WYG Environment
part of the WYG group

Defence Estates

Service Family Accommodation - St Athan

Tremains Farm Site

Ground Conditions Assessment Report

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SUMMARY

The Site	The site is located approximately 0.5km to the east of Llantwit Major in South Wales and currently comprises agricultural land which is divided into two fields. Access to the site is via Cowbridge Road along the south western boundary of the site.
Site History	Since the earliest available mapping (1899) the majority of the site has been shown as agricultural land. A lime kiln was marked in the west of the site and a quarry and second lime kiln in the north of the site until 1899, after which they are shown as disused. The surrounding areas are predominantly agricultural, with the railway to the south west of the site first shown in 1899. RAF St Athan was first marked to the south and south east of the site in 1946 mapping.
Geology, Hydrogeology, Hydrology and Radon.	The site is underlain by strata from the Porthkerry Formation (limestone and clay) with alluvium marked in the south east corner of the site. There are two surface watercourses located within the site boundaries; Llanmaes Brook and Boverton Brook. The Porthkerry Formation is classified as a Secondary (formerly Minor) Aquifer the soils in the area are classified as having a high leaching potential. The site is not located in a designated Source Protection Zone. According to mapping from BRE document 211, the site is located in an area where full radon protection measures may be required for new dwellings.
WYG Intrusive Investigation	An intrusive ground investigation was undertaken by WYG in October 2010 and consisted of 19 machine excavated trail pits, 5 boreholes with groundwater and land gas monitoring installations, *in situ* testing (permeability) and laboratory testing (geotechnical and chemical).
Ground Conditions Encountered	Encountered ground conditions comprised topsoil over sandy gravelly clay overlying limestone bedrock of the Porthkerry Formation. Ground conditions were similar across the entire site. However, a significant thickness of Alluvial deposits (3.75m) was encountered in one position BH305, located in the south eastern corner of the site. The alluvium comprised a variable sequence of soft organic clays, sand and peat. Groundwater was only encountered in BH305 during the fieldworks, at a depth of 3.0m. Subsequent monitoring of installations placed with all five boreholes identified standing groundwater within three boreholes only at depths ranging from 1.3m to 4.0m.
Geotechnical Assessment and Recommendations	Conventional shallow spread foundations are considered appropriate for the proposed 2-storey buildings. Foundations should pass through any fine grained soils bear onto the underlying Limestone Deposits. Strip footings may be designed to a net allowable bearing pressure of 250kPa, which will give a factor of safety of greater than 3 against ultimate bearing capacity failure, and should result in long term settlements of less than 10mm for strip footings not more than 1m wide. The base of all foundation excavations should be inspected and any soft/loose spots replaced with a compacted granular medium. Where foundations are required to pass through fine grained soils within the zones of influence of existing trees it is recommended that the inside faces of all foundations are protected using compressible fill. The formation should be inspected by a suitably-experienced engineer or inspector. Floor slabs may be ground bearing for combined dead and live loads of up to 15kPa provided they are on a formation of either firm to stiff clay and or dense strong Limestone Deposits and the upper layer of topsoil has been removed. The Aggressive Chemical Environment for Concrete (ACEC) site classification be taken as AC-1s. Based on field mexe probe results a conservative CBR value of 3% can be taken for the Cohesive Deposits encountered across the site. However, a higher CBR value should be obtained where the formation levels comprises Limestone Deposits.

Ground Contamination Assessment and Recommendations	Taking into account the environmental setting of the site as well as the current and proposed development the overall risk rating for the site is considered to be of a low order. The site is located in an area where radon protection measures may be required in new dwellings and as such the risk associated with radon if deemed to be of a high order. However, the risk can be managed by obtaining a site specific risk assessment and subsequently implementing the level of protection measures detailed within this report. Land gas monitoring and subsequent assessment indicates that land gases (methane and carbon dioxide) pose a very low risk to development. Elevated levels of some metals, PAH species and hydrocarbons in the soil derived leachate samples from the site. The exceedances are generally considered to be low, although the slightly elevated risk rating reflects the proximity of surface water courses. No mitigation measures are deemed necessary.

1.0 INTRODUCTION

1.1 Instruction

WYG Environment (WYG) was commissioned by WYG Management Services on behalf of Defence Estates to undertake a geo-environmental ground conditions assessment for four separate sites located within the RAF St Athan area, South Wales. This report details the assessment carried out for the 'Tremains Farm' site only; the assessments for the remaining three sites are reported by WYG separately. The location of the Tremains Farm site is shown in Figure 1 and the general layout of the RAF St Athan area is shown in Figure 2.

1.2 Proposed Development

The outline proposed development is presented in Appendix H and comprises a residential development with associated private gardens, infrastructure and soft landscaping. The residential development comprises service families accommodation (SFA) for RAF St Athan. The exact layout of the development was not available at the time of investigation and reporting.

1.3 Brief

The brief was to undertake a combined ground contamination and geotechnical intrusive ground investigation following on from the 'Geo Environmental Desk Study Report' prepared by WYG in February 2009. The brief also included provision of an updated ground contamination and geotechnical ground conditions assessment with outline foundation and remediation/risk management (if required) recommendations and/or recommendations for further investigation/assessment.

1.4 Report Scope

This report provides the following key elements:

- A summary of the previous geo environmental desk study carried out by WYG.
- A summary of the rationale and scope of ground investigation work undertaken by WYG in October 2010.
- A discussion of ground conditions encountered beneath the site.

- A discussion of the engineering properties of ground conditions encountered.
- A geotechnical appraisal of the ground conditions encountered together with outline foundation recommendations.
- A ground contamination assessment of ground conditions encountered including a Tier 1 Generic Quantitative Risk Assessment and qualitative risk assessment in accordance with CIRIA 552.
- Recommendations for any further investigation and/or remediation/risk management if required.
- An executive summary of the report to allow a rapid, layman's overview.

1.5 Client Supplied Information

WYG has been provided with copies of numerous reports detailing previous investigations carried out by other consultants spanning the past 10 years. These reports were reviewed as part of the previous geo environmental desk study work reported by WYG in February 2009 and are referred to herein where deemed appropriate.

1.6 Limitations

This report is subject to the Terms and Conditions of Engagement as stated in Appendix A at the end of this report.

The information contained in this report is intended for the use of Defence Estates and their Consultant partners; WYG can take no responsibility for the use of this information by any third party or for uses other than that described in this report or detailed within the terms of our engagement.

2.0 SITE INFORMATION

2.1 Site Location

The Tremains Farm site is located approximately 0.5km to the east of Llantwit Major and 2.5km to the north west of the village of St Athan, centred on approximate national grid reference 298510, 168840.

A site location plan is presented at the end of this report as Figure 1.

2.2 Site situation and description

The site is irregular in shape and at the time of the investigation the site comprised two open grassed fields, which are divided approximately in half by a hedgerow trending northwest to southeast direction.. The larger western field slopes down to the south. The smaller eastern field is bisected by Llanmaes Brook, which flows from the north west to the south east, and by Boverton Brook, which flows to the southwest approximately parallel with the south western site boundary. Llanmaes Brook is located within an approximately 2m deep channel, which is culverted beneath an earth bridge in the north eastern corner of the site. Boverton Brook is located in an approximately 1m deep channel and can be crossed by a stone humpbacked bridge midway along the south eastern site boundary. The confluence of the two brooks coincides with the south eastern corner of the site.

Access to the site is gained via Cowbridge Road along the south eastern boundary. A track runs northward from Cowbridge Road, crossing the humpbacked bridge over the Boverton Brook.

2.2.1 Surrounding Land Uses

The surrounding land uses are summarised in the table below.

Table 1 Surrounding land uses

North	Agricultural fields.
East	Agricultural fields.
South	Junction of B4265 and Cowbridge Road beyond which are residential properties.
West	Railway line and B4265 beyond which are residential properties.

2.3 Site History

A detailed review of site history is presented in the previous WYG desk study report. A summary of the historical review is provided below.

On site land use history:

From the earliest available mapping in 1877 the site is shown to comprise agricultural fields divided by hedgerows. Llanmaes Brook is shown and flows from north west to south east adjacent to the eastern site boundary, and the Boverton Brook is shown which flows from east to west adjacent to the south western site boundary. An old limekiln is shown in the west of the site, and a small quarry is shown in the north of the site with a lime kiln until 1899 after which they are recorded as 'old'. The bridge across the Boverton Brook was shown from 1899. The primary site land use remained to be agricultural until recently when the site was vacated in October 2010.

Off site land use history:

The surrounding area predominantly comprised agricultural land use from 1877 onwards. Boverton village is located 230m to the south and Llanmaes village is 500m to north. From 1899 a railway was constructed adjacent to the south west boundary of the site. A number of small quarries and associated lime kilns were present in the surrounding area. RAF St Athan was recorded to the south and southeast of the site on an air ministry plan dated 1946; ordnance survey mapping recorded the RAF base from the early 1970s onwards (mapping was frequently doctored for security).

2.4 Published Geology

The geology of the site area is covered by British Geological Survey 1:50,000 mapping of the Bridgend area, Sheet No. 262 (solid and drift). The mapping indicates that the site is underlain by the Porthkerry Formation, which forms part of the Lower Lias Group. The geological memoir that accompanies the map indicates that the Porthkerry Formation consists of thinly bedded limestone and clay and can be in excess of 120m thick. The mapping also shows that there is alluvium located in the south east corner of the site to the south of Boverton Brook.

2.5 Published Hydrogeology

The hydrogeology of the site area is detailed in the Environment Agency map 'Groundwater Vulnerability of Gwent, South and Mid Glamorgan', Sheet 36. This map classifies the ground beneath the site as a Secondary Aquifer (formerly referred to as a Minor Aquifer). Secondary Aquifers are variably permeable and although they do not produce large quantities of water for abstraction, they can be important for local supplies and in supplying base flow to rivers. Soils in the area are classified as having a high leaching potential.

The Tremains Farm site is not located within an Environment Agency designated Source Protection Zone (SPZ).

2.6 Hydrology

There are two surface watercourses located within the site boundaries; Llanmaes Brook, which flows from north west to south east adjacent to the eastern site boundary, and Boverton Brook which flows from east to west adjacent to the south western site boundary. There are no Environment Agency River monitoring points within 2km of site.

Environment Agency flood mapping indicates that an approximately 40-60m wide corridor adjoining Llanmaes Brook and Boverton Brook are at risk from Zone 2/3 flooding from rivers without flood protection.

2.7 Radon

Based on the mapping included in BRE document 211, Radon: Guidance on Protective Measures for New Dwellings – 2007' the site is located in an area where full radon protection measures may be required for new dwellings. It is therefore recommended that a site specific BRE211 Radon Report is obtained for the site which will provide guidance on the level of radon protection measures required for the site.

2.8 Environmental Database

A detailed review of an environmental database provided by Landmark Information Group is provided in the WYG desk study report. A summary of the notable features is presented below.

- There are no discharge consents or groundwater abstraction consents registered within 500m of the site,

- There are no active of historic landfill sites within 1km of the site.
- There are no sensitive land uses within 1km of the site.

In addition, the contaminated land officer at Vale of Glamorgan County Borough Council was contacted on the 19th November 2008 and 15th December 2008 to request any information the council hold within their database that is deemed relevant to the site and any development. The contaminated land officer highlighted a number of small quarries both on site and in the vicinity of the site but that these had not been prioritised under Phase I of the local authority inspection strategy and the council has no current concerns regarding these sites.

The Environment Agency was also contacted who stated that they have no specific record of the site or adjoining land being contaminated. However this does not guarantee that no land contamination is present at the site, and it would be prudent to investigate the historical land uses of the site and its surroundings to ascertain whether any past activities may have caused land contamination to have taken place.

2.9 Radiation

A radiological risk assessment was previously undertaken by Enviros Limited within an area known as the Sales Field area and an adjoining area known as the R&D (research and development) Workshop; both areas were associated with the wider RAF St Athan base (see Figure 2). These areas have a history of aircraft dismantling and repairs with associated incineration of waste materials including luminised aircraft dials that contained radioactive materials. The Enviros Limited investigation work is detailed within their report 'Land Quality Assessment Phase Two: Radiological Assessment Report – Final' dated 2003. Hotspots of elevated radiation levels were identified by Enviros on both the Sale Field and R&D Workshop areas. These hotspots were subsequently remediated by Parsons Brinkerhoff as detailed in their report 'Remediation of land at RAF St Athan' dated 2004.

Although the site lies away from the area subject to remediation, a scintillometer was used as a personal monitor for operatives on site and to screen samples before removal form site. No elevated radiation levels were encountered during the intrusive ground investigation works undertaken by WYG.

2.10 UXO (Unexploded Ordnance)

A desk based assessment of the wider area around the site, focussed on activity around RAF St Athan, was previously presented by Parsons Brinkerhoff (RAF St Athan, Explosive Clearance and Development Desktop Study) in 2008.

The area covered by the site was given a low risk rating. The report recommends that prior to any excavation being undertaken, all personnel should be provided with ordnance awareness training and a trained UXO expert should be available for call out.

2.11 Archaeology

An archaeological assessment of an area including the Tremains Farm site was carried out by Entec (EM38 Magnetic Susceptibility Survey with Recommendations for the Initial Phase 2 Magnetometer Survey, St Athan, Entec 2008). A potential anomaly was located within the Tremains Farm site and as such all excavations on site were observed by a WYG Archaeologist.

3.0 SCOPE & RATIONALE OF WYG FIELDWORK

An intrusive site investigation was undertaken by WYG Environment between 8th and 13th October 2010. Details of the fieldwork methods used are given in the Notes section at the end of this report. The scope of the works is outlined below.

- Nineteen machine excavated trial pits were advanced to depths of between 0.45m and 1.90m below ground level (bgl). The pits were undertaken to provide general coverage of near surface ground conditions across the site.
- Five rotary cored/windowless sample boreholes were advanced to depths of between 3.60m and 5.50m bgl with in situ SPT (standard penetration testing) testing. The rotary cored/windowless samples were undertaken to provide general coverage of near surface ground conditions beneath the site.
- Land gas and groundwater monitoring installations were constructed within all of the rotary cored/windowless sample boreholes.
- Soakaway tests were undertaken in two additional trial pits (SAW301 and SAW305).
- Laboratory geotechnical and chemical testing.
- Three return land gas monitoring visits
- A single return groundwater monitoring visit was undertaken and samples obtained for analysis.

Figure 4 shows the approximate layout of the exploratory holes. Engineering logs are presented in Appendix B of this report. Monitoring data is presented in Appendix C.

4.0 GROUND CONDITIONS ENCOUNTERED.

4.1 Soil Conditions

The sequence of strata beneath the site has been determined from observations made during the intrusive site investigation.

- Topsoil
- Localised Alluvial Deposits
- Cohesive Deposits (Porthkerry Formation)
- Limestone (Porthkerry Formation)

Depths and thicknesses of the various strata encountered are summarised in the table below.

Table 2 – Summary of Ground Conditions Encountered

Exploratory Position	Topsoil (mbgl)	Alluvium (mbgl)	Cohesive Deposits (Porthkerry Formation) (mbgl)	Limestone (Porthkerry Formation) (mbgl) *
TP301	GL – 0.25	-	0.25 – 0.45	0.45 – 0.70
TP302	GL - 0.20	-	0.20 – 0.50	0.50 – 0.76
TP303	GL – 0.20	-	-	0.20 – 0.50
TP304	GL – 0.20	-	-	0.20 – 0.45
TP306	GL – 0.20	-	-	0.20 – 0.50
TP307	GL – 0.20	-	-	0.20 – 0.65
TP308	GL – 0.15	-	0.15 – 0.35	0.35 – 0.70
TP309	GL – 0.25	-	0.25 – 0.40	0.40 – 0.70
TP310	GL – 0.20	-	0.20 – 0.50	0.50 – 1.10
TP311	GL – 0.15	-	0.15 – 0.30	0.30 – 0.80
TP312	GL – 0.20	-	-	0.20 – 0.60
TP313	GL – 0.10	-	0.10 – 0.40	0.40 – 0.60
TP314	GL – 0.15	-	-	0.15 – 0.50
TP315	GL – 0.15	-	-	0.15 – 0.60
TP316	GL – 0.10	-	0.10 – 0.80	0.80 – 1.10
TP317	GL – 0.10	-	0.10 – 0.40	0.40 – 0.45

TP318	GL – 0.10	-	0.10 – 0.55	0.55 – 0.90
TP319	GL – 0.10	-	-	0.10 – 0.70
TP320	GL – 0.10	-	-	0.10 – 0.60
BH301	-	-	GL – 0.70	0.70 – 3.80
BH302	-	-	GL – 1.00	1.00 – 4.00
BH303	-	-	GL – 0.70	0.70 – 5.50
BH304	-	-	GL – 0.60	0.60 – 3.60
BH305	-	GL – 3.75	-	3.75 – 5.00

4.1.1 Topsoil

Topsoil was encountered in all trial pit investigation positions, and ranged in thickness between 0.1m and 0.25m. It was uniform in composition and consisted primarily of clay. Consistencies varied between firm and stiff.

4.1.2 Alluvial Deposits

Alluvial deposits were encountered in one investigation position (BH305) located within the south eastern corner of the site. A probable thickness of 3.75m was record, however, due to a lack of recovery during the advancement of BH305, it is not possible to identify or describe the top of this strata. The alluvial deposits comprised a variable sequence of soft organic clays, sands and a 0.2m thick peat layer.

4.1.3 Fine Grained Deposits (Weathered Porthkerry Formation)

Cohesive Deposits were encountered in most investigation positions, and ranged in thickness between 0.15m and 0.7m. It was generally uniform in composition and consisted primarily of sandy gravelly clay with occasional cobbles of limestone. Consistencies varied between firm and stiff. It is presumed that this residue soil has been derived from the weathering of the Porthkerry Formation.

4.1.4 Limestone (Porthkerry Formation)

Limestone was encountered in all investigation positions, and was encountered at a depth of between 0.1m and 0.8m.

During trial pitting, the limestone was generally recovered as angular cobbles of limestone with a minor constituent of brown clay in weathered horizons. Rock cores obtained from the boreholes comprised strong grey slightly, locally moderately to moderate weathered limestone with closely spaced horizontal to vertical

fractures with silt or clay infill. However, core recovery was locally poor and perhaps indicative of more heavily fractured/weak zones or clays layers. Between limestone bands.

4.2 Soakaway testing

Trial Pits SAW301 and SAW305 were excavated to depths of 0.8 and 1.05m, respectively, exposing a sequence of topsoil to 0.2mbgl, over Limestone. No groundwater was encountered in either test pit.

Following excavation, each pit was prepared for infiltration testing, broadly in accordance with BRE365. Due to relatively low rates of infiltration at the time of testing, it was not possible to complete repeat tests in either of the pits, as recommended in BRE365.

Using the calculation method provided in the BRE Digest 365, whilst taking into consideration the geometry of the test section, infiltration rates have been calculated for SAW301 and SAW305 of 6.19×10^{-6} m/s and 1.20×10^{-6} m/s, respectively. These correspond to a qualitative indication of low permeability and poor drainage conditions.

4.3 Obstructions

Underground obstructions were not encountered in any of the exploratory locations. Limestone bedrock was encountered in all locations.

4.4 Visual / olfactory evidence of contamination

No visual or olfactory evidence of contamination were identified during the site investigation or subsequent groundwater monitoring.

4.5 Asbestos

Suspected asbestos containing materials (ACM) were not identified either on the ground surface or within soil arisings during the site investigation.

4.6 Groundwater

A groundwater flow was observed at a depth of 3.00m within BH305 and occurred as a rapind inflow from the Alluvial deposits.

Monitoring installations were constructed within the all of the rotary cored/window sample boreholes across the site to depths of between 3.60m to 5.50m bgl. Details of the various installations are presented below.

Table 3 Summary of gas/groundwater installations

Location	Base Depth (m bgl)	Screen (m bgl)
BH301	3.80	1.00 – 3.80
BH302	4.00	1.00 - 4.00
BH303	5.50	1.00 – 5.50
BH304	3.60	1.00 – 3.60
BH305	4.00	1.00 - 4.00

Groundwater monitoring was also undertaken during three return visits and the results are summarised in the table below.

Table 4 Summary of groundwater monitoring visits

Exploratory Position	8th November 2010 (m bgl)	16th November 2010 (m bgl)	23rd November 2010 (m bgl)
BH301	3.98	3.90	3.95
BH302	3.00	3.00	3.05
BH303	Wet at base (3.80)	Wet at base (3.80)	Wet at base (3.80)
BH304	Wet at base (4.00)	3.90	Wet at base (4.00)
BH305	1.35	1.30	1.30

4.7 Land Gas Monitoring

Three return monitoring visits were undertaken between 8th, 16th & 23rd of November 2010 and the results collected from the site have been assessed within this report as presented in Section 9.0. Carbon dioxide concentrations of up to 1.2% by volume were recorded. Gas flow rates of up to 0.1l/hr were recorded.

4.8 Radiation Monitoring

A personal radiation monitor was used on site in order to provide a record of levels of radiation present on site. In addition, all samples were screened by a scintillometer prior to removal from site. During the WYG site investigation, no radiation was detected above background values for the surrounding area.

4.9 Archaeological Supervision

All excavations on site were overseen by a WYG archaeologist in order to identify findings associated with the archaeological anomaly identified on site. The excavations were not interrupted by any findings.

5.0 LABORATORY TESTING

5.1 Geotechnical testing

A programme of laboratory testing was carried out on samples taken from the various strata to determine the engineering properties of the materials underlying the site. The testing was scheduled by WYG and carried out by Geo Laboratory Testing Services Limited which is an approved supplier in accordance with the requirements of WYG quality system and is UKAS accredited for a range of geotechnical tests.

The test procedures used were generally in accordance with the methods described in BS1377:1990. Details of the specific tests used in each case are given below:

Table 5 Summary of Geotechnical Testing Suite - Soils:

TEST	STANDARD (BS1377:1990)	No.
Moisture Content	Part 2, Clause 3.2	8
Liquid Limit (cone penetrometer method)	Part 2, Clause 4.3	8
Plastic Limit	Part 2, Clause 5.3	8
Plasticity Index	Part 2, Clause 5.4	8
Particle size distribution	Part 2, Clause 9.2	4
BRE SD1Suite	Part 3 and BRECP2/79	6
Determination of CBR	Part 4, Clause 7	3
Point Load Index (Rock)*	ISRM suggested method	4
Unconfined Compressive Strength (Rock)*	ISRM suggested method	5

* not BS tests

Laboratory geotechnical test results are presented in Appendix E.

5.2 Chemical testing

The environmental chemistry of the ground was investigated by specialist chemical analysis of selected samples, scheduled by WYG. The testing was carried out by Scientifics Limited which is an approved supplier in accordance with the requirements of WYG quality system and is UKAS accredited for a range of chemical analyses.

The following suite of determinands were tested for on 19 soil samples, 7 soil derived leachate samples and 2 water samples. In addition, 5 soil samples were submitted for pesticide testing (organophosphorous and organochlorine compounds).

Table 6 Summary of typical chemical testing suite (soils, soil derived leachate and water samples)

• Boron (H_20 Soluble) • Antimony • Arsenic • Cadmium • Chromium • Copper • Lead • Mercury • Molybdenum • Nickel • Selenium • Zinc • Barium • Beryllium. • Iron • SO4-- (H_2O sol) • pH units • Cyanide(Free) • Phenol Index. • Asbestos Screen • Tot.Moisture @ 105C	• DRO by GCFID • TPH by GCFID • Exchange.Ammonium • Chromium vi: • MTBE • Total Organic Carbon • Phenol • Cresols • Xylenols • Trimethylphenols • Total Phenols • Speciated PAH (16 USEPA) • Total (USEPA16) PAHs • Phenol • Fractionated TPH (CWG Aliphatic Aromatic C_5-C_{40}) • Benzene • Toluene • Ethylbenzene • m and p-Xylene • o-Xylene

Laboratory chemical test results are presented in Appendix F at the end of this report. A discussion of the test results is presented in Section 6.0.

6.0 GROUND ENGINEERING PROPERTIES

6.1 Ground conditions

Ground conditions have been assessed to be fairly consident across the site, generally comprising a thin layer of topsoil overlying a thin layer of cohesive deposits or limestone bedrock. Alluvial deposits are recorded to the south of the Boverton Brook. The lithological variations encountered have been summarised in Section 4.0.

6.2 Soil Properties

The ranges of the various soil properties measured are discussed below, to aid in the selection of design values. However, the appropriate choice of characteristic and design values will depend on the particular analysis and design philosophy used, and should be selected by the designer. It should be noted that test data collated from the site have been used to inform the discussion below.

6.2.1 Cohesive Deposits (Weathered Porthkerry Formation)

The geotechnical properties of the fine grained soils of the Porthkerry Formation are summarised in Table 7 based on field observation, field tests and laboratory tests.

Table 7 – Summary of geotechnical properties – Fine Grained Deposits (Porthkerry Formation)

	No. of results	Range (min-max)	Average	Lower quartile	Upper quartile	Characteristic value+
Natural moisture content (m - %)	8	28 – 42	33	31	35	31
Liquid limit (LL)	8	49 – 67	56	54	57	57
Plastic limit(PL)	8	30 – 45	33	31	32	31
Plasticity index (PI)	8	18 – 27	23	23	24	24
Modified Plasticity index (PI_m %)	8	17 - 24	23	18	24	24
Liquidity index (LI)*	8	-0.14 – 0.29	0.01	-0.116	0.095	-0.116

Undrained shear strength:							
- from hand vane	**c** (kPa)	7	67-110	86	76	110	80
CBR (%)	**Mexe Cone**	10	1.5-5	3.3	3	3.9	3.0
	Laboratory Derived	3	2.5-36.2	3.65	3.7	4.2	

Notes: * Liquidity index (LI) is defined as: LI = (m – PL)/PI;
+ suggested characteristic values are appropriate for most normal applications but designers should satisfy themselves that they are suitable for the specific application and design method they are using.

These results above correspond to a clay soil of high plasticity. A modified plasticity of 24% equates to a soil of medium volume change potential.

Chemical testing was undertaken on six samples of the cohesive deposits to allow the assessment of ground aggresivity on concrete. The results are presented in the table below.

