# TEST REPORT
# SOIL SAMPLE ANALYSIS

1252

## TES Report No. EFS/088095M (Ver. 1)

Soil Mechanics
Unit 15
Crosby Yard
Bridgend
Mid Glamorgan
CF31 1JZ

**Site: 2U-Afan Advanced Digestion**

The 10 samples described in this report were logged for analysis by TES Bretby on 12-Dec-2008.
The analysis was completed by: 24-Dec-2008

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS or MCERTS accredited
Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by TES Bretby Laboratories.

The following tables are contained in this report:



On behalf of
TES Bretby :
Jane Colbourne

JNColbourne
Project Co-ordinator

Date of Issue: 24-Dec-2008

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)
Tests marked '^' have been subcontracted to another laboratory.
(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.
All results are reported on a dry weight basis at 105°C unless otherwise stated. (except QC samples)
TES Bretby accepts no responsibility for any sampling not carried out by our personnel.

## Sample Descriptions

**Client :** Soil Mechanics

**Site :** 2U-Afan Advanced Digestion

**Report Number :** S08_8095M

| Lab ID Number | Client ID | Description |
|---|---|---|
| CL/0837390 | TP1 ES 2 0.20 | Brown Stone SILT |
| CL/0837391 | TP1 ES 5 1.00 | Brown Stone SILT |
| CL/0837392 | TP1 ES 10 3.00 | Brown Stone SILT |
| CL/0837393 | TP2 ES 2 0.20 | Brown Stone SILT |
| CL/0837394 | TP2 ES 7 1.65 (NVM) | Brown Stone TAR |
| CL/0837395 | TP2 ES 8 2.15 | Brown Stone SILT |
| CL/0837396 | TP3 ES 5 1.00 | Brown Stone SILT |
| CL/0837397 | TP3 ES 7 2.00 | Brown Stone SILT |
| CL/0837398 | TP4 ES 2 0.20 | Brown Stone SILT |
| CL/0837399 | TP4 ES 7 2.00 | Brown Stone SILT |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Units :** | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | % | mg/kg | pH Units | | | |
| **Method Codes :** | | ICPMSS | ICPMSS | ICPMSS | ICPMSS | ICPMSS | ICPMSS | ICPMSS | ICPMSS | ICPMSS | PAHMSUS | TMSS | TPHFIDUS | WSLM3 | | | |
| **Method Reporting Limits :** | | 2 | 0.1 | 3 | 3 | 3.5 | 0.10 | 2.5 | 0.5 | 19.5 | 0.08 | 0.2 | 10.0 | | | | |
| **Accreditation Code:** | | UM | U | UM | UM | UM | U | UM | U | UM | | U | UM | U | | | |
| **TES ID Number CL/** | **Client Sample Description** | **Arsenic (MS)** | **Cadmium (MS)** | **Chromium (MS)** | **Copper (MS)** | **Lead (MS)** | **Mercury (MS)** | **Nickel (MS)** | **Selenium (MS)** | **Zinc (MS)** | **PAH by MS.16(0.08)** | **Tot.Moisture @ 105C** | **TPH by GCFID (AR)** | **pH units** | | | |
| 0837390 | TP1 ES 2 0.20 | 21.6 | 0.14 | 9.7‡ | 8.8 | 11 | <0.1 | 7.4 | <0.5 | 46.8 | Req | 5.8 | 45 | 9.7 | | | |
| 0837391 | TP1 ES 5 1.00 | 7.9 | 0.22 | 29‡ | 4.3 | 10.6 | <0.1 | 4.2 | 0.8 | 37.4 | Req | 7.9 | 2790 | 10.4 | | | |
| 0837392 | TP1 ES 10 3.00 | 8.7 | 0.27 | 47.8‡ | 30 | 25.8 | <0.1 | 27 | 1.6 | 131.2 | Req | 13.2 | 703 | 10.3 | | | |
| 0837393 | TP2 ES 2 0.20 | 8.8 | 0.13 | 20.7‡ | 5.9 | 13 | <0.1 | 7.1 | <0.5 | 46.8 | Req | 5.7 | 176 | 11.1 | | | |
| 0837394 | TP2 ES 7 1.65 (NVM) | 6.1‡ | 0.14 | 8.8‡ | 11.4‡ | 29.3‡ | <0.1 | 9.3‡ | 0.7 | 55.3‡ | Req | 14.4 | 147000‡ | 8.4 | | | |
| 0837395 | TP2 ES 8 2.15 | 7 | <0.1 | 5.0‡ | 6.1 | 13.4 | <0.1 | 6.1 | <0.5 | 48 | Req | 13.9 | 20400 | 7.1 | | | |
| 0837396 | TP3 ES 5 1.00 | 9.1 | 0.2 | 44.0‡ | 8.6 | 17.8 | <0.1 | 7.1 | <0.5 | 63.1 | Req | 8.3 | 1240 | 10.9 | | | |
| 0837397 | TP3 ES 7 2.00 | 6 | 0.14 | 39.0‡ | 5.8 | 14.6 | <0.1 | 4.6 | <0.5 | 45.5 | Req | 8.8 | 634 | 10.4 | | | |
| 0837398 | TP4 ES 2 0.20 | 10.6 | 0.2 | 14‡ | 7.1 | 24.8 | <0.1 | 8.2 | <0.5 | 72.8 | Req | 10.6 | <11.2 | 8.7 | | | |
| 0837399 | TP4 ES 7 2.00 | 10.4 | 0.15 | 10.2‡ | 4.3 | 12.4 | <0.1 | 5.8 | <0.5 | 45.2 | Req | 5.0 | <10.5 | 9.9 | | | |


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**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U-Afan Advanced Digestion

## Soils Sample Analysis

| | |
|---|---|
| **Date Printed** | 24-Dec-08 |
| **Report Number** | **EFS/088095M** |
| **Table Number** | **1** |

TES Bretby



Where individual results are flagged see report notes for for status.
Results corrected to dry weight at 105ºC where appr opriate, in accordance with the MCERTS standard.

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Units :** | mg/kg | | mg/kg | mg/kg | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | | | | | | | | |
| | **Method Codes :** | ICPBOR | SEN9 | SFAPI | SFAPI | SFAS | VOCSW8100 | VOCSW8100 | VOCSW8100 | VOCSW8100 | | | | | | | | |
| | **Method Reporting Limits :** | 0.5 | | 0.5 | 0.5 | 0.5 | 5 | 5 | 5 | 10 | | | | | | | | |
| | **Accreditation Code:** | N | N | N | N | N | UM | UM | UM | UM | | | | | | | | |
| **TES ID Number CL/** | **Client Sample Description** | **Boron (H20 Soluble)** | **Asbestos (screening)** | **Cyanide(Total) (AR)** | **Phenol Index.(AR)** | **Sulphide as S (AR)** | **Benzene** | **Toluene** | **Ethyl Benzene** | **Xylenes** | | | | | | | | |
| 0837390 | TP1 ES 2 0.20 | 0.6 | NBFO | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 | <11 | | | | | | | | |
| 0837391 | TP1 ES 5 1.00 | | | <0.5 | <0.5 | | <5 | <5 | <5 | <11 | | | | | | | | |
| 0837392 | TP1 ES 10 3.00 | | | <0.6 | <0.6 | <0.6 | | | | | | | | | | | | |
| 0837393 | TP2 ES 2 0.20 | | NBFO | | <0.5 | | | | | | | | | | | | | |
| 0837394 | TP2 ES 7 1.65 (NVM) | <0.5 | | <0.6 | <0.6 | 99.4 | <6‡ | 8‡ | 39‡ | 74‡ | | | | | | | | |
| 0837395 | TP2 ES 8 2.15 | | | <0.6 | <0.6 | | <6 | 10 | 7 | <24 | | | | | | | | |
| 0837396 | TP3 ES 5 1.00 | 1.4 | NBFO | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 | <14 | | | | | | | | |
| 0837397 | TP3 ES 7 2.00 | | | <0.5 | <0.5 | | <5 | 10 | <5 | 33 | | | | | | | | |
| 0837398 | TP4 ES 2 0.20 | | NBFO | <0.6 | <0.6 | <0.6 | <6 | 12 | <6 | <11 | | | | | | | | |
| 0837399 | TP4 ES 7 2.00 | <0.5 | | <0.5 | <0.5 | <0.5 | <5 | <5 | <5 | <11 | | | | | | | | |


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**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U-Afan Advanced Digestion

## Soils Sample Analysis

| | |
|---|---|
| **Date Printed** | 24-Dec-08 |
| **Report Number** | **EFS/088095M** |
| **Table Number** | **1** |

TES Bretby



Where individual results are flagged see report notes for for status.
Results corrected to dry weight at 105ºC where appr opriate, in accordance with the MCERTS standard.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | TP1 ES 2 0.20 | **Job Number:** | S08_8095M |
| **LIMS ID Number:** | CL0837390 | **Date Booked in:** | 12-Dec-08 |
| **QC Batch Number:** | 4406 | **Date Extracted:** | 15-Dec-08 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 17-Dec-08 |
| **Directory:** | 1216PAH.MS5\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.08 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.08 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.08 | - | UM |
| Fluorene | 86-73-7 | - | < 0.08 | - | UM |
| Phenanthrene | 85-01-8 | - | < 0.08 | - | UM |
| Anthracene | 120-12-7 | - | < 0.08 | - | U |
| Fluoranthene | 206-44-0 | - | < 0.08 | - | UM |
| Pyrene | 129-00-0 | - | < 0.08 | - | UM |
| Benzo[a]anthracene | 56-55-3 | - | < 0.08 | - | UM |
| Chrysene | 218-01-9 | - | < 0.08 | - | UM |
| Benzo[b]fluoranthene | 205-99-2 | - | < 0.08 | - | UM |
| Benzo[k]fluoranthene | 207-08-9 | - | < 0.08 | - | UM |
| Benzo[a]pyrene | 50-32-8 | - | < 0.08 | - | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | - | < 0.08 | - | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.08 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | - | < 0.08 | - | UM |
| Total (USEPA16) PAHs | - | - | < 1.36 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 89 |
| Acenaphthene-d10 | 85 |
| Phenanthrene-d10 | 88 |
| Chrysene-d12 | 78 |
| Perylene-d12 | 75 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 104 |
| Terphenyl-d14 | 108 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | TP1 ES 5 1.00 | **Job Number:** | S08_8095M |
| **LIMS ID Number:** | CL0837391 | **Date Booked in:** | 12-Dec-08 |
| **QC Batch Number:** | 4406 | **Date Extracted:** | 15-Dec-08 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 17-Dec-08 |
| **Directory:** | 1216PAH.MS5\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.09 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.09 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.09 | - | UM |
| Fluorene | 86-73-7 | - | < 0.09 | - | UM |
| Phenanthrene | 85-01-8 | 5.84 | 0.30 | 99 | UM |
| Anthracene | 120-12-7 | 5.89 | 0.12 | 100 | U |
| Fluoranthene | 206-44-0 | 7.20 | 0.68 | 99 | UM |
| Pyrene | 129-00-0 | 7.49 | 0.61 | 100 | UM |
| Benzo[a]anthracene | 56-55-3 | 9.19 | 0.29 | 97 | UM |
| Chrysene | 218-01-9 | 9.24 | 0.36 | 98 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 10.73 | 0.45 | 97 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 10.76 | 0.16 | 98 | UM |
| Benzo[a]pyrene | 50-32-8 | 11.16 | 0.36 | 98 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 12.55 | 0.45 | 88 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | 12.58 | 0.10 | M | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 12.86 | 0.49 | 78 | UM |
| Total (USEPA16) PAHs | - | - | < 4.73 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 85 |
| Acenaphthene-d10 | 84 |
| Phenanthrene-d10 | 88 |
| Chrysene-d12 | 87 |
| Perylene-d12 | 97 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 102 |
| Terphenyl-d14 | 99 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | TP1 ES 10 3.00 | **Job Number:** | S08_8095M |
| **LIMS ID Number:** | CL0837392 | **Date Booked in:** | 12-Dec-08 |
| **QC Batch Number:** | 4406 | **Date Extracted:** | 15-Dec-08 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 17-Dec-08 |
| **Directory:** | 1216PAH.MS5\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.09 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.09 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.09 | - | UM |
| Fluorene | 86-73-7 | - | < 0.09 | - | UM |
| Phenanthrene | 85-01-8 | 5.84 | 0.32 | 99 | UM |
| Anthracene | 120-12-7 | 5.89 | 0.14 | 100 | U |
| Fluoranthene | 206-44-0 | 7.20 | 0.65 | 84 | UM |
| Pyrene | 129-00-0 | 7.49 | 0.59 | 81 | UM |
| Benzo[a]anthracene | 56-55-3 | 9.19 | 0.25 | 89 | UM |
| Chrysene | 218-01-9 | 9.24 | 0.38 | 92 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 10.73 | 0.65 | 99 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 10.77 | 0.18 | 99 | UM |
| Benzo[a]pyrene | 50-32-8 | 11.16 | 0.82 | 97 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 12.55 | 1.20 | 96 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | 12.57 | 0.25 | 57 | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 12.87 | 1.37 | 98 | UM |
| Total (USEPA16) PAHs | - | - | < 7.17 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 89 |
| Acenaphthene-d10 | 88 |
| Phenanthrene-d10 | 93 |
| Chrysene-d12 | 92 |
| Perylene-d12 | 110 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 100 |
| Terphenyl-d14 | 95 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | TP2 ES 2 0.20 | **Job Number:** | S08_8095M |
| **LIMS ID Number:** | CL0837393 | **Date Booked in:** | 12-Dec-08 |
| **QC Batch Number:** | 4406 | **Date Extracted:** | 15-Dec-08 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 17-Dec-08 |
| **Directory:** | 1216PAH.MS5\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.08 | - | **UM** |
| Acenaphthylene | 208-96-8 | 4.46 | 0.10 | 94 | U |
| Acenaphthene | 83-32-9 | - | < 0.08 | - | UM |
| Fluorene | 86-73-7 | - | < 0.08 | - | UM |
| Phenanthrene | 85-01-8 | 5.84 | 0.14 | 99 | UM |
| Anthracene | 120-12-7 | - | < 0.08 | - | U |
| Fluoranthene | 206-44-0 | 7.20 | 0.49 | 99 | UM |
| Pyrene | 129-00-0 | 7.49 | 0.41 | 99 | UM |
| Benzo[a]anthracene | 56-55-3 | 9.19 | 0.35 | 97 | UM |
| Chrysene | 218-01-9 | 9.24 | 0.40 | 99 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 10.73 | 0.67 | 99 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 10.77 | 0.20 | 99 | UM |
| Benzo[a]pyrene | 50-32-8 | 11.16 | 0.41 | 98 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 12.55 | 0.49 | 95 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | 12.58 | 0.12 | M | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 12.87 | 0.45 | 99 | UM |
| Total (USEPA16) PAHs | - | - | < 4.58 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 87 |
| Acenaphthene-d10 | 86 |
| Phenanthrene-d10 | 90 |
| Chrysene-d12 | 90 |
| Perylene-d12 | 101 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 106 |
| Terphenyl-d14 | 100 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | TP2 ES 7 1.65 (NVM) | **Job Number:** | S08_8095M |
| **LIMS ID Number:** | CL0837394 | **Date Booked in:** | 12-Dec-08 |
| **QC Batch Number:** | 4406 | **Date Extracted:** | 15-Dec-08 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 17-Dec-08 |
| **Directory:** | 1216PAH.MS5\ | **Matrix:** | Soil |
| **Dilution:** | 5.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | 3.39 | 6.82 | 92 | **U** |
| Acenaphthylene | 208-96-8 | 4.45 | 2.73 | 85 | U |
| Acenaphthene | 83-32-9 | 4.57 | 61.60 | 99 | U |
| Fluorene | 86-73-7 | 4.97 | 34.99 | 97 | U |
| Phenanthrene | 85-01-8 | 5.83 | 19.12 | 99 | U |
| Anthracene | 120-12-7 | 5.88 | 4.00 | 99 | U |
| Fluoranthene | 206-44-0 | 7.20 | 8.03 | 71 | U |
| Pyrene | 129-00-0 | 7.49 | 9.33 | 68 | U |
| Benzo[a]anthracene | 56-55-3 | 9.20 | 4.07 | 68 | U |
| Chrysene | 218-01-9 | 9.25 | 9.92 | 78 | U |
| Benzo[b]fluoranthene | 205-99-2 | 10.74 | 4.68 | 60 | U |
| Benzo[k]fluoranthene | 207-08-9 | 10.78 | 1.43 | 60 | U |
| Benzo[a]pyrene | 50-32-8 | 11.18 | 4.38 | 77 | U |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 12.56 | 3.29 | M | U |
| Dibenzo[a,h]anthracene | 53-70-3 | 12.59 | 1.19 | M | U |
| Benzo[g,h,i]perylene | 191-24-2 | 12.88 | 2.84 | 63 | U |
| Total (USEPA16) PAHs | - | - | 178.40 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 100 |
| Acenaphthene-d10 | 103 |
| Phenanthrene-d10 | 110 |
| Chrysene-d12 | 120 |
| Perylene-d12 | 153 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 496 |
| Terphenyl-d14 | 446 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | TP2 ES 8 2.15 | **Job Number:** | S08_8095M |
| **LIMS ID Number:** | CL0837395 | **Date Booked in:** | 12-Dec-08 |
| **QC Batch Number:** | 4406 | **Date Extracted:** | 15-Dec-08 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 17-Dec-08 |
| **Directory:** | 1216PAH.MS5\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.09 | - | **UM** |
| Acenaphthylene | 208-96-8 | 4.46 | 0.28 | 82 | U |
| Acenaphthene | 83-32-9 | 4.58 | 7.58 | 99 | UM |
| Fluorene | 86-73-7 | 4.97 | 0.24 | 97 | UM |
| Phenanthrene | 85-01-8 | - | < 0.09 | - | UM |
| Anthracene | 120-12-7 | 5.89 | 0.38 | 77 | U |
| Fluoranthene | 206-44-0 | 7.21 | 1.85 | 99 | UM |
| Pyrene | 129-00-0 | 7.50 | 1.70 | 100 | UM |
| Benzo[a]anthracene | 56-55-3 | 9.20 | 0.69 | 71 | UM |
| Chrysene | 218-01-9 | 9.25 | 0.85 | 88 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 10.74 | 1.00 | 60 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 10.78 | 0.33 | 60 | UM |
| Benzo[a]pyrene | 50-32-8 | 11.17 | 0.80 | 96 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 12.56 | 0.78 | 60 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | 12.59 | 0.17 | 0 | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 12.88 | 0.64 | 85 | UM |
| Total (USEPA16) PAHs | - | - | < 17.57 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 87 |
| Acenaphthene-d10 | 90 |
| Phenanthrene-d10 | 95 |
| Chrysene-d12 | 99 |
| Perylene-d12 | 125 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 100 |
| Terphenyl-d14 | 94 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | TP3 ES 5 1.00 | **Job Number:** | S08_8095M |
| **LIMS ID Number:** | CL0837396 | **Date Booked in:** | 12-Dec-08 |
| **QC Batch Number:** | 4406 | **Date Extracted:** | 15-Dec-08 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 17-Dec-08 |
| **Directory:** | 1216PAH.MS5\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.09 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.09 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.09 | - | UM |
| Fluorene | 86-73-7 | - | < 0.09 | - | UM |
| Phenanthrene | 85-01-8 | 5.84 | 0.23 | 93 | UM |
| Anthracene | 120-12-7 | - | < 0.09 | - | U |
| Fluoranthene | 206-44-0 | 7.21 | 0.50 | 100 | UM |
| Pyrene | 129-00-0 | 7.50 | 0.43 | 94 | UM |
| Benzo[a]anthracene | 56-55-3 | 9.19 | 0.31 | 94 | UM |
| Chrysene | 218-01-9 | 9.25 | 0.43 | 97 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 10.73 | 0.58 | 88 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 10.77 | 0.19 | 89 | UM |
| Benzo[a]pyrene | 50-32-8 | 11.17 | 0.31 | 93 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 12.56 | 0.37 | 60 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | 12.58 | 0.10 | 0 | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 12.87 | 0.30 | 97 | UM |
| Total (USEPA16) PAHs | - | - | < 4.19 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 88 |
| Acenaphthene-d10 | 92 |
| Phenanthrene-d10 | 98 |
| Chrysene-d12 | 98 |
| Perylene-d12 | 120 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 101 |
| Terphenyl-d14 | 95 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | TP3 ES 7 2.00 | **Job Number:** | S08_8095M |
| **LIMS ID Number:** | CL0837397 | **Date Booked in:** | 12-Dec-08 |
| **QC Batch Number:** | 4406 | **Date Extracted:** | 15-Dec-08 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 17-Dec-08 |
| **Directory:** | 1216PAH.MS5\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.09 | - | **UM** |
| Acenaphthylene | 208-96-8 | 4.46 | 0.12 | 94 | U |
| Acenaphthene | 83-32-9 | 4.58 | 0.09 | 95 | UM |
| Fluorene | 86-73-7 | - | < 0.09 | - | UM |
| Phenanthrene | 85-01-8 | 5.84 | 0.49 | 99 | UM |
| Anthracene | 120-12-7 | 5.89 | 0.15 | 99 | U |
| Fluoranthene | 206-44-0 | 7.20 | 1.26 | 100 | UM |
| Pyrene | 129-00-0 | 7.50 | 0.86 | 99 | UM |
| Benzo[a]anthracene | 56-55-3 | 9.19 | 0.63 | 97 | UM |
| Chrysene | 218-01-9 | 9.25 | 0.71 | 100 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 10.73 | 1.01 | 91 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 10.77 | 0.31 | 60 | UM |
| Benzo[a]pyrene | 50-32-8 | 11.16 | 0.63 | 99 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 12.55 | 0.79 | 88 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | 12.58 | 0.19 | 57 | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 12.87 | 0.64 | 99 | UM |
| Total (USEPA16) PAHs | - | - | < 8.04 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 90 |
| Acenaphthene-d10 | 92 |
| Phenanthrene-d10 | 98 |
| Chrysene-d12 | 99 |
| Perylene-d12 | 121 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 103 |
| Terphenyl-d14 | 97 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | TP4 ES 2 0.20 | **Job Number:** | S08_8095M |
| **LIMS ID Number:** | CL0837398 | **Date Booked in:** | 12-Dec-08 |
| **QC Batch Number:** | 4406 | **Date Extracted:** | 15-Dec-08 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 17-Dec-08 |
| **Directory:** | 1216PAH.MS5\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.09 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.09 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.09 | - | UM |
| Fluorene | 86-73-7 | - | < 0.09 | - | UM |
| Phenanthrene | 85-01-8 | - | < 0.09 | - | UM |
| Anthracene | 120-12-7 | - | < 0.09 | - | U |
| Fluoranthene | 206-44-0 | 7.20 | 0.16 | 71 | UM |
| Pyrene | 129-00-0 | 7.50 | 0.10 | M | UM |
| Benzo[a]anthracene | 56-55-3 | 9.19 | 0.10 | 96 | UM |
| Chrysene | 218-01-9 | 9.24 | 0.10 | 98 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 10.73 | 0.16 | 79 | UM |
| Benzo[k]fluoranthene | 207-08-9 | - | < 0.09 | - | UM |
| Benzo[a]pyrene | 50-32-8 | 11.16 | 0.10 | 91 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 12.55 | 0.13 | 60 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.09 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 12.87 | 0.10 | 99 | UM |
| Total (USEPA16) PAHs | - | - | < 1.70 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 94 |
| Acenaphthene-d10 | 95 |
| Phenanthrene-d10 | 100 |
| Chrysene-d12 | 100 |
| Perylene-d12 | 120 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 100 |
| Terphenyl-d14 | 97 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | TP4 ES 7 2.00 | **Job Number:** | S08_8095M |
| **LIMS ID Number:** | CL0837399 | **Date Booked in:** | 12-Dec-08 |
| **QC Batch Number:** | 4406 | **Date Extracted:** | 15-Dec-08 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 17-Dec-08 |
| **Directory:** | 1216PAH.MS5\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.08 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.08 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.08 | - | UM |
| Fluorene | 86-73-7 | - | < 0.08 | - | UM |
| Phenanthrene | 85-01-8 | - | < 0.08 | - | UM |
| Anthracene | 120-12-7 | - | < 0.08 | - | U |
| Fluoranthene | 206-44-0 | - | < 0.08 | - | UM |
| Pyrene | 129-00-0 | - | < 0.08 | - | UM |
| Benzo[a]anthracene | 56-55-3 | - | < 0.08 | - | UM |
| Chrysene | 218-01-9 | - | < 0.08 | - | UM |
| Benzo[b]fluoranthene | 205-99-2 | - | < 0.08 | - | UM |
| Benzo[k]fluoranthene | 207-08-9 | - | < 0.08 | - | UM |
| Benzo[a]pyrene | 50-32-8 | - | < 0.08 | - | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | - | < 0.08 | - | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.08 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | - | < 0.08 | - | UM |
| Total (USEPA16) PAHs | - | - | < 1.35 | - | N |

"M" denotes that % fit has been manually interpreted

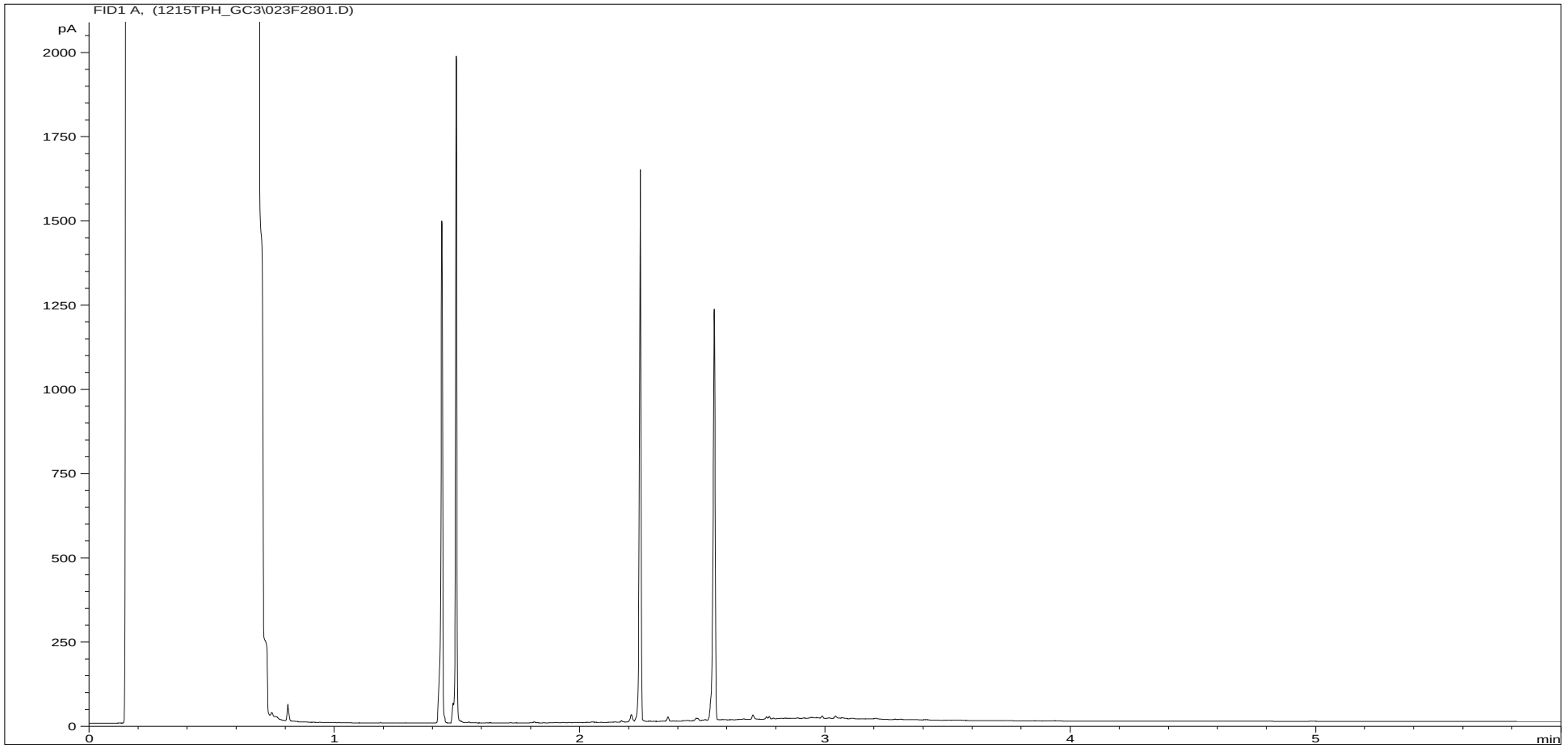
| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 94 |
| Acenaphthene-d10 | 95 |
| Phenanthrene-d10 | 101 |
| Chrysene-d12 | 100 |
| Perylene-d12 | 116 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 104 |
| Terphenyl-d14 | 102 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**

