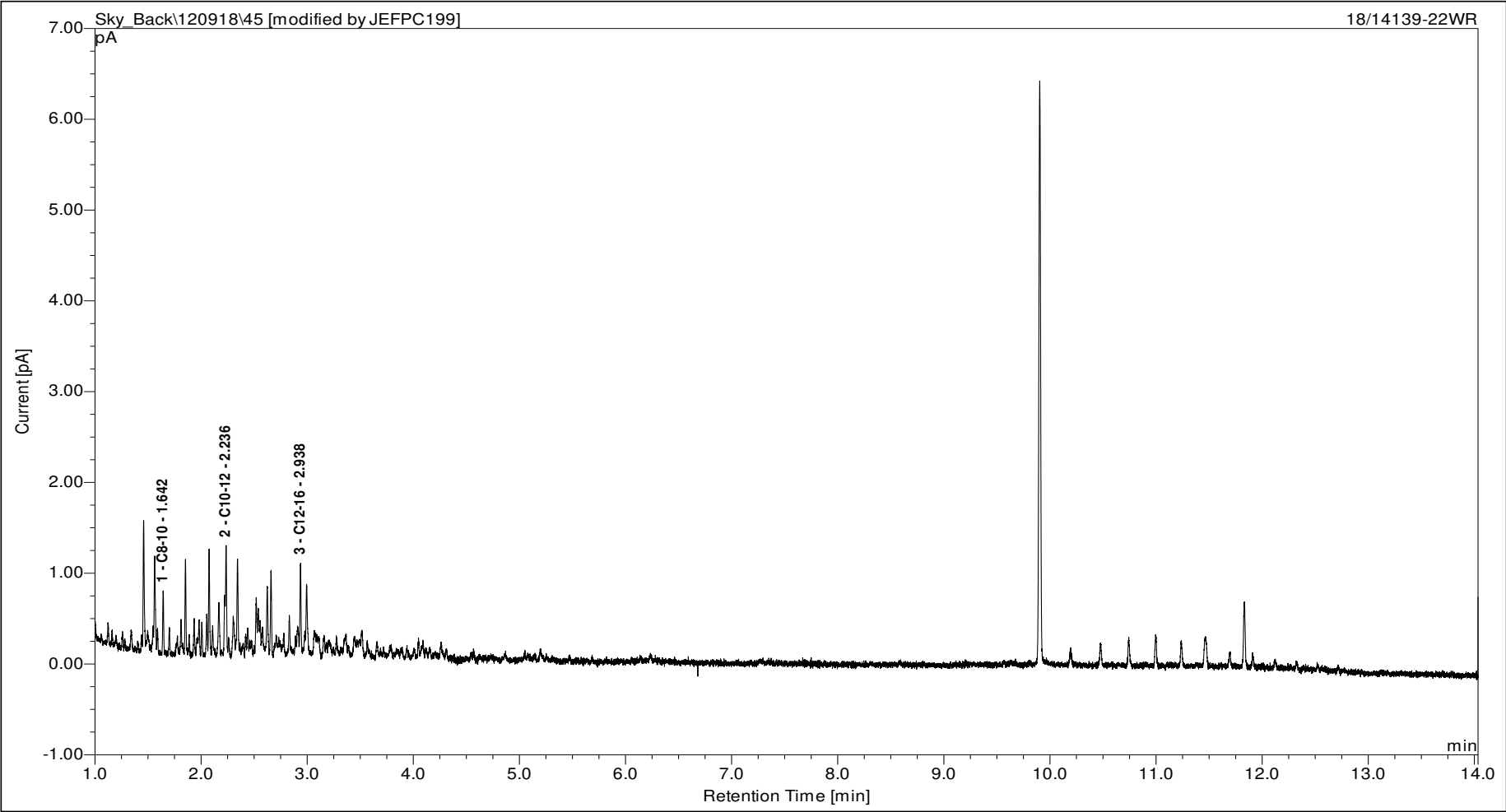
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 22
Sample Identity: BH09
Depth:
Matrix: Liquid



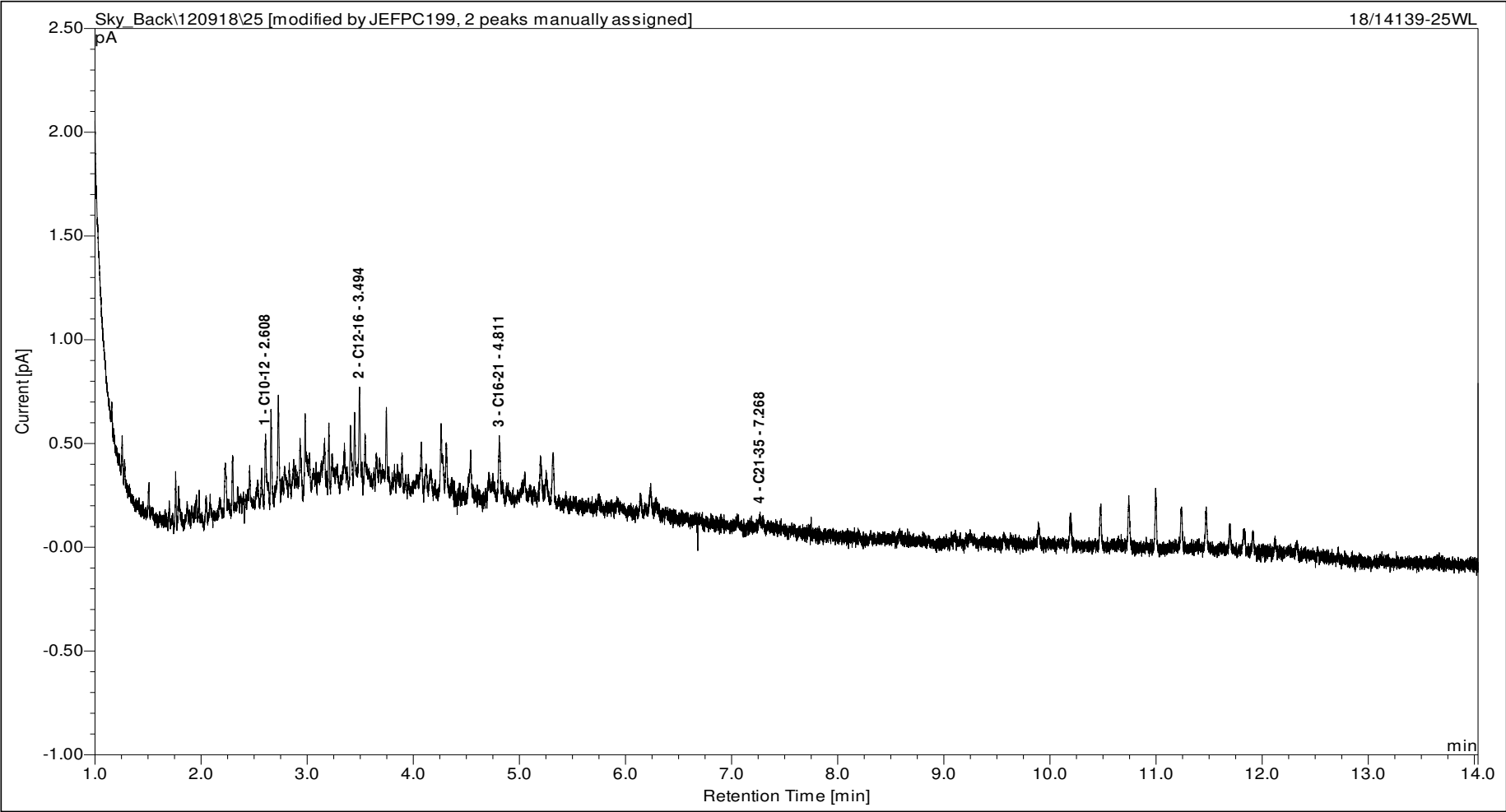
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 22
Sample Identity: BH09
Depth:
Matrix: Liquid



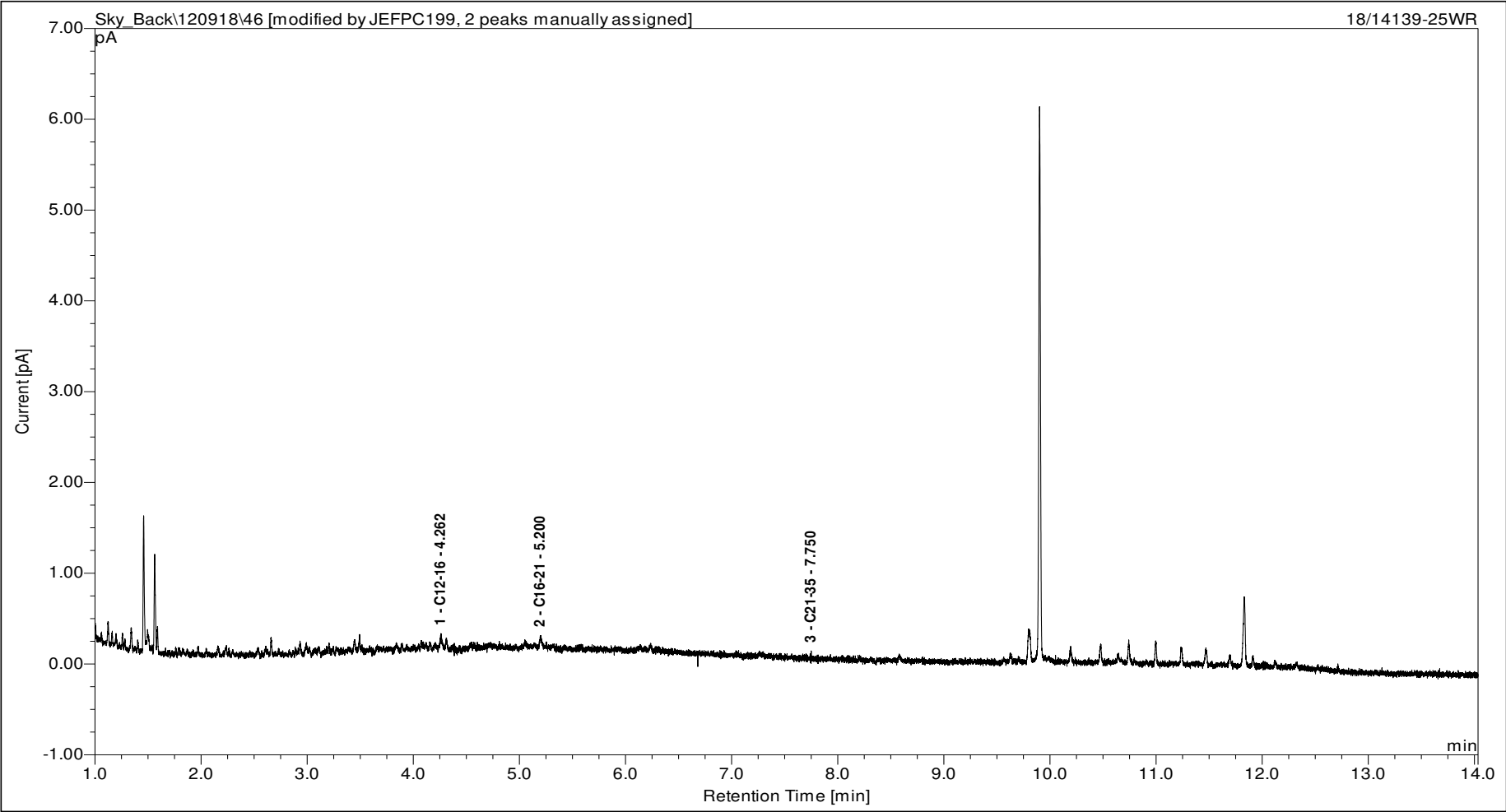
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 25
Sample Identity: WS212
Depth:
Matrix: Liquid



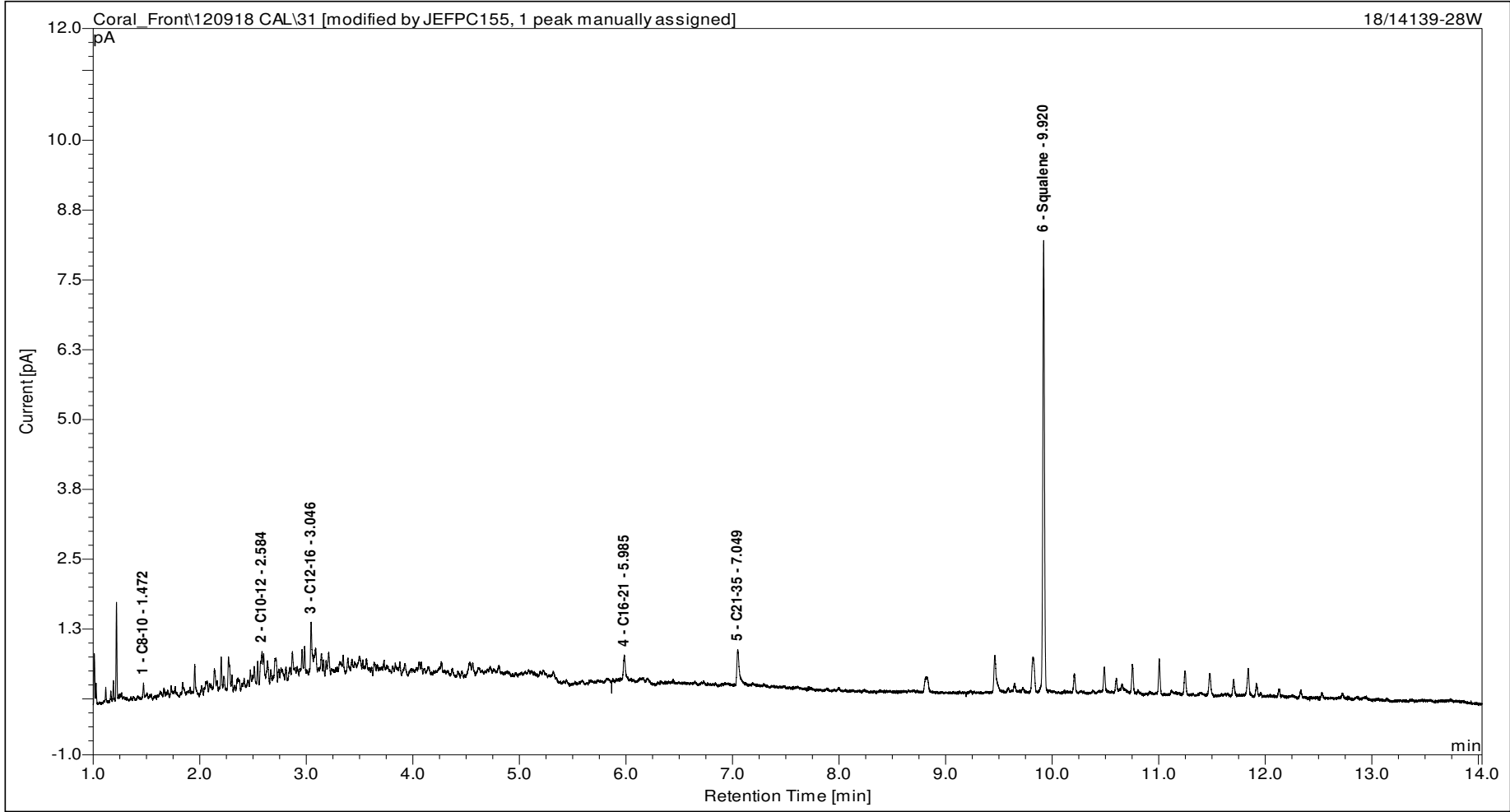
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 25
Sample Identity: WS212
Depth:
Matrix: Liquid



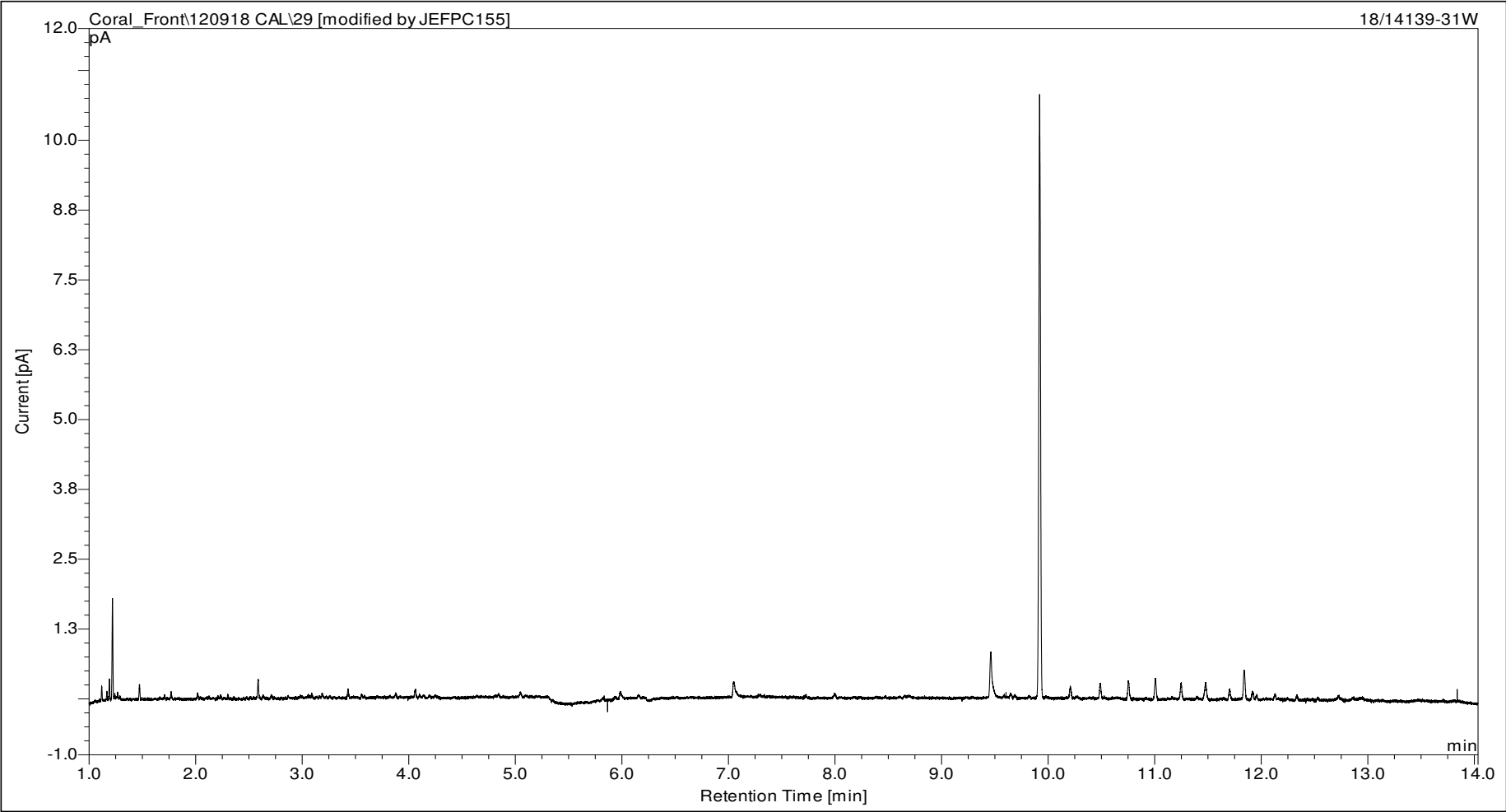
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 28
Sample Identity: WS211
Depth:
Matrix: Liquid



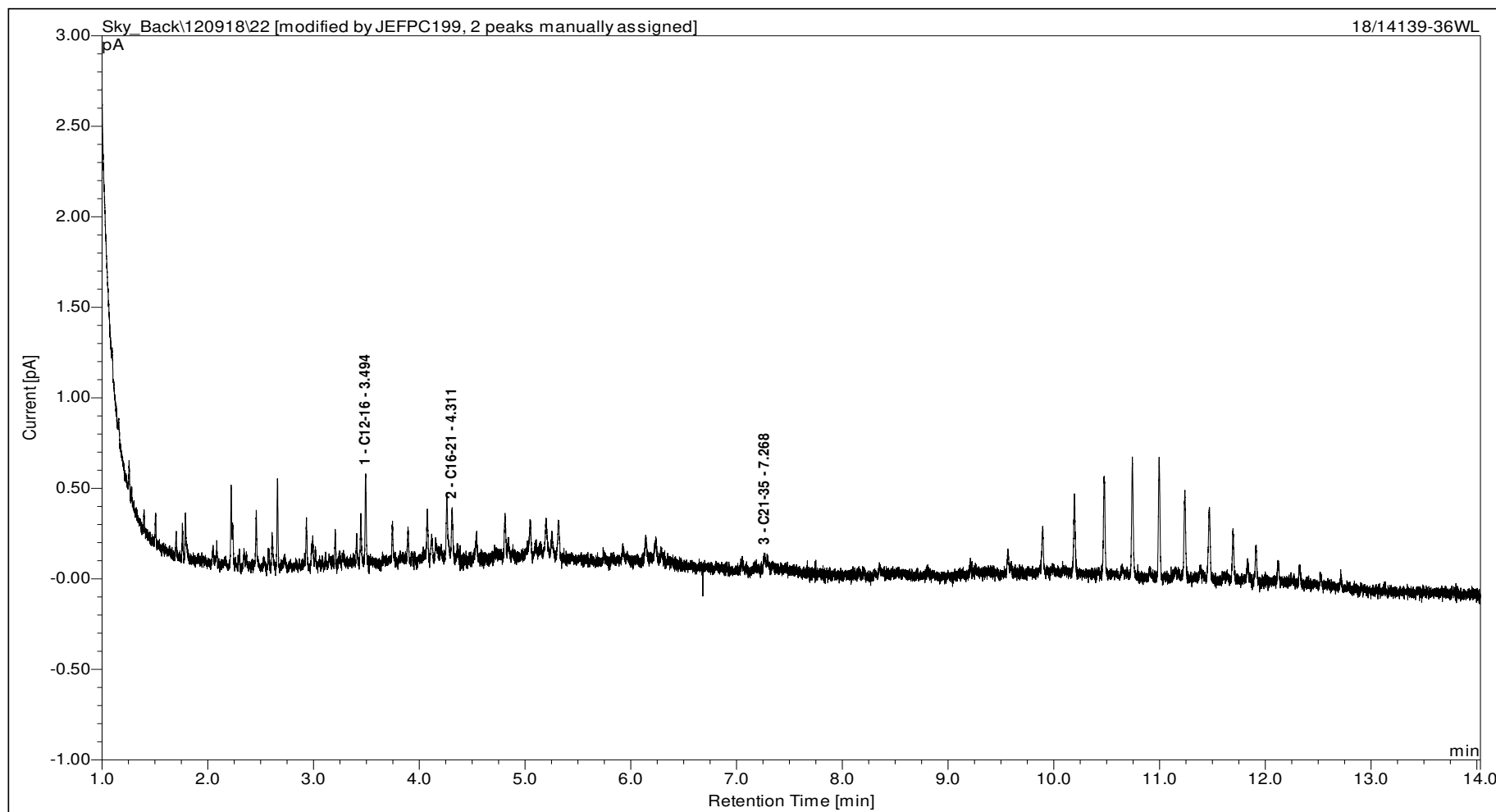
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 31
Sample Identity: BH05
Depth:
Matrix: Liquid



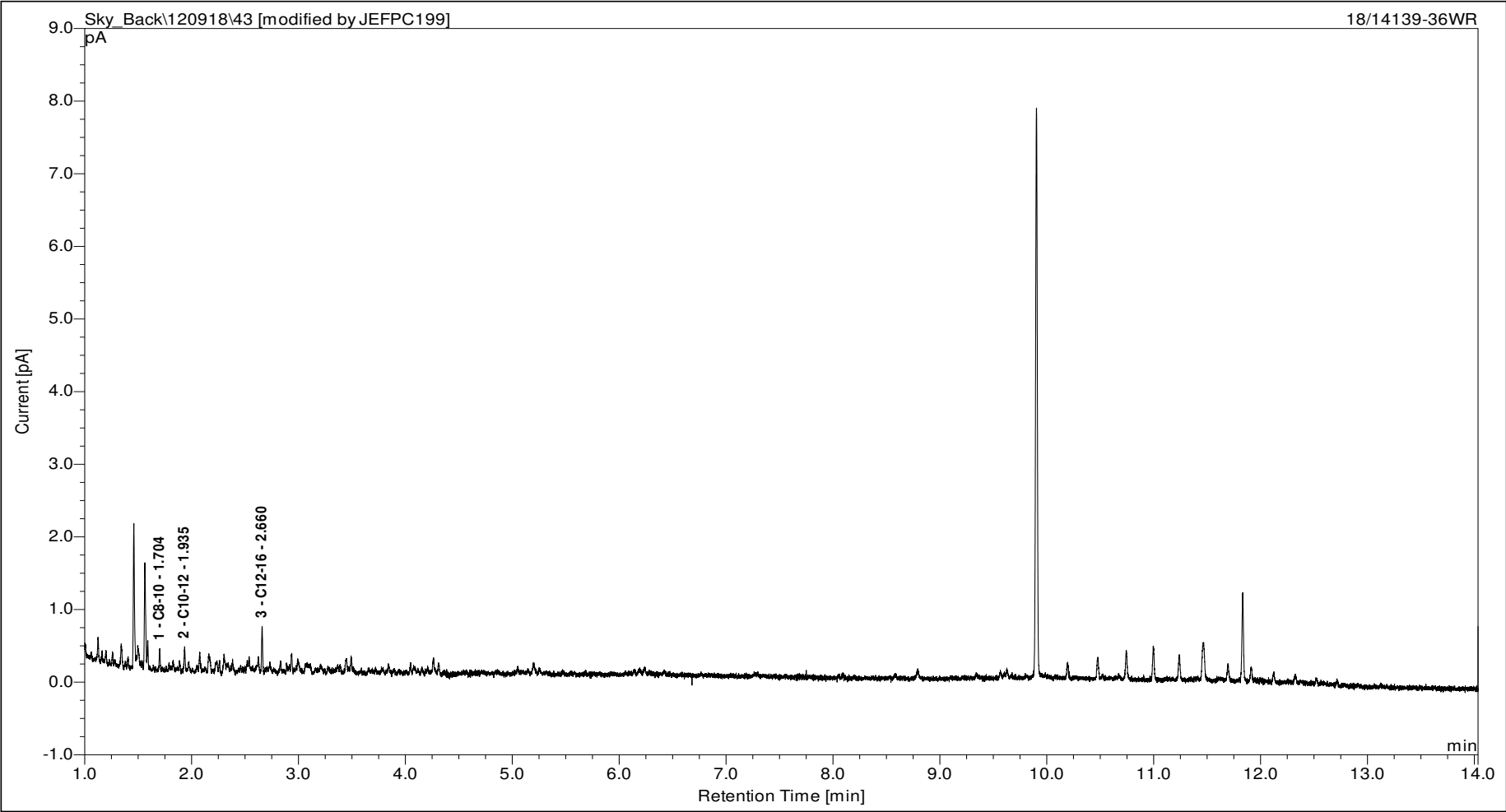
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 36
Sample Identity: WS301
Depth:
Matrix: Liquid



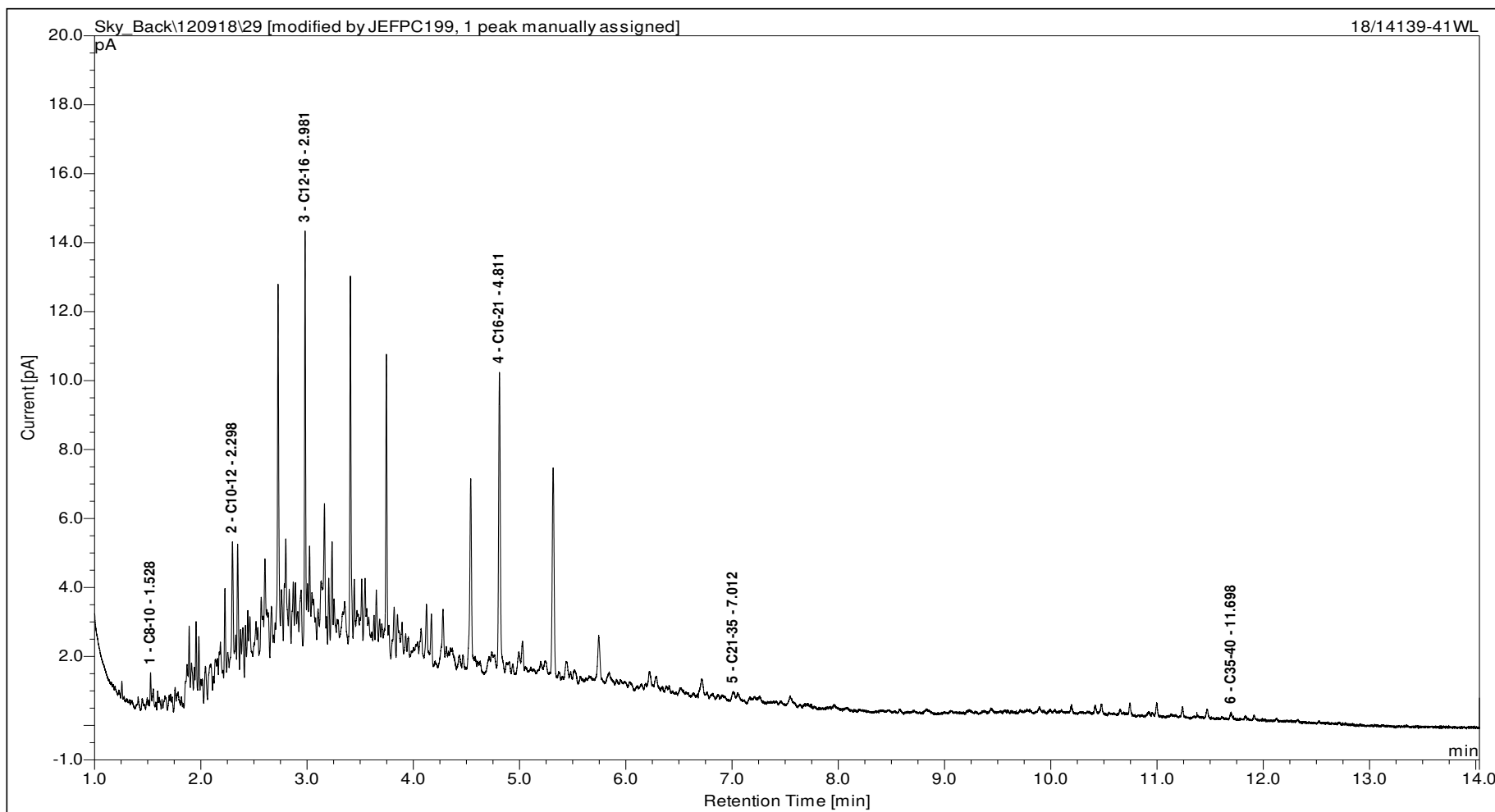
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 36
Sample Identity: WS301
Depth:
Matrix: Liquid



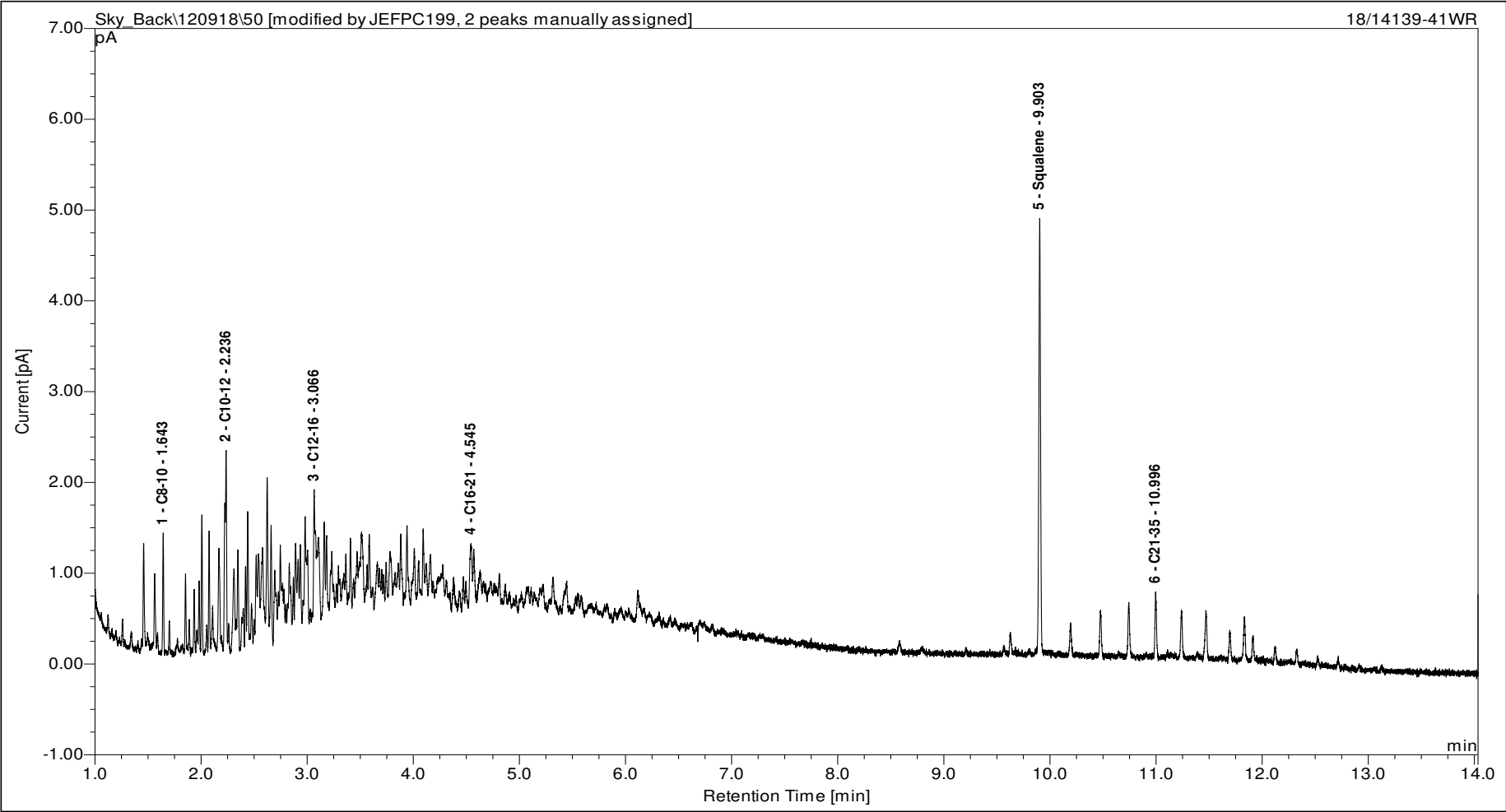
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 41
Sample Identity: WS207
Depth:
Matrix: Liquid



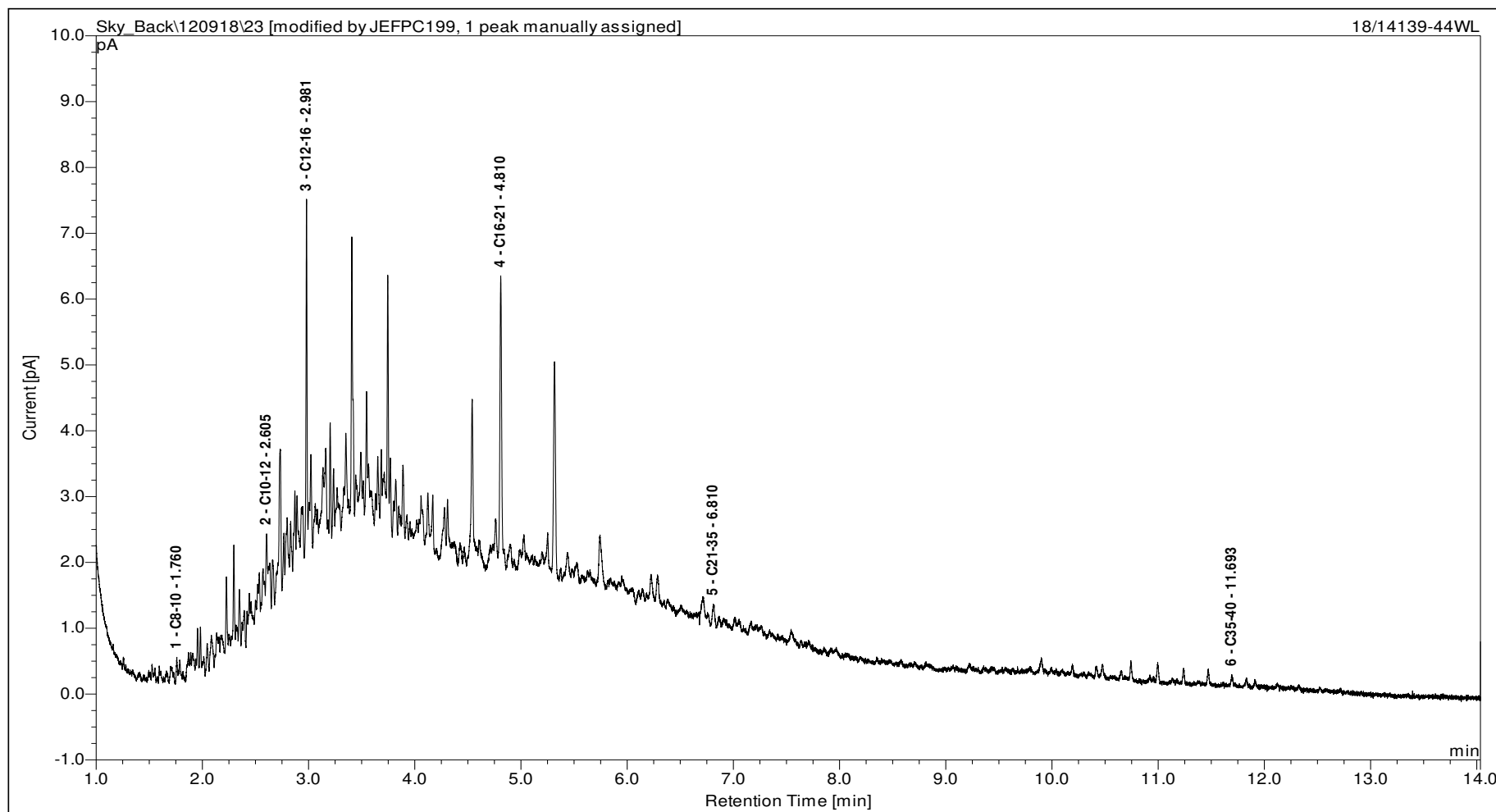
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 41
Sample Identity: WS207
Depth:
Matrix: Liquid



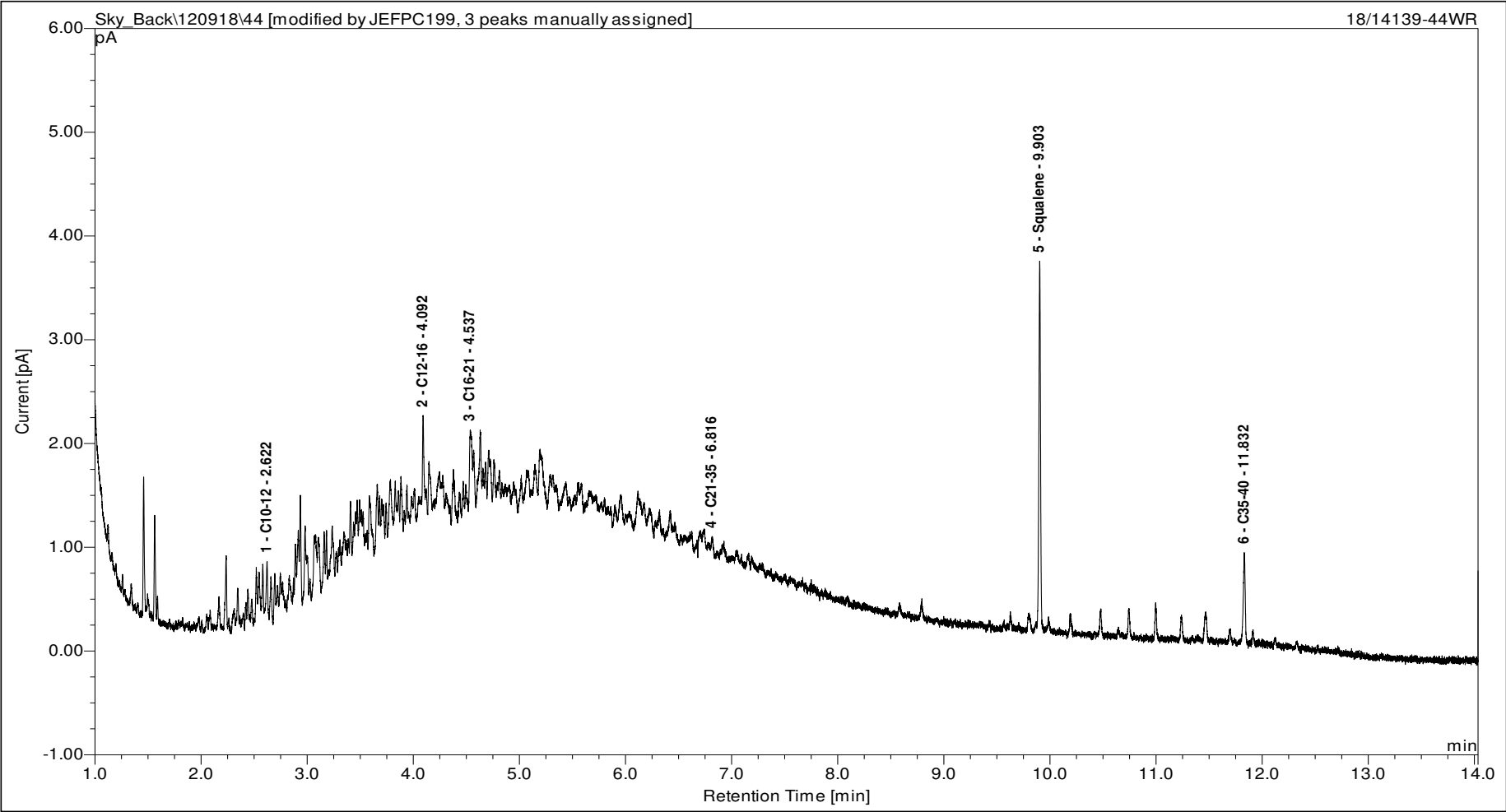
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 44
Sample Identity: WS207A
Depth:
Matrix: Liquid



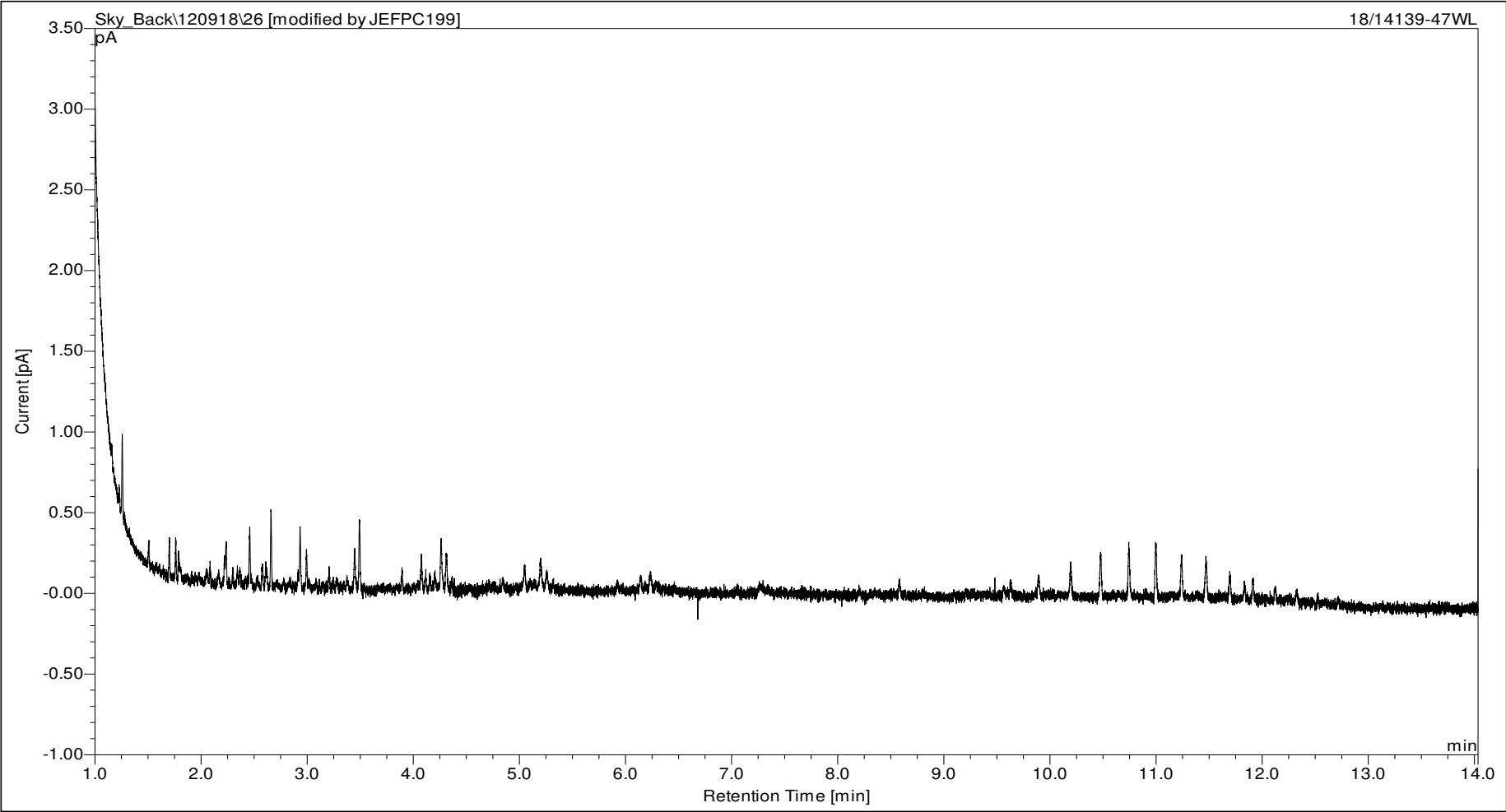
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 44
Sample Identity: WS207A
Depth:
Matrix: Liquid