Table 8 Chemical Test data for Assessment of Ground Aggresivity on Concrete

Location	Depth (mbgl)	Acid soluble sulphate as % SO_4	Aqueous extract sulphate as % SO_4	Soluble Chloride (%)	pH value	Total Sulphur %	Magnesium (g/l)	Nitrate (mg/l)
TP301	0.40	0.07	<0.01	NCP	7.20	0.22	<1	<10
TP302	0.40	0.05	<0.01	NCP	7.13	0.19	<1	<10
TP316	0.40	0.05	<0.01	NCP	7.48	0.18	<1	<10
TP318	0.40	0.03	<0.01	NCP	7.29	0.12	<1	<10
TP319	0.50	0.03	<0.01	NCP	7.52	0.10	<1	<10
TP320	0.50	0.03	<0.01	NCP	7.57	0.12	<1	<10

6.2.1 Alluvial Deposits

Alluvial deposits were only encountered with one position, BH305, and therefore the geotechnical data collected on these soils is limited. The clay alyers were typically identified in the field as being soft. A single SPT undertaken at a depth of 3.3m recorded an SPT N value of 13.

6.2.1 Limestone bedrock (Porthkerry Formation)

Standard penetration tests (SPT's) undertaken within these deposits refused before achieving full penetration in all but 1 test where an SPT N value of between 37 was recorded. Given the known presence of weaker layers/horizons within the Portkerry Formation, a characteristic SPT N value of 37 is recommended. In order to take into account the weaker horizons locally encountered in the upper parts of the Porthkerry Formation, it is recommended that it be considered a clay. Using the approximate correlation proposed by Stroud and Butler of undrained shear strength (Cu) = 4.5 x SPT N value, an undrained shear strength of 165kN/m2 can be assumed. An estimation of the angle of shearing resistance can be made based on the correlation after Peck et al (1974); for an SPT N value of 37 equates to a angle of shearing resistance, ϕ, of 38°.

Unconfined compressive strength testing was undertaken on shallow rock samples from Boreholes 301, 302, 303 and 304 with results ranging from 68 – 77MPa, which would indicate a strong Limestone.

Point load tests gave Point Load Indicies (I_{s50}), corrected for size, of 3.83 to 5.18. Previous studies by a number of authors have indicated a correlation for converting a Point Load Index to a UCS; as detailed below:

UCS = K x I_{s50} where K has been shown to range between 15 and 24 for sedimentary rocks.

Based on this correlation and using a conservative value of k of 15, this would indicate UCS values ranging between 57 to 77MPa, which correlates well with the actual UCS tests.

7.0 GEOTECHNICAL DISCUSSION

7.1 Proposed Development

It is understood that it is proposed to construct a number of new two-storey residential buildings with associated car parking, the layout of which is presented in Appendix H.

Information relating to likely foundation loadings was not available at the time of reporting.

7.2 Shallow Spread Foundations

Based on the ground conditions encountered across the site, strip (traditional or narrow trench fill) or pad footings will be suitable for low- and medium-rise buildings (up to three storeys) provided they are founded within the Limestone bedrock of the Porthkerry Formation, typically encountered at depths ranging from 0.15 to 0.7m, with the exception of BH305 where Limestone was encountered at 3.75m, overlain with soft organic Alluvium. However, this area to the South of Boverton Brook is not part of the proposed development.

It is recommended that spread foundations should pass through overlying fine grained deposits and bear onto the underlying Limestone Deposit, with a minimum depth of 0.85m below ground or as otherwise required by regulatory authorities.

Strip or pad footings taken through any fine grained soils and founded a minimum 200mm within the underlying Limestone Deposit, may be designed to a net allowable bearing pressure of 250kPa. This will give a factor of safety of greater than 3 against ultimate bearing capacity failure, and should result in settlement of less than 20mm for strip or pad footings of not more than 1m wide.

The bases of foundation excavations should be inspected by a suitably experienced engineer and any soft or otherwise unsuitable material removed and replaced with compacted granular fill or lean concrete, or the founding depth increased. Where ground conditions vary greatly in the base of foundation excavations (for instance, the transition from clay to limestone band), it would be advisable to add steel reinforcement in the area of variation to inhibit cracking and smooth out differential movement. Any hard spots (such as old foundations), should also be removed. Where foundations are required to pass through fine grained soils within the zones of influence of existing trees it is recommended that the inside faces of all foundations are

protected using a compressible material, in line with the recommendations given in NHBC guidance Chapter 4.2.

Should the proposed development plans change and structures be included within the area south of Boverton Brook, consideration will need to be given to the use of piled foundations or other suitable means of transferring structural loads onto the Porthkerry formation which occurs in this area at depths greater than 3m. Floor slabs will also need to be suspended due to the presence of low strength, compressible soils near surface.

7.3 Floor Slabs

Floor slabs may be ground bearing for combined dead and live loads of up to 15kPa and may be expected to settle less than 10mm provided they are on a formation of either firm to stiff and or Limestone Deposits and the Topsoil has been removed. The formation level should be proof rolled using a heavy vibrating roller and inspected by a suitably-experienced engineer or inspector. Any material such as soft clay, deleterious material containing weak or degradable contaminants, or other unsuitable material, should be excavated and replaced by well-compacted granular fill.

7.4 Concrete

The Porthkerry Formation is part of the Lower Lias, which is a known to contain 5-8% pyrite. Pyrite (FeS may be converted to sulphates and therefore total potential sulphate needs to be determined. Chemical tests (see Appendix E) show low levels of water soluble sulphates but near neutral conditions. Based on these conditions, it is recommended that for foundations the Design Sulphate Class for the site, as defined in BRE Special Digest 1, be taken as DS-2 (due to the potential pyritic nature of the deposits), and the Aggressive Chemical Environment for Concrete (ACEC) site classification be taken as AC-2.

7.5 Road and Pavement Design

Given the organic content of the topsoil / made ground it is assumed that this will be stripped prior to pavement construction. Based solely on estimates of CBR obtained using the laboratory data and mexe probe results from the near surface Deposits, a design CBR of 3% can generally be applied across the site.

In line with good practice, it is however recommended these design values are confirmed prior to pavement construction via in-situ testing.

As with good construction practice it is recommended the formation level be inspected and that any areas of soft/loose deleterious strata or pockets of silt/clay are replaced with an appropriately compacted coarse grained material. Likewise, any hard spots (such as old foundations) should also be removed to guard against reflective cracking in the pavement. Proof rolling/compaction of the formation level should be carried out prior to laying the new pavement.

For all pavement formation levels, particularly those with increasing depth, care should be taken not to cause degradation and softening due to heavy trafficking and excessive moistening. As such the formation should be protected during construction.

It should be noted that localised linear strips of Made Ground materials may also be encountered where service trenches cut across the site.

7.6 Temporary Works

It is considered at this stage that temporary works will comprise excavations for foundations and service runs which are likely to penetrate the fine grained and Limestone Deposits.

Trial pit excavations remained during investigation works, however, they were difficult to excavate owing to the presence of cobbles and shallow limestone bedrock. It should therefore be anticipated that similar problems will be encountered for foundation and services excavations, which may require a breaker and higher rated plant to achieve required depths.

It is recommended that as excavations proceed that care be taken to ensure that potential collapse, even of shallow excavations, will not compromise the integrity of existing foundations or services.

Where man entry into excavations deeper than 1.20mbgl is required, it is recommended that excavations are either shored or that the sides of excavations are battered to a safe angle of repose.

It is not anticipated that significant dewatering will be required for foundation excavations. However, it is recommended that for any dewatering, albeit likely to be minimal be undertaken in accordance with the guidelines of CIRIA C515 Groundwater control – design and practice, 2000.

8.0 CONTAMINATION ASSESSMENT

8.1 Introduction

The UK Contaminated Land Regime allows for a tiered approach to ground contamination assessment which is designed to allow increasingly site specific site assessment. The first tier comprises a generic quantitative risk assessment (generic QRA) which forms the focus of this report. This first tier involves comparison of chemical data attained from samples taken from the site with accepted generic compliance criteria in order to identify potential constituents of concern (COCs) that may require further assessment/consideration. The generic compliance criteria are derived by means of computer modelling using input parameters reflective of typical ground conditions, chemical fate and transport properties, and typical receptors. Where COCs are identified, further investigation and/or risk assessment such as a detailed quantitative risk assessment QRA may be undertaken.

The generic QRA present in this report is based on the chemical data attained by WYG during September 2010 and forms the basis for the risk assessment and recommendations for further investigation/assessment and remedial/risk management action presented in Section 11.0.

8.2 Generic compliance criteria (screening values)

The chemical results attained by WYG have been screened against compliance criteria for human health and controlled waters as summarised below.

Human Health Criteria:

- CIEH/LQM Tier One generic assessment criteria
- CLEA Soil Guideline Values published by DEFRA/EA (where available)
- WYG Tier 1 Screening Criteria (issue 11) derived using the derivation tool CLEA version 1.06.

Screening values for human health assessment are available for four land use scenarios; residential with plant uptake, residential without plant uptake, commercial/industrial, and allotments. As the proposed development comprises the construction of residential properties with gardens, a 'residential with plant uptake' land use scenario has been selected for the soil contamination assessment with respect to risk to human health.

Controlled Waters Criteria:

- Environmental Quality Standards (EQS)
- Dutch Intervention Values (DIVs)
- UK Drinking Water Standards for groundwater contaminants not addressed by the above.

With regard to the controlled waters assessment criteria, some compliance criteria are below the laboratory method detection limit for particular constituents. In these instances the limit of detection is considered sufficient in highlighting significant contamination and so has been defaulted to as the screening tool.

It should be noted that the above assessment criteria are intended to indicate to an assessor that concentrations above this level might present an unacceptable risk to the receptor and that further assessment, site investigation or remediation/risk management may be required. They are not intended to be used as categoric indicators of significant contamination.

8.3 Human Health Risk Assessment

Nineteen soil samples were taken from shallow soils underlying the site during the WYG ground investigation and were submitted for chemical laboratory testing. The chemical data have been screened against the relevant compliance criteria outlined above.

No determinants were identified to be present at levels above the relevant screening criteria for the site setting.

Five soil samples from across the site were submitted for pesticide and herbicide chemical testing (organophosphorous and organochlorine compounds). All of the compounds were detected at concentrations less than the laboratory limit of detection.

8.4 Asbestos

Asbestos containing materials (ACM) were not identified in any of the soil samples submitted for laboratory chemical analysis.

8.5 Controlled Waters Assessment

11.5.1 Soil derived leachate

Seven soil samples were taken from shallow soils underlying the site and submitted for soil derived leachate chemical laboratory testing.

The chemical data have been screened against the relevant compliance criteria outlined in Section 8.2. The following table summarises the determinands encountered in the soil derived leachate samples which exceed their respective compliance criteria.

Table 9 Determinands identified at levels exceeding Tier 1 compliance criteria

SOIL DERIVED LEACHATE						
Determinand	**No of samples**	**Min (µg/l)**	**Max (µg/l)**	**Screening Value (µg/l)**	**No of Exceedances**	**Locations**
Copper	7	1	6	16	7	All locations
Lead	7	<1	5	4	1	TP306,0.1m Topsoil
Zinc	7	94	189	8	7	All locations
Iron	7	80	600	200	5	TP302, 0.4m Porthkerry Fm TP303, 0.1m Topsoil TP306, 0.1m Topsoil TP312, 0.1m Topsoil TP314, 0.1m Topsoil
Barium	7	320	580	100	7	All locations
Anthracene	7	<0.01	0.988	0.02	1	TP302, 0.4m Porthkerry Fm
Fluoranthene	7	<0.01	0.263	0.02	2	TP302, 0.4m Porthkerry Fm TP312, 0.1m Topsoil
Benzo(a)pyrene	7	<0.01	0.014	0.01	1	TP302, 0.4m Porthkerry Fm
Aromatic hydrocarbon C12-C16	7	<10	12	10	1	TP312, 0.1m Topsoil
Aliphatic hydrocarbon C16-C21	7	<10	15	10	1	TP312, 0.1m Topsoil
Aromatic hydrocarbon C16-C21	7	<10	12	10	1	TP312, 0.1m Topsoil

A number of metals PAH species and hydrocarbon bandings have been identified as potential COCs within soil derived leachate from the shallow soils on site. This is discussed further in Section 11.0.

11.5.2 Groundwater

Two installations (BH301 and BH305) had sufficient groundwater within then for sampling to be undertaken and were submitted for chemical laboratory testing.

The chemical data have been screened against the relevant compliance criteria outlined in Section 8.2. The following table summarises the determinants encountered in the groundwater which exceed their respective compliance criteria.

Table 10 Determinants identified at levels exceeding Tier 1 compliance criteria

GROUNDWATER						
Determinant	**No of samples**	**Min (µg/l)**	**Max (µg/l)**	**Screening Value (µg/l)**	**No of Exceedances**	**Locations**
Phenol	2	0.6	0.7	0.5	2	BH301, BH305

Phenol has been identified as a potential CoC within the groundwater samples taken from the site. This is discussed further in Section 11.0.

8.6 Summary of COCs

The COCs identified at the Private Site are summarised in the table below.

Soil	Soil Derived Leachate	Groundwater
NONE	Copper Lead Zinc Iron Barium Anthracene Fluoranthene Benzo(a)pyrene Aromatic hydrocarbon C12-C16 Aliphatic hydrocarbon C16-C21 Aromatic hydrocarbon C16-C21	Phenol

8.7 Waste

In developing the site it is likely that certain soils e.g. from foundation and service excavations might be discarded as waste. It will be the contractor's responsibility to classify the waste and to dispose of it at an offsite facility with an appropriate environmental permit for the recovery and / or deposition of the waste. The cost of classifying and disposing of waste should be allowed for by the contractor.

In some circumstances it might be possible to re-use soils on site if they are suitable chemically and geotechnical and have certainty of use (e.g. are required as part of structures of landscape that are part of the permitted development). The guidance provided in the CLA:IRE Document: Definition of Waste – A development industry code of practice should be followed.

9.0 LAND GAS RISK ASSESSMENT

9.1 Introduction

The land gas assessment presented herein has been undertaken in accordance with current guidance provided by CIRIA 665 and is based on the three round of land gas monitoring data collected by WYG during November 2010. The data was collected from a series of monitoring wells installed across the site.

9.2 Land Gas Monitoring

Monitoring installations were constructed in all of the boreholes advanced during the WYG ground investigation and targeted the shallow soils underlying the site to circa 5.5m bgl. Construction details of the monitoring installations are provided on the relevant engineering logs in Appendix B.

Three return monitoring visits were undertaken by WYG on 8th, 16th and 23rd November 2010. Methane, carbon dioxide, oxygen, carbon monoxide and hydrogen sulphide were monitored using a GA2000 Gas Analyser. The gas analyser was also used to record gas flows for each monitoring well. Calibration certificates for the monitoring equipment, valid during the period of monitoring, can be made available on request.

The monitoring results are provided in full in Appendix C and summarised below. It should be noted that the concentrations and levels of mobile liquid and gaseous materials are likely to vary with time. The results obtained are therefore representative of conditions at the time of monitoring only.

9.3 Land gas assessment methodology

CIRIA 665 allows or a volumetric assessment of land gas data to derive a 'gas screening value' (GSV) which can be used to place the site within generic risk categories termed 'characteristic situations' which in turn determine the level of gas protection measures required (if any) for new developments. The calculation used to determine the characteristic situation for the site is as follows:

GSV (litres of gas per hour) **= maximum borehole flow rate** (litres per hour) **x maximum gas concentration** (volume/100).

The gas screening value can then be used to determine the site characteristic situation applicable in accordance with CIRIA 665 as defined in the following table.

Table 11 CIRIA 665 Gas Screening Values

Characteristic situation	Risk classification	Gas screening value (l/hr)
1	Very low risk	<0.07
2	Low risk	>0.07, <0.7
3	Moderate risk	>0.7, <3.5
4	Moderate to high risk	>3.5, <15
5	High risk	>15, <70
6	Very high risk	>70

9.4 Land gas assessment and discussion

Potential land gas sources on site:

It is considered that the primary source of land gasses on site relate to the alluvial deposits located in the south east corner of the site adjacent to the Boverton Brook. A borehole (BH305) identified these deposits including bands of pseudo fibrous peat (0.2m thick) and organic matter in other strata. The landgas monitoring screen within this well was constructed across these deposits, although is should be noted that the groundwater recorded within this position of 1.3m means the peat layer is submerged.

Carbon dioxide:

Using a maximum flow rate of 0.1 l/hr and a maximum carbon dioxide concentration of 1.2% by volume, a GSV of 0.0012 l/hr is calculated. This GSV classifies the site as characteristic situation 1 – very low risk.

Methane:

Methane was not recorded at concentrations above the limit of detection of the gas monitor. As such this classifies the site as characteristic situation 1 – very low risk.

9.5 Gas protection measures and recommendations

Based on the data attained to date and a characteristic situation of 1 (very low risk) it may be that no special gas protection measures are required (in line with guidance provided in CIRIA 665).

The primary objective of land gas monitoring is to monitor worst case conditions whereby atmospheric pressure is low (preferably <1000mbar and/or falling).The three monitoring visits undertaken to date have all been undertaken during times of low atmospheric pressure with the one monitoring round undertaken when atmospheric pressure recorded on site was less than 1000mbar. Given the minimal land gas source potential identified beneath and adjacent to the site and the results recorded to date, it is considered that the land gas monitoring data collated to date is representative of the source potential of the site and worst case conditions. It is therefore considered that further land gas monitoring is not required. However this is subject to the agreement of the local authority/environmental health officer.

9.5.1 Radon

As outlined in Section 2.7, the site is located in an area where full radon protection measures may be required in new dwellings. It is therefore recommended that a site specific radon report is obtained for the site which will determine the level of any protection measures required to protect against the risk from radon.

10.0 SITE CONCEPTUAL MODEL AND GROUND CONTAMINATION RISK ASSESSMENT

10.1 Overview

In general, ground contamination can occur through several causes, particularly from historical operations and activities. The contamination can result from either on site sources or from on site migration from off site sources, leading to long term liabilities under recent legislation for any site owner.

The Environment Act 1995 (Section 57) makes provisions for a risk based framework for the identification, assessment, management and redevelopment of contaminated land within the UK. The provisions of the Act came into effect in England and Wales in July 2001 and are aimed at ensuring that actions taken with respect to contaminated land are directed by a technically well founded assessment of risk.

The process of risk assessment is an evaluation of the probability of harm, and comprises the identification of sources of contamination, receptors that may be affected by the contamination and pathways by which the receptors may be harmed.

A site conceptual model for the site is presented below and is based on the site information presented in the preceding sections. The site conceptual model forms the basis for the qualitative assessment of ground contamination risks associated with the site also presented herein.

10.2 Site conceptual model

10.2.1 Sources

The primary sources of potential contamination/land gases at the site are considered to be the following:

- *Contamination in shallow soils.* Chemical testing of the shallow sols (topsoil and weathered Porthkerry Formation) and subsequent assessment has not identified any potential contaminants of concern with respect to the risks posed to human health in a residential with plant uptake (i.e. private gardens) scenario.
- *Mobile contamination in shallow soils:* the Topsoil/Made Ground has been found to be a potential source of leachable metals, PAHs species and hydrocarbons that may pose a risk to controlled

waters should they become mobilised (i.e. through leaching) and enter any sensitive controlled water receptors (i.e. groundwater or the on site surface water bodies).

- Groundwater: elevated concentrations of phenol were identified in both of the groundwater samples obtained from the site. It should be noted that in both the soil samples and the soil derived leachate tests, concentrations of phenol were below the laboratory levels of detection and as such it is considered unlikely that the phenol is derived from an on site source. It should also be noted that the concentrations recorded are considered to be low.

- *Land gas:* The land gas assessment presented herein indicates that the risk from land gases associated with the shallow strata underlying the site is very low. It is considered that the land gas monitoring data recorded to date is representative of site conditions therefore further monitoring is not required, however this is subject to the agreement of the EHO/Local Authority.

- *Radon:* it has been identified that the site is located in an area where radon protection measures may be required for new dwellings. This indicates that the geology below the site has the potential to produce radon gas. Without a site specific risk assessment it has been assumed that radon remains a risk associated with the site.

- *Radiation linked to surrounding land uses linked to RAF St Athan:* monitoring undertaken on site during the site investigation and of the resulting samples did not detect radiation levels above background readings.

- *UXO:* previous assessment work undertaken by Parsons Brinkerhoff has identified a low risk of UXO being present as discussed in Section 4.8. An EOD engineer from EOD Contracts Ltd provided an awareness training for personnel on sit and no suspected UXO were identified.

The primary off site sources of potential contamination at the site are considered to be the following:

- *Off site impacted Groundwater:* Hydrocarbon contamination in groundwater associated with RAF St Athan has been well documented by other consultants who have investigated the wider RAF St Athan area, however it is understood that groundwater remediation is currently ongoing.

10.2.2 Pathways

The primary pathways by which sensitive receptors may come into contact with ground contamination are considered to be the following:

- Direct dermal contact, ingestion or inhalation of contaminants within the underlying shallow made ground/soils (during redevelopment works and/or future use).
- Leaching of contaminants and horizontal or vertical migration to surface water bodies or groundwater.
- On site migration of mobile contaminants in groundwater
- The migration and accumulation of gases or vapours associated with possible ground contamination.

10.2.3 Potential receptors at risk

The following are considered to be sensitive receptors.

- Future site users
- Site construction workers during redevelopment works
- Groundwater (secondary aquifer)
- Surface water courses (two streams within the site boundary)
- Neighbouring sites including residential properties to the south and west of the site.

10.3 Ground contamination risk assessment

The source, pathway, receptor linkages identified in the previous section are outlined and a qualitative risk assessment shown in the following table. The risk assessment considers the site within an area context and assesses perceived risks to identified receptors in relation to the existing site setting and the proposed development. CIRIA C552 has been used to define the risk rating presented in the Qualitative Risk Assessment matrix, the methodology for which is presented in Appendix G.

Table 12 - CIRIA C522 Qualitative Risk Assessment

This matrix is based on CIRIA C522 risk evaluation methodology, definitions for risk ratings is presented in Appendix G						
Source	**Pathway**	**Receptor**	**Consequence of risk being realised**	**Probability of risk being realised**	**Risk Classification**	**Potential risk management requirements**
Contaminants associated with general Made Ground across the site	Dermal contact Inhalation Ingestion	Future site users (residential end use)	Medium	Unlikely (based on the absence of CoC associated with the shallow soils on site).	Low risk	No risk management procedures required.
		Construction workers	Medium	Unlikely	Low risk	Although the risk from contamination is low appropriate PPE and basic hygiene procedures should be implemented during groundworks.
Mobile Contaminants associated with general Made Ground across the site	Leaching and vertical and lateral migration	Groundwater (Secondary aquifer)	Medium (reflects the designation of the underlying aquifer as Secondary)	Unlikely (based on the generally low contaminant concentrations identified in soil derived leachate and the presence of clay within the underlying strata which would restrict migration of any leachate).	Low risk	No risk management procedures required.
		Surface water (Boverton Brook)	Medium	Low (based on the generally low contaminant concentrations recorded in soil derived leachate and groundwater samples)	Moderate / Low risk	No risk management procedures required. See Section 11.0 for further discussion.

This matrix is based on CIRIA C522 risk evaluation methodology, definitions for risk ratings is presented in Appendix G						
Source	**Pathway**	**Receptor**	**Consequence of risk being realised**	**Probability of risk being realised**	**Risk Classification**	**Potential risk management requirements**
Off site contaminated groundwater	Horizontal migration onto site via groundwater	Groundwater (Secondary Aquifer)	Medium (reflects the designation of the underlying aquifer as Secondary)	Unlikely (based on limited hydrocarbon exceedences identified in the groundwater beneath the site, and the presence of clays which would retard migration of organic compounds)	Low Risk	No risk management procedures required
Landgas / Vapours associated with Made Ground	Migration and accumulation of vapours into enclosed spaces.	Future site users	Severe	Unlikely (based on landgas risk assessment indicating minimal landgas production)	Very Low Risk	NB the risk classification presented here reflects CIRIA 665 and not CIRIA 552. In accordance with CIRIA 665, no special gas protection measures are required. Agreement needs to be sought from the local EHO regarding the requirement for further monitoring.
	Migration through permeable materials and or preferential pathways	Off site receptors				

This matrix is based on CIRIA C522 risk evaluation methodology, definitions for risk ratings is presented in Appendix G						
Source	**Pathway**	**Receptor**	**Consequence of risk being realised**	**Probability of risk being realised**	**Risk Classification**	**Potential risk management requirements**
Radon	Migration and accumulation of vapours into enclosed spaces.	Future site users	Severe	Likely	High Risk*	Based on the information included in BRE (2007) 'Radon – Guidance on Protective Measures for new Dwellings' the site is located in an area where full radon measures may be needed in new dwellings. To mitigate the risk, it is recommended to obtain a site specific radon report for the site to determine the type and extent of radon protection measures required. *The implementation of the recommendations in the report will reduce the risk rating for the site to low.
Potential radioactive contaminated ground	Dermal contact Inhalation Ingestion	Future site users Construction workers	Medium	Unlikely (levels recorded during the site investigation did not indicate levels above background readings.	Low Risk	No risk management procedures required.
Potential UXO	Dermal contact Inhalation Ingestion	Future site users Construction workers	Severe	Unlikely (based on initial low risk rating and no evidence of UXO found during site investigation.	Low Risk*	*N.B The risk rating presented here reflects the initial risk rating provided by Parsons Brinkerhoff. However, recommendations should be sort from a suitably qualified EOD Engineer regarding any mitigation measures that may be required during development works.

11.0 ENVIRONMENTAL CONCLUSIONS AND RECOMMENDATIONS

11.1 Ground Contamination Conclusions

Based on the desk study assessment and the subsequent assessment of the chemical data obtained during the intrusive ground investigation undertaken by WYG in October 2010 the overall risk rating for the site is considered to be of a low order. This risk rating takes into account the environmental setting of the site as well as the current and proposed development.

An elevated risk rating of moderate to low has however, been quantitatively determined for risks to the surface water bodies which cross the site (Boverton Brook and Llanmeas Brook). The risk level is primarily associated with the elevated levels of some metals, PAH species and hydrocarbons in the soil derived leachate samples from the site. Whilst the exceedances are generally considered to be low, the risk rating reflects the proximity of the surface water bodies. The risk to groundwater (Secondary Aquifer) is considered to be low due to the lack of elevated levels of these determinants in the groundwater samples obtained from the site and the clay content of the underlying Porthkerry Formation which will retard migration of the contaminants.

Whilst elevated levels of phenol were recorded in the groundwater samples obtained from the site, it should be noted that the screening value is obtained from the UK drinking water standards and is therefore a naturally conservative value. The environmental quality standard (EQS) for phenol is sufficiently high for phenol to no longer be considered as a constituent of concern.