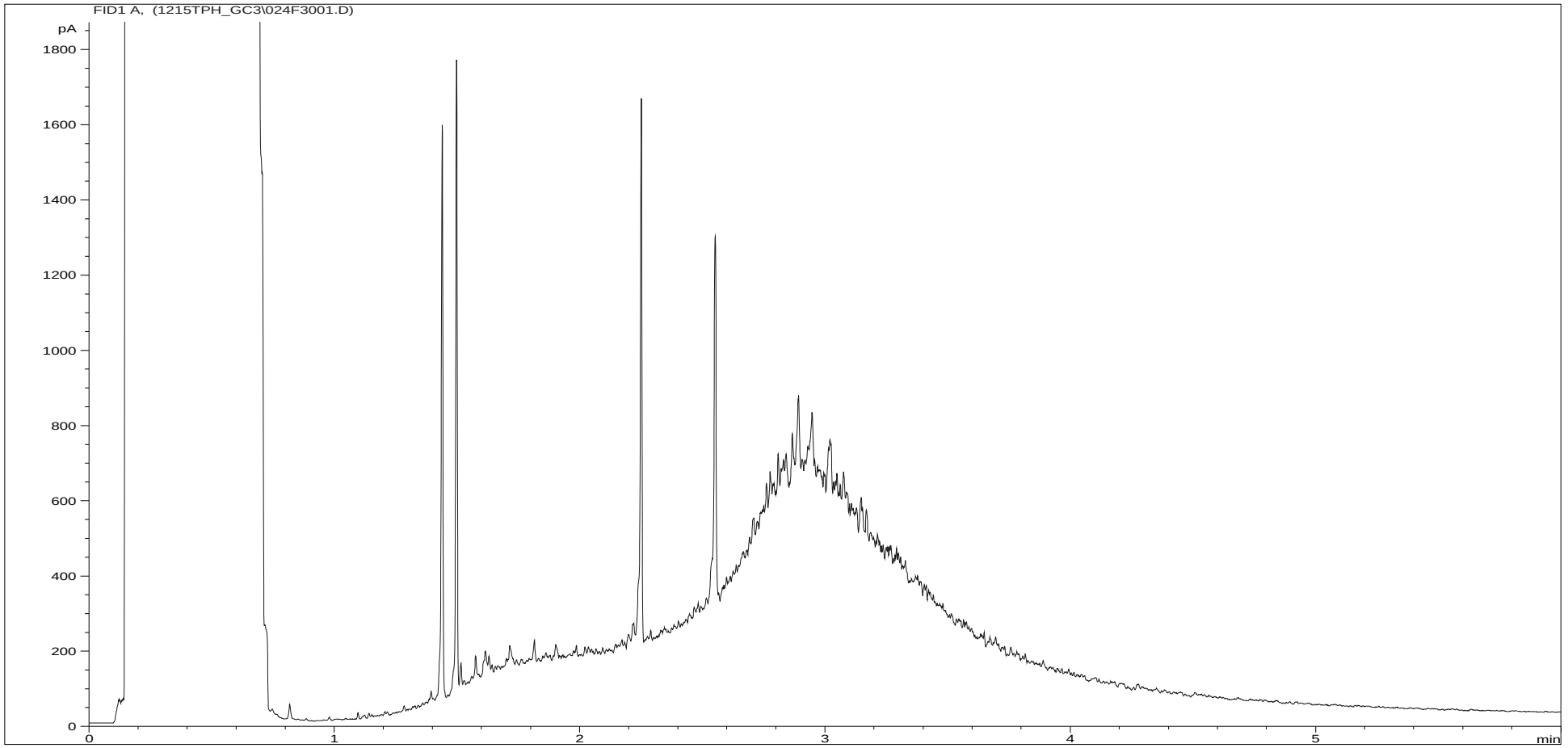



| | | | |
|---|---|---|---|
| **Sample ID:** | CL0837390 | **Job Number:** | S08_8095M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | TP1 ES 2 0.20 |
| **Acquisition Date/Time:** | 15-Dec-08 | | |
| **Datafile:** | D:\TES\DATA\Y2008\1215TPH_GC3\023F2801.D | | |



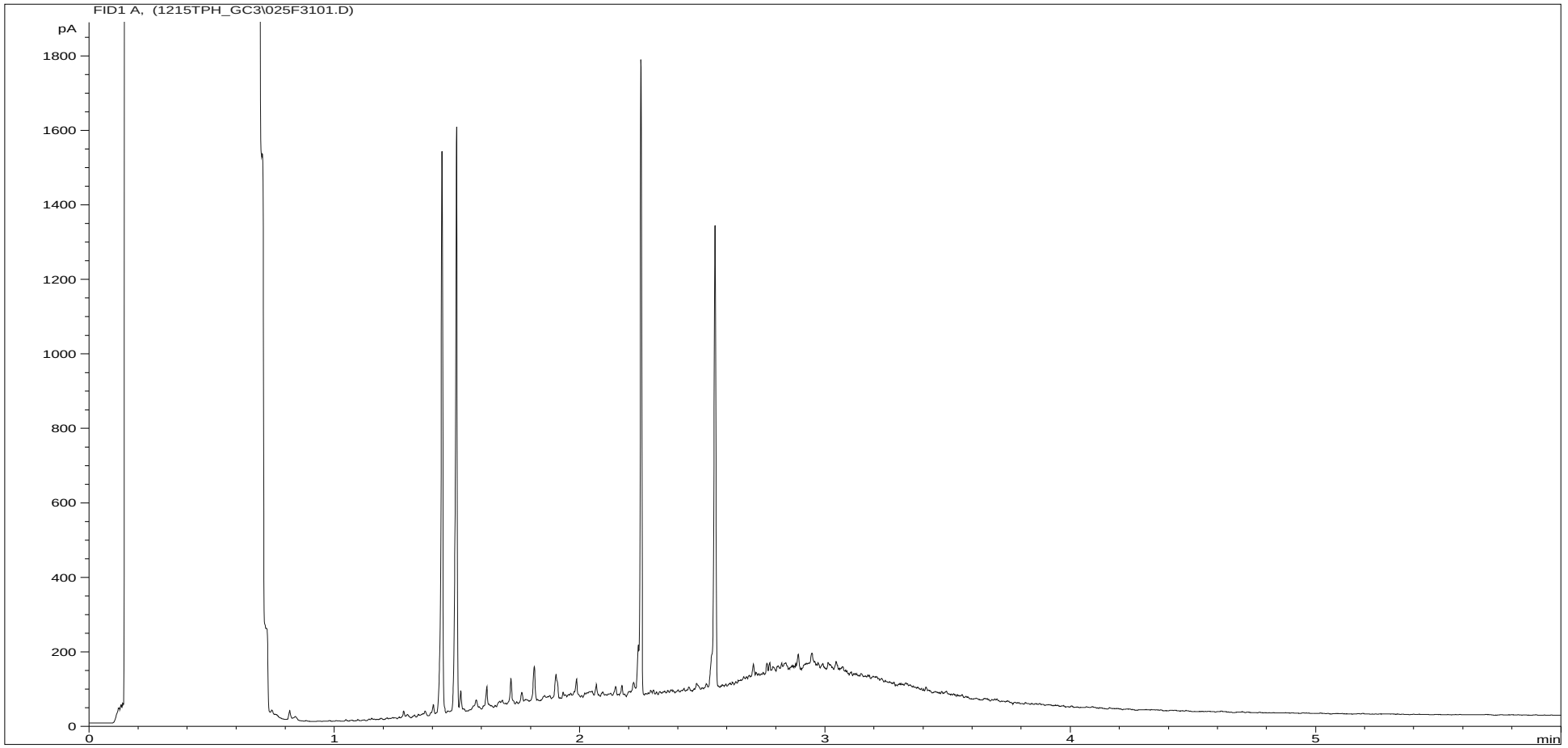
Where individual results are flagged see report notes for for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**



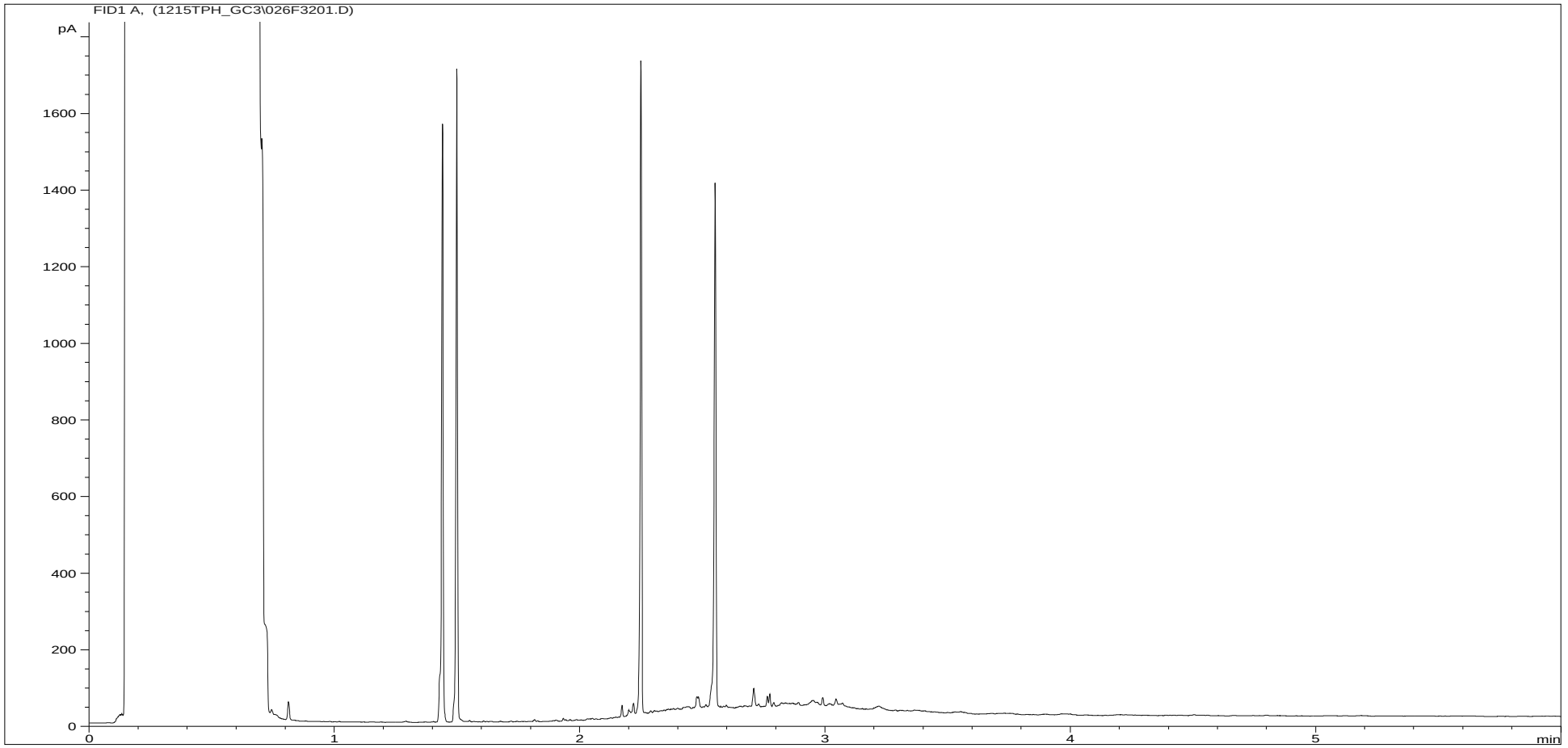

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0837391 | **Job Number:** | S08_8095M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | TP1 ES 5 1.00 |
| **Acquisition Date/Time:** | 15-Dec-08 | | |
| **Datafile:** | D:\TES\DATA\Y2008\1215TPH_GC3\024F3001.D | | |

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**




| | | | |
|---|---|---|---|
| **Sample ID:** | CL0837392 | **Job Number:** | S08_8095M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | TP1 ES 10 3.00 |
| **Acquisition Date/Time:** | 15-Dec-08 | | |
| **Datafile:** | D:\TES\DATA\Y2008\1215TPH_GC3\025F3101.D | | |

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**



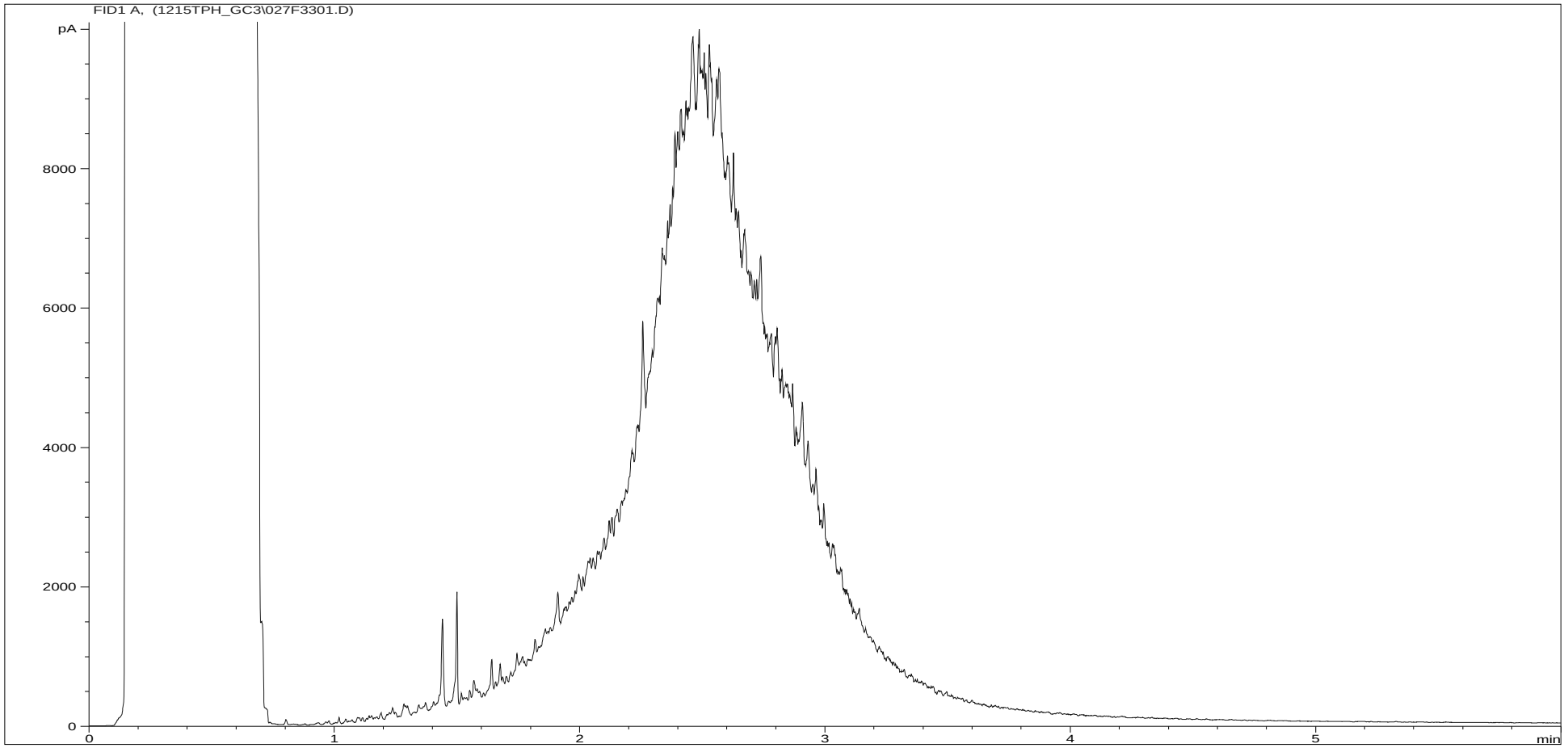

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0837393 | **Job Number:** | S08_8095M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | TP2 ES 2 0.20 |
| **Acquisition Date/Time:** | 15-Dec-08 | | |
| **Datafile:** | D:\TES\DATA\Y2008\1215TPH_GC3\026F3201.D | | |

Where individual results are flagged see report notes for for status.



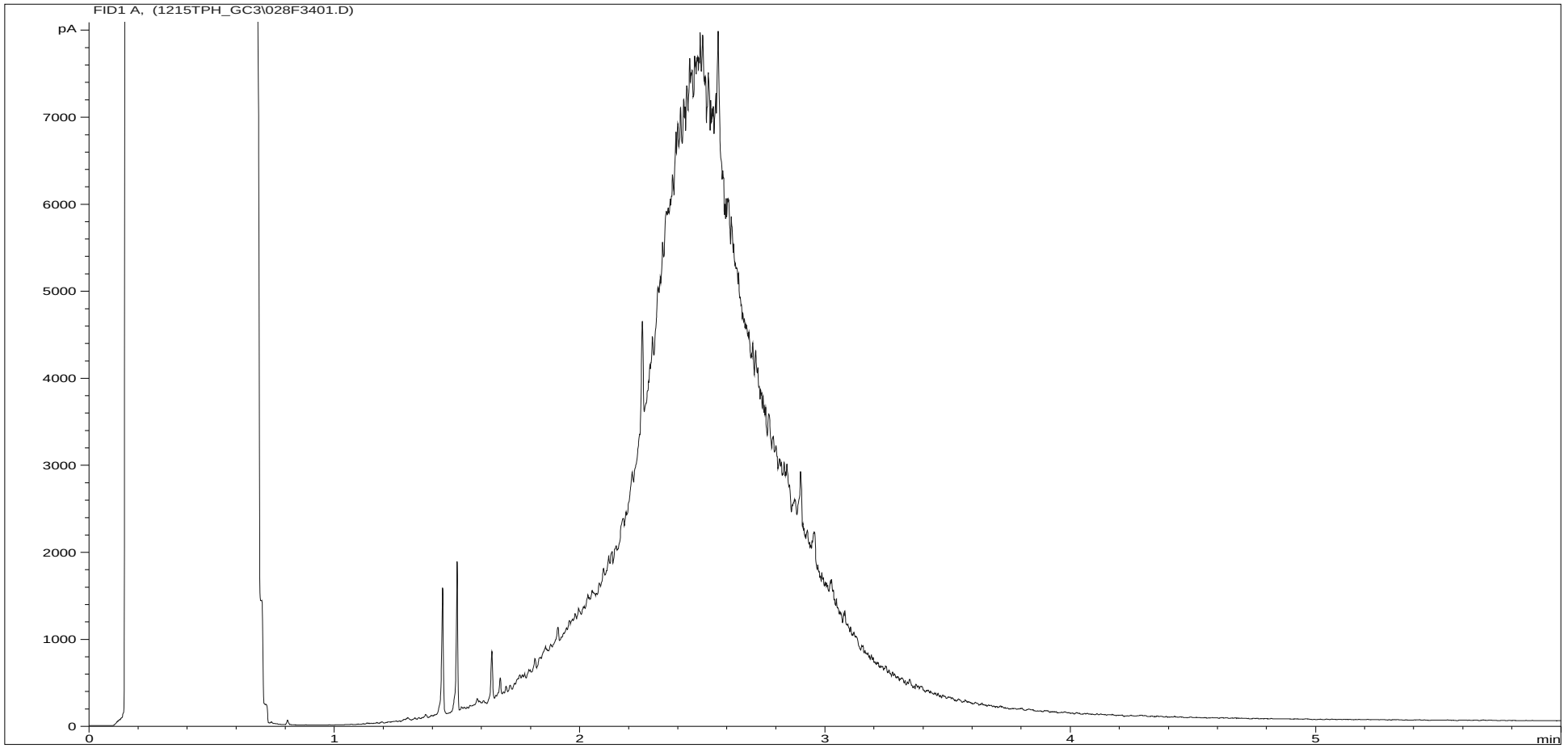
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**



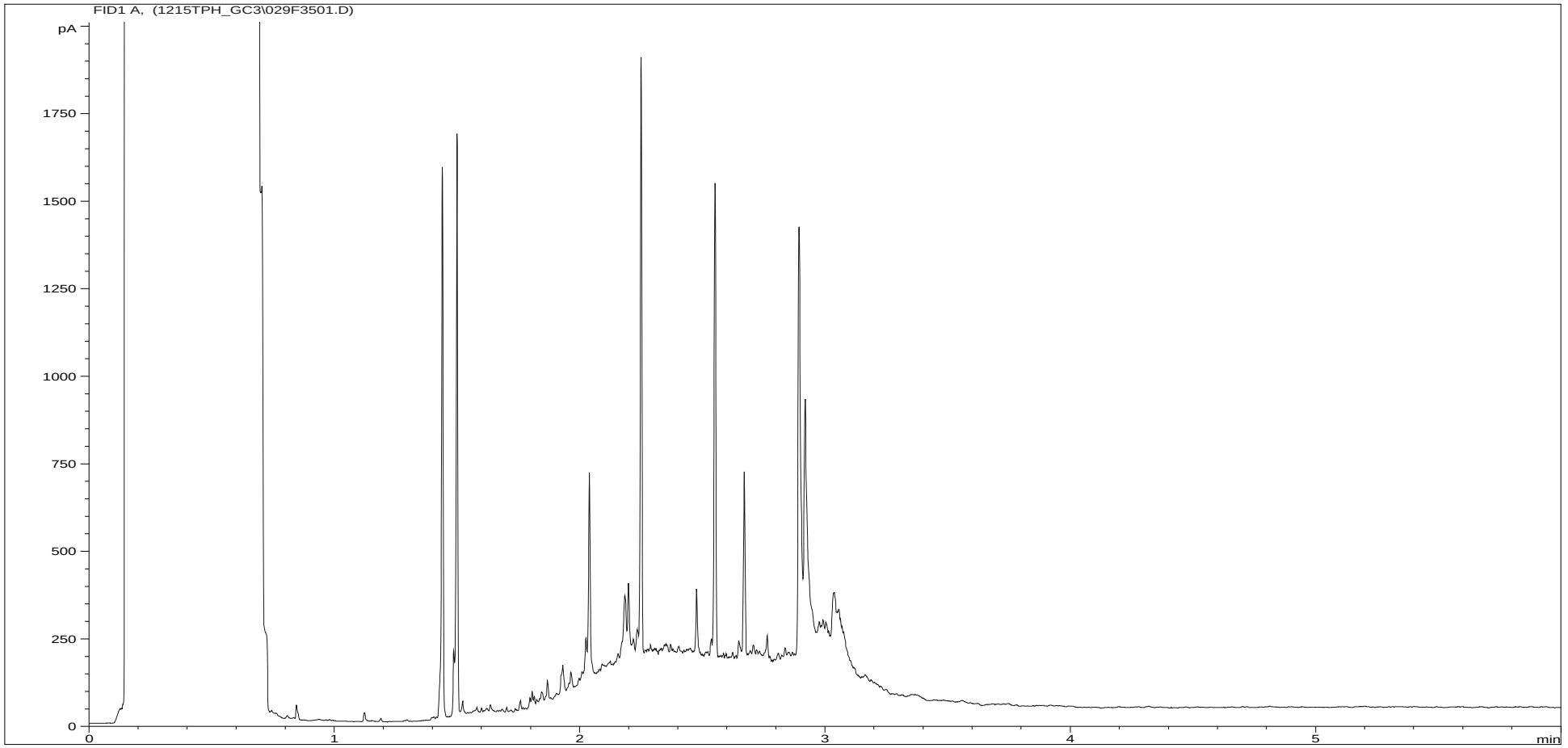

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0837394 | **Job Number:** | S08_8095M |
| **Multiplier:** | 40 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | TP2 ES 7 1.65 (NVM) |
| **Acquisition Date/Time:** | 15-Dec-08 | | |
| **Datafile:** | D:\TES\DATA\Y2008\1215TPH_GC3\027F3301.D | | |

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**



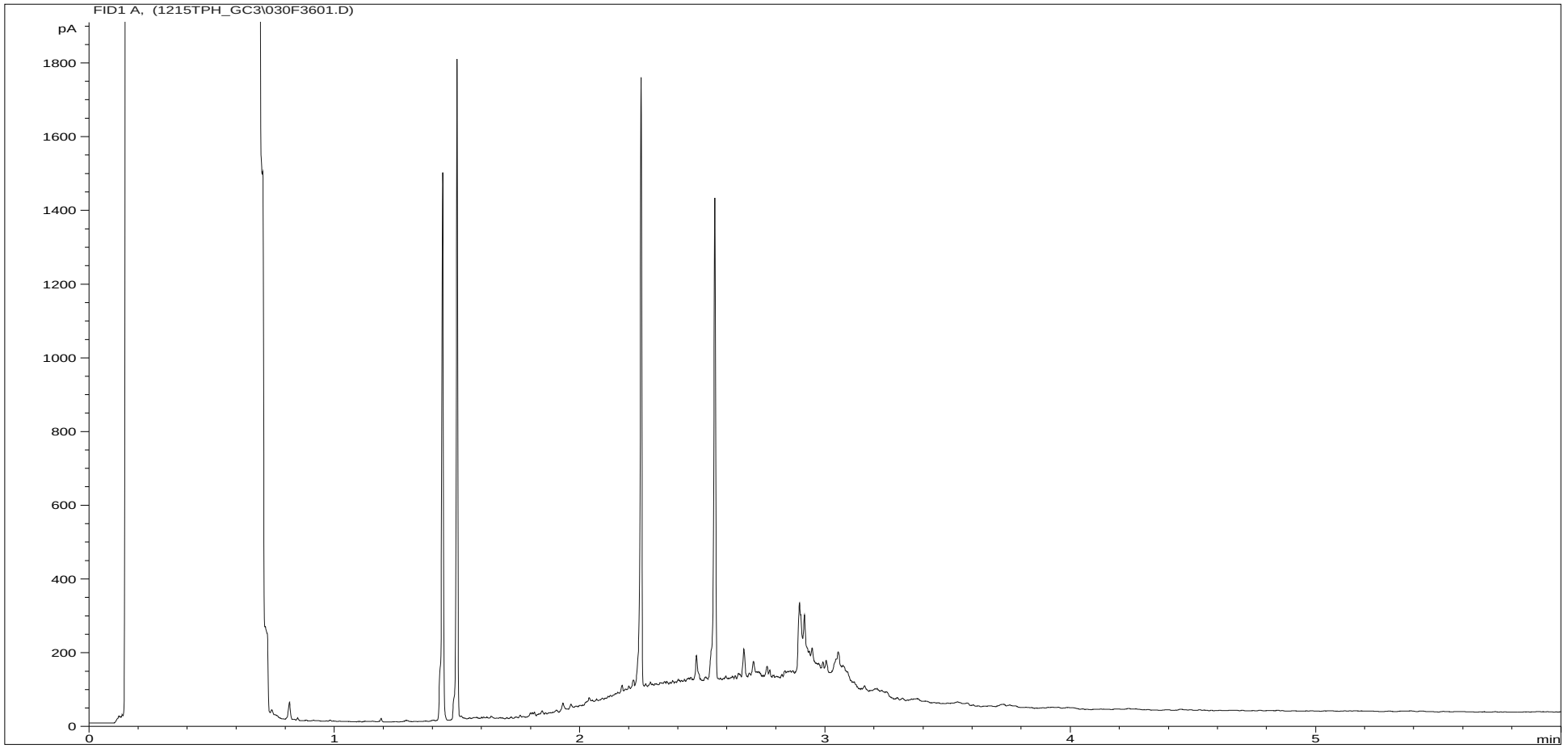

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0837395 | **Job Number:** | S08_8095M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | TP2 ES 8 2.15 |
| **Acquisition Date/Time:** | 15-Dec-08 | | |
| **Datafile:** | D:\TES\DATA\Y2008\1215TPH_GC3\028F3401.D | | |

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**




| | | | |
|---|---|---|---|
| **Sample ID:** | CL0837396 | **Job Number:** | S08_8095M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | TP3 ES 5 1.00 |
| **Acquisition Date/Time:** | 15-Dec-08 | | |
| **Datafile:** | D:\TES\DATA\Y2008\1215TPH_GC3\029F3501.D | | |