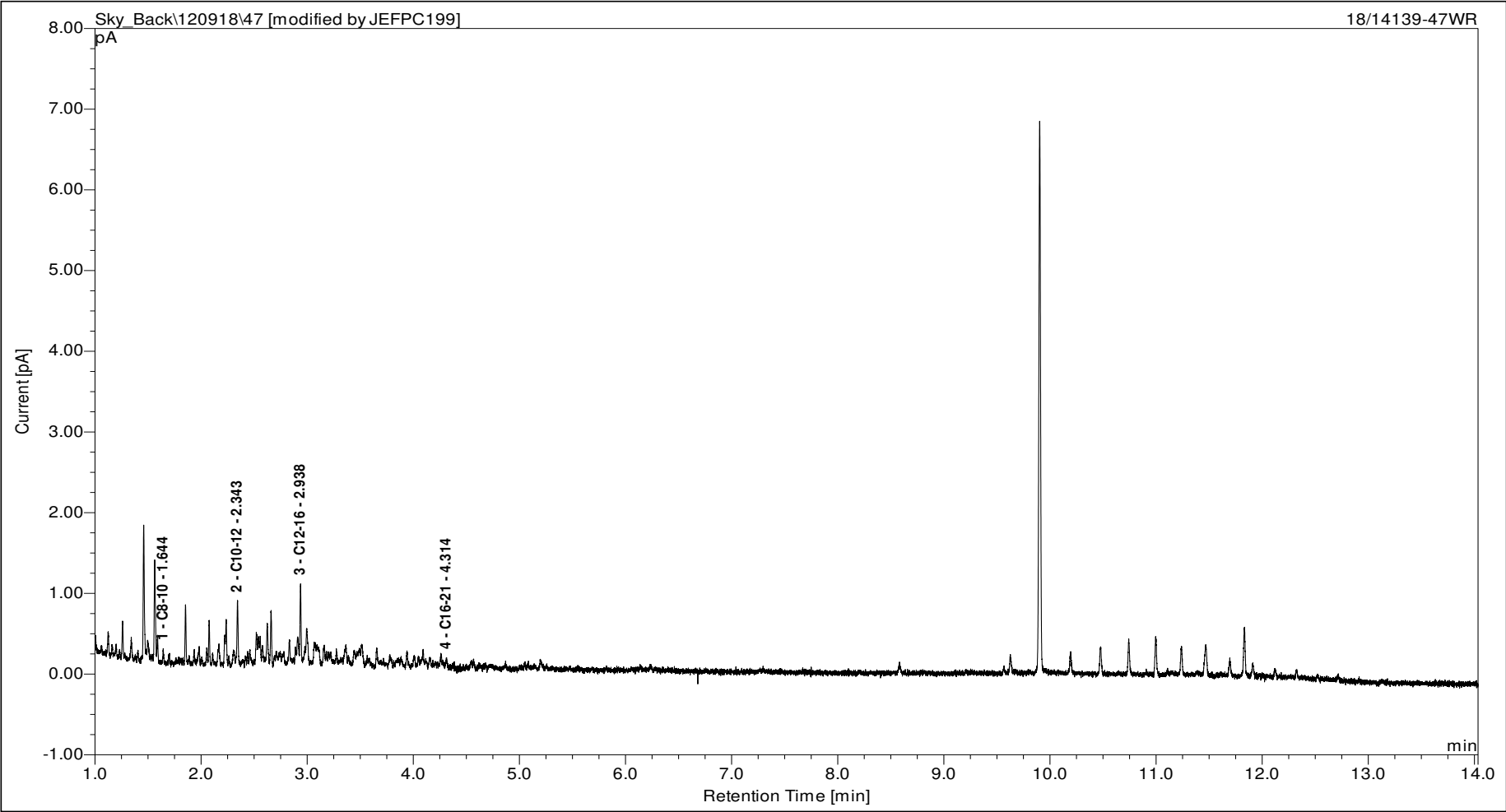
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 47
Sample Identity: WS204
Depth:
Matrix: Liquid



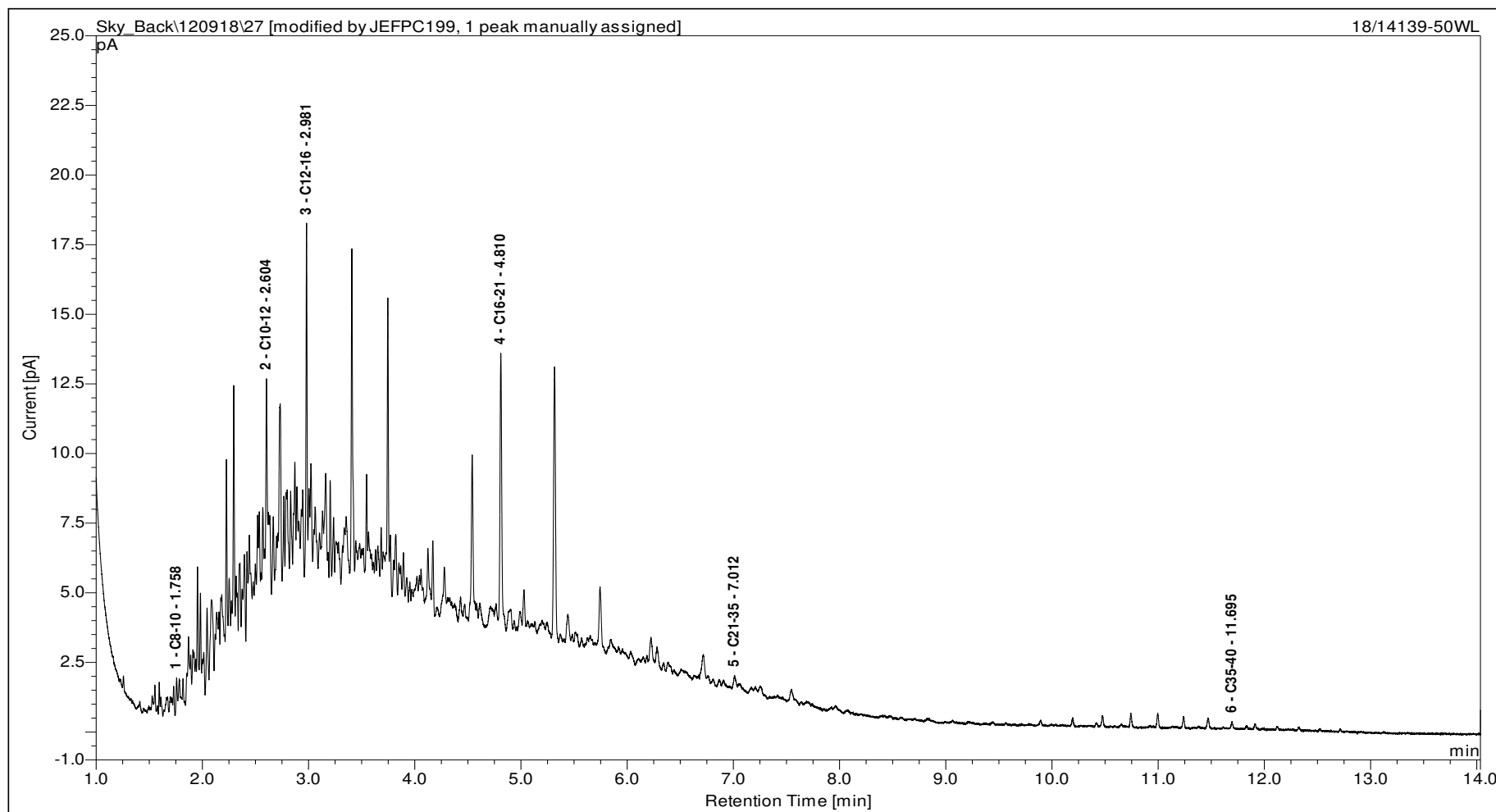
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 47
Sample Identity: WS204
Depth:
Matrix: Liquid



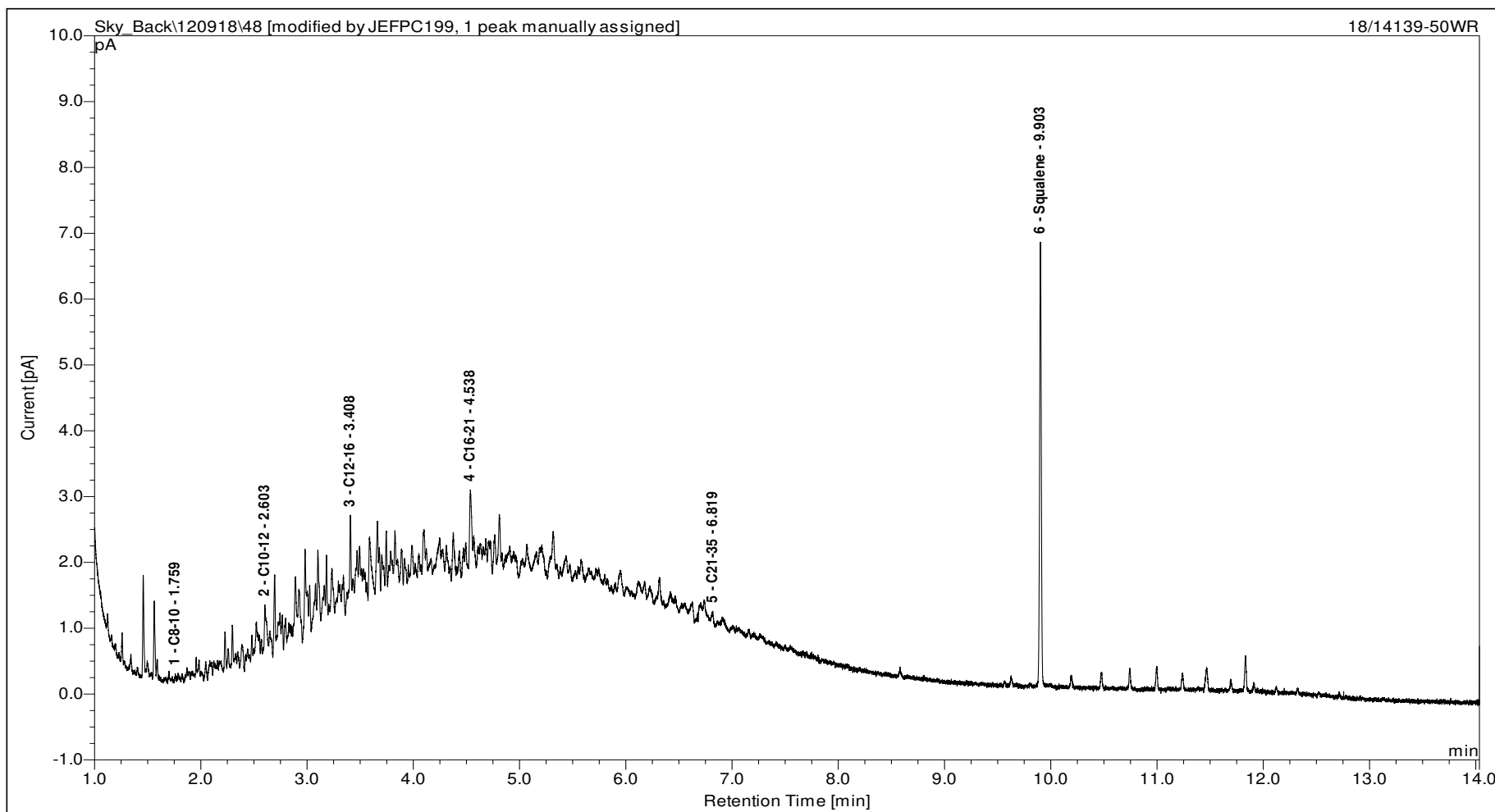
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 50
Sample Identity: WS205
Depth:
Matrix: Liquid



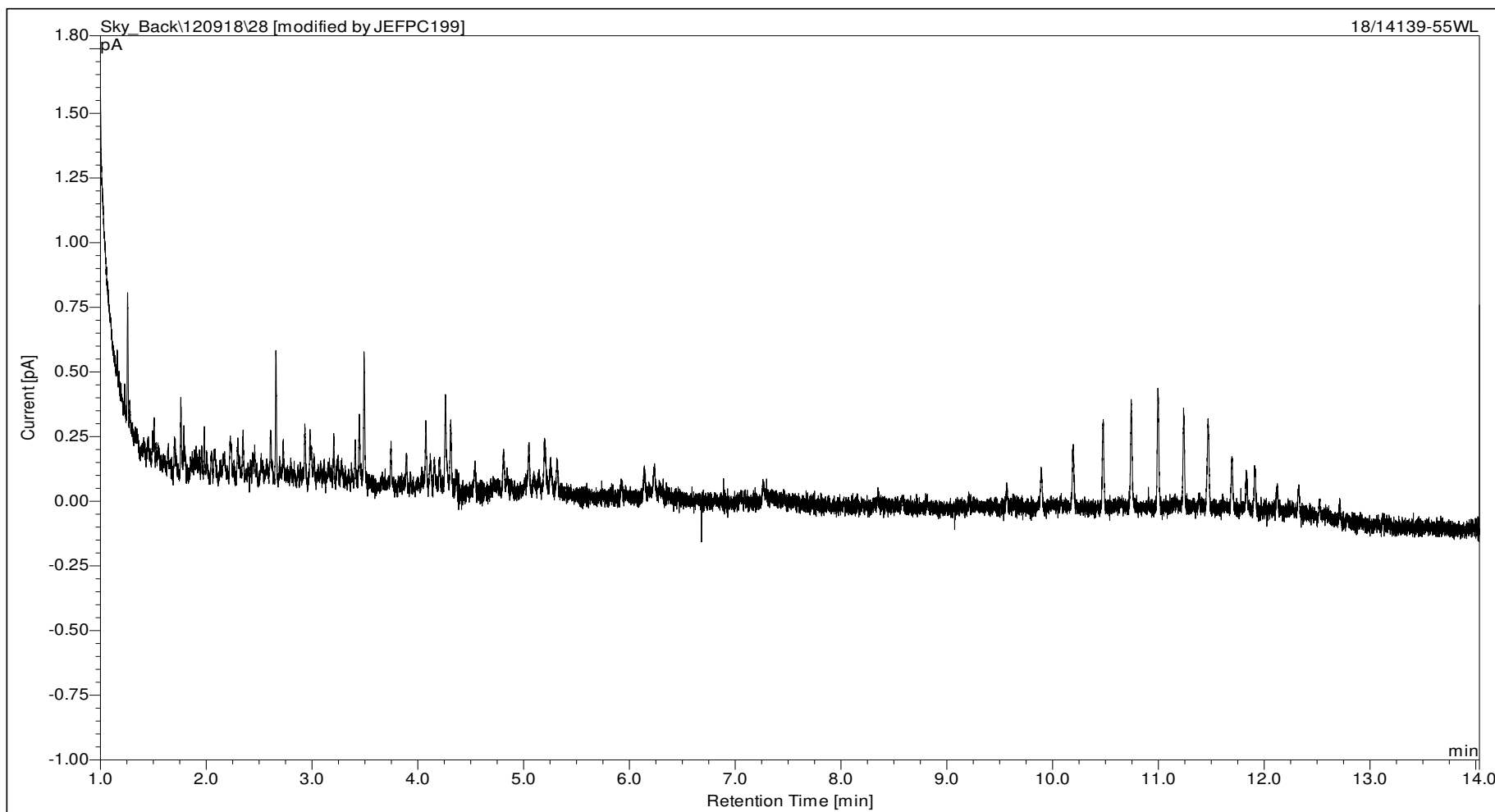
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 50
Sample Identity: WS205
Depth:
Matrix: Liquid



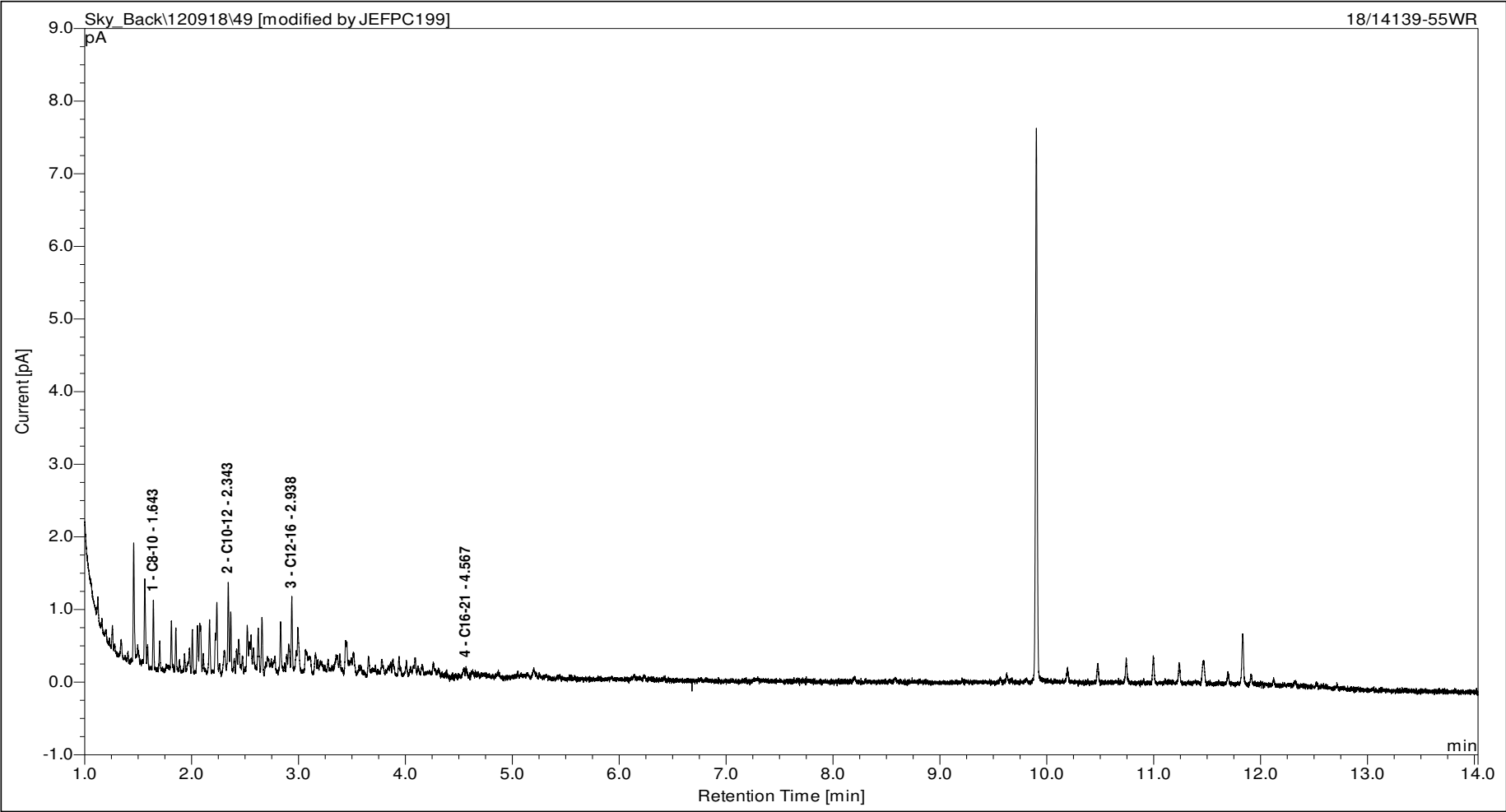
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 55
Sample Identity: WS206
Depth:
Matrix: Liquid



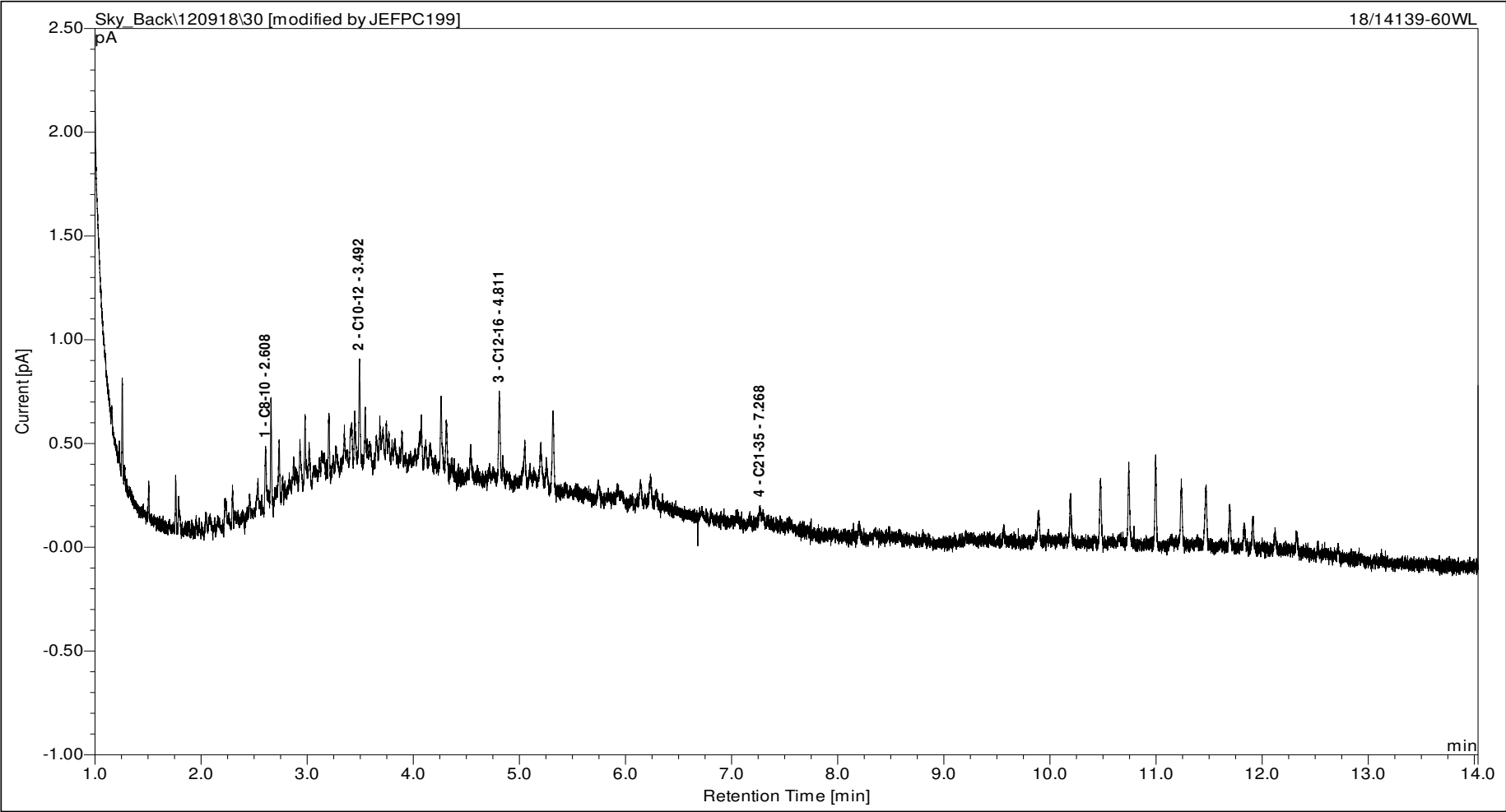
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 55
Sample Identity: WS206
Depth:
Matrix: Liquid



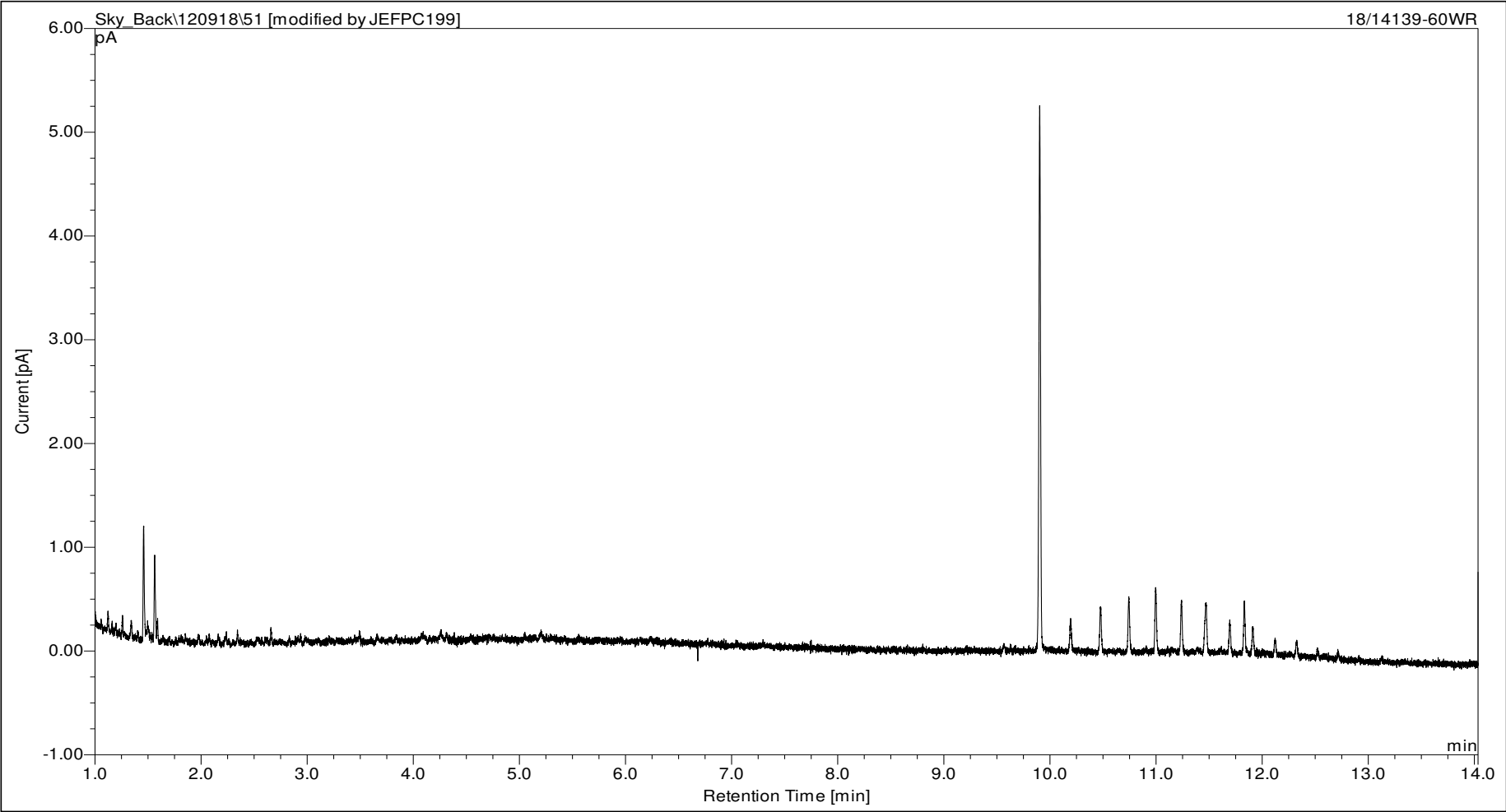
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 60
Sample Identity: WS02
Depth:
Matrix: Liquid



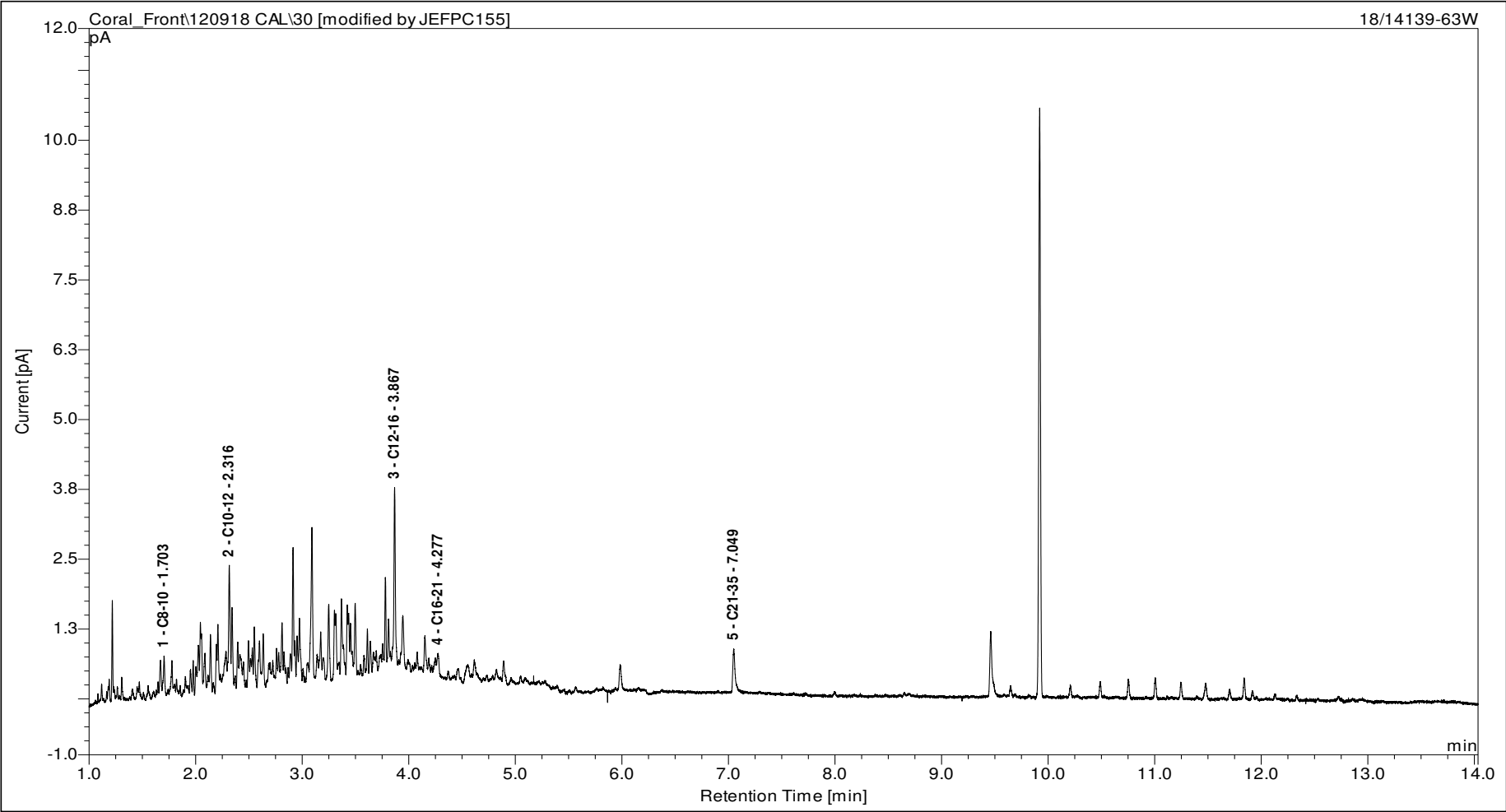
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 60
Sample Identity: WS02
Depth:
Matrix: Liquid



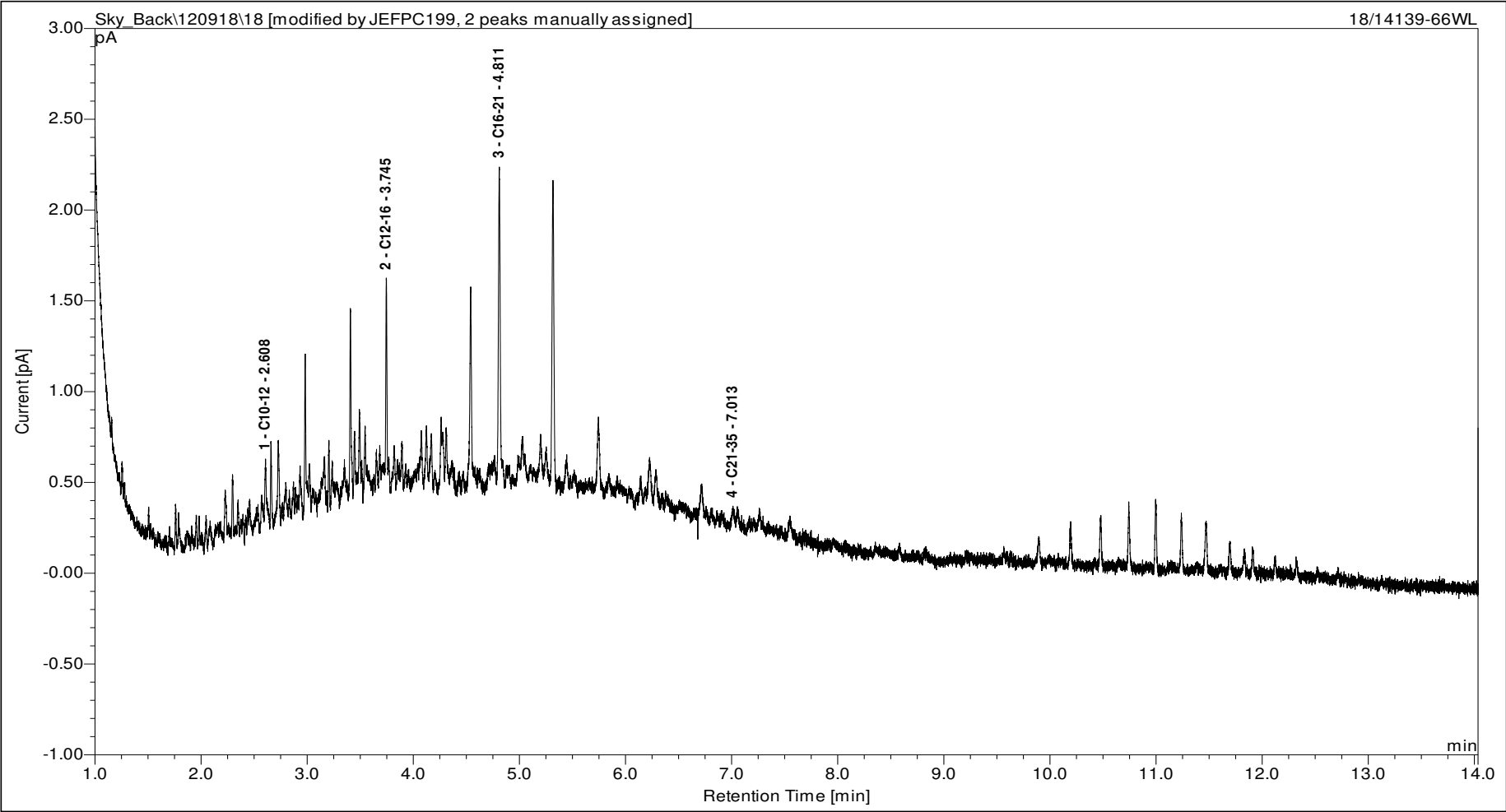
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 63
Sample Identity: BH04
Depth:
Matrix: Liquid



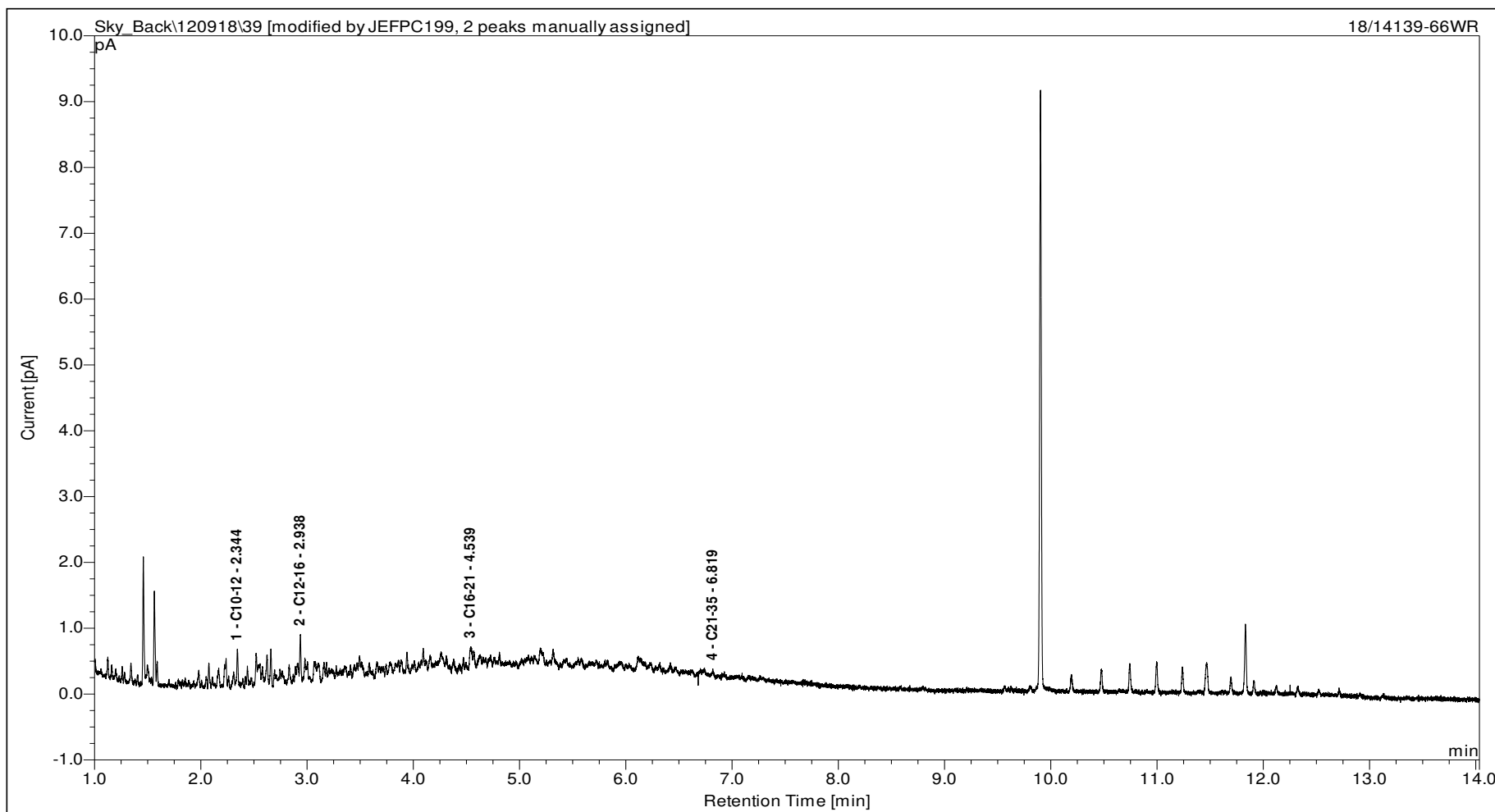
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 66
Sample Identity: WS208
Depth:
Matrix: Liquid



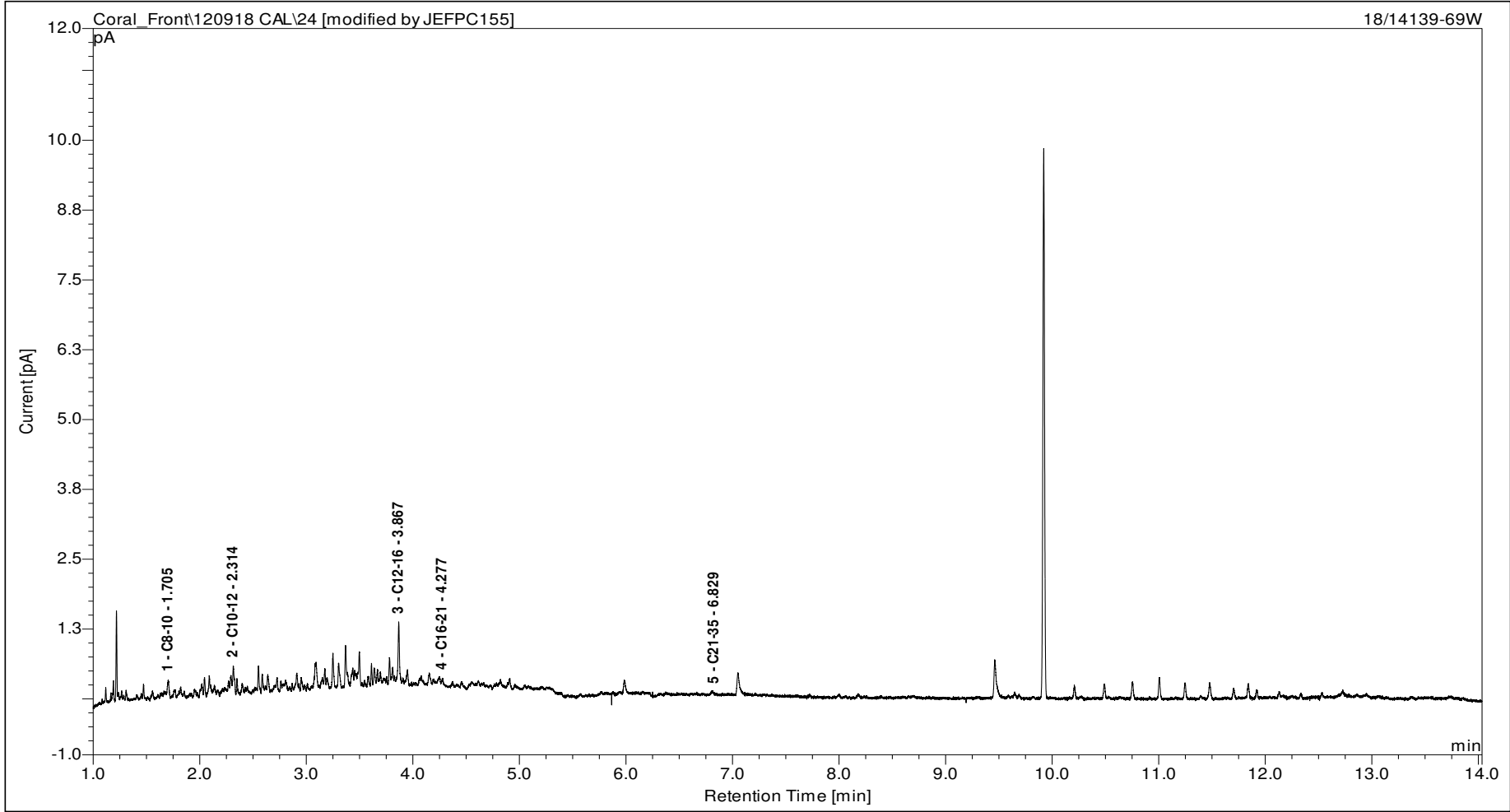
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 66
Sample Identity: WS208
Depth:
Matrix: Liquid



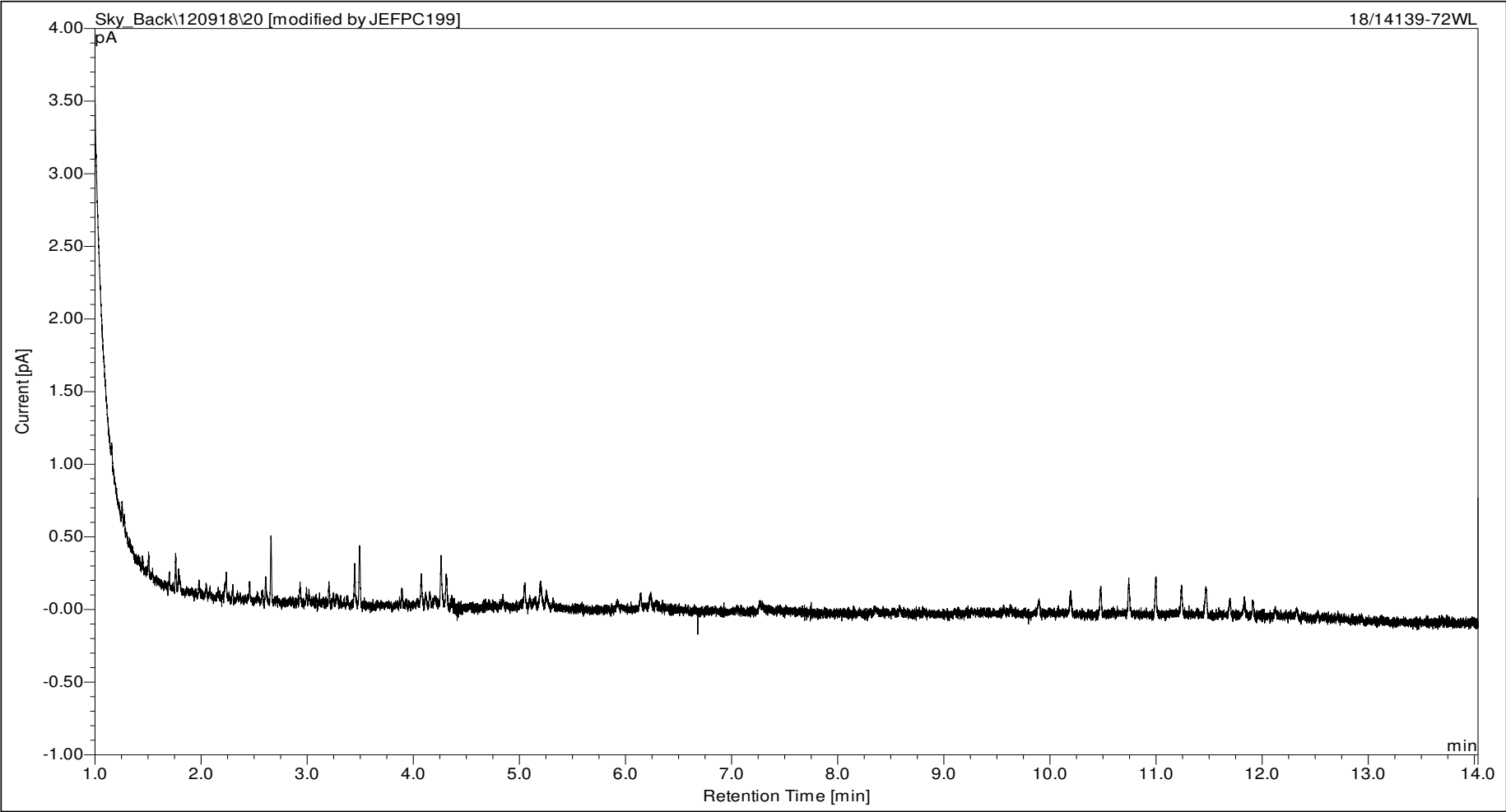
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 69
Sample Identity: WS209
Depth:
Matrix: Liquid