The land gas monitoring carried out to date indicates that there is a very low risk to development. It is considered that the data attained to date is representative of the worst case scenario, however the local EHO may require further monitoring in line with the guidance set out in CIRIA 665 and may stipulate this as a planning condition.

With regard to potential radioactive contamination, radiation levels monitored using a scintillometer, which was used for the protection of site operatives during the WYG ground investigation works, were not recorded above background levels for the surrounding area. A low risk is therefore associated with potential radioactive contamination at the site.

The risk associated with radon reported as being potentially high. Based on the information contained in BRE (2007) 'Radon – Guidance on Protective Measures for new Dwellings' the site is located in an area where full radon protection measures may be required. Without further site specific assessment the risk rating remains high on a protective basis.

11.2 Ground Contamination Recommendations

Based on the potentially high risk associated with radon it is recommended that a site specific radon assessment is undertaken for the site. This can be used to determine the relevant level of protection required for any new development, with the appropriate radon protection measure in place the risk rating can be reduced to Low.

A reactive strategy should be developed by the ground works Contractor to deal with any previously unidentified made ground/suspected contaminated materials. If such materials are encountered during development, as a minimum, works within the area should be suspended and a suitably experienced land quality practitioner contacted to assist in developing a suitable strategy for dealing with such materials (i.e. chemical testing and assessment or segregation and off site disposal). PPE for site personnel should be upgraded accordingly.

Whilst no asbestos containing materials (ACM) were identified during the site investigation or the subsequent laboratory chemical testing, the potential for ACMs to be present remains. Should ACMs be identified in the ground during the development of the site, it is recommended that specialist advice be sought.

No UXO or CWA were encountered during the WYG ground investigation works. The original UXO/CWA DTS prepared by Parsons Brinkerhoff should be updated in light of the observations made during the WYG ground investigation and recommendations sought from a suitably qualified EOD Engineer regarding any mitigation measures that may be required during development works.

Figures

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WYG Environment 5th Floor, Longcross Court, 47 Newport Road, Cardiff Tel: 02920 829200 Fax: 02920 455321 Environmental Consultancy Ground Engineering Services	Project **SFA ST ATHAN TREMAINS FARM**	Drawing Title **SITE LOCATION PLAN**	
	Client **DEFENCE ESTATES**	Checked by CP	Drawing No. **FIGURE 1**

DO NOT SCALE: CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:
DEFENCE ESTATES

9th FLOOR, LONGCROSS COURT
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TEL: +44 (0)29 2082 9200
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Project:
SFA ST ATHAN
TREMAINS FARM

Drawing Title:
RAF ST ATHAN AREA LAYOUT PLAN

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
1:12500	PJ	06.01.11	CBP	06.01.11	JC	06.1.11

Project No.	Office	Type	Drawing No.	Revision
A038833-9	4416	ENV	2	00

FILENAME : N:\ENVIRONMENTAL\PROJECTS\A038833-9 - ST. ATHAN PLANNING APPROVAL\DRAWINGS & FIGURES\NOVEMBER- DECEMBER 2010\A038833-9 FIGURE 2 TF.DWG | PLOTTED BY : PAM.JOHN | PLOTTED DATE : 12 January 2011 16:19:05

DO NOT SCALE: CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

N

LEGEND:

SITE BOUNDARY

AREA OF DENSE VEGETATION

LLANMAES BROOK

TREMAINS FARM

BOVERTON BROOK

ACCESS

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:

DEFENCE ESTATES

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Project:

SFA ST ATHAN
TREMAINS FARM

Drawing Title:

CURRENT SITE LAYOUT

Scale @ A3	Drawn Date	Checked Date	Approved Date
1:2000	PJ 06.01.11	CBP 06.01.11	JC 06.1.11

Project No.	Office	Type	Drawing No.	Revision
A038833-9	4416	ENV	3	00

FILENAME : N:\ENVIRONMENTAL\PROJECTS\A038833-9 - ST. ATHAN PLANNING APPROVAL\DRAWINGS & FIGURES\NOVEMBER DECEMBER 2010\A038833-9 FIGURE 3 TF NOWC GCS .DWG | PLOTTED BY : PAM.JOHN | PLOTTED DATE : 12 January 2011 18:44:44

DO NOT SCALE: CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

KEY:

- BOREHOLE LOCATIONS
- TRIAL PIT LOCATIONS
- SOAKAWAY TEST LOCATIONS

N

TP303
TP304
BH301
TP302
TP309
BH303
TP308
TP307
TP301
SAW301
TP312
TP313
TP306
TREMAINS FARM
BH304
TP316
TP317
TP311
TP310
TP320
TP315
TP319
TP314
BH302
SAW305
TP318
BH305

COWBRIDGE ROAD
Church Meadow
COWBRIDGE ROAD
Church Meadow

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:
DEFENCE ESTATES

5th FLOOR, LONGCROSS COURT
47 NEWPORT ROAD
CARDIFF
CF24 0AD

TEL: +44 (0)29 2082 9200
FAX: +44 (0)29 2045 5321
e-mail: cardiff@wyg.com

Project:
SFA ST ATHAN
TREMAINS FARM

Drawing Title:
SITE INVESTIGATION LAYOUT PLAN

Scale @ A3	Drawn Date	Checked Date	Approved Date
1:2000	PJ 06.01.11	CBP 06.01.11	JC 06.1.11

Project No.	Office	Type	Drawing No.	Revision
A038833-9	4416	ENV	4	00

FILENAME : N:\ENVIRONMENTAL\PROJECTS\A038833-9 - ST. ATHAN PLANNING APPROVAL\DRAWINGS & FIGURES\NOVEMBER DECEMBER 2010\A038833-9 FIGURE 4.DWG | PLOTTED BY : PAM.JOHN | PLOTTED DATE : 07 January 2011 09:31:10

Plates

Appendices

Appendix A – Report Conditions

APPENDIX A - REPORT CONDITIONS

GROUND INVESTIGATION

This report is produced solely for the benefit of Defence Estates and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the site.

This report is based on a visual site inspection, study of readily accessible referenced historical records, the physical investigation as detailed, information supplied by those parties noted in the text, and preliminary discussions with local and Statutory Authorities. Some of the opinions are based on unconfirmed data and information and are presented in good faith without exhaustive clarification. The test results that are available can only be regarded as a limited characterisation but likely representative sample assessed against current UK and other text referenced guidelines. The impact of our assessment on other aspects of the development requires evaluation by other involved parties. The possibility of the presence of contaminants not revealed by this research, perhaps in higher concentrations, elsewhere on the site cannot be discounted.

Whilst confident in the findings detailed within this report because there are no exact UK definitions of these matters, being subject to risk analysis, we are unable to give categorical assurances that they will be accepted by Authorities or Funds etc. without question, as such bodies may have unpublished, often more stringent objectives. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to WYG. In time improved practices or amended legislation may necessitate a re-assessment.

The report is necessarily limited to those aspects of land contamination specifically reported on and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents that may occur. The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous use and abuse of the site and adjacent sites. The report concentrates on the site as defined in the report and provides an opinion on surrounding sites. If migrating pollution or contamination (past or present) exists this can only practically be better assessed following extensive on and off site intrusive investigations and monitoring.

Appendix B – Engineering Logs

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
BH301
Final

Project : SFA St Athan, Tremains Farm
Project Number : A038833-9
Client : Defence Estates
Method : Rotary cored
Co-ordinates : 298592E - 168966N Level : 39.91 m AOD

Hole Information

From	To	Method	Diameter
0.00m	0.80m	Inspection Pit	-
0.80m	3.80m	412 Core barrel	76mm

Scale 1:50 Sheet 1 of 1
Logged By : PV
Checked By : PC
Start Date : 13/10/2010
Finish Date : 13/10/2010

Strata Description	Legend	Depth (m) (AOD)	Samples & In Situ Testing: Depth (m)	Type	Results/Remarks			Casing Diameter	Water Strikes	Backfill / Installation
CLAY**. (PORTHKERRY FORMATION)										
		0.70								
Weathered LIMESTONE**. (PORTHKERRY FORMATION)		0.80	0.80	C	50 for 220mm		NI			
Strong grey slightly weathered LIMESTONE with closely spaced horizontal planar rough tight fractures and closely spaced vertical planar and irregular rough tight fractures with infills of silt (<3m) locally recovered non-intact due to horizontal and vertical fracture sets. (PORTHKERRY FORMATION)		(39.21) (39.11)	0.80		50/220mm (16,9,18,15,17,0)		2	0.95 1.05		
				79	27	14	NI			
							3	1.25 1.34		
			1.50				NI	1.50		
							NI			
							NI	2.01 2.03		
				66	65	32				
							11			
			3.00					3.00		
				98	98	85	5			
		3.80						3.80		
End of Borehole at 3.80 m		(36.11)								
				TCR	SCR	RQD	FI			

Remarks / Observations:

Inspection pit hand dug. ** denotes drillers decription. 50mm HDPE standpipe installed to 3.80m. Slotted section with gravel surround 3.80-1.00m, bentonite seal 1.00-0.30m, gas tap fitted and upstanding cover concreted and locked. No Groundwater encountered.

Chiselling

From	To	Time

Groundwater

Depth Struck	Rising To	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
BH302
Final

Project : SFA St Athan, Tremains Farm
Project Number : A038833-9
Client : Defence Estates
Method : Rotary cored
Co-ordinates : 298522E - 168762N Level : 37.37 m AOD

Hole Information

From	To	Method	Diameter
0.00m	1.00m	Inspection Pit	-
1.00m	4.00m	412 Core barrel	76mm

Scale 1:50 Sheet 1 of 1
Logged By : PV
Checked By : PC
Start Date : 12/10/2010
Finish Date : 13/10/2010

Strata Description	Legend	Depth (m) (AOD)	Samples & In Situ Testing: Depth (m)	Type	Results/Remarks			Casing Diameter	Water Strikes	Backfill / Installation
Clay amd LIMESTONE**. (PORTHKERRY FORMATION)									0.00	
		1.00	1.00	C	56 for 200mm		NI			
Strong grey slightly weathered LIMESTONE with closely spaced horizontal planar rough tight fractures and occasional vertical irregular rough tight fractures locally recovered non-intact due to orientation of fracture sets. (PORTHKERRY FORMATION)		(36.37)	1.00		56/200mm (18,7,27,17,12,0)					
				50	0	0	NI			
			1.50				NI	1.25		
							6	1.50		
								1.96		
				78	60	50	NI			
							NI	2.29		
								2.53		
							4			
			3.00					3.00		
							NI			
							NI	3.22		
								3.27		
				78	73	57	5			
		4.00						4.00		
End of Borehole at 4.00 m		(33.37)								
				TCR	SCR	RQD	FI			

Remarks / Observations:

Inspection pit hand dug. ** denotes drillers decription. 50mm HDPE standpipe installed to 4.00m. Slotted section with gravel surround 4.00-1.00m, bentonite seal 1.00-0.30m, gas tap fitted and upstanding cover concreted and locked. No Groundwater encountered.

Chiselling

From	To	Time

Groundwater

Depth Struck	Rising To	Time (mins)	Remarks
0.00m	-	5	

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
BH303
Final

Project : SFA St Athan, Tremains Farm
Project Number : A038833-9
Client : Defence Estates
Method : Rotary cored
Co-ordinates : 298362E - 168898N Level : 43.46 m AOD

Hole Information

From	To	Method	Diameter
0.00m	0.70m	Inspection Pit	-
0.70m	5.50m	412 Core barrel	76mm

Scale 1:50 Sheet 1 of 1
Logged By : PV
Checked By : PC
Start Date : 13/10/2010
Finish Date : 13/10/2010

Strata Description	Depth (m) (AOD)	Samples & In Situ Testing: Depth (m)	Type	Results/Remarks	TCR	SCR	RQD	FI	Casing Diameter	Water Strikes	Backfill / Installation
Clay and LIMESTONE**. (PORTHKERRY FORMATION)	0.70 (42.76)	0.70	C	50 for 100mm 50/100mm (25,0,38,12,0,0)				NI 2 NI	0.85 0.95 1.05		
Strong grey slightly to moderately weathered LIMESTONE with closely spaced horizontal and sub-horizontal planar rough tight fractures with infills of firm - stiff clay (60mm) and vertical planar tight fractures with iron staining. (PORTHKERRY FORMATION)		0.70			83	69	41	5			
. . . . 1.60 - 4.67 poor recovery due to highly fractured / weathered limestone: recovered as clayey angular limestone gravel		1.60			14	0	0	NI	1.60		
		3.00	C	N=37 (9,7,10,7,9,11)				NI	2.80 3.00		
		3.00			10	0	0	NI			
		4.50	C	50 for 50mm 50/50mm (25,0,50,0,0,0)				NI NI	4.35 4.50 4.67		
		4.50			83	44	36	4 NI 2 NI 4	4.97 5.14 5.22 5.27 5.50		
End of Borehole at 5.50 m	5.50 (37.96)										

Remarks / Observations:

Inspection pit hand dug. ** denotes drillers decription. 50mm HDPE standpipe installed to 5.50m. Slotted section with gravel surround 5.50-1.00m, bentonite seal 1.00-0.30m, gas tap fitted and upstanding cover concreted and locked. No Groundwater encountered.

Chiselling

From	To	Time

Groundwater

Depth Struck	Rising To	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
BH304
Final

Project : SFA St Athan, Tremains Farm
Project Number : A038833-9
Client : Defence Estates
Method : Rotary cored
Co-ordinates : 298550E - 168833N Level : 39.78 m AOD

Hole Information

From	To	Method	Diameter
0.00m	0.60m	Inspection Pit	-
0.60m	3.60m	412 Core barrel	76mm

Scale 1:50 Sheet 1 of 1
Logged By : PV
Checked By : PC
Start Date : 12/10/2010
Finish Date : 12/10/2010

Strata Description	Legend	Depth (m) (AOD)	Samples & In Situ Testing: Depth (m)	Type	Results/Remarks			Casing Diameter	Water Strikes	Backfill / Installation
Clay and LIMESTONE**. (PORTHKERRY FORMATION)		0.60								
		(39.18)	0.60	C	50 for 285mm		NI			
Strong slightly weathered LIMESTONE with closely spaced horizontal planar rough tight fractures and occasional vertical irregular rough tight fractures. (PORTHKERRY FORMATION)			0.60		50/285mm (14,11,13,15,12,10)		NI			
								0.95		
				89	49	16	4			
							NI	1.25		
								1.30		
. . . . 0.70m - 0.95m recovered non-intact as brown clayey angular fine to coarse limestone gravel							3			
			1.50				NI	1.50		
								1.62		
							NI	1.67		
				83	76	61	5			
			2.20					2.20		
							2			
								2.36		
							NI			
								2.79		
. . . . 2.79m - 2.84m stiff brown SILT/CLAY				69	64	64	NI	2.84		
							5			
		3.60								
End of Borehole at 3.60 m		(36.18)						3.60		
				TCR	SCR	RQD	FI			

Remarks / Observations:

Inspection pit hand dug. ** denotes drillers decription. 50mm HDPE standpipe installed to 3.60m. Slotted section with gravel surround 3.60-1.00m, bentonite seal 1.00-0.30m, gas tap fitted and upstanding cover concreted and locked. No Groundwater encountered.

Chiselling

From	To	Time

Groundwater

Depth Struck	Rising To	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
BH305
Final

Project : SFA St Athan, Tremains Farm
Project Number : A038833-9
Client : Defence Estates
Method : Windowless sample/rotary cored
Co-ordinates : 298644E - 168736N Level : 34.99 m AOD

Hole Information

From	To	Method	Diameter
0.00m	1.20m	Inspection Pit	-
1.20m	4.40m	Windowless Sampling	-
4.40m	5.00m	412 Core Barrel	76mm

Scale 1:50 Sheet 1 of 1
Logged By : PV
Checked By : PC
Start Date : 12/10/2010
Finish Date : 12/10/2010

Strata Description	Legend	Depth (m) (AOD)	Samples & In Situ Testing: Depth (m)	Type	Results/Remarks	Casing Diameter	Water Strikes	Backfill / Installation
Clay with bands of limestone**.		0.30						
No recovery.		(34.69) 1.80						
Soft grey brown slightly sandy CLAY.		(33.19) 2.10						
Light grey brown very clayey slightly gravelly medium SAND. Gravel is sub-angular fine to coarse of limestone.		(32.89) 2.50						
Soft to firm brown slightly sandy organic CLAY with bands of fibrous organic material.		(32.49) 3.10					▽ 3.00	
Dark brown spongy silty pseudo fibrous PEAT.		3.30	3.30	C	N=13 (0,0,1,4,3,5)			
Soft brown slightly sandy organic CLAY with bands of fibrous organic material.		(31.89) (31.69) 3.75						
Grey brown slightly sandy clayey angular fine to coarse limestone GRAVEL. (PORTHKERRY FORMATION)		(31.24) 4.40	4.40	C	50 for 105mm			
Strong grey slightly weathered LIMESTONE with closely spaced sub-horizontal fractures and occasional vertical planar rough fractures with some iron staining. (PORTHKERRY FORMATION)		(30.59) 5.00	4.40	100 TCR	50/105mm (25,0,33,17,10,0) 67 SCR 22 RQD	4.60 5.00 6 FI		
End of Borehole at 5.00 m		(29.99)						

Remarks / Observations:

Inspection pit hand dug. ** denotes drillers decription. 50mm HDPE standpipe installed to 4.00m. Slotted section with gravel surround 4.00-1.00m, bentonite seals 5.00-4.00m & 1.00-0.30m, gas tap fitted and upstanding cover concreted and locked.

Chiselling

From	To	Time

Groundwater

Depth Struck	Rising To	Time (mins)	Remarks
3.00m	-	5	Strike at 3.00m, water flows significantly increased below 4.00m.

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP301
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298328E - 168880N
Level	:	43.39 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 11/10/10
Finish Date : 11/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		43.14	0.25			0.30	CBR	3.5%
Stiff brown slightly sandy slightly gravelly CLAY. Gravel is angular to sub angular fine to coarse of limestone. (PORTHKERRY FORMATION)		42.94	0.45			0.30 0.40	ES001 B002	HV=87 kPa
LIMESTONE recovered as brown clayey slightly gravelly angular limestone COBBLES. (PORTHKERRY FORMATION) EOTP Limestone bedrock.		42.69	0.70			0.40 0.45	CBR	14.0%
End of Trial Pit at 0.70 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.30m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP302
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298378E - 168948N
Level	:	44.57 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 11/10/10
Finish Date : 11/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		44.37	0.20			0.20	CBR	3.5%
						0.30		HV=110 kPa
Stiff brown slightly sandy slightly gravelly CLAY. Gravel is sub angular fine to coarse of limestone. (PORTHKERRY FORMATION)		44.07	0.50			0.40	CBR	4.0%
						0.40	B001	
						0.40	ES002	
LIMESTONE recovered as brown clayey slighty gravelly angular limestone COBBLES. (PORTHKERRY FORMATION)		43.81	0.76			0.50	CBR	14.0%
EOTP Limestone bedrock								
End of Trial Pit at 0.76 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.30m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP303
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298485E - 168984N
Level	:	42.84 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 11/10/10
Finish Date : 11/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		42.64	0.20			0.10 0.20	ES001 CBR	 14.0%
LIMESTONE recovered as brown clayey slightly gravelly angular limestone COBBLES. (PORTHKERRY FORMATION) EOTP Limestone bedrock		42.34	0.50					
End of Trial Pit at 0.50 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.10m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP304
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298520E - 168970N
Level	:	41.57 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 12/10/10
Finish Date : 12/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		41.37	0.20			0.10	ES001	
LIMESTONE recovered as brown clayey slightly sandy slightly gravelly angular limestone COBBLES. (PORTHKERRY FORMATION)		41.12	0.45			0.30	CBR	14.0%
End of Trial Pit at 0.45 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.30m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP306
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298358E - 168852N
Level	:	41.88 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 11/10/10
Finish Date : 11/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		41.68	0.20			0.10 0.20	ES001 CBR	 14.0%
LIMESTONE recovered as brown clayey slightly gravelly angular limestone COBBLES. (PORTHKERRY FORMATION) EOTP Limestone bedrock		41.38	0.50					
End of Trial Pit at 0.50 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.20m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP307
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298449E - 168887N
Level	:	42.10 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 12/10/10
Finish Date : 12/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		41.90	0.20			0.10	ES001	
						0.30	CBR	14.0%
LIMESTONE recovered as brown clayey slightly sandy slightly gravelly angular limestone COBBLES. (PORTHKERRY FORMATION)		41.45	0.65					
End of Trial Pit at 0.65 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.20m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP308
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298499E - 168897N
Level	:	41.54 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 11/10/10
Finish Date : 11/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		41.39	0.15			0.20	CBR	3.0%
Stiff brown slightly sandy slightly gravelly CLAY. Gravel is angular fine to coarse of limestone. (PORTHKERRY FORMATION)		41.19	0.35			0.20	ES001	HV=82 kPa
						0.20	B002	
						0.30		
LIMESTONE recovered as brown clayey gravelly angular limestone COBBLES. (PORTHKERRY FORMATION)		40.84	0.70			0.35	CBR	14.0%
EOTP Limestone bedrock								
End of Trial Pit at 0.70 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.00m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP309
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298566E - 168916N
Level	:	40.51 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 12/10/10
Finish Date : 12/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey TOPSOIL.		40.26	0.25					
Brown clayey silty slightly gravelly coarse SAND. Gravel is angular to sub angular fine to medium of limestone. (PORTHKERRY FORMATION)		40.11	0.40			0.30 0.30	CBR ES001	4.0%
LIMESTONE recovered as brown clayey sandy slightly gravelly COBBLES. (PORTHKERRY FORMATION)		39.81	0.70			0.40	CBR	14.0%
End of Trial Pit at 0.70 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.00m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP310
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298419E - 168803N
Level	:	39.63 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 12/10/10
Finish Date : 12/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		39.43	0.20			0.00		
						0.20	CBR	2.5%
Stiff brown sandy slightly gravelly CLAY/SILT. Gravel is sub angular fine to coarse of limestone. (PORTHKERRY FORMATION)		39.13	0.50			0.30	ES001	
						0.30	B002	
						0.40	CBR	5.0%
LIMESTONE recovered as brown clayey slightly gravelly angular limestone COBBLES. (PORTHKERRY FORMATION)		38.53	1.10			0.50	CBR	14.0%
End of Trial Pit at 1.10 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.30m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP311
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298498E - 168809N
Level	:	39.53 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 11/10/10
Finish Date : 11/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		39.38	0.15					
Stiff brown slightly sandy slightly gravelly CLAY. Gravel is sub - angular fine to medium of limestone. (PORTHKERRY FORMATION)		39.23	0.30			0.20 0.20 0.20 0.20 0.30	CBR ES001 D002 CBR	3.0% HV=95 kPa 14.0%
LIMESTONE recovered as brown clayey slightly sandy slightly gravelly angular limestone COBBLES. (PORTHKERRY FORMATION) EOTP limestone bedrock		38.73	0.80					
End of Trial Pit at 0.80 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.00m
Width	:	0.55m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP312
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298556E - 168874N
Level	:	40.29 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 12/10/10
Finish Date : 12/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		40.09	0.20			0.10 0.20	ES001 CBR	 14.0%
LIMESTONE recovered as brown clayey gravelly angular limestone COBBLES. (PORTHKERRY FORMATION)		39.69	0.60					
End of Trial Pit at 0.60 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.10m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP313
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298615E - 168867N
Level	:	36.93 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 08/10/10
Finish Date : 08/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		36.83	0.10			0.20	CBR	3.0%
Firm to stiff brown slightly sandy gravelly CLAY with occasional cobbles. Gravel is sub angular fine to medium of limestone. (PORTHKERRY FORMATION)		36.53	0.40			0.20	D001	HV=67 kPa
LIMESTONE recovered as limestone COBBLES. (PORTHKERRY FORMATION)		36.33	0.60			0.20	ES001	
End of Trial Pit at 0.60 m bgl.						0.30	CBR	1.5%
						0.40	CBR	14.0%

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.30m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP314
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298489E - 168763N
Level	:	37.81 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 11/10/10
Finish Date : 11/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		37.66	0.15			0.10 0.20	ES001 CBR	 14.0%
LIMESTONE recovered as brown clayey gravelly angular COBBLES. (PORTHKERRY FORMATION)		37.31	0.50					
End of Trial Pit at 0.50 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.30m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP315
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298547E - 168787N
Level	:	38.40 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 12/10/10
Finish Date : 12/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		38.25	0.15			0.10 0.20	ES001 CBR	 14.0%
LIMESTONE recovered as slightly clayey angular limestone COBBLES. (PORTHKERRY FORMATION)		37.80	0.60					
End of Trial Pit at 0.60 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.30m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP316
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298617E - 168828N
Level	:	37.52 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 08/10/10
Finish Date : 08/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		37.42	0.10			0.20	CBR	1.5%
						0.20		HV=70 kPa
Firm to stiff brown sandy slightly gravelly CLAY/SILT. Gravel is sub angular fine to medium of limestone. (PORTHKERRY FORMATION)						0.40	CBR	2.0%
						0.40	D001	
						0.40	ES001	
		36.72	0.80					
LIMESTONE recovered as brown clayey angular limestone COBBLES. (PORTHKERRY FORMATION)		36.42	1.10					
End of Trial Pit at 1.10 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.30m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP317
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298648E - 168824N
Level	:	36.77 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 08/10/10
Finish Date : 08/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		36.67	0.10			0.20	CBR	2.0%
Stiff brown slightly sandy slightly gravelly CLAY with occasional limestone cobbles. (PORTHKERRY FORMATION)		36.37	0.40			0.30	ES001	
LIMESTONE recovered as clayey COBBLES. (PORTHKERRY FORMATION) EOTP limestone bedrock.		36.32	0.45			0.40	CBR	14.0%
End of Trial Pit at 0.45 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.20m
Width	:	0.55m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP318
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298589E - 168735N
Level	:	35.99 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 08/10/10
Finish Date : 08/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		35.89	0.10			0.20	CBR	2.0%
Stiff grey brown sandy gravelly CLAY with occasional cobbles. Gravel is angular fine - medium of limestone. (PORTHKERRY FORMATION)		35.44	0.55			0.40	CBR	2.0%
						0.40	1	HV=93 kPa
						0.40	D001	
						0.40	ES001	
LIMESTONE recovered as brown very clayey slightly sandy slightly gravelly angular limestone COBBLES with occasional boulders. (PORTHKERRY FORMATION)						1.00	B001	
EOTP limestone bedrock		34.09	1.90					
End of Trial Pit at 1.90 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.30m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP319
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298635E - 168779N
Level	:	36.50 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 08/10/10
Finish Date : 08/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		36.40	0.10					
LIMESTONE recovered as brown very clayey slightly sandy angular fine to coarse limestone GRAVEL with many angular limestone cobbles. (PORTHKERRY FORMATION)						0.20	CBR	14.0%
						0.30	ES001	
						0.40	CBR	14.0%
						0.50	B002	
		35.80	0.70			0.60	CBR	14.0%
End of Trial Pit at 0.70 m bgl.								