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**

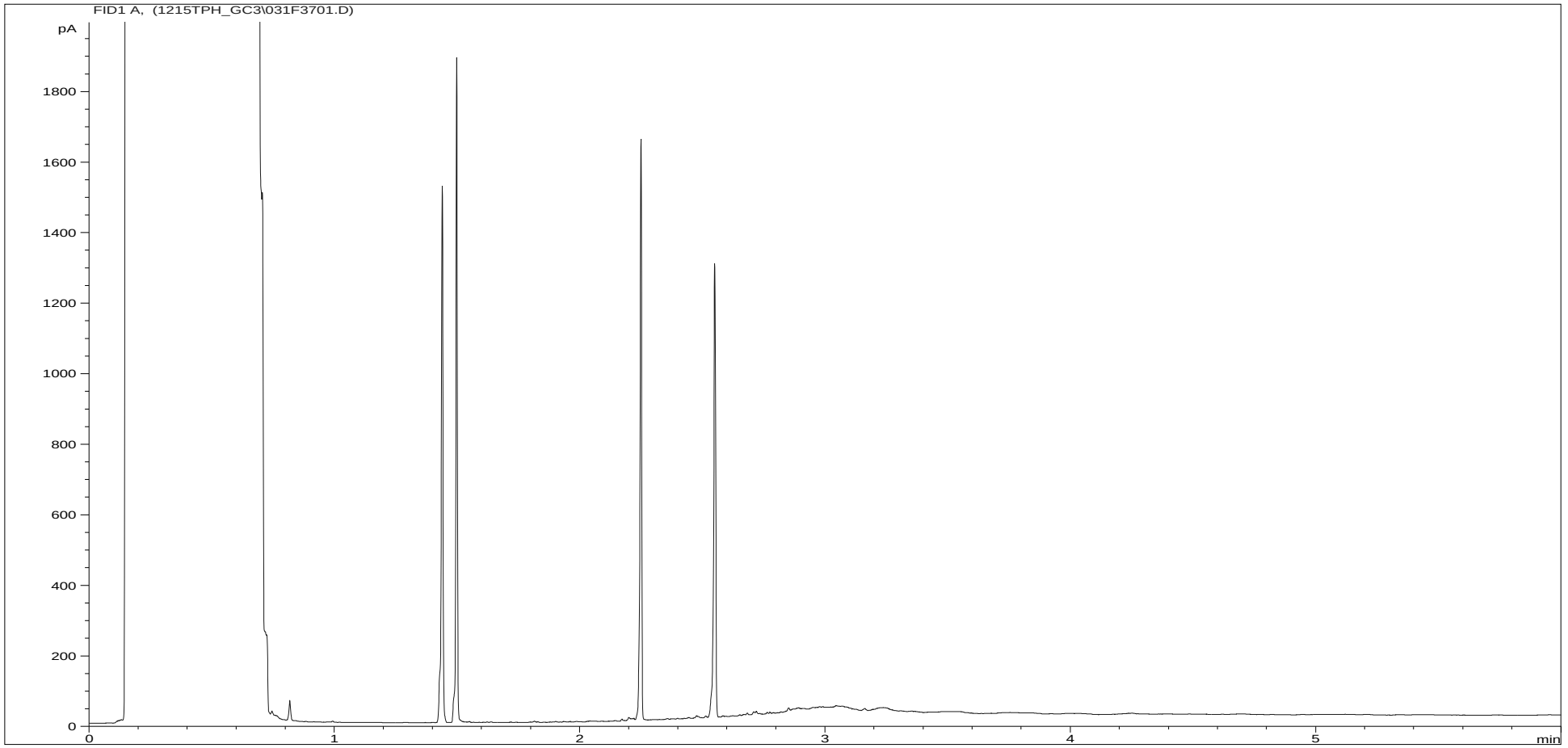



| | | | |
|---|---|---|---|
| **Sample ID:** | CL0837397 | **Job Number:** | S08_8095M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | TP3 ES 7 2.00 |
| **Acquisition Date/Time:** | 15-Dec-08 | | |
| **Datafile:** | D:\TES\DATA\Y2008\1215TPH_GC3\030F3601.D | | |



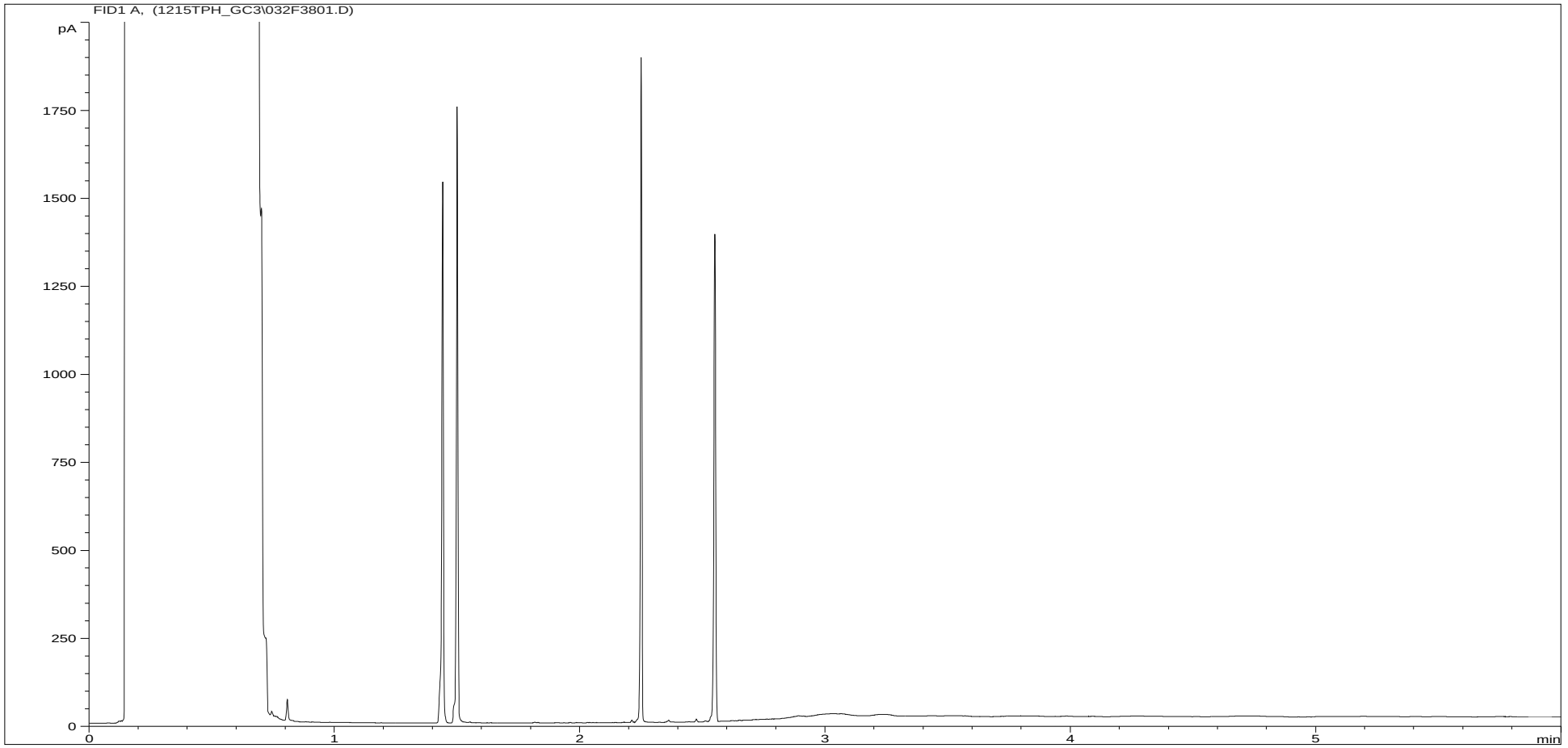
Where individual results are flagged see report notes for for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**




| | | | |
|---|---|---|---|
| **Sample ID:** | CL0837398 | **Job Number:** | S08_8095M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | TP4 ES 2 0.20 |
| **Acquisition Date/Time:** | 15-Dec-08 | | |
| **Datafile:** | D:\TES\DATA\Y2008\1215TPH_GC3\031F3701.D | | |

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**




| | | | |
|---|---|---|---|
| **Sample ID:** | CL0837399 | **Job Number:** | S08_8095M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | TP4 ES 7 2.00 |
| **Acquisition Date/Time:** | 15-Dec-08 | | |
| **Datafile:** | D:\TES\DATA\Y2008\1215TPH_GC3\032F3801.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

# Report Notes

**Soil/Solid analysis specific:**

S04 analysis not conducted in accordance with BS1377 unless otherwise stated
Water Soluble Sulphate on 2:1 water:soil extract
AR denotes analysis conducted on the As Received sample

**Water analysis specific:**
Results expressed as mg/l unless stated otherwise

**Oil analysis specific:**
Results expressed as mg/kg unless stated otherwise
S.G. expressed as g/cm$^3$@ 15$^o$C

**Filter analysis specific:**
Results expressed as mg on filter unless stated otherwise

**VOC analysis specific:**
Explanatory notes for data flagging
**U** = undetected above reporting limit
**J** = concentration at instrument was below lowest calibration standard
**E** = concentration at instrument was above top calibration standard
**B** = compound was detected in method blank

**Gas (Tedlar bag) analysis specific:**
Results expressed as ug/l unless stated otherwise

**Air (Carbon tube) analysis specific:**
Results expressed as ug on tube unless stated otherwise

**Asbestos analysis specific:**
**CH** denotes Chrysotile
**CR** denotes Crocidolite
**AM** denotes Amosite
**NADIS** denotes No Asbestos Detected in Sample
**NBFO** denotes No Bulk fibres Observed

**General notes:**
**^** this analysis was subcontracted to another laboratory
**$** Within laboratory tolerances
**$$** unable to analyse due to nature of sample
**¥** Results for guidance only, possible interference
**&** Blank corrected
**I.S** insufficient sample for analysis
**Intf** Unable to analyse due to interferences
**N.D** Not determined
**N.R** Not recorded
**N.Det** Not detected
**Req** Analysis Requested, see attached sheets for results
**Þ** Raised detection limit due to nature of sample
***** denotes that all accreditation has been removed by the laboratory for this result.
‡ denotes that Mcerts accreditation has been removed by the laboratory for this result.
**Note:** The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected.

If you require further details of the circumstances leading to the removal of the accreditation from any data item please do not hesitate to contact the laboratory

**END OF REPORT**

# TEST REPORT
# SOIL SAMPLE ANALYSIS

1252

## TES Report No. EFS/090334M (Ver. 1)

Soil Mechanics
Unit 15
Crosby Yard
Bridgend
Mid Glamorgan
CF31 1JZ

**Site: 2U-Afan Advanced Digestion**

The 10 samples described in this report were logged for analysis by TES Bretby on 20-Jan-2009.
The analysis was completed by: 28-Jan-2009

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS or MCERTS accredited
Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by TES Bretby Laboratories.

The following tables are contained in this report:



On behalf of
TES Bretby :
Jane Colbourne

JNColbourne
Project Co-ordinator

Date of Issue: 28-Jan-2009

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)
Tests marked '^' have been subcontracted to another laboratory.
(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.
All results are reported on a dry weight basis at 105$^{o}$C unless otherwise stated. (except QC samples)
TES Bretby accepts no responsibility for any sampling not carried out by our personnel.

## Sample Descriptions

**Client :** Soil Mechanics

**Site :** 2U-Afan Advanced Digestion

**Report Number :** S09_0334M

| Lab ID Number | Client ID | Description |
|---|---|---|
| CL/0901314 | BH1 D 8 4.00 | Brown SILT |
| CL/0901315 | BH1 ES 3 1.00 | Brown Stone SILT |
| CL/0901316 | BH2A ES 8 2.00 | Brown SILT |
| CL/0901317 | BH2A D 10 3.00 | Brown SILT |
| CL/0901318 | BH3 ES 10 3.00 | Grey Gravel SILT |
| CL/0901319 | BH3 D 13 5.00 | Brown Gravel SILT |
| CL/0901320 | BH4 ES 2 0.50 | Brown Stone SILT |
| CL/0901321 | BH4 ES 5 2.00 | Brown Gravel SILT |
| CL/0901322 | BH5 ES 2 0.50 | Brown Gravel SILT |
| CL/0901323 | BH5 ES 5 2.00 | Brown Gravel SILT |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Units :** | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | % | mg/kg | mg/kg | pH Units | | |
| **Method Codes :** | | ICPMSS | ICPMSS | ICPMSS | ICPMSS | ICPMSS | ICPMSS | ICPMSS | ICPMSS | ICPMSS | PAHMSUS | TMSS | TPHFIDUS | TPHUSSI | WSLM3 | | |
| **Method Reporting Limits :** | | 2 | 0.1 | 3 | 3 | 3.5 | 0.10 | 2.5 | 0.5 | 19.5 | 0.08 | 0.2 | 10.0 | 10.0 | | | |
| **Accreditation Code:** | | UM | U | UM | UM | UM | U | UM | U | UM | | U | UM | | U | | |
| **TES ID Number CL/** | **Client Sample Description** | **Arsenic (MS)** | **Cadmium (MS)** | **Chromium (MS)** | **Copper (MS)** | **Lead (MS)** | **Mercury (MS)** | **Nickel (MS)** | **Selenium (MS)** | **Zinc (MS)** | **PAH by MS.16(0.08)** | **Tot.Moisture @ 105C** | **TPH by GCFID (AR)** | **TPH by GCFID (AR/Si)** | **pH units** | | |
| 0901315 | BH1 ES 3 1.00 | 16.8 | 0.46 | 45‡ | 61.1 | 43.8 | <0.1 | 9.1 | 0.5 | 195.8 | Req | 8.0 | | Req | 10.7 | | |
| 0901314 | BH1 D 8 4.00 | 8.8 | <0.1 | 14.0‡ | 6.6 | 9.2 | <0.1 | 6.8 | <0.5 | 39.6 | Req | 17.1 | 84 | | 10.1 | | |
| 0901316 | BH2A ES 8 2.00 | 10.4 | <0.1 | 7.3‡ | 6.7 | 9.5 | <0.1 | 6.8 | <0.5 | 47.7 | Req | 10.4 | | Req | 10.0 | | |
| 0901317 | BH2A D 10 3.00 | 9.5 | <0.1 | 5.1‡ | 5.2 | 7.8 | <0.1 | 6 | <0.5 | 39.8 | Req | 8.7 | <11.0 | | 9.2 | | |
| 0901318 | BH3 ES 10 3.00 | 6.3 | 0.11 | 9.3‡ | 6 | 13.2 | <0.1 | 8 | <0.5 | 59.4 | Req | 16.2 | | Req | 8.8 | | |
| 0901319 | BH3 D 13 5.00 | 12.1 | <0.1 | 5.5‡ | 8.4 | 7.6 | <0.1 | 6.2 | <0.5 | 36.8 | Req | 15.8 | | Req | 8.8 | | |
| 0901320 | BH4 ES 2 0.50 | 11.3 | 0.23 | 49.1‡ | 20.2 | 43 | <0.1 | 13.8 | 0.6 | 112.2 | Req | 13.5 | | Req | 10.2 | | |
| 0901321 | BH4 ES 5 2.00 | 11.3 | <0.1 | 6.5‡ | 7 | 10.4 | <0.1 | 8.5 | <0.5 | 47 | Req | 17.3 | <12.1 | | 9.0 | | |
| 0901322 | BH5 ES 2 0.50 | 9.3 | <0.1 | 6.7‡ | 5.2 | 9.2 | <0.1 | 6.1 | <0.5 | 40.1 | Req | 6.0 | | Req | 9.1 | | |
| 0901323 | BH5 ES 5 2.00 | 8.8 | 0.19 | 9.9‡ | 5.4 | 15.9 | <0.1 | 5.7 | <0.5 | 59.3 | Req | 17.9 | 28 | | 9.7 | | |


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**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U-Afan Advanced Digestion

## Soils Sample Analysis

| | |
|---|---|
| **Date Printed** | 28-Jan-09 |
| **Report Number** | **EFS/090334M** |
| **Table Number** | **1** |

TES Bretby



Where individual results are flagged see report notes for for status.
Results corrected to dry weight at 105ºC where appr opriate, in accordance with the MCERTS standard.

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Units :** | mg/kg | mg/kg | mg/kg | | mg/kg | mg/kg | mg/kg | ug/kg | ug/kg | ug/kg | ug/kg | | | | | | |
| | **Method Codes :** | ICPBOR | ICPMAJ | ICPMAJ | SEN9 | SFAPI | SFAPI | SFAS | VOCSW | VOCSW | VOCSW | VOCSW | | | | | | |
| | **Method Reporting Limits :** | 0.5 | 1 | 1 | | 0.5 | 0.5 | 0.5 | 5 | 5 | 5 | 10 | | | | | | |
| | **Accreditation Code:** | N | N | N | N | N | N | N | N | N | N | N | | | | | | |
| **TES ID Number CL/** | **Client Sample Description** | **Boron (H20 Soluble)** | **Barium** | **Beryllium** | **Asbestos (screening)** | **Cyanide(Total) (AR)** | **Phenol Index.(AR)** | **Sulphide as S (AR)** | **Benzene** | **Toluene** | **Ethyl Benzene** | **Xylenes** | | | | | | |
| 0901315 | BH1 ES 3 1.00 | 1.4 | 119 | <1 | NBFO | 2.9 | <0.5 | <0.5 | <5 | <5 | <5 | <11 | | | | | | |
| 0901314 | BH1 D 8 4.00 | 1 | 38 | <1 | | <0.6 | 0.6 | | <6 | <6 | <6 | <12 | | | | | | |
| 0901316 | BH2A ES 8 2.00 | 0.5 | 13 | <1 | NBFO | <0.6 | <0.6 | <0.6 | <6 | <6 | <6 | <11 | | | | | | |
| 0901317 | BH2A D 10 3.00 | <0.5 | 6 | <1 | | <0.5 | 0.9 | | <5 | <5 | <5 | <11 | | | | | | |
| 0901318 | BH3 ES 10 3.00 | <0.5 | 29 | <1 | NBFO | <0.6 | <0.6 | 48.6 | <6 | <6 | <6 | <12 | | | | | | |
| 0901319 | BH3 D 13 5.00 | <0.5 | 8 | <1 | | <0.6 | 0.6 | | <6 | <6 | <6 | <12 | | | | | | |
| 0901320 | BH4 ES 2 0.50 | 1.6 | 211 | 1 | NBFO | <0.6 | <0.6 | 1.2 | <6 | <6 | <6 | <12 | | | | | | |
| 0901321 | BH4 ES 5 2.00 | <0.5 | 9 | <1 | | <0.6 | 0.6 | | <6 | <6 | <6 | <12 | | | | | | |
| 0901322 | BH5 ES 2 0.50 | <0.5 | 10 | <1 | NBFO | <0.5 | 0.6 | <0.5 | <5 | <5 | <5 | <11 | | | | | | |
| 0901323 | BH5 ES 5 2.00 | <0.5 | 34 | <1 | | <0.6 | 1.1 | | <6 | <6 | <6 | <12 | | | | | | |
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**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U-Afan Advanced Digestion

## Soils Sample Analysis

| | |
|---|---|
| **Date Printed** | 28-Jan-09 |
| **Report Number** | **EFS/090334M** |
| **Table Number** | **1** |

TES Bretby



Where individual results are flagged see report notes for for status.
Results corrected to dry weight at 105ºC where appr opriate, in accordance with the MCERTS standard.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH1 D 8 4.00 | **Job Number:** | S09_0334M |
| **LIMS ID Number:** | CL0901314 | **Date Booked in:** | 20-Jan-09 |
| **QC Batch Number:** | 0202 | **Date Extracted:** | 22-Jan-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 23-Jan-09 |
| **Directory:** | 122PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.10 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.10 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.10 | - | UM |
| Fluorene | 86-73-7 | - | < 0.10 | - | UM |
| Phenanthrene | 85-01-8 | - | < 0.10 | - | UM |
| Anthracene | 120-12-7 | - | < 0.10 | - | U |
| Fluoranthene | 206-44-0 | - | < 0.10 | - | UM |
| Pyrene | 129-00-0 | - | < 0.10 | - | UM |
| Benzo[a]anthracene | 56-55-3 | - | < 0.10 | - | UM |
| Chrysene | 218-01-9 | - | < 0.10 | - | UM |
| Benzo[b]fluoranthene | 205-99-2 | - | < 0.10 | - | UM |
| Benzo[k]fluoranthene | 207-08-9 | - | < 0.10 | - | UM |
| Benzo[a]pyrene | 50-32-8 | - | < 0.10 | - | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | - | < 0.10 | - | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.10 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | - | < 0.10 | - | UM |
| Total (USEPA16) PAHs | - | - | < 1.54 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 101 |
| Acenaphthene-d10 | 94 |
| Phenanthrene-d10 | 104 |
| Chrysene-d12 | 133 |
| Perylene-d12 | 162 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 94 |
| Terphenyl-d14 | 87 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH1 ES 3 1.00 | **Job Number:** | S09_0334M |
| **LIMS ID Number:** | CL0901315 | **Date Booked in:** | 20-Jan-09 |
| **QC Batch Number:** | 0202 | **Date Extracted:** | 22-Jan-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 23-Jan-09 |
| **Directory:** | 122PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | 2.96 | 0.51 | 97 | **UM** |
| Acenaphthylene | 208-96-8 | 4.00 | 0.13 | 92 | U |
| Acenaphthene | 83-32-9 | - | < 0.09 | - | UM |
| Fluorene | 86-73-7 | - | < 0.09 | - | UM |
| Phenanthrene | 85-01-8 | 5.21 | 0.23 | 99 | UM |
| Anthracene | 120-12-7 | 5.26 | 0.13 | 99 | U |
| Fluoranthene | 206-44-0 | 6.44 | 0.50 | 93 | UM |
| Pyrene | 129-00-0 | 6.70 | 0.40 | 75 | UM |
| Benzo[a]anthracene | 56-55-3 | 8.30 | 0.35 | 95 | UM |
| Chrysene | 218-01-9 | 8.36 | 0.47 | 98 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 9.80 | 0.50 | 67 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 9.82 | 0.37 | 71 | UM |
| Benzo[a]pyrene | 50-32-8 | 10.21 | 0.40 | 96 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 11.57 | 0.45 | 95 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | 11.60 | 0.10 | 72 | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 11.85 | 0.40 | 95 | UM |
| Total (USEPA16) PAHs | - | - | < 5.15 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 103 |
| Acenaphthene-d10 | 97 |
| Phenanthrene-d10 | 107 |
| Chrysene-d12 | 133 |
| Perylene-d12 | 163 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 93 |
| Terphenyl-d14 | 87 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH2A ES 8 2.00 | **Job Number:** | S09_0334M |
| **LIMS ID Number:** | CL0901316 | **Date Booked in:** | 20-Jan-09 |
| **QC Batch Number:** | 0202 | **Date Extracted:** | 22-Jan-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 23-Jan-09 |
| **Directory:** | 122PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.09 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.09 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.09 | - | UM |
| Fluorene | 86-73-7 | - | < 0.09 | - | UM |
| Phenanthrene | 85-01-8 | - | < 0.09 | - | UM |
| Anthracene | 120-12-7 | - | < 0.09 | - | U |
| Fluoranthene | 206-44-0 | - | < 0.09 | - | UM |
| Pyrene | 129-00-0 | - | < 0.09 | - | UM |
| Benzo[a]anthracene | 56-55-3 | - | < 0.09 | - | UM |
| Chrysene | 218-01-9 | - | < 0.09 | - | UM |
| Benzo[b]fluoranthene | 205-99-2 | - | < 0.09 | - | UM |
| Benzo[k]fluoranthene | 207-08-9 | - | < 0.09 | - | UM |
| Benzo[a]pyrene | 50-32-8 | - | < 0.09 | - | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | - | < 0.09 | - | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.09 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | - | < 0.09 | - | UM |
| Total (USEPA16) PAHs | - | - | < 1.43 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 101 |
| Acenaphthene-d10 | 94 |
| Phenanthrene-d10 | 102 |
| Chrysene-d12 | 121 |
| Perylene-d12 | 139 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 92 |
| Terphenyl-d14 | 92 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH2A D 10 3.00 | **Job Number:** | S09_0334M |
| **LIMS ID Number:** | CL0901317 | **Date Booked in:** | 20-Jan-09 |
| **QC Batch Number:** | 0202 | **Date Extracted:** | 22-Jan-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 23-Jan-09 |
| **Directory:** | 122PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.09 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.09 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.09 | - | UM |
| Fluorene | 86-73-7 | - | < 0.09 | - | UM |
| Phenanthrene | 85-01-8 | - | < 0.09 | - | UM |
| Anthracene | 120-12-7 | - | < 0.09 | - | U |
| Fluoranthene | 206-44-0 | - | < 0.09 | - | UM |
| Pyrene | 129-00-0 | - | < 0.09 | - | UM |
| Benzo[a]anthracene | 56-55-3 | - | < 0.09 | - | UM |
| Chrysene | 218-01-9 | - | < 0.09 | - | UM |
| Benzo[b]fluoranthene | 205-99-2 | - | < 0.09 | - | UM |
| Benzo[k]fluoranthene | 207-08-9 | - | < 0.09 | - | UM |
| Benzo[a]pyrene | 50-32-8 | - | < 0.09 | - | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | - | < 0.09 | - | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.09 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | - | < 0.09 | - | UM |
| Total (USEPA16) PAHs | - | - | < 1.40 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 100 |
| Acenaphthene-d10 | 95 |
| Phenanthrene-d10 | 104 |
| Chrysene-d12 | 131 |
| Perylene-d12 | 159 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 92 |
| Terphenyl-d14 | 90 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH3 ES 10 3.00 | **Job Number:** | S09_0334M |
| **LIMS ID Number:** | CL0901318 | **Date Booked in:** | 20-Jan-09 |
| **QC Batch Number:** | 0202 | **Date Extracted:** | 22-Jan-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 23-Jan-09 |
| **Directory:** | 122PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | 2.96 | 0.11 | 89 | **UM** |
| Acenaphthylene | 208-96-8 | 4.00 | 0.26 | 61 | U |
| Acenaphthene | 83-32-9 | 4.12 | 10.20 | 98 | UM |
| Fluorene | 86-73-7 | 4.46 | 4.32 | 98 | UM |
| Phenanthrene | 85-01-8 | 5.21 | 0.70 | 94 | UM |
| Anthracene | 120-12-7 | 5.25 | 0.49 | 97 | U |
| Fluoranthene | 206-44-0 | 6.44 | 1.15 | 81 | UM |
| Pyrene | 129-00-0 | 6.70 | 0.80 | 73 | UM |
| Benzo[a]anthracene | 56-55-3 | 8.30 | 0.39 | 74 | UM |
| Chrysene | 218-01-9 | 8.36 | 0.45 | 83 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 9.80 | 0.37 | 59 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 9.83 | 0.29 | 63 | UM |
| Benzo[a]pyrene | 50-32-8 | 10.21 | 0.37 | 91 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 11.57 | 0.32 | 57 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.10 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 11.85 | 0.29 | 87 | UM |
| Total (USEPA16) PAHs | - | - | < 20.61 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 100 |
| Acenaphthene-d10 | 98 |
| Phenanthrene-d10 | 108 |
| Chrysene-d12 | 132 |
| Perylene-d12 | 177 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 92 |
| Terphenyl-d14 | 89 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH3 D 13 5.00 | **Job Number:** | S09_0334M |
| **LIMS ID Number:** | CL0901319 | **Date Booked in:** | 20-Jan-09 |
| **QC Batch Number:** | 0202 | **Date Extracted:** | 22-Jan-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 23-Jan-09 |
| **Directory:** | 122PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.10 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.10 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.10 | - | UM |
| Fluorene | 86-73-7 | - | < 0.10 | - | UM |
| Phenanthrene | 85-01-8 | - | < 0.10 | - | UM |
| Anthracene | 120-12-7 | - | < 0.10 | - | U |
| Fluoranthene | 206-44-0 | - | < 0.10 | - | UM |
| Pyrene | 129-00-0 | - | < 0.10 | - | UM |
| Benzo[a]anthracene | 56-55-3 | - | < 0.10 | - | UM |
| Chrysene | 218-01-9 | - | < 0.10 | - | UM |
| Benzo[b]fluoranthene | 205-99-2 | - | < 0.10 | - | UM |
| Benzo[k]fluoranthene | 207-08-9 | - | < 0.10 | - | UM |
| Benzo[a]pyrene | 50-32-8 | - | < 0.10 | - | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | - | < 0.10 | - | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.10 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | - | < 0.10 | - | UM |
| Total (USEPA16) PAHs | - | - | < 1.52 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 100 |
| Acenaphthene-d10 | 95 |
| Phenanthrene-d10 | 106 |
| Chrysene-d12 | 142 |
| Perylene-d12 | 185 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 93 |
| Terphenyl-d14 | 85 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH4 ES 2 0.50 | **Job Number:** | S09_0334M |
| **LIMS ID Number:** | CL0901320 | **Date Booked in:** | 20-Jan-09 |
| **QC Batch Number:** | 0202 | **Date Extracted:** | 22-Jan-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 23-Jan-09 |
| **Directory:** | 122PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.09 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.09 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.09 | - | UM |
| Fluorene | 86-73-7 | - | < 0.09 | - | UM |
| Phenanthrene | 85-01-8 | 5.21 | 0.09 | 97 | UM |
| Anthracene | 120-12-7 | - | < 0.09 | - | U |
| Fluoranthene | 206-44-0 | 6.44 | 0.16 | 76 | UM |
| Pyrene | 129-00-0 | 6.70 | 0.13 | 76 | UM |
| Benzo[a]anthracene | 56-55-3 | 8.30 | 0.13 | 79 | UM |
| Chrysene | 218-01-9 | 8.35 | 0.16 | 84 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 9.80 | 0.15 | 59 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 9.82 | 0.10 | 63 | UM |
| Benzo[a]pyrene | 50-32-8 | 10.21 | 0.10 | 73 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 11.57 | 0.15 | 66 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.09 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 11.84 | 0.14 | 73 | UM |
| Total (USEPA16) PAHs | - | - | < 1.87 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 102 |
| Acenaphthene-d10 | 96 |
| Phenanthrene-d10 | 107 |
| Chrysene-d12 | 138 |
| Perylene-d12 | 175 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 92 |
| Terphenyl-d14 | 86 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH4 ES 5 2.00 | **Job Number:** | S09_0334M |
| **LIMS ID Number:** | CL0901321 | **Date Booked in:** | 20-Jan-09 |
| **QC Batch Number:** | 0202 | **Date Extracted:** | 22-Jan-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 23-Jan-09 |
| **Directory:** | 122PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.10 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.10 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.10 | - | UM |
| Fluorene | 86-73-7 | - | < 0.10 | - | UM |
| Phenanthrene | 85-01-8 | - | < 0.10 | - | UM |
| Anthracene | 120-12-7 | - | < 0.10 | - | U |
| Fluoranthene | 206-44-0 | - | < 0.10 | - | UM |
| Pyrene | 129-00-0 | - | < 0.10 | - | UM |
| Benzo[a]anthracene | 56-55-3 | - | < 0.10 | - | UM |
| Chrysene | 218-01-9 | - | < 0.10 | - | UM |
| Benzo[b]fluoranthene | 205-99-2 | - | < 0.10 | - | UM |
| Benzo[k]fluoranthene | 207-08-9 | - | < 0.10 | - | UM |
| Benzo[a]pyrene | 50-32-8 | - | < 0.10 | - | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | - | < 0.10 | - | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.10 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | - | < 0.10 | - | UM |
| Total (USEPA16) PAHs | - | - | < 1.55 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 102 |
| Acenaphthene-d10 | 95 |
| Phenanthrene-d10 | 104 |
| Chrysene-d12 | 126 |
| Perylene-d12 | 152 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 94 |
| Terphenyl-d14 | 92 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH5 ES 2 0.50 | **Job Number:** | S09_0334M |
| **LIMS ID Number:** | CL0901322 | **Date Booked in:** | 20-Jan-09 |
| **QC Batch Number:** | 0202 | **Date Extracted:** | 22-Jan-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 23-Jan-09 |
| **Directory:** | 122PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.09 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.09 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.09 | - | UM |
| Fluorene | 86-73-7 | - | < 0.09 | - | UM |
| Phenanthrene | 85-01-8 | - | < 0.09 | - | UM |
| Anthracene | 120-12-7 | - | < 0.09 | - | U |
| Fluoranthene | 206-44-0 | - | < 0.09 | - | UM |
| Pyrene | 129-00-0 | - | < 0.09 | - | UM |
| Benzo[a]anthracene | 56-55-3 | - | < 0.09 | - | UM |
| Chrysene | 218-01-9 | - | < 0.09 | - | UM |
| Benzo[b]fluoranthene | 205-99-2 | - | < 0.09 | - | UM |
| Benzo[k]fluoranthene | 207-08-9 | - | < 0.09 | - | UM |
| Benzo[a]pyrene | 50-32-8 | - | < 0.09 | - | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | - | < 0.09 | - | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.09 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | - | < 0.09 | - | UM |
| Total (USEPA16) PAHs | - | - | < 1.36 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 101 |
| Acenaphthene-d10 | 96 |
| Phenanthrene-d10 | 106 |
| Chrysene-d12 | 138 |
| Perylene-d12 | 170 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 96 |
| Terphenyl-d14 | 87 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH5 ES 5 2.00 | **Job Number:** | S09_0334M |
| **LIMS ID Number:** | CL0901323 | **Date Booked in:** | 20-Jan-09 |
| **QC Batch Number:** | 0202 | **Date Extracted:** | 22-Jan-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 23-Jan-09 |
| **Directory:** | 122PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.10 | - | **UM** |
| Acenaphthylene | 208-96-8 | 4.00 | 0.11 | 97 | U |
| Acenaphthene | 83-32-9 | - | < 0.10 | - | UM |
| Fluorene | 86-73-7 | - | < 0.10 | - | UM |
| Phenanthrene | 85-01-8 | 5.21 | 0.11 | 98 | UM |
| Anthracene | 120-12-7 | 5.26 | 0.11 | 97 | U |
| Fluoranthene | 206-44-0 | 6.44 | 0.68 | 79 | UM |
| Pyrene | 129-00-0 | 6.70 | 0.50 | 90 | UM |
| Benzo[a]anthracene | 56-55-3 | 8.30 | 0.35 | 96 | UM |
| Chrysene | 218-01-9 | 8.36 | 0.52 | 99 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 9.80 | 0.50 | 93 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 9.81 | 0.41 | 96 | UM |
| Benzo[a]pyrene | 50-32-8 | 10.21 | 0.41 | 95 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 11.57 | 0.46 | 93 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.10 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 11.84 | 0.43 | 73 | UM |
| Total (USEPA16) PAHs | - | - | < 5.00 | - | N |