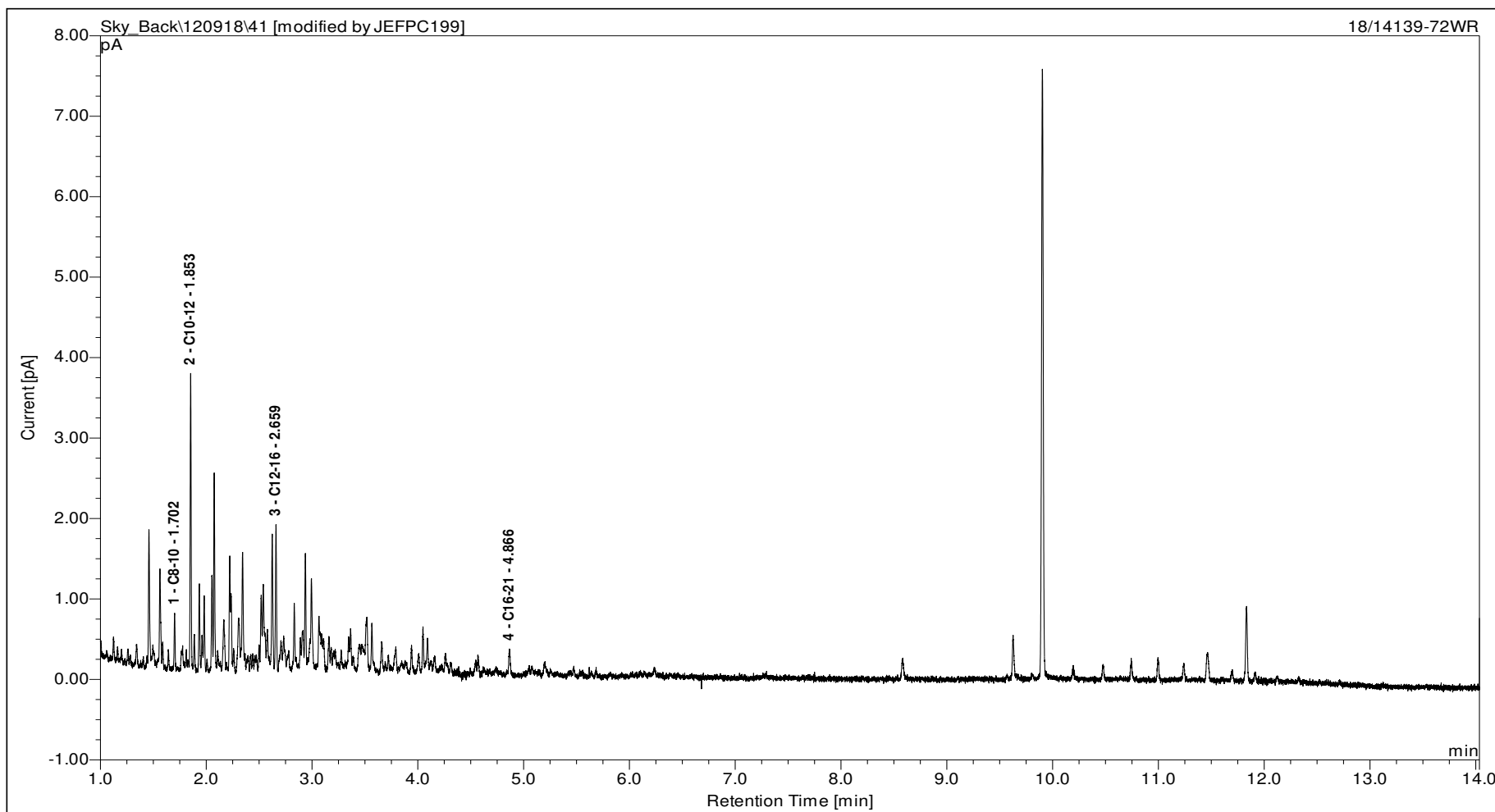
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 72
Sample Identity: BH02
Depth:
Matrix: Liquid



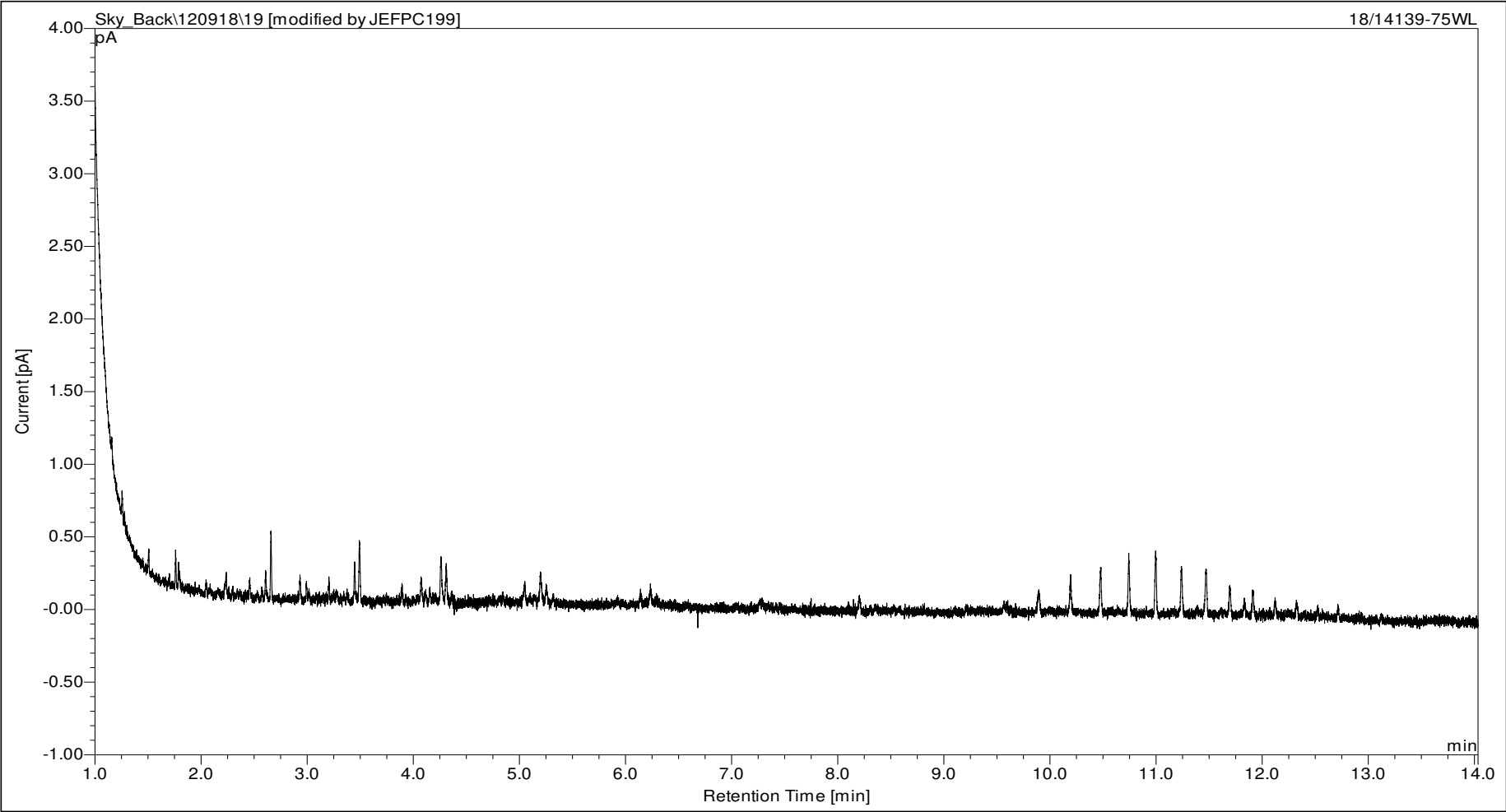
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 72
Sample Identity: BH02
Depth:
Matrix: Liquid



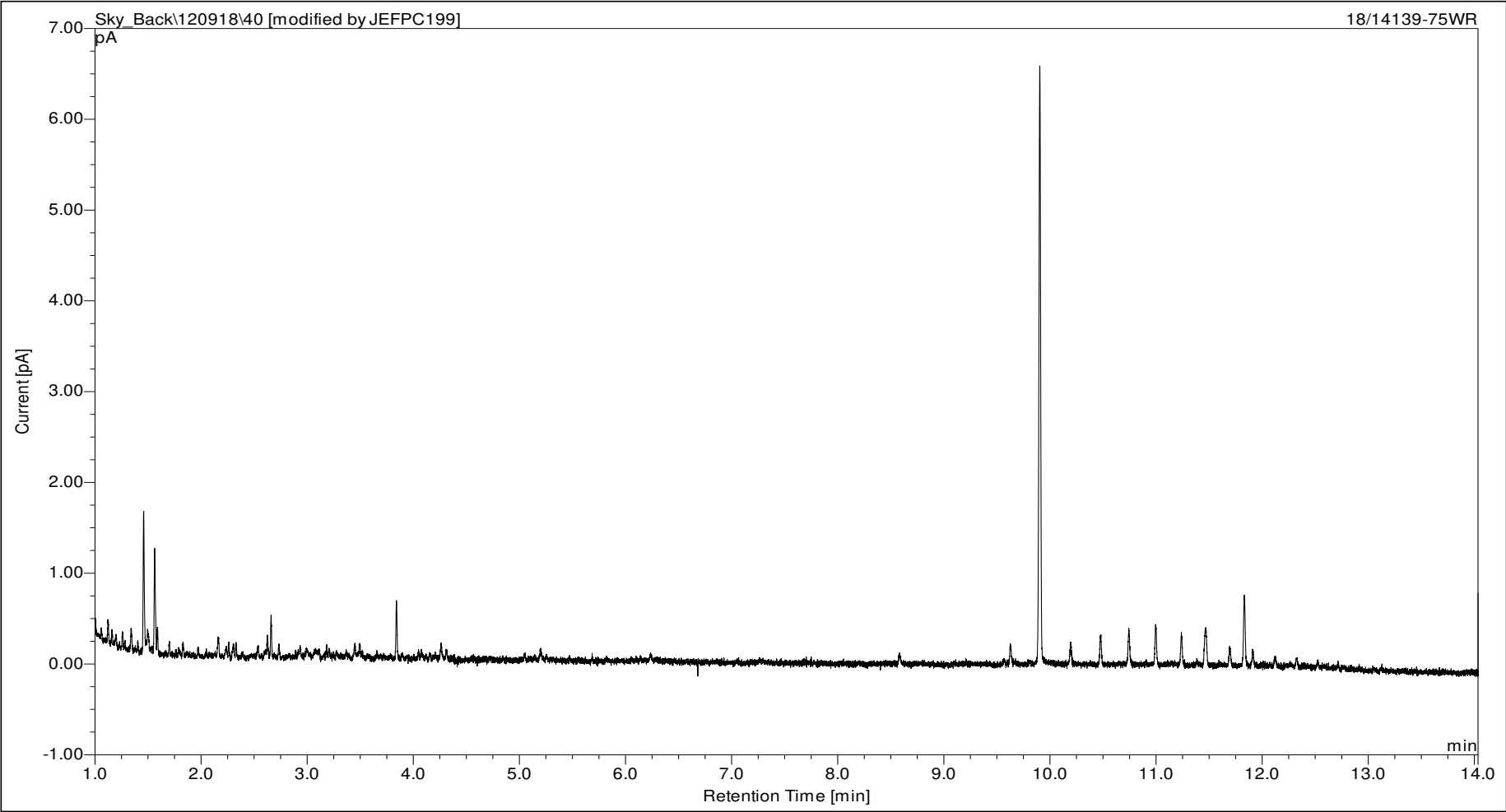
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 75
Sample Identity: BH06
Depth:
Matrix: Liquid



Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 75
Sample Identity: BH06
Depth:
Matrix: Liquid



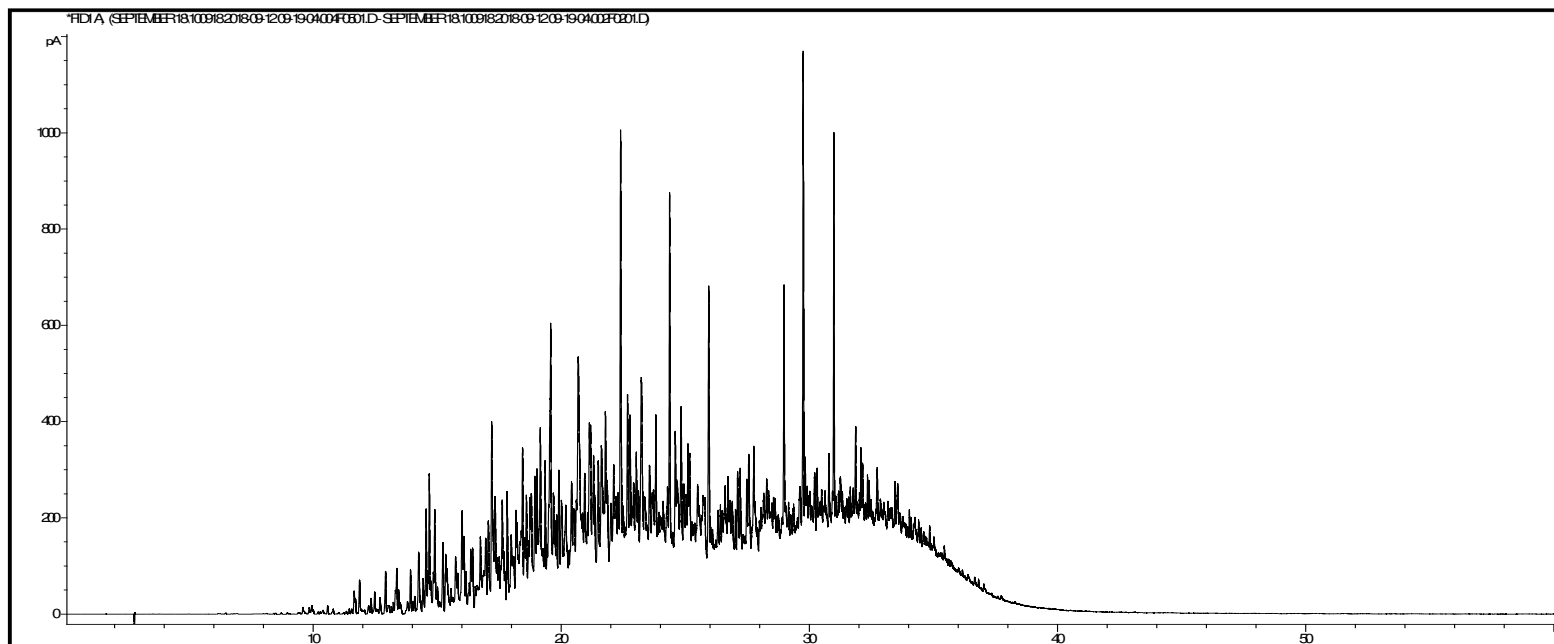
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 13
Sample Identity: BH08
Depth:

Description: Brown Oil
Carbon Range: 8-28
Boiling Point Range (°C): 126-432
Pristane/Phytane Ratio: 1.28
nC₁₇/Pristane Ratio: 0.01
Age of Diesel (+/- 2 years)*: 20

Interpretation: Degraded Diesel

Chromatogram:



*The age of release estimated in this report is based on the nC₁₇/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996). Age estimation should be treated with caution as it can be influenced by site specific factors that the laboratory are not aware of.

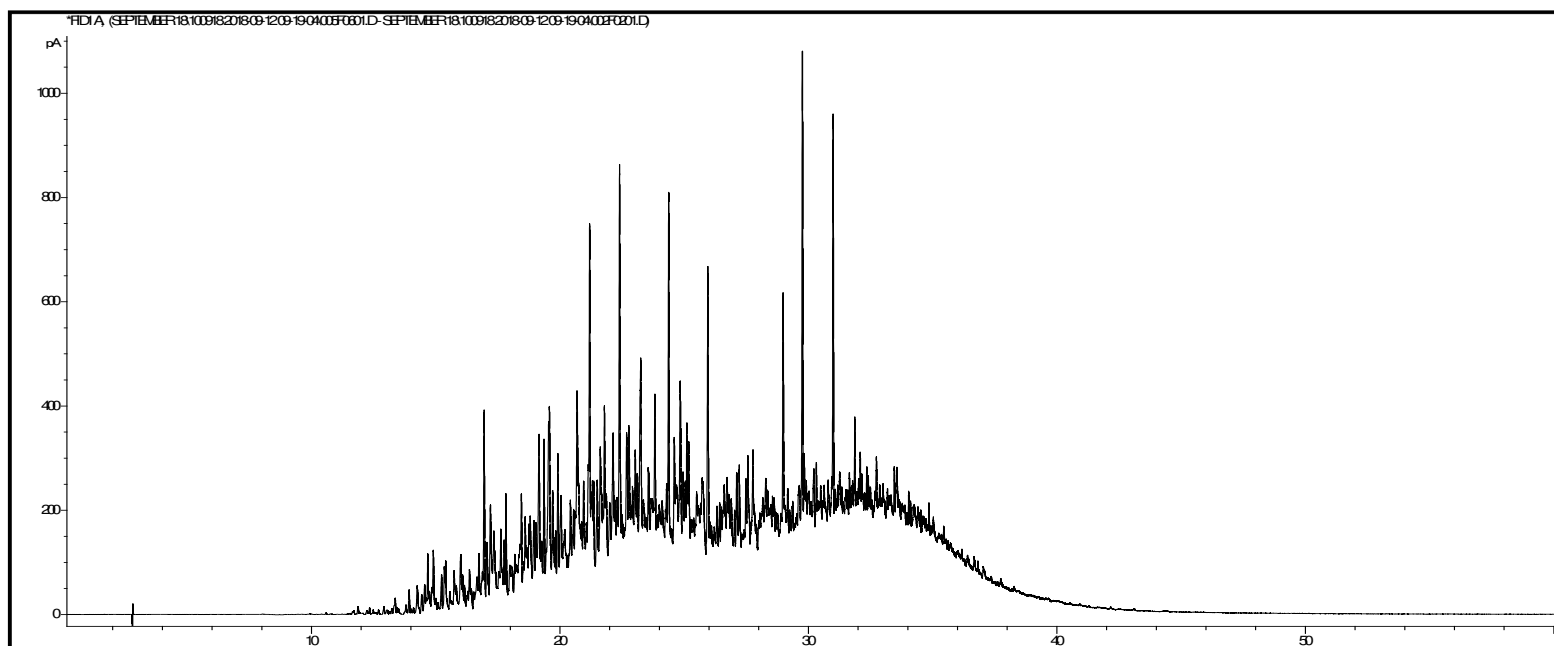
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 15
Sample Identity: WS203
Depth:

Description: Brown Oil
Carbon Range: 8-28
Boiling Point Range (°C): 126-432
Pristane/Phytane Ratio: 1.24
nC₁₇/Pristane Ratio: 0.01
Age of Diesel (+/- 2 years)*: 20

Interpretation: Degraded Diesel

Chromatogram:



*The age of release estimated in this report is based on the nC₁₇/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996). Age estimation should be treated with caution as it can be influenced by site specific factors that the laboratory are not aware of.

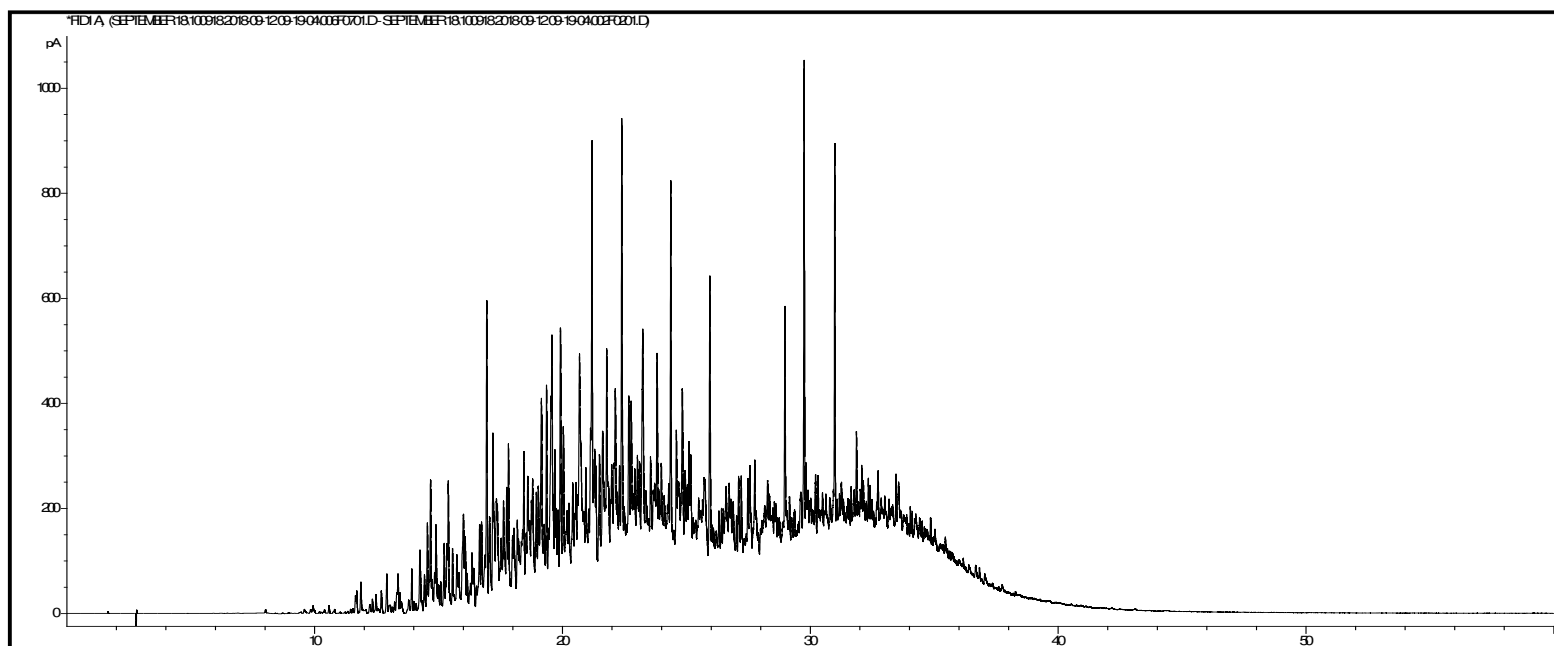
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 32
Sample Identity: WS202
Depth:

Description: Brown Oil
Carbon Range: 8-28
Boiling Point Range (°C): 126-432
Pristane/Phytane Ratio: 1.28
nC₁₇/Pristane Ratio: 0.01
Age of Diesel (+/- 2 years)*: 20

Interpretation: Degraded Diesel

Chromatogram:



*The age of release estimated in this report is based on the nC₁₇/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996). Age estimation should be treated with caution as it can be influenced by site specific factors that the laboratory are not aware of.

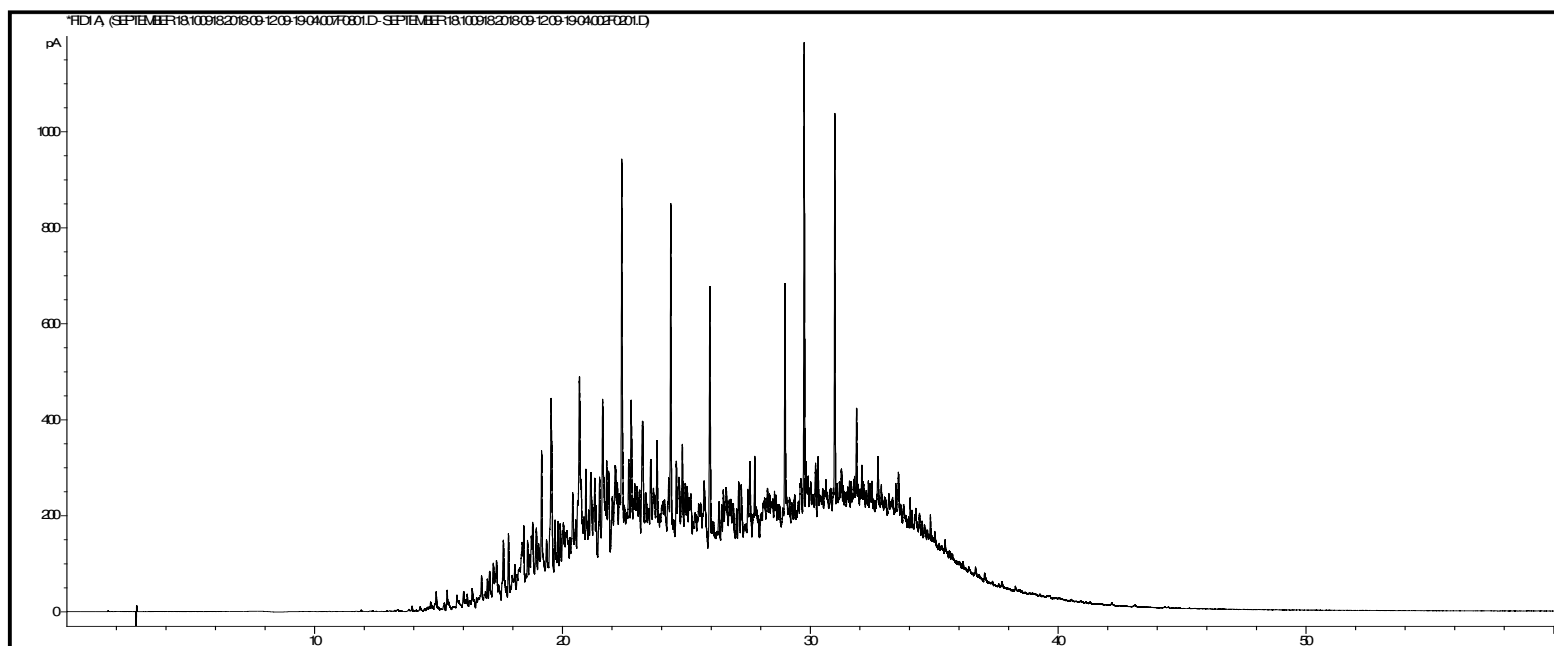
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 37
Sample Identity: WS302
Depth:

Description: Dark Brown Oil
Carbon Range: 8-28
Boiling Point Range (°C): 126-432
Pristane/Phytane Ratio: 1.25
nC₁₇/Pristane Ratio: 0.01
Age of Diesel (+/- 2 years)*: 20

Interpretation: Degraded Diesel

Chromatogram:



*The age of release estimated in this report is based on the nC₁₇/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996). Age estimation should be treated with caution as it can be influenced by site specific factors that the laboratory are not aware of.

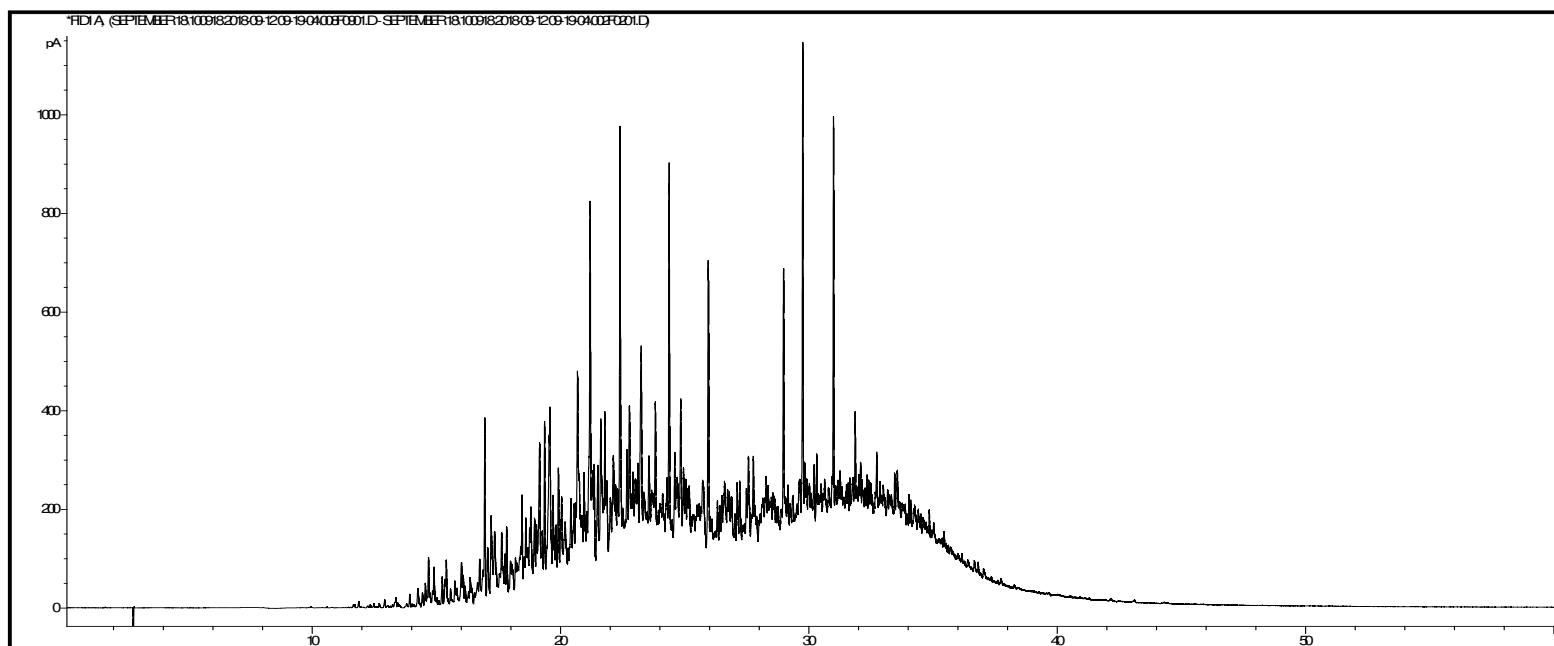
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 51
Sample Identity: WS201
Depth:

Description: Dark Brown Oil
Carbon Range: 8-28
Boiling Point Range (°C): 126-432
Pristane/Phytane Ratio: 1.27
nC₁₇/Pristane Ratio: 0.01
Age of Diesel (+/- 2 years)*: 20

Interpretation: Degraded Diesel

Chromatogram:



*The age of release estimated in this report is based on the nC₁₇/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996). Age estimation should be treated with caution as it can be influenced by site specific factors that the laboratory are not aware of.

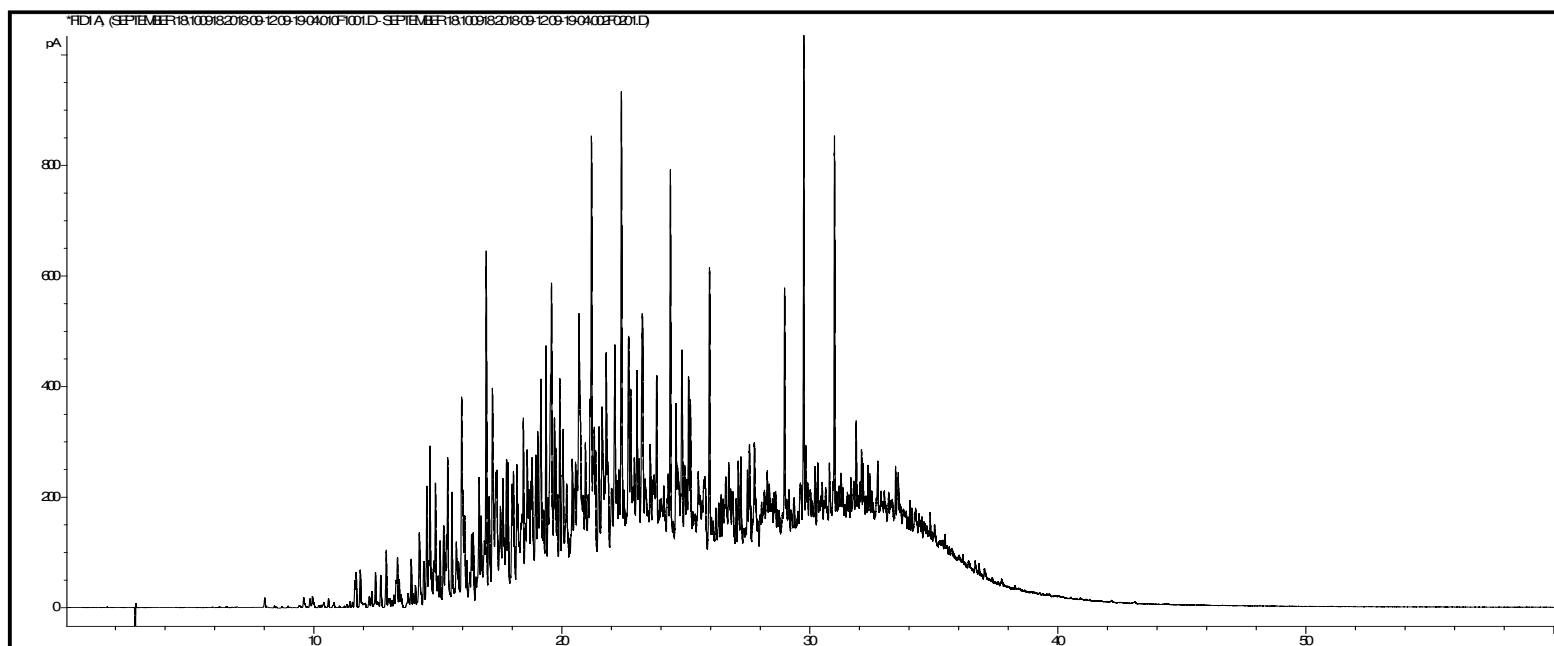
Client Name: OHES Environmental
Reference: 13053
Location: Thatcham
Contact: Philippa Rawbone

JE Job No.: 18/14139
JE Sample No.: 56
Sample Identity: WS01
Depth:

Description: Brown Oil
Carbon Range: 8-28
Boiling Point Range (°C): 126-432
Pristane/Phytane Ratio: 1.3
nC₁₇/Pristane Ratio: 0.01
Age of Diesel (+/- 2 years)*: 20

Interpretation: Degraded Diesel

Chromatogram:



*The age of release estimated in this report is based on the nC₁₇/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996). Age estimation should be treated with caution as it can be influenced by site specific factors that the laboratory are not aware of.

Client Name: OHES Environmental

Reference: 13053

Location: Thatcham

Contact: Philippa Rawbone

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 18/14139

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Exova Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 18/14139

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM1	Modified USEPA 8015B method for the determination of carbon banding in oil and product samples by GC-FID.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.				
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

JE Job No: 18/14139

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			



Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
Zone 3
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Deeside
CH5 2UA

OHES
1 The Courtyard
Denmark Street
Wokingham
Berkshire
RG40 2AZ

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781



Attention :	Matthew Thomas
Date :	23rd June, 2015
Your reference :	6977
Our reference :	Test Report 15/8872 Batch 1
Location :	Thatcham
Date samples received :	18th June, 2015
Status :	Final report
Issue :	1

Nine samples were received for analysis on 18th June, 2015 of which nine were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Bruce Leslie
Project Co-ordinator

Bob Millward BSc FRSC
Principal Chemist

Client Name: OHES
 Reference: 6977
 Location: Thatcham
 Contact: Matthew Thomas
 JE Job No.: 15/8872

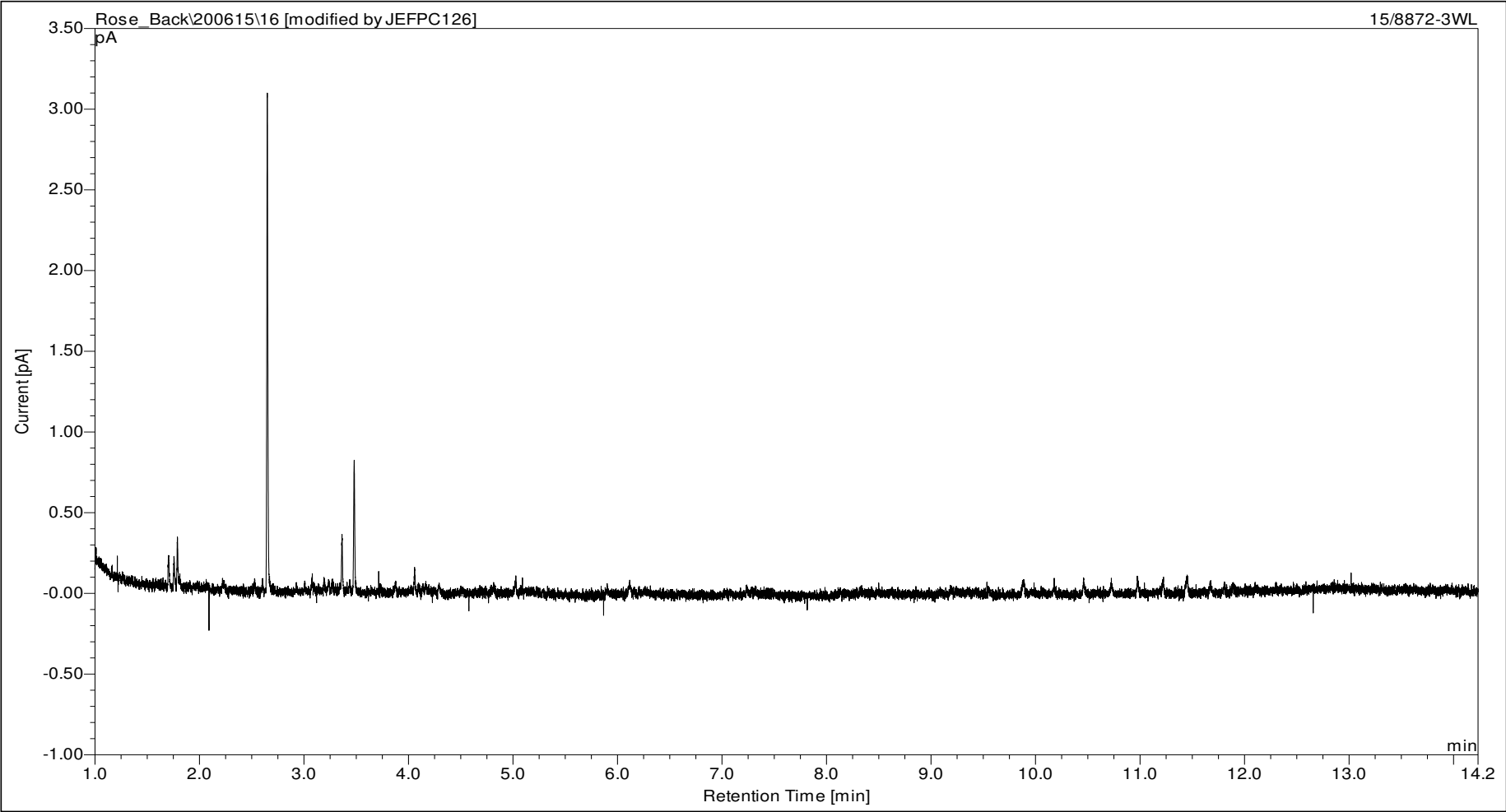
Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27		Please see attached notes for all abbreviations and acronyms		
Sample ID	BH301	BH308	WS03	WS201	WS02	BH303	WS205	WS206	WS211				
Depth													
COC No / misc													
Containers	V G	V G	V G	V G	V G	V G	V G	V G	V G				
Sample Date	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015				
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water				
Batch Number	1	1	1	1	1	1	1	1	1				
Date of Receipt	18/06/2015	18/06/2015	18/06/2015	18/06/2015	18/06/2015	18/06/2015	18/06/2015	18/06/2015	18/06/2015		LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
>C6-C8 #	<5	<5	<5	71	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
>C8-C10 #	7	116	18	1786	1043	356	28	29	6		<5	ug/l	TM36/PM12
>C10-C12 #	<5	34	1319	45	20269 ^{AA}	717	<5	78	<5		<5	ug/l	TM5/PM30
>C12-C16 #	<10	80	3540	1780	50260 ^{AA}	1810	<10	530	<10		<10	ug/l	TM5/PM30
>C16-C21 #	<10	30	3360	1740	48930 ^{AA}	1550	<10	2500	<10		<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10	650	570	14610 ^{AA}	290	<10	750	<10		<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10	260	8887	5992	135112 ^{AA}	4723	28	3887	<10		<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7 #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
>EC7-EC8 #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
>EC8-EC10 #	<5	8	<5	190	20	6	<5	<5	<5		<5	ug/l	TM36/PM12
>EC10-EC12 #	36	230	436	1065	7243	393	133	76	<5		<5	ug/l	TM5/PM30
>EC12-EC16 #	30	300	1870	1840	27960	1060	150	460	<10		<10	ug/l	TM5/PM30
>EC16-EC21 #	<10	170	2450	1530	35750	1200	<10	2420	<10		<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10	390	310	10880	250	<10	990	<10		<10	ug/l	TM5/PM30
Total aromatics C5-35 #	66	708	5146	4935	81853	2909	283	3946	<10		<10	ug/l	TM5/PM30
Total aliphatics and aromatics(C5-35) #	66	968	14033	10927	216965	7632	311	7833	<10		<10	ug/l	TM5/TM36/PM30
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
Ethylbenzene #	<5	<5	<5	46	6	<5	<5	<5	<5		<5	ug/l	TM36/PM12
m/p-Xylene #	<5	<5	<5	100	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
o-Xylene #	<5	<5	<5	44	11	6	<5	<5	<5		<5	ug/l	TM36/PM12

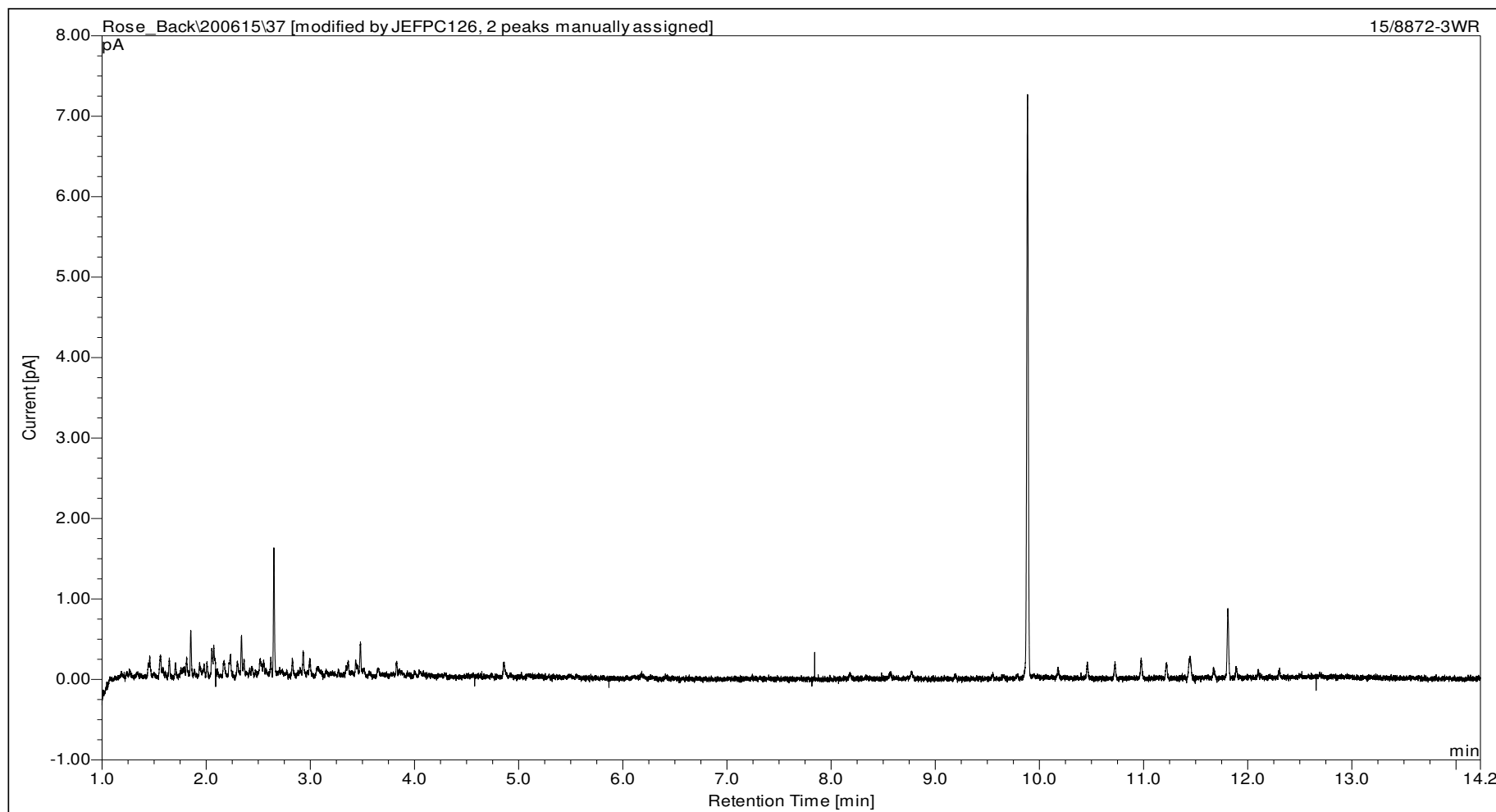
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 3
Sample Identity: BH301
Depth:
Matrix: Liquid



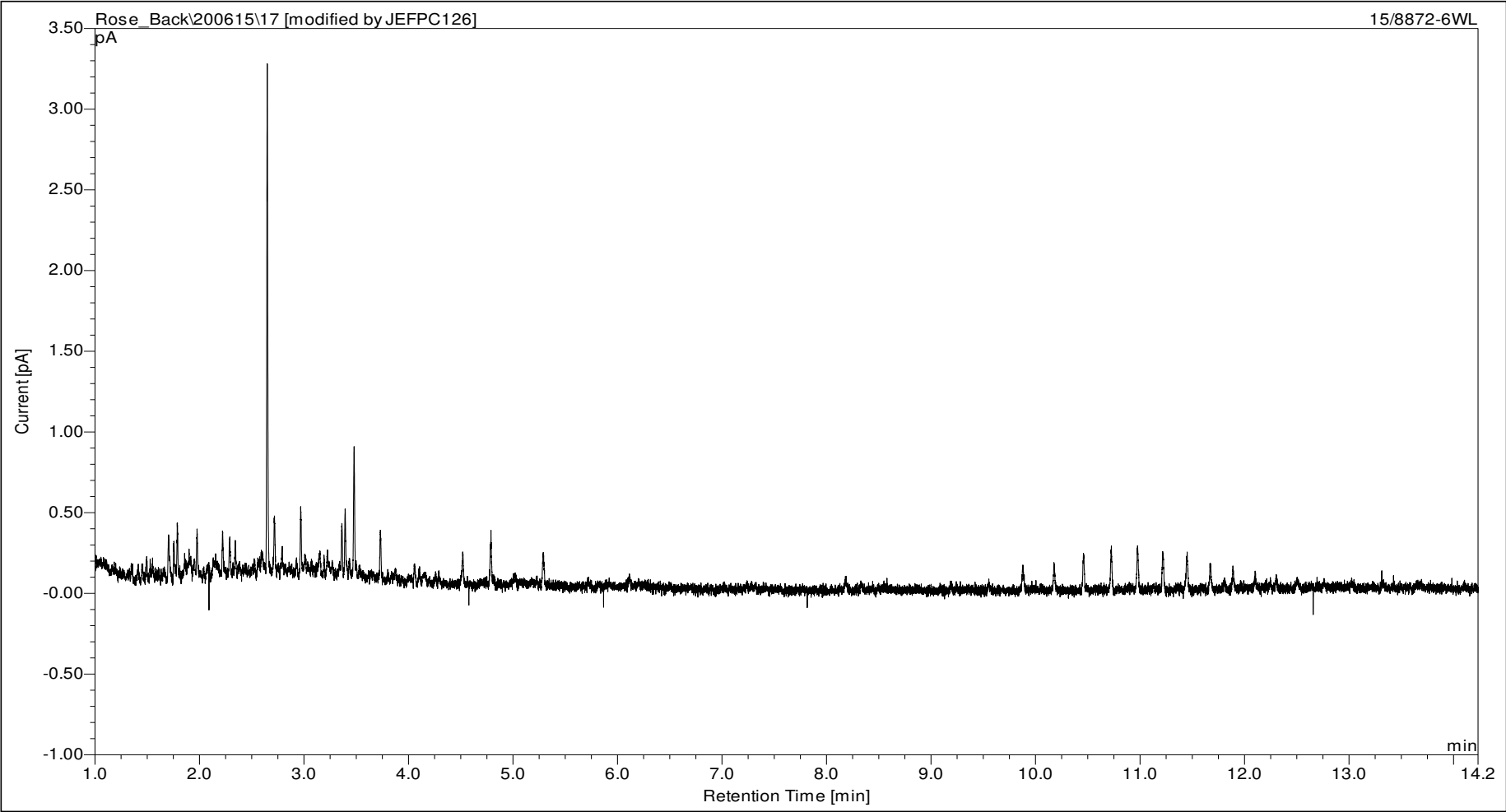
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 3
Sample Identity: BH301
Depth:
Matrix: Liquid