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.30m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

WYG ENVIRONMENT
Ground Engineering Services
Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
Tel: 02920 2082 9200, Fax: 02920 2045 5321.

Exploratory Hole Number
TP320
Final

Project	:	SFA St Athan, Tremains Farm
Project Number	:	A038833-9
Client	:	Defence Estates
Method	:	Backhoe Excavator - JCB 3CX
Co-ordinates	:	298667E - 168793N
Level	:	36.21 mAOD

Scale 1:50 Sheet 1 of 1

Logged By : PV
Checked By : PC
Start Date : 08/10/10
Finish Date : 08/10/10

Strata Description	Legend	Reduced Level (mOD)	Depth (m)	Water Strike (m)	Installation/ Backfill	Sample Test Depth	Sample Test Type	Notes / Remarks
Brown clayey sandy TOPSOIL.		36.11	0.10			0.20	CBR	3.5%
LIMESTONE recovered as brown very clayey slightly sandy angular fine to coarse limestone GRAVEL with occasional angular cobbles. (PORTHKERRY FORMATION)						0.30	ES001	
. . . . 0.5m with many cobbles						0.40	CBR	3.5%
		35.61	0.60			0.50	CBR	14.0%
End of Trial Pit at 0.60 m bgl.						0.50	B001	

Observations / Remarks

Radiation screen (scintillometer) prior to excavation. Radiation screened on all sample locations. Backfilled with arisings. No groundwater encountered.

Excavation Information

Length	:	2.20m
Width	:	0.60m
Orientation	:	-
Shoring	:	None Used
Stability	:	Stable

Groundwater

Struck	Rising to	Time (mins)	Remarks

Appendix C – Monitoring Data

WYG - Environment

LAND GAS AND GROUNDWATER MONITORING RESULTS

Visit 1

Project Name: St Athan Tremains Farm **Project No.:** A038833-9

Instruments Used: GA2000 Gas Analyser, Single Phase Dipmeter **Date Sampled:** 08 November 2010

Monitoring Engineer: PV

Installation No.	Installation Level mOD	CH_4 %	CO_2 %	O_2 %	Balance %	H_2S ppm	Atmos Pressure m bar	Flow l/hr	Air Temp °C	BH Water Temp °C	LNAPL Depth m	Water Depth m	Water Level mOD	DNAPL Depth m	Base Depth m	Water Eh Value	Water pH Value	Remarks
BH303	43.4619	0.0	0.0	18.1	81.5	0	964	0.0	nt	nt	nt	3.80	39.66	nt	3.80	nt	nt	Borehole wet at base
BH304	39.7814	0.0	0.1	17.5	82.1	0	964	0.0	nt	nt	nt	4.00	35.78	nt	4.00	nt	nt	Borehole wet at base
BH302	37.368	0.0	1.0	18.5	80.4	0	964	0.0	nt	nt	nt	3.00	34.37	nt	3.50	nt	nt	
BH301	39.9079	0.0	0.4	19.8	79.6	0	964	0.0	nt	nt	nt	3.98	35.93	nt	5.50	nt	nt	
BH305	34.9939	0.0	0.0	19.9	79.8	0	964	+0.1	nt	nt	nt	1.35	33.64	nt	4.20	nt	nt	

N:\Environmental\projects\A038833-9 - St. Athan Planning Approval\Monitoring\[Gasdata - Tremains.xls]Visit 1

Background Gas Levels

	CH_4 %	CO_2 %	O_2 %	VOC ppm	Atmos mbar
Before Monitoring	0.0	0.0	19.8	nt	964
After Monitoring	0.0	0.0	19.9	nt	964

Atmospheric Pressure Trend (at sea level)

997 mbar (AM) rising to 1004 mbar (PM)
Data supplied by Weather-Eye
Atmospheric Pressures have not been altitude corrected

Calibration
External Calibration Details (available upon request)

n/t denotes not tested
nd denotes none detected

WYG - Environment

LAND GAS AND GROUNDWATER MONITORING RESULTS

Visit 2

Project Name: St Athan Tremains Farm **Project No.:** A038833-9

Instruments Used: GA2000 Gas Analyser, Single Phase Dipmeter **Date Sampled:** 16 November 2010

Monitoring Engineer: PV

Installation No.	Installation Level mOD	CH_4 %	CO_2 %	O_2 %	Balance %	H_2S ppm	Atmos Pressure m bar	Flow l/hr	Air Temp °C	BH Water Temp °C	LNAPL Depth m	Water Depth m	Water Level mOD	DNAPL Depth m	Base Depth m	Water Eh Value	Water pH Value	Remarks
BH303	43.4619	0.0	1.2	18.3	80.5	0	1020	-0.2	nt	nt	nt	3.80	39.66	nt	3.80	nt	nt	Borehole wet at base
BH304	39.7814	0.0	0.6	16.8	82.3	0	1020	0.0	nt	nt	nt	3.90	35.88	nt	4.00	nt	nt	
BH302	37.368	0.0	1.0	18.1	80.8	0	1020	0.1	nt	nt	nt	3.00	34.37	nt	3.50	nt	nt	
BH301	39.9079	0.0	0.4	19.7	79.6	0	1020	0.0	nt	nt	nt	3.90	36.01	nt	5.50	nt	nt	Borehole purged and sample taken
BH305	34.9939	0.0	0.0	20.1	79.7	0	1020	0.0	nt	nt	nt	1.30	33.69	nt	4.20	nt	nt	Borehole purged and sample taken

N:\Environmental\projects\A038833-9 - St. Athan Planning Approval\Monitoring\[Gasdata - Tremains.xls]Visit 2

Background Gas Levels

	CH_4 %	CO_2 %	O_2 %	VOC ppm	Atmos mbar
Before Monitoring	0.0	0.0	19.7	nt	1020
After Monitoring	0.0	0.0	20.4	nt	1013

Atmospheric Pressure Trend (at sea level)

1020 mbar (AM) falling to 1014 mbar (PM)
Data supplied by Weather-Eye
Atmospheric Pressures have not been altitude corrected

Calibration

External Calibration Details (available upon request)

n/t denotes not tested
nd denotes none detected

WYG - Environment

LAND GAS AND GROUNDWATER MONITORING RESULTS

Visit 3

Project Name: St Athan Tremains Farm **Project No.:** A038833-9

Instruments Used: GA2000 Gas Analyser, Single Phase Dipmeter **Date Sampled:** 23 November 2010

Monitoring Engineer: PV

Installation No.	Installation Level mOD	CH_4 %	CO_2 %	O_2 %	Balance %	H_2S ppm	Atmos Pressure m bar	Flow l/hr	Air Temp °C	BH Water Temp °C	LNAPL Depth m	Water Depth m	Water Level mOD	DNAPL Depth m	Base Depth m	Water Eh Value	Water pH Value	Remarks
BH303	43.4619	0.0	0.7	19.0	80.0	0	1012	0.0	nt	nt	nt	3.80	39.66	nt	3.80	nt	nt	Borehole wet at base
BH304	39.7814	0.0	0.9	16.9	81.9	0	1012	0.0	nt	nt	nt	4.00	35.78	nt	4.00	nt	nt	Borehole wet at base
BH302	37.368	0.0	1.0	18.1	80.6	0	1012	0.0	nt	nt	nt	3.05	34.32	nt	3.50	nt	nt	
BH301	39.9079	0.0	0.5	19.7	79.9	0	1012	0.0	nt	nt	nt	3.95	35.96	nt	5.50	nt	nt	
BH305	34.9939	0.0	0.0	20.0	79.7	0	1012	0.0	nt	nt	nt	1.30	33.69	nt	4.20	nt	nt	

N:\Environmental\projects\A038833-9 - St. Athan Planning Approval\Monitoring\[Gasdata - Tremains.xls]Visit 3

Background Gas Levels

	CH_4 %	CO_2 %	O_2 %	VOC ppm	Atmos mbar
Before Monitoring	0.0	0.0	19.8	nt	1012
After Monitoring	0.0	0.0	20.1	nt	1010

Atmospheric Pressure Trend (at sea level)

1014 mbar (AM) steady to 1014 mbar (PM)
Data supplied by Weather-Eye
Atmospheric Pressures have not been altitude corrected

Calibration

External Calibration Details (available upon request)

n/t denotes not tested
nd denotes none detected

Appendix D – Soakaway Test Results

SOAKAWAY SOIL INFILTRATION RATE/PERMEABILITY CALCULATION

TRIALPIT No.:	SAW301		TEST No.:	1	
SOIL INFILTRATION RATE IN SOAKAWAY		DATE	21/10/2010	SHEET	1

Time Elapsed (secs)	Time Elapsed (Minutes)	Depth of water below Ground Level (m)
		0.500
30	0.50	0.500
60	1.00	0.500
90	1.50	0.500
120	2.00	0.500
150	2.50	0.500
180	3.00	0.500
240	4.00	0.500
300	5.00	0.505
600	10.00	0.515
900	15.00	0.520
1200	20.00	0.525
1500	25.00	0.530
1800	30.00	0.535
2700	45.00	0.545
3600	60.00	0.550

Effective depth of Pit	(m)	0.55
Length of Pit	(m)	2.10
Width of Pit	(m)	0.55
Total volume of pit	(m^3)	0.64
Total volume of Water *	(m^3)	0.64
Level of water in pit at 75% effective depth (p_{75})	(m)	0.14
Level of water in pit at 25% effective depth (p_{25})	(m)	0.41
Surface area of pit up to 50% effective depth **(A_{p50})**	(m^2)	2.613
Time at 25% effective depth (p_{25})**	(seconds)	7151
Time at 75% effective depth (p_{75})**	(seconds)	26784
Volume of outflow between 75% and 25% effective depth **(Vp75 - 25)**	(m^3)	0.32
Time taken for the outflow between 75% and 25% effective depth **(Tp75-25)**	(seconds)	19633

Soil Infiltration Rate (f) m/s:

$$f = \frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$$

$$\frac{0.32}{2.613 \quad 19633} = \textbf{6.19272E-06 m/s}$$

Water Input (volume in cubic meters over time)

0.64m^3

Geology of Test Section

TOPSOIL - GL-0.20m

LIMESTONE - 0.20-1.05m

Compiled By	PV	Date	11/11/2010
Checked By	PC	Date	06/01/2011

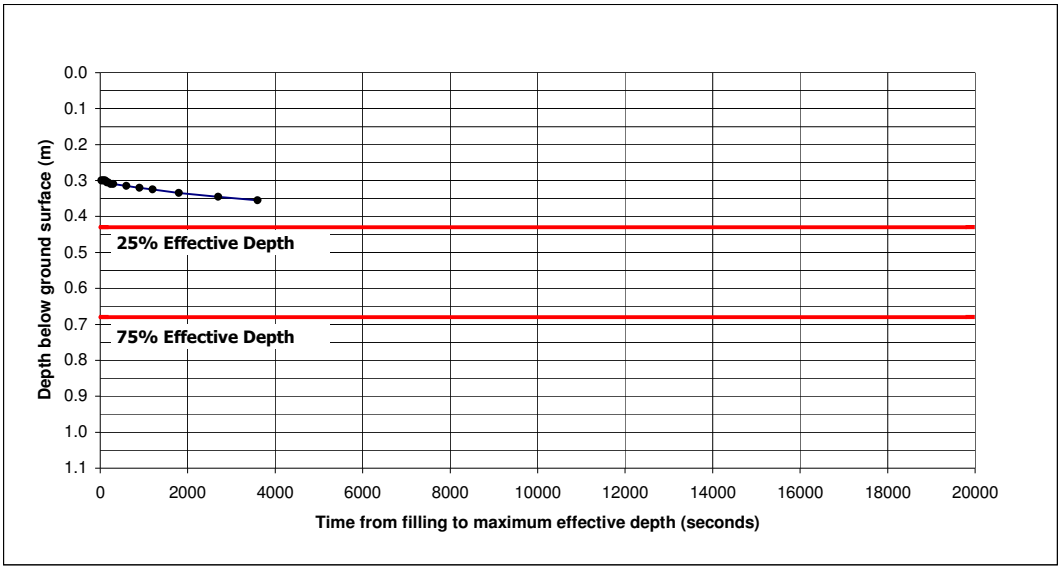
**Figure for 25% 75% effective depth derived from extrapolated data

WYG Environment
5th Floor, Longcross Court, 47 Newport Road, Cardiff
Tel: 02920 829200
Fax: 02920 455321
Environmental Consultancy
Ground Engineering Services

PROJECT No.:	A038833-9
PROJECT NAME:	St Athan
CLIENT:	Defence Estates
FIGURE No.:	Appendix D

SOAKAWAY SOIL INFILTRATION RATE/PERMEABILITY CALCULATION

TRIALPIT No.:	SAW305		TEST No.:	1	
SOIL INFILTRATION RATE IN SOAKAWAY		DATE	21/10/2010	SHEET	1



Time Elapsed (secs)	Time Elapsed (Minutes)	Depth of water below Ground Level (m)
30	0.50	0.300
60	1.00	0.300
90	1.50	0.300
120	2.00	0.300
150	2.50	0.305
180	3.00	0.305
240	4.00	0.310
300	5.00	0.310
600	10.00	0.315
900	15.00	0.320
1200	20.00	0.325
1800	30.00	0.335
2700	45.00	0.345
3600	60.00	0.355

Effective depth of Pit	(m)	0.50
Length of Pit	(m)	1.90
Width of Pit	(m)	0.60
Total volume of pit	(m^3)	0.57
Total volume of Water *	(m^3)	0.57
Level of water in pit at 75% effective depth (p_{75})	(m)	0.13
Level of water in pit at 25% effective depth (p_{25})	(m)	0.38
Surface area of pit up to 50% effective depth **(A_{p50})**	(m^2)	2.390
Time at 25% effective depth (p_{25})**	(seconds)	15604
Time at 75% effective depth (p_{75})**	(seconds)	114407
Volume of outflow between 75% and 25% effective depth **(Vp75 - 25)**	(m^3)	0.29
Time taken for the outflow between 75% and 25% effective depth **(Tp75-25)**	(seconds)	98803

Soil Infiltration Rate (f) m/s:

$$f = \frac{V_{p75-25}}{A_{p50} \times T_{p75-25}}$$

$$\frac{0.29}{2.390 \quad 98803} = \textbf{1.20691E-06 m/s}$$

Water Input (volume in cubic meters over time)

0.64m^3

Geology of Test Section

TOPSOIL - GL-0.20m

LIMESTONE - 0.20-0.80m

Compiled By	PV	Date	11/11/2010
Checked By	PC	Date	06/01/2011

**Figure for 25% 75% effective depth derived from extrapolated data

WYG Environment
5th Floor, Longcross Court, 47 Newport Road, Cardiff
Tel: 02920 829200
Fax: 02920 455321
Environmental Consultancy
Ground Engineering Services

PROJECT No.:	A038833-9
PROJECT NAME:	St Athan
CLIENT:	Defence Estates
FIGURE No.:	Appendix D

Appendix E – Geotechnical Laboratory Test Data

Summary of Laboratory Sample Descriptions

Hole Number	Sample Number	Type	Depth (m)	Description of Sample*
TP301		B	0.40	Brown gravelly sandy (fine to coarse) silty CLAY.
TP302		B	0.40	Brown clayey SILT.
TP308		B	0.30	Brown sandy (fine to coarse) silty CLAY.
TP310		B	0.30	Brown gravelly clayey SILT.
TP311		B	0.20	Brown gravelly clayey SILT.
TP313		B	0.20	Brown gravelly clayey SILT.
TP316		B	0.40	Brown gravelly clayey SILT.
TP318		B	0.40	Brown gravelly silty CLAY.
TP319		B	0.50	Brown sandy silty clayey (fine to coarse) GRAVEL with many cobbles.
TP320		B	0.50	Brown silty clayey sandy (fine to coarse) GRAVEL with mnay cobbles.

Note: Results on this table are in summary format and may not meet the requirements of the relevant standards, additional information is held by the laboratory

11/1/11
Checked by **Date**

11/1/11
Approved by **Date**

SFA St Athan NWC/PSW & TF

Contract No.:
11520-241110
Client ref:
A038833-9

Summary of Soil Classification Tests

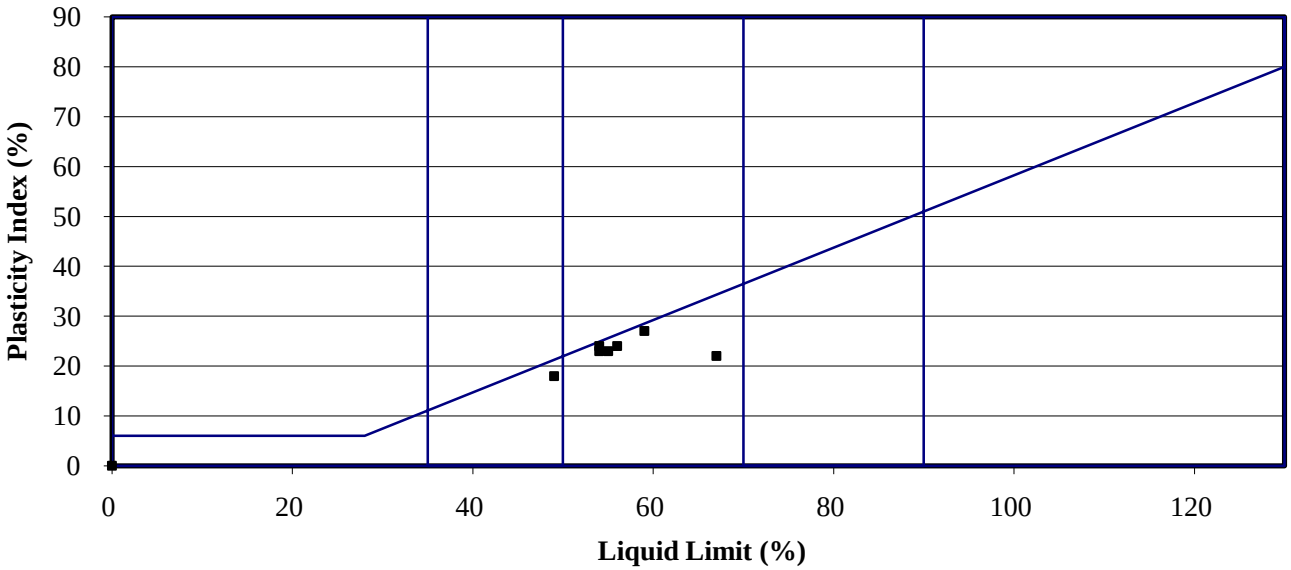
BS 1377:Part 2:1990

Hole/ Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3/4.4	Plastic Limit % Cl. 5.	Plasticity Index % Cl. 6.	% Passing .425mm	Remarks
TP301	B	0.40	29	49	31	18	94	MI Intermediate Plasticity
TP302	B	0.40	37	54	30	24	100	MH High Plasticity
TP308	B	0.30	34	54	31	23	99	MH High Plasticity
TP310	B	0.30	28	54	31	23	90	MH High Plasticity
TP311	D	0.20	32	59	32	27	89	MH High Plasticity
TP313	D	0.20	34	56	32	24	90	MH High Plasticity
TP316	D	0.40	42	67	45	22	100	MH High Plasticity
TP318	D	0.40	31	55	32	23	95	MH High Plasticity

Symbols: **NP : Non Plastic** **# : Liquid Limit and Plastic Limit Wet Sieved**

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

BS 5930:1999



Alan Walkers 13/10/10

Checked by **Date**

Alan Walkers 13/10/10

Approved by **Date**

LABORATORY TESTING SERVICES LIMITED

SFA St Athan Tremains Farm

Contract No.:
11520-241110
Client Ref No:
A038833-9

UKAS TESTING 2788

LABORATORY TESTING SERVICES LIMITED

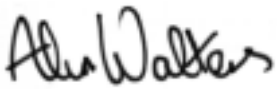
Unit 24-26
The Avenue
Delta lakes
Llanelli
Carmarthenshire
SA15 2DS
tel: +44 (0)1554 749720 / 757734
fax: +44 (0)1554 749845 / 775107
e-mail: info@geolab.org.uk

Certificate of Analysis

Date:	11/01/2011
Client:	WYG
Our Reference:	11520-241110
Client Reference:	A038833-9
Contract Title:	SFA St Athan - Tremains Farm
Description: (Total Samples)	6
Date Received:	24/11/2010
Date Started:	25/11/2010
Date Completed:	26/11/2010
Test Procedures:	(B.S. 1377 : PART 3 : 1990 AND BRE CP2/79)
Notes:	

Solid samples will be disposed 1 month and liquids 2 weeks after the date of issue of this test certificate

Approved By:



Authorised Signatories:	Vaughan Edwards	Wayne Honey	Alun Walters
	Managing Director	Laboratory Technician	Technical Manager

Contract No: 11520-241110
Client Ref: A038833-9
Location: SFA St Athan - Tremains Farm
Date: 11/01/2011

LABORATORY TESTING SERVICES LIMITED

SUMMARY OF CHEMICAL ANALYSES

(B.S. 1377 : PART 3 : 1990 AND BRE CP2/79)

Hole Number	Sample Number	Depth m	Sulphate Content SO3 (as SO_4)			Chloride Content		pH Value @ 25°C	Total Sulphur %	Magnesium g/l	Calcium g/l	Nitrate mg/l
			Acid Soluble Sulphate as % SO_4 Clause 5.5.	Aqueous Extract Sulphate as g/l SO_4 Clause 5.5.	Ground-water g/l Clause 5.4.	Soluble Chloride as % equiv. NaCl Clause 7.3	Ground-water g/l Clause 7.2	Clause 9.				
TP301		0.40	0.07 (0.08)	0.01 (0.02)		NCP		7.20	0.22	<1		<10
TP302		0.40	0.05 (0.06)	0.01 (0.02)		NCP		7.13	0.19	<1		<10
TP316		0.40	0.05 (0.06)	<.01 (<.01)		NCP		7.48	0.18	<1		<10
TP318		0.40	0.03 (0.04)	<.01 (<.01)		NCP		7.29	0.12	<1		<10
TP319		0.50	0.03 (0.04)	0.02 (0.02)		NCP		7.52	0.10	<1		<10
TP320		0.50	0.03 (0.04)	0.01 (0.02)		NCP		7.57	0.12	<1		<10

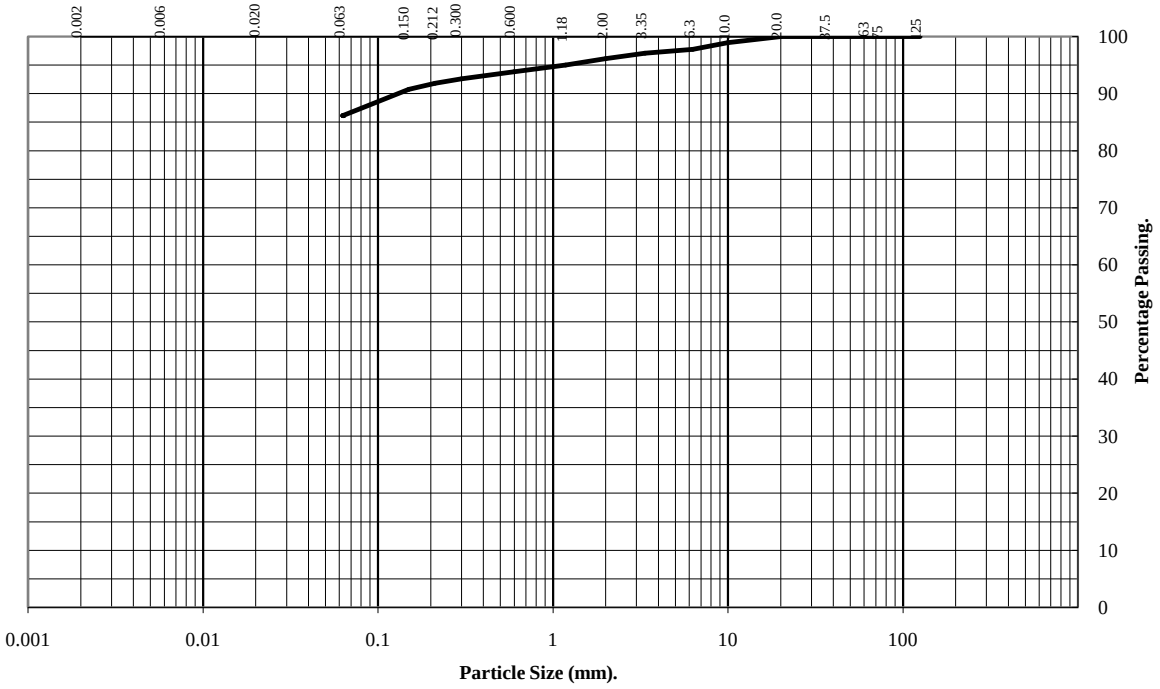
NCP - No Chloride present

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Hole Number: **TP301** Type: **B** Depth (m): **0.40**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	98
3.35	97
2.00	96
1.18	95
0.60	94
0.300	93
0.212	92
0.150	91
0.063	86

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#

Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	10
Silt and Clay	86

Remarks:

#- not determined

30/11/2010 **Checked by** **Date**

30/11/2010 **Approved by** **Date**

LABORATORY TESTING SERVICES LIMITED

SFA St Athan NWC/PSW & TF

Contract No.: **11520-241110**

Client Ref No: **A038833-9**

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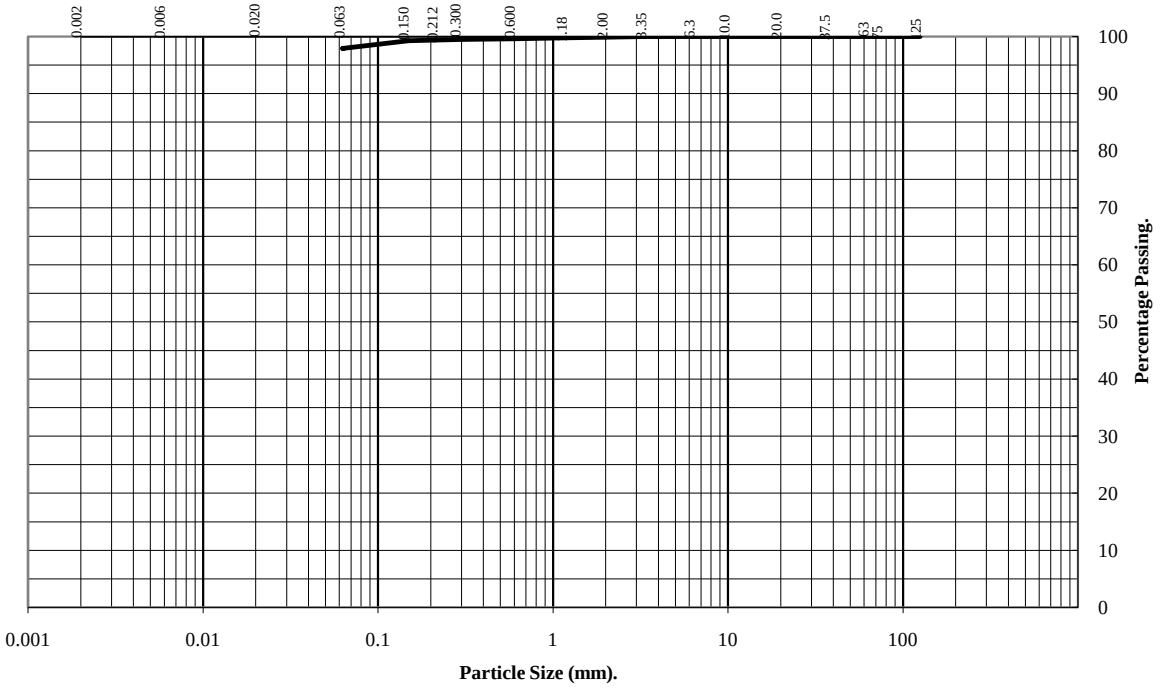
PARTICLE SIZE DISTRIBUTION TEST

BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Hole Number: **TP308** Type: **B** Depth (m): **0.30**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2.00	100
1.18	100
0.60	100
0.300	99
0.212	99
0.150	99
0.063	98

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	2
Silt and Clay	98

Remarks:

#- not determined

30/11/2010 **Checked by** **Date**

30/11/2010 **Approved by** **Date**

LABORATORY TESTING SERVICES LIMITED

SFA St Athan NWC/PSW & TF

Contract No.: **11520-241110**

Client Ref No: **A038833-9**

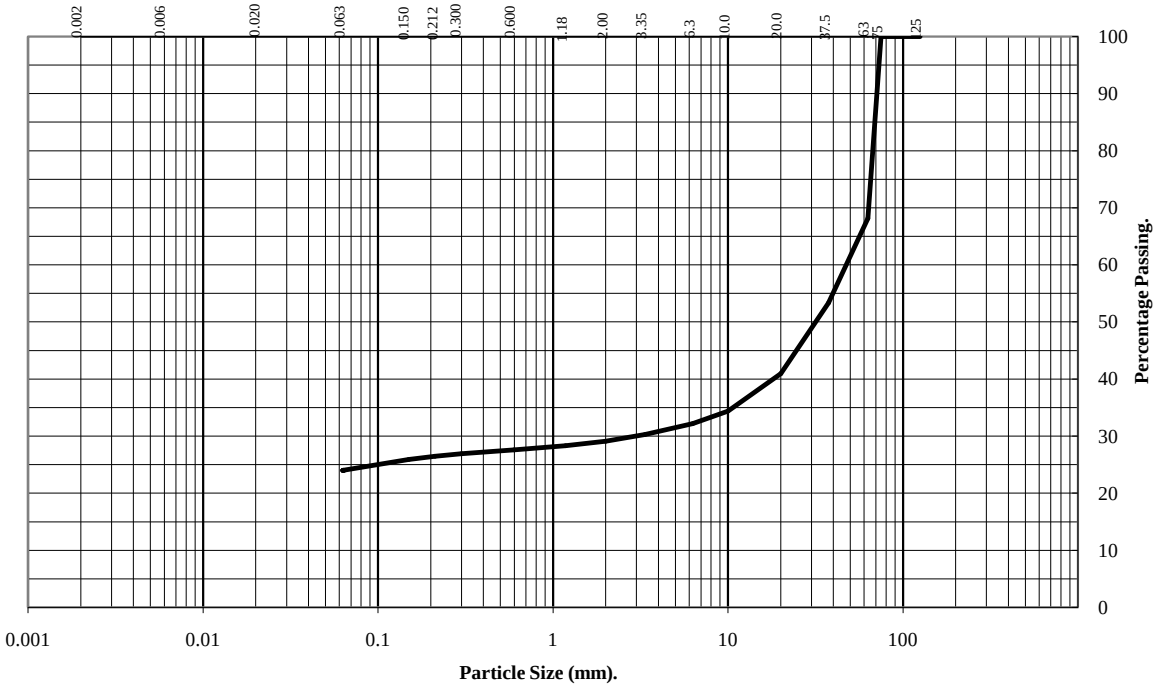
UKAS TESTING 2788

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Hole Number: **TP319** Type: **B** Depth (m): **0.50**



BS Test Sieve	Percentage Passing
125	100
75	100
63	68
37.5	53
20	41
10	34
6.3	32
3.35	30
2.00	29
1.18	28
0.60	28
0.300	27
0.212	26
0.150	26
0.063	24

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#

Soil Fraction	Total Percentage
Cobbles	32
Gravel	39
Sand	5
Silt and Clay	24

Remarks:

#- not determined

30/11/2010 30/11/2010

Checked by **Date** **Approved by** **Date**

LABORATORY TESTING SERVICES LIMITED

SFA St Athan NWC/PSW & TF

Contract No.: **11520-241110**

Client Ref No: **A038833-9**

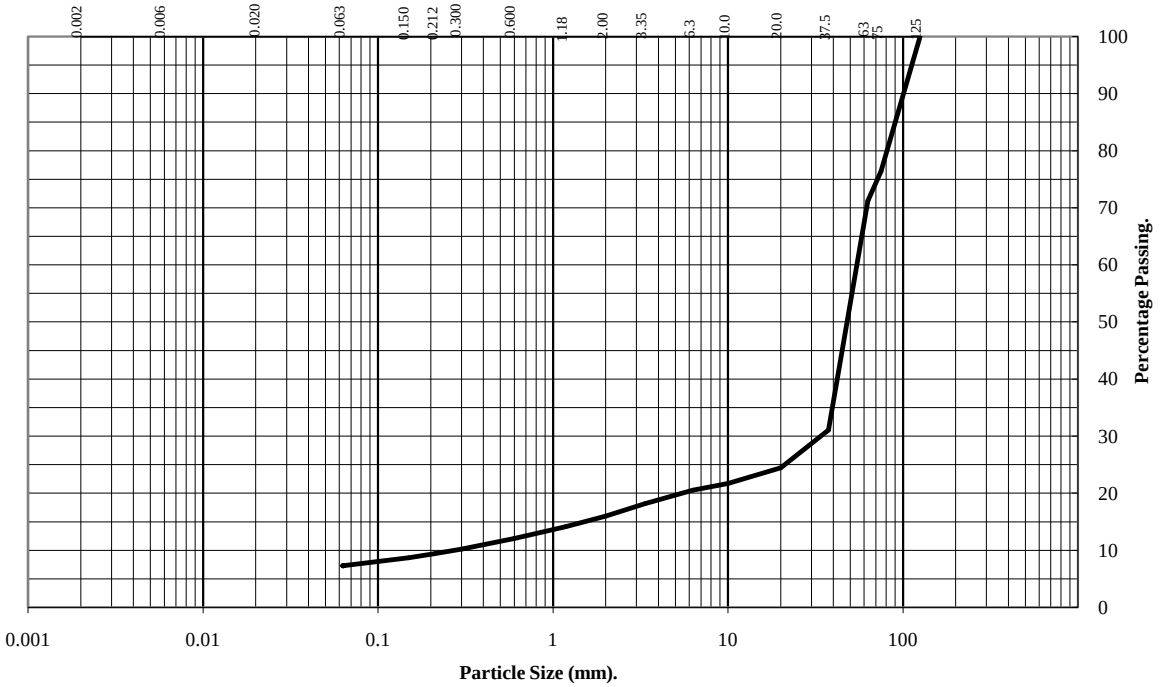
UKAS TESTING 2788

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Hole Number: **TP320** Type: **B** Depth (m): **0.50**



BS Test Sieve	Percentage Passing
125	100
75	76
63	71
37.5	31
20	24
10	22
6.3	20
3.35	18
2.00	16
1.18	14
0.60	12
0.300	10
0.212	9
0.150	9
0.063	7

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#

Soil Fraction	Total Percentage
Cobbles	29
Gravel	55
Sand	9
Silt and Clay	7

Remarks:

#- not determined

30/11/2010 **Checked by** **Date**

30/11/2010 **Approved by** **Date**

LABORATORY TESTING SERVICES LIMITED

SFA St Athan NWC/PSW & TF

Contract No.: **11520-241110**

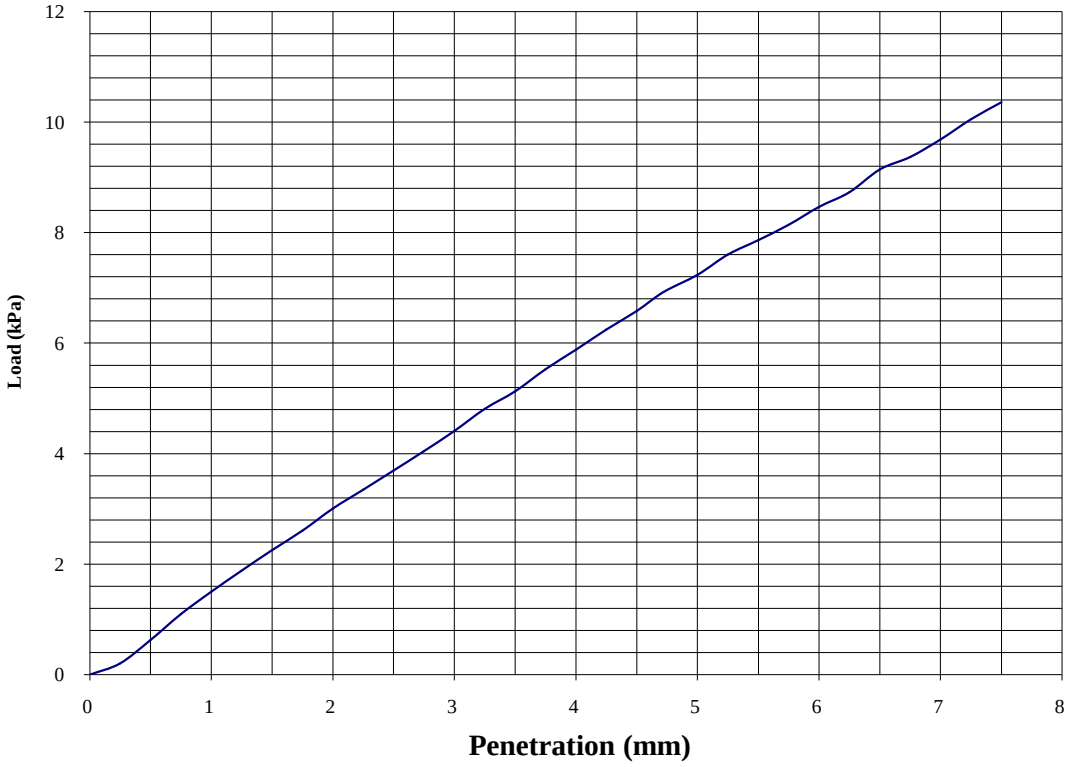
Client Ref No: **A038833-9**

UKAS TESTING 2788

California Bearing Ratio Test.

BS 1377:Part 4:1990

Hole Number: **TP301** **Sample Number:** **N/A** **Depth (m)** **0.40**



Initial Sample Conditions		Test Conditions		Method of compaction : 2.5 Kg Rammer	
Moisture Content:	29	Surcharge Kg:	2.0	Final Moisture Content %	
Bulk Density Mg/m3:	1.85	Soaking Time hrs	n/a	Sample Top	29
Dry Density Mg/m3:	1.43	Swelling mm:	n/a	Sample Bottom	N/A
C.B.R. Value %	Sample Top	36.2		Sample Bottom	N/A
Percentage retained on 20mm BS test sieve:		0	Remarks:		

30/11/10 **Checked by** **Date**

30/11/10 **Approved by** **Date**

LABORATORY TESTING SERVICES LIMITED

SFA St Athan NWC/PSW & TF

Contract No.: **11520-241110**

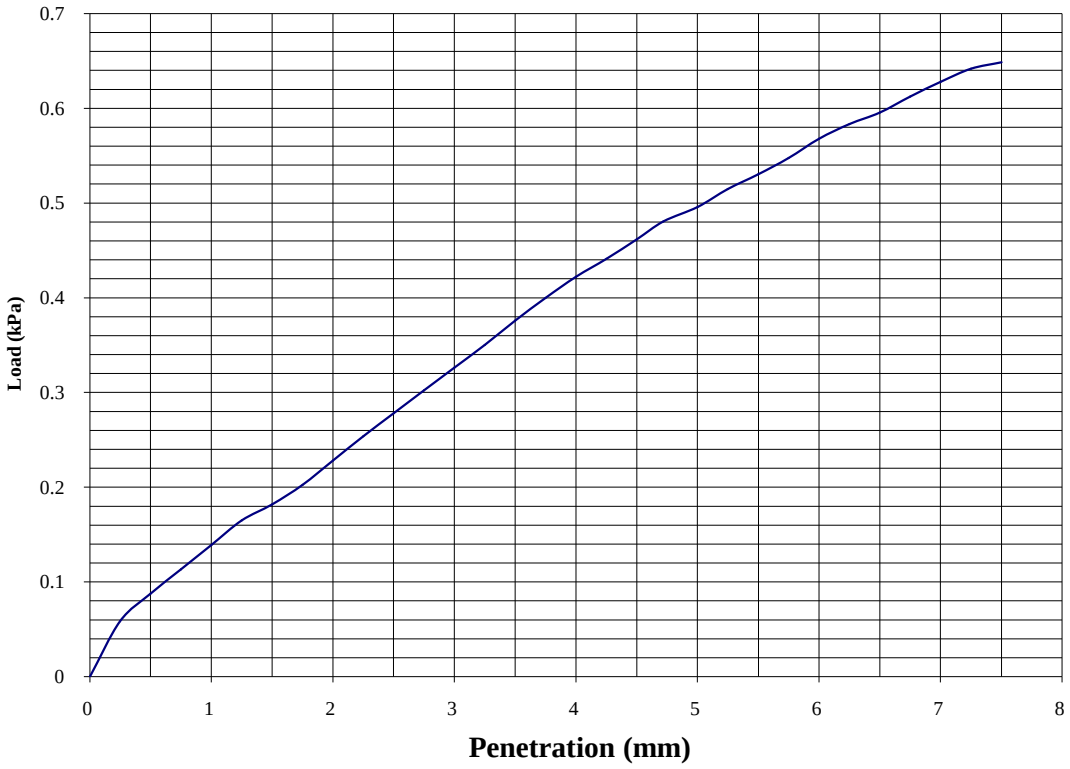
Client Ref No: **A038833-9**

UKAS TESTING 2788

California Bearing Ratio Test.

BS 1377:Part 4:1990

Hole Number: **TP308** **Sample Number:** **N/A** **Depth (m)** **0.30**



Initial Sample Conditions		Test Conditions		Method of compaction : 2.5 Kg Rammer	
Moisture Content:	34	Surcharge Kg:	2.0	Final Moisture Content %	
Bulk Density Mg/m3:	1.83	Soaking Time hrs	n/a	Sample Top	34
Dry Density Mg/m3:	1.37	Swelling mm:	n/a	Sample Bottom	N/A
C.B.R. Value %	Sample Top	2.5		Sample Bottom	N/A
Percentage retained on 20mm BS test sieve:		0	Remarks:		

30/11/10 **Checked by** **Date**

30/11/10 **Approved by** **Date**

LABORATORY TESTING SERVICES LIMITED

SFA St Athan NWC/PSW & TF

Contract No.: **11520-241110**

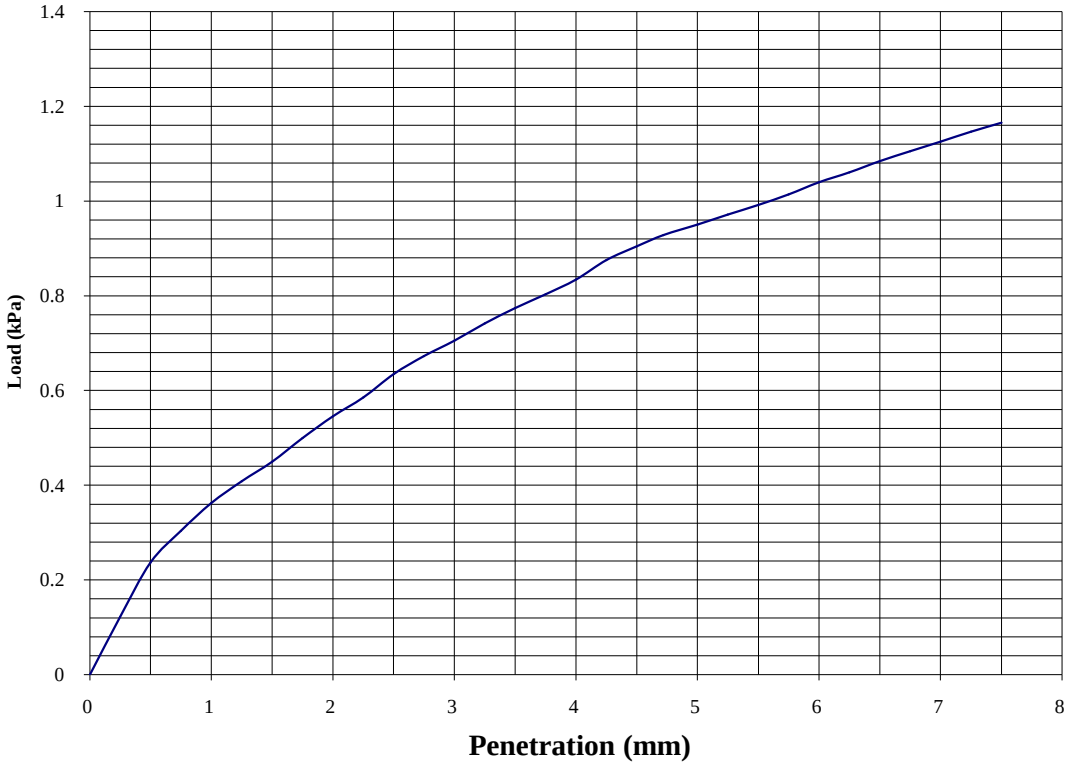
Client Ref No: **A038833-9**

UKAS TESTING 2788

California Bearing Ratio Test.

BS 1377:Part 4:1990

Hole Number: **TP318** **Sample Number:** **N/A** **Depth (m)** **0.40**



Initial Sample Conditions		Test Conditions		Method of compaction : 2.5 Kg Rammer	
Moisture Content:	31	Surcharge Kg:	2.0	Final Moisture Content %	
Bulk Density Mg/m3:	1.95	Soaking Time hrs	n/a	Sample Top	31
Dry Density Mg/m3:	1.49	Swelling mm:	n/a	Sample Bottom	N/A
C.B.R. Value %	Sample Top	4.8		Sample Bottom	N/A
Percentage retained on 20mm BS test sieve:		0	Remarks:		

30/11/10
Checked by **Date**

30/11/10
Approved by **Date**

LABORATORY TESTING SERVICES LIMITED

SFA St Athan NWC/PSW & TF

Contract No.:
11520-241110
Client Ref No:
A038833-9

UKAS TESTING
2788

SUMMARY OF POINT LOAD TESTS.

Int. J. Rock Mech. Sci. & Geomech. Abstr. Vol. 22, No. 2, pp. 51 - 60, 1985.

Borehole Number	Depth (m)	Type of Test d a b/i	Type of Test I //	Width (W) (mm)	Platen Separation (D) (mm)	Failure Load (P) (kN)	Equivalent Diameter (D_e) (mm)	Point Load (I_s) (MPa)	Size Factor (F)	Point Load Index ($I_{s(50)}$) (MPa)	Angle between plane of anisotropy & core axis.	Type of anisotropy (Bedding or Cleavage).	Remarks.
BH301	0.80 1.50	d			72	22.80		4.40	1.18	5.18			
		a		72	45	3.38	64	0.82	1.12	0.92			
BH304	0.60 1.50	d			72	16.87		3.25	1.18	3.83			
		a		72	45	14.78	64	3.58	1.12	4.01			

Key : d = diametral; a = axial; b = block; i = irregular lump test; I = perpendicular; // = parallel to planes of weakness.

Checked By **Date** 11/01/11 **Approved By** **Date** 11/01/11

LABORATORY TESTING SERVICES LIMITED

SFA St Athan Tremains Farm

Contract No.

11383-041110

Client Ref No.

A038833-9

LABORATORY TESTING SERVICES LIMITED

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Carmarthenshire .SA15 2DS
tel: +44 (0)1554 757734
fax: +44 (0)1554 775107
e-mail: vedwards@geolab.org.uk

Date: 11-Jan-11
Contract Number: 11383-041110
Location: SFA St Athan-Tremains Farm
Sample Type: Core
Sample Preparation: Capping and Grinding
Operator: Vincent Williams

Determination of Unconfined Compressive Strength.

ISRM Suggested Methods, pp 111 –116, 1981.

Borehole Number	Depth (m)	Diameter (mm)	Length (mm)	Initial mass g	Bulk Density Mg/m3	MC %	Dry Density Mg/m3	Load Failure	MCS(MPA)	Mode OF FAILURE	Date Tested	Remarks
301	0.80-1.50	72.60	190.30	2056.7	2.610	0.59	2.595	283.9	68.572	Brittle	13-Nov-10	
302	1.50-3.00	72.50	220.40	2495	2.742	0.99	2.715	319.3	77.335	Brittle	13-Nov-10	
303	0.70-1.60	72.30	184.50	2002.6	2.643	0.60	2.628	294.1	71.626	Brittle	13-Nov-10	
304	0.60-1.50	72.60	208.50	2250	2.606	0.45	2.595	290.7	70.214	Brittle	13-Nov-10	
305	4.40-5.00	72.50	209.80	2295.7	2.650	0.55	2.636	316.9	76.754	Brittle	13-Nov-10	

Approved Signatories:

D V Edwards (Managing Director) ..... Date *11/1/11*

A Walters (Technical Manager) ..... Date *11/1/11*

Appendix F – Chemical Laboratory Test Data

Our Ref: EXR/113345 (Ver. 1)
Your Ref: A038833-9

November 24, 2010

Scientifics
Bretby Business Park
Ashby Road
Burton-on-Trent
Staffordshire
DE15 0YZ

Telephone: 01283 554400
Facsimile: 01283 554422

Ms K Brice
WYG Environment
5th Floor
Longcross Court
47 Newport Road
Cardiff
CF24 0AD

For the attention of Ms K Brice

Dear Ms Brice

WATER SAMPLE ANALYSIS - SFA St Athan

Samples from the above site have been analysed in accordance with the schedule supplied.
The sample details and the results of analyses for these samples are given in the appended report.

An invoice for this work will follow under a separate cover.

Please be aware that from 1 January 2003 our policy for the retention of paper based laboratory records and analysis reports will be 6 years.

The work was carried out in accordance with Environmental Scientifics Group Ltd (Scientifics) Standard Terms and Conditions of Contract.

If I can be of any further assistance please do not hesitate to contact me.

Yours sincerely

for Scientifics

L Thompson
Project Co-ordinator
01283 554467

TEST REPORT
WATER SAMPLE ANALYSIS

1252

Report No. EXR/113345 (Ver. 1)

WYG Environment
5th Floor
Longcross Court
47 Newport Road
Cardiff
CF24 0AD

Site: SFA St Athan

The 7 samples described in this report were logged for analysis by Scientifics on 18-Nov-2010.
The analysis was completed by: 24-Nov-2010

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 Scientifics.