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 99 |
| Acenaphthene-d10 | 95 |
| Phenanthrene-d10 | 104 |
| Chrysene-d12 | 133 |
| Perylene-d12 | 161 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 96 |
| Terphenyl-d14 | 90 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# ALIPHATIC / AROMATIC FRACTION BY GC/FID

**Customer and Site Details:** Soil Mechanics : 2U-Afan Advanced Digestion
**Job Number:** S09_0334
**QC Batch Number:** 90202
**Directory:** C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\095B5201.D
**Method:** Ultra Sonic

**Separation:** Silica gel
**Eluents:** Hexane, DCM

**Matrix:** Soil
**Date Booked in** 20-Jan-09
**Date Extracted** 22-Jan-09
**Date Analysed** 26-Jan-09, 22:37:11

**This sample data is not accredited.**

| | | | Concentration, (mg/kg) - as dry weight. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | >C8 - C10 | | >C10 - C12 | | >C12 - C16 | | >C16 - C21 | | >C21 - C35 | |
| | Sample ID | Client ID | Aliphatics | Aromatics | Aliphatics | Aromatics | Aliphatics | Aromatics | Aliphatics | Aromatics | Aliphatics | Aromatics |
| * | CL0901315 | BH1 ES 3 1.00 | <4 | <4 | <4 | <4 | <4 | <4 | 5.21 | <4 | 36.6 | 21.6 |
| * | CL0901316 | BH2A ES 8 2.00 | <4 | <4 | <4 | <4 | <4 | <4 | <4 | <4 | <9.78 | <9.78 |
| * | CL0901318 | BH3 ES 10 3.00 | 4.87 | <5 | 27 | <5 | 114.9 | 31.7 | 600 | 131 | 6930 | 1590 |
| * | CL0901319 | BH3 D 13 5.00 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | 72.7 | 17.7 |
| * | CL0901320 | BH4 ES 2 0.50 | <5 | <5 | <5 | <5 | <5 | <5 | 5.45 | <5 | 179 | 83.6 |
| * | CL0901322 | BH5 ES 2 0.50 | <4 | <4 | <4 | <4 | <4 | <4 | <4 | <4 | <9.32 | <9.32 |
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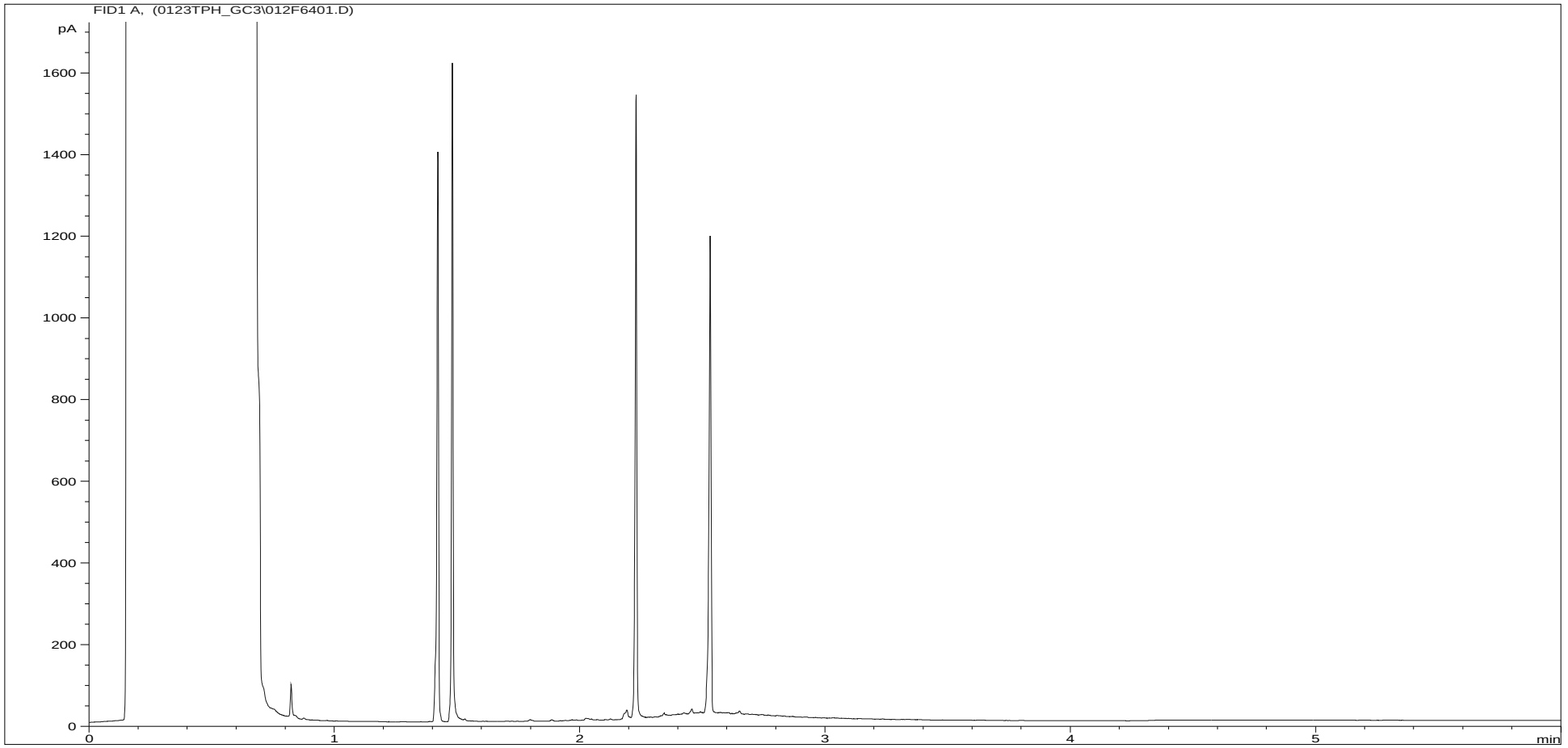
Where individual results are flagged see report notes for for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**



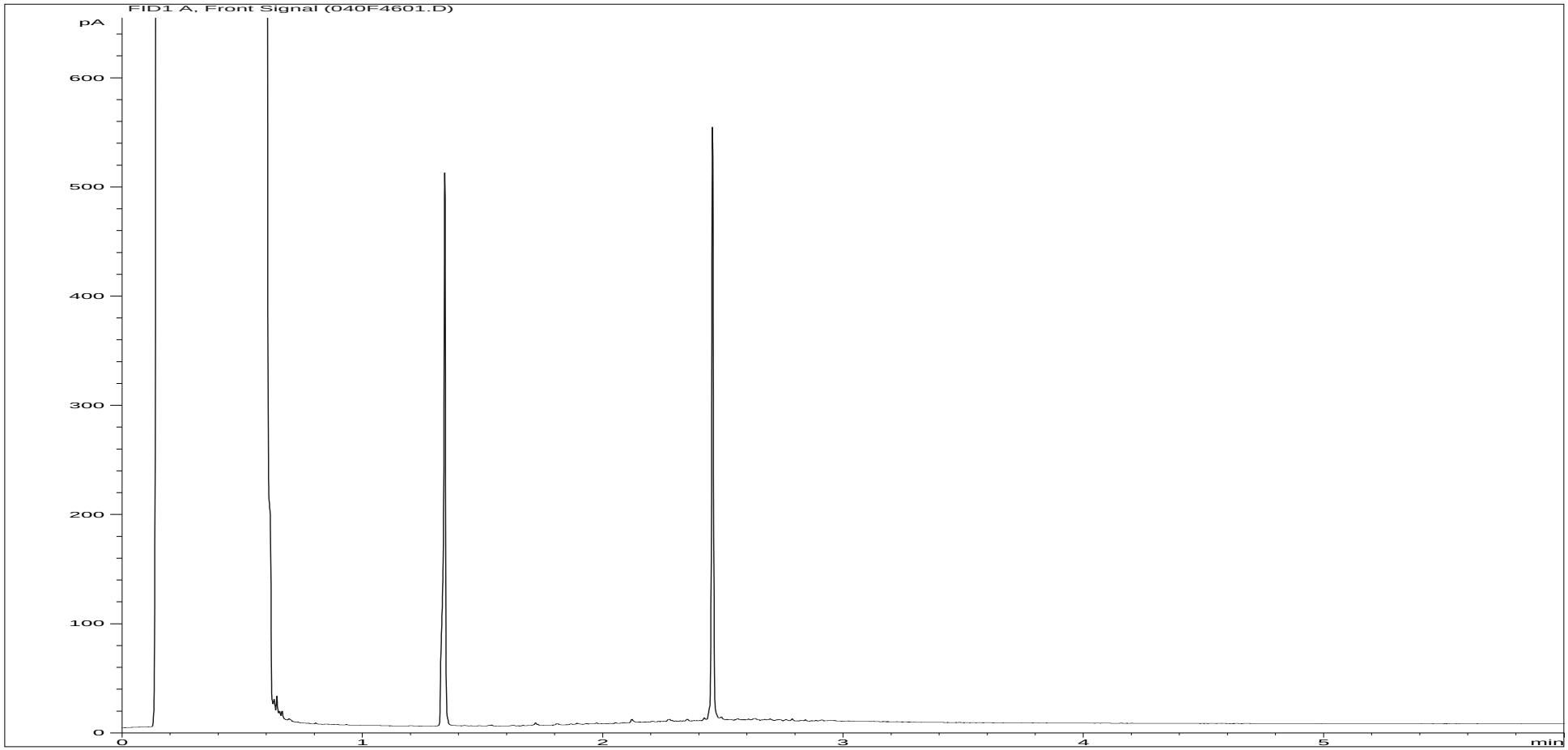

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901314 | **Job Number:** | S09_0334M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | BH1 D 8 4.00 |
| **Acquisition Date/Time:** | 24-Jan-09 | | |
| **Datafile:** | D:\TES\DATA\Y2009\0123TPH_GC3\012F6401.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.**



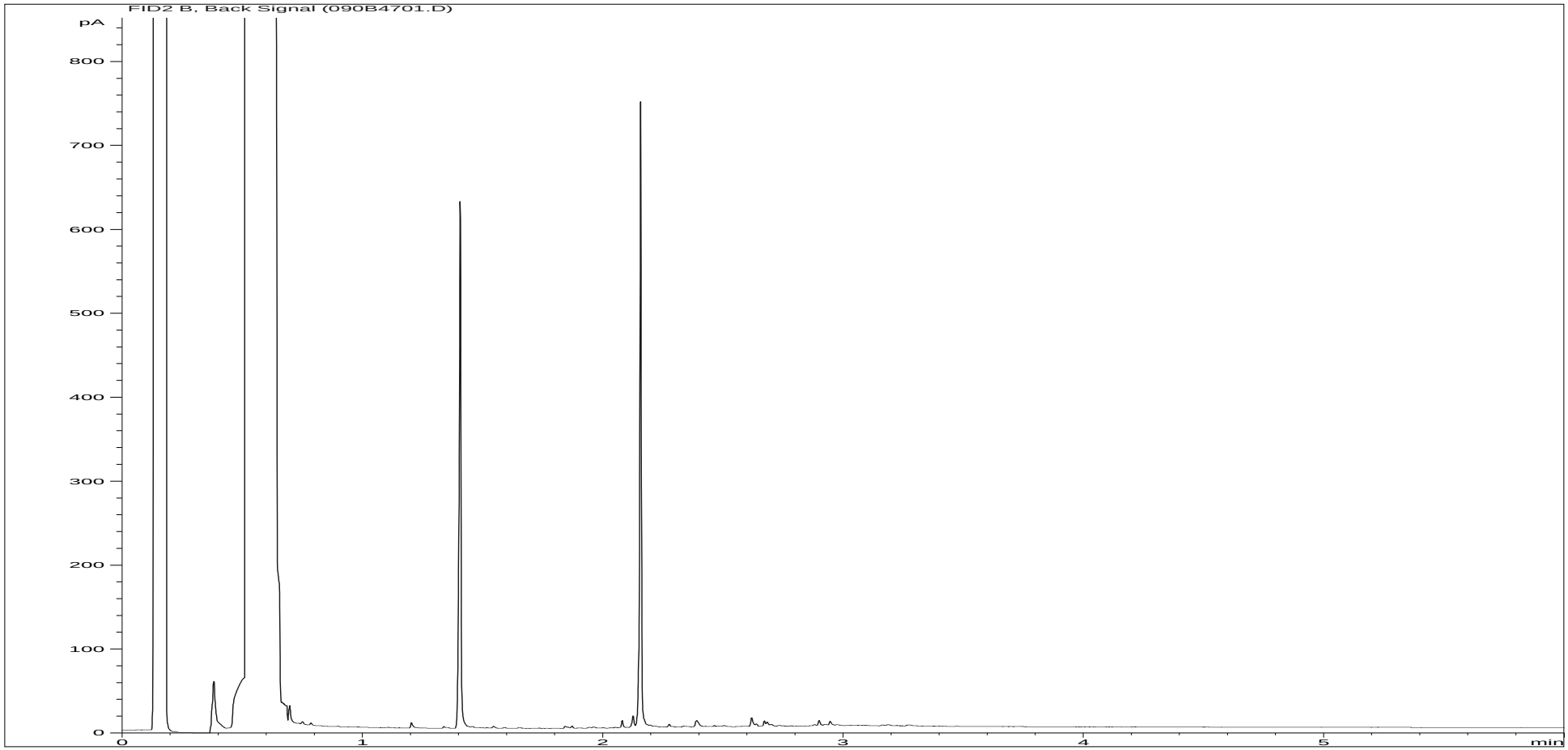

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901315ALI | **Job Number:** | S09_0334M |
| **Multiplier:** | 14.82 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_MAX_RUNF.M | **Client Sample Ref:** | BH1 ES 3 1.00 |
| **Acquisition Date/Time:** | 26-Jan-09, 21:25:52 | | |
| **Datafile:** | C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\040F4601.D | | |

Where individual results are flagged see report notes for for status.



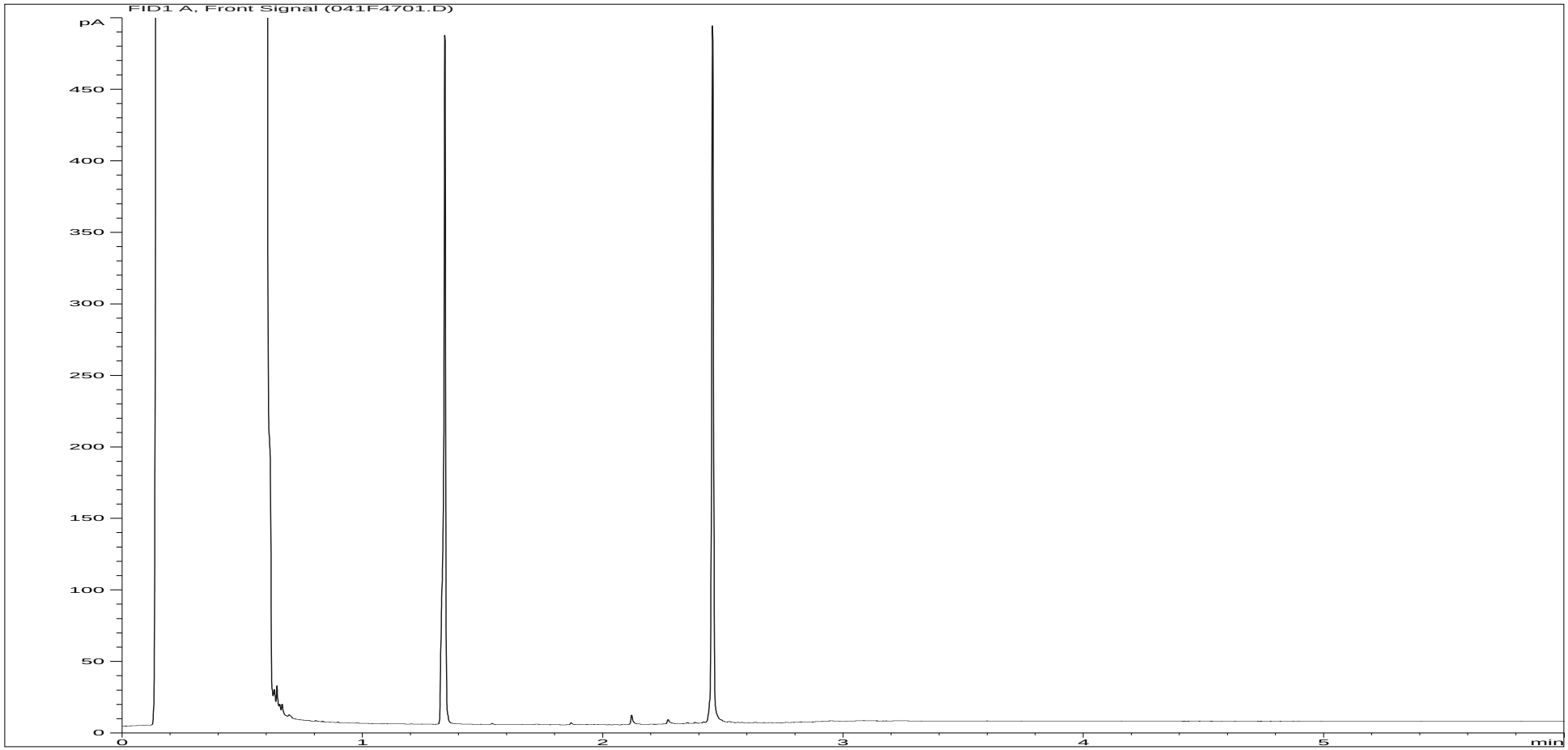
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.**



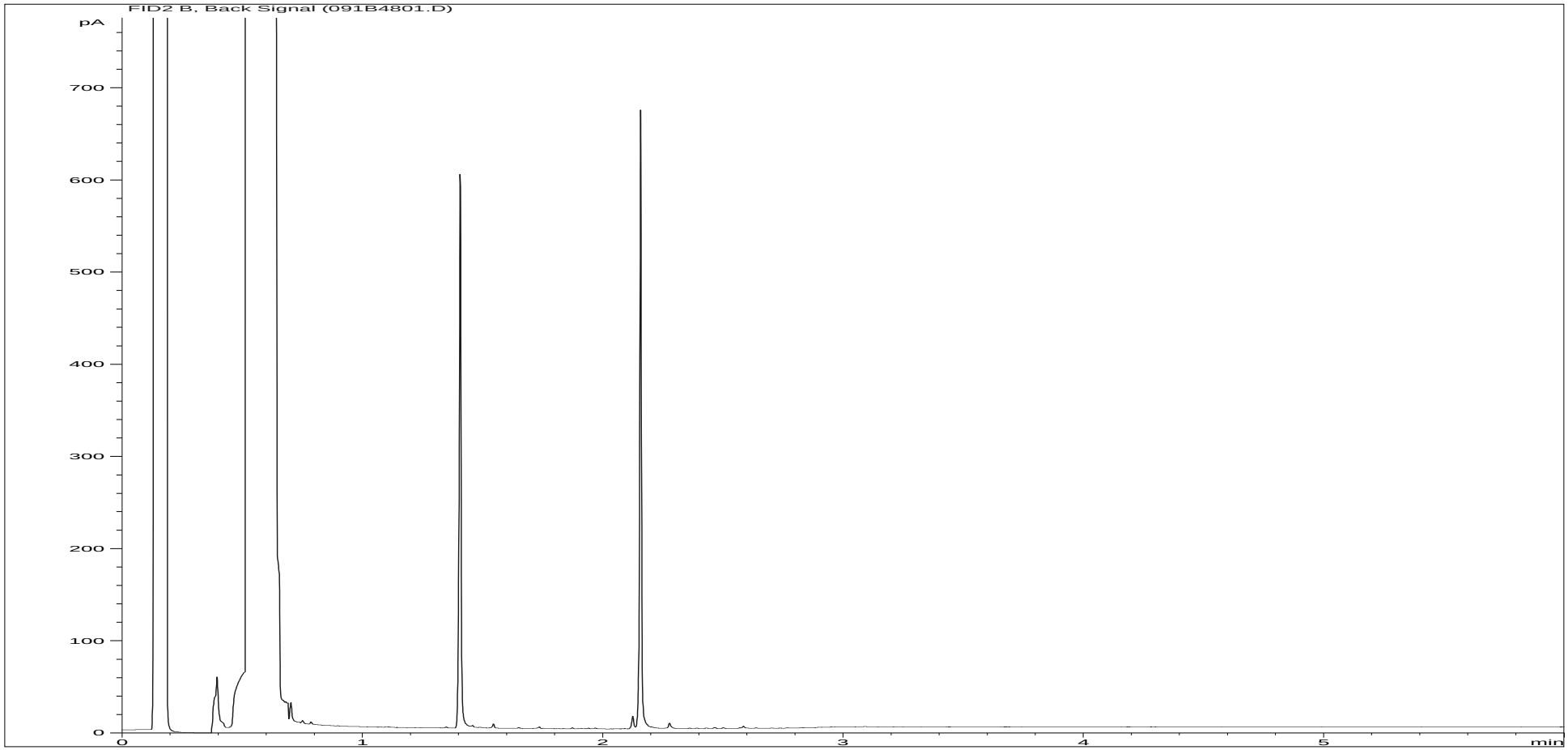

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901315ARO | **Job Number:** | S09_0334M |
| **Multiplier:** | 11.02 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_MAX_RUNF.M | **Client Sample Ref:** | BH1 ES 3 1.00 |
| **Acquisition Date/Time:** | 26-Jan-09, 21:37:45 | | |
| **Datafile:** | C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\090B4701.D | | |

**Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.**




| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901316ALI | **Job Number:** | S09_0334M |
| **Multiplier:** | 14.82 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_MAX_RUNF.M | **Client Sample Ref:** | BH2A ES 8 2.00 |
| **Acquisition Date/Time:** | 26-Jan-09, 21:37:45 | | |
| **Datafile:** | C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\041F4701.D | | |

**Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.**



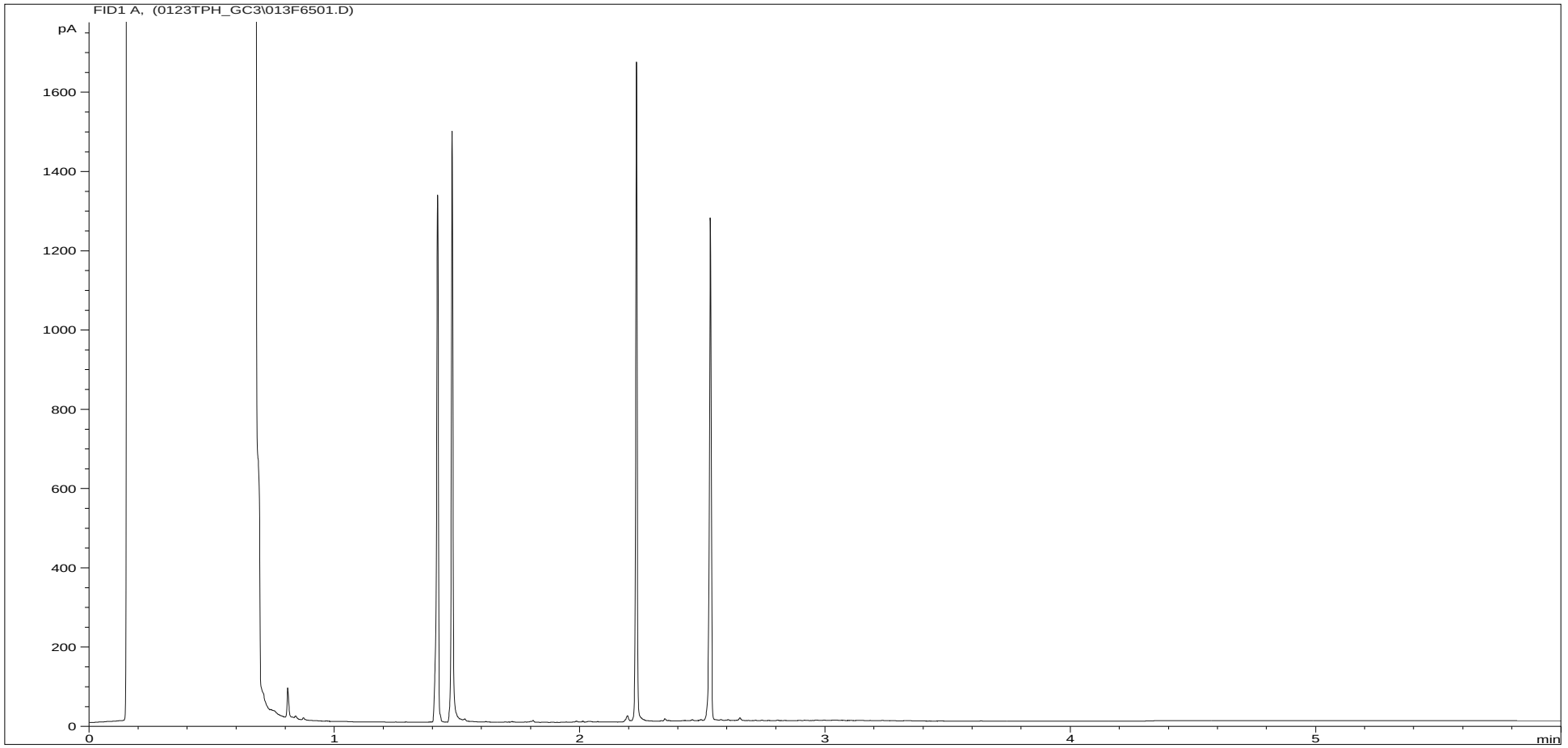

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901316ARO | **Job Number:** | S09_0334M |
| **Multiplier:** | 11.02 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_MAX_RUNF.M | **Client Sample Ref:** | BH2A ES 8 2.00 |
| **Acquisition Date/Time:** | 26-Jan-09, 21:49:36 | | |
| **Datafile:** | C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\091B4801.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**



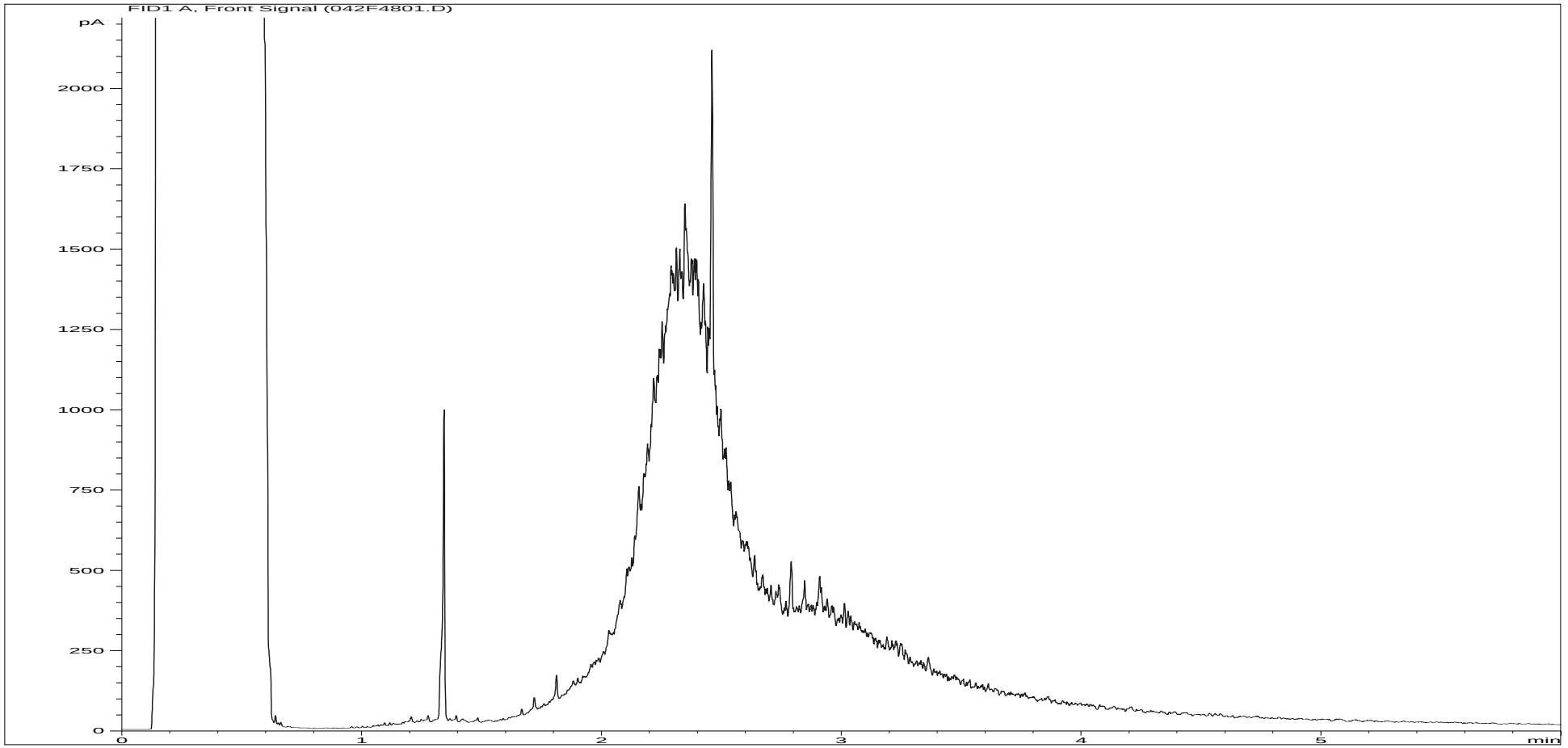

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901317 | **Job Number:** | S09_0334M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | BH2A D 10 3.00 |
| **Acquisition Date/Time:** | 24-Jan-09 | | |
| **Datafile:** | D:\TES\DATA\Y2009\0123TPH_GC3\013F6501.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.**



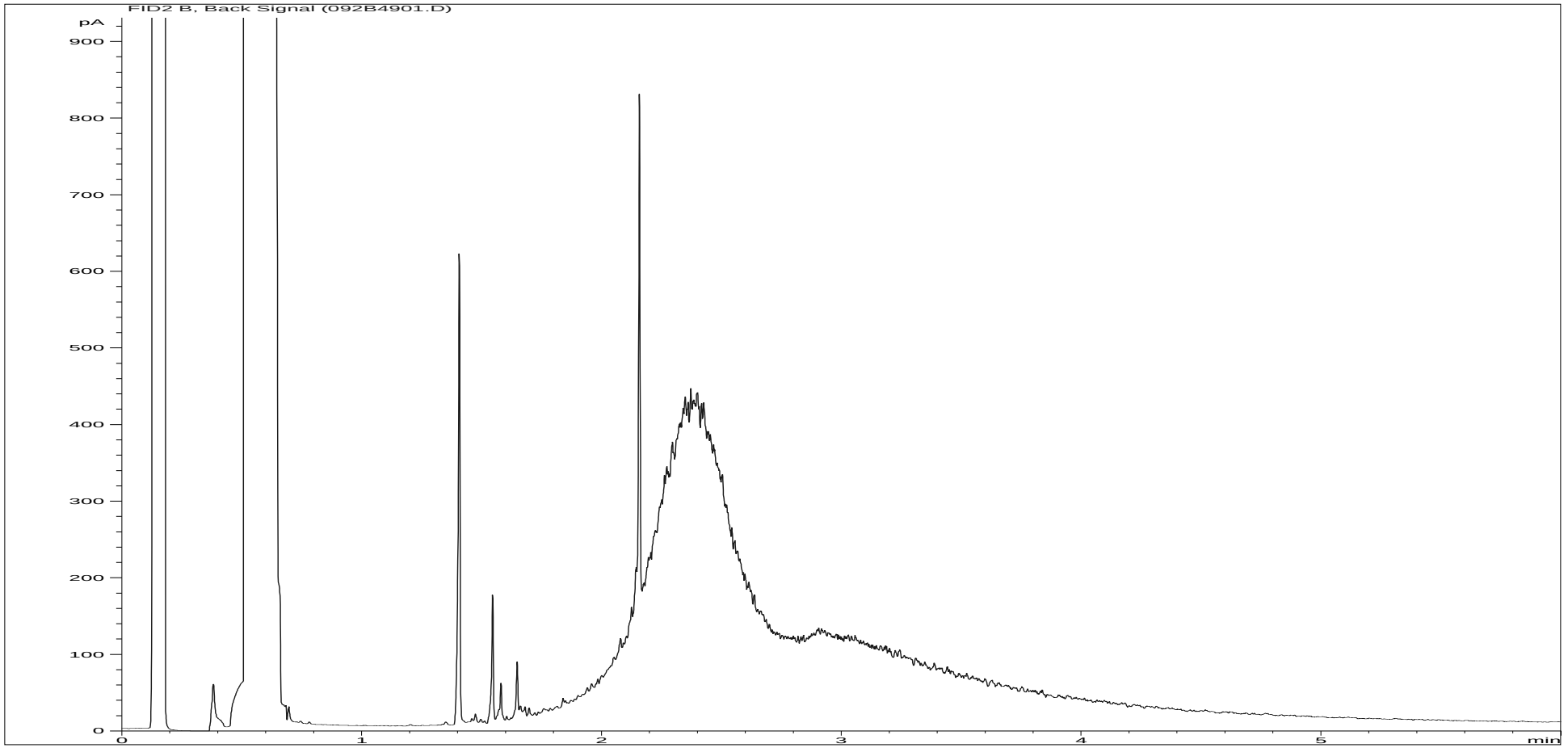

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901318ALI | **Job Number:** | S09_0334M |
| **Multiplier:** | 14.44 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_MAX_RUNF.M | **Client Sample Ref:** | BH3 ES 10 3.00 |
| **Acquisition Date/Time:** | 26-Jan-09, 21:49:36 | | |
| **Datafile:** | C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\042F4801.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.**



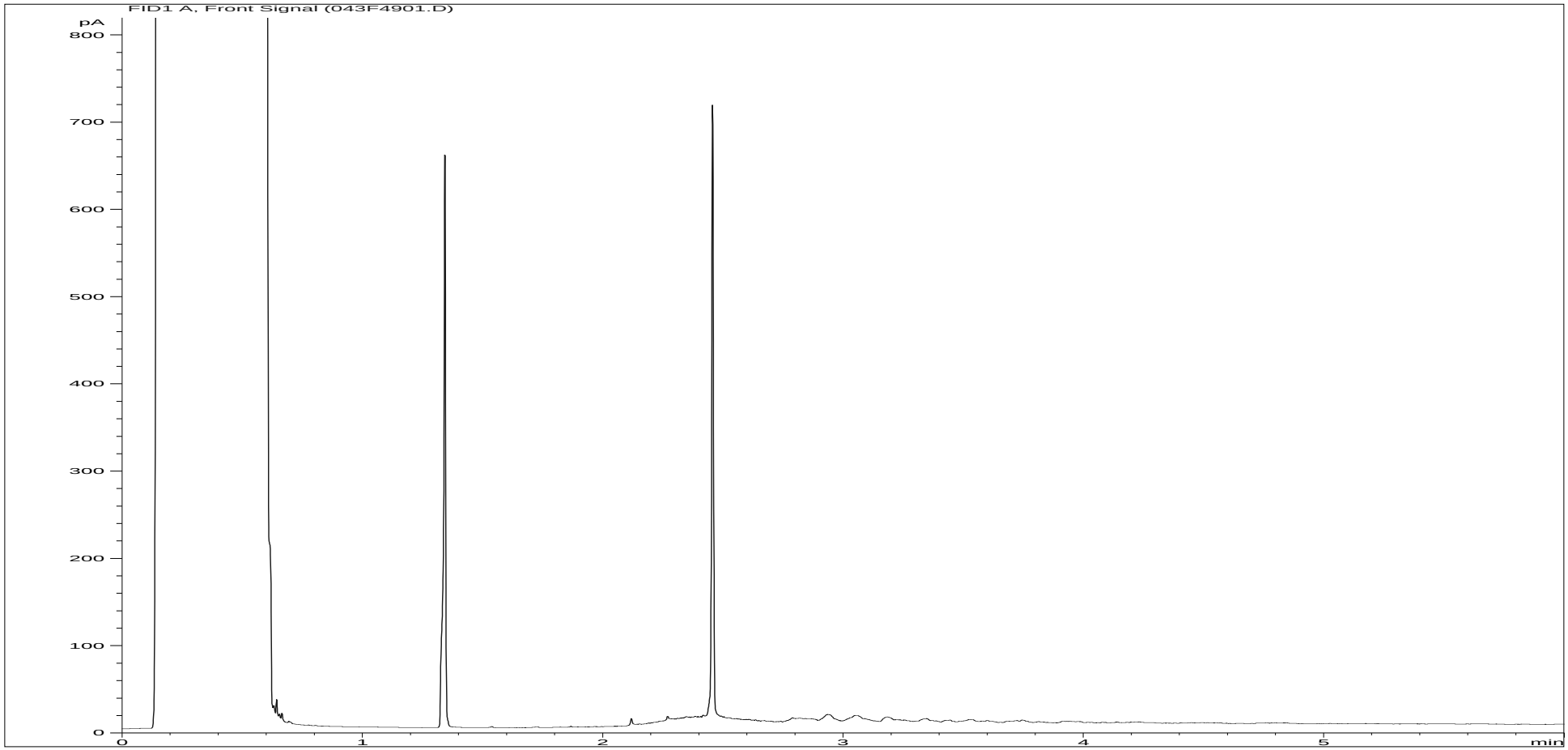

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901318ARO | **Job Number:** | S09_0334M |
| **Multiplier:** | 11.02 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_MAX_RUNF.M | **Client Sample Ref:** | BH3 ES 10 3.00 |
| **Acquisition Date/Time:** | 26-Jan-09, 22:01:28 | | |
| **Datafile:** | C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\092B4901.D | | |

Where individual results are flagged see report notes for for status.



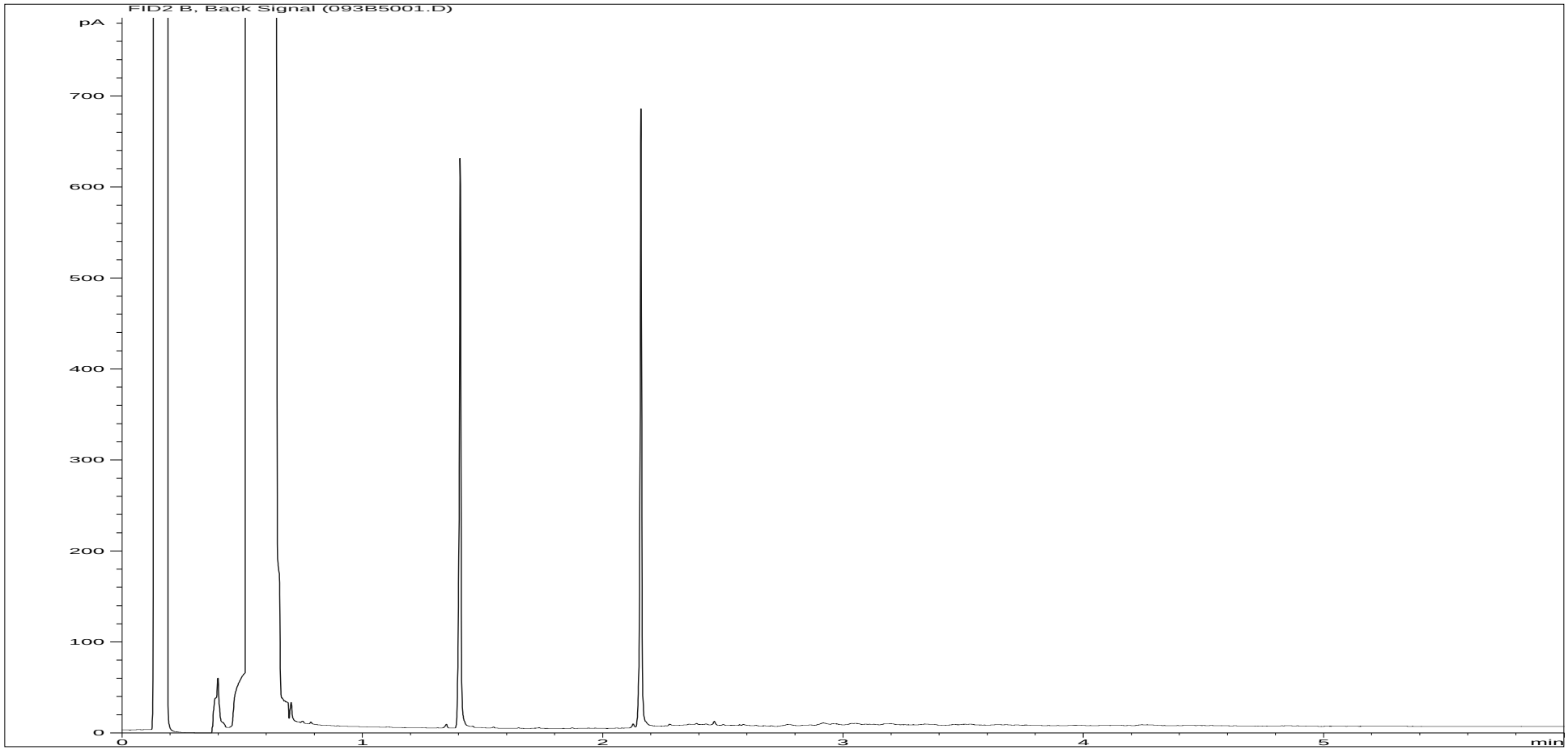
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.**



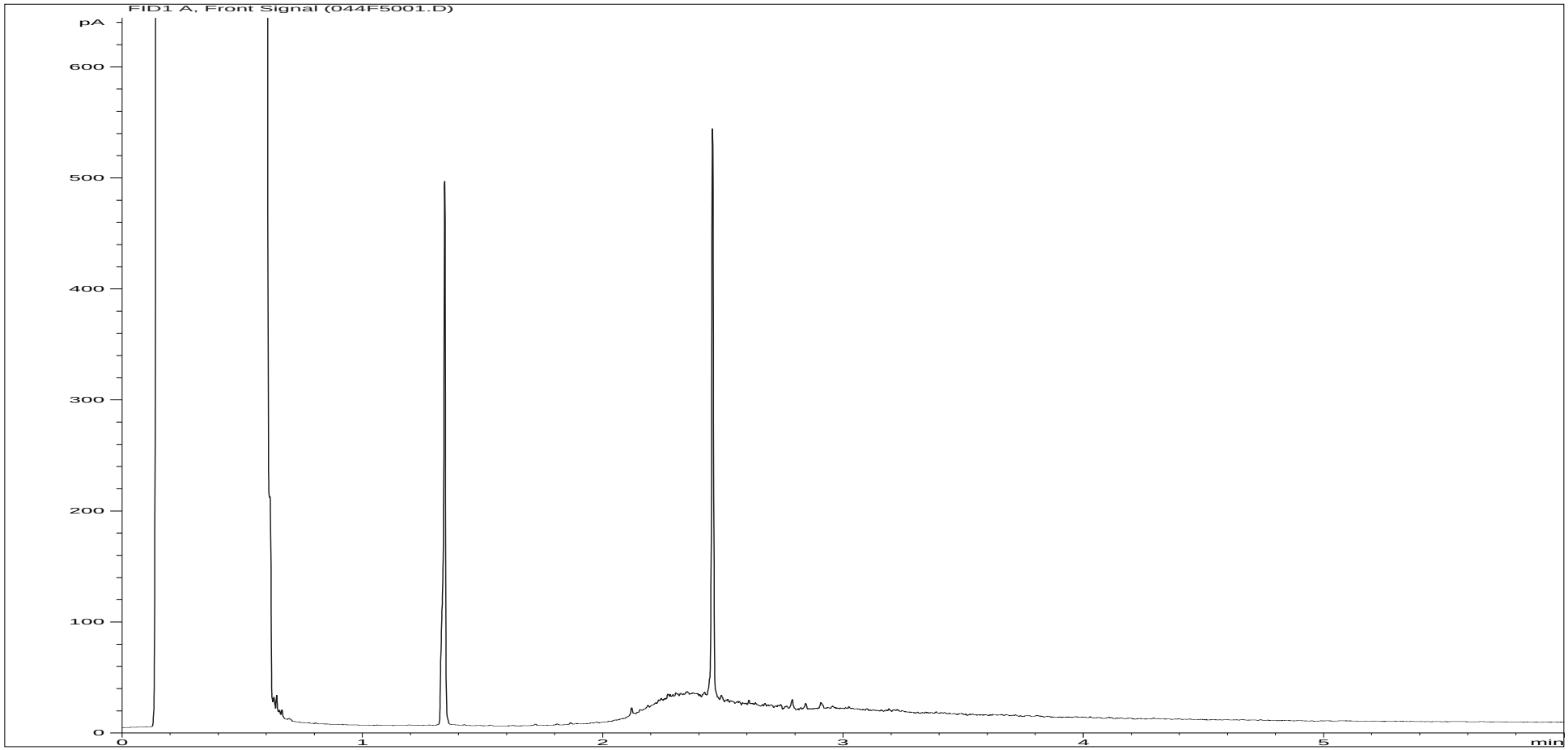

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901319ALI | **Job Number:** | S09_0334M |
| **Multiplier:** | 14.44 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_MAX_RUNF.M | **Client Sample Ref:** | BH3 D 13 5.00 |
| **Acquisition Date/Time:** | 26-Jan-09, 22:01:28 | | |
| **Datafile:** | C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\043F4901.D | | |

**Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.**




| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901319ARO | **Job Number:** | S09_0334M |
| **Multiplier:** | 11.02 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_MAX_RUNF.M | **Client Sample Ref:** | BH3 D 13 5.00 |
| **Acquisition Date/Time:** | 26-Jan-09, 22:13:19 | | |
| **Datafile:** | C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\093B5001.D | | |

**Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.**



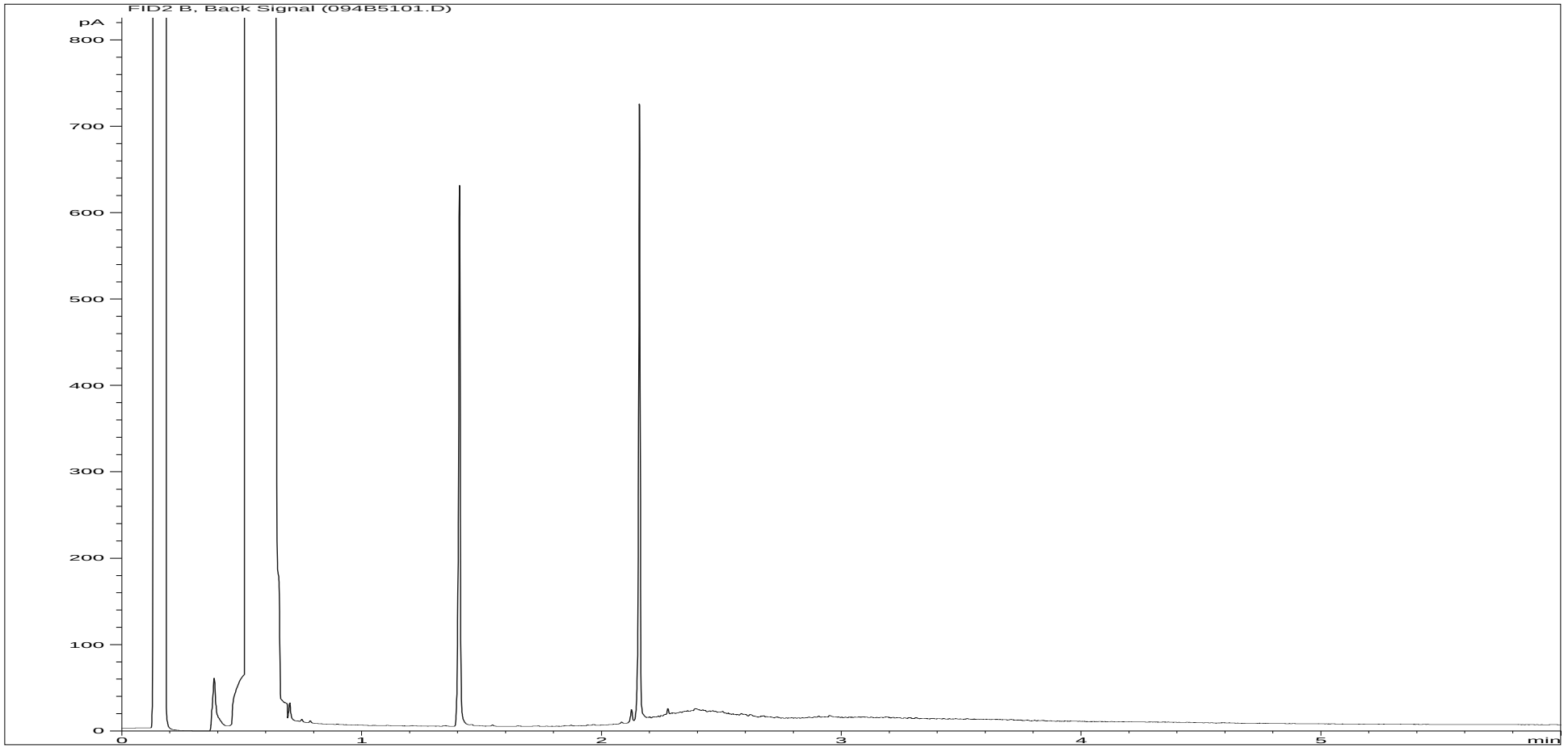

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901320ALI | **Job Number:** | S09_0334M |
| **Multiplier:** | 14.82 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_MAX_RUNF.M | **Client Sample Ref:** | BH4 ES 2 0.50 |
| **Acquisition Date/Time:** | 26-Jan-09, 22:13:19 | | |
| **Datafile:** | C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\044F5001.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.**