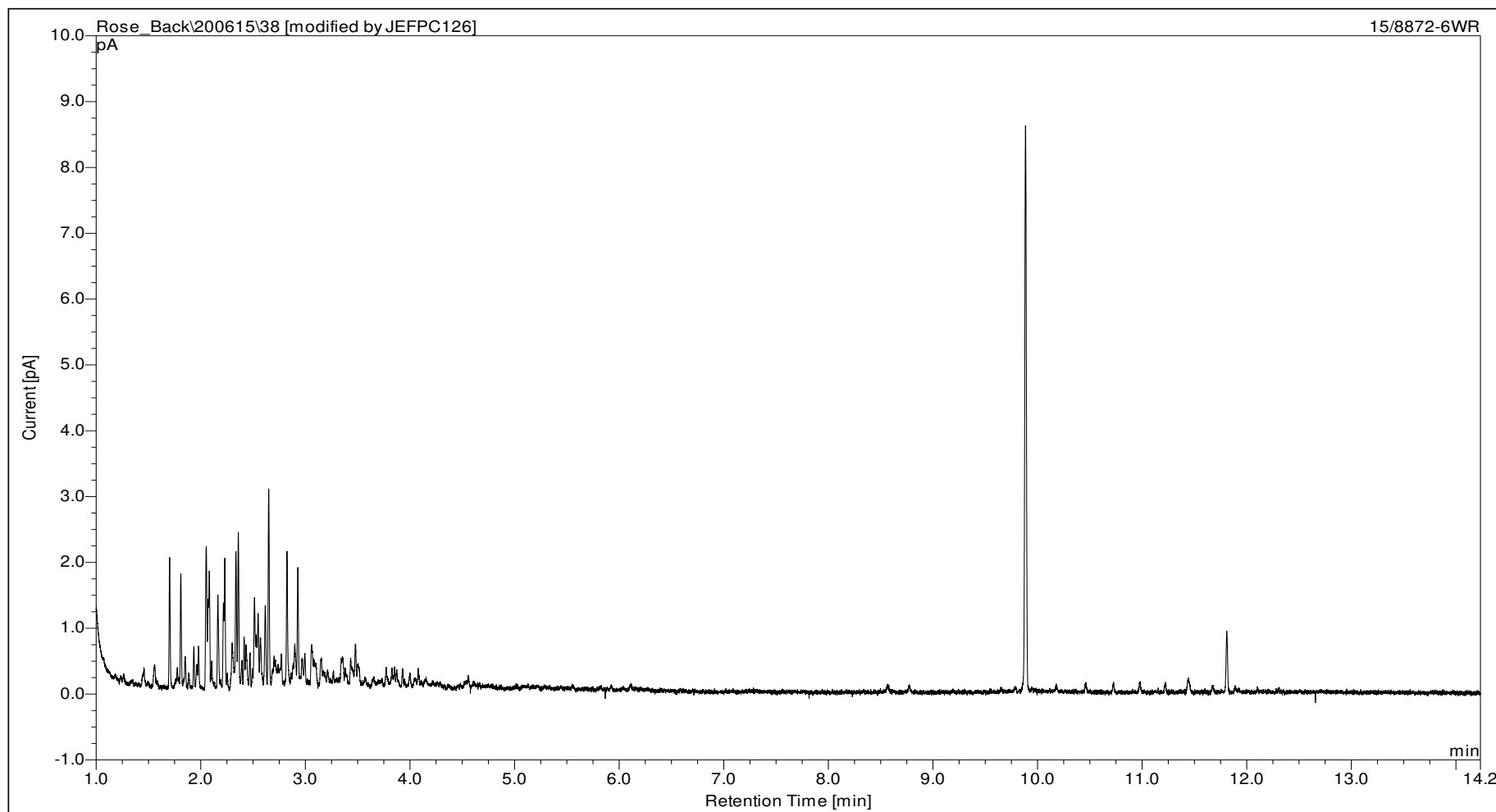
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

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JE Sample No.: 6
Sample Identity: BH308
Depth:
Matrix: Liquid



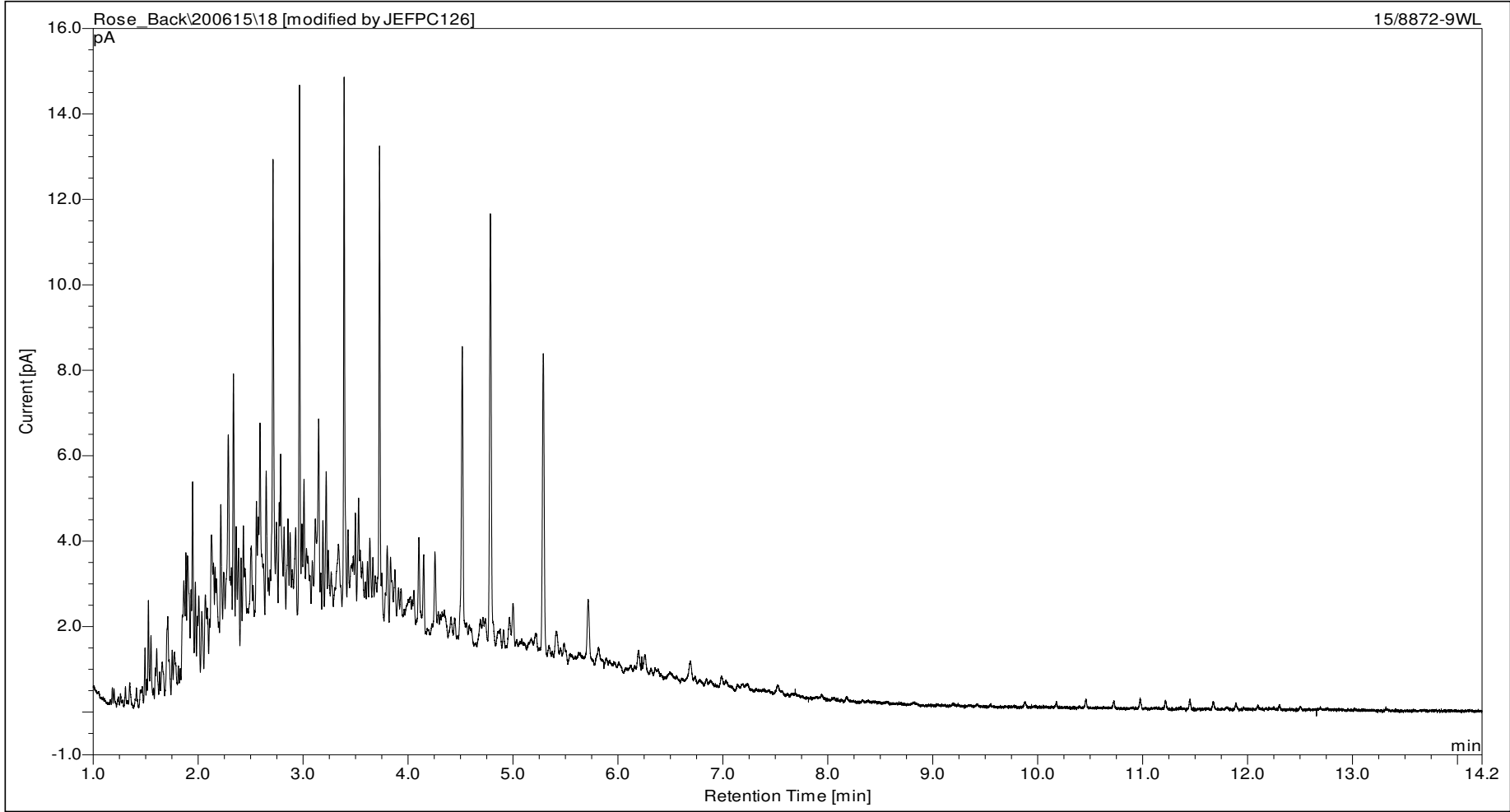
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 6
Sample Identity: BH308
Depth:
Matrix: Liquid



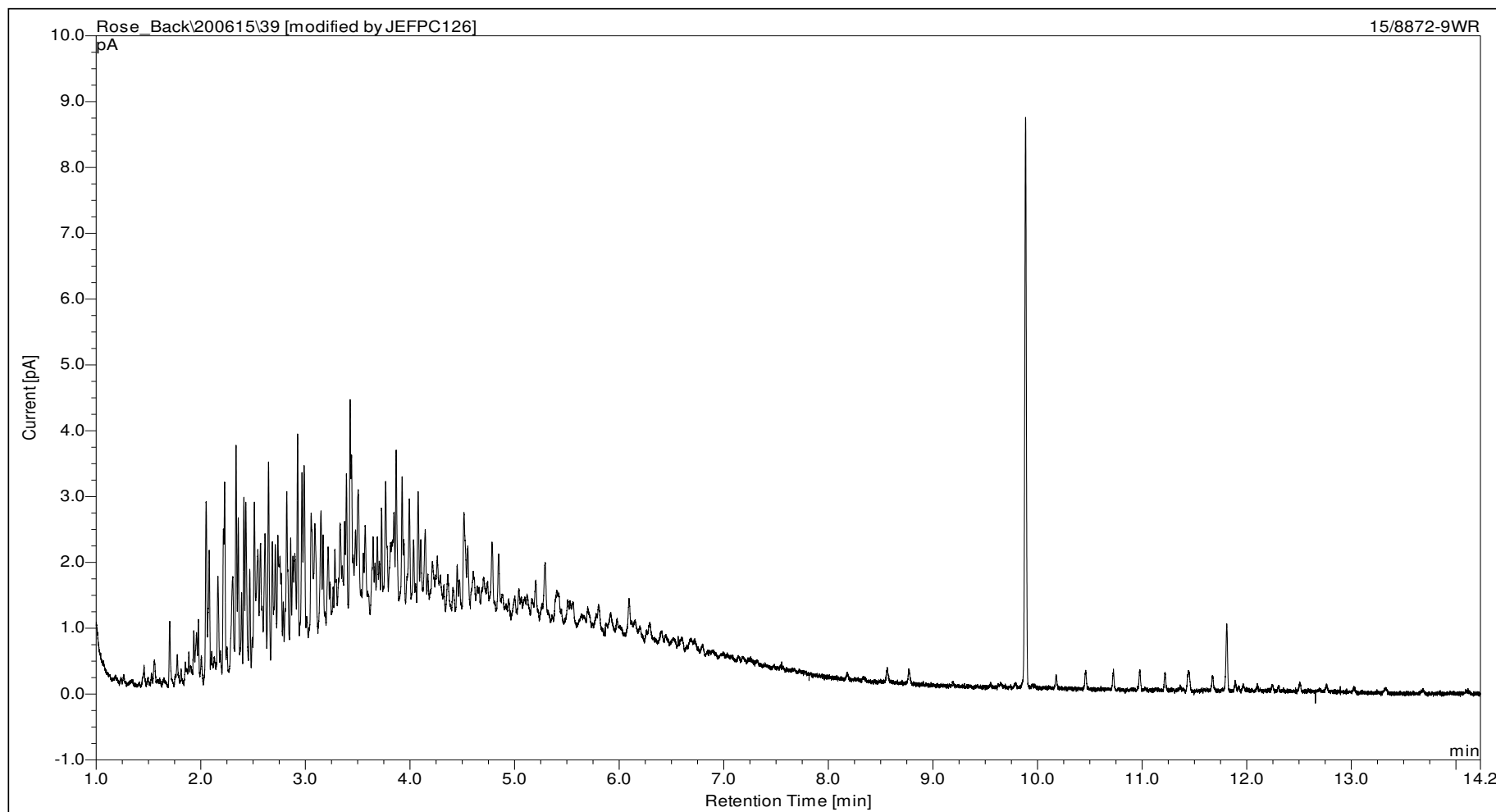
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 9
Sample Identity: WS03
Depth:
Matrix: Liquid



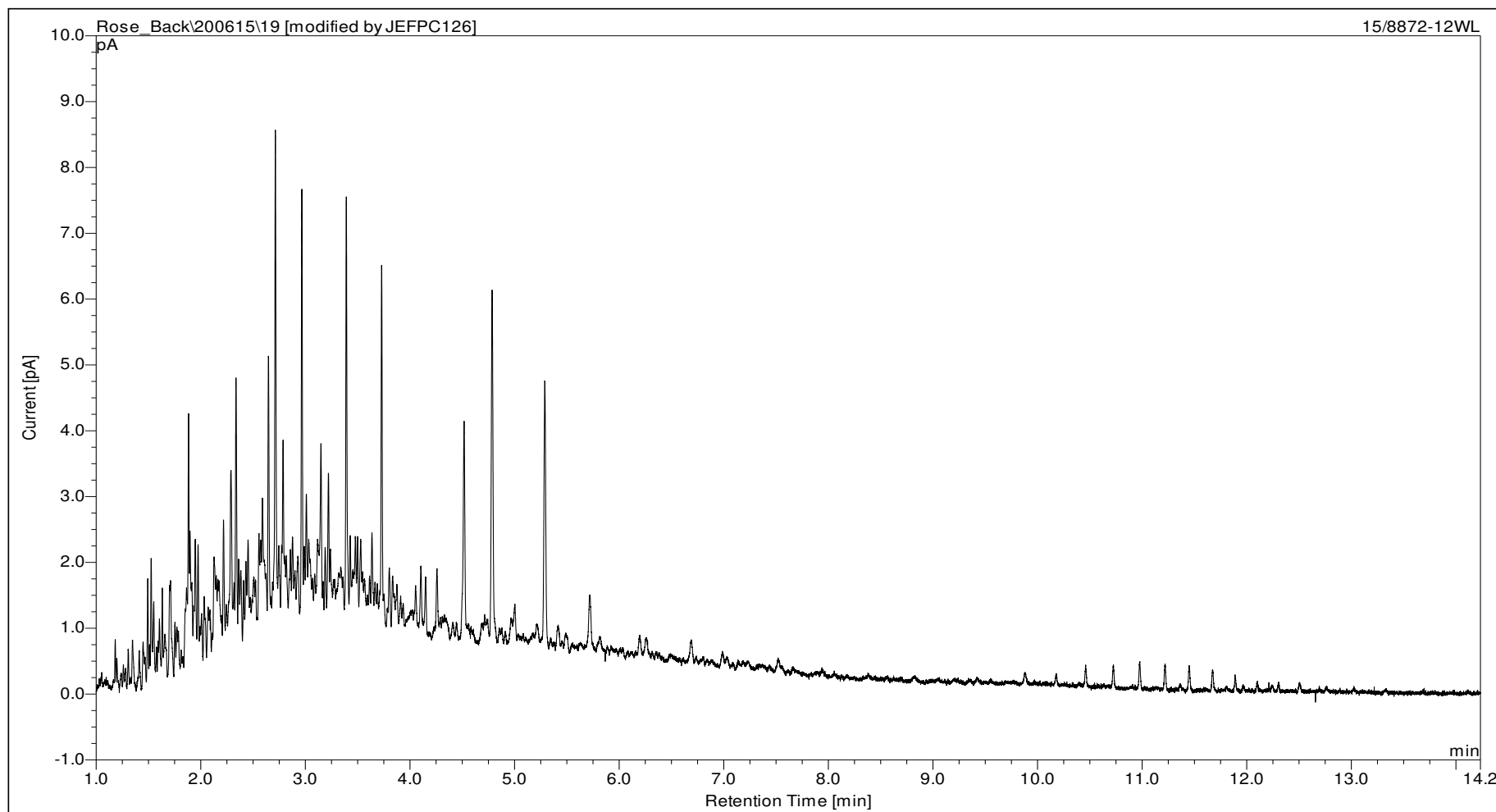
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 9
Sample Identity: WS03
Depth:
Matrix: Liquid



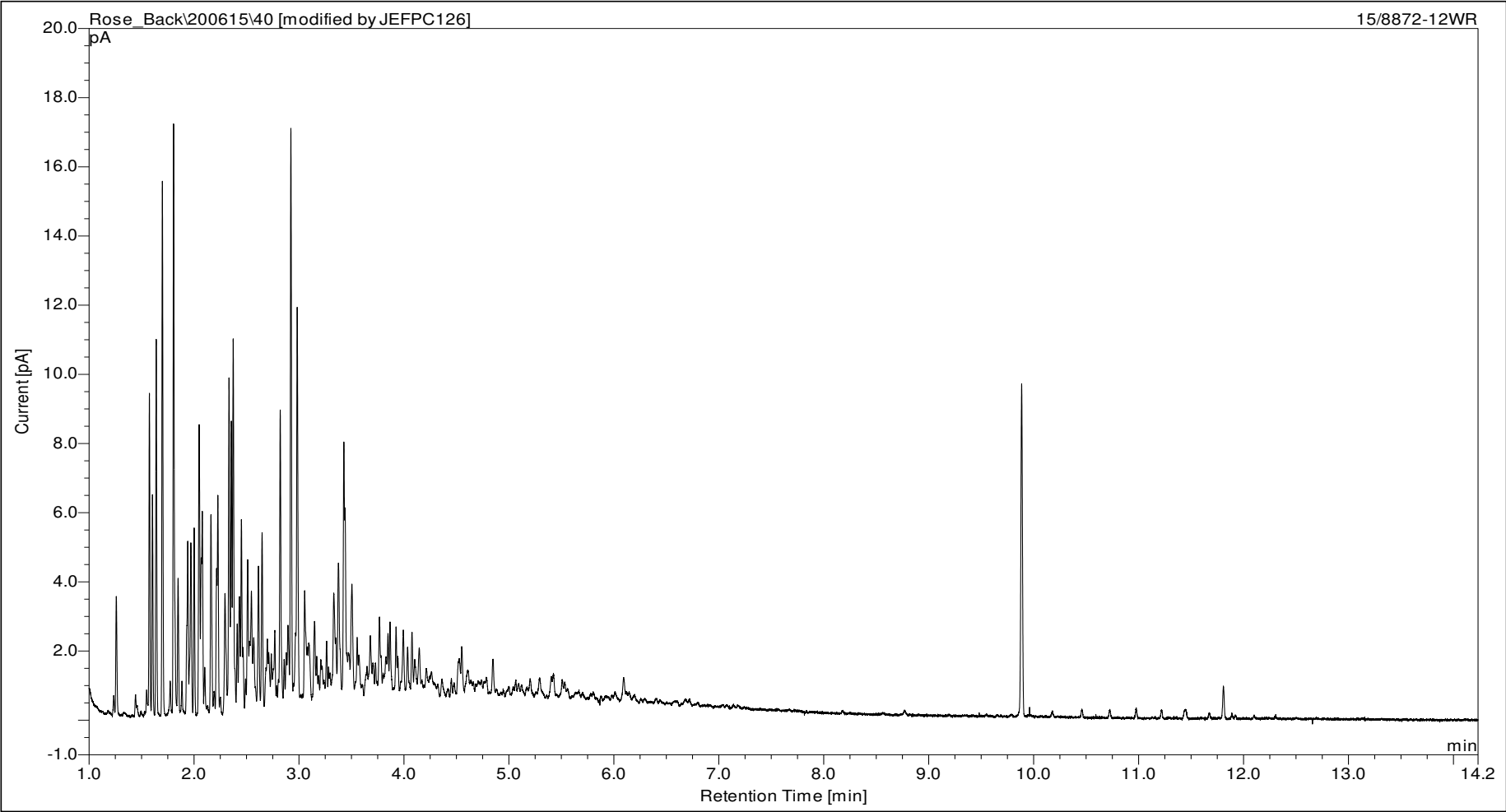
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 12
Sample Identity: WS201
Depth:
Matrix: Liquid



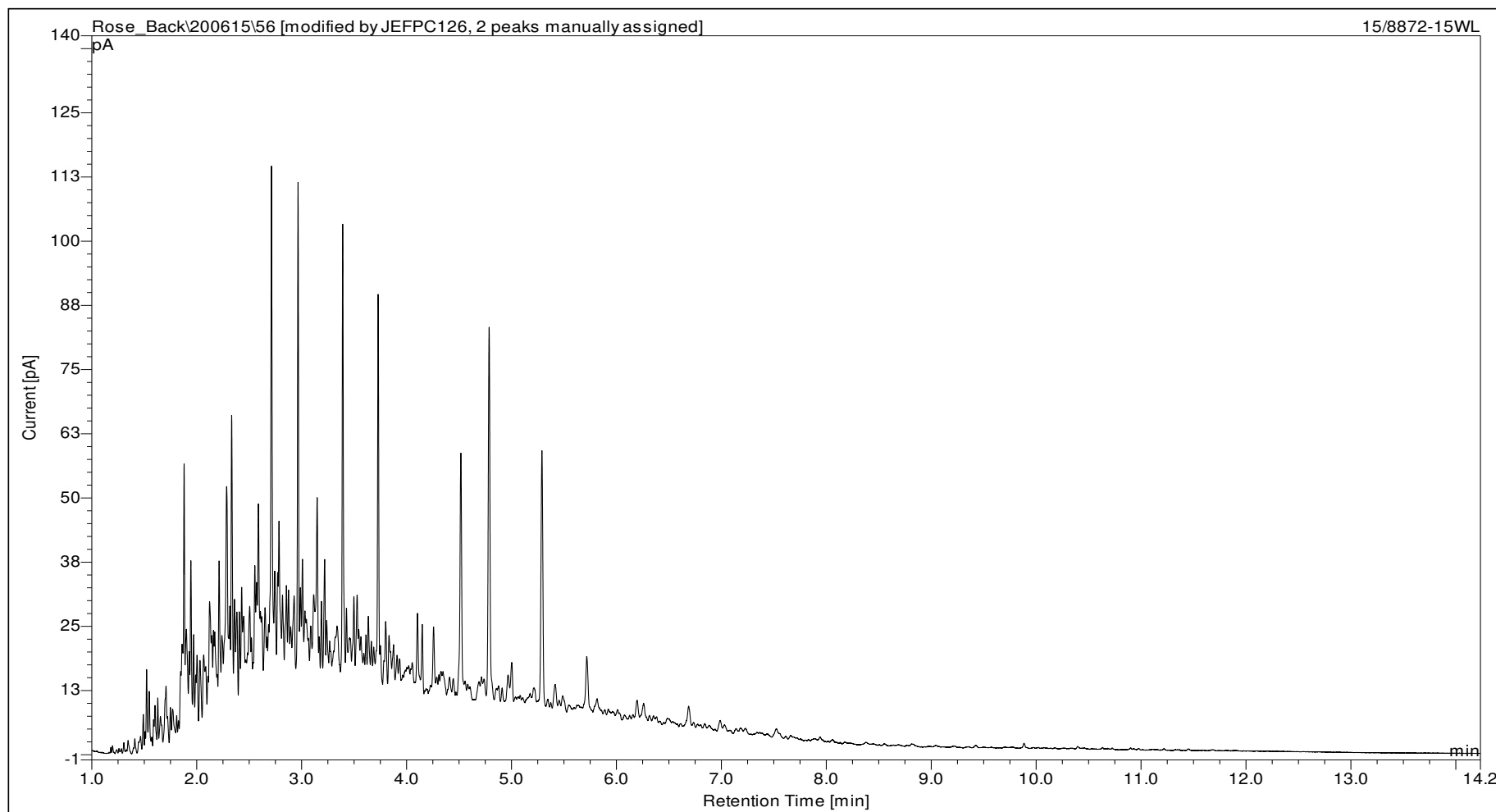
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 12
Sample Identity: WS201
Depth:
Matrix: Liquid



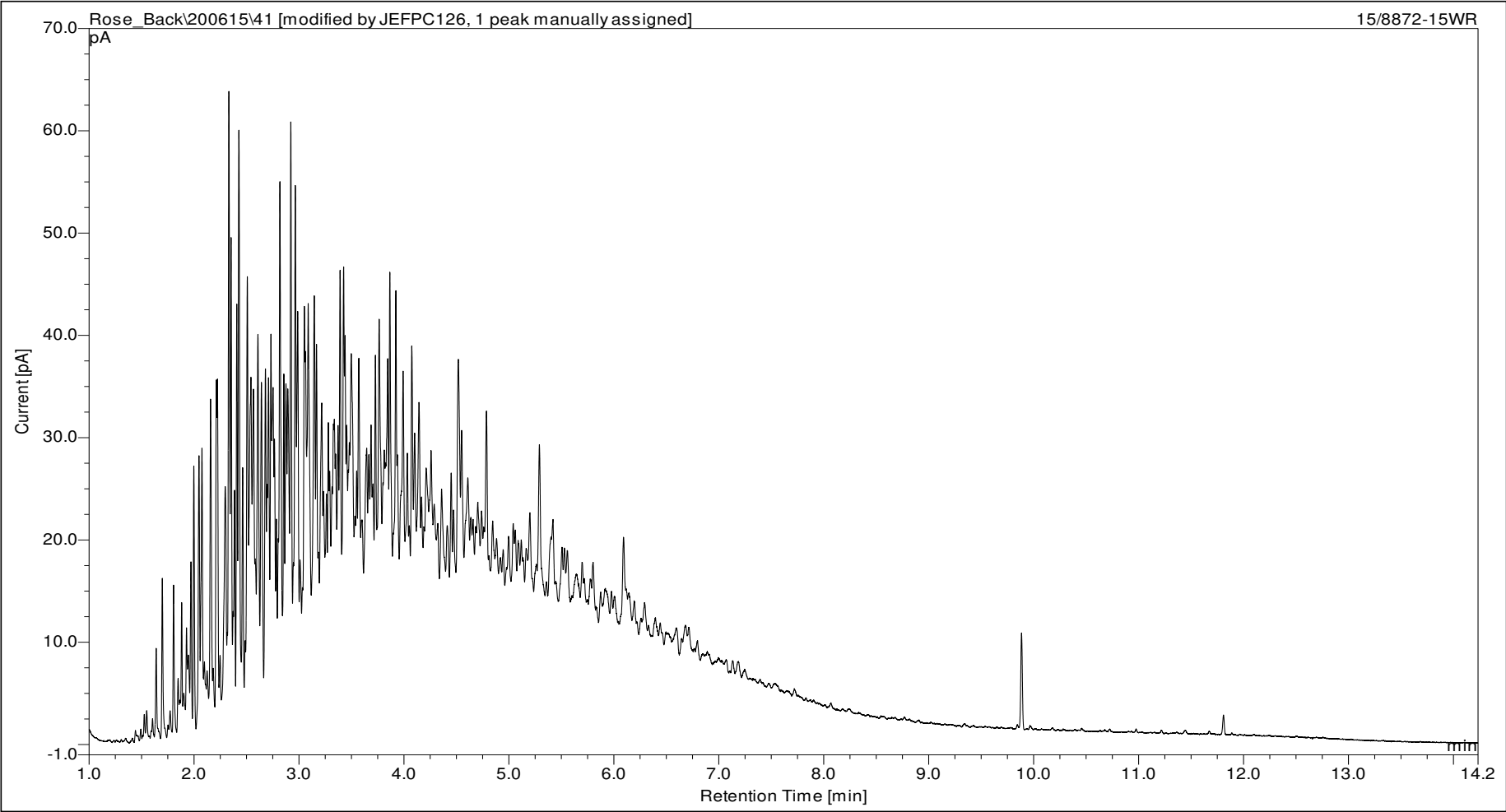
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Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 15
Sample Identity: WS02
Depth:
Matrix: Liquid



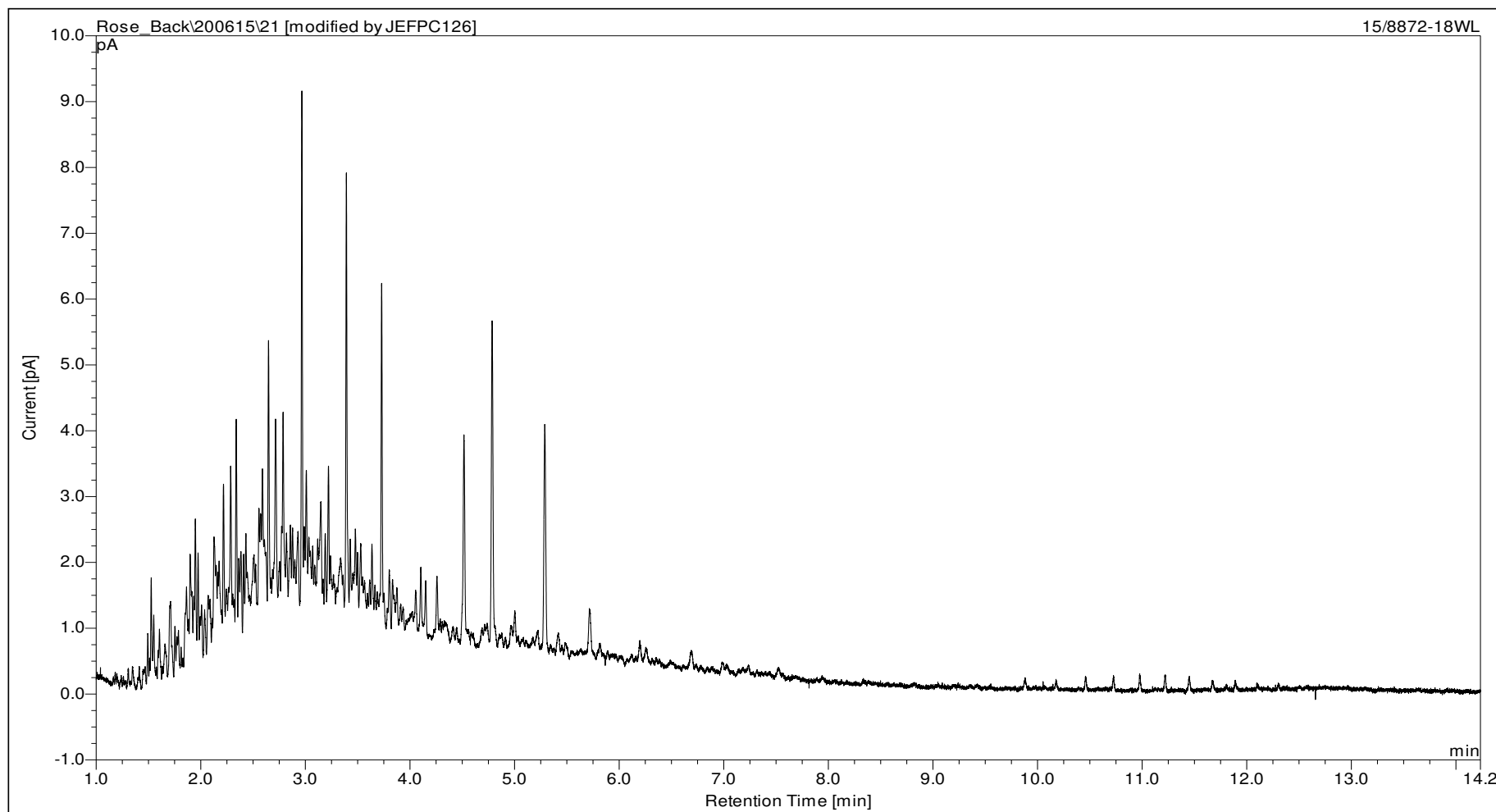
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Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 15
Sample Identity: WS02
Depth:
Matrix: Liquid



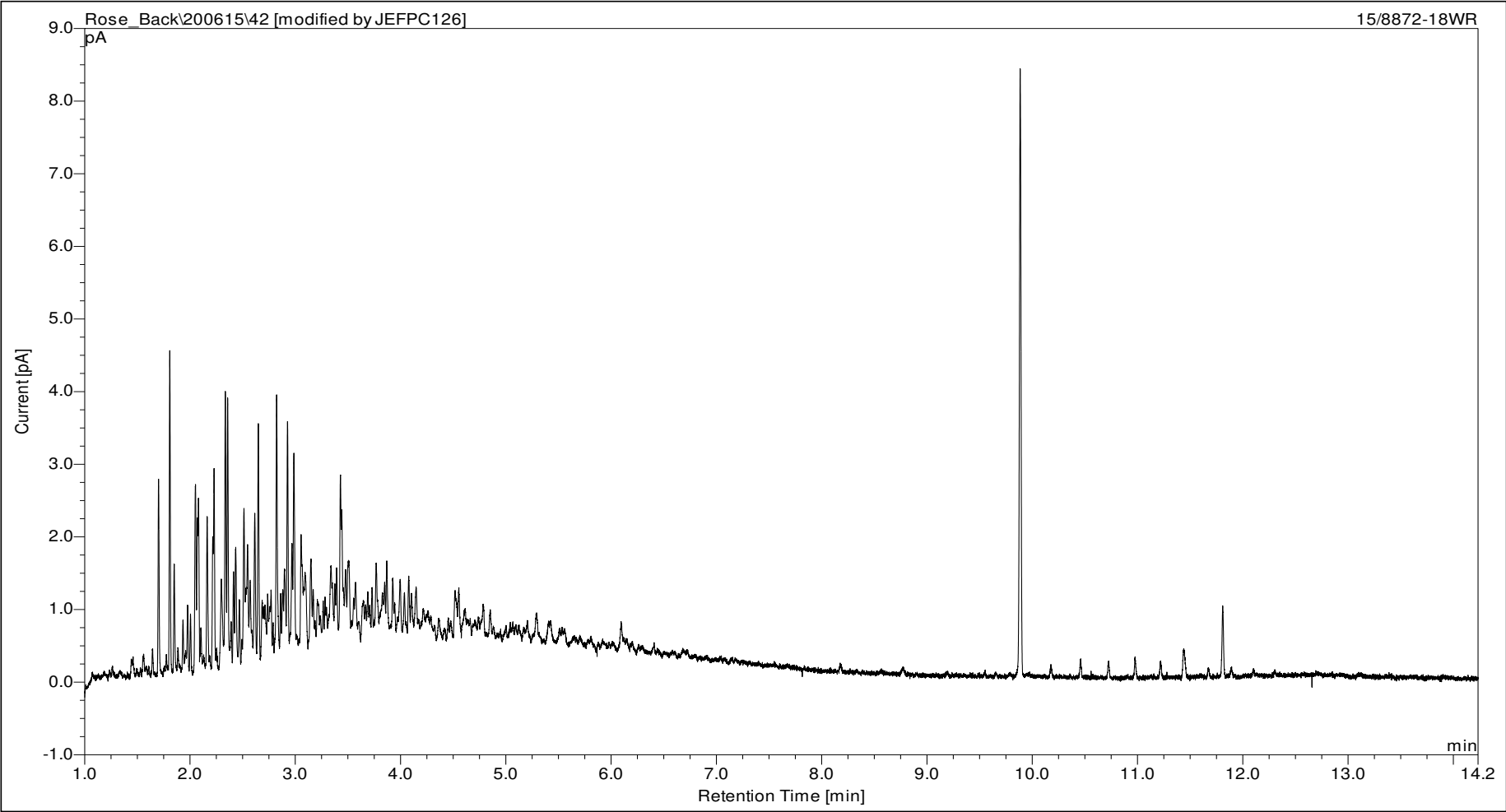
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 18
Sample Identity: BH303
Depth:
Matrix: Liquid



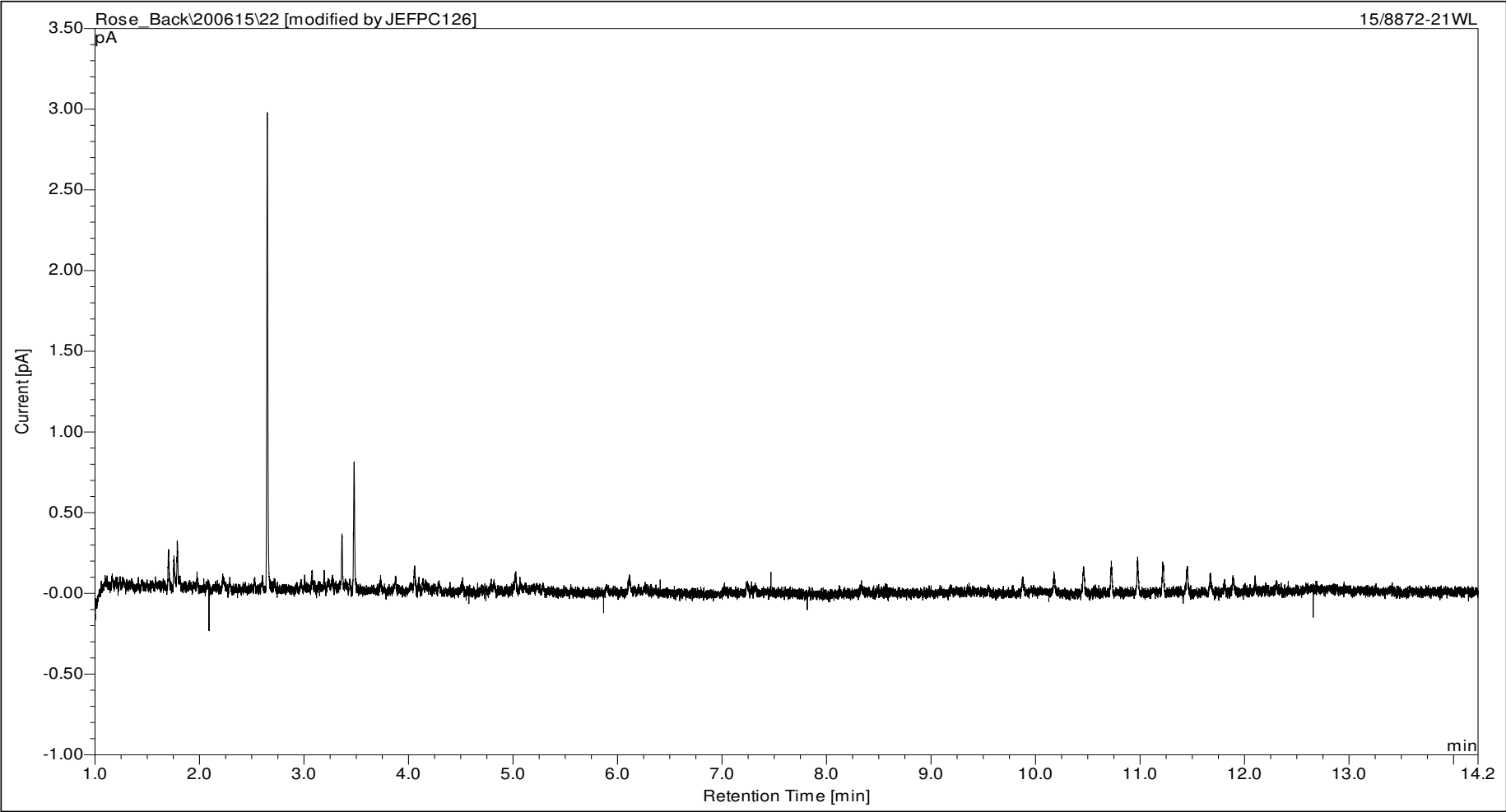
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 18
Sample Identity: BH303
Depth:
Matrix: Liquid



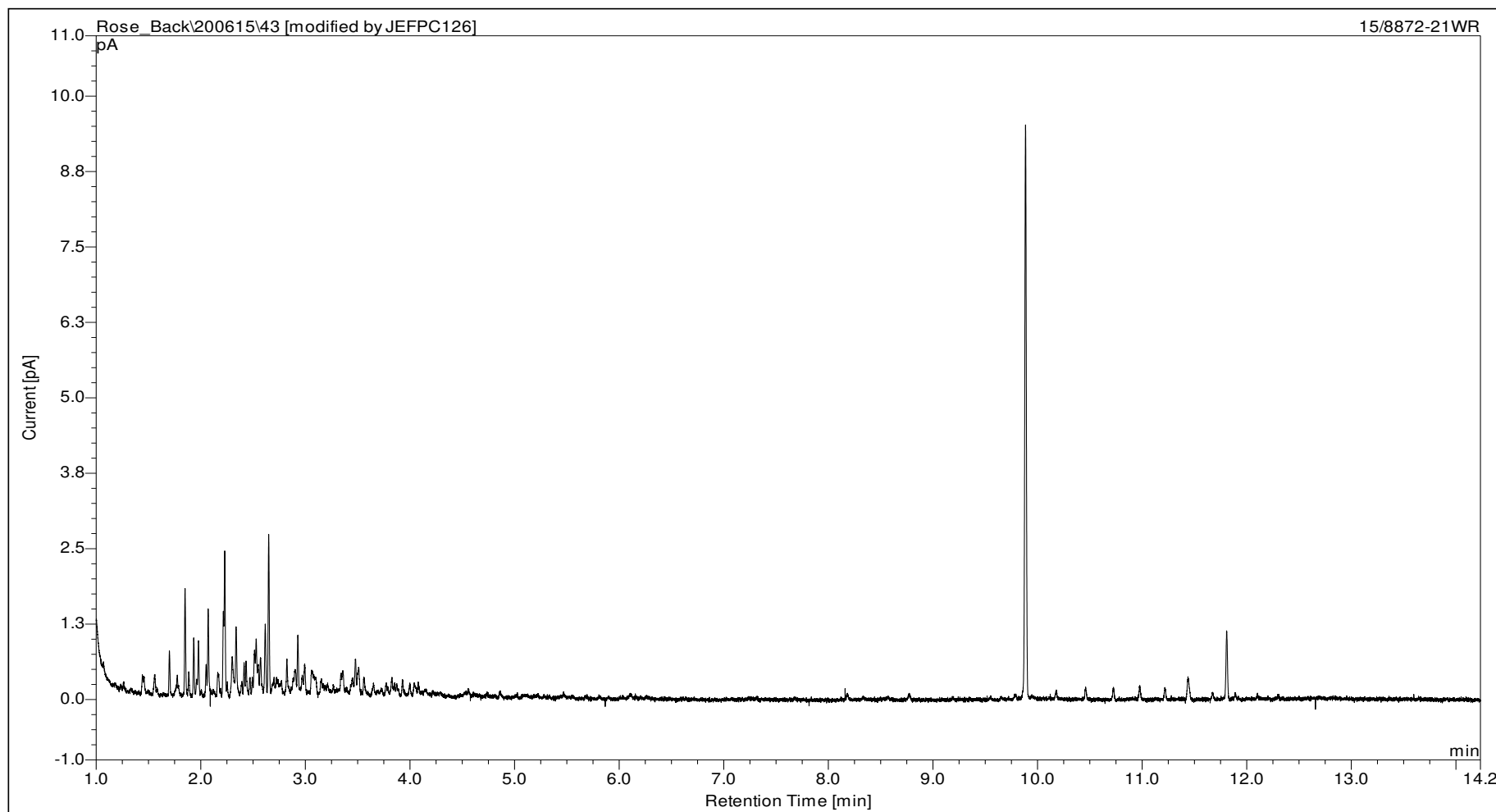
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 21
Sample Identity: WS205
Depth:
Matrix: Liquid



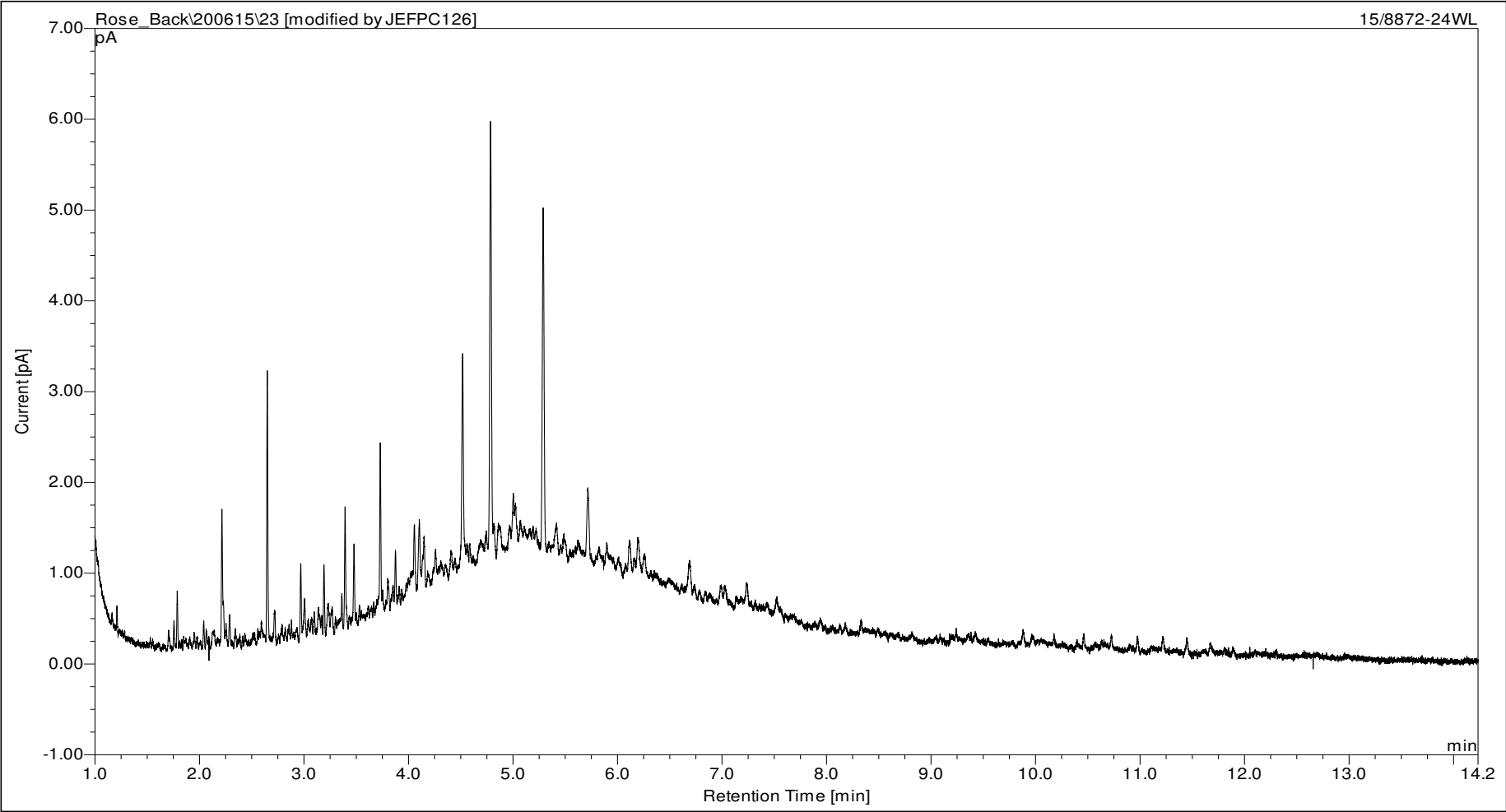
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 21
Sample Identity: WS205
Depth:
Matrix: Liquid