The following tables are contained in this report:

On behalf of
Scientifics :
Andrew Timms Operations Manager

Date of Issue: 24-Nov-2010

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

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

		Units :		mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
		Method Codes :	WSLM3	WSLM12	WSLM17	KONENS	CPWATVAR	ICPMSW	ICPMSW	ICPMSW	PAHMSW	ICPMSW	ICPMSW	ICPMSW	CPWATVAR	ICPMSW	CPWATVAR	ICPMSW
		Method Reporting Limits :		2	2	1	3.0	0.001	0.001	0.0001	0.01	0.001	0.001	0.002	0.01	0.001	0.01	0.0001
		UKAS Accredited :	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Laboratory ID Number EX/	**Client Sample Description**	**Sample Date**	**pH units**	**Total Alkalinity as CaCO3**	**Total Acidity as CaCO3**	**Chloride as Cl w**	**Total Sulphur as SO4 (Dissolved) a**	**Nickel as Ni (Dissolved)**	**Chromium as Cr (Dissolved)**	**Cadmium as Cd (Dissolved)**	**PAH MS-SIM (16)**	**Copper as Cu (Dissolved)**	**Lead as Pb (Dissolved)**	**Zinc as Zn (Dissolved)**	**Iron as Fe (Dissolved) a**	**Arsenic as As (Dissolved)**	**Boron as B (Dissolved) a**	**Mercury as Hg (Dissolved)**
1040951	BH103	16-Nov-10	7.1	350	0	17	12	0.002	0.009	<0.0001	Req	0.003	<0.001	0.002	<0.01	<0.001	0.03	<0.0001
1040952	BH201 (50mm)	16-Nov-10	7.1	290	0	30	35	0.001	0.008	<0.0001	Req	0.001	<0.001	0.003	<0.01	<0.001	0.01	<0.0001
1040953	BH201 (19mm)	16-Nov-10	7.1	317	0	30	35	0.002	0.008	<0.0001	Req	<0.001	<0.001	<0.002	<0.01	<0.001	0.01	<0.0001
1040954	BH202	16-Nov-10	7.2	270	0	31	43	0.001	0.009	<0.0001	Req	<0.001	<0.001	0.003	<0.01	<0.001	0.01	<0.0001
1040955	BH203	16-Nov-10	7.3	288	0	21	30	0.002	0.007	<0.0001	Req	0.002	<0.001	<0.002	<0.01	<0.001	<0.01	<0.0001
1040956	BH301	16-Nov-10	7.2	307	0	28	24	0.003	0.008	<0.0001	Req	0.001	<0.001	0.003	<0.01	<0.001	0.01	<0.0001
1040957	BH305	16-Nov-10	7.2	387	0	4	5	0.002	0.01	<0.0001	Req	0.002	<0.001	0.004	<0.01	<0.001	0.02	<0.0001

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Client Name **WYG Environment**

Contact Ms K Brice

SFA St Athan

Water Sample Analysis

Date Printed	24-Nov-10
Report Number	**EXR/113345**
Table Number	**1**

		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				
		Method Codes :	ICPMSW	ICPMSW	ICPMSW	KONENS	KONENS	KONENS	SFAPI	TPHFID-Si	CPWATVAR	CPWATVAR	WAL1	GROHSA				
		Method Reporting Limits :	0.001	0.001	0.001	0.01	0.2	0.01	0.02	0.01	0.01	0.01	0.1	0.1				
		UKAS Accredited :	yes	yes	yes	yes	yes	yes	yes	yes	no	no	no	no				
Laboratory ID Number EX/	**Client Sample Description**	**Sample Date**	**Selenium as Se (Dissolved)**	**Molybdenum as Mo (Dissolved)**	**Antimony as Sb (Dissolved)**	**Ammoniacal Nitrogen as N**	**Nitrate as N**	**Chromium VI as Cr**	**Cyanide (Total) as CN**	**TPH GC (AA)**	**Barium as Ba (Dissolved) a**	**Beryllium as Be (Dissolved) a**	**Ammonia (Free) as N**	**GRO-HSA (AA)**				
1040951	BH103	16-Nov-10	<0.001	0.002	<0.001	<0.01	1.7	<0.01	<0.02	Req	0.08	<0.01	0.2	Req				
1040952	BH201 (50mm)	16-Nov-10	<0.001	0.002	<0.001	<0.01	7.0	<0.01	<0.02	Req	0.02	<0.01	<0.1	Req				
1040953	BH201 (19mm)	16-Nov-10	<0.001	0.002	<0.001	<0.01	7.1	<0.01	<0.02	Req	0.03	<0.01	<0.1	Req				
1040954	BH202	16-Nov-10	<0.001	0.002	<0.001	<0.01	7.2	<0.01	<0.02	Req	0.02	<0.01	<0.1	Req				
1040955	BH203	16-Nov-10	0.001	0.002	<0.001	<0.01	4.3	<0.01	<0.02	Req	0.04	<0.01	<0.1	Req				
1040956	BH301	16-Nov-10	<0.001	0.002	<0.001	0.01	6.9	<0.01	<0.02	Req	0.02	<0.01	<0.1	Req				
1040957	BH305	16-Nov-10	<0.001	0.002	<0.001	0.04	<0.2	<0.01	<0.02	Req	0.03	<0.01	<0.1	Req				

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Client Name **WYG Environment**

Contact Ms K Brice

SFA St Athan

Water Sample Analysis

Date Printed	24-Nov-10
Report Number	**EXR/113345**
Table Number	**1**

Where individual results are flagged see report notes for status.

		Units :	mg/l	mg/l	mg/l	mg/l												
		Method Codes :	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC												
		Method Reporting Limits :	0.0005	0.0005	0.0005	0.0005												
		UKAS Accredited :	no	no	no	no												
Laboratory ID Number EX/	**Client Sample Description**	**Sample Date**	**Phenol**	**Cresols**	**Dimethylphenols**	**Trimethylphenols**												
1040951	BH103	**16-Nov-10**	0.4421	0.6704	0.8466	0.6758												
1040952	BH201 (50mm)	**16-Nov-10**	0.0018	0.0024	<0.0005	<0.0005												
1040953	BH201 (19mm)	**16-Nov-10**	0.0007	0.0006	<0.0005	<0.0005												
1040954	BH202	**16-Nov-10**	0.0020	<0.0005	0.0006	<0.0005												
1040955	BH203	**16-Nov-10**	0.0006	0.0005	<0.0005	<0.0005												
1040956	BH301	**16-Nov-10**	0.0006	0.0006	<0.0005	<0.0005												
1040957	BH305	**16-Nov-10**	0.0007	0.0008	<0.0005	<0.0005												

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Client Name **WYG Environment**

Contact Ms K Brice

SFA St Athan

Water Sample Analysis

Date Printed	24-Nov-10
Report Number	**EXR/113345**
Table Number	**1**

Where individual results are flagged see report notes for status.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan		
Sample Details:	BH103	**Job Number:**	W11_3345
LIMS ID Number:	EX1040951	**Date Booked in:**	18-Nov-10
QC Batch Number:	1320	**Date Extracted:**	22-Nov-10
Quantitation File:	Initial Calibration	**Date Analysed:**	23-Nov-10
Directory:	122PAH.MS10\	**Matrix:**	Water
Dilution:	1.0	**Ext Method:**	Sep. Funnel

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration ug/l	% Fit
Naphthalene	91-20-3	-	< 0.010	-
Acenaphthylene	208-96-8	-	< 0.010	-
Acenaphthene	83-32-9	-	< 0.010	-
Fluorene	86-73-7	-	< 0.010	-
Phenanthrene	85-01-8	-	< 0.010	-
Anthracene	120-12-7	-	< 0.010	-
Fluoranthene	206-44-0	-	< 0.010	-
Pyrene	129-00-0	-	< 0.010	-
Benzo[a]anthracene	56-55-3	-	< 0.010	-
Chrysene	218-01-9	-	< 0.010	-
Benzo[b]fluoranthene	205-99-2	-	< 0.010	-
Benzo[k]fluoranthene	207-08-9	-	< 0.010	-
Benzo[a]pyrene	50-32-8	-	< 0.010	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.010	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.010	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.010	-
Total (USEPA16) PAHs	-	-	< 0.160	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	106
Acenaphthene-d10	103
Phenanthrene-d10	108
Chrysene-d12	111
Perylene-d12	107

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	72
Terphenyl-d14	85

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:	WYG Environment: SFA St Athan		
Sample Details:	BH201 (50mm)	**Job Number:**	W11_3345
LIMS ID Number:	EX1040952	**Date Booked in:**	18-Nov-10
QC Batch Number:	1320	**Date Extracted:**	22-Nov-10
Quantitation File:	Initial Calibration	**Date Analysed:**	23-Nov-10
Directory:	122PAH.MS10\	**Matrix:**	Water
Dilution:	1.0	**Ext Method:**	Sep. Funnel

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration ug/l	% Fit
Naphthalene	91-20-3	-	< 0.010	-
Acenaphthylene	208-96-8	-	< 0.010	-
Acenaphthene	83-32-9	-	< 0.010	-
Fluorene	86-73-7	-	< 0.010	-
Phenanthrene	85-01-8	-	< 0.010	-
Anthracene	120-12-7	-	< 0.010	-
Fluoranthene	206-44-0	-	< 0.010	-
Pyrene	129-00-0	-	< 0.010	-
Benzo[a]anthracene	56-55-3	-	< 0.010	-
Chrysene	218-01-9	-	< 0.010	-
Benzo[b]fluoranthene	205-99-2	-	< 0.010	-
Benzo[k]fluoranthene	207-08-9	-	< 0.010	-
Benzo[a]pyrene	50-32-8	-	< 0.010	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.010	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.010	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.010	-
Total (USEPA16) PAHs	-	-	< 0.160	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	102
Acenaphthene-d10	100
Phenanthrene-d10	103
Chrysene-d12	101
Perylene-d12	95

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	72
Terphenyl-d14	84

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Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan		
Sample Details:	BH201 (19mm)	**Job Number:**	W11_3345
LIMS ID Number:	EX1040953	**Date Booked in:**	18-Nov-10
QC Batch Number:	1320	**Date Extracted:**	22-Nov-10
Quantitation File:	Initial Calibration	**Date Analysed:**	23-Nov-10
Directory:	122PAH.MS10\	**Matrix:**	Water
Dilution:	1.0	**Ext Method:**	Sep. Funnel

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration ug/l	% Fit
Naphthalene	91-20-3	-	< 0.010	-
Acenaphthylene	208-96-8	-	< 0.010	-
Acenaphthene	83-32-9	-	< 0.010	-
Fluorene	86-73-7	-	< 0.010	-
Phenanthrene	85-01-8	-	< 0.010	-
Anthracene	120-12-7	-	< 0.010	-
Fluoranthene	206-44-0	-	< 0.010	-
Pyrene	129-00-0	-	< 0.010	-
Benzo[a]anthracene	56-55-3	-	< 0.010	-
Chrysene	218-01-9	-	< 0.010	-
Benzo[b]fluoranthene	205-99-2	-	< 0.010	-
Benzo[k]fluoranthene	207-08-9	-	< 0.010	-
Benzo[a]pyrene	50-32-8	-	< 0.010	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.010	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.010	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.010	-
Total (USEPA16) PAHs	-	-	< 0.160	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	107
Acenaphthene-d10	101
Phenanthrene-d10	105
Chrysene-d12	105
Perylene-d12	98

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	79
Terphenyl-d14	92

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Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan		
Sample Details:	BH202	**Job Number:**	W11_3345
LIMS ID Number:	EX1040954	**Date Booked in:**	18-Nov-10
QC Batch Number:	1320	**Date Extracted:**	22-Nov-10
Quantitation File:	Initial Calibration	**Date Analysed:**	23-Nov-10
Directory:	122PAH.MS10\	**Matrix:**	Water
Dilution:	1.0	**Ext Method:**	Sep. Funnel

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration ug/l	% Fit
Naphthalene	91-20-3	-	< 0.010	-
Acenaphthylene	208-96-8	-	< 0.010	-
Acenaphthene	83-32-9	-	< 0.010	-
Fluorene	86-73-7	-	< 0.010	-
Phenanthrene	85-01-8	-	< 0.010	-
Anthracene	120-12-7	-	< 0.010	-
Fluoranthene	206-44-0	-	< 0.010	-
Pyrene	129-00-0	-	< 0.010	-
Benzo[a]anthracene	56-55-3	-	< 0.010	-
Chrysene	218-01-9	-	< 0.010	-
Benzo[b]fluoranthene	205-99-2	-	< 0.010	-
Benzo[k]fluoranthene	207-08-9	-	< 0.010	-
Benzo[a]pyrene	50-32-8	-	< 0.010	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.010	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.010	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.010	-
Total (USEPA16) PAHs	-	-	< 0.160	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	105
Acenaphthene-d10	102
Phenanthrene-d10	108
Chrysene-d12	113
Perylene-d12	111

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	70
Terphenyl-d14	91

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Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan		
Sample Details:	BH203	**Job Number:**	W11_3345
LIMS ID Number:	EX1040955	**Date Booked in:**	18-Nov-10
QC Batch Number:	1320	**Date Extracted:**	22-Nov-10
Quantitation File:	Initial Calibration	**Date Analysed:**	23-Nov-10
Directory:	122PAH.MS10\	**Matrix:**	Water
Dilution:	1.0	**Ext Method:**	Sep. Funnel

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration ug/l	% Fit
Naphthalene	91-20-3	-	< 0.010	-
Acenaphthylene	208-96-8	-	< 0.010	-
Acenaphthene	83-32-9	-	< 0.010	-
Fluorene	86-73-7	-	< 0.010	-
Phenanthrene	85-01-8	-	< 0.010	-
Anthracene	120-12-7	-	< 0.010	-
Fluoranthene	206-44-0	-	< 0.010	-
Pyrene	129-00-0	-	< 0.010	-
Benzo[a]anthracene	56-55-3	-	< 0.010	-
Chrysene	218-01-9	-	< 0.010	-
Benzo[b]fluoranthene	205-99-2	-	< 0.010	-
Benzo[k]fluoranthene	207-08-9	-	< 0.010	-
Benzo[a]pyrene	50-32-8	-	< 0.010	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.010	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.010	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.010	-
Total (USEPA16) PAHs	-	-	< 0.160	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	103
Acenaphthene-d10	99
Phenanthrene-d10	104
Chrysene-d12	108
Perylene-d12	105

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	67
Terphenyl-d14	85

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:	WYG Environment: SFA St Athan		
Sample Details:	BH301	**Job Number:**	W11_3345
LIMS ID Number:	EX1040956	**Date Booked in:**	18-Nov-10
QC Batch Number:	1320	**Date Extracted:**	22-Nov-10
Quantitation File:	Initial Calibration	**Date Analysed:**	23-Nov-10
Directory:	122PAH.MS10\	**Matrix:**	Water
Dilution:	1.0	**Ext Method:**	Sep. Funnel

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration ug/l	% Fit
Naphthalene	91-20-3	-	< 0.010	-
Acenaphthylene	208-96-8	-	< 0.010	-
Acenaphthene	83-32-9	-	< 0.010	-
Fluorene	86-73-7	-	< 0.010	-
Phenanthrene	85-01-8	-	< 0.010	-
Anthracene	120-12-7	-	< 0.010	-
Fluoranthene	206-44-0	-	< 0.010	-
Pyrene	129-00-0	-	< 0.010	-
Benzo[a]anthracene	56-55-3	-	< 0.010	-
Chrysene	218-01-9	-	< 0.010	-
Benzo[b]fluoranthene	205-99-2	-	< 0.010	-
Benzo[k]fluoranthene	207-08-9	-	< 0.010	-
Benzo[a]pyrene	50-32-8	-	< 0.010	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.010	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.010	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.010	-
Total (USEPA16) PAHs	-	-	< 0.160	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	111
Acenaphthene-d10	108
Phenanthrene-d10	113
Chrysene-d12	118
Perylene-d12	115

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	60
Terphenyl-d14	77

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:	WYG Environment: SFA St Athan		
Sample Details:	BH305	**Job Number:**	W11_3345
LIMS ID Number:	EX1040957	**Date Booked in:**	18-Nov-10
QC Batch Number:	1320	**Date Extracted:**	22-Nov-10
Quantitation File:	Initial Calibration	**Date Analysed:**	23-Nov-10
Directory:	122PAH.MS10\	**Matrix:**	Water
Dilution:	1.0	**Ext Method:**	Sep. Funnel

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration ug/l	% Fit
Naphthalene	91-20-3	-	< 0.010	-
Acenaphthylene	208-96-8	-	< 0.010	-
Acenaphthene	83-32-9	-	< 0.010	-
Fluorene	86-73-7	-	< 0.010	-
Phenanthrene	85-01-8	-	< 0.010	-
Anthracene	120-12-7	-	< 0.010	-
Fluoranthene	206-44-0	-	< 0.010	-
Pyrene	129-00-0	-	< 0.010	-
Benzo[a]anthracene	56-55-3	-	< 0.010	-
Chrysene	218-01-9	-	< 0.010	-
Benzo[b]fluoranthene	205-99-2	-	< 0.010	-
Benzo[k]fluoranthene	207-08-9	-	< 0.010	-
Benzo[a]pyrene	50-32-8	-	< 0.010	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.010	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.010	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.010	-
Total (USEPA16) PAHs	-	-	< 0.160	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	111
Acenaphthene-d10	108
Phenanthrene-d10	113
Chrysene-d12	116
Perylene-d12	113

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	68
Terphenyl-d14	83

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.

Gasoline Range Organics
(BTEX and Aliphatic Carbon Ranges)

Customer and Site Details: WYG Environment : SFA St Athan
Job Number: W11_3345
Directory: D:\TES\DATA\Y2010\1122HSA_GC12\112210 2010-11-22 08-21-10\129B2901.D
Method: Headspace GCFID

Matrix: Water
Date Booked in: 18-Nov-10
Date extracted: 22-Nov-10
Date Analysed: 22-Nov-10, 17:3

*** Sample data with an asterisk are not UKAS accredited.**

			Concentration, (mg/l)					Aliphatics				
Sample ID	Client ID	Benzene	Toluene	Ethyl benzene	m/p-Xylene	o-Xylene	C5 - C6	>C6 - C7	>C7 - C8	>C8 - C10	Total GRO
* EX1040951	BH103	<0.005	<0.005	<0.005	<0.005	<0.005	<0.1	<0.1	<0.1	<0.1	<0.1
* EX1040952	BH201 (50mm)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.1	<0.1	<0.1	<0.1	<0.1
* EX1040953	BH201 (19mm)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.1	<0.1	<0.1	<0.1	<0.1
* EX1040954	BH202	<0.005	<0.005	<0.005	<0.005	<0.005	<0.1	<0.1	<0.1	<0.1	<0.1
* EX1040955	BH203	<0.005	<0.005	<0.005	<0.005	<0.005	<0.1	<0.1	<0.1	<0.1	<0.1
* EX1040956	BH301	<0.005	<0.005	<0.005	<0.005	<0.005	<0.1	<0.1	<0.1	<0.1	<0.1
* EX1040957	BH305	<0.005	<0.005	<0.005	<0.005	<0.005	<0.1	<0.1	<0.1	<0.1	<0.1

Note: Benzene elutes between C6 and C7, toluene elutes between C7 and C8, ethyl benzene and the xylenes elute between C8 and C9.
Xylenes have been deducted from the C8-C10 band to give the aliphatic fraction, however aromatic compounds may still be contributing to this fraction.

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: WYG Environment : SFA St Athan
Job Number: W11_3345
QC Batch Number: 101320
Directory: D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\084B4201.D
Method: Separating Funnel

Separation: Silica gel
Eluents: Hexane, DCM

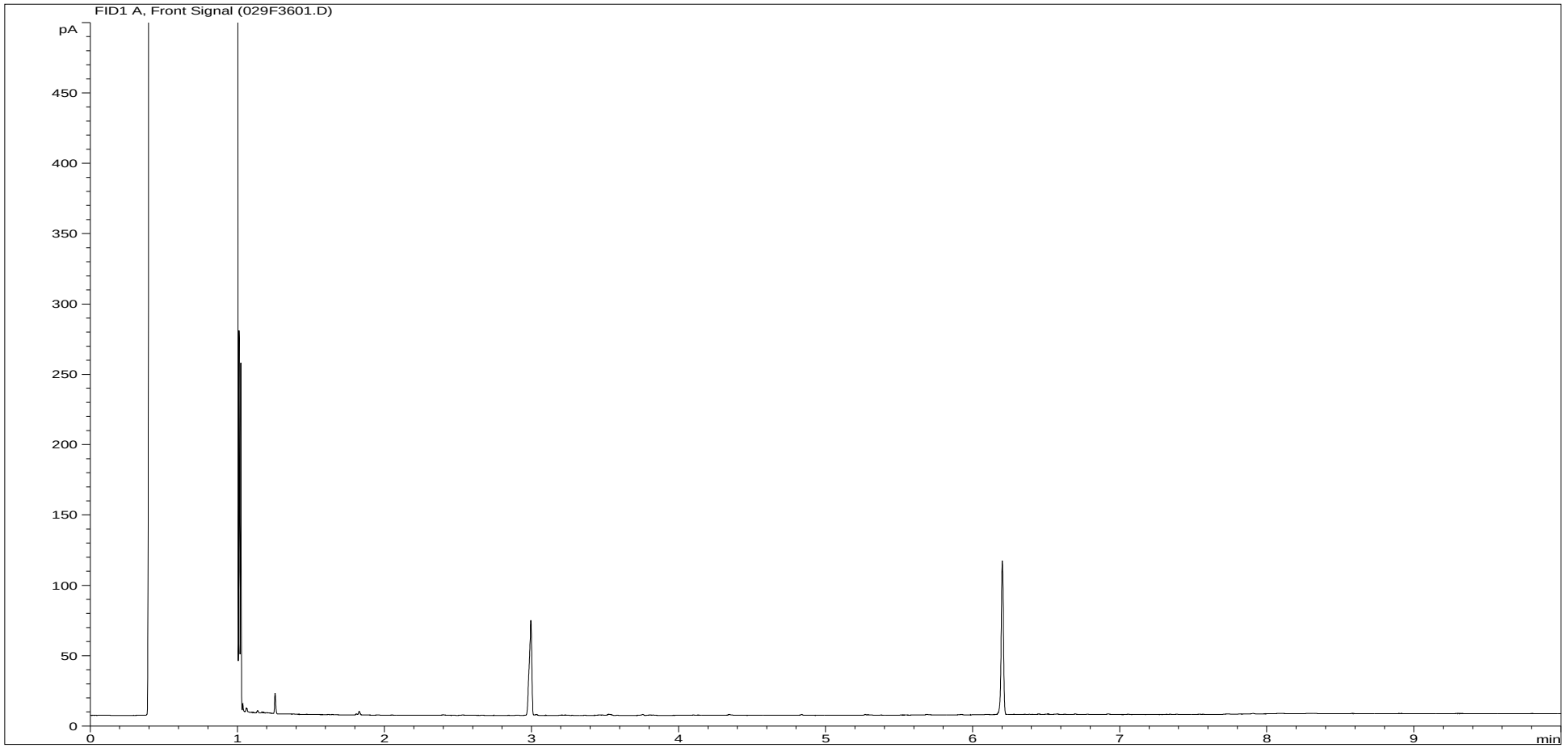
Matrix: Water
Date Booked ir 18-Nov-10
Date Extracted 22-Nov-10
Date Analysed 23-Nov-10, 20:15:34

*** This sample data is not UKAS accredited.**

		Concentration, (mg/l)											
		>C8 - C10		>C10 - C12		>C12 - C16		>C16 - C21		>C21 - C35		>C8 - C40	
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**
EX1040951	BH103	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.018	<0.01	0.026	<0.01
EX1040952	BH201 (50mm)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	<0.01
EX1040953	BH201 (19mm)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EX1040954	BH202	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.034	0.023	0.051	0.024
EX1040955	BH203	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.024	<0.01	0.031	0.01
EX1040956	BH301	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.028	<0.01	0.042	<0.01
EX1040957	BH305	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01

Where individual results are flagged see report notes for status.

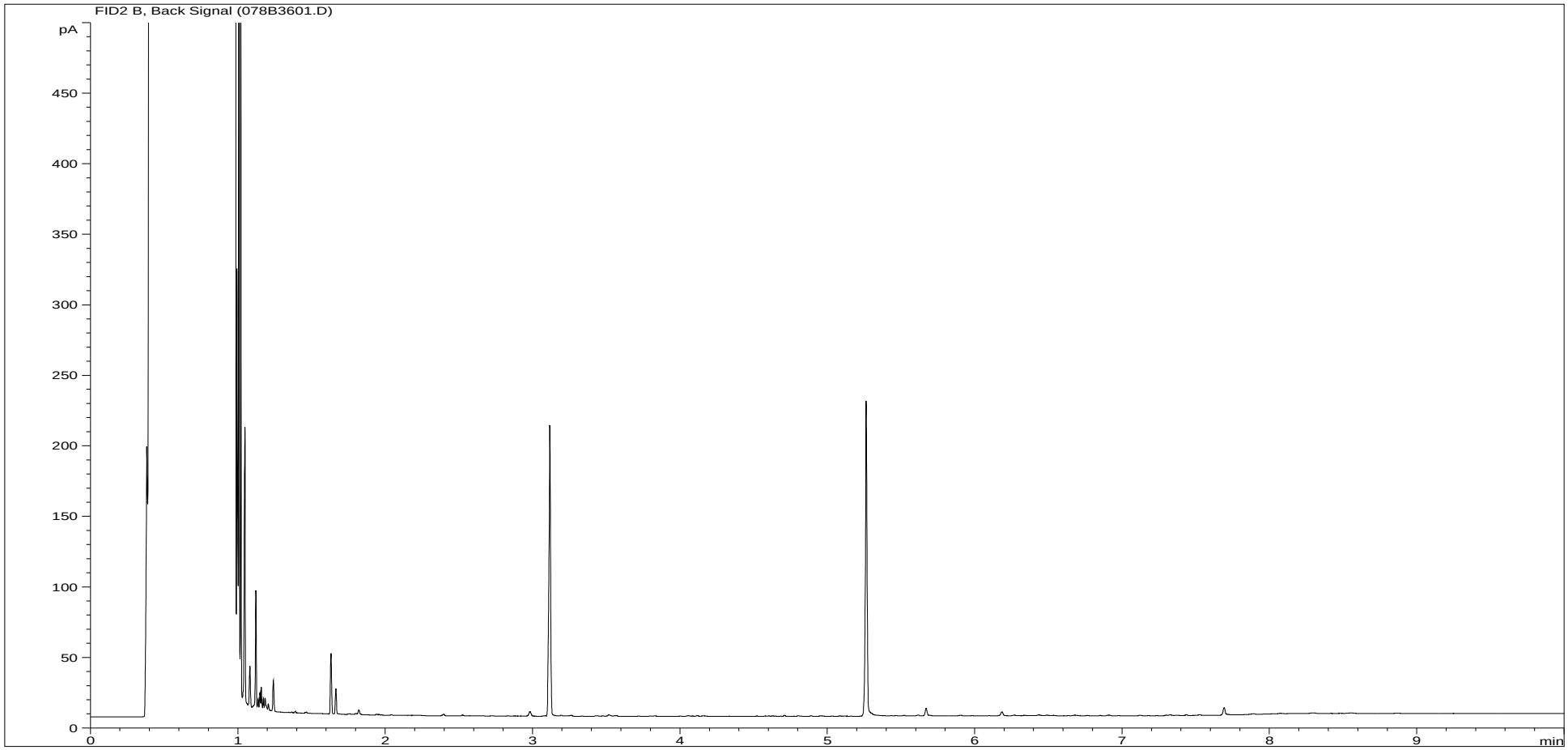
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	EX1040951ALI	**Job Number:**	W11_3345
Multiplier:	0.02	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH103
Acquisition Date/Time:	23-Nov-10, 18:32:46		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\029F3601.D		

Where individual results are flagged see report notes for status.