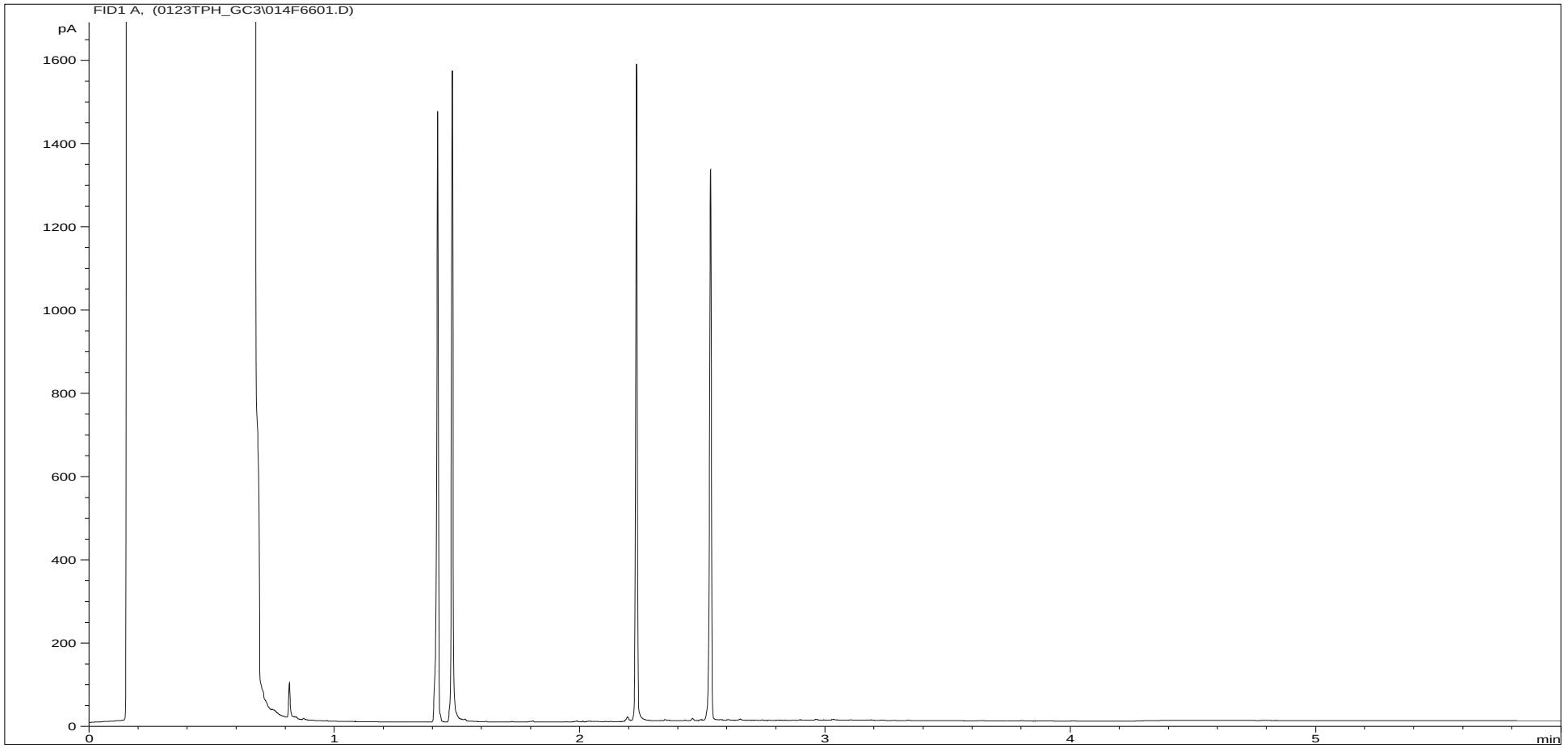

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901320ARO | **Job Number:** | S09_0334M |
| **Multiplier:** | 11.02 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_MAX_RUNF.M | **Client Sample Ref:** | BH4 ES 2 0.50 |
| **Acquisition Date/Time:** | 26-Jan-09, 22:25:12 | | |
| **Datafile:** | C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\094B5101.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**



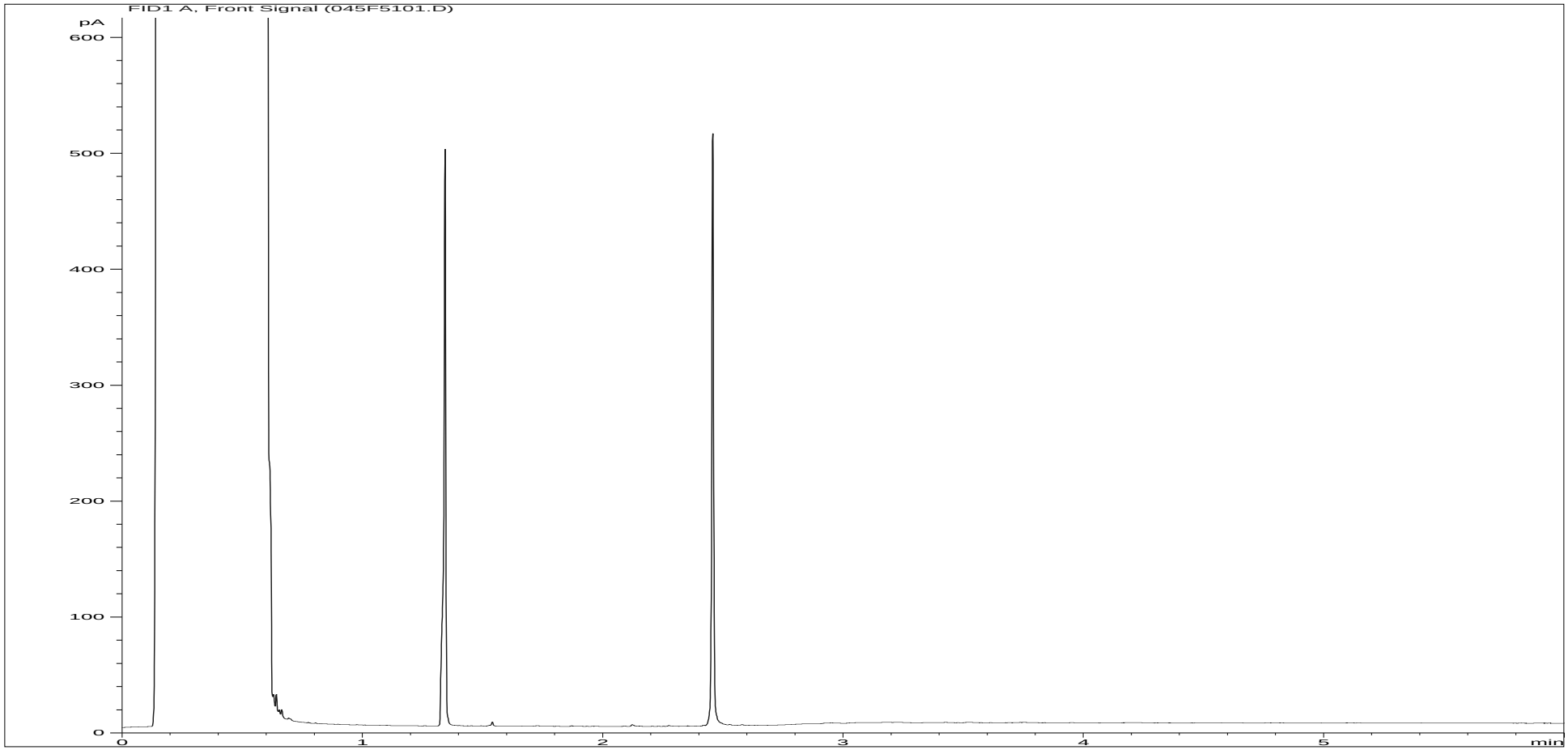

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901321 | **Job Number:** | S09_0334M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | BH4 ES 5 2.00 |
| **Acquisition Date/Time:** | 24-Jan-09 | | |
| **Datafile:** | D:\TES\DATA\Y2009\0123TPH_GC3\014F6601.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.**

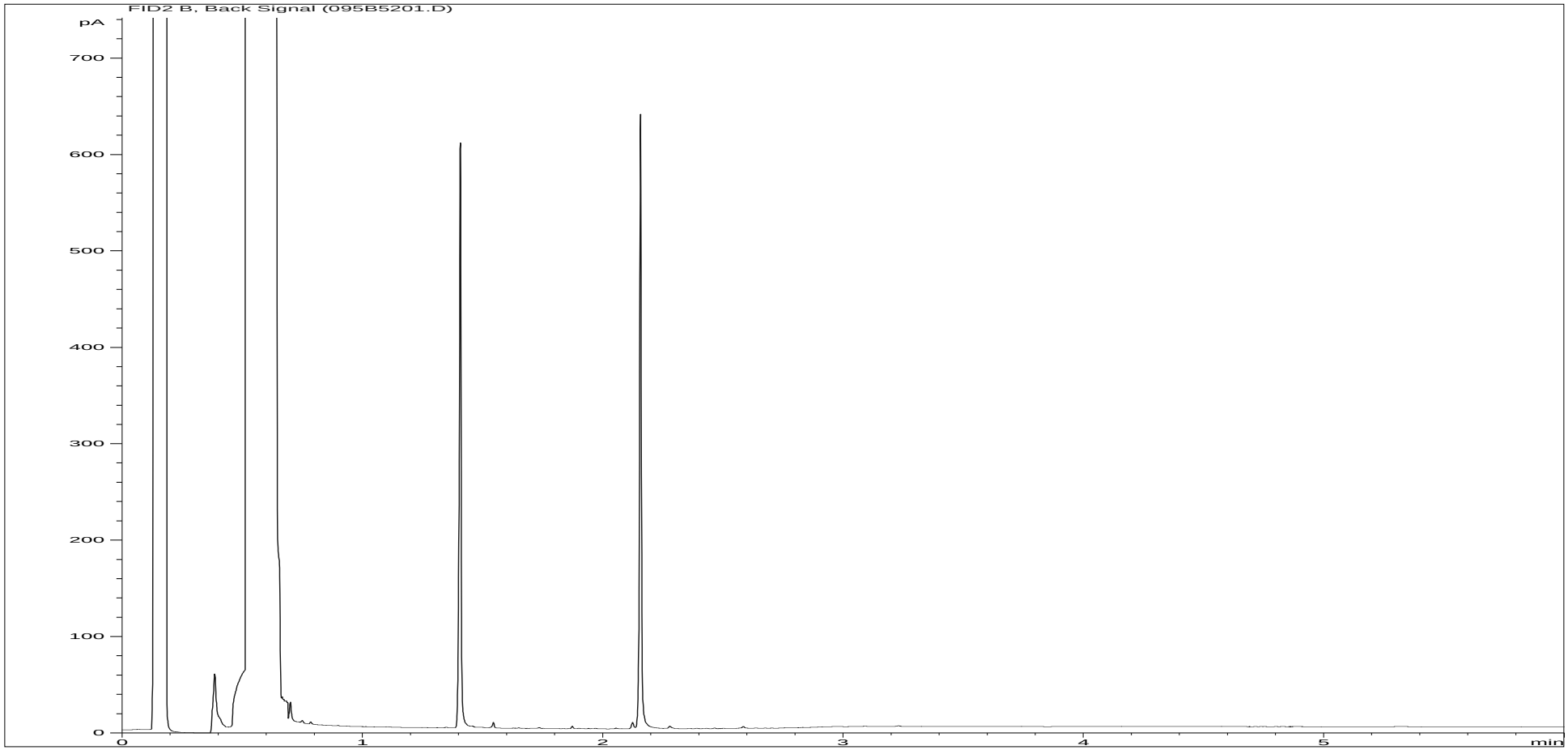



| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901322ALI | **Job Number:** | S09_0334M |
| **Multiplier:** | 14.44 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_MAX_RUNF.M | **Client Sample Ref:** | BH5 ES 2 0.50 |
| **Acquisition Date/Time:** | 26-Jan-09, 22:25:12 | | |
| **Datafile:** | C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\045F5101.D | | |



Where individual results are flagged see report notes for for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.**



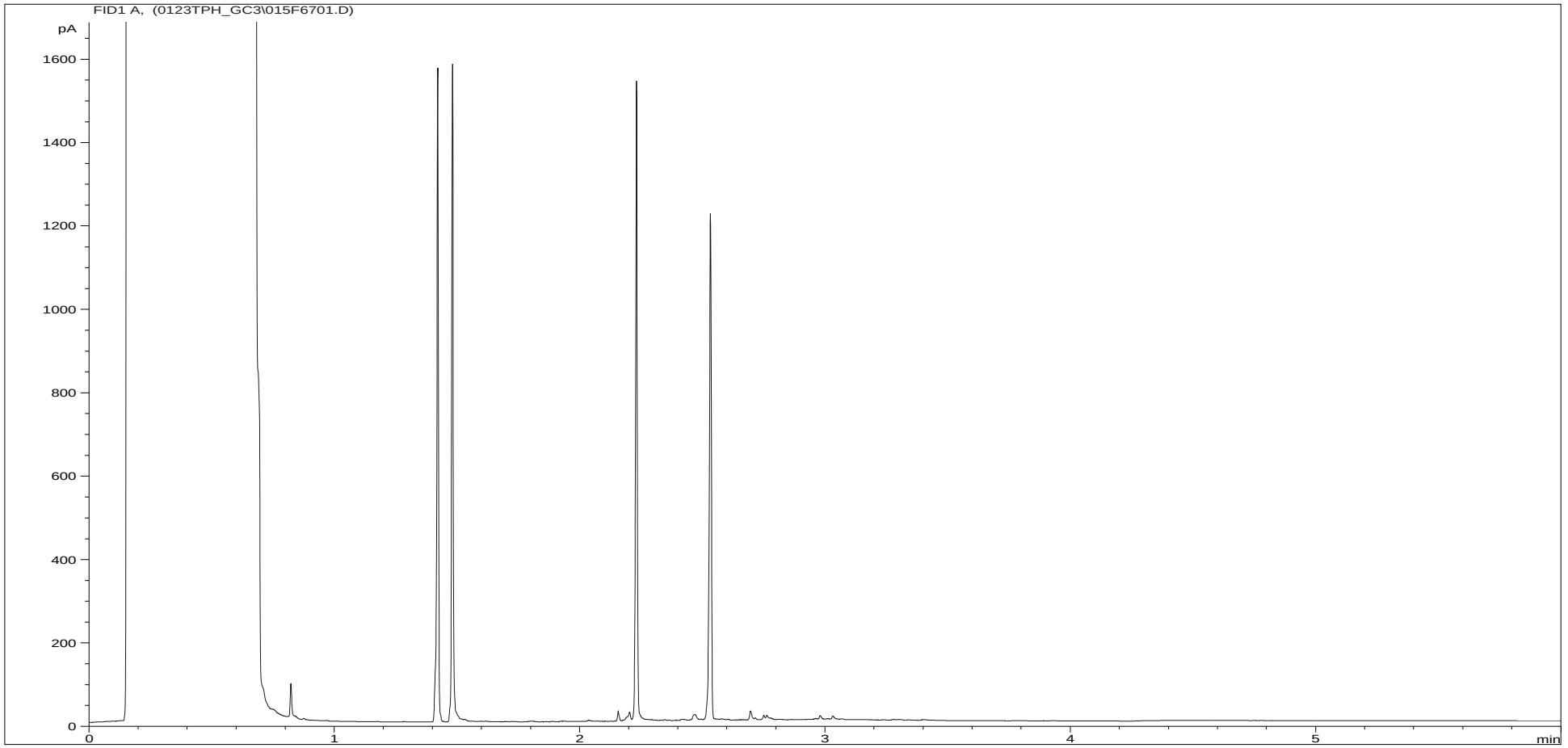

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901322ARO | **Job Number:** | S09_0334M |
| **Multiplier:** | 11.4 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_MAX_RUNF.M | **Client Sample Ref:** | BH5 ES 2 0.50 |
| **Acquisition Date/Time:** | 26-Jan-09, 22:37:11 | | |
| **Datafile:** | C:\TES\DATA\Y2009\0126TPH_GC14\012609 2009-01-26 12-28-17\095B5201.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**




| | | | |
|---|---|---|---|
| **Sample ID:** | CL0901323 | **Job Number:** | S09_0334M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | BH5 ES 5 2.00 |
| **Acquisition Date/Time:** | 24-Jan-09 | | |
| **Datafile:** | D:\TES\DATA\Y2009\0123TPH_GC3\015F6701.D | | |



Where individual results are flagged see report notes for for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

# Report Notes

**Soil/Solid analysis specific:**

S04 analysis not conducted in accordance with BS1377 unless otherwise stated
Water Soluble Sulphate on 2:1 water:soil extract
AR denotes analysis conducted on the As Received sample

**Water analysis specific:**
Results expressed as mg/l unless stated otherwise

**Oil analysis specific:**
Results expressed as mg/kg unless stated otherwise
S.G. expressed as g/cm$^3$@ 15$^o$C

**Filter analysis specific:**
Results expressed as mg on filter unless stated otherwise

**VOC analysis specific:**
Explanatory notes for data flagging
**U** = undetected above reporting limit
**J** = concentration at instrument was below lowest calibration standard
**E** = concentration at instrument was above top calibration standard
**B** = compound was detected in method blank

**Gas (Tedlar bag) analysis specific:**
Results expressed as ug/l unless stated otherwise

**Air (Carbon tube) analysis specific:**
Results expressed as ug on tube unless stated otherwise

**Asbestos analysis specific:**
**CH** denotes Chrysotile
**CR** denotes Crocidolite
**AM** denotes Amosite
**NADIS** denotes No Asbestos Detected in Sample
**NBFO** denotes No Bulk fibres Observed

**General notes:**
**^** this analysis was subcontracted to another laboratory
**$** Within laboratory tolerances
**$$** unable to analyse due to nature of sample
**¥** Results for guidance only, possible interference
**&** Blank corrected
**I.S** insufficient sample for analysis
**Intf** Unable to analyse due to interferences
**N.D** Not determined
**N.R** Not recorded
**N.Det** Not detected
**Req** Analysis Requested, see attached sheets for results
**Þ** Raised detection limit due to nature of sample
***** denotes that all accreditation has been removed by the laboratory for this result.
‡ denotes that Mcerts accreditation has been removed by the laboratory for this result.
**Note:** The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected.

If you require further details of the circumstances leading to the removal of the accreditation from any data item please do not hesitate to contact the laboratory

**END OF REPORT**

# TEST REPORT
# WATER SAMPLE ANALYSIS

1252

## TES Report No. EXR/091736 (Ver. 1)

Soil Mechanics
Unit 15
Crosby Yard
Wildmill
Bridgend
Mid Glamorgan
CF31 1JZ

**Site: 2U - Affan Advanced Digestion**

The 4 samples described in this report were logged for analysis by TES Bretby on 21-Jan-2009.
The analysis was completed by: 02-Feb-2009

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS accredited
Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by TES Bretby Laboratories.

The following tables are contained in this report:



On behalf of
TES Bretby :
John Elstub

Project Co-ordinator

Date of Issue: 02-Feb-2009

Tests marked '^' have been subcontracted to another laboratory.

TES Bretby accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for for status.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Units :** | | | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l |
| **Method Codes :** | | WSLM3 | WSLM12 | WSLM17 | Calc | KONENS | CPWATVAR | CPWATVAR | CPWATVAR | CPWATVAR | CPWATVAR | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW |
| **Method Reporting Limits :** | | | 2 | 2 | | 1 | 3.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.001 | 0.001 | 0.0001 | 0.001 | 0.001 | 0.002 |
| **UKAS Accredited :** | | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| **TES ID Number EXR** | **Client Sample Description** | **pH units** | **Bicarbonate Alkalinity as CaCO3** | **Total Acidity as CaCO3** | **Total Hardness as CaCO3** | **Chloride as Cl w** | **Total Sulphur as SO4 (Dissolved) a** | **Calcium as Ca (Dissolved) a** | **Magnesium as Mg (Dissolved) a** | **Sodium as Na (Dissolved) a** | **Potassium as K (Dissolved) a** | **Nickel as Ni (Total)** | **Chromium as Cr (Total)** | **Cadmium as Cd (Total)** | **Copper as Cu (Total)** | **Lead as Pb (Total)** | **Zinc as Zn (Total)** |
| 0901828 | BH1 W 47 3.20 | 8.3 | 55 | 0 | 849 | 166 | 1060 | 333 | 4 | 108 | 146 | 0.078 | 0.062 | 0.0007 | 0.167 | 0.158 | 0.998 |
| 0901829 | BH3 W 58 4.50 | I.S | I.S | I.S | 828 | 2060 | 938 | 145 | 113 | 1310 | 145 | I.S | I.S | I.S | I.S | I.S | I.S |
| 0901830 | BH4 W 67 4.50 | 8.1 | 42 | 0 | 776 | 155 | 965 | 304 | 4 | 100 | 132 | 0.097 | 0.055 | 0.0006 | 0.156 | 0.137 | 0.882 |
| 0901831 | BH5 W 12 4.60 | 8.2 | 2340 | 0 | 234 | 257 | 691 | 69 | 15 | 414 | 77 | 0.004 | 0.001 | <0.0001 | 0.003 | <0.001 | 0.013 |


**TES Bretby**

PO Box 100, Bretby Business Park,

Burton-on-Trent, Staffordshire, DE15 0XD

Tel +44 (0) 1283 554400

Fax +44 (0) 1283 554422


**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U - Affan Advanced Digestion

## Water Sample Analysis

| | |
|---|---|
| **Date Printed** | 02-Feb-09 |
| **Report Number** | **EXR/091736** |
| **Table Number** | **1** |

TES Bretby



Where individual results are flagged see report notes for for status.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Units :** | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | | | | | | |
| | **Method Codes :** | ICPMSW | CPWATVAR | ICPMSW | ICPMSW | KONENS | CPWATVAR | CPWATVAR | SFAPI | SFAPI | TPHFID | | | | | | |
| | **Method Reporting Limits :** | 0.001 | 0.01 | 0.0001 | 0.001 | 0.01 | 0.01 | 0.01 | 0.02 | 0.05 | 0.01 | | | | | | |
| | **UKAS Accredited :** | yes | yes | yes | yes | yes | no | no | no | no | no | | | | | | |
| **TES ID Number EXR** | **Client Sample Description** | **Arsenic as As (Total)** | **Boron as B (Dissolved) a** | **Mercury as Hg (Total)** | **Selenium as Se (Total)** | **Ammoniacal Nitrogen as N** | **Barium as Ba (Total) a** | **Beryllium as Be (Total) a** | **Cyanide (Total) as CN** | **Phenol Index as C6H5OH** | **TPH GC (0.01)** | | | | | | |
| 0901828 | BH1 W 47 3.20 | 0.052 | 0.46 | 0.0002 | 0.003 | 1 | 0.13 | <0.01 | <0.02 | <0.05 | 1.35 | | | | | | |
| 0901829 | BH3 W 58 4.50 | I.S | 0.39 | I.S | I.S | 5.7 | I.S | I.S | <0.02 | <0.05 | 0.04 | | | | | | |
| 0901830 | BH4 W 67 4.50 | 0.046 | 0.41 | 0.0003 | 0.003 | 0.9 | 0.12 | <0.01 | <0.02 | <0.05 | 1.21 | | | | | | |
| 0901831 | BH5 W 12 4.60 | 0.002 | 0.22 | <0.0001 | 0.012 | 1 | 0.03 | <0.01 | <0.02 | 0.40 | 0.35 | | | | | | |


**TES Bretby**

PO Box 100, Bretby Business Park,

Burton-on-Trent, Staffordshire, DE15 0XD

Tel +44 (0) 1283 554400

Fax +44 (0) 1283 554422


**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U - Affan Advanced Digestion

## Water Sample Analysis

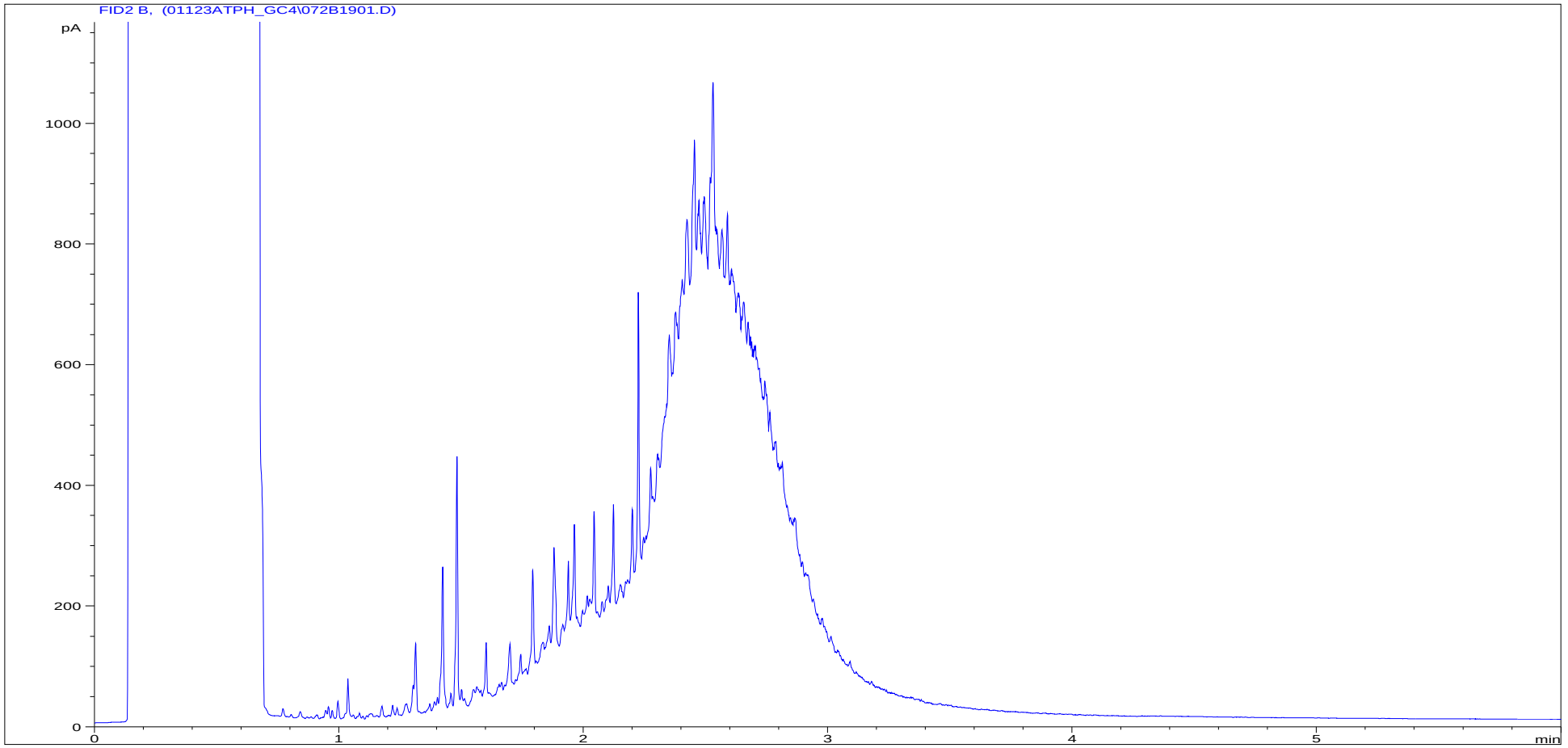
| | |
|---|---|
| **Date Printed** | 02-Feb-09 |
| **Report Number** | **EXR/091736** |
| **Table Number** | **1** |

TES Bretby



Where individual results are flagged see report notes for for status.

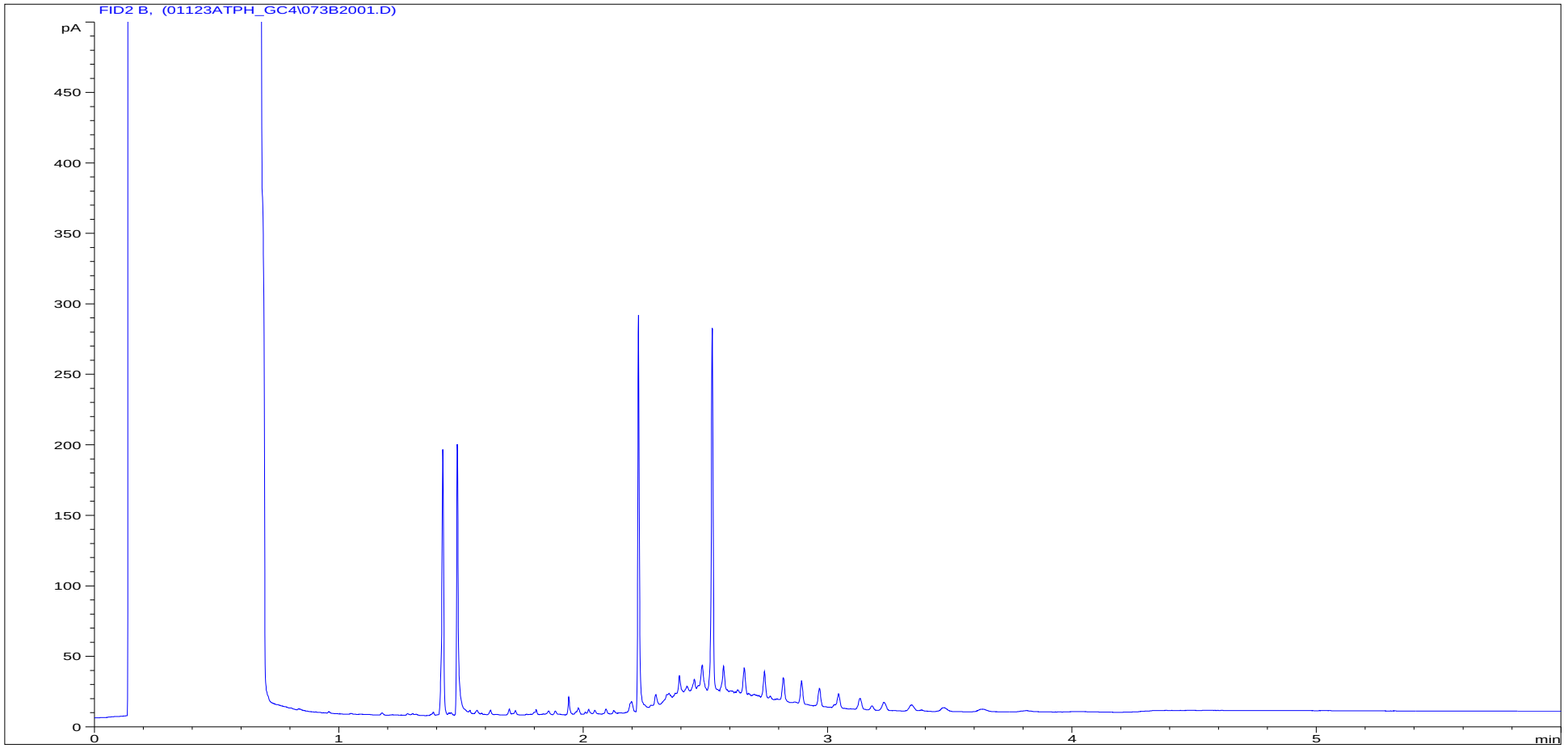
**Petroleum Hydrocarbons (C8 to C40) by GC/FID**




| | | | |
|---|---|---|---|
| **Sample ID:** | EX0901828 | **Job Number:** | W09_1736 |
| **Multiplier:** | 0.005 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U - Affan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | BH1 W 47 3.20 |
| **Acquisition Date/Time:** | 23-Jan-09 | | |
| **Datafile:** | D:\TES\DATA\Y2009\01123ATPH_GC4\072B1901.D | | |

Where individual results are flagged see report notes for for status.