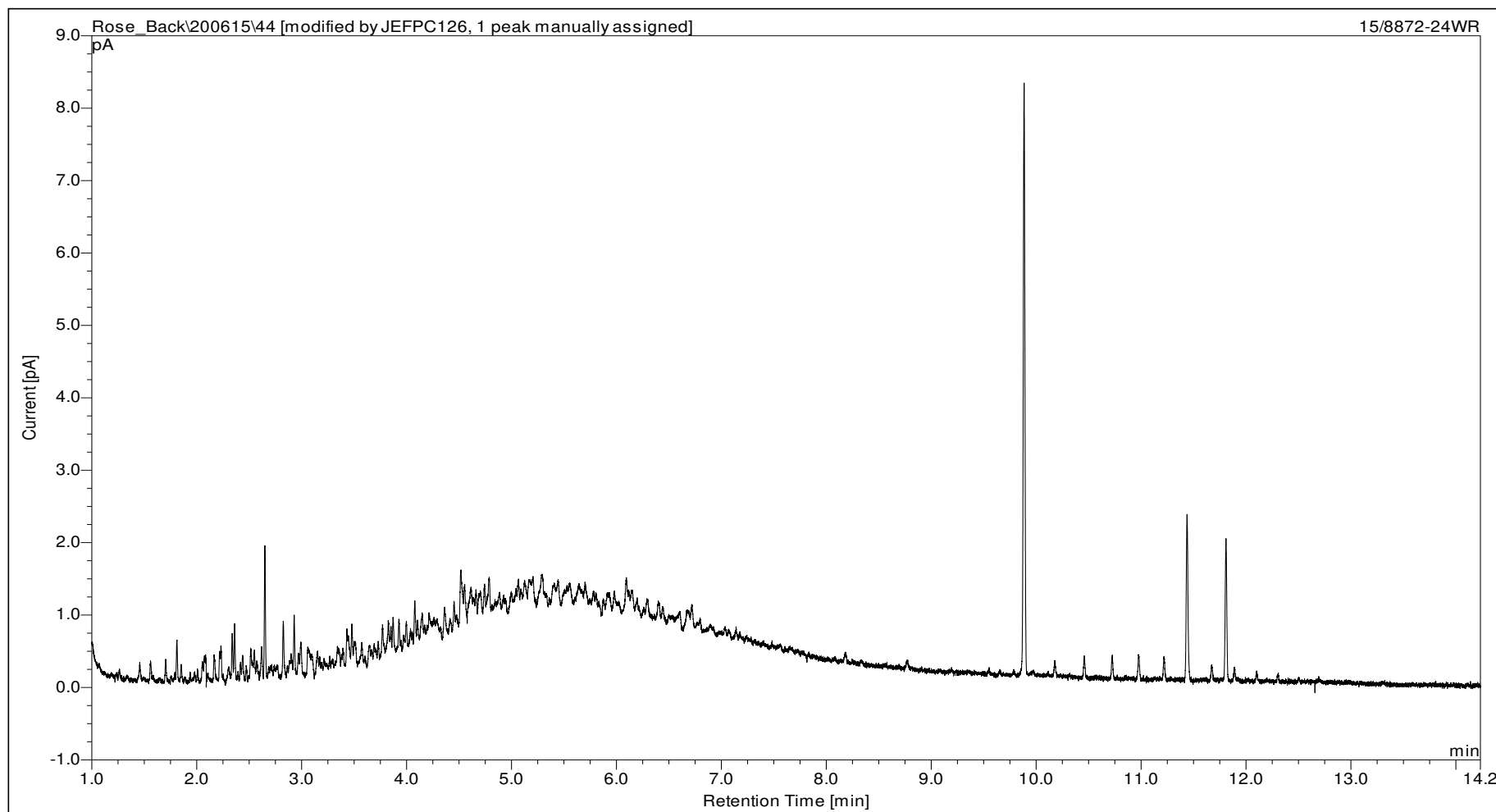
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 24
Sample Identity: WS206
Depth:
Matrix: Liquid



Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8872
JE Sample No.: 24
Sample Identity: WS206
Depth:
Matrix: Liquid



Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/8872

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x2 Dilution

JE Job No: 15/8872

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			



Jones Environmental Laboratory

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OHES
1 The Courtyard
Denmark Street
Wokingham
Berkshire
RG40 2AZ

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781



Attention :	Matthew Thomas
Date :	23rd June, 2015
Your reference :	6977
Our reference :	Test Report 15/8871 Batch 1
Location :	Thatcham
Date samples received :	18th June, 2015
Status :	Final report
Issue :	1

Eight samples were received for analysis on 18th June, 2015 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Bruce Leslie
Project Co-ordinator

Bob Millward BSc FRSC
Principal Chemist

Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas
JE Job No.: 15/8871

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

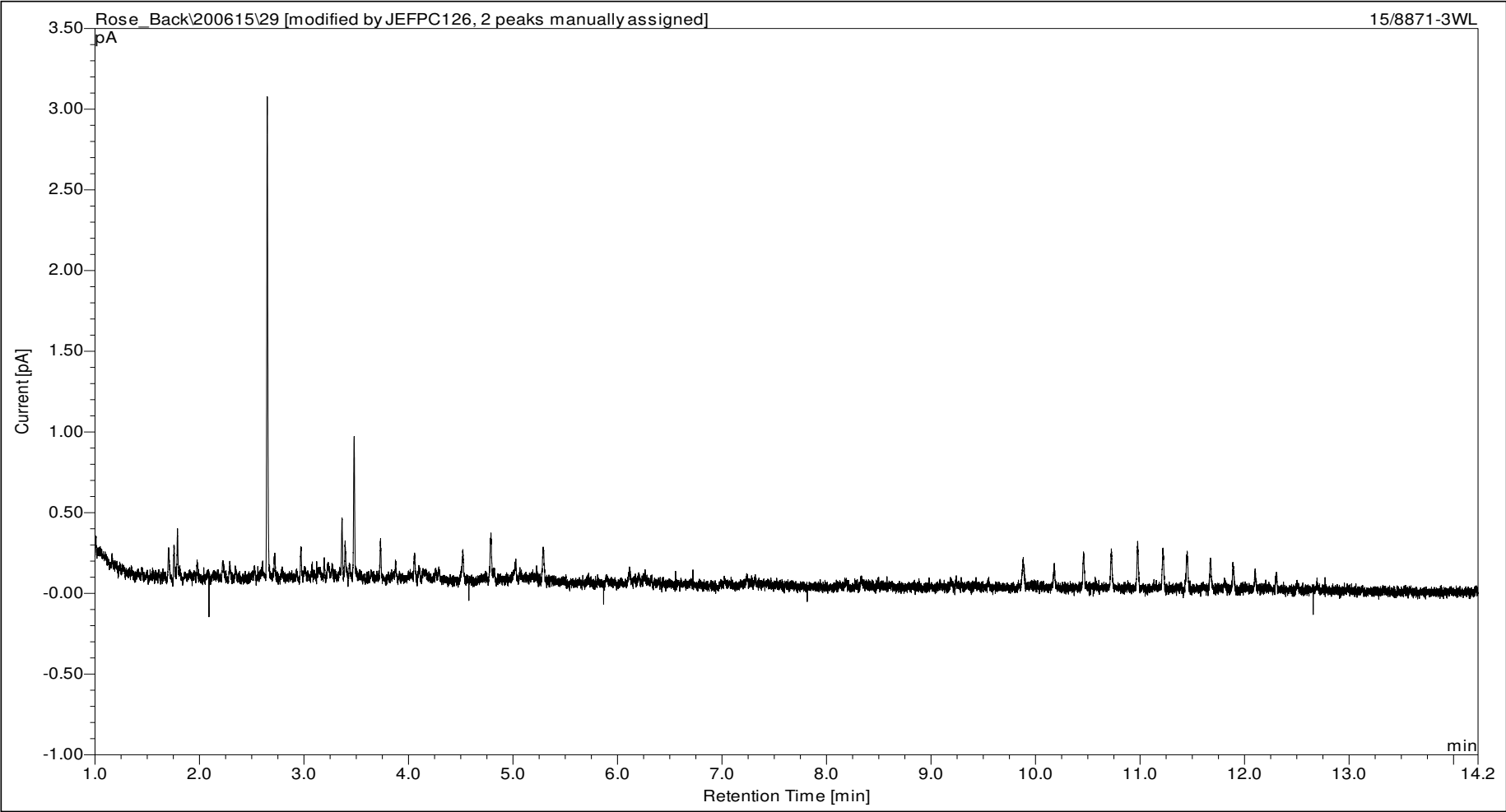
J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24			Please see attached notes for all abbreviations and acronyms		
Sample ID	WS204	WS209	BH04	WS208	BH02	WS210	BH03	WS203					
Depth													
COC No / misc													
Containers	V G	V G	V G	V G	V G	V G	V G	V G					
Sample Date	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	18/06/2015	18/06/2015	18/06/2015	18/06/2015	18/06/2015	18/06/2015	18/06/2015	18/06/2015			LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
>C6-C8 #	<5	43	<5	9	35	<5	<5	<5			<5	ug/l	TM36/PM12
>C8-C10 #	<5	1186	74	395	175	295	121	63			<5	ug/l	TM36/PM12
>C10-C12 #	<5	255	58	206	160	960	38	7			<5	ug/l	TM5/PM30
>C12-C16 #	50	670	190	650	420	3040	90	20			<10	ug/l	TM5/PM30
>C16-C21 #	60	420	310	660	340	3130	30	<10			<10	ug/l	TM5/PM30
>C21-C35 #	<10	40	<10	70	50	880	<10	<10			<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	110	2614	632	1990	1180	8305	279	90			<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7 #	<5	<5	<5	<5	10	<5	<5	<5			<5	ug/l	TM36/PM12
>EC7-EC8 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
>EC8-EC10 #	<5	24	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
>EC10-EC12 #	260	198	485	560	622	791	15	26			<5	ug/l	TM5/PM30
>EC12-EC16 #	340	460	490	730	<10	2060	70	90			<10	ug/l	TM5/PM30
>EC16-EC21 #	150	320	370	500	<10	2180	<10	50			<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	40	40	90	<10	680	<10	<10			<10	ug/l	TM5/PM30
Total aromatics C5-35 #	750	1042	1385	1880	632	5711	85	166			<10	ug/l	TM5/PM30
Total aliphatics and aromatics(C5-35) #	860	3656	2017	3870	1812	14016	364	256			<10	ug/l	TM5/TM36/PM30
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Benzene #	<5	<5	<5	<5	10	<5	<5	<5			<5	ug/l	TM36/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Ethylbenzene #	<5	17	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
m/p-Xylene #	<5	7	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12

Matrix : Liquid

[illegible]

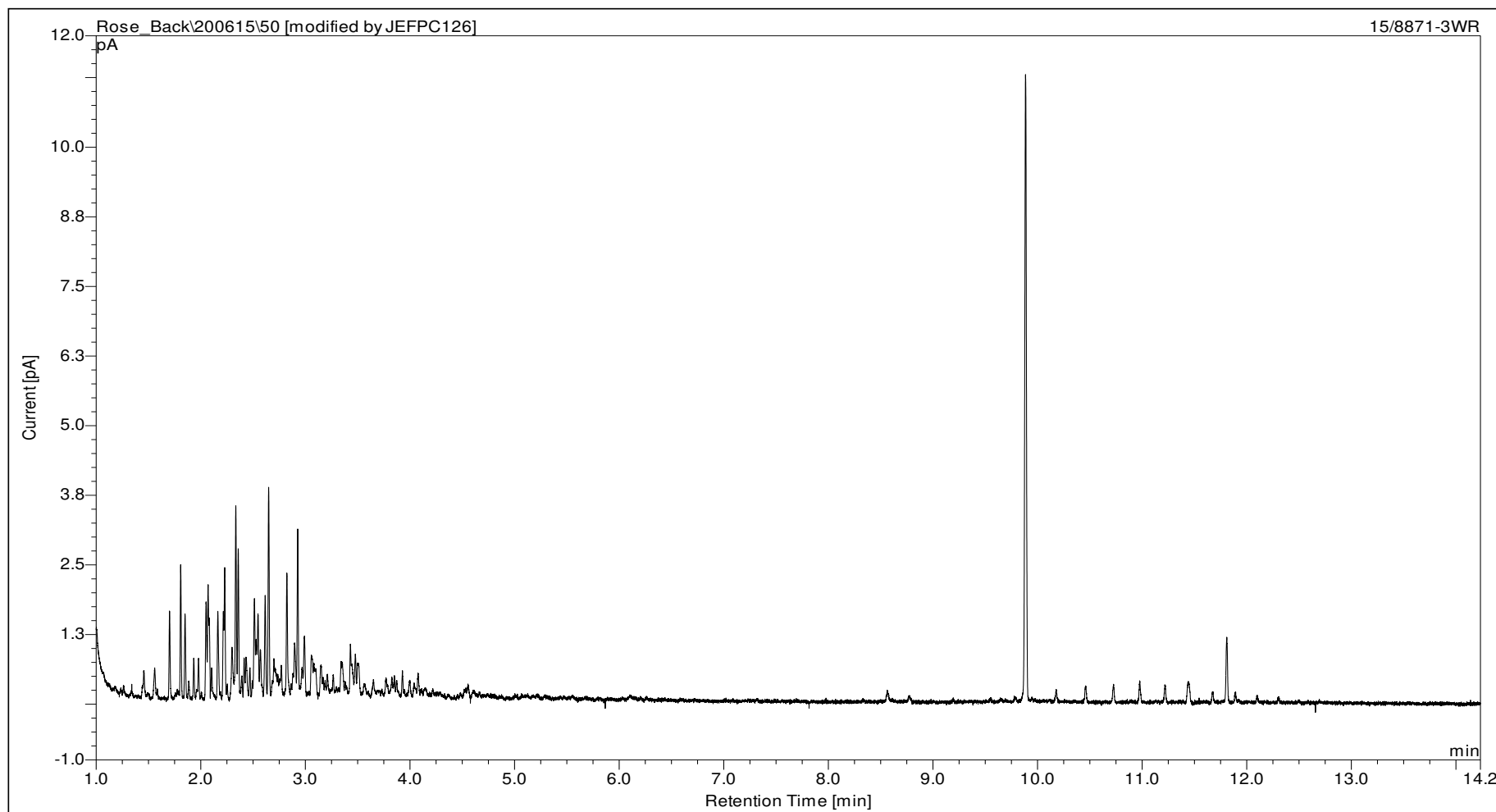
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 3
Sample Identity: WS204
Depth:
Matrix: Liquid



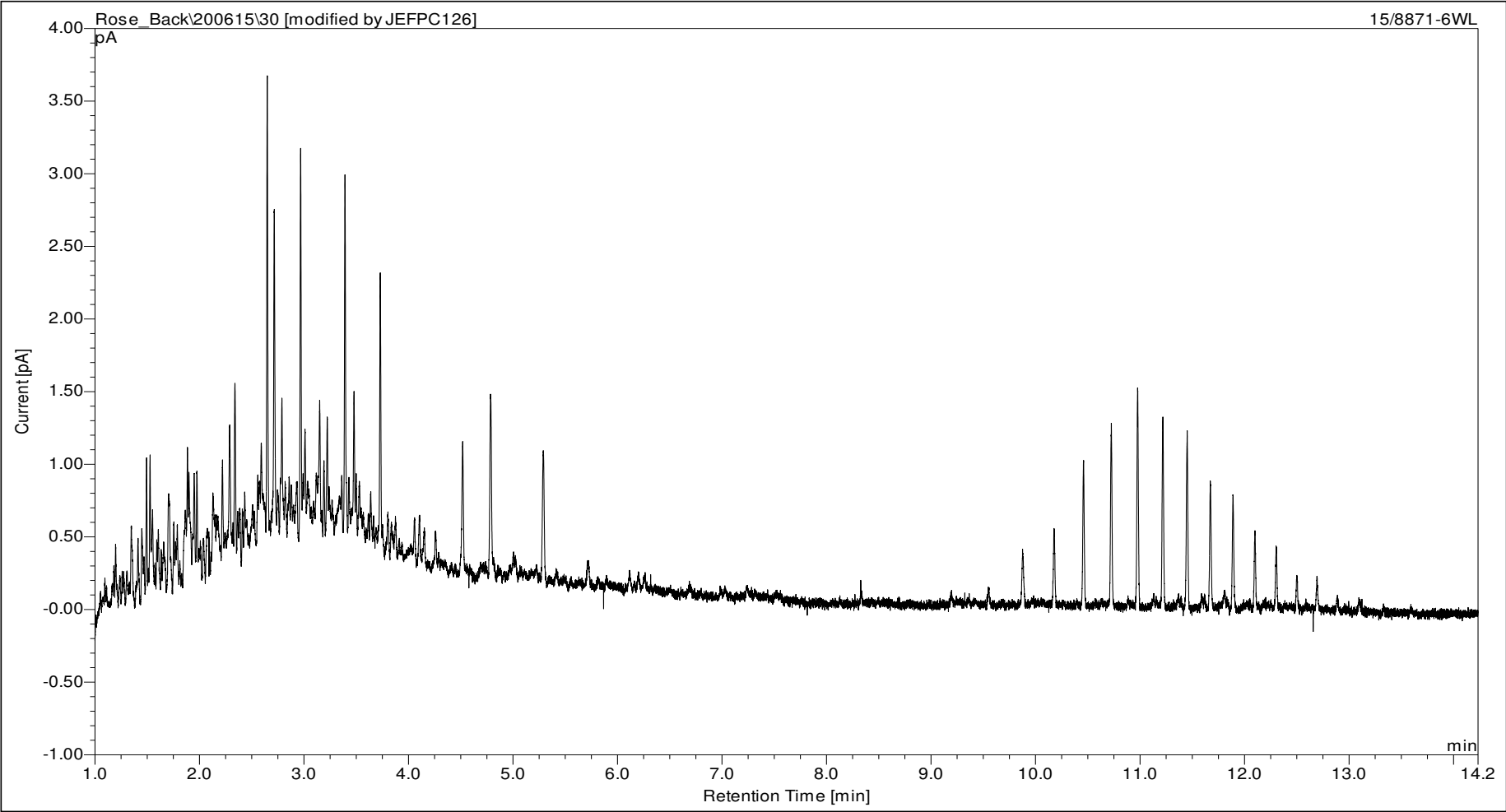
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Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

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JE Sample No.: 3
Sample Identity: WS204
Depth:
Matrix: Liquid



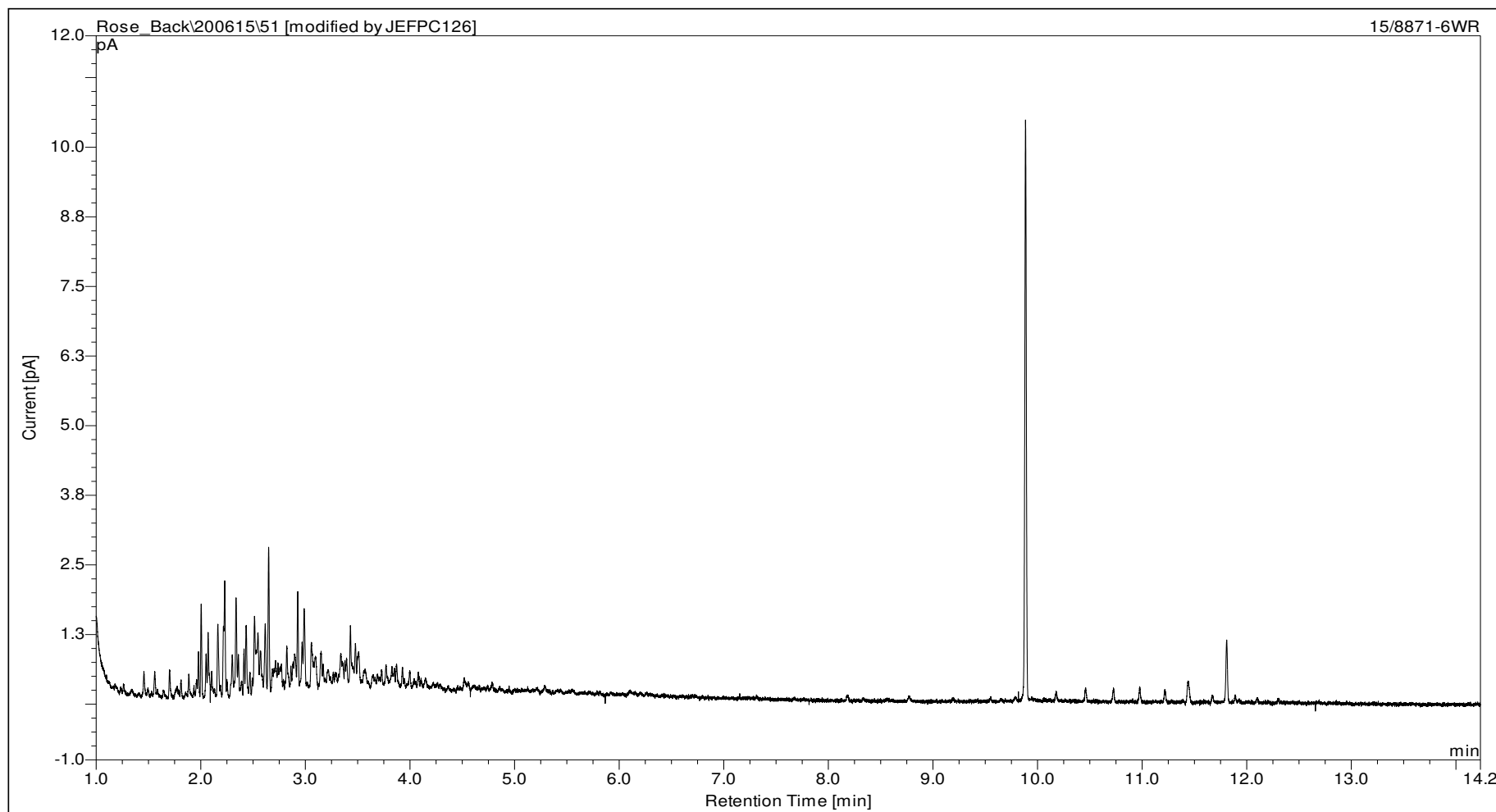
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Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 6
Sample Identity: WS209
Depth:
Matrix: Liquid



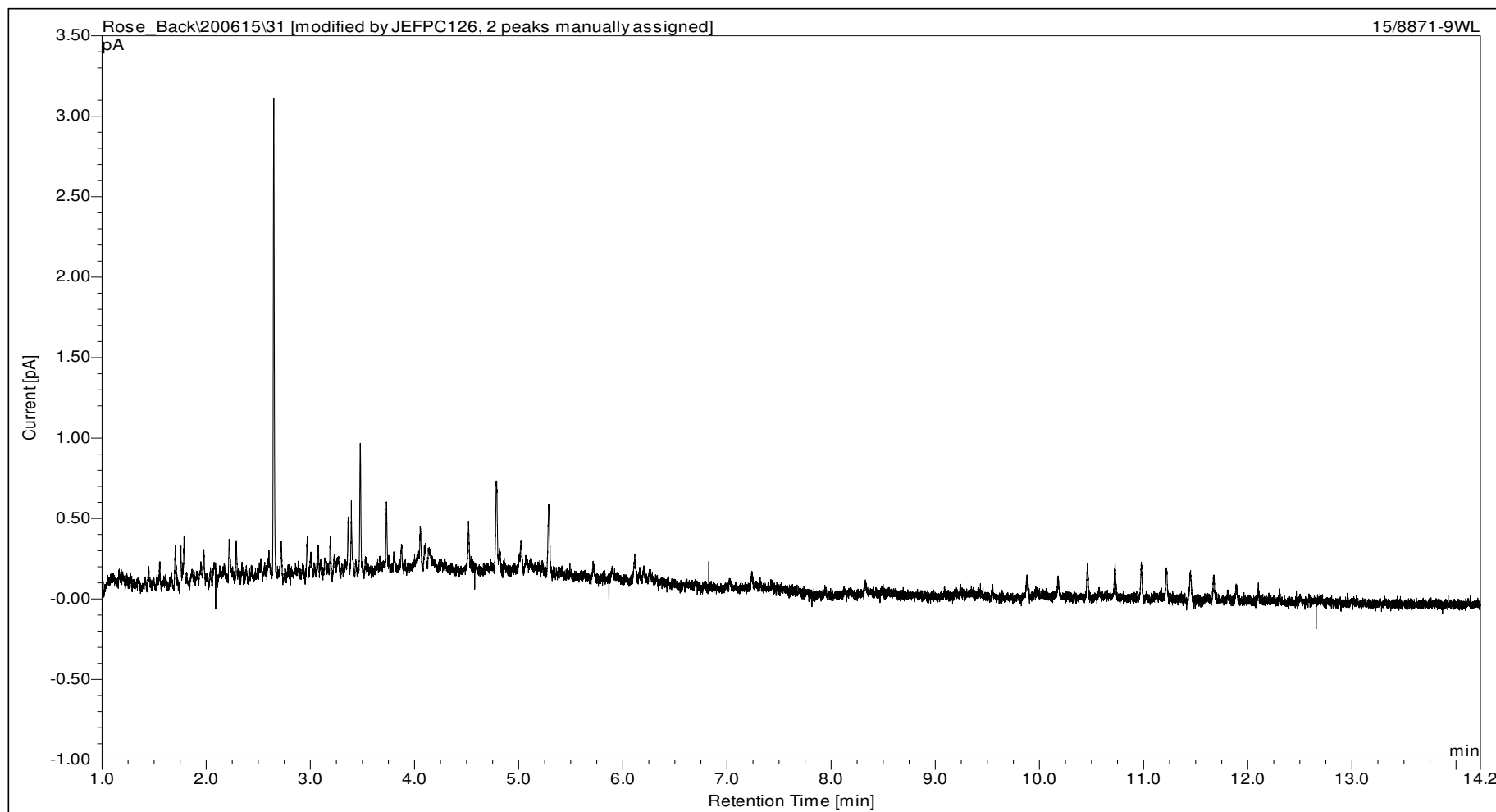
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Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 6
Sample Identity: WS209
Depth:
Matrix: Liquid



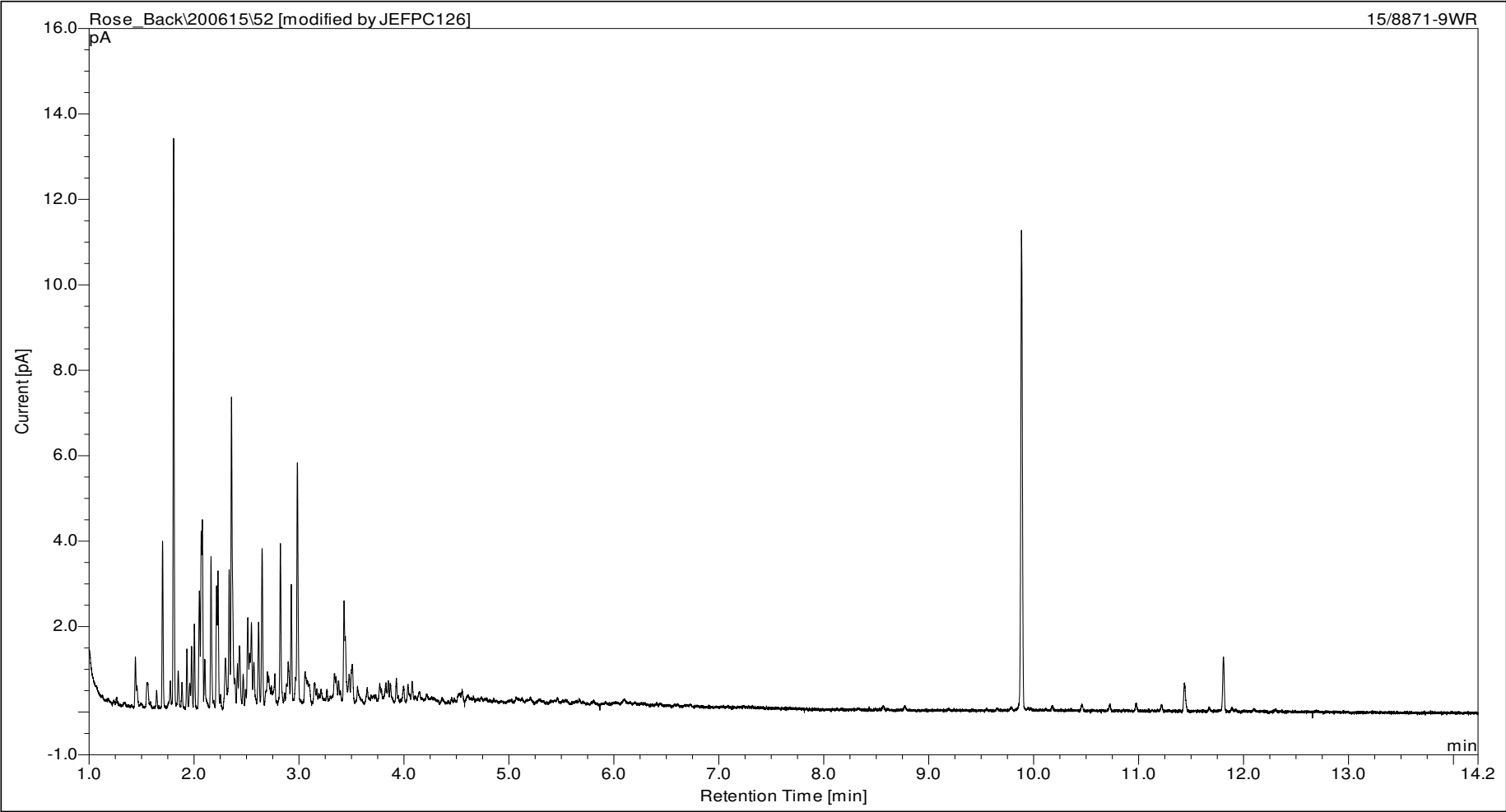
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 9
Sample Identity: BH04
Depth:
Matrix: Liquid



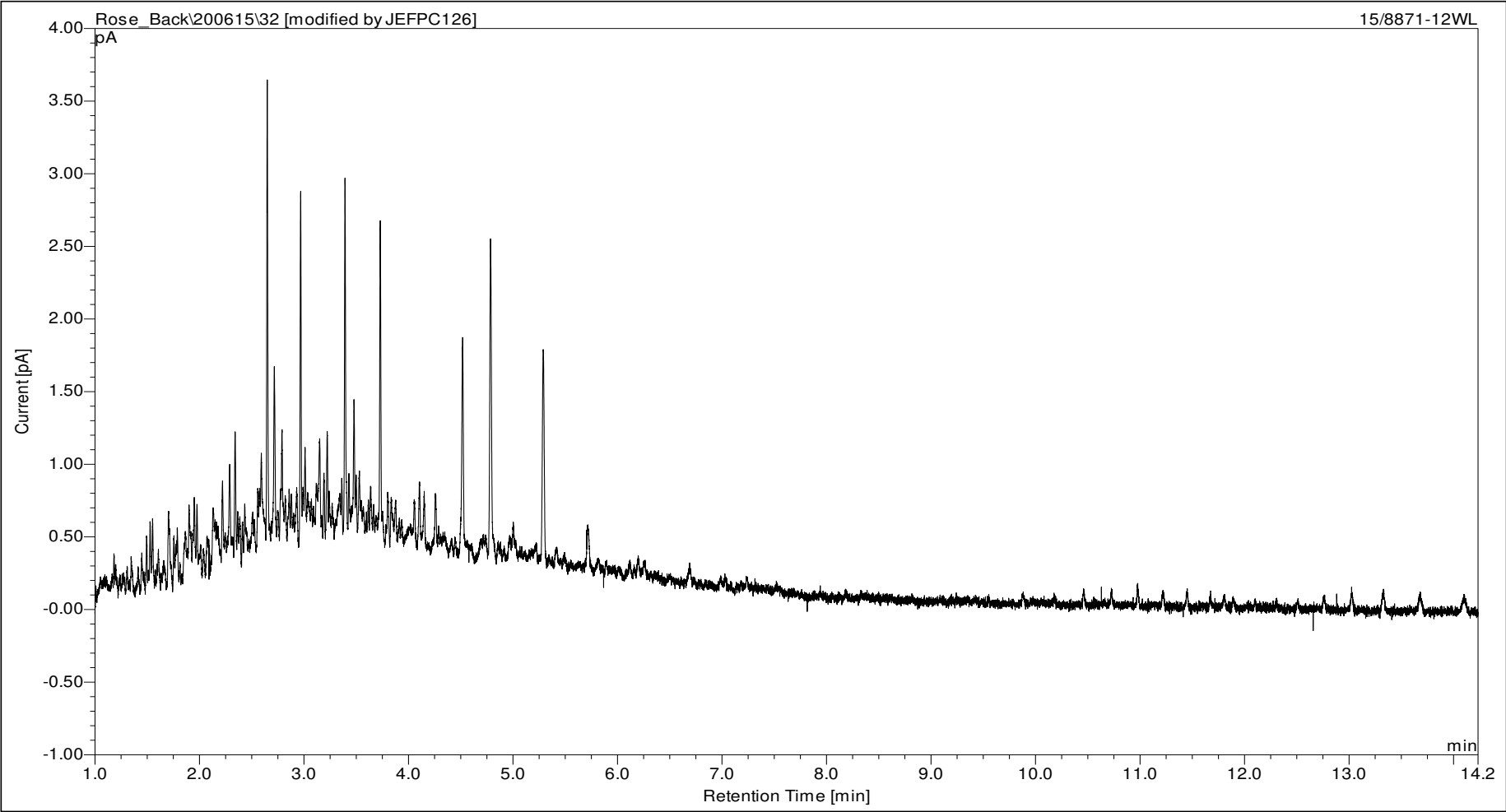
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 9
Sample Identity: BH04
Depth:
Matrix: Liquid



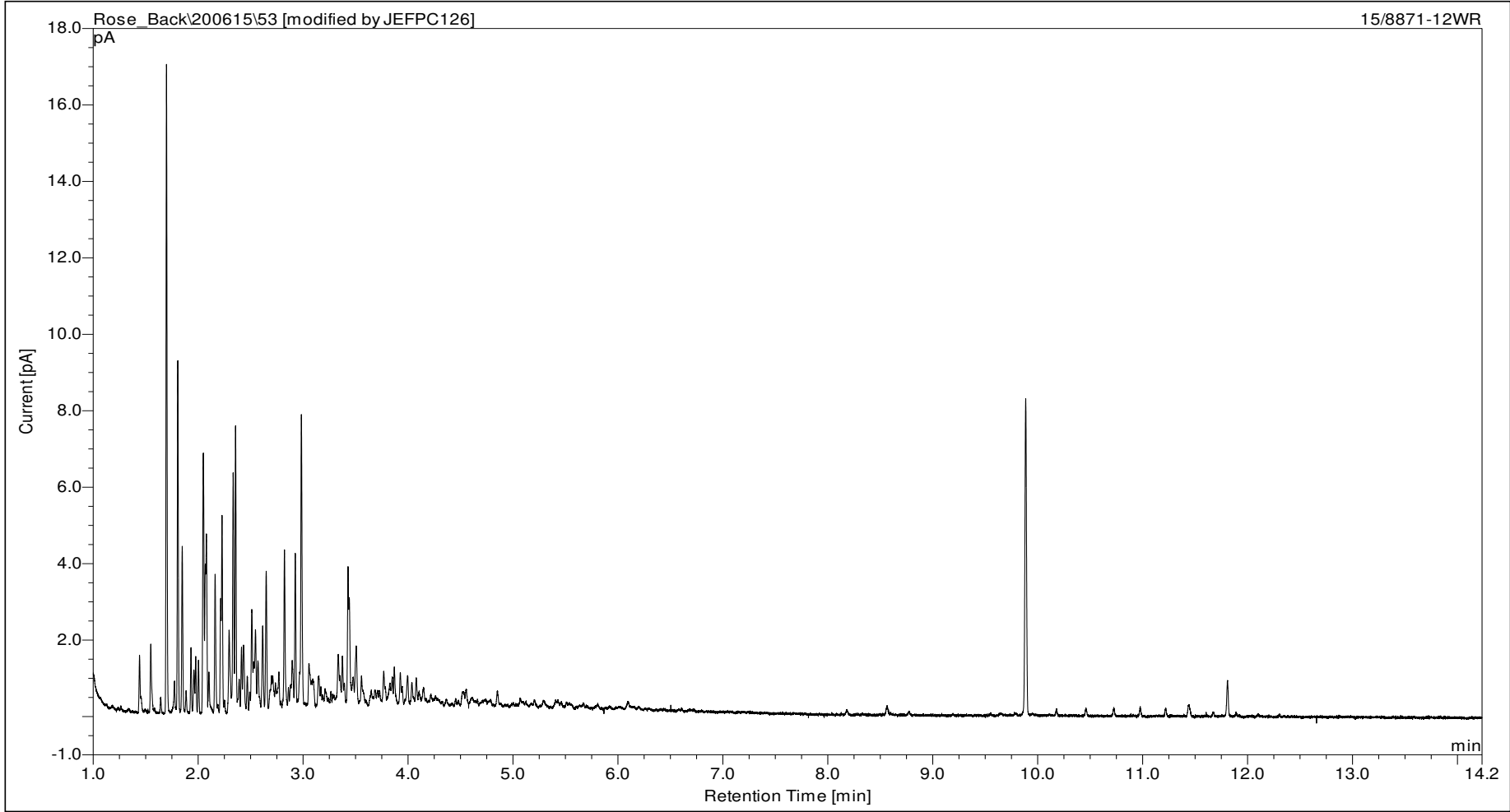
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 12
Sample Identity: WS208
Depth:
Matrix: Liquid



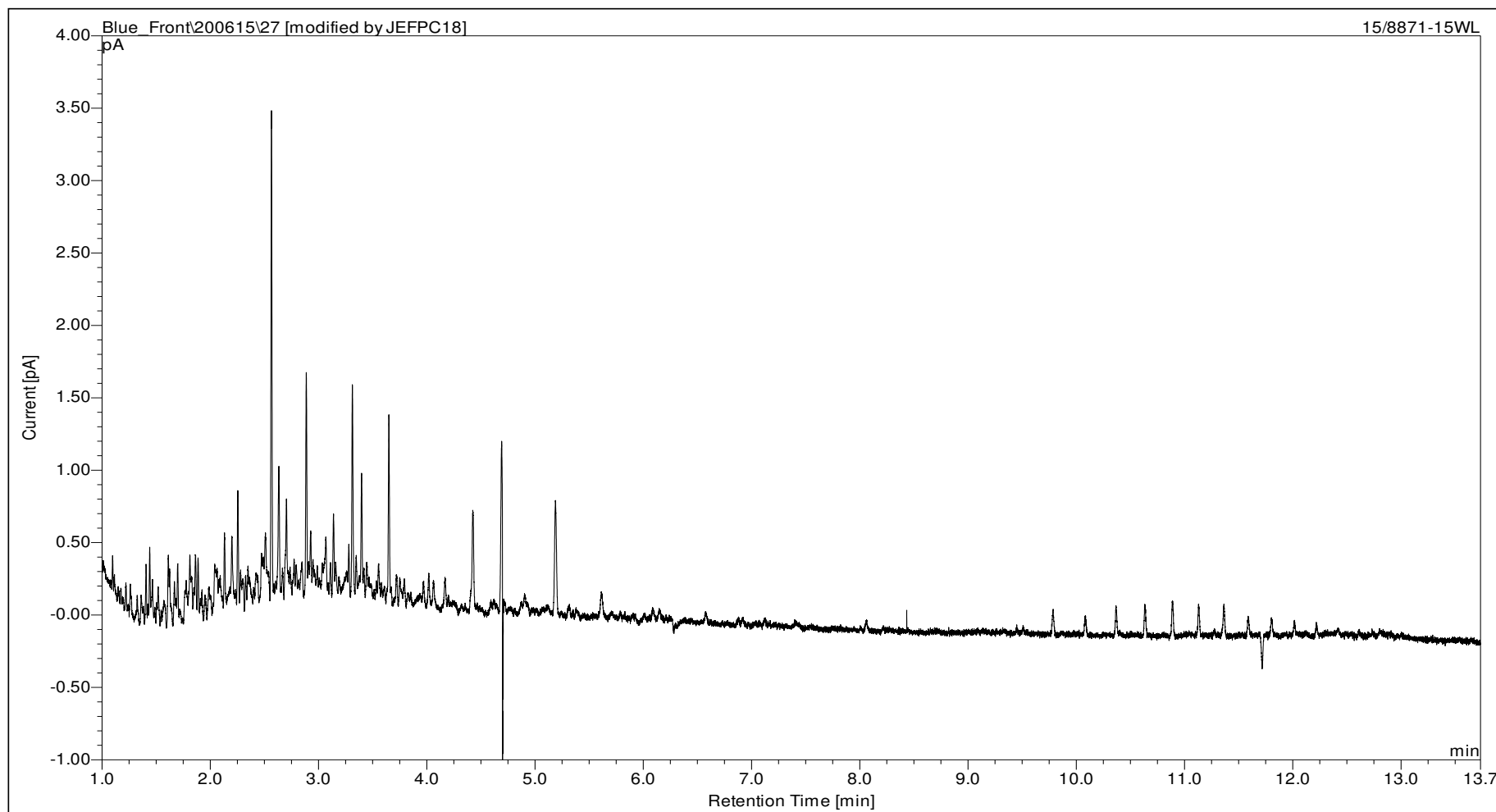
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 12
Sample Identity: WS208
Depth:
Matrix: Liquid



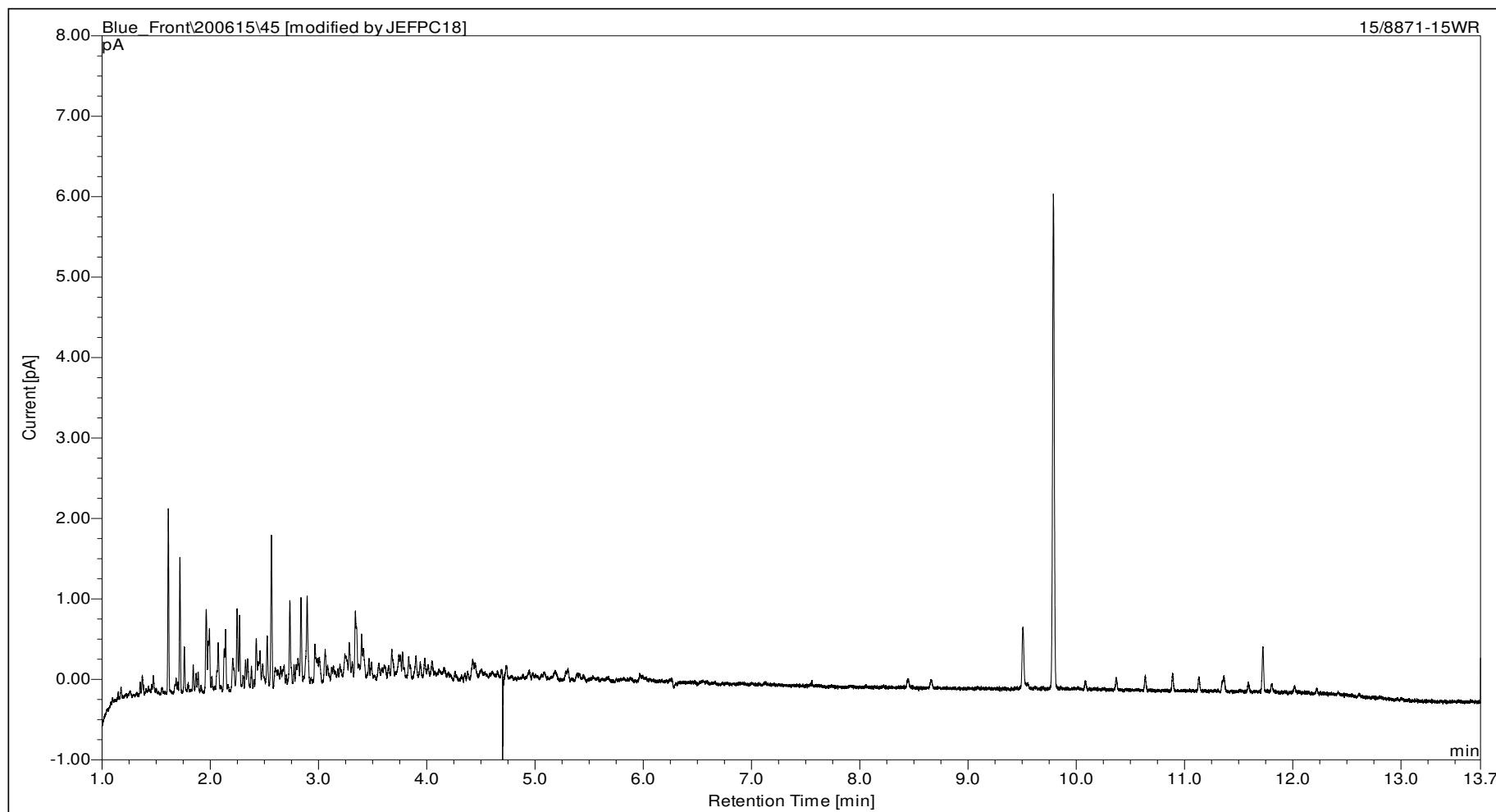
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 15
Sample Identity: BH02
Depth:
Matrix: Liquid