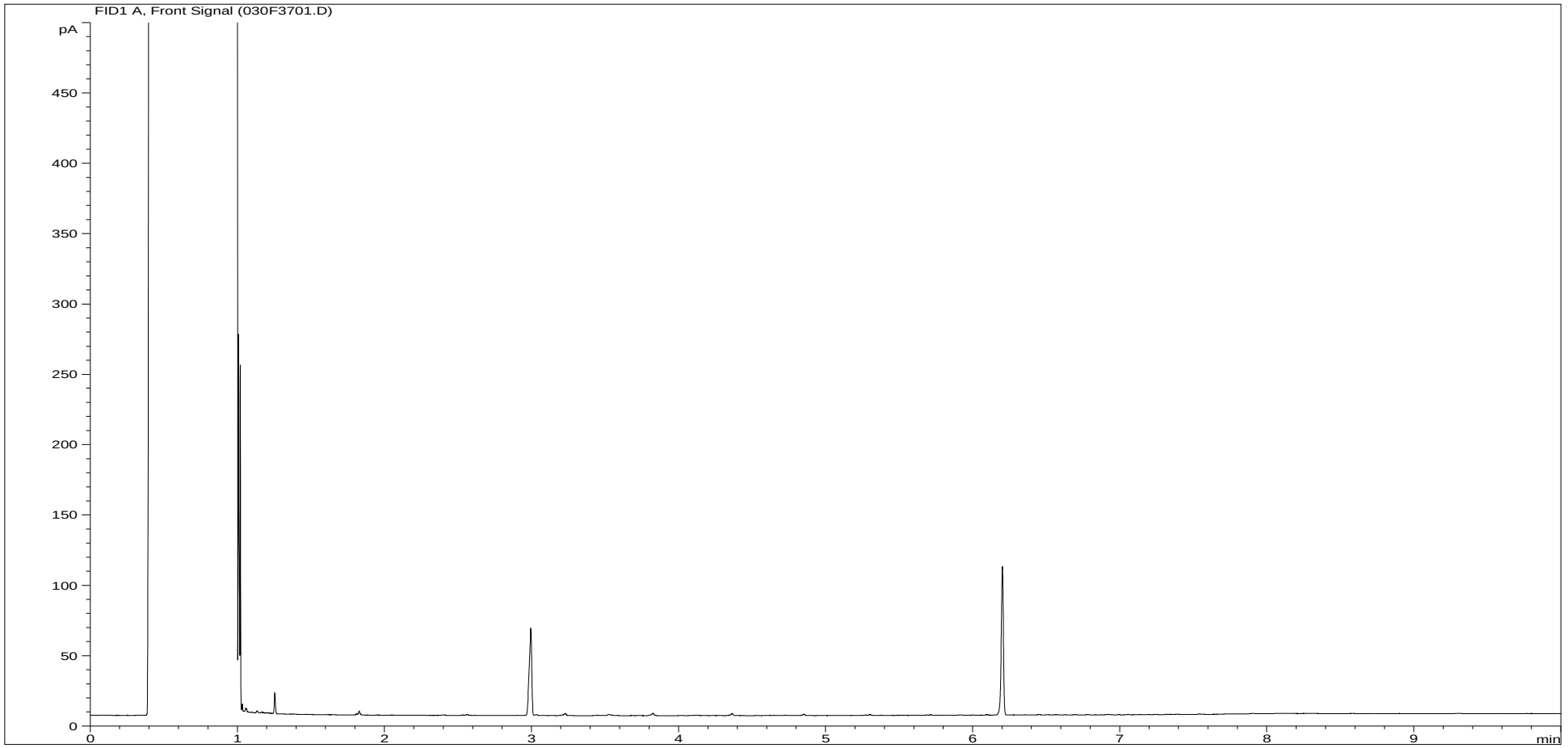
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	EX1040951ARO	**Job Number:**	W11_3345
Multiplier:	0.015	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH103
Acquisition Date/Time:	23-Nov-10, 18:32:46		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\078B3601.D		

Where individual results are flagged see report notes for status.

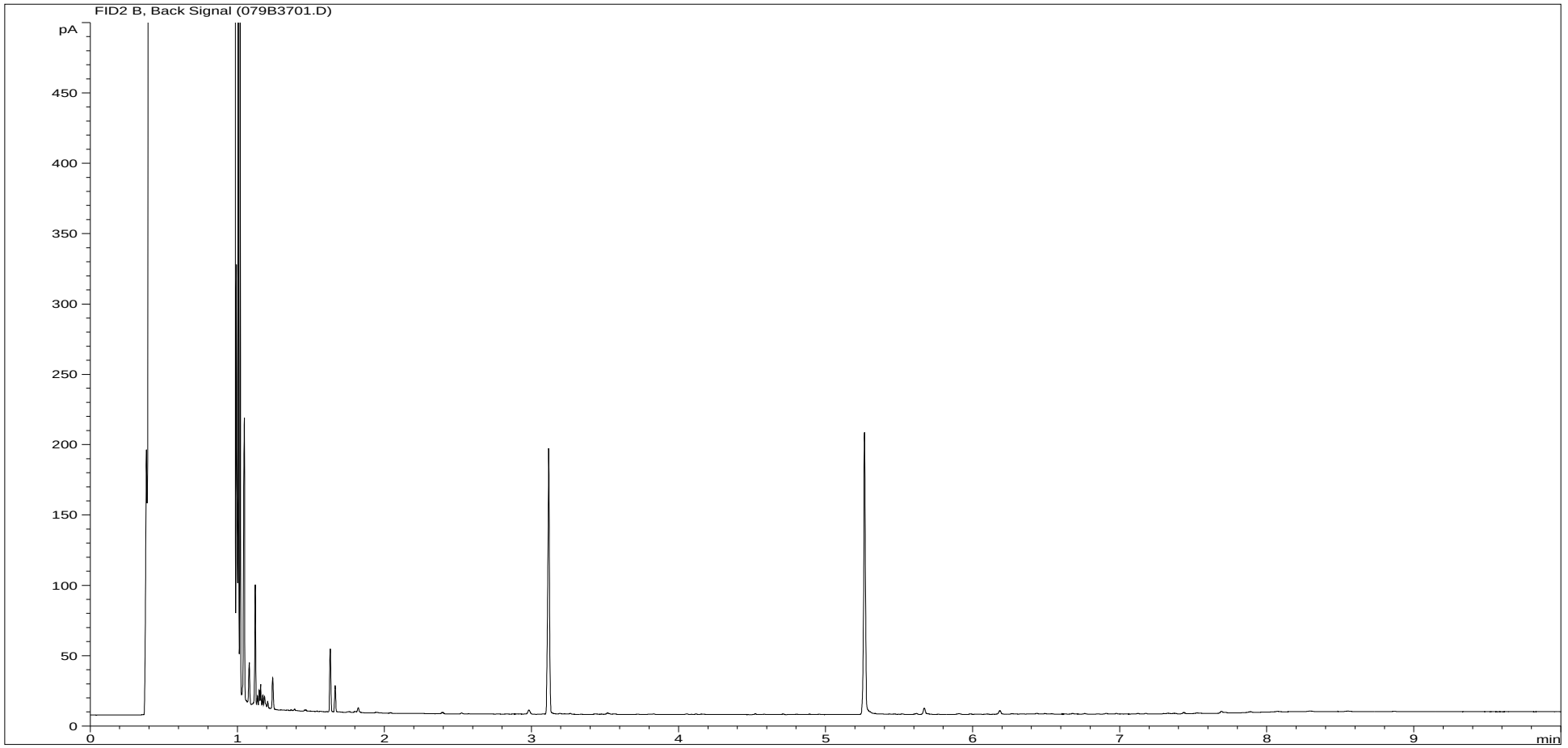
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	EX1040952ALI	**Job Number:**	W11_3345
Multiplier:	0.02	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH201 (50mm)
Acquisition Date/Time:	23-Nov-10, 18:49:48		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\030F3701.D		

Where individual results are flagged see report notes for status.

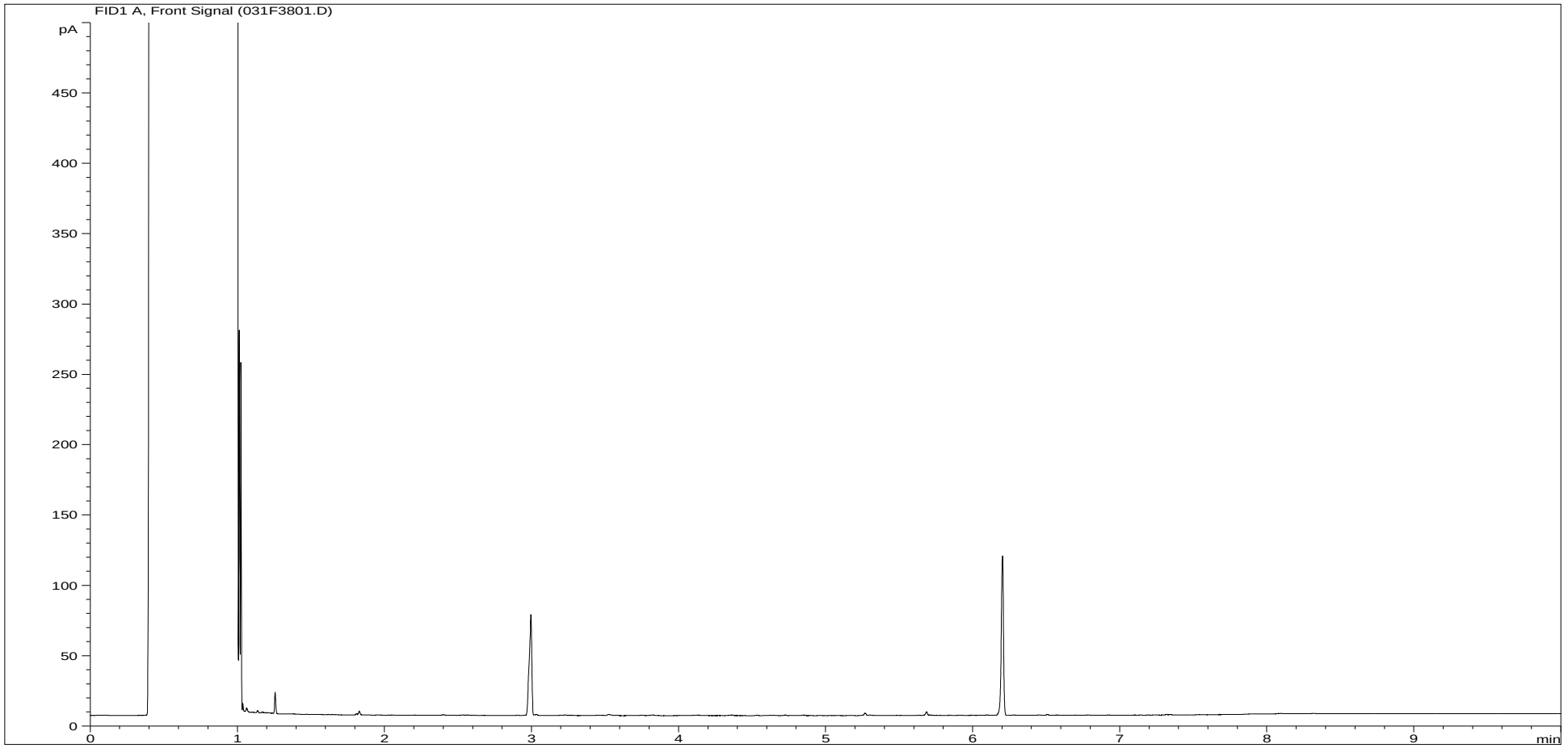
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	EX1040952ARO	**Job Number:**	W11_3345
Multiplier:	0.015	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH201 (50mm)
Acquisition Date/Time:	23-Nov-10, 18:49:48		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\079B3701.D		

Where individual results are flagged see report notes for status.

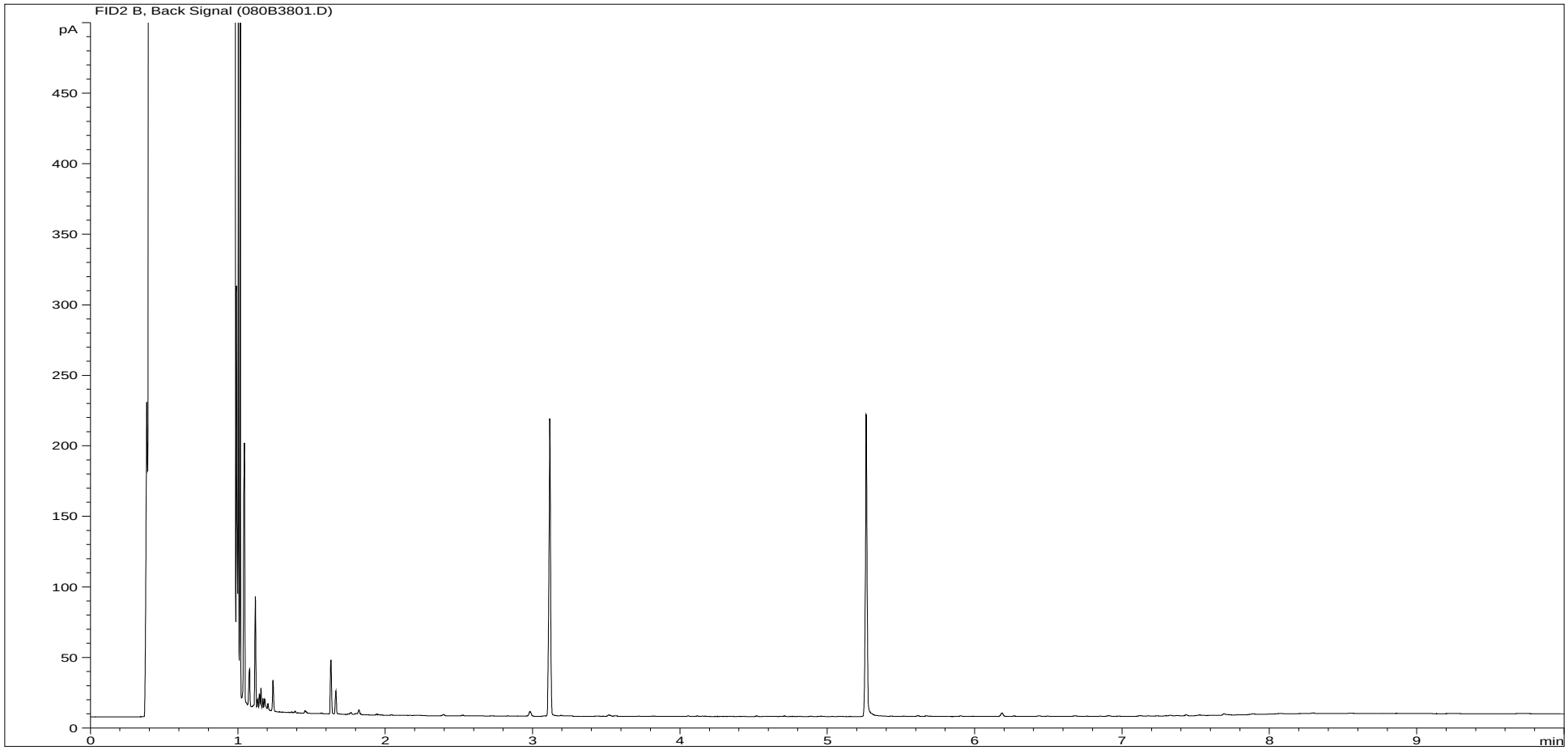
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	EX1040953ALI	**Job Number:**	W11_3345
Multiplier:	0.02	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH201 (19mm)
Acquisition Date/Time:	23-Nov-10, 19:07:02		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\031F3801.D		

Where individual results are flagged see report notes for status.

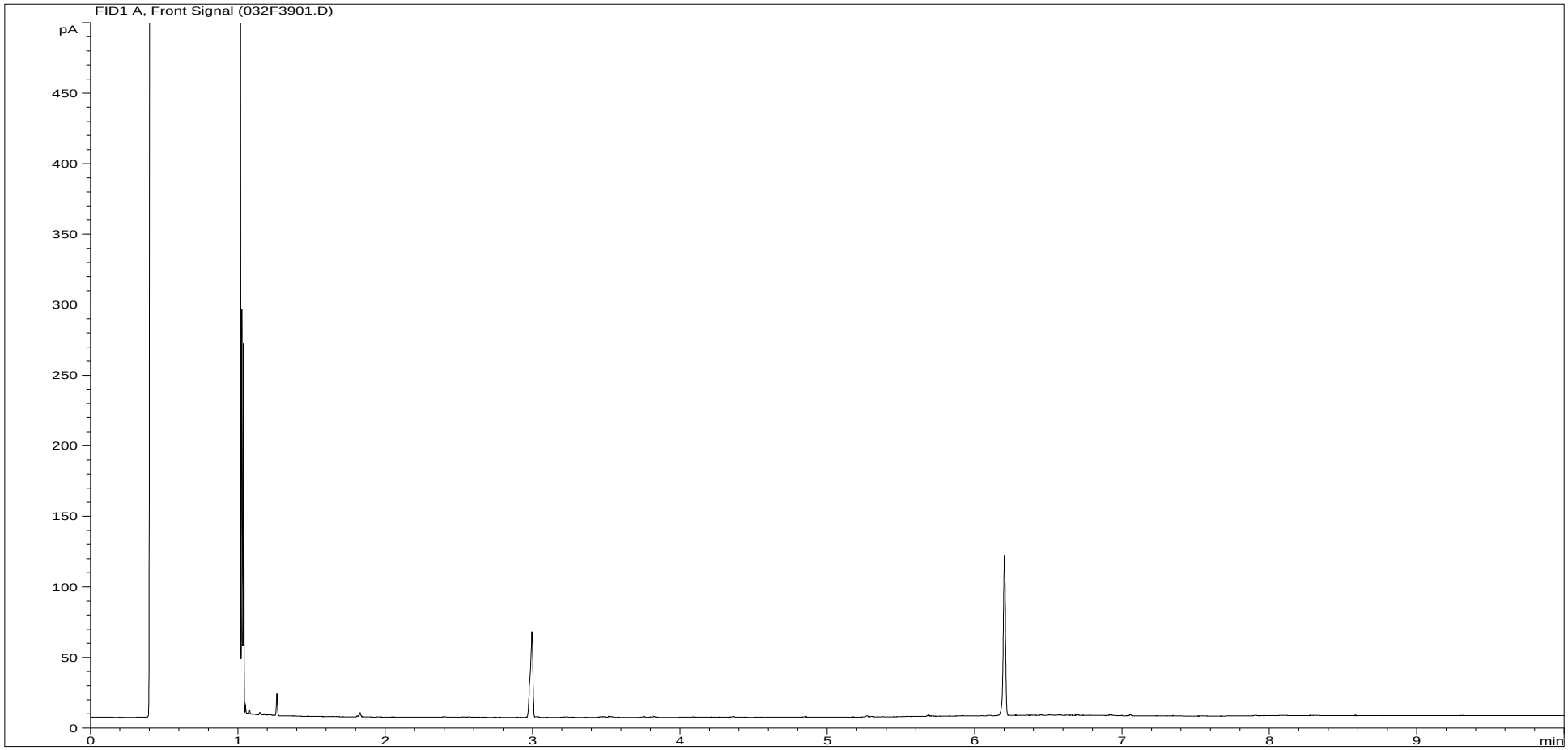
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	EX1040953ARO	**Job Number:**	W11_3345
Multiplier:	0.015	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH201 (19mm)
Acquisition Date/Time:	23-Nov-10, 19:07:02		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\080B3801.D		

Where individual results are flagged see report notes for status.

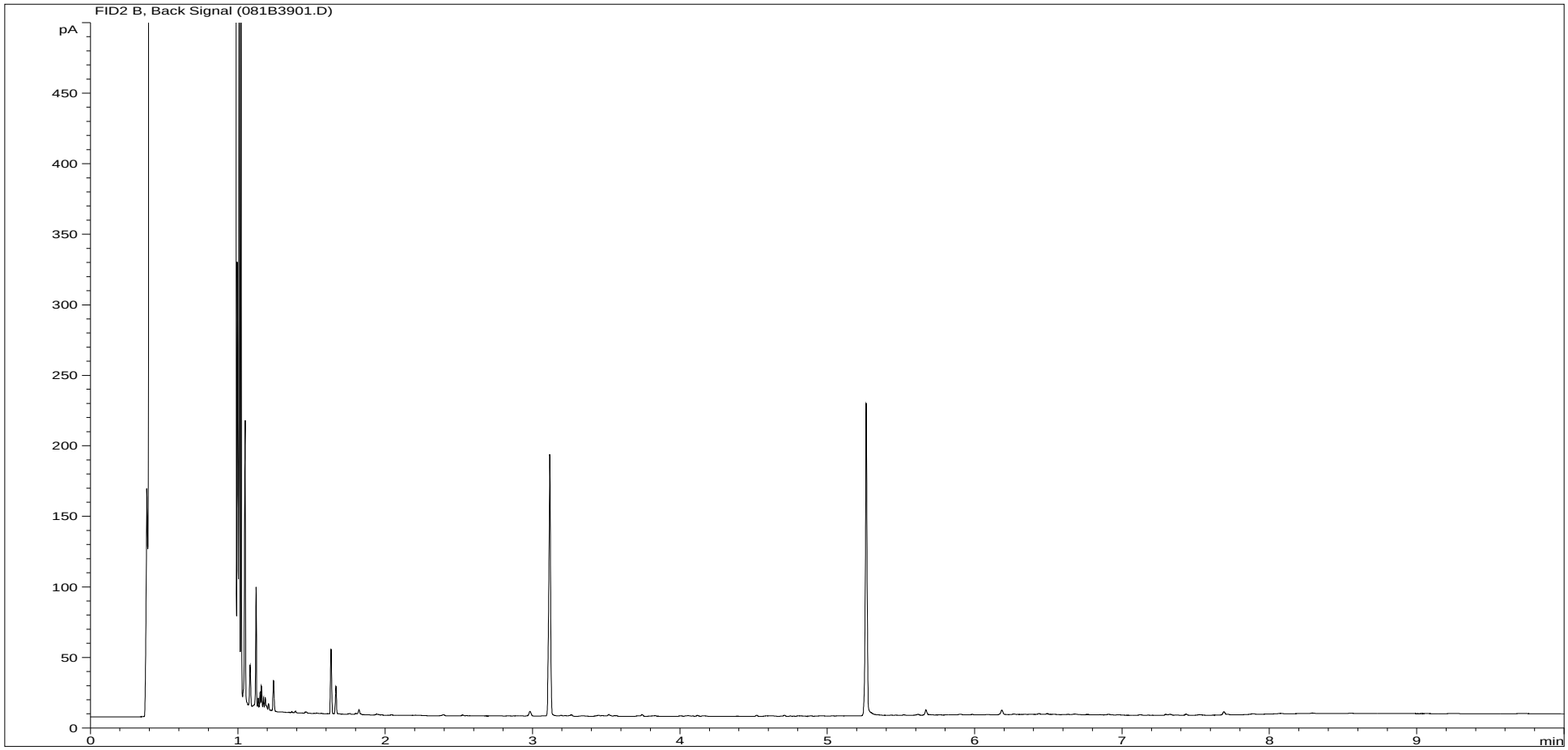
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	EX1040954ALI	**Job Number:**	W11_3345
Multiplier:	0.02	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH202
Acquisition Date/Time:	23-Nov-10, 19:24:03		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\032F3901.D		

Where individual results are flagged see report notes for status.

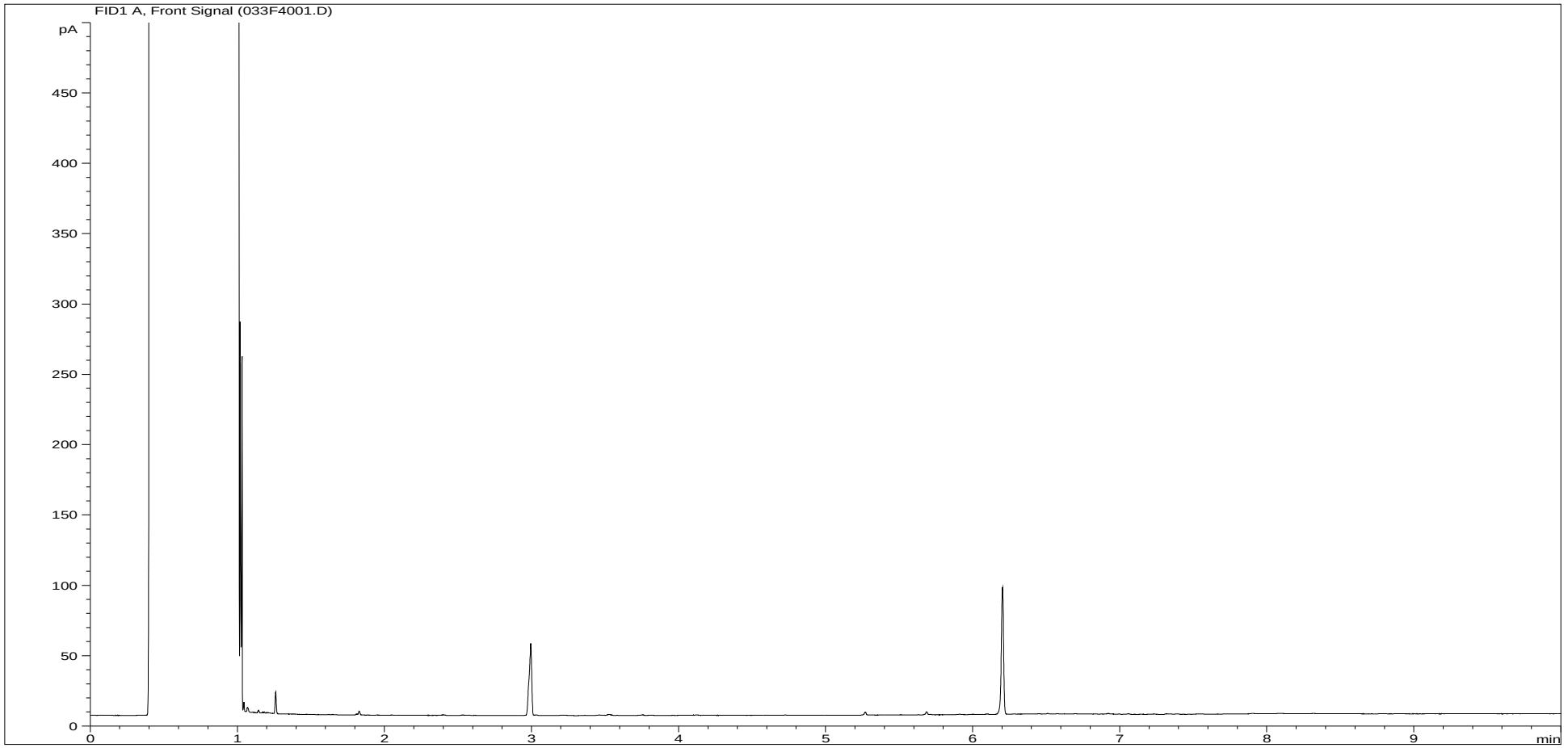
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	EX1040954ARO	**Job Number:**	W11_3345
Multiplier:	0.015	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH202
Acquisition Date/Time:	23-Nov-10, 19:24:03		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\081B3901.D		

Where individual results are flagged see report notes for status.