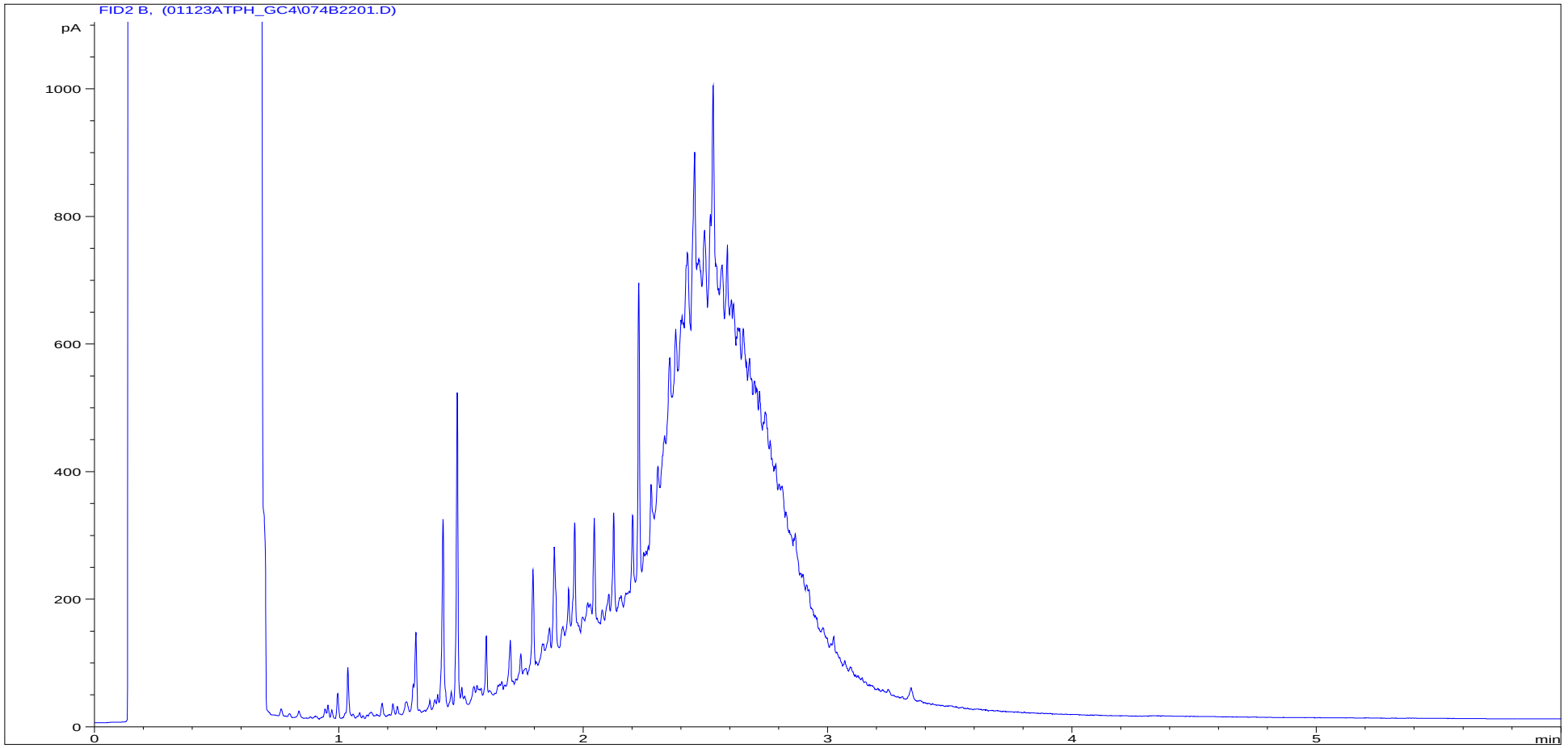
**Petroleum Hydrocarbons (C8 to C40) by GC/FID**




| | | | |
|---|---|---|---|
| **Sample ID:** | EX0901829 | **Job Number:** | W09_1736 |
| **Multiplier:** | 0.005 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U - Affan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | BH3 W 58 4.50 |
| **Acquisition Date/Time:** | 23-Jan-09 | | |
| **Datafile:** | D:\TES\DATA\Y2009\01123ATPH_GC4\073B2001.D | | |

Where individual results are flagged see report notes for for status.

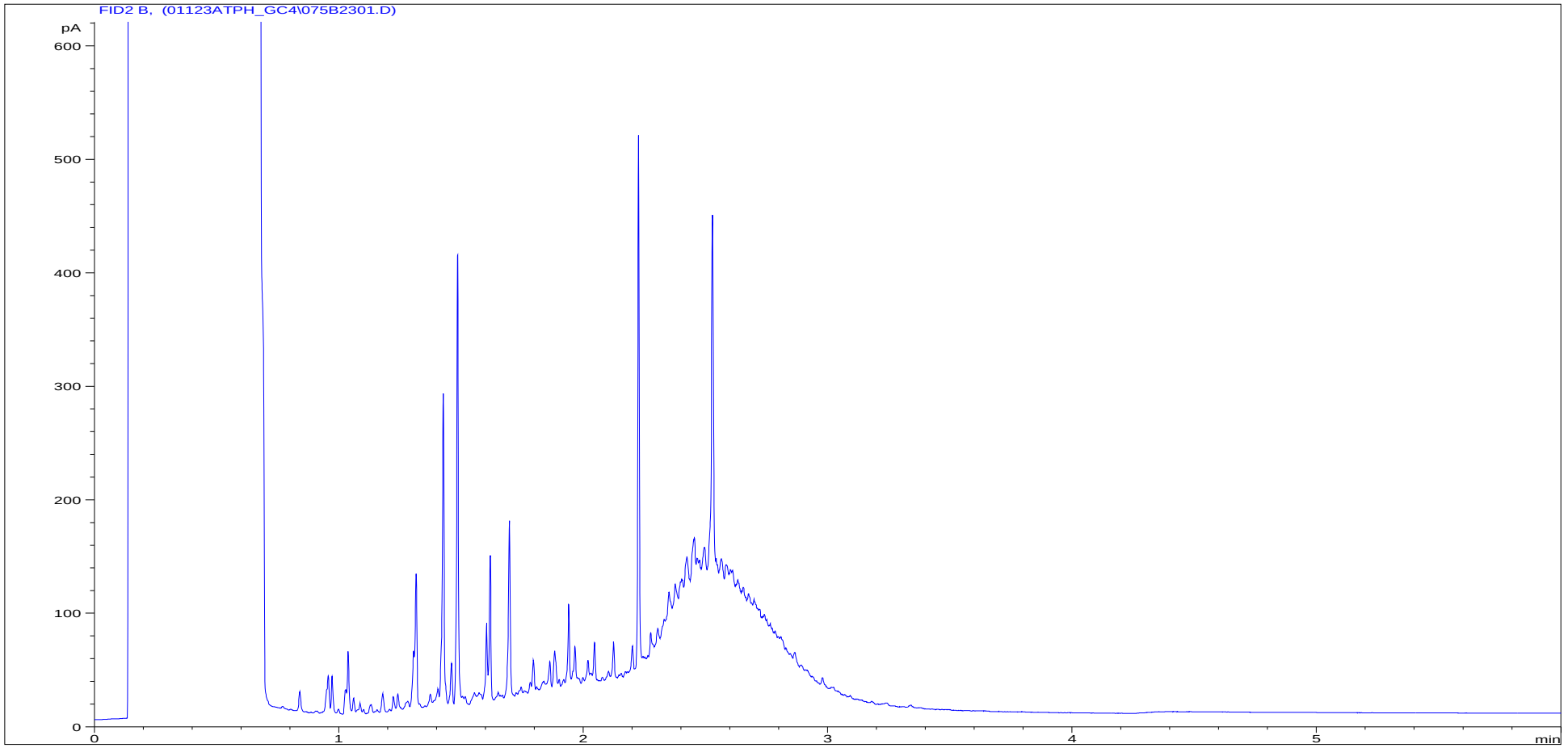
**Petroleum Hydrocarbons (C8 to C40) by GC/FID**




| | | | |
|---|---|---|---|
| **Sample ID:** | EX0901830 | **Job Number:** | W09_1736 |
| **Multiplier:** | 0.005 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U - Affan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | BH4 W 67 4.50 |
| **Acquisition Date/Time:** | 23-Jan-09 | | |
| **Datafile:** | D:\TES\DATA\Y2009\01123ATPH_GC4\074B2201.D | | |

Where individual results are flagged see report notes for for status.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**




| | | | |
|---|---|---|---|
| **Sample ID:** | EX0901831 | **Job Number:** | W09_1736 |
| **Multiplier:** | 0.0068 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U - Affan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | BH5 W 12 4.60 |
| **Acquisition Date/Time:** | 23-Jan-09 | | |
| **Datafile:** | D:\TES\DATA\Y2009\01123ATPH_GC4\075B2301.D | | |

Where individual results are flagged see report notes for for status.

# Report Notes

**Soil/Solid analysis specific:**
Results expressed as mg/kg on an air dried basis unless stated otherwise
S04 analysis not conducted in accordance with BS1377 unless otherwise stated
Water Soluble Sulphate on 2:1 water:soil extract
AR denotes analysis conducted on the As Received sample

**Water analysis specific:**
Results expressed as mg/l unless stated otherwise

**Oil analysis specific:**
Results expressed as mg/kg unless stated otherwise
S.G. expressed as $g/cm^3$@ $15^oC$

**Filter analysis specific:**
Results expressed as mg on filter unless stated otherwise

**VOC analysis specific:**
Explanatory notes for data flagging
**U** = undetected above reporting limit
**J** = concentration at instrument was below lowest calibration standard
**E** = concentration at instrument was above top calibration standard
**B** = compound was detected in method blank

**Gas (Tedlar bag) analysis specific:**
Results expressed as ug/l unless stated otherwise

**Air (Carbon tube) analysis specific:**
Results expressed as ug on tube unless stated otherwise

**Asbestos analysis specific:**
**CH** denotes Chrysotile
**CR** denotes Crocidolite
**AM** denotes Amosite
**NADIS** denotes No Asbestos Detected in Sample
**NBFO** denotes No Bulk fibres Observed

**General notes:**
**^** this analysis was subcontracted to another laboratory
**$** Within laboratory tolerances
**$$** unable to analyse due to nature of sample
**¥** Results for guidance only, possible interference
**&** Blank corrected
**I.S** insufficient sample for analysis
**Intf** Unable to analyse due to interferences
**N.D** Not determined
**N.R** Not recorded
**N.Det** Not detected
**Req** Analysis Requested, see attached sheets for results
**Þ** Raised detection limit due to nature of sample
***** denotes that all accreditation has been removed by the laboratory for this result.
‡ denotes that Mcerts accreditation has been removed by the laboratory for this result.
**Note:** The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected.

If you require further details of the circumstances leading to the removal of the accreditation from any data item please do not hesitate to contact the laboratory

**END OF REPORT**

# TEST REPORT
# SOIL SAMPLE ANALYSIS

1252

## TES Report No. EFS/090593M (Ver. 1)

Soil Mechanics
Unit 15
Crosby Yard
Bridgend
Mid Glamorgan
CF31 1JZ

**Site: 2U-Afan Advanced Digestion**

The 4 samples described in this report were logged for analysis by TES Bretby on 03-Feb-2009.
The analysis was completed by: 16-Feb-2009

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS or MCERTS accredited
Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by TES Bretby Laboratories.

The following tables are contained in this report:



On behalf of
TES Bretby :
Jane Colbourne

JNColbourne
Project Co-ordinator

Date of Issue: 16-Feb-2009

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)
Tests marked '^' have been subcontracted to another laboratory.
(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.
All results are reported on a dry weight basis at 105°C unless otherwise stated. (except QC samples)
TES Bretby accepts no responsibility for any sampling not carried out by our personnel.

## Sample Descriptions

**Client :** Soil Mechanics

**Site :** 2U-Afan Advanced Digestion

**Report Number :** S09_0593M

| Lab ID Number | Client ID | Description |
|---|---|---|
| CL/0902324 | BH1 D 0.50 | Brown Gravel SILT |
| CL/0902325 | BH3 D 0.50 | Brown SILT |
| CL/0902326 | BH4 D 1.00 | Brown SILT |
| CL/0902327 | BH5 D 1.00 | Brown Gravel SAND |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Units :** | mg/kg | % | mg/kg | Mol/kg | % | ug/kg | % M/M | ug/kg | ug/kg | ug/kg | ug/kg | | | | | |
| | **Method Codes :** | PAHMSUS | TMSS | TPHFIDUS | ANC | LOI450 | PCBUSECD | WSLM59 | BTEXHSA | BTEXHSA | BTEXHSA | BTEXHSA | | | | | |
| | **Method Reporting Limits :** | 0.08 | 0.2 | 10.0 | 0.01 | 0.2 | 5 | 0.02 | 10 | 10 | 10 | 20 | | | | | |
| | **Accreditation Code:** | | U | UM | N | N | | N | N | N | N | N | | | | | |
| **TES ID Number CL/** | **Client Sample Description** | **PAH by MS.17(0.08)** | **Tot.Moisture @ 105C** | **TPH by GCFID (AR)** | **Acid Neut. Capacity** | **^LOI % @ 450C** | **PCB (7 Congeners)** | **F.O.C. %** | **Benzene** | **Toluene** | **Ethyl Benzene** | **Xylenes** | | | | | |
| 0902324 | BH1 D 0.50 | Req | 7.4 | 202 | 5.1 | 2.2 | Req | 1.25 | <11 | <11 | <11 | <22 | | | | | |
| 0902325 | BH3 D 0.50 | Req | 9.0 | 503 | 4.78 | 2.5 | Req | 1.22 | <11 | <11 | <11 | <22 | | | | | |
| 0902326 | BH4 D 1.00 | Req | 10.0 | 324 | 5.58 | 3.2 | Req | 1.4 | <11 | <11 | <11 | <22 | | | | | |
| 0902327 | BH5 D 1.00 | Req | 4.8 | <10.5 | 1.81 | 0.7 | Req | 0.26 | <11 | <11 | <11 | <21 | | | | | |


**TES Bretby**

PO Box 100, Bretby Business Park,

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**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U-Afan Advanced Digestion

## Soils Sample Analysis

| | |
|---|---|
| **Date Printed** | 16-Feb-09 |
| **Report Number** | **EFS/090593M** |
| **Table Number** | **1** |

TES Bretby



Where individual results are flagged see report notes for for status.
Results corrected to dry weight at 105°C where appr opriate, in accordance with the MCERTS standard.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH1 D 0.50 | **Job Number:** | S09_0593M |
| **LIMS ID Number:** | CL0902324 | **Date Booked in:** | 03-Feb-09 |
| **QC Batch Number:** | 0335 | **Date Extracted:** | 04-Feb-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 04-Feb-09 |
| **Directory:** | 204PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | 2.97 | 0.55 | 98 | **UM** |
| Acenaphthylene | 208-96-8 | 4.01 | 0.10 | 97 | U |
| Acenaphthene | 83-32-9 | 4.13 | 0.14 | 99 | UM |
| Fluorene | 86-73-7 | 4.47 | 0.09 | 91 | UM |
| Phenanthrene | 85-01-8 | 5.22 | 0.27 | 98 | UM |
| Anthracene | 120-12-7 | 5.27 | 0.14 | 97 | U |
| Fluoranthene | 206-44-0 | 6.45 | 0.48 | 86 | UM |
| Pyrene | 129-00-0 | 6.71 | 0.37 | 68 | UM |
| Benzo[a]anthracene | 56-55-3 | 8.31 | 0.30 | 97 | UM |
| Chrysene | 218-01-9 | 8.37 | 0.41 | 97 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 9.80 | 0.45 | 70 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 9.83 | 0.31 | 74 | UM |
| Benzo[a]pyrene | 50-32-8 | 10.22 | 0.35 | 87 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 11.58 | 0.36 | 68 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.09 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 11.86 | 0.31 | 87 | UM |
| Coronene | 191-07-1 * | 13.59 | 0.12 | 51 | N |
| Total (USEPA16) PAHs | - | - | < 4.72 | - | N |

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 84 |
| Acenaphthene-d10 | 78 |
| Phenanthrene-d10 | 91 |
| Chrysene-d12 | 100 |
| Perylene-d12 | 91 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 98 |
| Terphenyl-d14 | 93 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH3 D 0.50 | **Job Number:** | S09_0593M |
| **LIMS ID Number:** | CL0902325 | **Date Booked in:** | 03-Feb-09 |
| **QC Batch Number:** | 0335 | **Date Extracted:** | 04-Feb-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 04-Feb-09 |
| **Directory:** | 204PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | 2.97 | 0.10 | 85 | **UM** |
| Acenaphthylene | 208-96-8 | 4.01 | 0.10 | 85 | U |
| Acenaphthene | 83-32-9 | - | < 0.09 | - | UM |
| Fluorene | 86-73-7 | - | < 0.09 | - | UM |
| Phenanthrene | 85-01-8 | 5.22 | 0.14 | 92 | UM |
| Anthracene | 120-12-7 | - | < 0.09 | - | U |
| Fluoranthene | 206-44-0 | 6.45 | 0.26 | 70 | UM |
| Pyrene | 129-00-0 | 6.71 | 0.20 | 74 | UM |
| Benzo[a]anthracene | 56-55-3 | 8.31 | 0.15 | 60 | UM |
| Chrysene | 218-01-9 | 8.37 | 0.20 | 85 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 9.81 | 0.20 | 59 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 9.84 | 0.16 | 63 | UM |
| Benzo[a]pyrene | 50-32-8 | 10.22 | 0.19 | 98 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 11.58 | 0.23 | 68 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.09 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 11.86 | 0.30 | 83 | UM |
| Coronene | 191-07-1 * | 13.59 | 0.10 | M | N |
| Total (USEPA16) PAHs | - | - | < 2.62 | - | N |

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 83 |
| Acenaphthene-d10 | 76 |
| Phenanthrene-d10 | 91 |
| Chrysene-d12 | 103 |
| Perylene-d12 | 93 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 99 |
| Terphenyl-d14 | 89 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH4 D 1.00 | **Job Number:** | S09_0593M |
| **LIMS ID Number:** | CL0902326 | **Date Booked in:** | 03-Feb-09 |
| **QC Batch Number:** | 0335 | **Date Extracted:** | 04-Feb-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 04-Feb-09 |
| **Directory:** | 204PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.09 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.09 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.09 | - | UM |
| Fluorene | 86-73-7 | - | < 0.09 | - | UM |
| Phenanthrene | 85-01-8 | 5.22 | 0.30 | 98 | UM |
| Anthracene | 120-12-7 | - | < 0.09 | - | U |
| Fluoranthene | 206-44-0 | 6.45 | 0.42 | 86 | UM |
| Pyrene | 129-00-0 | 6.71 | 0.34 | 65 | UM |
| Benzo[a]anthracene | 56-55-3 | 8.31 | 0.26 | 93 | UM |
| Chrysene | 218-01-9 | 8.37 | 0.31 | 100 | UM |
| Benzo[b]fluoranthene | 205-99-2 | 9.81 | 0.26 | 63 | UM |
| Benzo[k]fluoranthene | 207-08-9 | 9.83 | 0.24 | 67 | UM |
| Benzo[a]pyrene | 50-32-8 | 10.22 | 0.24 | 89 | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | 11.58 | 0.19 | 81 | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.09 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | 11.86 | 0.19 | 75 | UM |
| Coronene | 191-07-1 * | - | < 0.09 | - | N |
| Total (USEPA16) PAHs | - | - | < 3.29 | - | N |

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 80 |
| Acenaphthene-d10 | 77 |
| Phenanthrene-d10 | 91 |
| Chrysene-d12 | 101 |
| Perylene-d12 | 93 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 98 |
| Terphenyl-d14 | 91 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polycyclic Aromatic Hydrocarbons
## GC/MS (SIM)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | | |
| **Sample Details:** | BH5 D 1.00 | **Job Number:** | S09_0593M |
| **LIMS ID Number:** | CL0902327 | **Date Booked in:** | 03-Feb-09 |
| **QC Batch Number:** | 0335 | **Date Extracted:** | 04-Feb-09 |
| **Quantitation File:** | Initial Calibration | **Date Analysed:** | 04-Feb-09 |
| **Directory:** | 204PAH_MS14\ | **Matrix:** | Soil |
| **Dilution:** | 1.0 | **Ext Method:** | Ultrasonic |

**Accredited?: Yes**

| Target Compounds | CAS # | R.T. (min) | Concentration mg/kg | % Fit | Accr. code |
|---|---|---|---|---|---|
| Naphthalene | 91-20-3 | - | < 0.08 | - | **UM** |
| Acenaphthylene | 208-96-8 | - | < 0.08 | - | U |
| Acenaphthene | 83-32-9 | - | < 0.08 | - | UM |
| Fluorene | 86-73-7 | - | < 0.08 | - | UM |
| Phenanthrene | 85-01-8 | - | < 0.08 | - | UM |
| Anthracene | 120-12-7 | - | < 0.08 | - | U |
| Fluoranthene | 206-44-0 | - | < 0.08 | - | UM |
| Pyrene | 129-00-0 | - | < 0.08 | - | UM |
| Benzo[a]anthracene | 56-55-3 | - | < 0.08 | - | UM |
| Chrysene | 218-01-9 | - | < 0.08 | - | UM |
| Benzo[b]fluoranthene | 205-99-2 | - | < 0.08 | - | UM |
| Benzo[k]fluoranthene | 207-08-9 | - | < 0.08 | - | UM |
| Benzo[a]pyrene | 50-32-8 | - | < 0.08 | - | UM |
| Indeno[1,2,3-cd]pyrene | 193-39-5 | - | < 0.08 | - | UM |
| Dibenzo[a,h]anthracene | 53-70-3 | - | < 0.08 | - | UM |
| Benzo[g,h,i]perylene | 191-24-2 | - | < 0.08 | - | UM |
| Coronene | 191-07-1 * | - | < 0.08 | - | N |
| Total (USEPA16) PAHs | - | - | < 1.34 | - | N |

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

| Internal Standards | % Area |
|---|---|
| 1,4-Dichlorobenzene-d4 | NA |
| Naphthalene-d8 | 80 |
| Acenaphthene-d10 | 73 |
| Phenanthrene-d10 | 82 |
| Chrysene-d12 | 90 |
| Perylene-d12 | 83 |

| Surrogates | % Rec |
|---|---|
| Nitrobenzene-d5 | NA |
| 2-Fluorobiphenyl | 100 |
| Terphenyl-d14 | 98 |

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

# Polychlorinated Biphenyls (congeners)

| | | | |
|---|---|---|---|
| **Customer and Site Details:** | Soil Mechanics: 2U-Afan Advanced Digestion | **Matrix:** | SOIL |
| **Job Number:** | S09_0593M | **Date Booked in:** | 03-Feb-09 |
| **QC Batch Number:** | 090423 | **Date Extracted:** | 04-Feb-09 |
| **Directory:** | 0212PCB.GC8 | **Date Analysed:** | 13-Feb-09 |
| **Method:** | Ultrasonic | | |
| **Accreditation code:** | N | | |

| | | | Concentration, (µg/kg) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Sample ID** | **Customer ID** | **PCB28** | **PCB52** | **PCB101** | **PCB118** | **PCB153** | **PCB138** | **PCB180** |
| * | CL0902324 | BH1 D 0.50 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| * | CL0902325 | BH3 D 0.50 | <5.1 | <5.1 | <5.1 | <5.1 | <5.1 | <5.1 | <5.1 |
| * | CL0902326 | BH4 D 1.00 | <5.1 | <5.1 | <5.1 | <5.1 | <5.1 | <5.1 | <5.1 |
| * | CL0902327 | BH5 D 1.00 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
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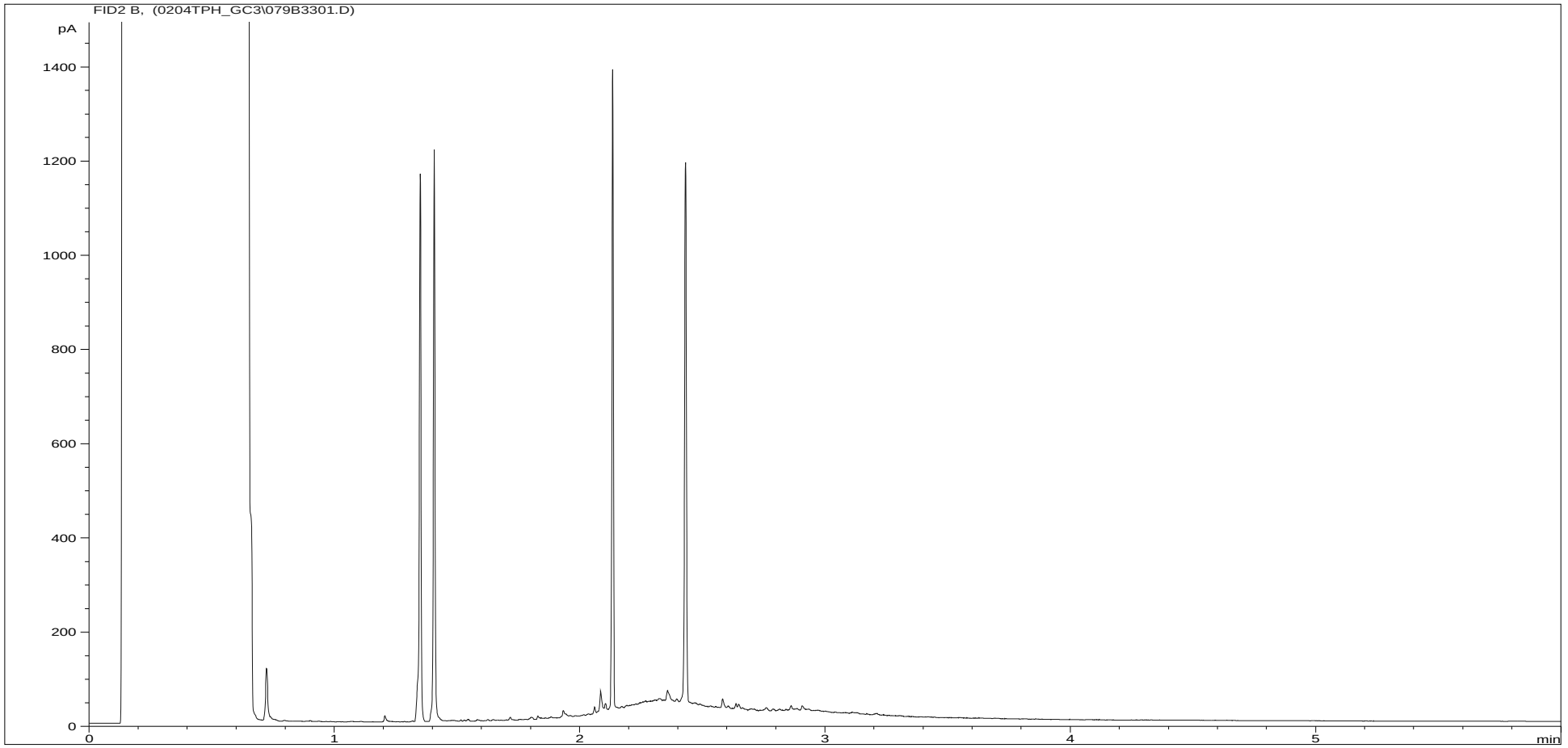
Where individual results are flagged see report notes for for status.
Results corrected to dry weight at 105℃ where approp riate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**