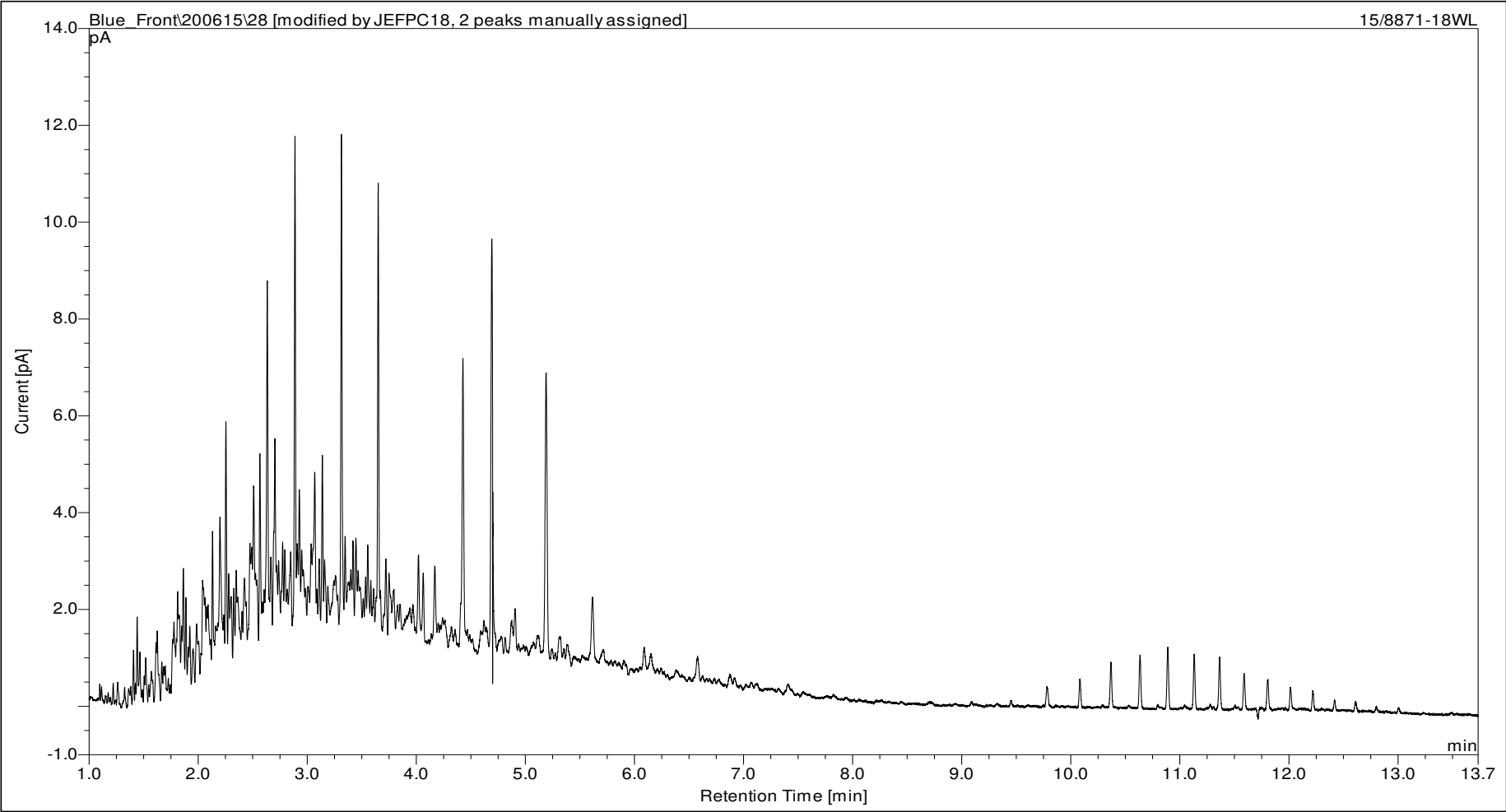
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Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 15
Sample Identity: BH02
Depth:
Matrix: Liquid



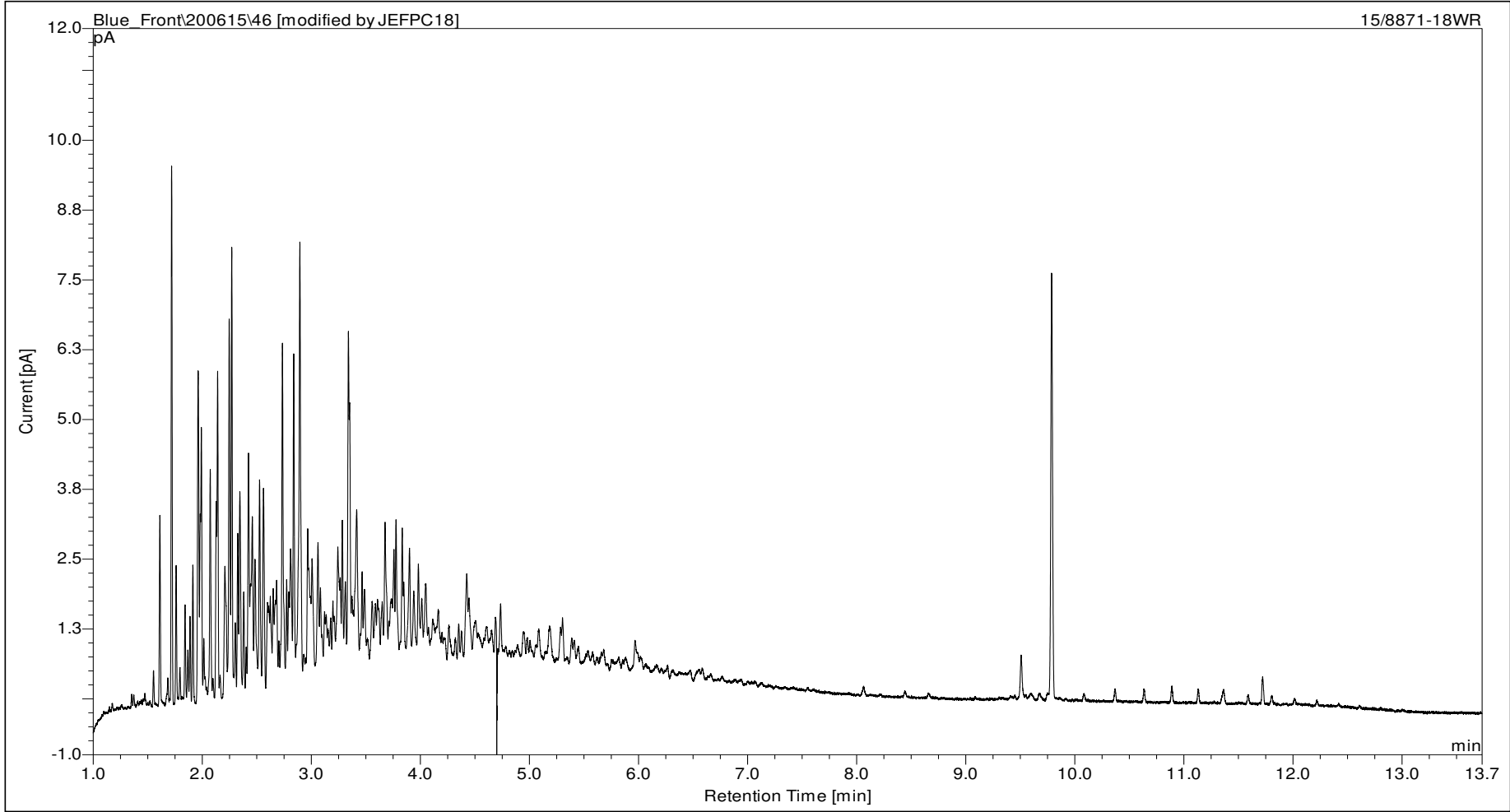
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 18
Sample Identity: WS210
Depth:
Matrix: Liquid



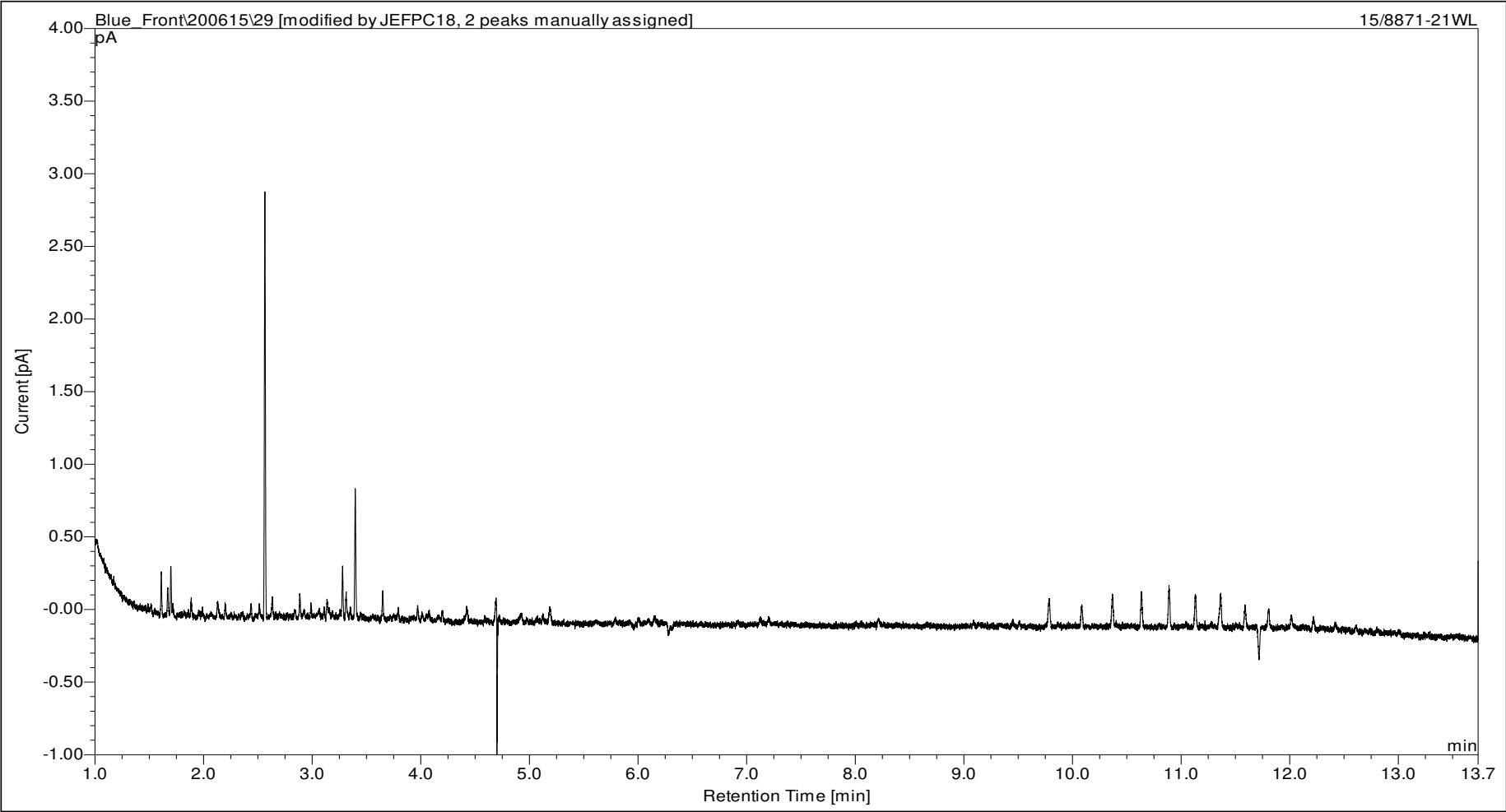
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Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 18
Sample Identity: WS210
Depth:
Matrix: Liquid



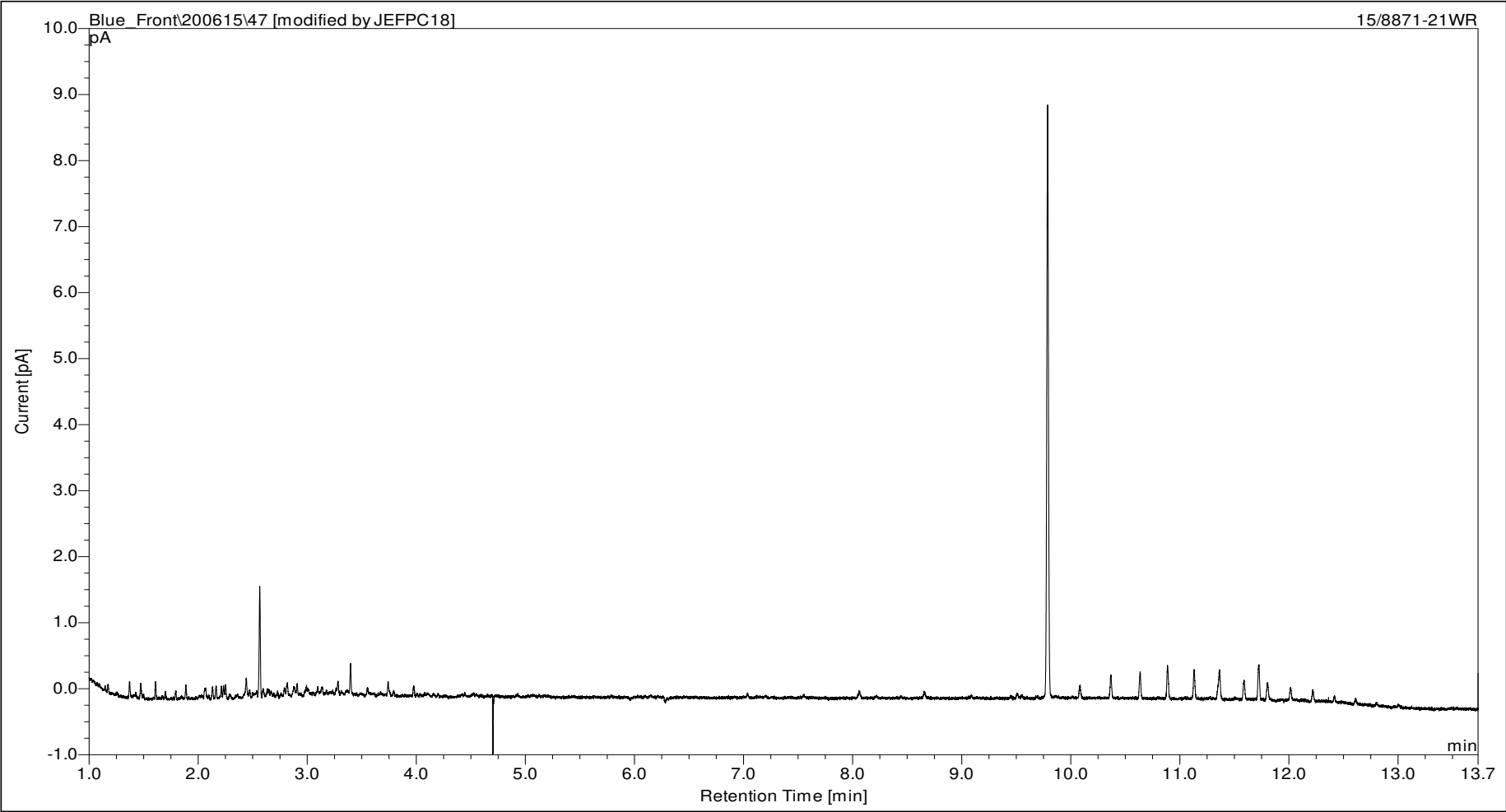
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 21
Sample Identity: BH03
Depth:
Matrix: Liquid



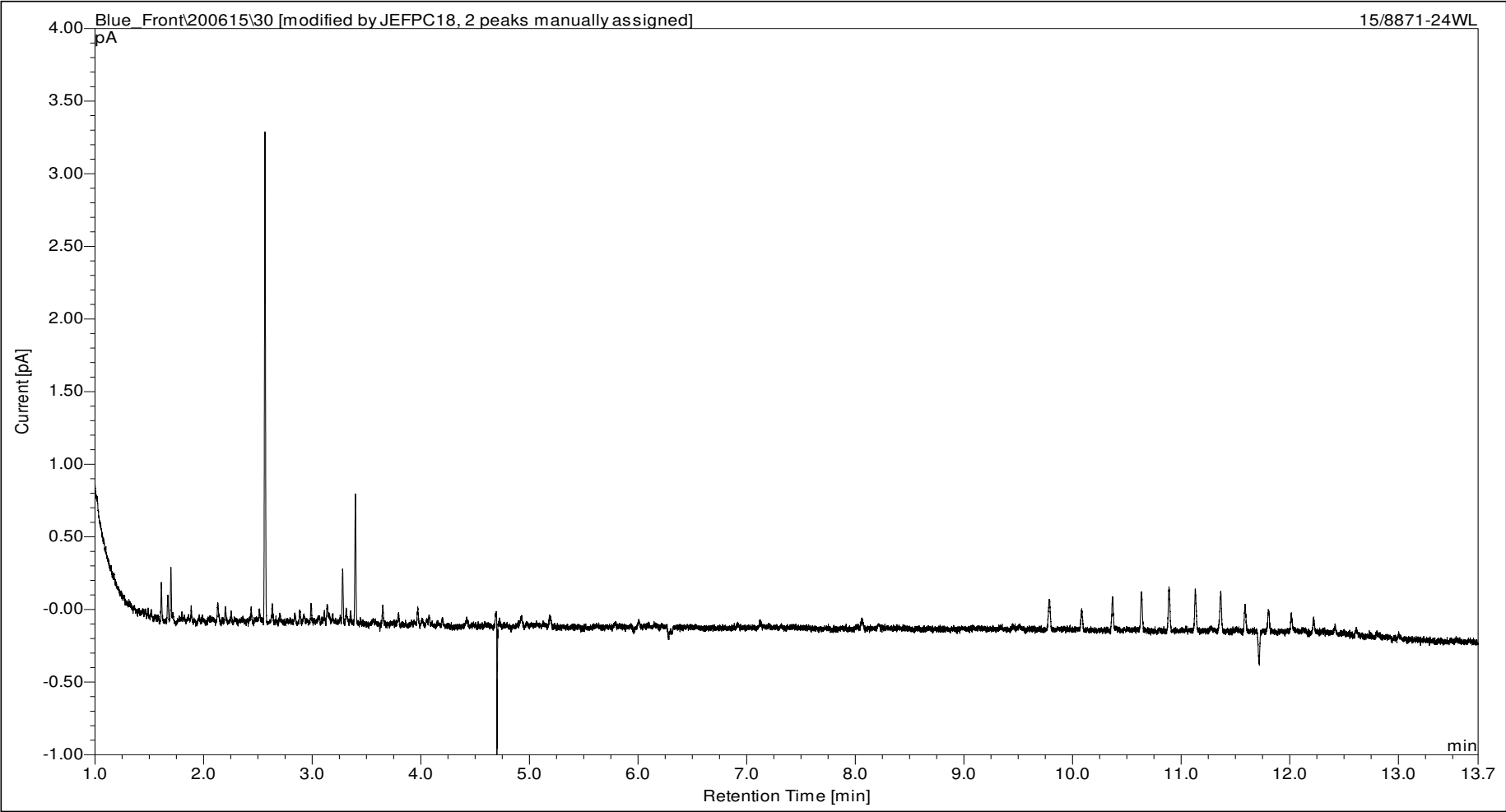
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 21
Sample Identity: BH03
Depth:
Matrix: Liquid



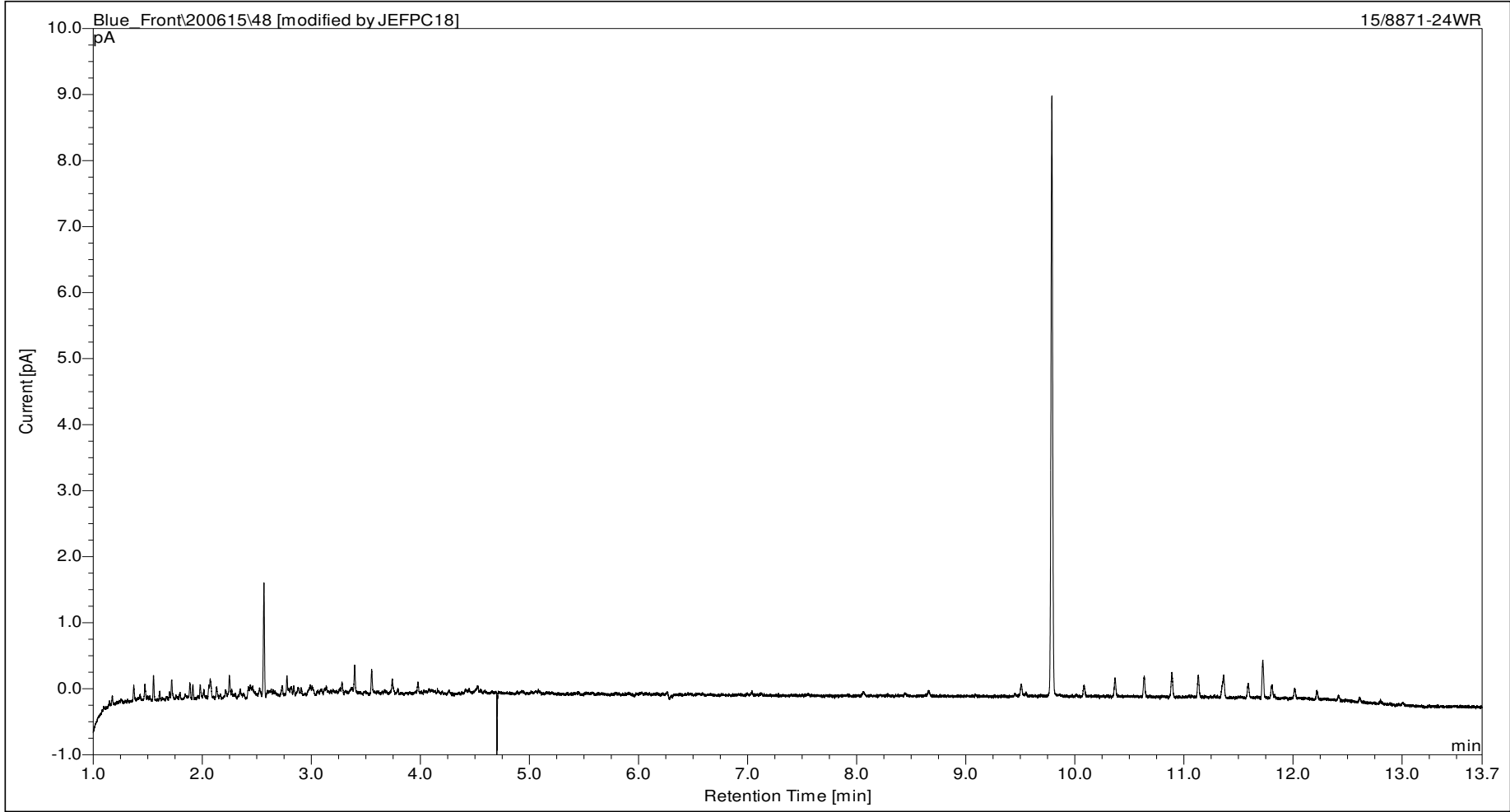
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 24
Sample Identity: WS203
Depth:
Matrix: Liquid



Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8871
JE Sample No.: 24
Sample Identity: WS203
Depth:
Matrix: Liquid



Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/8871

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 (UKAS) accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/8871

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			



Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

OHES
1 The Courtyard
Denmark Street
Wokingham
Berkshire
RG40 2AZ

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781



Attention :	Matthew Thomas
Date :	22nd June, 2015
Your reference :	6977
Our reference :	Test Report 15/8787 Batch 1
Location :	Thatcham
Date samples received :	17th June, 2015
Status :	Final report
Issue :	1

Seven samples were received for analysis on 17th June, 2015 of which seven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Phil Sommerton BSc
Project Manager

Bob Millward BSc FRSC
Principal Chemist

Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas
JE Job No.: 15/8787

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18					Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH05	BH06	BH07	BH09	WS212							
Depth													
COC No / misc													
Containers	V G	V G	V G	V G	V G	V G							
Sample Date	16/06/2015	16/06/2015	16/06/2015	16/06/2015	16/06/2015	16/06/2015							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water							
Batch Number	1	1	1	1	1	1							
Date of Receipt	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015	17/06/2015					LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM36/PM12
>C6-C8 #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM36/PM12
>C8-C10 #	432	<5	19	27	95	10					<5	ug/l	TM36/PM12
>C10-C12 #	35	<5	<5	<5	<5	<5					<5	ug/l	TM5/PM30
>C12-C16 #	130	<10	<10	<10	<10	<10					<10	ug/l	TM5/PM30
>C16-C21 #	50	<10	<10	<10	<10	<10					<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10	<10	<10	<10	<10					<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	647	<10	19	27	95	10					<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7 #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM36/PM12
>EC7-EC8 #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM36/PM12
>EC8-EC10 #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM36/PM12
>EC10-EC12 #	35	<5	<5	45	530	95					<5	ug/l	TM5/PM30
>EC12-EC16 #	250	<10	<10	130	520	140					<10	ug/l	TM5/PM30
>EC16-EC21 #	130	<10	<10	<10	110	<10					<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10	<10	<10	<10	<10					<10	ug/l	TM5/PM30
Total aromatics C5-35 #	415	<10	<10	175	1160	235					<10	ug/l	TM5/PM30
Total aliphatics and aromatics(C5-35) #	1062	<10	19	202	1255	245					<10	ug/l	TM5/TM36/PM30
MTBE #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM36/PM12
Benzene #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM36/PM12
Toluene #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM36/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM36/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM36/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5					<5	ug/l	TM36/PM12



Jones Environmental Forensics Ltd

Whole Oil Analysis by GC-FID



No.4225

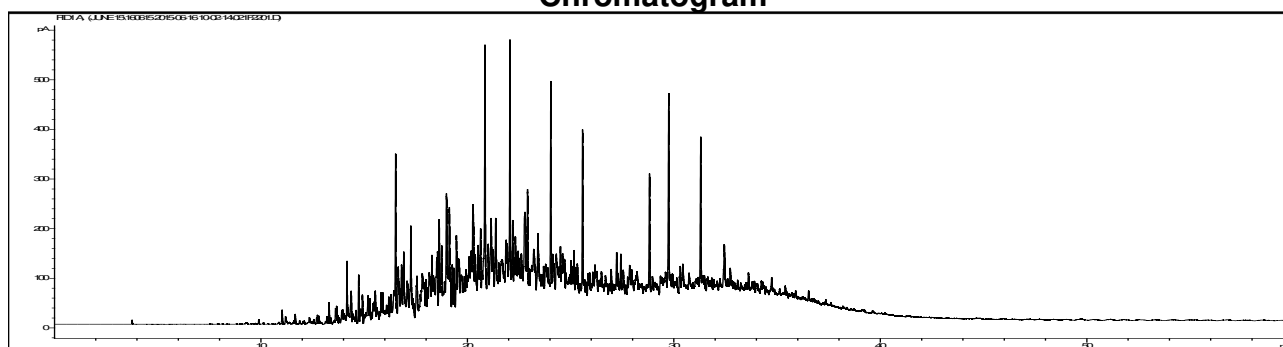
Job Number: 15/8787-19
Client ID: D
Description: Burnt Amber Oil on water

Carbon Range: nC8 to nC28
Boiling Point Range: 126°C to 432°C

Pristane/Phytane Ratio: 1.358
nC17/Pristane Ratio: <0.1
Age(+/-2 years)* > 20 Years

Interpretation: Degraded Diesel

Chromatogram



Analyst: M. A. Cully BSc MRSC

Date: 16/06/2015

*The age of release estimated in this report is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996). Age estimation should be treated with caution as it can be influenced by site specific factors that the laboratory are not aware of.

Bibliography

Christensen, L. B., and Larsen, T. H. (1993) Method for Determining the Age of Diesel Oil Spills in the Soil.

Groundwater Monitoring Review pp.142 - 149.

Kaplan, I. R., and Galperin, Y. (1996a) How to Recognize a Hydrocarbon Fuel in the Environment and Estimate its Age of Release. In: Bois, T. J., and Luther, B. J. (Ed.)

Groundwater and Soil Contamination: Technical Preparation and Litigation Management. New York, Wiley Law Publishers, pp.145 - 199.

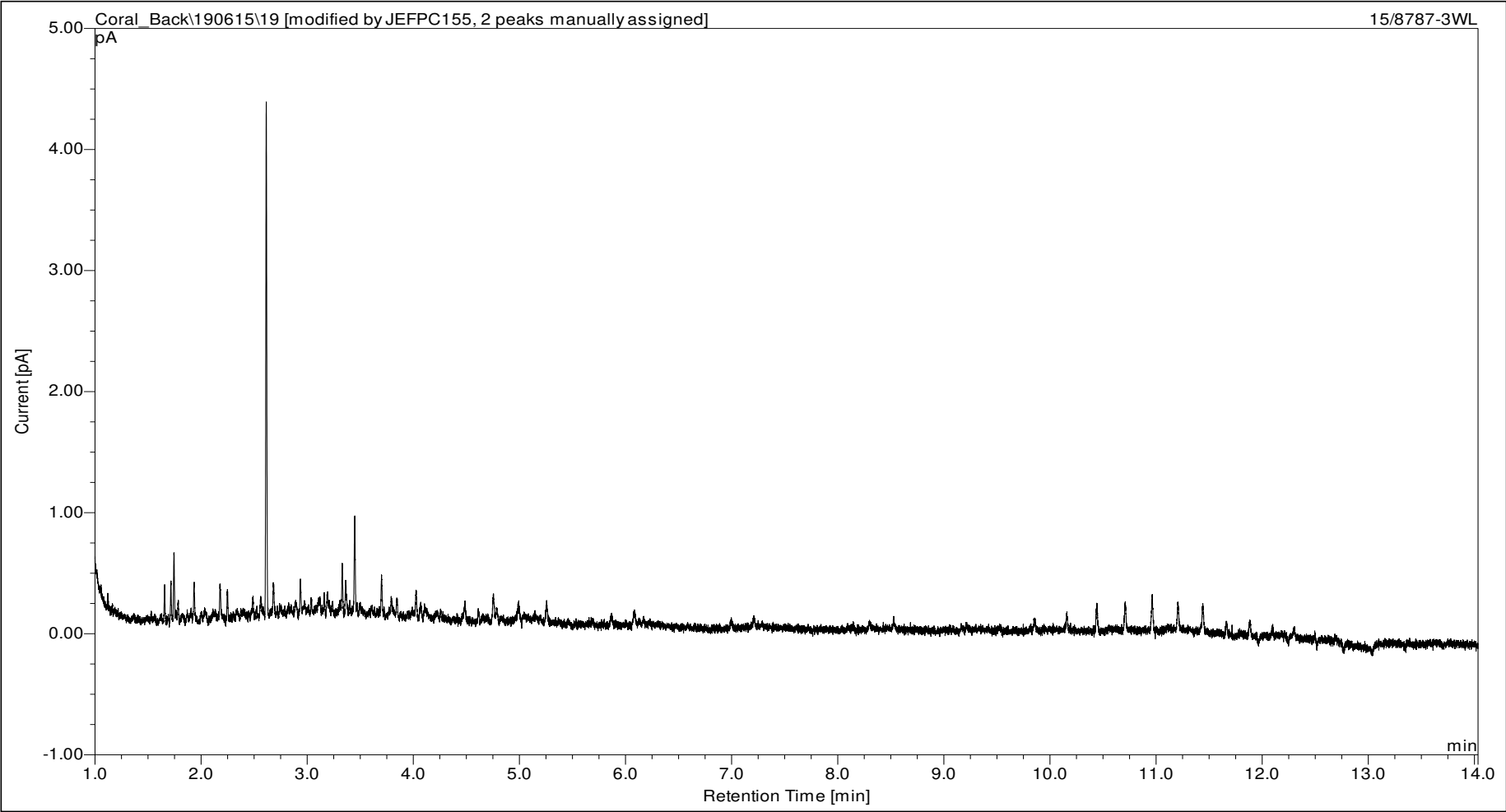
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

Matrix : Liquid

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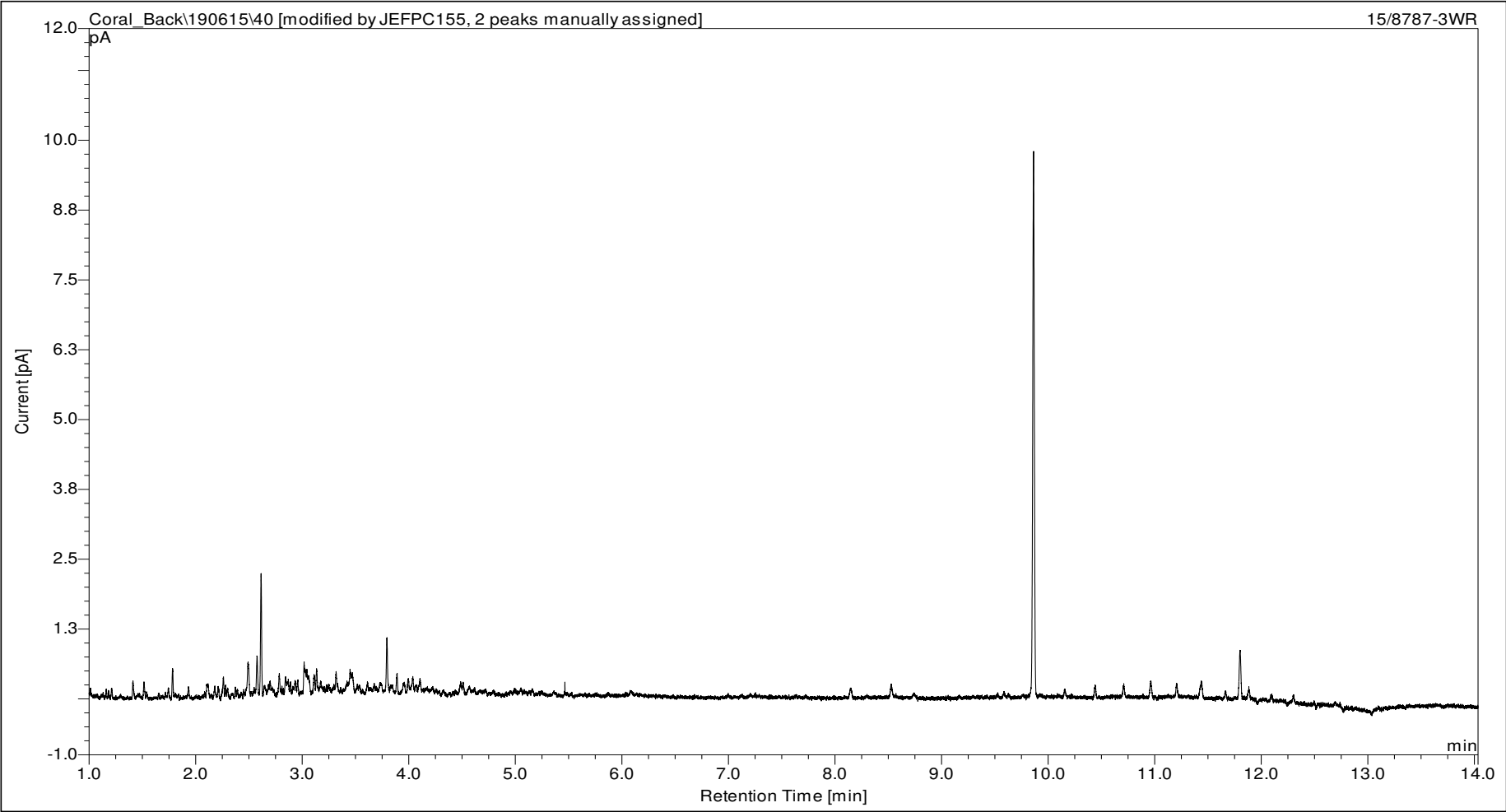
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Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8787
JE Sample No.: 3
Sample Identity: BH01
Depth:
Matrix: Liquid



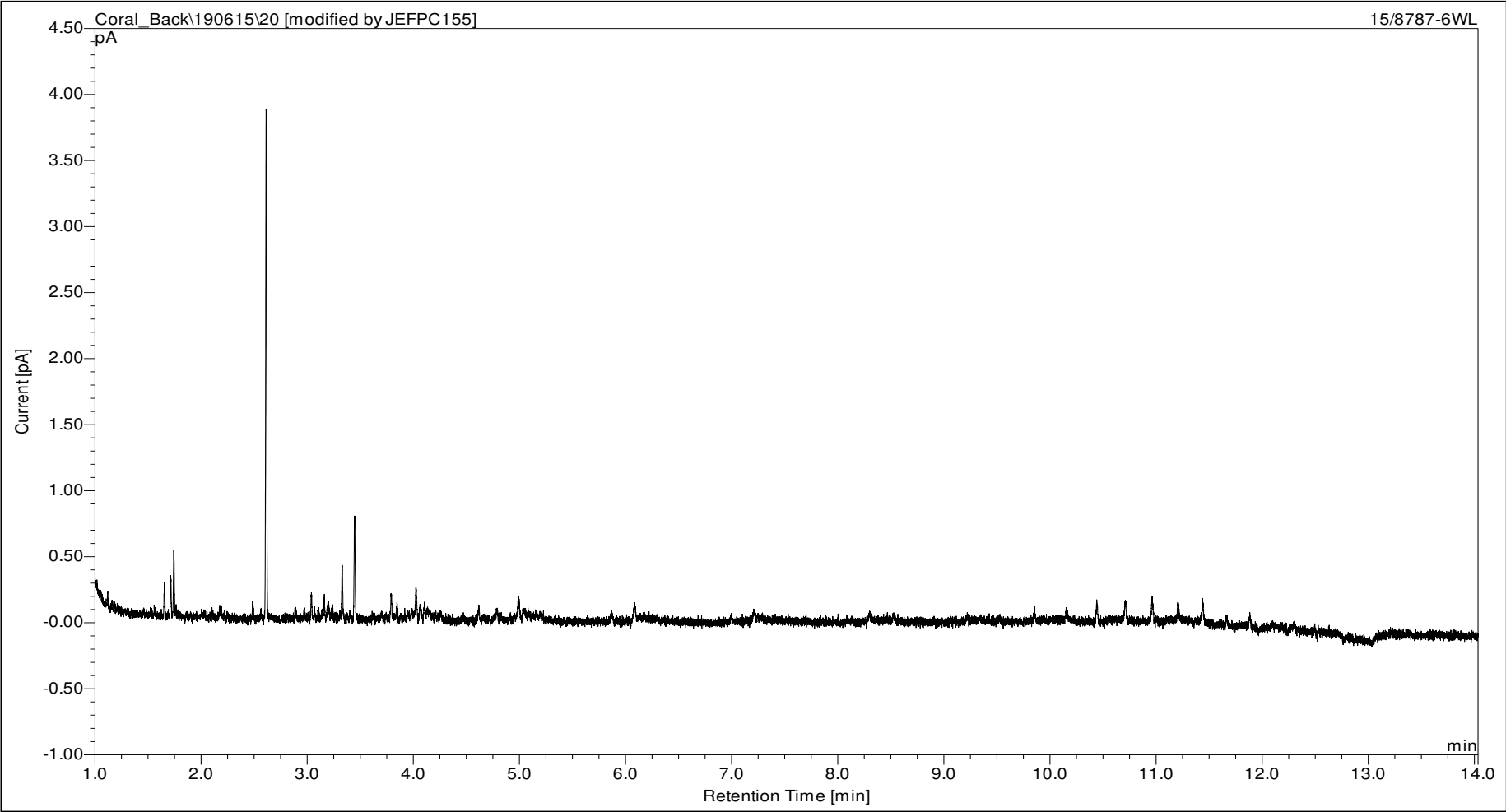
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8787
JE Sample No.: 3
Sample Identity: BH01
Depth:
Matrix: Liquid



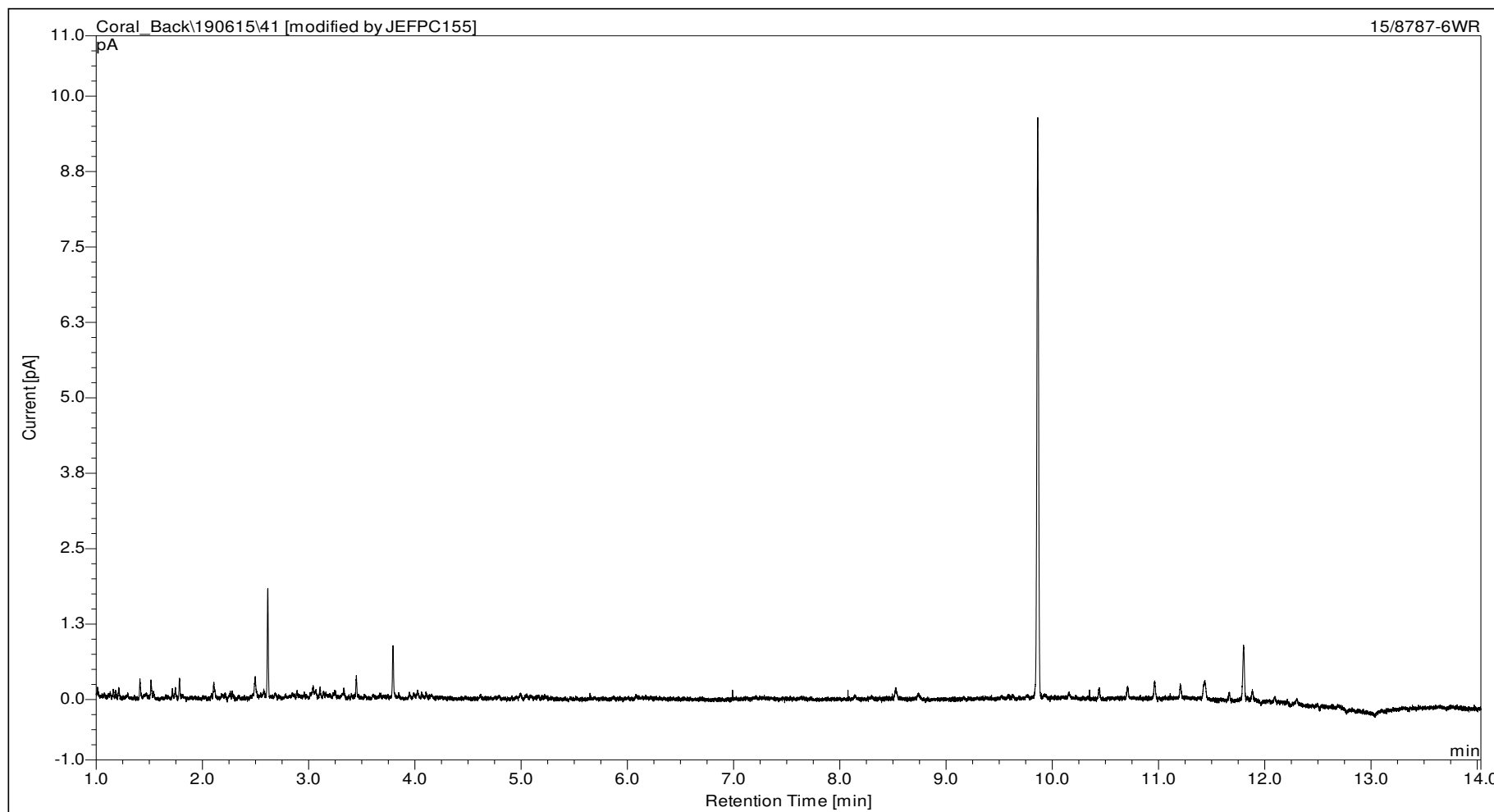
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8787
JE Sample No.: 6
Sample Identity: BH05
Depth:
Matrix: Liquid



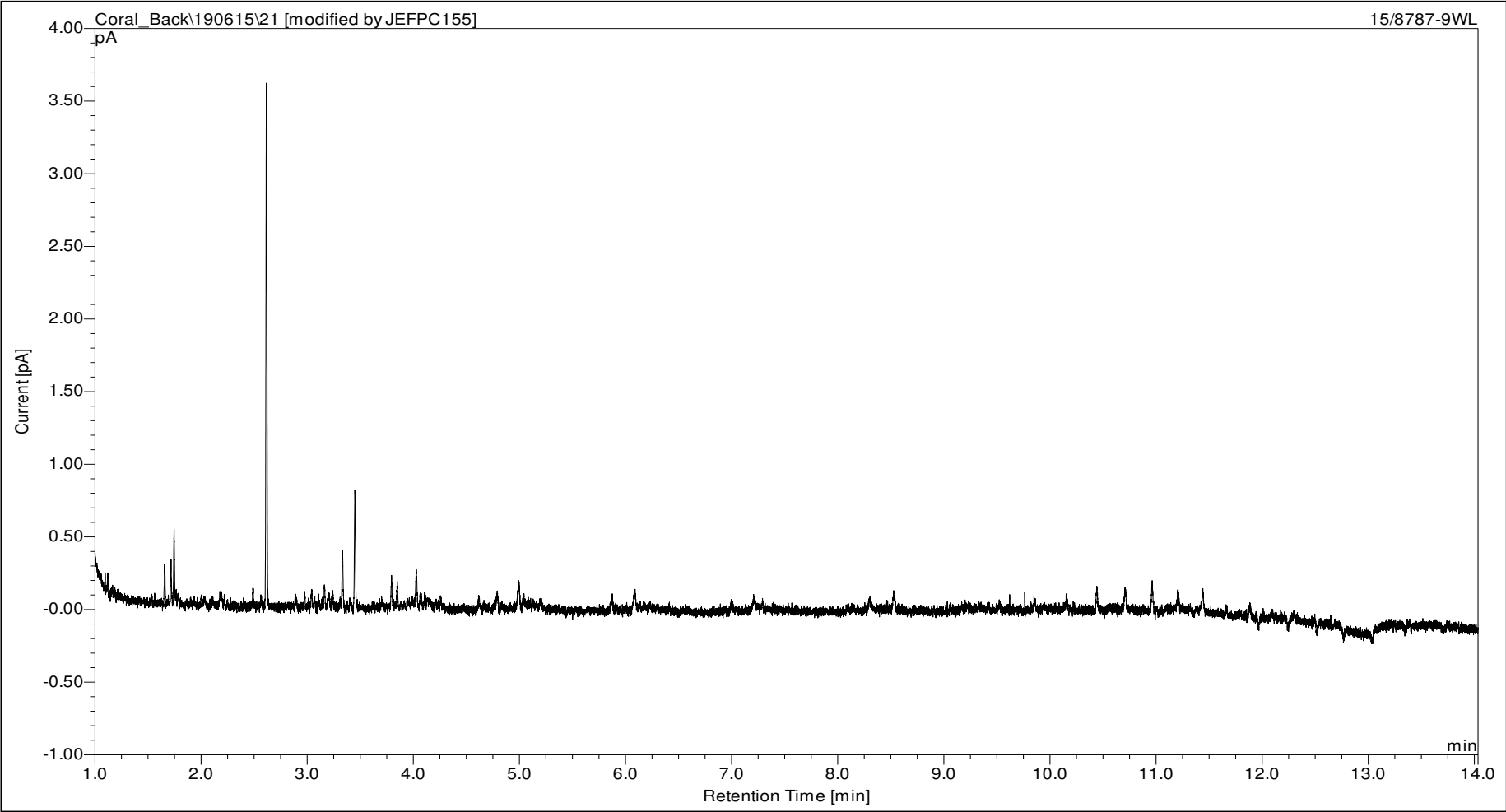
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8787
JE Sample No.: 6
Sample Identity: BH05
Depth:
Matrix: Liquid



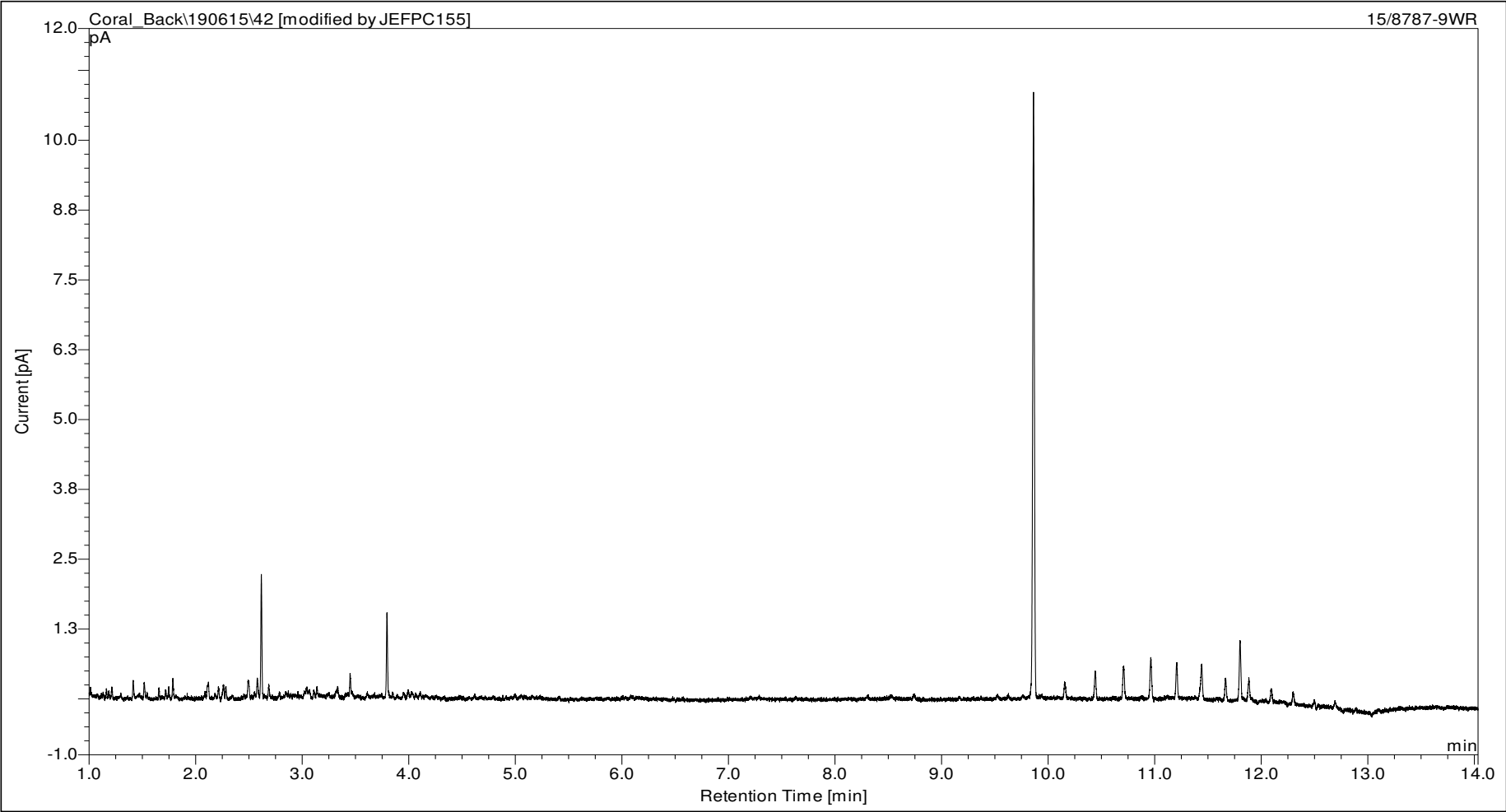
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8787
JE Sample No.: 9
Sample Identity: BH06
Depth:
Matrix: Liquid



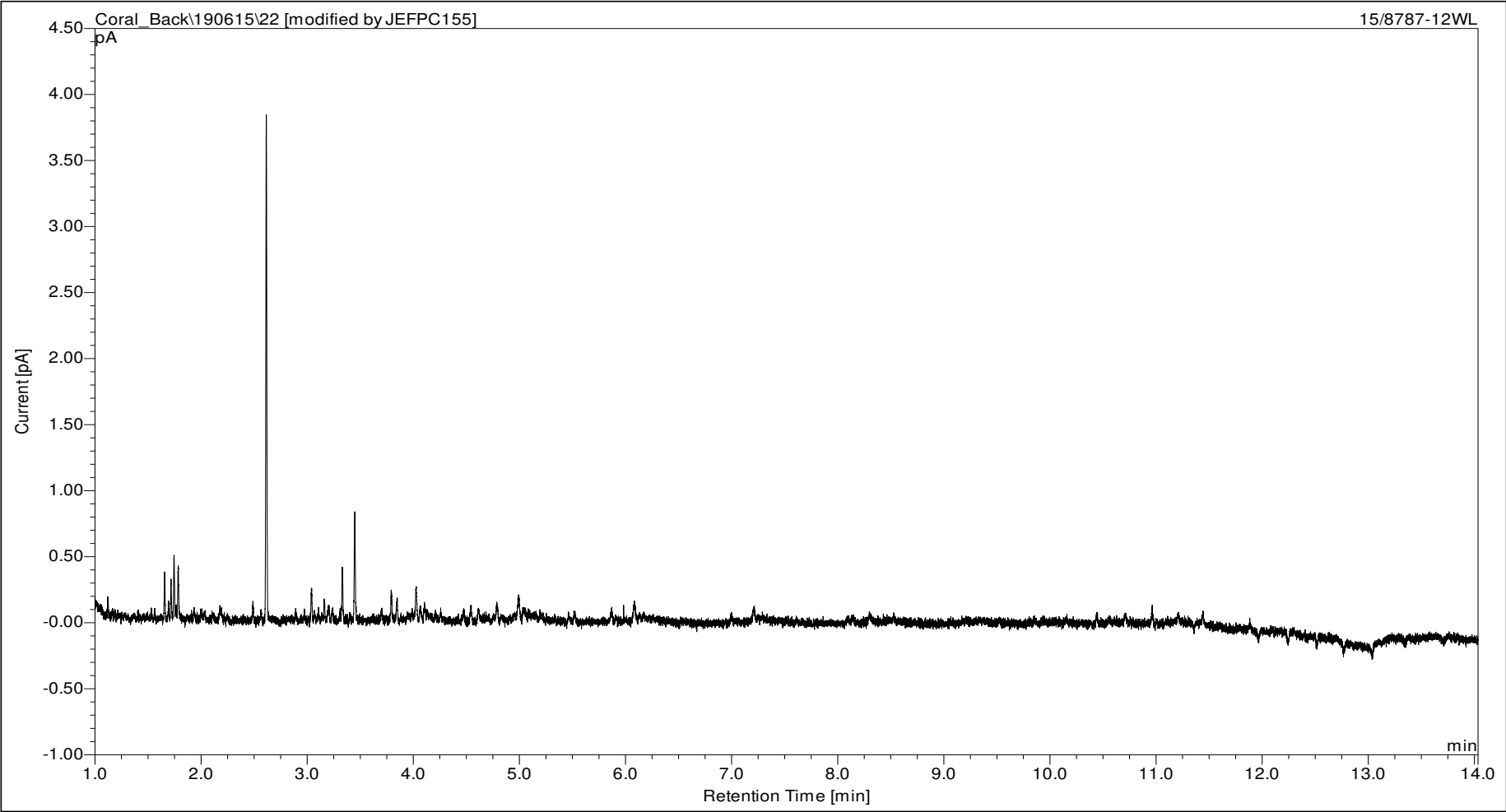
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8787
JE Sample No.: 9
Sample Identity: BH06
Depth:
Matrix: Liquid



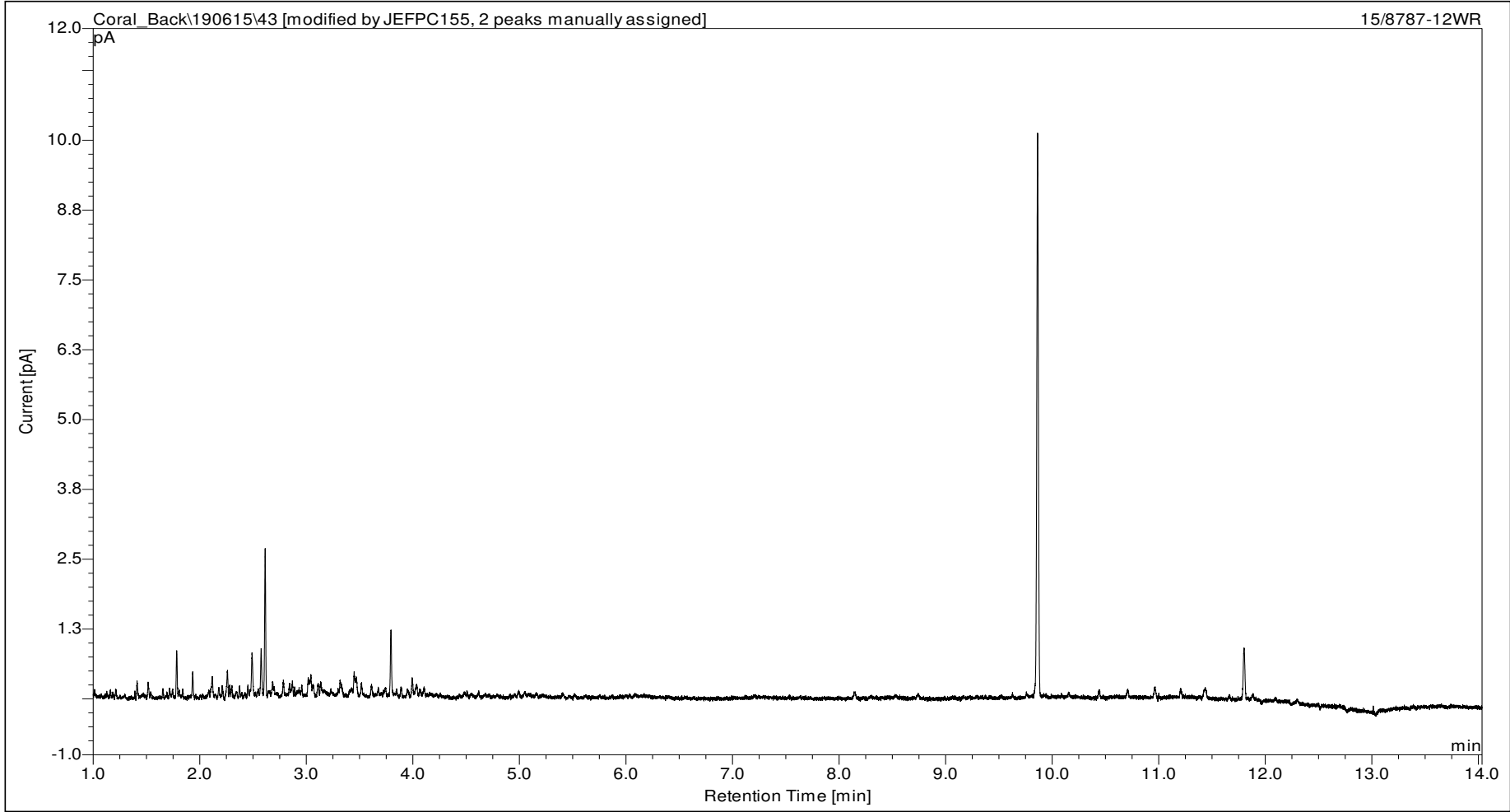
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8787
JE Sample No.: 12
Sample Identity: BH07
Depth:
Matrix: Liquid



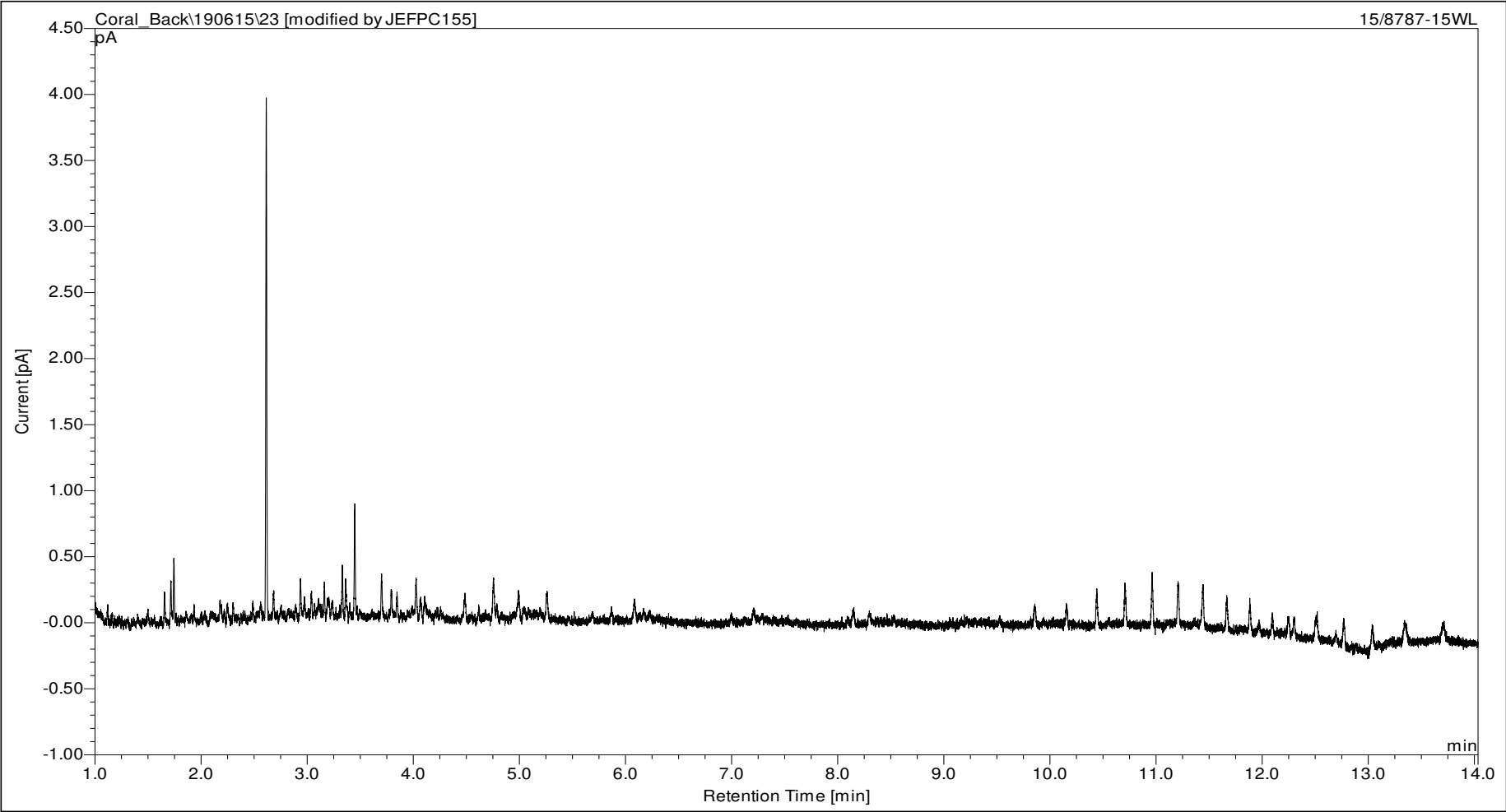
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8787
JE Sample No.: 12
Sample Identity: BH07
Depth:
Matrix: Liquid



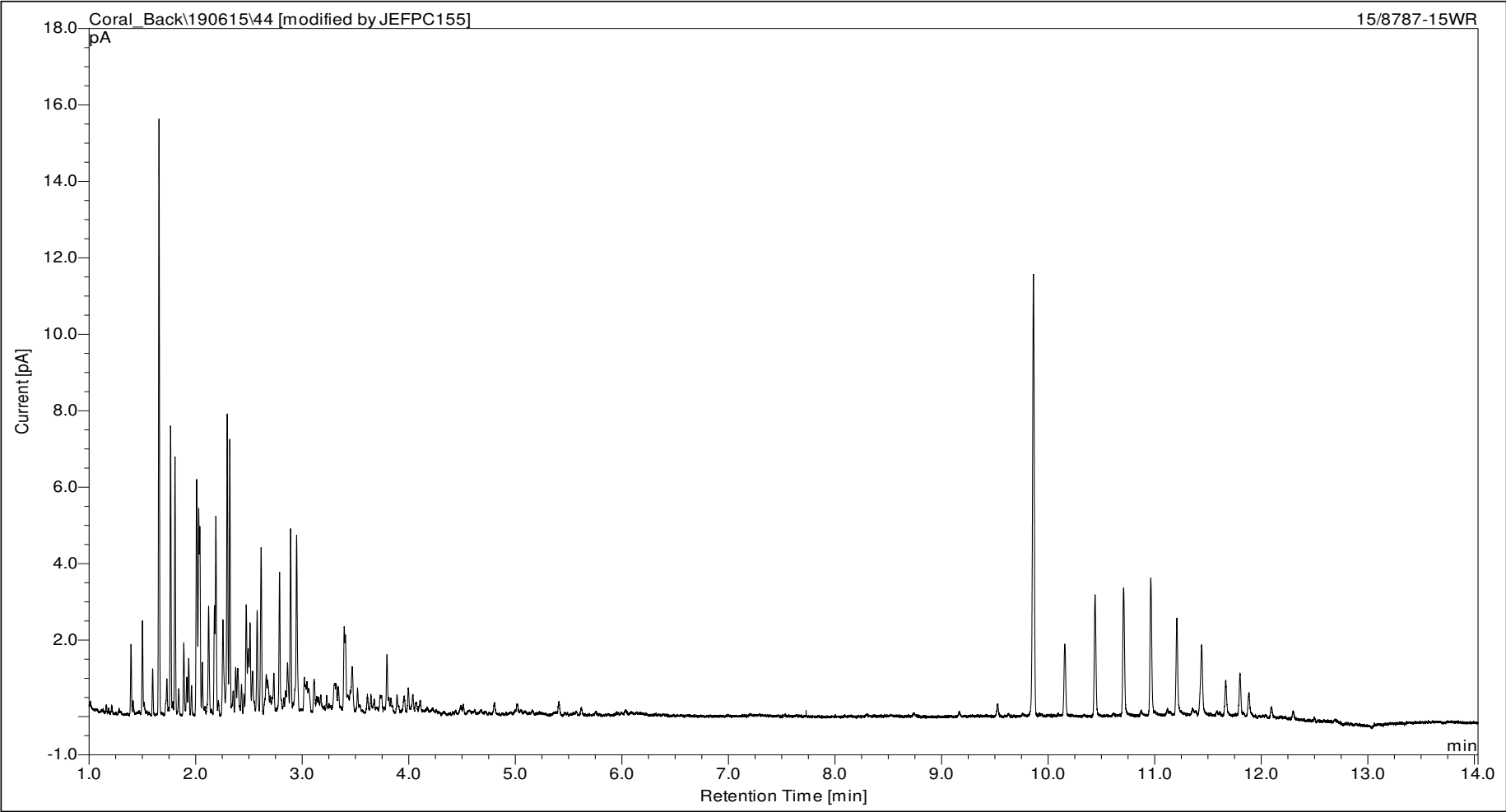
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8787
JE Sample No.: 15
Sample Identity: BH09
Depth:
Matrix: Liquid



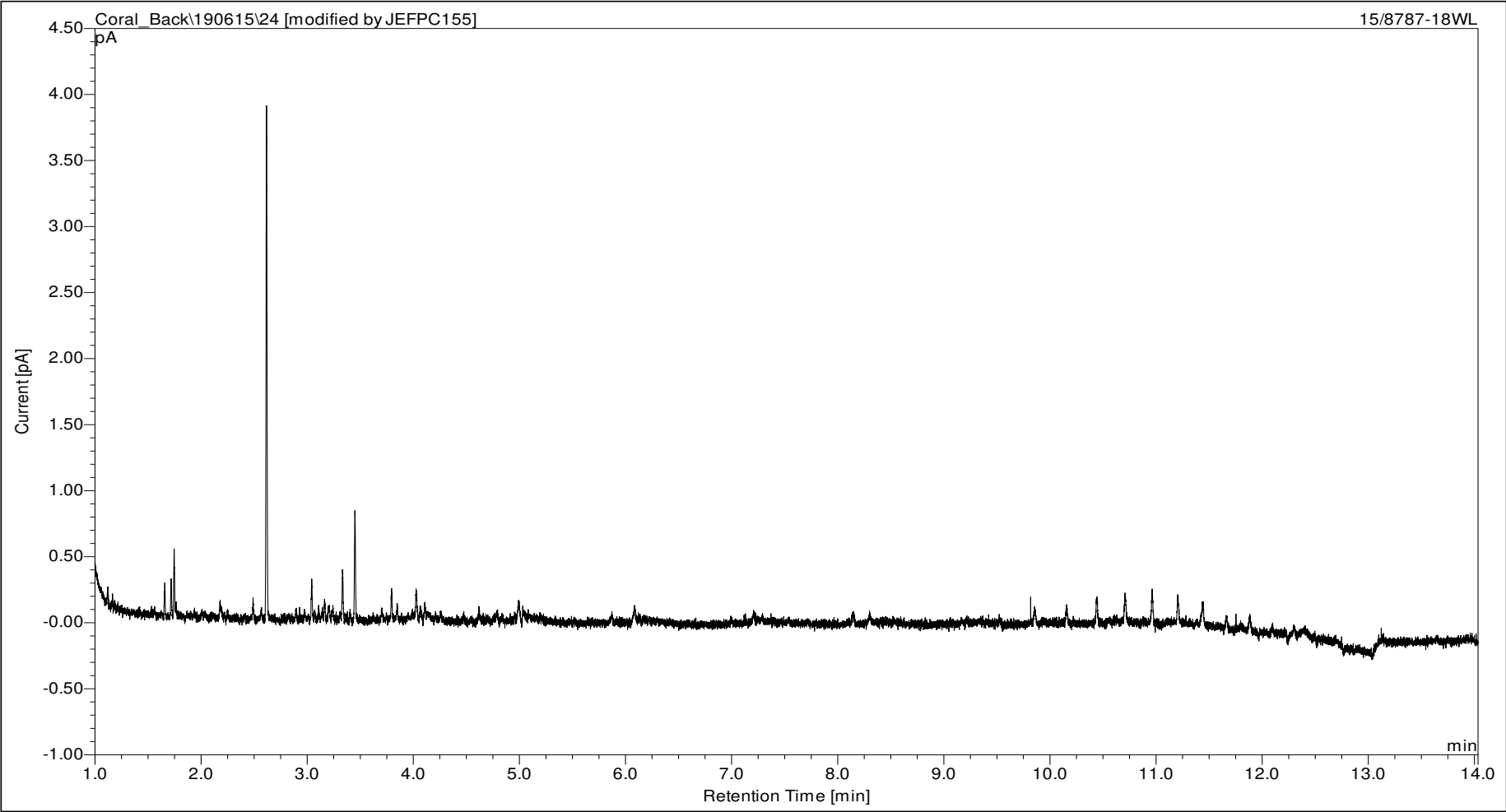
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8787
JE Sample No.: 15
Sample Identity: BH09
Depth:
Matrix: Liquid



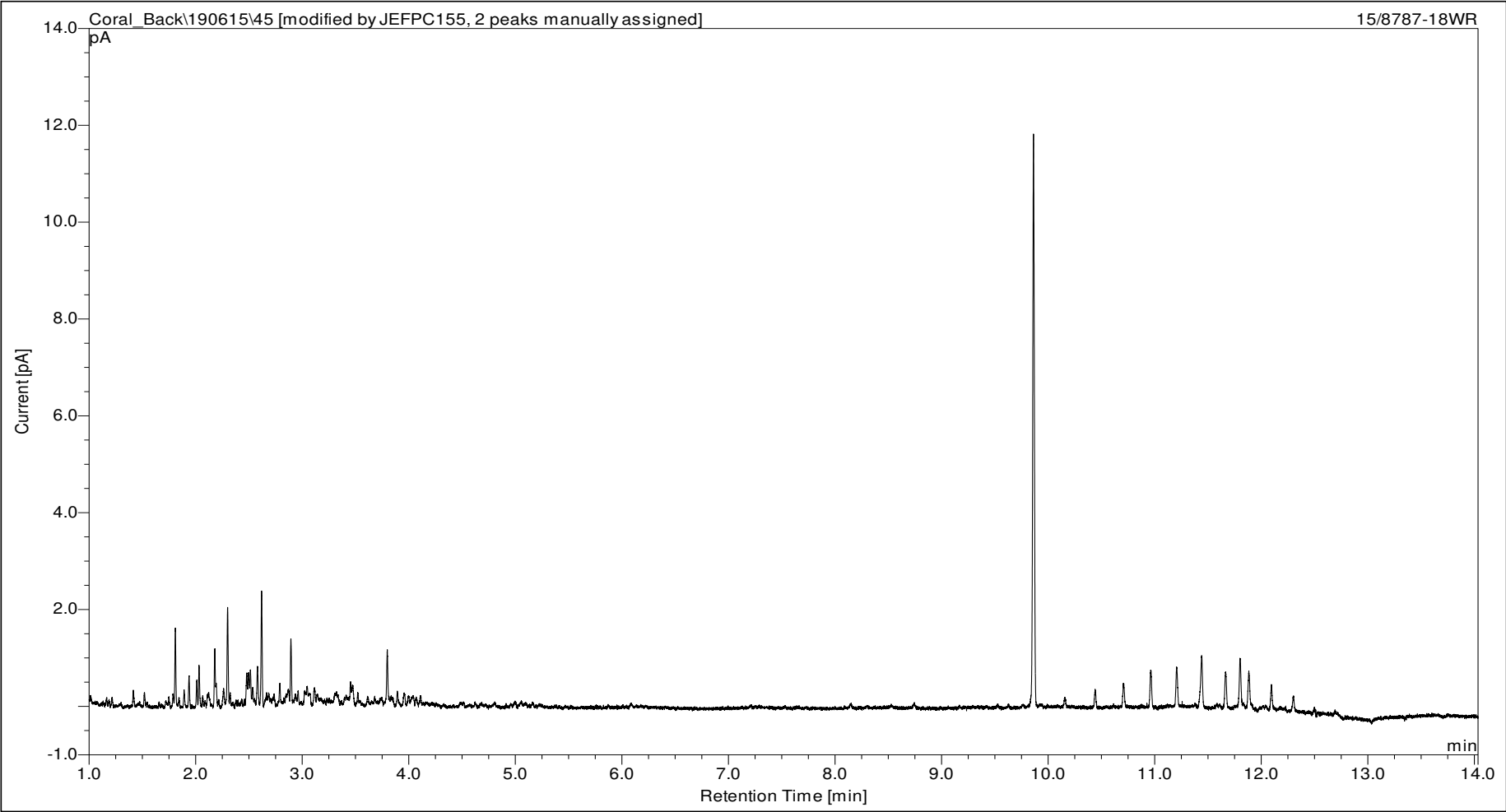
Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8787
JE Sample No.: 18
Sample Identity: WS212
Depth:
Matrix: Liquid



Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

JE Job No.: 15/8787
JE Sample No.: 18
Sample Identity: WS212
Depth:
Matrix: Liquid



Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Matthew Thomas

Matrix : Liquid

[illegible]

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NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/8787

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If you have not already done so, please send us a purchase order if this is required by your company.

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SURROGATES

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DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 15/8787

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM1	Modified USEPA 8015B method for the determination of carbon banding in oil and product samples by GC-FID.	PM0	No preparation is required.			AR	
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			



Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

OHES
1 The Courtyard
Denmark Street
Wokingham
Berkshire
RG40 2AZ

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781



Attention : Matthew Thomas
Date : 19th June, 2015
Your reference :
Our reference : Test Report 15/8672
Location : Thatcham
Date samples received : 13th June, 2015
Status : Final report
Issue : 1

Ten samples were received for analysis on 13th June, 2015 of which ten were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Belinda Lewsley BA
Project Co-ordinator

Bob Millward BSc FRSC
Principal Chemist

Please see attached notes for all abbreviations and acronyms

Client Name: OHES

VOC Report : Solid

Reference:

Location: Thatcham

Contact: Matthew Thomas

JE Job No.: 15/8672

J E Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS301	WS302	WS303	WS304	WS305	WS306	WS307	WS308	WS309	WS310			
Depth	2.50	2.50	2.00	0.50	1.00	1.90	1.00	0.50	1.00	2.50			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	11/06/2015	11/06/2015	11/06/2015	11/06/2015	11/06/2015	11/06/2015	11/06/2015	12/06/2015	12/06/2015	11/06/2015			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	13/06/2015	13/06/2015	13/06/2015	13/06/2015	13/06/2015	13/06/2015	13/06/2015	13/06/2015	13/06/2015	13/06/2015			
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/kg	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/kg	TM15/PM10
trans-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
cis-1-2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
Chloroform #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/kg	TM15/PM10
Benzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
cis-1-3-Dichloropropene	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/kg	TM15/PM10
Toluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
trans-1-3-Dichloropropene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	<3	<3	<3	51	<3	43	<3	<3	<3	<3	ug/kg	TM15/PM10
p/m-Xylene #	<5	<5	<5	12	<5	<5	138	13	<5	<5	<5	ug/kg	TM15/PM10
o-Xylene #	<3	<3	<3	<3	<3	<3	15	<3	<3	<3	<3	ug/kg	TM15/PM10
Styrene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
Bromoform	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	246	<3	50	175	307	106	12	<3	15	<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/kg	TM15/PM10
Propylbenzene #	<4	530	<4	117	253	352	228	23	<4	<4	<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	218	1185	<3	1015	86	<3	<3	<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	85	<5	<5	<5	<5	<5	<5	<5	63	<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6	3014**	<6	835	<6	2267**	2874**	314	12	<6	<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	528	<4	<4	355	893	226	<4	<4	204	<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	<4	<4	<4	77	311	<4	393	74	<4	<4	<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4	<4	<4	<4	25	<4	<4	<4	5	<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4	<4	<4	<4	373	<4	<4	<4	102	<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4	897	20	195	<4	2686**	650	76	49	410	<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4	<4	<4	<4	1677	<4	<4	<4	397	<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/kg	TM15/PM10
Naphthalene	<27	<27	<27	<27	1050	<27	2658**	120	<27	<27	<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	111	107	91	93	80	74	84	95	85	76	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	120	99	93	96	74	72	80	96	85	76	<0	%	TM15/PM10

Please include all sections of this report if it is reproduced

Client Name: OHES
Reference:
Location: Thatcham
Contact: Matthew Thomas

[illegible]

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JE Job No.: 15/8672

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A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution

JE Job No: 15/8672

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID.	PM12/PM16	CWG GC-FID			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes



Jones Environmental Laboratory

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Attention :	Bryan Cherry
Date :	20th August, 2014
Your reference :	6977
Our reference :	Test Report 14/9187 Batch 1
Location :	Thatcham
Date samples received :	14th August, 2014
Status :	Final report
Issue :	1

Thirty seven samples were received for analysis on 14th August, 2014. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Bruce Leslie
Project Co-ordinator

Bob Millward BSc FRSC
Principal Chemist

Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Bryan Cherry
JE Job No.: 14/9187

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1	2	3-4	5-6	7	8	9-10	11	12	13-14	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS112	WS112	WS111	WS112	WS111	WS112	WS112	WS210	WS210	WS210			
Depth	3.60-3.70	3.30-3.40	2.90-3.00	2.10-2.20	3.90-4.00	0.90-1.00	1.40-1.50	3.70-3.80	1.90-2.00	1.50-1.60			
COC No / misc													
Containers	J	J	V J	V J	J	J	V J	J	J	V J			
Sample Date	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	LOD/LOR	Units	Method No.
EPH (C8-C40) #	<30	<30	<30	-	<30	<30	-	<30	-	-	<30	mg/kg	TM5/PM8
EPH >C8-C10 #	-	-	-	<5	-	-	21	-	34	275	<5	mg/kg	TM5/PM8
EPH >C10-C12 #	-	-	-	<10	-	-	33	-	46	324	<10	mg/kg	TM5/PM8
EPH >C12-C16 #	-	-	-	56	-	-	104	-	125	791	<10	mg/kg	TM5/PM8
EPH >C16-C21 #	-	-	-	89	-	-	108	-	113	717	<10	mg/kg	TM5/PM8
EPH >C21-C40	-	-	-	61	-	-	117	-	83	391	<10	mg/kg	TM5/PM8
EPH >C8-C40	-	-	-	206	-	-	383	-	401	2498	<30	mg/kg	TM5/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM36/PM12
>C6-C8 #	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM36/PM12
>C8-C10	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM36/PM12
>C10-C12 #	-	-	-	-	-	-	-	-	-	-	<0.2	mg/kg	TM5/PM16
>C12-C16 #	-	-	-	-	-	-	-	-	-	-	<4	mg/kg	TM5/PM16
>C16-C21 #	-	-	-	-	-	-	-	-	-	-	<7	mg/kg	TM5/PM16
>C21-C35 #	-	-	-	-	-	-	-	-	-	-	<7	mg/kg	TM5/PM16
Total aliphatics C5-35	-	-	-	-	-	-	-	-	-	-	<19	mg/kg	TM5/PM8/PM12/PM16
Aromatics													
>C5-EC7	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM36/PM12
>EC7-EC8	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM36/PM12
>EC10-EC12	-	-	-	-	-	-	-	-	-	-	<0.2	mg/kg	TM5/PM16
>EC12-EC16	-	-	-	-	-	-	-	-	-	-	<4	mg/kg	TM5/PM16
>EC16-EC21	-	-	-	-	-	-	-	-	-	-	<7	mg/kg	TM5/PM16
>EC21-EC35	-	-	-	-	-	-	-	-	-	-	<7	mg/kg	TM5/PM16
Total aromatics C5-35	-	-	-	-	-	-	-	-	-	-	<19	mg/kg	TM5/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35)	-	-	-	-	-	-	-	-	-	-	<38	mg/kg	TM5/PM8/PM12/PM16
MTBE #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM31/PM12
Benzene #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM31/PM12
Toluene #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM31/PM12
Ethylbenzene #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM31/PM12
m/p-Xylene #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM31/PM12
o-Xylene #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM31/PM12
Natural Moisture Content	17.0	27.3	19.8	11.7	15.9	9.0	11.4	19.8	36.2	26.6	<0.1	%	PM4/PM0

Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Bryan Cherry
JE Job No.: 14/9187

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	15	16-17	18	19-20	21	22-23	24-25	26	27	28	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS111	WS112	WS210	WS210	WS210	WS210	WS210	WS209	WS209	WS209			
Depth	3.20-3.30	2.50-2.60	0.80-0.90	1.20-1.30	3.30-3.40	2.40-2.50	2.60-2.70	1.90-2.00	2.90-3.00	0.30-0.40			
COC No / misc													
Containers	J	V J	J	V J	J	V J	V J	J	J	J			
Sample Date	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	LOD/LOR	Units	Method No.
EPH (C8-C40) #	<30	<30	112	-	<30	-	-	60	<30	<30	<30	mg/kg	TM5/PM8
EPH >C8-C10 #	-	-	-	2095**	-	-	213	-	-	-	<5	mg/kg	TM5/PM8
EPH >C10-C12 #	-	-	-	2616**	-	-	379	-	-	-	<10	mg/kg	TM5/PM8
EPH >C12-C16 #	-	-	-	6500**	-	-	1032	-	-	-	<10	mg/kg	TM5/PM8
EPH >C16-C21 #	-	-	-	5775**	-	-	1019	-	-	-	<10	mg/kg	TM5/PM8
EPH >C21-C40	-	-	-	3762**	-	-	264	-	-	-	<10	mg/kg	TM5/PM8
EPH >C8-C40	-	-	-	20748**	-	-	2907	-	-	-	<30	mg/kg	TM5/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	-	-	-	-	-	0.1	-	-	-	-	<0.1	mg/kg	TM36/PM12
>C6-C8 #	-	-	-	-	-	6.9	-	-	-	-	<0.1	mg/kg	TM36/PM12
>C8-C10	-	-	-	-	-	81.3**	-	-	-	-	<0.1	mg/kg	TM36/PM12
>C10-C12 #	-	-	-	-	-	597.6	-	-	-	-	<0.2	mg/kg	TM5/PM16
>C12-C16 #	-	-	-	-	-	1493	-	-	-	-	<4	mg/kg	TM5/PM16
>C16-C21 #	-	-	-	-	-	1437	-	-	-	-	<7	mg/kg	TM5/PM16
>C21-C35 #	-	-	-	-	-	450	-	-	-	-	<7	mg/kg	TM5/PM16
Total aliphatics C5-35	-	-	-	-	-	4066	-	-	-	-	<19	mg/kg	TM5/PM16/PM2/PM16
Aromatics													
>C5-EC7	-	-	-	-	-	<0.1	-	-	-	-	<0.1	mg/kg	TM36/PM12
>EC7-EC8	-	-	-	-	-	0.2	-	-	-	-	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	-	-	-	-	-	3.5	-	-	-	-	<0.1	mg/kg	TM36/PM12
>EC10-EC12	-	-	-	-	-	247.0	-	-	-	-	<0.2	mg/kg	TM5/PM16
>EC12-EC16	-	-	-	-	-	866	-	-	-	-	<4	mg/kg	TM5/PM16
>EC16-EC21	-	-	-	-	-	947	-	-	-	-	<7	mg/kg	TM5/PM16
>EC21-EC35	-	-	-	-	-	199	-	-	-	-	<7	mg/kg	TM5/PM16
Total aromatics C5-35	-	-	-	-	-	2263	-	-	-	-	<19	mg/kg	TM5/PM16/PM2/PM16
Total aliphatics and aromatics(C5-35)	-	-	-	-	-	6329	-	-	-	-	<38	mg/kg	TM5/PM16/PM2/PM16
MTBE #	-	-	-	-	-	<5	-	-	-	-	<5	ug/kg	TM31/PM12
Benzene #	-	-	-	-	-	63	-	-	-	-	<5	ug/kg	TM31/PM12
Toluene #	-	-	-	-	-	232	-	-	-	-	<5	ug/kg	TM31/PM12
Ethylbenzene #	-	-	-	-	-	332	-	-	-	-	<5	ug/kg	TM31/PM12
m/p-Xylene #	-	-	-	-	-	2332	-	-	-	-	<5	ug/kg	TM31/PM12
o-Xylene #	-	-	-	-	-	812	-	-	-	-	<5	ug/kg	TM31/PM12
Natural Moisture Content	22.0	18.6	29.7	29.4	20.0	8.8	9.6	23.1	21.1	9.2	<0.1	%	PM4/PM0

Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Bryan Cherry
JE Job No.: 14/9187

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	29	30-31	32-33	34	35	36-37	38-39	40	41	42-43	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS211	WS209	WS209	WS209	WS209	WS208	WS207	WS207	WS208	WS208			
Depth	3.50-3.60	2.40-2.50	2.60-2.70	0.90-1.00	0.40-0.50	1.40-1.50	2.90-3.00	3.50-3.60	3.60-3.70	2.50-2.60			
COC No / misc													
Containers	J	V J	V J	J	J	V J	V J	J	J	V J			
Sample Date	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	LOD/LOR	Units	Method No.
EPH (C8-C40) #	<30	-	<30	<30	149	-	-	<30	<30	-	<30	mg/kg	TM5/PM8
EPH >C8-C10 #	-	1140	-	-	-	301	<5	-	-	-	<5	mg/kg	TM5/PM8
EPH >C10-C12 #	-	1119	-	-	-	920	19	-	-	-	<10	mg/kg	TM5/PM8
EPH >C12-C16 #	-	2297	-	-	-	3741	54	-	-	-	<10	mg/kg	TM5/PM8
EPH >C16-C21 #	-	1616	-	-	-	4677	61	-	-	-	<10	mg/kg	TM5/PM8
EPH >C21-C40	-	724	-	-	-	890	26	-	-	-	<10	mg/kg	TM5/PM8
EPH >C8-C40	-	6896	-	-	-	10529	160	-	-	-	<30	mg/kg	TM5/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	-	-	-	-	-	-	-	-	-	0.2	<0.1	mg/kg	TM36/PM12
>C6-C8 #	-	-	-	-	-	-	-	-	-	5.6	<0.1	mg/kg	TM36/PM12
>C8-C10	-	-	-	-	-	-	-	-	-	67.2**	<0.1	mg/kg	TM36/PM12
>C10-C12 #	-	-	-	-	-	-	-	-	-	518.0	<0.2	mg/kg	TM5/PM16
>C12-C16 #	-	-	-	-	-	-	-	-	-	1171	<4	mg/kg	TM5/PM16
>C16-C21 #	-	-	-	-	-	-	-	-	-	1033	<7	mg/kg	TM5/PM16
>C21-C35 #	-	-	-	-	-	-	-	-	-	237	<7	mg/kg	TM5/PM16
Total aliphatics C5-35	-	-	-	-	-	-	-	-	-	3032	<19	mg/kg	TM5/PM8/PM12/PM16
Aromatics													
>C5-EC7	-	-	-	-	-	-	-	-	-	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8	-	-	-	-	-	-	-	-	-	0.2	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	-	-	-	-	-	-	-	-	-	2.6	<0.1	mg/kg	TM36/PM12
>EC10-EC12	-	-	-	-	-	-	-	-	-	165.6	<0.2	mg/kg	TM5/PM16
>EC12-EC16	-	-	-	-	-	-	-	-	-	561	<4	mg/kg	TM5/PM16
>EC16-EC21	-	-	-	-	-	-	-	-	-	604	<7	mg/kg	TM5/PM16
>EC21-EC35	-	-	-	-	-	-	-	-	-	114	<7	mg/kg	TM5/PM16
Total aromatics C5-35	-	-	-	-	-	-	-	-	-	1447	<19	mg/kg	TM5/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35)	-	-	-	-	-	-	-	-	-	4479	<38	mg/kg	TM5/PM8/PM12/PM16
MTBE #	-	-	-	-	-	-	-	-	-	<5	<5	ug/kg	TM31/PM12
Benzene #	-	-	-	-	-	-	-	-	-	52	<5	ug/kg	TM31/PM12
Toluene #	-	-	-	-	-	-	-	-	-	259	<5	ug/kg	TM31/PM12
Ethylbenzene #	-	-	-	-	-	-	-	-	-	212	<5	ug/kg	TM31/PM12
m/p-Xylene #	-	-	-	-	-	-	-	-	-	1640	<5	ug/kg	TM31/PM12
o-Xylene #	-	-	-	-	-	-	-	-	-	736	<5	ug/kg	TM31/PM12
Natural Moisture Content	22.4	13.1	19.8	9.5	13.5	16.1	23.8	20.2	21.4	7.8	<0.1	%	PM4/PM0

Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Bryan Cherry
JE Job No.: 14/9187

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	44-45	46-47	48-49	50	51	52-53	54				Please see attached notes for all abbreviations and acronyms		
Sample ID	WS208	WS208	WS207	WS209	WS207	WS207	WS207						
Depth	1.90-2.00	2.90-3.00	1.90-2.00	3.50-3.60	0.50-0.60	2.40-2.50	0.90-1.00						
COC No / misc													
Containers	V J	V J	V J	J	J	V J	J						
Sample Date	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014	11/08/2014						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014	14/08/2014				LOD/LOR	Units	Method No.
EPH (C8-C40) #	-	-	1048	<30	<30	-	71				<30	mg/kg	TM5/PM8
EPH >C8-C10 #	-	101	-	-	-	-	-				<5	mg/kg	TM5/PM8
EPH >C10-C12 #	-	174	-	-	-	-	-				<10	mg/kg	TM5/PM8
EPH >C12-C16 #	-	431	-	-	-	-	-				<10	mg/kg	TM5/PM8
EPH >C16-C21 #	-	384	-	-	-	-	-				<10	mg/kg	TM5/PM8
EPH >C21-C40	-	56	-	-	-	-	-				<10	mg/kg	TM5/PM8
EPH >C8-C40	-	1146	-	-	-	-	-				<30	mg/kg	TM5/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	-	-	-	-	<0.1	-				<0.1	mg/kg	TM36/PM12
>C6-C8 #	4.6	-	-	-	-	0.2	-				<0.1	mg/kg	TM36/PM12
>C8-C10	59.8**	-	-	-	-	23.4**	-				<0.1	mg/kg	TM36/PM12
>C10-C12 #	1012.1	-	-	-	-	363.8	-				<0.2	mg/kg	TM5/PM16
>C12-C16 #	2589	-	-	-	-	870	-				<4	mg/kg	TM5/PM16
>C16-C21 #	2481	-	-	-	-	803	-				<7	mg/kg	TM5/PM16
>C21-C35 #	419	-	-	-	-	361	-				<7	mg/kg	TM5/PM16
Total aliphatics C5-35	6566	-	-	-	-	2421	-				<19	mg/kg	TM5/PM16/PM2/PM16
Aromatics													
>C5-EC7	<0.1	-	-	-	-	<0.1	-				<0.1	mg/kg	TM36/PM12
>EC7-EC8	0.2	-	-	-	-	<0.1	-				<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	2.4	-	-	-	-	0.7	-				<0.1	mg/kg	TM36/PM12
>EC10-EC12	340.7	-	-	-	-	81.5	-				<0.2	mg/kg	TM5/PM16
>EC12-EC16	1255	-	-	-	-	352	-				<4	mg/kg	TM5/PM16
>EC16-EC21	1544	-	-	-	-	452	-				<7	mg/kg	TM5/PM16
>EC21-EC35	310	-	-	-	-	170	-				<7	mg/kg	TM5/PM16
Total aromatics C5-35	3452	-	-	-	-	1056	-				<19	mg/kg	TM5/PM16/PM2/PM16
Total aliphatics and aromatics(C5-35)	10018	-	-	-	-	3477	-				<38	mg/kg	TM5/PM16/PM2/PM16
MTBE #	<5	-	-	-	-	<5	-				<5	ug/kg	TM31/PM12
Benzene #	43	-	-	-	-	<5	-				<5	ug/kg	TM31/PM12
Toluene #	234	-	-	-	-	16	-				<5	ug/kg	TM31/PM12
Ethylbenzene #	168	-	-	-	-	61	-				<5	ug/kg	TM31/PM12
m/p-Xylene #	1639	-	-	-	-	367	-				<5	ug/kg	TM31/PM12
o-Xylene #	680	-	-	-	-	229	-				<5	ug/kg	TM31/PM12
Natural Moisture Content	11.1	24.6	13.0	20.0	12.6	13.4	15.7				<0.1	%	PM4/PM0

Matrix : Solid

[illegible]

[illegible]

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NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 14/9187

SOILS

Please note we are only MCERTS accredited for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. If we are instructed to keep samples, a storage charge of £1 (1.5 Euros) per sample per month will be applied until we are asked to dispose of them.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

WATERS

Please note we are not a Drinking Water Inspectorate (DWI) Approved Laboratory . It is important that detection limits are carefully considered when requesting water analysis.