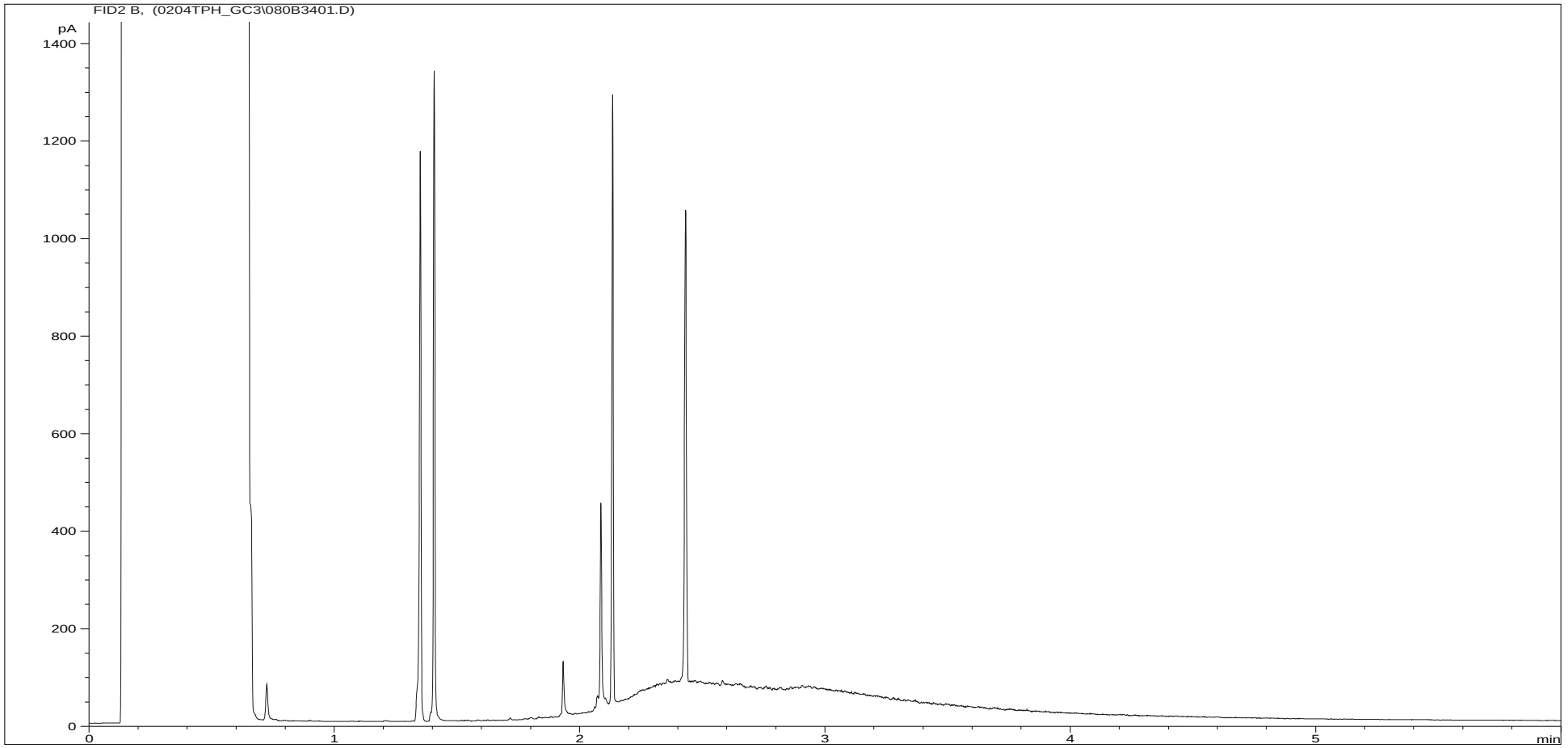

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0902324 | **Job Number:** | S09_0593M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | BH1 D 0.50 |
| **Acquisition Date/Time:** | 04-Feb-09 | | |
| **Datafile:** | D:\TES\DATA\Y2009\0204TPH_GC3\079B3301.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**



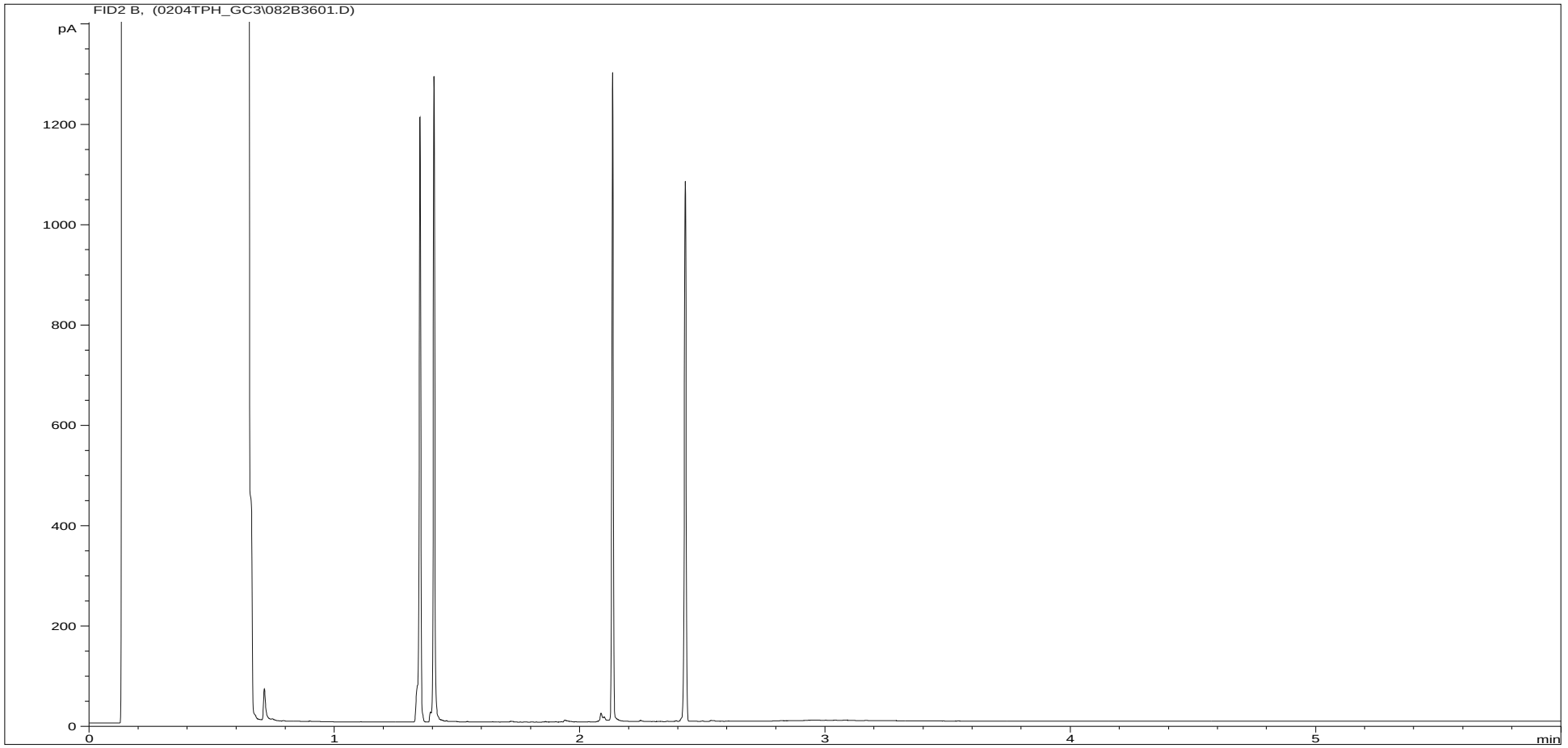

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0902325 | **Job Number:** | S09_0593M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | BH3 D 0.50 |
| **Acquisition Date/Time:** | 04-Feb-09 | | |
| **Datafile:** | D:\TES\DATA\Y2009\0204TPH_GC3\080B3401.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**



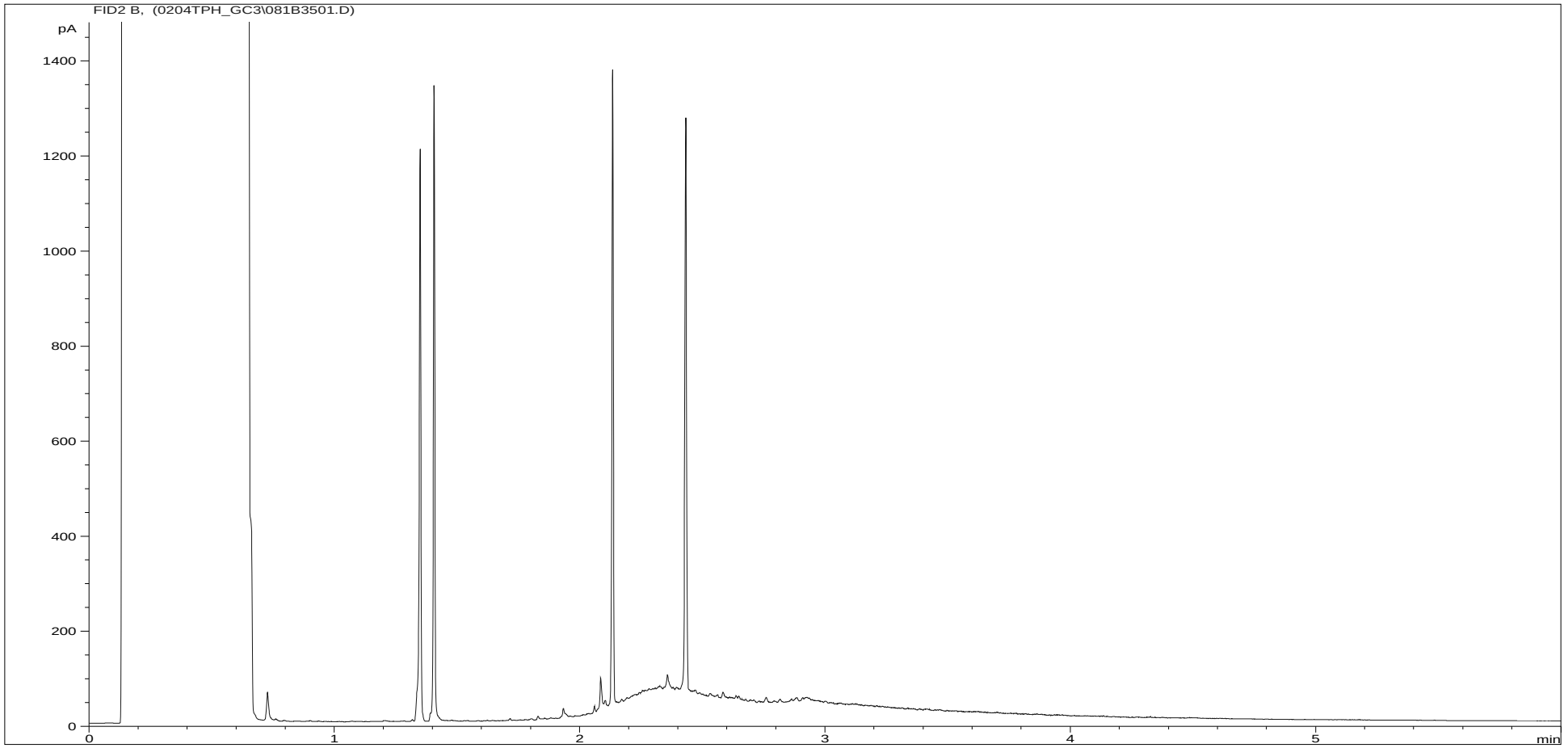

| | | | |
|---|---|---|---|
| **Sample ID:** | CL0902327 | **Job Number:** | S09_0593M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | BH5 D 1.00 |
| **Acquisition Date/Time:** | 04-Feb-09 | | |
| **Datafile:** | D:\TES\DATA\Y2009\0204TPH_GC3\082B3601.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

**Petroleum Hydrocarbons (C8 to C40) by GC/FID**




| | | | |
|---|---|---|---|
| **Sample ID:** | CL0902326 | **Job Number:** | S09_0593M |
| **Multiplier:** | 8 | **Client:** | Soil Mechanics |
| **Dilution:** | 1 | **Site:** | 2U-Afan Advanced Digestion |
| **Acquisition Method:** | 5UL_RUNF.M | **Client Sample Ref:** | BH4 D 1.00 |
| **Acquisition Date/Time:** | 04-Feb-09 | | |
| **Datafile:** | D:\TES\DATA\Y2009\0204TPH_GC3\081B3501.D | | |

Where individual results are flagged see report notes for for status.



Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

# Report Notes

**Soil/Solid analysis specific:**

S04 analysis not conducted in accordance with BS1377 unless otherwise stated
Water Soluble Sulphate on 2:1 water:soil extract
AR denotes analysis conducted on the As Received sample

**Water analysis specific:**
Results expressed as mg/l unless stated otherwise

**Oil analysis specific:**
Results expressed as mg/kg unless stated otherwise
S.G. expressed as g/cm$^3$@ 15$^o$C

**Filter analysis specific:**
Results expressed as mg on filter unless stated otherwise

**VOC analysis specific:**
Explanatory notes for data flagging
**U** = undetected above reporting limit
**J** = concentration at instrument was below lowest calibration standard
**E** = concentration at instrument was above top calibration standard
**B** = compound was detected in method blank

**Gas (Tedlar bag) analysis specific:**
Results expressed as ug/l unless stated otherwise

**Air (Carbon tube) analysis specific:**
Results expressed as ug on tube unless stated otherwise

**Asbestos analysis specific:**
**CH** denotes Chrysotile
**CR** denotes Crocidolite
**AM** denotes Amosite
**NADIS** denotes No Asbestos Detected in Sample
**NBFO** denotes No Bulk fibres Observed

**General notes:**
**^** this analysis was subcontracted to another laboratory
**$** Within laboratory tolerances
**$$** unable to analyse due to nature of sample
**¥** Results for guidance only, possible interference
**&** Blank corrected
**I.S** insufficient sample for analysis
**Intf** Unable to analyse due to interferences
**N.D** Not determined
**N.R** Not recorded
**N.Det** Not detected
**Req** Analysis Requested, see attached sheets for results
**Þ** Raised detection limit due to nature of sample
***** denotes that all accreditation has been removed by the laboratory for this result.
‡ denotes that Mcerts accreditation has been removed by the laboratory for this result.
**Note:** The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected.

If you require further details of the circumstances leading to the removal of the accreditation from any data item please do not hesitate to contact the laboratory

**END OF REPORT**

# TEST REPORT
# LEACHATE SAMPLE ANALYSIS

1252

## TES Report No. EXR/092124 (Ver. 1)

Soil Mechanics
Unit 15
Crosby Yard
Wildmill
Bridgend
Mid Glamorgan
CF31 1JZ

**Site: 2U - Afan Advanced Digestion**

The 4 samples described in this report were logged for analysis by TES Bretby on 04-Feb-2009.
The analysis was completed by: 12-Feb-2009

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS accredited
Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by TES Bretby Laboratories.

The following tables are contained in this report:



On behalf of
TES Bretby :
John Elstub

Project Co-ordinator

Date of Issue: 12-Feb-2009

Tests marked '^' have been subcontracted to another laboratory.

TES Bretby accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for for status.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Units :** | | | uS/cm | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l |
| **Method Codes :** | | WSLM3 | WSLM2 | KONENS | ISEF | CPWATVAR | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW |
| **Method Reporting Limits :** | | | 100 | 1 | 0.1 | 3.0 | 0.001 | 0.001 | 0.0001 | 0.001 | 0.001 | 0.002 | 0.001 | 0.0001 | 0.001 | 0.001 | 0.001 |
| **UKAS Accredited :** | | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| **TES ID Number EXR** | **Client Sample Description** | **pH units** | **Conductivity uS/cm @ 25C** | **Chloride as Cl w** | **Fluoride as F** | **Total Sulphur as SO4 (Dissolved) a** | **Nickel as Ni (Dissolved)** | **Chromium as Cr (Dissolved)** | **Cadmium as Cd (Dissolved)** | **Copper as Cu (Dissolved)** | **Lead as Pb (Dissolved)** | **Zinc as Zn (Dissolved)** | **Arsenic as As (Dissolved)** | **Mercury as Hg (Dissolved)** | **Selenium as Se (Dissolved)** | **Molybdenum as Mo (Dissolved)** | **Antimony as Sb (Dissolved)** |
| 0903452 | BH1 0.5 | 10.8 | 1330 | 83 | 1.5 | 1050 | 0.014 | 0.004 | <0.0001 | 0.013 | 0.002 | 0.012 | 0.007 | 0.001 | 0.01 | 0.168 | 0.032 |
| 0903453 | BH3 0.5 | 9.7 | 588 | 41 | 3.0 | 392 | 0.004 | 0.003 | <0.0001 | 0.006 | 0.002 | 0.009 | 0.013 | 0.0003 | 0.004 | 0.04 | 0.007 |
| 0903454 | BH4 1.0 | 8.0 | 821 | 12 | 2.7 | 383 | 0.003 | 0.003 | <0.0001 | 0.01 | 0.003 | 0.045 | 0.009 | 0.0001 | 0.004 | 0.045 | 0.008 |
| 0903455 | BH5 1.0 | 7.9 | 101 | 4 | 0.3 | 14 | 0.002 | 0.003 | <0.0001 | 0.007 | 0.008 | 0.026 | 0.01 | <0.0001 | <0.001 | 0.001 | 0.002 |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Fax +44 (0) 1283 554422


**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U - Afan Advanced Digestion

## Leachate Sample Analysis

**First Stage**

| | |
|---|---|
| **Date Printed** | 12-Feb-09 |
| **Report Number** | **EXR/092124** |
| **Table Number** | **1** |

TES Bretby



Where individual results are flagged see report notes for for status.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Units :** | | mg/l | mg/l | mg/l | mg/l | | | | | | | | | | | | |
| **Method Codes :** | | WSLM27 | CPWATVAR | WSLM13 | SFAPI | | | | | | | | | | | | |
| **Method Reporting Limits :** | | 5 | 0.01 | 0.1 | 0.05 | | | | | | | | | | | | |
| **UKAS Accredited :** | | no | no | no | no | | | | | | | | | | | | |
| **TES ID Number EX/** | **Client Sample Description** | **Total Dissolved Solids** | **Barium as Ba (Dissolved) a** | **Dissolved Organic Carbon** | **Phenol Index as C6H5OH** | | | | | | | | | | | | |
| 0903452 | BH1 0.5 | 1040 | 0.23 | 22 | 0.06 | | | | | | | | | | | | |
| 0903453 | BH3 0.5 | 459 | 0.12 | 11 | <0.05 | | | | | | | | | | | | |
| 0903454 | BH4 1.0 | 640 | 0.21 | 13 | 0.08 | | | | | | | | | | | | |
| 0903455 | BH5 1.0 | 79 | 0.07 | 2.6 | <0.05 | | | | | | | | | | | | |


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**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U - Afan Advanced Digestion

## Leachate Sample Analysis

**First Stage**

| | |
|---|---|
| **Date Printed** | 12-Feb-09 |
| **Report Number** | **EXR/092124** |
| **Table Number** | **1** |

TES Bretby



Where individual results are flagged see report notes for for status.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Units :** | | | uS/cm | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l | mg/l |
| **Method Codes :** | | WSLM3 | WSLM2 | KONENS | ISEF | CPWATVAR | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW |
| **Method Reporting Limits :** | | | 100 | 1 | 0.1 | 3.0 | 0.001 | 0.001 | 0.0001 | 0.001 | 0.001 | 0.002 | 0.001 | 0.0001 | 0.001 | 0.001 | 0.001 |
| **UKAS Accredited :** | | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| **TES ID Number EXR** | **Client Sample Description** | **pH units** | **Conductivity uS/cm @ 25C** | **Chloride as Cl w** | **Fluoride as F** | **Total Sulphur as SO4 (Dissolved) a** | **Nickel as Ni (Dissolved)** | **Chromium as Cr (Dissolved)** | **Cadmium as Cd (Dissolved)** | **Copper as Cu (Dissolved)** | **Lead as Pb (Dissolved)** | **Zinc as Zn (Dissolved)** | **Arsenic as As (Dissolved)** | **Mercury as Hg (Dissolved)** | **Selenium as Se (Dissolved)** | **Molybdenum as Mo (Dissolved)** | **Antimony as Sb (Dissolved)** |
| 0903456 | BH1 0.5 | 10.6 | 289 | 19 | 0.6 | 123 | 0.005 | 0.003 | <0.0001 | 0.008 | 0.003 | 0.009 | 0.007 | 0.0005 | 0.006 | 0.01 | 0.017 |
| 0903457 | BH3 0.5 | 10.2 | 153 | 10 | 1.3 | 46 | 0.002 | 0.002 | <0.0001 | 0.005 | 0.001 | 0.006 | 0.008 | 0.0002 | 0.003 | 0.004 | 0.004 |
| 0903458 | BH4 1.0 | 9.1 | 132 | 1 | 1.2 | 33 | 0.002 | 0.002 | <0.0001 | 0.006 | 0.003 | 0.019 | 0.007 | 0.0001 | 0.003 | 0.006 | 0.004 |
| 0903459 | BH5 1.0 | 9.2 | <100 | 2 | 0.1 | <3 | <0.001 | 0.002 | 0.0002 | 0.005 | 0.012 | 0.02 | 0.003 | <0.0001 | <0.001 | <0.001 | 0.002 |


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**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U - Afan Advanced Digestion

## Leachate Sample Analysis

**Second Stage**

| | |
|---|---|
| **Date Printed** | 12-Feb-09 |
| **Report Number** | **EXR/092125** |
| **Table Number** | **2** |

TES Bretby



Where individual results are flagged see report notes for for status.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Units :** | | mg/l | mg/l | mg/l | mg/l | | | | | | | | | | | | |
| **Method Codes :** | | WSLM27 | CPWATVAR | WSLM13 | SFAPI | | | | | | | | | | | | |
| **Method Reporting Limits :** | | 5 | 0.01 | 0.1 | 0.05 | | | | | | | | | | | | |
| **UKAS Accredited :** | | no | no | no | no | | | | | | | | | | | | |
| **TES ID Number EX/** | **Client Sample Description** | **Total Dissolved Solids** | **Barium as Ba (Dissolved) a** | **Dissolved Organic Carbon** | **Phenol Index as C6H5OH** | | | | | | | | | | | | |
| 0903456 | BH1 0.5 | 225 | 0.23 | 7.8 | <0.05 | | | | | | | | | | | | |
| 0903457 | BH3 0.5 | 119 | 0.14 | 3.7 | <0.05 | | | | | | | | | | | | |
| 0903458 | BH4 1.0 | 103 | 0.16 | 7.3 | <0.05 | | | | | | | | | | | | |
| 0903459 | BH5 1.0 | 43 | 0.18 | 3.9 | <0.05 | | | | | | | | | | | | |


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**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U - Afan Advanced Digestion

## Leachate Sample Analysis

**Second Stage**

| | |
|---|---|
| **Date Printed** | 12-Feb-09 |
| **Report Number** | **EXR/092125** |
| **Table Number** | **2** |

TES Bretby

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Units :** | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **Method Codes :** | | KONENS | ISEF | ICPWATVAR | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | ICPMSW | WSLM27 | CPWATVAR |
| **Method Reporting Limits :** | | 10 | 1 | 30 | 0.01 | 0.01 | 0.001 | 0.01 | 0.01 | 0.02 | 0.01 | 0.001 | 0.01 | 0.01 | 0.01 | 50 | 0.1 |
| **TES ID Number EXR** | **Client Sample Description** | **Chloride as Cl w** | **Fluoride as F** | **Total Sulphur as SO4 (Dissolved) a** | **Nickel as Ni (Dissolved)** | **Chromium as Cr (Dissolved)** | **Cadmium as Cd (Dissolved)** | **Copper as Cu (Dissolved)** | **Lead as Pb (Dissolved)** | **Zinc as Zn (Dissolved)** | **Arsenic as As (Dissolved)** | **Mercury as Hg (Dissolved)** | **Selenium as Se (Dissolved)** | **Molybdenum as Mo (Dissolved)** | **Antimony as Sb (Dissolved)** | **Total Dissolved Solids** | **Barium as Ba (Dissolved) a** |
| | BH1 0.5 | 282 | 7 | 2567.0 | 0.06 | 0.03 | <0.001 | 0.09 | 0.03 | 0.09 | 0.07 | 0.006 | <0.07 | 0.33 | 0.19 | 3425 | 2.3 |
| | BH3 0.5 | 145 | 15 | 966.3 | 0.02 | 0.02 | <0.001 | 0.05 | 0.01 | 0.06 | 0.09 | 0.002 | 0.03 | 0.09 | 0.04 | 1688 | 1.4 |
| | BH4 1.0 | 26 | 14 | 847.2 | 0.02 | 0.02 | <0.001 | 0.07 | 0.03 | 0.23 | 0.07 | 0.001 | 0.03 | 0.12 | 0.05 | 1824 | 1.7 |
| | BH5 1.0 | 23 | 1 | <45.4 | <0.01 | 0.02 | <0.002 | 0.05 | 0.11 | 0.21 | 0.04 | <0.001 | <0.01 | <0.01 | 0.02 | 480 | 1.6 |


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**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U - Afan Advanced Digestion

## Leachate Sample Analysis

**BSEN 12457/3 @ L/S10 litre kg-1**

| | |
|---|---|
| **Date Printed** | 12-Feb-09 |
| **Report Number** | **EXR/092125** |
| **Table Number** | **3** |

TES Bretby



Where individual results are flagged see report notes for for status.

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Units :** | | mg/kg | mg/kg | | | | | | | | | | | | | | | |
| **Method Codes :** | | WSLM13 | SFAPI | | | | | | | | | | | | | | | |
| **Method Reporting Limits :** | | 1 | 0.5 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| **TES ID Number EXR** | **Client Sample Description** | **Dissolved Organic Carbon** | **Phenol Index as C6H5OH** | | | | | | | | | | | | | | | |
| | BH1 0.5 | 98 | <0.5 | | | | | | | | | | | | | | | |
| | BH3 0.5 | 48 | <0.5 | | | | | | | | | | | | | | | |
| | BH4 1.0 | 81 | <0.5 | | | | | | | | | | | | | | | |
| | BH5 1.0 | 37 | <0.5 | | | | | | | | | | | | | | | |
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**Client Name** **Soil Mechanics**

**Contact** Mr A Henry

# 2U - Afan Advanced Digestion

## Leachate Sample Analysis

**BSEN 12457/3 @ L/S10 litre kg$^{-1}$**

| | |
|---|---|
| **Date Printed** | 12-Feb-09 |
| **Report Number** | **EXR/092125** |
| **Table Number** | **3** |

TES Bretby



Where individual results are flagged see report notes for for status.

# Report Notes

**Soil/Solid analysis specific:**

Results expressed as mg/kg on an air dried basis unless stated otherwise
S04 analysis not conducted in accordance with BS1377 unless otherwise stated
Water Soluble Sulphate on 2:1 water:soil extract
AR denotes analysis conducted on the As Received sample

**Water analysis specific:**

Results expressed as mg/l unless stated otherwise

**Oil analysis specific:**

Results expressed as mg/kg unless stated otherwise
S.G. expressed as g/cm$^3$@ 15$^o$C

**Filter analysis specific:**

Results expressed as mg on filter unless stated otherwise

**VOC analysis specific:**

Explanatory notes for data flagging
**U** = undetected above reporting limit
**J** = concentration at instrument was below lowest calibration standard
**E** = concentration at instrument was above top calibration standard
**B** = compound was detected in method blank

**Gas (Tedlar bag) analysis specific:**

Results expressed as ug/l unless stated otherwise

**Air (Carbon tube) analysis specific:**

Results expressed as ug on tube unless stated otherwise

**Asbestos analysis specific:**

**CH** denotes Chrysotile
**CR** denotes Crocidolite
**AM** denotes Amosite
**NADIS** denotes No Asbestos Detected in Sample
**NBFO** denotes No Bulk fibres Observed

**General notes:**

**^** this analysis was subcontracted to another laboratory
**$** Within laboratory tolerances
**$$** unable to analyse due to nature of sample
**¥** Results for guidance only, possible interference
**&** Blank corrected
**I.S** insufficient sample for analysis
**Intf** Unable to analyse due to interferences
**N.D** Not determined
**N.R** Not recorded
**N.Det** Not detected
**Req** Analysis Requested, see attached sheets for results
**Þ** Raised detection limit due to nature of sample
***** denotes that all accreditation has been removed by the laboratory for this result.
‡ denotes that Mcerts accreditation has been removed by the laboratory for this result.
**Note:** The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected.

If you require further details of the circumstances leading to the removal of the accreditation from any data item please do not hesitate to contact the laboratory

**END OF REPORT**