UKAS accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	UKAS accredited.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
OC	Outside Calibration Range

JE Job No: 14/9187

Test Method No.	Description	Prep Method No. (if appropriate)	Description	UKAS	MCERTS (soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM5	In-House method based on USEPA 8015B. Determination of Extractable Petroleum Hydrocarbons (EPH) in the carbon chain length range of C8-40 by GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS (carbon banding only) on soils. All accreditation is matrix specific.	PM16	Aliphatic/Aromatic fractionation			AR	Yes
TM5	In-House method based on USEPA 8015B. Determination of Extractable Petroleum Hydrocarbons (EPH) in the carbon chain length range of C8-40 by GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS (carbon banding only) on soils. All accreditation is matrix specific.	PM16	Aliphatic/Aromatic fractionation	Yes		AR	Yes
TM5	In-House method based on USEPA 8015B. Determination of Extractable Petroleum Hydrocarbons (EPH) in the carbon chain length range of C8-40 by GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS (carbon banding only) on soils. All accreditation is matrix specific.	PM8	In-house method based on USEPA 3510. ISO 17025 accredited extraction method for organic extraction from solid samples using an end over end agitator.			AR	Yes
TM5	In-House method based on USEPA 8015B. Determination of Extractable Petroleum Hydrocarbons (EPH) in the carbon chain length range of C8-40 by GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS (carbon banding only) on soils. All accreditation is matrix specific.	PM8	In-house method based on USEPA 3510. ISO 17025 accredited extraction method for organic extraction from solid samples using an end over end agitator.	Yes		AR	Yes
TM5/TM36	TPH CWG by GC-FID	PM12/PM16	CWG GC-FID			AR	Yes
TM31	In-house method based on USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID. Accredited to ISO 17025 for soils and waters and MCERTS accredited for soils. Accreditation is matrix specific.	PM12	In-house method based on USEPA 5021. Preparation of solid and liquid samples for headspace analysis. Samples are spiked with surrogates to facilitate quantification. ISO 17025 accredited extraction method. All accreditation is matrix specific			AR	Yes
TM31	In-house method based on USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID. Accredited to ISO 17025 for soils and waters and MCERTS accredited for soils. Accreditation is matrix specific.	PM12	In-house method based on USEPA 5021. Preparation of solid and liquid samples for headspace analysis. Samples are spiked with surrogates to facilitate quantification. ISO 17025 accredited extraction method. All accreditation is matrix specific	Yes		AR	Yes
TM36	In-House method based on USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-12 by headspace GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS accredited (carbon banding only) on soils. All accreditation is matrix specific.	PM12	In-house method based on USEPA 5021. Preparation of solid and liquid samples for headspace analysis. Samples are spiked with surrogates to facilitate quantification. ISO 17025 accredited extraction method. All accreditation is matrix specific			AR	Yes
TM36	In-House method based on USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-12 by headspace GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS accredited (carbon banding only) on soils. All accreditation is matrix specific.	PM12	In-house method based on USEPA 5021. Preparation of solid and liquid samples for headspace analysis. Samples are spiked with surrogates to facilitate quantification. ISO 17025 accredited extraction method. All accreditation is matrix specific	Yes		AR	Yes



Jones Environmental Laboratory

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Zone 3
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Denmark Street
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Berkshire
RG40 2AZ

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781



Attention :	Bryan Cherry
Date :	11th August, 2014
Your reference :	6977
Our reference :	Test Report 14/8799 Batch 1
Location :	Thatcham
Date samples received :	2nd August, 2014
Status :	Final report
Issue :	1

Thirty samples were received for analysis on 2nd August, 2014. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Bruce Leslie
Project Co-ordinator

Bob Millward BSc FRSC
Principal Chemist

Please see attached notes for all abbreviations and acronyms

Please see attached notes for all abbreviations and acronyms

Client Name: OHES
Reference: 6977
Location: Thatcham
Contact: Bryan Cherry
JE Job No.: 14/8799

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	45												
Sample ID	WS206												
Depth	3.9-4.0												
COC No / misc													
Containers	J												
Sample Date	31/07/2014												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	02/08/2014												
											Please see attached notes for all abbreviations and acronyms		
											LOD/LOR	Units	Method No.
EPH (C8-C40) #	47										<30	mg/kg	TM5/PM8
EPH >C8-C10 #	-										<5	mg/kg	TM5/PM8
EPH >C10-C12 #	-										<10	mg/kg	TM5/PM8
EPH >C12-C16 #	-										<10	mg/kg	TM5/PM8
EPH >C16-C21 #	-										<10	mg/kg	TM5/PM8
EPH >C21-C35 #	-										<10	mg/kg	TM5/PM8
EPH >C8-C35 #	-										<30	mg/kg	TM5/PM8
TPH CWG													
Aliphatics													
>C5-C6 #	-										<0.1	mg/kg	TM36/PM12
>C6-C8 #	-										<0.1	mg/kg	TM36/PM12
>C8-C10	-										<0.1	mg/kg	TM36/PM12
>C10-C12 #	-										<0.2	mg/kg	TM5/PM16
>C12-C16 #	-										<4	mg/kg	TM5/PM16
>C16-C21 #	-										<7	mg/kg	TM5/PM16
>C21-C35 #	-										<7	mg/kg	TM5/PM16
Total aliphatics C5-35	-										<19	mg/kg	TM5/PM8/PM12/PM16
Aromatics													
>C5-EC7	-										<0.1	mg/kg	TM36/PM12
>EC7-EC8	-										<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	-										<0.1	mg/kg	TM36/PM12
>EC10-EC12	-										<0.2	mg/kg	TM5/PM16
>EC12-EC16	-										<4	mg/kg	TM5/PM16
>EC16-EC21	-										<7	mg/kg	TM5/PM16
>EC21-EC35	-										<7	mg/kg	TM5/PM16
Total aromatics C5-35	-										<19	mg/kg	TM5/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35)	-										<38	mg/kg	TM5/PM8/PM12/PM16
MTBE #	-										<5	ug/kg	TM31/PM12
Benzene #	-										<5	ug/kg	TM31/PM12
Toluene #	-										<5	ug/kg	TM31/PM12
Ethylbenzene #	-										<5	ug/kg	TM31/PM12
m/p-Xylene #	-										<5	ug/kg	TM31/PM12
o-Xylene #	-										<5	ug/kg	TM31/PM12
Natural Moisture Content	24.1										<0.1	%	PM4/PM0
Organic Matter	-										<0.2	%	TM21/PM24

Please see attached notes for all abbreviations and acronyms

Please see attached notes for all abbreviations and acronyms

Matrix : Solid

[illegible]

[illegible]

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NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 14/8799

SOILS

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If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

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% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

WATERS

Please note we are not a Drinking Water Inspectorate (DWI) Approved Laboratory . It is important that detection limits are carefully considered when requesting water analysis.

UKAS accreditation applies to surface water and groundwater and one other matrix which is analysis specific, any other liquids are outside our scope of accreditation

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

#	UKAS accredited.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
OC	Outside Calibration Range
A	x5 Dilution

JE Job No: 14/8799

Test Method No.	Description	Prep Method No. (if appropriate)	Description	UKAS	MCERTS (soils only)	Analysis done on As Received (AR) or Air Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM5	In-House method based on USEPA 8015B. Determination of Extractable Petroleum Hydrocarbons (EPH) in the carbon chain length range of C8-40 by GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS (carbon banding only) on soils. All accreditation is matrix specific.	PM16	Aliphatic/Aromatic fractionation			AR	Yes
TM5	In-House method based on USEPA 8015B. Determination of Extractable Petroleum Hydrocarbons (EPH) in the carbon chain length range of C8-40 by GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS (carbon banding only) on soils. All accreditation is matrix specific.	PM16	Aliphatic/Aromatic fractionation	Yes		AR	Yes
TM5	In-House method based on USEPA 8015B. Determination of Extractable Petroleum Hydrocarbons (EPH) in the carbon chain length range of C8-40 by GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS (carbon banding only) on soils. All accreditation is matrix specific.	PM8	In-house method based on USEPA 3510. ISO 17025 accredited extraction method for organic extraction from solid samples using an end over end agitator.			AR	Yes
TM5	In-House method based on USEPA 8015B. Determination of Extractable Petroleum Hydrocarbons (EPH) in the carbon chain length range of C8-40 by GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS (carbon banding only) on soils. All accreditation is matrix specific.	PM8	In-house method based on USEPA 3510. ISO 17025 accredited extraction method for organic extraction from solid samples using an end over end agitator.	Yes		AR	Yes
TM5/TM36	TPH CWG by GC-FID	PM12/PM16	CWG GC-FID			AR	Yes
TM16	In-House method based on USEPA 8270. Determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS. Accredited to ISO 17025 for waters. All accreditation is matrix specific. Quantification by Internal Standard method.	PM8	In-house method based on USEPA 3510. ISO 17025 accredited extraction method for organic extraction from solid samples using an end over end agitator.			AR	Yes
TM21	TOC and TC by Combustion	PM24	Eltra preparation			AD	Yes
TM31	In-house method based on USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID. Accredited to ISO 17025 for soils and waters and MCERTS accredited for soils. Accreditation is matrix specific.	PM12	In-house method based on USEPA 5021. Preparation of solid and liquid samples for headspace analysis. Samples are spiked with surrogates to facilitate quantification. ISO 17025 accredited extraction method. All accreditation is matrix specific			AR	Yes
TM31	In-house method based on USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID. Accredited to ISO 17025 for soils and waters and MCERTS accredited for soils. Accreditation is matrix specific.	PM12	In-house method based on USEPA 5021. Preparation of solid and liquid samples for headspace analysis. Samples are spiked with surrogates to facilitate quantification. ISO 17025 accredited extraction method. All accreditation is matrix specific	Yes		AR	Yes

JE Job No: 14/8799

Test Method No.	Description	Prep Method No. (if appropriate)	Description	UKAS	MCERTS (soils only)	Analysis done on As Received (AR) or Air Dried (AD)	Reported on dry weight basis
TM36	In-House method based on USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-12 by headspace GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS accredited (carbon banding only) on soils. All accreditation is matrix specific.	PM12	In-house method based on USEPA 5021. Preparation of solid and liquid samples for headspace analysis. Samples are spiked with surrogates to facilitate quantification. ISO 17025 accredited extraction method. All accreditation is matrix specific			AR	Yes
TM36	In-House method based on USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-12 by headspace GC-FID. Accredited to ISO 17025 on soil and water samples and MCERTS accredited (carbon banding only) on soils. All accreditation is matrix specific.	PM12	In-house method based on USEPA 5021. Preparation of solid and liquid samples for headspace analysis. Samples are spiked with surrogates to facilitate quantification. ISO 17025 accredited extraction method. All accreditation is matrix specific	Yes		AR	Yes

APPENDIX 4
TIER 1 SCREENING SHEETS

Client	Watson Fuels
Location	Southdown Oils, Thatcham
Job Number	13053
Risk Assessment	Human Health (Residential with Plant Uptake)

Determinant	Tier 1 Residential GAC (mg/kg)	Location, Depth (m) and Concentration (mg/kg)																														
		WS111	WS111	WS111	WS112	WS112	WS112	WS112	WS112	WS112	WS201	WS201	WS201	WS201	WS202	WS202	WS202	WS203	WS203	WS203	WS204	WS204	WS204	WS205	WS205	WS205	WS205	WS205	WS206	WS206	WS206	
		2.90-3.00	3.20-3.30	3.90-4.00	0.90-1.00	1.40-1.50	2.10-2.20	2.50-2.60	3.30-3.40	3.60-3.70	0.90	1.5-1.6	2.3-2.4	3.6-3.7	1.30	2.3-2.4	2.9-3.0	0.5-0.6	1.4-1.5	3.7-3.8	1.9-2.0	2.7-2.8	3.40	0.4-0.5	1.9-2.0	2.2-2.3	2.9-3.0	3.3-3.4	0.7-0.8	2.4-2.5	3.9-4.0	
SVOC																																
PAHs																																
2-Methylnaphthalene	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10.257	NA	NA	31.073	NA	NA	59.187	38.556	NA	<10	NA	NA	NA	NA	8.573	NA	NA	NA	NA	13.415	NA
Naphthalene	2.3*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	10.373	NA	NA	17.967	<10	NA	<10	NA	NA	NA	NA	<10	NA	NA	NA	NA	0.152	NA
Acenaphthylene	170*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	1.433	NA	NA	2.468	1.414	NA	0.599	NA	NA	NA	NA	0.558	NA	NA	NA	NA	<10	NA
Acenaphthene	210*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	<10	NA	NA	<10	<10	NA	0.533	NA	NA	NA	NA	0.551	NA	NA	NA	NA	2.022	NA
Fluorene	170*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.493	NA	NA	5.43	NA	NA	8.767	4.899	NA	2.175	NA	NA	NA	NA	1.517	NA	NA	NA	NA	4.788	NA
Phenanthrene	95*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.537	NA	NA	9.712	NA	NA	14.723	8.46	NA	4.67	NA	NA	NA	NA	2.809	NA	NA	NA	NA	9.735	NA
Anthracene	2400*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	<10	NA	NA	<10	<10	NA	<10	NA	NA	NA	NA	<10	NA	NA	NA	NA	0.252	NA
Fluoranthene	280*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.046	NA	NA	0.403	NA	NA	0.662	0.182	NA	<10	NA	NA	NA	NA	<10	NA	NA	NA	NA	0.519	NA
Pyrene	620*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.133	NA	NA	1.563	NA	NA	2.204	1.123	NA	0.538	NA	NA	NA	NA	0.33	NA	NA	NA	NA	1.434	NA
Benzo(a)anthracene	7.2*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	0.031	NA	NA	<10	<10	NA	<10	NA	NA	NA	NA	<10	NA	NA	NA	NA	0.086	NA
Chrysene	15*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	0.247	NA	NA	0.441	0.203	NA	0.062	NA	NA	NA	NA	0.055	NA	NA	NA	NA	0.277	NA
Benzo(b)fluoranthene	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	0.02	NA	NA	0.063	<10	NA	0.017	NA	NA	NA	NA	0.035	NA	NA	NA	NA	0.068	NA
Benzo(a)pyrene	2.2*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	<10	NA	NA	0.017	<10	NA	<10	NA	NA	NA	NA	0.011	NA	NA	NA	NA	<10	NA
Indeno(1,2,3-cd)pyrene	27*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	<10	NA	NA	<10	<10	NA	<10	NA	NA	NA	NA	0.015	NA	NA	NA	NA	<10	NA
Dibenzo(ah)anthracene	0.24*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	<10	NA	NA	<10	<10	NA	<10	NA	NA	NA	NA	<10	NA	NA	NA	NA	<10	NA
Benzo(ghi)perylene	320*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	<10	NA	NA	<10	<10	NA	<10	NA	NA	NA	NA	<10	NA	NA	NA	NA	<10	NA
Other SVOCs																																
Bis(2-ethylhexyl) phthalate	280 sol (6.86)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	53	NA	NA	2.716	NA	NA	6.815	1.589	NA	0.513	NA	NA	NA	NA	0.367	NA	NA	NA	NA	<10	NA
Carbazole	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	<10	NA	NA	<10	<10	NA	<10	NA	NA	NA	NA	<10	NA	NA	NA	NA	<10	NA
Dibenzofuran	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	1.526	NA	NA	<10	1.612	NA	0.494	NA	NA	NA	NA	0.384	NA	NA	NA	NA	1.338	NA
Nitrobenzene	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	NA	NA	<10	NA	NA	<10	<10	NA	<10	NA	NA	NA	NA	<10	NA	NA	NA	NA	<10	NA
BANDED EPH																																
EPH >C8-C10	27*	NA	NA	NA	NA	21	<5	NA	NA	NA	NA	<5	NA	<5	NA	NA	NA	NA	NA	NA	NA	589	NA	<5	358	NA	NA	NA	NA	<5	NA	NA
EPH >C10-C12	74*	NA	NA	NA	NA	33	<10	NA	NA	NA	NA	<10	NA	<10	NA	NA	NA	NA	NA	NA	NA	912	NA	<10	1122	NA	NA	NA	NA	<10	NA	NA
EPH >C12-C16	140*	NA	NA	NA	NA	104	56	NA	NA	NA	NA	37	NA	<10	NA	NA	<10	NA	NA	NA	NA	2069	NA	<10	3309	NA	NA	NA	NA	<10	NA	NA
EPH >C16-C21	260*	NA	NA	NA	NA	108	89	NA	NA	NA	NA	51	NA	<10	NA	NA	<10	NA	NA	NA	NA	2014	NA	<10	3509	NA	NA	NA	NA	<10	NA	NA
EPH >C21-C35	1100*	NA	NA	NA	NA	117	61	NA	NA	NA	NA	17	NA	67	NA	NA	28	NA	NA	NA	NA	4045	NA	<10	829	NA	NA	NA	NA	15	NA	NA
EPH >C8-C35	NV	<30	<30	<30	<30	383	206	<30	<30	<30	105	NA	67	77	NA	<30	NA	NA	NA	NA	58	NA	9629	<30	<30	9127	NA	<30	NA	<30	NA	47
TPH CWG																																
Aliphatics																																
>C5-C6	42*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	NA	<0.1	NA	NA	NA	NA	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	<0.1	NA	NA	<0.1	NA
>C6-C8	100*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	NA	NA	3.9	NA	NA	NA	7.1	6.9	0.6	NA	NA	NA	NA	2	NA	NA	NA	9.4	NA
>C8-C10	27*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	91.1	NA	NA	55.3	NA	NA	NA	107.8	89.4	36.2	NA	NA	NA	NA	41.7	NA	NA	NA	NA	74.3	NA
>C10-C12	130 sol (48)*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	305.8	NA	NA	570.8	NA	NA	NA	673.1	1054.7	257.2	NA	NA	NA	NA	562.5	NA	NA	NA	NA	363.4	NA
>C12-C16	1100 sol (24)*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	580	NA	NA	1376	NA	NA	NA	1578	2422	672	NA	NA	NA	NA	1284	NA	NA	NA	NA	810	NA
>C16-C21	65000*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	473	NA	NA	1402	NA	NA	NA	1616	2280	667	NA	NA	NA	NA	1179	NA	NA	NA	NA	725	NA
>C21-C35	65000*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	109	NA	NA	491	NA	NA	NA	723	943	144	NA	NA	NA	NA	248	NA	NA	NA	NA	201	NA
Aromatics																																
>C5-EC7	70*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	NA	<0.1	NA	NA	NA	NA	<0.1	<0.1	<0.1	NA	NA	NA	NA	<0.1	NA	NA	NA	<0.1	NA
>EC7-EC8	130*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	NA	<0.1	NA	NA	NA	<0.1	1.5	<0.1	<0.1	NA	NA	NA	NA	<0.1	NA	NA	NA	0.3	NA
>EC8-EC10	34*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.6	NA	NA	7.9	NA	NA	NA	21.7	11.6	4.6	NA	NA	NA	NA	4.9	NA	NA	NA	NA	6.7	NA
>EC10-EC12	74*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	128.7	NA	NA	241.6	NA	NA	NA	226.1	346.3	100.6	NA	NA	NA	NA	135.8	NA	NA	NA	NA	183.9	NA
>EC12-EC16	140*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	294	NA	NA	834	NA	NA	NA	769	1225	382	NA	NA	NA	NA	474	NA	NA	NA	NA	594	NA
>EC16-EC21	260*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	259	NA	NA	1020	NA	NA	NA	918	1341	450	NA	NA	NA	NA	559	NA	NA	NA	NA	603	NA
>EC21-EC35	1100*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	45	NA	NA	NA	317	NA	NA	NA	NA	354	472	108	NA	NA	NA	120	NA	NA	NA	153	NA
BTX and MTBE																																
MTBE	49*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	<5	NA	NA	NA	<5	<5	<5	<5	NA	NA	NA	NA	<5	NA	NA	NA	<5	NA
Benzene	0.087*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	<5	NA	NA	NA	<5	<5	<5	<5	NA	NA	NA	NA	<5	NA	NA	NA	<5	NA
Toluene	130*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	<5	NA	NA	NA	<5	1.489	<5	NA	NA	NA	NA	<5	NA	NA	NA	NA	0.372	NA
Ethylbenzene	47*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.767	NA	NA	0.895	NA	NA	NA	0.615	<5	1.11	NA	NA	NA	NA	0.205	NA	NA	NA	NA	0.61	NA
m,p-Xylene	56*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.375	NA	NA	4.595	NA	NA	NA	13.877	8.131	1.244	NA	NA	NA	NA	1.739	NA	NA	NA	NA	2.987	NA
o-Xylene	60*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.472	NA	NA	2.375	NA	NA	NA	7.142	3.508	2.314	NA	NA	NA	NA	3.032	NA	NA	NA	NA	3.095	NA

Client	Watson Fuels
Location	Southdown Oils, Thatcham
Job Number	13053
Risk Assessment	Human Health (Residential with Plant Uptake)

Determinant	Tier 1 Residential GAC (mg/kg)	Location, Depth (m) and Concentration (mg/kg)																											
		WS207	WS207	WS207	WS207	WS207	WS207	WS208	WS208	WS208	WS208	WS208	WS208	WS209	WS209	WS209	WS209	WS209	WS209	WS209	WS209	WS210	WS210	WS210	WS210	WS210	WS210	WS210	WS211
		0.50-0.60	0.90-1.00	1.90-2.00	2.40-2.50	2.90-3.00	3.50-3.60	1.40-1.50	1.90-2.00	2.50-2.60	2.90-3.00	3.60-3.70	0.30-0.40	0.40-0.50	0.90-1.00	1.90-2.00	2.40-2.50	2.60-2.70	2.90-3.00	3.50-3.60	0.80-0.90	1.20-1.30	1.50-1.60	1.90-2.00	2.40-2.50	2.60-2.70	3.30-3.40	3.70-3.80	3.50-3.60
Banded EPH																													
EPH >C8-C10	27*	NA	NA	NA	NA	<5	NA	301	NA	NA	101	NA	NA	NA	NA	1140	NA	NA	NA	NA	2095	275	34	NA	213	NA	NA	NA	NA
EPH >C10-C12	74*	NA	NA	NA	NA	19	NA	920	NA	NA	174	NA	NA	NA	NA	1119	NA	NA	NA	NA	2616	324	46	NA	379	NA	NA	NA	NA
EPH >C12-C16	140*	NA	NA	NA	NA	54	NA	3741	NA	NA	431	NA	NA	NA	NA	2297	NA	NA	NA	NA	6500	791	125	NA	1032	NA	NA	NA	NA
EPH >C16-C21	260*	NA	NA	NA	NA	61	NA	4677	NA	NA	384	NA	NA	NA	NA	1616	NA	NA	NA	NA	5775	717	113	NA	1019	NA	NA	NA	NA
EPH >C21-C35	1100*	NA	NA	NA	NA	26	NA	890	NA	NA	56	NA	NA	NA	NA	724	NA	NA	NA	NA	3762	391	83	NA	264	NA	NA	NA	NA
EPH >C8-C35	NV	<30	71	1048	NA	160	<30	10529	NA	NA	1146	<30	<30	149	<30	60	6896	<30	<30	<30	112	20748	2498	401	NA	2907	<30	<30	<30
TPH CWG																													
Aliphatics																													
>C5-C6	42*	NA	NA	NA	<0.1	NA	NA	NA	NA	<0.1	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	NA	NA	NA	NA	NA
>C6-C8	100*	NA	NA	NA	0.2	NA	NA	NA	NA	4.6	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.9	NA	NA	NA	NA	NA
>C8-C10	27*	NA	NA	NA	23.4	NA	NA	NA	NA	59.8	67.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	91.3	NA	NA	NA	NA	NA
>C10-C12	130 sol (49)*	NA	NA	NA	363.8	NA	NA	NA	NA	1012.1	518	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	597.6	NA	NA	NA	NA	NA
>C12-C16	1100 sol (24)*	NA	NA	NA	870	NA	NA	NA	NA	2589	1171	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1493	NA	NA	NA	NA	NA
>C16-C21	65000*	NA	NA	NA	803	NA	NA	NA	NA	2481	1033	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1437	NA	NA	NA	NA	NA
>C21-C35	65000*	NA	NA	NA	361	NA	NA	NA	NA	419	237	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	450	NA	NA	NA	NA	NA
Aromatics																													
>C5-EC7	70*	NA	NA	NA	<0.1	NA	NA	NA	NA	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	NA	NA	NA	NA	NA
>EC7-EC8	130*	NA	NA	NA	<0.1	NA	NA	NA	NA	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	NA	NA	NA	NA	NA
>EC8-EC10	34*	NA	NA	NA	0.7	NA	NA	NA	NA	2.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.5	NA	NA	NA	NA	NA
>EC10-EC12	74*	NA	NA	NA	81.5	NA	NA	NA	NA	165.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	247	NA	NA	NA	NA	NA
>EC12-EC16	140*	NA	NA	NA	352	NA	NA	NA	NA	561	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	866	NA	NA	NA	NA	NA
>EC16-EC21	260*	NA	NA	NA	452	NA	NA	NA	NA	604	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	947	NA	NA	NA	NA	NA
>EC21-EC35	1100*	NA	NA	NA	170	NA	NA	NA	NA	114	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	199	NA	NA	NA	NA	NA
BTEx and MTBE																													
MTBE	49*	NA	NA	NA	<5	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA
Benzene	0.087*	NA	NA	NA	<5	NA	NA	NA	NA	0.052	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.063	NA	NA	NA	NA	NA
Toluene	130*	NA	NA	NA	0.016	NA	NA	NA	NA	0.259	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.232	NA	NA	NA	NA	NA
Ethylbenzene	47*	NA	NA	NA	0.061	NA	NA	NA	NA	0.212	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.332	NA	NA	NA	NA	NA
m/p-Xylene	56*	NA	NA	NA	0.367	NA	NA	NA	NA	1.64	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.332	NA	NA	NA	NA	NA
o-Xylene	60*	NA	NA	NA	0.229	NA	NA	NA	NA	0.736	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.812	NA	NA	NA	NA	NA

*LOM/ClEH S4ULs

**DEFRA C4SL

***ATRISK GAC

Exceedance of soil saturation level (Potential NAPL Present)

Exceedance of Tier 1 GAC (Residential)

Client	Watson Fuels
Location	Southdown Oils, Thatcham
Job Number	13053
Risk Assessment	Human Health (Residential with Plant Uptake)

Determinant	Tier 1 Residential GAC (mg/kg)	Location, Depth (m) and Concentration (mg/kg)																
		WS301	WS302	WS303	WS304	WS305	WS306	WS307	WS308	WS309	WS310							
		2.50	2.50	2.00	0.50	1.00	1.90	1.00	0.50	1.00	2.50							
VOC																		
Isopropylbenzene	11*	<3	0.246	<3	0.05	0.175	0.307	0.106	0.012	<3	0.015							
Propylbenzene	34*	<4	0.53	<4	0.117	0.253	0.352	0.228	0.023	<4	<4							
1,3,5-Trimethylbenzene	NV	<3	<3	<3	0.218	1.185	<3	1.015	0.086	<3	<3							
Tert butylbenzene	NV	<5	0.085	<5	<5	<5	<5	<5	<5	<5	0.063							
1,2,4-Trimethylbenzene	0.35*	<6	3.014	<6	0.835	<6	2.267	2.871	3.14	0.012	<6							
sec-Butylbenzene	NV	<4	0.528	<4	<4	0.355	0.893	0.226	<4	<4	0.204							
4-Isopropyltoluene	NV	<4	<4	<4	0.077	0.311	<4	0.393	0.074	<4	<4							
1,3-Dichlorobenzene	NV	<4	<4	<4	<4	<4	0.025	<4	<4	<4	0.005							
1,4-Dichlorobenzene	NV	<4	<4	<4	<4	<4	0.373	<4	<4	<4	0.102							
n-Butylbenzene	NV	<4	0.897	0.02	0.195	<4	2.686	0.65	0.076	0.049	0.41							
1,2-Dichlorobenzene	NV	<4	<4	<4	<4	<4	1.677	<4	<4	<4	0.397							
Naphthalene	2.3	<27	<27	<27	<27	1.05	<27	2.658	0.12	<27	<27							
TPH CWG																		
Aliphatics																		
>C5-C6	42*	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1							
>C6-C8	100*	<0.1	4.1	<0.1	0.4	<0.5	2.5	0.2	0.8	<0.1	1.3							
>C8-C10	27*	0.9	78.9	1.3	9.4	40.5	55.2	15.1	5.5	11	49.4							
>C10-C12	130 sol (48)*	<0.2	247.2	15.1	152.3	669	461.8	605.1	363.3	207.5	142.7							
>C12-C16	1100 sol (24)*	9	661	280	793	2051	980	1363	1574	408	314							
>C16-C21	65000*	29	619	427	789	1397	907	1041	2611	218	236							
>C21-C35	65000*	22	157	145	131	257	248	242	935	43	61							
Aromatics																		
>C5-EC7	70*	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1							
>EC7-EC8	130*	<0.1	0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1							
>EC8-EC10	34*	<0.1	1.6	<0.1	0.1	0.9	1.4	0.3	<0.1	0.1	1.2							
>EC10-EC12	74*	<0.2	100.2	<0.2	36.9	250	150.6	243.9	40.8	22.7	25.9							
>EC12-EC16	140*	<4	403	50	281	958	583	626	569	129	147							
>EC16-EC21	260*	<7	458	295	502	987	651	655	1616	137	193							
>EC21-EC35	1100*	<7	72	146	85	249	146	195	658	29	40							
BTEX and MTBE																		
MTBE	49*	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2							
Benzene	0.087*	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3							
Toluene	130*	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3							
Ethylbenzene	47*	<3	<3	<3	<3	0.051	<3	0.043	<3	<3	<3							
m/p-Xylene	56*	<5	<5	<5	0.012	<5	<5	0.138	0.013	<5	<5							
o-Xylene	60*	<3	<3	<3	<3	<3	<3	0.015	<3	<3	<3							

*LQM/CIH S4ULs

**DEFRA C4SL

***ATRISK GAC

Exceedance of soil saturation level (Potential NAPL Present)

Exceedance of Tier 1 GAC (Residential)

Determinant	Tier 1 Screening Value (µg/l unless otherwise stated)	Source	LOCATION ID																					
			BH01	BHA	BHB	BH07	BH10	BH09	WS212	WS211	BH05	WS301	WS207	WS207A	WS204	WS205	WS206	WS202	BH04	WS208	WS209	BH02	BH06	
Final CVD Aesthetics																								
<C4-C4	10	*****	N/A	N/A	N/A	N/A	N/A	<10	<10	<10	N/A	N/A	<10	<10	<10	<10	<10	<10	N/A	<10	N/A	<10	<10	
<C6-C6	10	*****	N/A	N/A	N/A	N/A	N/A	<10	<10	<10	N/A	N/A	<10	<10	<10	<10	<10	<10	N/A	<10	N/A	13	<10	
<C8-C10	10	*****	N/A	N/A	N/A	N/A	N/A	<10	<10	<10	N/A	N/A	<10	746	38	<10	<10	<10	N/A	<10	N/A	13	<10	
<C10-C12	10	*****	N/A	N/A	N/A	N/A	N/A	<5	<5	<5	N/A	N/A	<5	1063	2133	<5	1063	<5	1063	N/A	119	N/A	<5	<10
<C12-C16	10	*****	N/A	N/A	N/A	N/A	N/A	<10	<10	1219	N/A	N/A	70	3760	8859	<10	3760	<10	3760	N/A	610	N/A	<10	<10
<C16-C21	10	*****	N/A	N/A	N/A	N/A	N/A	<10	<10	1219	N/A	N/A	181	8941	10811	<10	8941	<10	8941	N/A	889	N/A	<10	<10
<C21-C35	10	*****	N/A	N/A	N/A	N/A	N/A	<10	<10	1219	N/A	N/A	80	3906	3798	<10	3906	<10	3906	N/A	608	N/A	<10	<10
Total aliphatics C5-35	NV	NV	N/A	N/A	N/A	N/A	N/A	40	21	3157	N/A	N/A	280	10329	28519	<10	20172	13	3687	N/A	2100	N/A	67	<10
Final CVD Aesthetics																								
EC-E27 (Benzene)	10	*****	N/A	N/A	N/A	N/A	N/A	<10	<10	<10	N/A	N/A	<10	<10	<10	<10	<10	<10	N/A	<10	N/A	<10	<10	
EC-E243 (Toluene)	10	*****	N/A	N/A	N/A	N/A	N/A	<10	<10	<10	N/A	N/A	<10	<10	<10	<10	<10	<10	N/A	<10	N/A	<10	<10	
ECB-EC10	10	*****	N/A	N/A	N/A	N/A	N/A	<10	<10	<10	N/A	N/A	<10	<10	<10	<10	<10	<10	N/A	<10	N/A	<10	<10	
EC10-EC12	10	*****	N/A	N/A	N/A	N/A	N/A	373	181	<5	N/A	N/A	80	390	483	143	373	213	<5	N/A	119	N/A	119	<5
EC12-EC16	10	*****	N/A	N/A	N/A	N/A	N/A	300	150	<5	N/A	N/A	80	390	483	143	373	213	<5	N/A	119	N/A	119	<5
EC16-EC21	10	*****	N/A	N/A	N/A	N/A	N/A	<10	<10	80	N/A	N/A	<10	1180	6095	<10	3440	30	<10	N/A	810	N/A	30	<10
EC21-EC35	10	*****	N/A	N/A	N/A	N/A	N/A	<10	<10	20	N/A	N/A	<10	120	4169	<10	1240	<10	<10	N/A	140	N/A	<10	<10
Total aromatics C5-35	NV	NV	N/A	N/A	N/A	N/A	N/A	631	334	1440	N/A	N/A	140	3160	16547	365	6997	507	<10	N/A	1562	N/A	644	<10
Total aliphatics and aromatics (C5-35)	NV	NV	N/A	N/A	N/A	N/A	N/A	631	335	4597	N/A	N/A	420	13485	45066	365	27169	520	3867	N/A	1662	N/A	711	<10
Banded EPA																								
EPH <C8-C10	10	*****	<10	140	10	10	N/A	N/A	N/A	130	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	130	N/A	N/A	N/A	N/A
EPH <C10-C12	10	*****	<10	140	10	10	N/A	N/A	N/A	130	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	130	N/A	N/A	N/A	N/A
EPH <C12-C16	10	*****	230	1520	670	630	N/A	N/A	N/A	<3	<3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	630	N/A	N/A	N/A	N/A
EPH <C16-C21	10	*****	130	1050	730	730	N/A	N/A	N/A	230	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	230	N/A	N/A	N/A	N/A
EPH <C21-C35	10	*****	<10	140	10	10	N/A	N/A	N/A	130	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	130	N/A	N/A	N/A	N/A
EPH <C31-C40	10	*****	<10	140	10	10	N/A	N/A	N/A	130	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	130	N/A	N/A	N/A	N/A
EPH <C39-C40	10	*****	<10	140	10	10	N/A	N/A	N/A	130	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	130	N/A	N/A	N/A	N/A
EPH <C40	NV	NV	<10	140	10	10	N/A	N/A	N/A	130	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	130	N/A	N/A	N/A	N/A
VOC MS																								
Dichlorodifluoromethane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	N/A	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
Methyl Tertiary Butyl Ether	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<0.1	N/A	N/A	<0.1	<0.1	N/A	0.6	<0.1	0.1	<0.1	<0.1	N/A	<0.1	N/A	0.7	<0.1
Benzene	30	*	N/A	N/A	N/A	N/A	N/A	N/A	<0.5	N/A	N/A	<0.5	<0.5	N/A	2.4	<0.5	1.2	<0.5	N/A	<0.5	N/A	4.4	<0.5	
Chloromethane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
Vinyl Chloride	0.5	****	N/A	N/A	N/A	N/A	N/A	N/A	<0.1	<0.1	N/A	<0.1	<0.1	N/A	<0.1	<0.1	<0.1	<0.1	<0.1	N/A	<0.1	N/A	<0.1	<0.1
Bromomethane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
Chloroethane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
Trichlorofluoromethane	12	*	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
1,1-Dichloroethane (1,1 DCE)	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
Dichloromethane (DCM)	2,000	NV	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
trans-1,2-Dichloroethane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
1,1-Dichloroethane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
cis-1,2-Dichloroethane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
1,2-Dichloropropane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
Bromochloromethane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
Chloroform	12	*	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
1,1,1-Trichloroethane	100	NV	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
1,1-Dichloropropane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
Carbon tetrachloride	12	*	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
1,2-Dichloroethane	10	*	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
Benzene	30	*	N/A	N/A	N/A	N/A	N/A	N/A	<0.5	N/A	N/A	<0.5	<0.5	N/A	2.4	<0.5	1.2	<0.5	N/A	<0.5	N/A	4.4	<0.5	
1,2-Dichloroethane (TCE)	10	*	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
1,2-Dichloropropane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
Dibromomethane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
Bromodichloromethane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
cis-1,3-Dichloropropane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
Toluene	50	*	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A	<5	<5	N/A	<5	<5	<5	<5	<5	N/A	<5	N/A	<5	<5
trans-1,3-Dichloropropane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
1,1,2-Trichloroethane	400	NV	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
Tetrachloroethane (PCE)	10	*	N/A	N/A	N/A	N/A	N/A	N/A	<3	N/A	N/A	<3	<3	N/A	<3	<3	<3	<3	<3	N/A	<3	N/A	<3	<3
1,3-Dichloropropane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
Dibromochloromethane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
1,3-Dibromopropane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<2	<2	<2	<2	<2	N/A	<2	N/A	<2	<2
Chlorobenzene	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<2	N/A	N/A	<2	<2	N/A	<									

PAHs			BH01	BHA	BHB	BH07	BH10	BH09	WS212	WS211	BH05	WS301	WS207	WS207A	WS204	WS205	WS206	WS02	BH04	WS208	WS209	BH02	BH06
2-Chloronaphthalene	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
2-Methylnaphthalene	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
Naphthalene	10*	*	N/A	N/A	<0.1	N/A	0.2	0.4	<1	<0.1	N/A	<1	<1	<0.1	<1	<1	<1	<1	<0.1	<1	N/A	<1	<1
Acenaphthylene	0.2***	***	N/A	N/A	0.095	N/A	0.303	0.174	<0.5	0.032	N/A	<0.5	<0.5	<0.013	<0.5	<0.5	<0.5	<0.5	0.177	<0.5	N/A	<0.5	<0.5
Acenaphthene	0.2***	***	N/A	N/A	0.683	N/A	1.729	0.708	<1	0.05	N/A	<1	<1	0.068	<1	<1	<1	<1	0.459	<1	N/A	<1	<1
Fluorene	0.2***	***	N/A	N/A	2.029	N/A	3.537	1.619	<0.5	0.327	N/A	1.5	4.5	0.114	1.5	<0.5	<0.5	<0.5	1.037	<0.5	N/A	5	<0.5
Phenanthrene	0.2***	***	N/A	N/A	0.041	N/A	1.139	0.74	<0.5	0.059	N/A	<0.5	2.2	<0.011	<0.5	<0.5	<0.5	<0.5	0.554	<0.5	N/A	4.2	<0.5
Anthracene	0.1*	*	N/A	N/A	0.045	N/A	0.022	0.016	<0.5	0.016	N/A	<0.5	<0.5	<0.013	<0.5	<0.5	<0.5	<0.5	<0.013	<0.5	N/A	<0.5	<0.5
Fluoranthene	0.1**	**	N/A	N/A	0.017	N/A	0.026	0.014	<0.5	0.097	N/A	<0.5	<0.5	0.243	<0.5	<0.5	<0.5	<0.5	0.034	<0.5	N/A	<0.5	<0.5
Pyrene	0.2***	***	N/A	N/A	0.035	N/A	0.062	0.036	<0.5	0.114	N/A	<0.5	<0.5	1.666	<0.5	<0.5	<0.5	<0.5	0.064	<0.5	N/A	<0.5	<0.5
Benzo[a]anthracene	0.2***	***	N/A	N/A	<0.015	N/A	<0.015	<0.015	<0.5	0.021	N/A	<0.5	<0.5	0.058	<0.5	<0.5	<0.5	<0.5	<0.015	<0.5	N/A	<0.5	<0.5
Chrysene	0.2***	***	N/A	N/A	<0.011	N/A	<0.011	<0.011	<0.5	0.035	N/A	<0.5	<0.5	0.382	<0.5	<0.5	<0.5	<0.5	<0.011	<0.5	N/A	<0.5	<0.5
Benzo[k]fluoranthene	0.03***	***	N/A	N/A	<0.018	N/A	<0.018	<0.018	<1	0.029	N/A	<1	<1	0.165	<1	<1	<1	<1	<0.018	<1	N/A	<1	<1
Benzo[a]pyrene	0.05*	*	N/A	N/A	<0.016	N/A	<0.016	<1	<0.016	N/A	<1	<1	<1	0.059	<1	<1	<1	<1	<0.016	<1	N/A	<1	<1
Indeno[123cd]pyrene	0.002*	*	N/A	N/A	<0.011	N/A	<0.011	<0.011	<1	<0.011	N/A	<1	<1	0.035	<1	<1	<1	<1	<0.011	<1	N/A	<1	<1
Dibenzo[ah]anthracene	0.2***	***	N/A	N/A	<0.01	N/A	<0.01	<0.01	<0.5	<0.01	N/A	<0.5	<0.5	<0.01	<0.5	<0.5	<0.5	<0.5	<0.01	<0.5	N/A	<0.5	<0.5
Benzo[ghi]perylene	0.002*	*	N/A	N/A	<0.011	N/A	<0.011	<0.011	<0.5	<0.011	N/A	<0.5	<0.5	0.05	<0.5	<0.5	<0.5	<0.5	<0.011	<0.5	N/A	<0.5	<0.5
Phthalates			BH01	BHA	BHB	BH07	BH10	BH09	WS212	WS211	BH05	WS301	WS207	WS207A	WS204	WS205	WS206	WS02	BH04	WS208	WS209	BH02	BH06
Bis(2-ethylhexyl) phthalate	1.3	*	N/A	N/A	N/A	N/A	N/A	N/A	<5	N/A	N/A	<5	<5	N/A	<5	<5	<5	<5	N/A	<5	N/A	<5	<5
Butylbenzyl phthalate	20	*	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
Di-n-butyl phthalate	8	*****	N/A	N/A	N/A	N/A	N/A	N/A	<1.5	N/A	N/A	<1.5	<1.5	N/A	<1.5	<1.5	<1.5	<1.5	N/A	<1.5	N/A	<1.5	<1.5
Di-n-Octyl phthalate	8	*****	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
Diethyl phthalate	200	*****	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
Dimethyl phthalate	800	*****	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
Other SVOC			BH01	BHA	BHB	BH07	BH10	BH09	WS212	WS211	BH05	WS301	WS207	WS207A	WS204	WS205	WS206	WS02	BH04	WS208	WS209	BH02	BH06
1,2-Dichlorobenzene	1000	*****	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	2
1,2,4-Trichlorobenzene	0.4	*	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
1,3-Dichlorobenzene	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
1,4-Dichlorobenzene	300	*****	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
2-Nitroaniline	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
2,4-Dinitrotoluene	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<0.5	N/A	N/A	<0.5	<0.5	N/A	<0.5	<0.5	<0.5	<0.5	N/A	<0.5	N/A	<0.5	<0.5
2,6-Dinitrotoluene	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
3-Nitroaniline	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
4-Bromophenylphenylether	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
4-Chloroaniline	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
4-Chlorophenylphenylether	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
4-Nitroaniline	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<0.5	N/A	N/A	<0.5	<0.5	N/A	<0.5	<0.5	<0.5	<0.5	N/A	<0.5	N/A	<0.5	<0.5
Azobenzene	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<0.5	N/A	N/A	<0.5	<0.5	N/A	<0.5	<0.5	<0.5	<0.5	N/A	<0.5	N/A	<0.5	<0.5
Bis[2-chloroethoxy]methane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<0.5	N/A	N/A	<0.5	<0.5	N/A	<0.5	<0.5	<0.5	<0.5	N/A	<0.5	N/A	<0.5	<0.5
Bis[2-chloroethyl]ether	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
Carbazole	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<0.5	N/A	N/A	<0.5	<0.5	N/A	<0.5	<0.5	<0.5	<0.5	N/A	<0.5	N/A	1.8	<0.5
Dibenzofuran	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<0.5	N/A	N/A	<0.5	<0.5	N/A	<0.5	<0.5	<0.5	<0.5	N/A	<0.5	N/A	2.1	<0.5
Hexachlorobenzene	0.03	*	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
Hexachlorobutadiene	0.1	*	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
Hexachlorocyclopentadiene	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
Hexachloroethane	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
Isochlorophene	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<0.5	N/A	N/A	<0.5	<0.5	N/A	<0.5	<0.5	<0.5	<0.5	N/A	<0.5	N/A	<0.5	<0.5
N-nitrosodi-n-propylamine	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<0.5	N/A	N/A	<0.5	<0.5	N/A	<0.5	<0.5	<0.5	<0.5	N/A	<0.5	N/A	<0.5	<0.5
Nitrobenzene	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A	N/A	<1	<1	N/A	<1	<1	<1	<1	N/A	<1	N/A	<1	<1
Metals			BH01	BHA	BHB	BH07	BH10	BH09	WS212	WS211	BH05	WS301	WS207	WS207A	WS204	WS205	WS206	WS02	BH04	WS208	WS209	BH02	BH06
Dissolved Arsenic	0.05	*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Barium	100	***	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Beryllium	NV	NV	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Boron	1000	*****	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Cadmium	0.08	*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Dissolved Chromium	50	***	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Copper	1	**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Lead	7.2	*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Mercury	0.05	*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Nickel	20	*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Selenium	10	*****	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Silver	0.05	*****	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Sodium	200000	*****	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Vanadium	20	*****	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Zinc	8	*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Others			BH01	BHA	BHB	BH07	BH10	BH09	WS212	WS211	BH05	WS301	WS207	WS207A	WS204	WS205	WS206	WS02	BH04	WS208	WS209	BH02	BH06