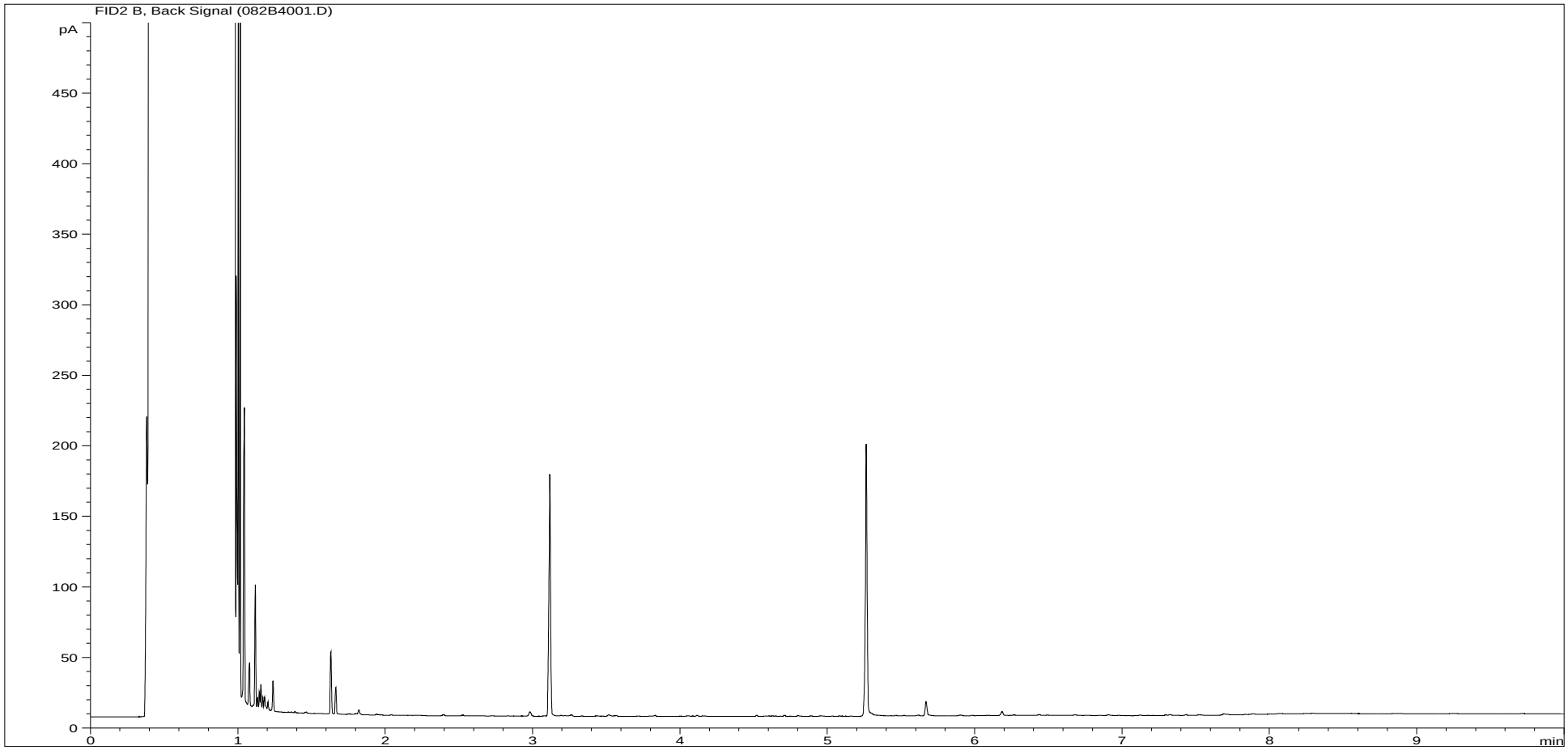
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	EX1040955ALI	**Job Number:**	W11_3345
Multiplier:	0.02	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH203
Acquisition Date/Time:	23-Nov-10, 19:41:12		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\033F4001.D		

Where individual results are flagged see report notes for status.

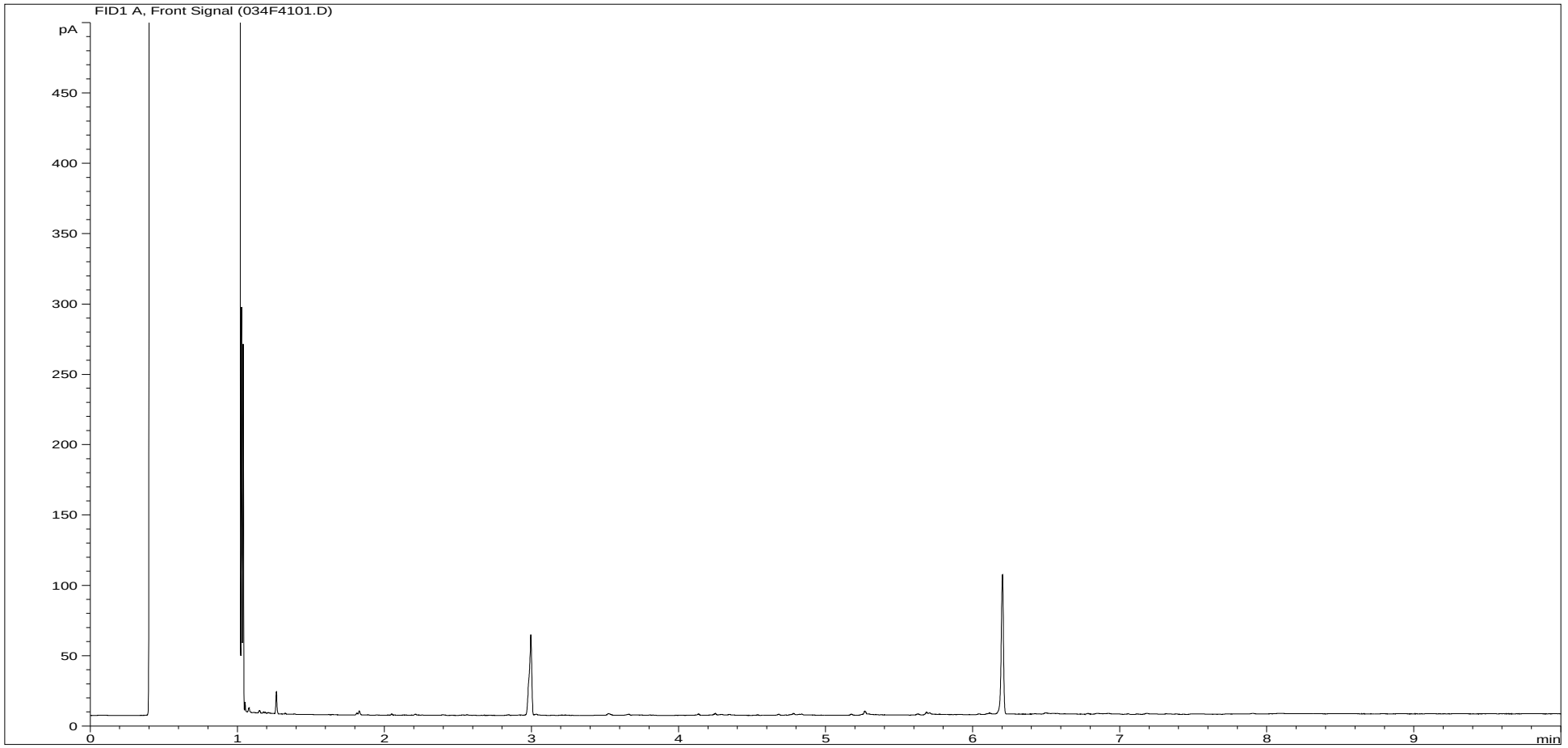
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	EX1040955ARO	**Job Number:**	W11_3345
Multiplier:	0.015	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH203
Acquisition Date/Time:	23-Nov-10, 19:41:12		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\082B4001.D		

Where individual results are flagged see report notes for status.

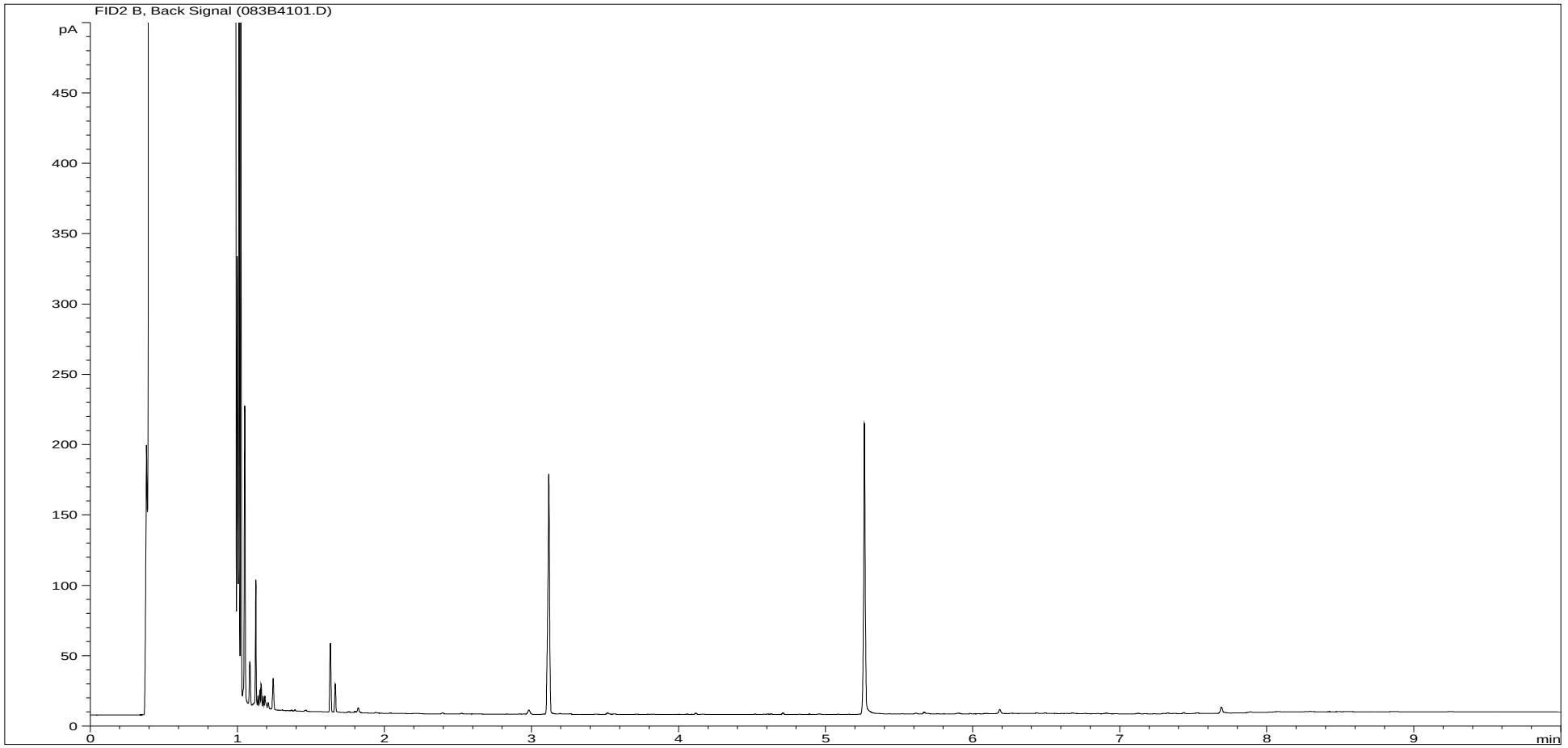
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	EX1040956ALI	**Job Number:**	W11_3345
Multiplier:	0.02	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH301
Acquisition Date/Time:	23-Nov-10, 19:58:14		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\034F4101.D		

Where individual results are flagged see report notes for status.

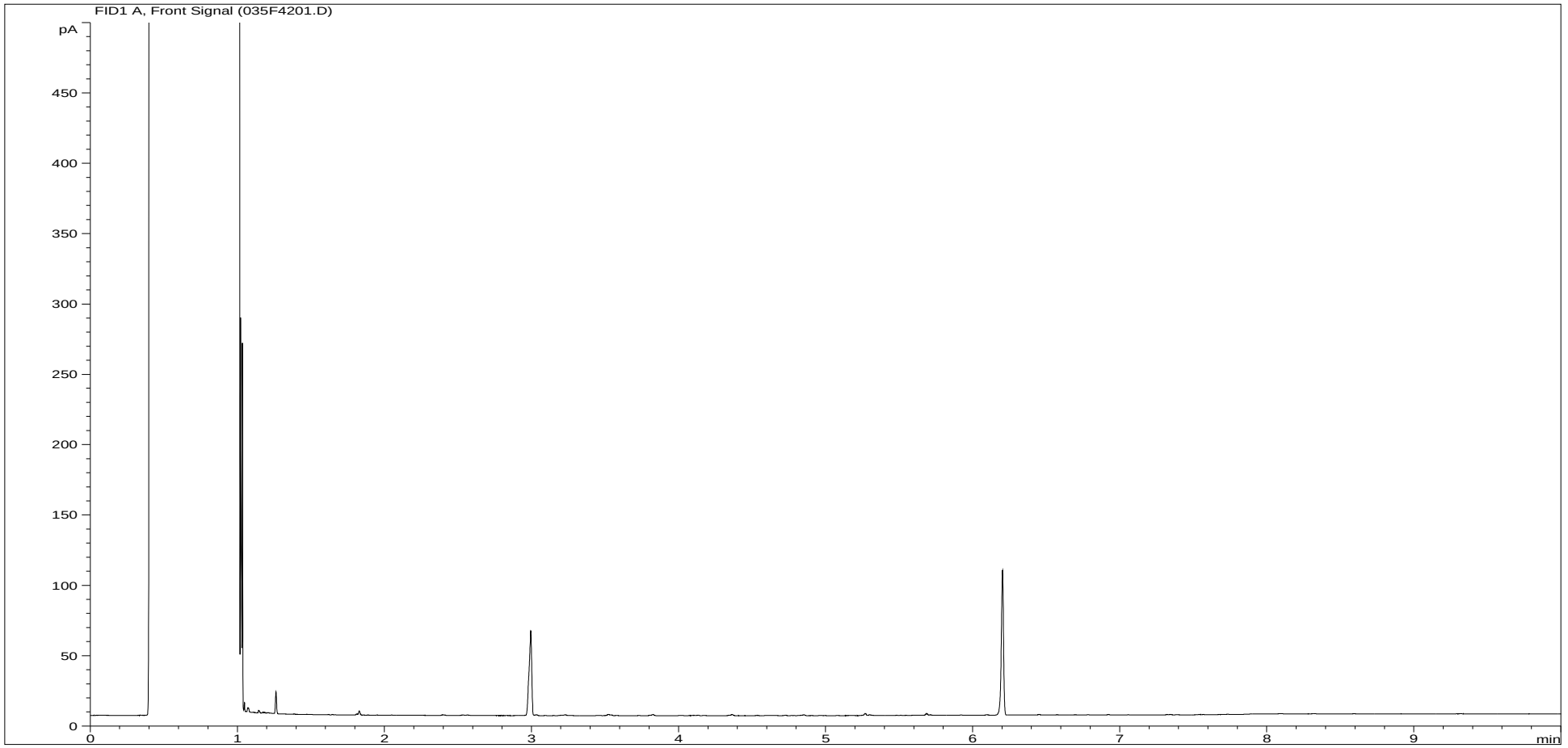
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	EX1040956ARO	**Job Number:**	W11_3345
Multiplier:	0.015	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH301
Acquisition Date/Time:	23-Nov-10, 19:58:14		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\083B4101.D		

Where individual results are flagged see report notes for status.

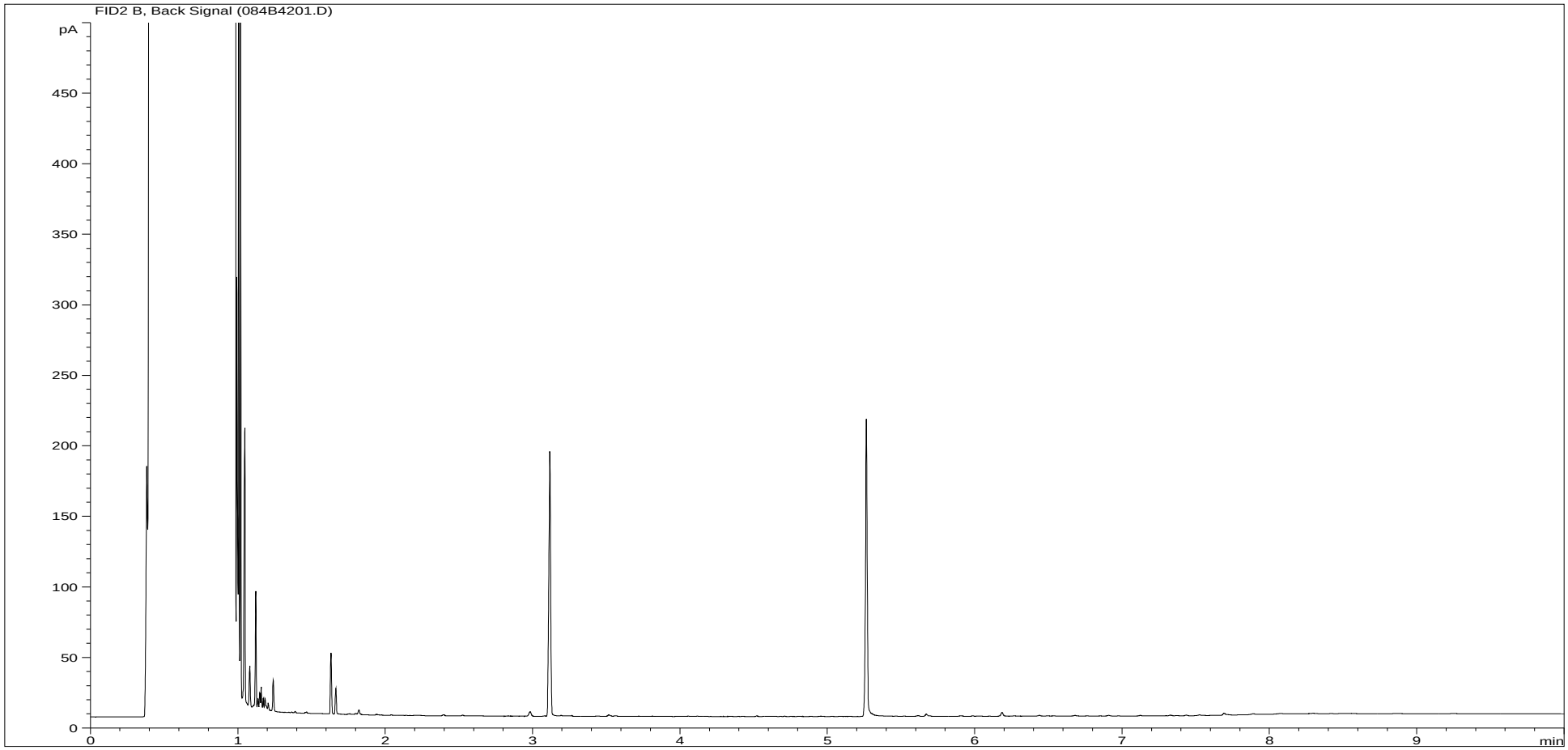
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	EX1040957ALI	**Job Number:**	W11_3345
Multiplier:	0.02	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH305
Acquisition Date/Time:	23-Nov-10, 20:15:34		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\035F4201.D		

Where individual results are flagged see report notes for status.

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



Sample ID:	EX1040957ARO	**Job Number:**	W11_3345
Multiplier:	0.015	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan
Acquisition Method:	TPH_RUNF.M	**Client Sample Ref:**	BH305
Acquisition Date/Time:	23-Nov-10, 20:15:34		
Datafile:	D:\TES\DATA\Y2010\1123TPH_GC15\112310 2010-11-23 08-08-38\084B4201.D		

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace FID
Water	ICPMSW	As Received	Direct semi quantitative determination of Metals in water samples using ICPMS
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	PAHMSW	As Received	Determination of PolyAromatic Hydrocarbons in water by pentane extraction GCMS quantitation
Water	PHEHPLC	As Received	Determination of Total Phenol by HPLC
Water	SFAPI	As Received	Determination of Total Phenols by segmented flow analysis with colorimetric detection
Water	TPHFID-Si	As Received	Determination of speciated pentane extractable hydrocarbons in water by GCFID
Water	WAL1	As Received	Determination of Ammonia using Ion Selective Electrode
Water	WSLM12	As Received	Titration with Sulphuric Acid to required pH
Water	WSLM17	As Received	Titration with Sodium Hydroxide to required pH
Water	WSLM3	As Received	Determination of the pH of water samples by pH probe

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on an air dried basis
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Oil analysis specific

Unless stated otherwise,
- Results are expressed as mg/kg
- SG is expressed as g/cm^3@ 15^{o}C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile
CR Denotes Crocidolite
AM Denotes Amosite
NAIIS No Asbestos Identified in Sample

Symbol Reference

^ Sub-contracted analysis. Note: The accreditation status is that assigned by the subcontract laboratory.
$$ Unable to analyse due to the nature of the sample
¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols. This may have resulted in deterioration of the sample(s) during transit to the laboratory. Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling
¥ Results for guidance only due to possible interference
& Blank corrected result
I.S Insufficient sample to complete requested analysis
I.S(g) Insufficient sample to re-analyse, results for guidance only
Intf Unable to analyse due to interferences
N.D Not determined
N.Det Not detected
Req Analysis requested, see attached sheets for results
Þ Raised detection limit due to nature of the sample
***** All accreditation has been removed by the laboratory for this result
‡ MCERTS accreditation has been removed 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 further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

END OF REPORT

Where individual results are flagged see report notes for status.

Our Ref: EFS/107038M (Ver. 1)
Your Ref: A038833-9

October 28, 2010

Scientifics
Bretby Business Park
Ashby Road
Burton-on-Trent
Staffordshire
DE15 0YZ

Telephone: 01283 554400
Facsimile: 01283 554422

Ms K Brice
WYG Environment
5th Floor Longcross Court
47 Newport Rd
Cardiff
CF24 0AD

For the attention of Ms K Brice

Dear Ms Brice

SOIL Sample Analysis - SFA St Athan TF

Samples from the above site have been analysed in accordance with the schedule supplied.
The sample details and the results of analyses for these samples are given in the appended report.

An invoice for this work will follow under a separate cover.

Where appropriate the samples will be kept until 29/11/10 when they will be discarded. Please call 01283 554467 for an extension of this date.
Please be aware that from 1 January 2003 our policy for the retention of paper based laboratory records and analysis reports will be 6 years.

The work was carried out in accordance with Environmental Scientifics Group Ltd (Scientifics) Standard Terms and Conditions of Contract.

If I can be of any further assistance please do not hesitate to contact me.

Yours sincerely

for Scientifics

L Thompson
Project Co-ordinator
01283 554467

TEST REPORT
SOIL SAMPLE ANALYSIS

1252

Report No. EFS/107038M (Ver. 1)

WYG Environment
5th Floor Longcross Court
47 Newport Rd
Cardiff
CF24 0AD

Site: SFA St Athan TF

The 19 samples described in this report were logged for analysis by Scientifics on 18-Oct-2010.
The analysis was completed by: 28-Oct-2010

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 Scientifics.

The following tables are contained in this report:

On behalf of
Scientifics :
Andrew Timms Operations Manager

Date of Issue: 28-Oct-2010

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)
Scientifics accepts no responsibility for any sampling not carried out by our personnel.

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 :		GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	ICPSOIL	ICPSOIL
Method Reporting Limits :		0.2	0.5	0.1	0.3	0.2	1.2	1.6	0.7	0.5	0.5	2	0.5	16	1	0.1	36
Accreditation Code:		U	UM	U	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM	N	N	UM
Laboratory ID Number CL/	**Client Sample Description**	**GRO**	**Boron (H20 Soluble)**	**Antimony (MS)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Mercury (MS)**	**Molybdenum (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**Barium.**	**Beryllium.**	**Iron**
1030951	TP301 0.4	<0.3	0.5	0.3	6.9	0.46	23.5	14.8	14.1	<0.5	2.1	22.1	0.7	44.8	81	1.3	31400
1030950	TP302 0.4	<0.3	<0.5	0.3	9	0.5	29.8	18	20.4	<0.5	1.6	23.3	0.8	50.4	75	1.3	29300
1030949	TP303 0.1		0.9	0.4	11.5	0.73	27.1	20.4	27.9	<0.5	1.6	22.1	1	63.3	82	1.1	27200
1030942	TP304 0.1	<0.3	0.6	0.4	9.3	0.7	31	19.8	25.2	<0.52	1.8	23.3	1.2	70	86	1.1	27400
1030952	TP306 0.1		0.8	0.5	13.2	0.85	30.5	21.5	45.1	<0.5	2	22.7	0.9	75.8	98	1	26600
1030941	TP307 0.1		0.8	0.5	13.6	0.84	33.5	22.3	33.7	<0.51	1.9	22.8	0.9	78.7	82	1	24500
1030948	TP308 0.2	<0.3	0.6	0.4	10.9	0.69	33.5	20	25.7	<0.5	1.9	24.4	1	62.8	84	1	28700
1030943	TP309 0.3	<0.3	<0.5	<0.1	2.4	0.34	10.3	6.4	6.5	<0.5	0.8	8.9	<0.5	24.4	32	0.3	7330
1030940	TP310 0.3	<0.3	0.6	0.3	7.4	0.51	24.5	15.1	17.4	<0.5	1.9	19.5	0.6	50.4	78	1	27500
1030947	TP311 0.2	<0.3	1	0.5	11.8	0.73	31.9	23	27.5	<0.5	1.6	23.6	1	68.7	89	1	26300
1030944	TP312 0.1		0.7	0.4	11	0.72	29.4	19.8	33	<0.52	1.8	23.5	0.7	67.9	96	0.9	26900
1030938	TP313 0.2	<0.3	0.7	0.3	7.5	0.73	29	21.5	30.9	<0.55	0.9	22.4	0.9	83.2	84	0.9	22800
1030946	TP314 0.1		1.2	0.5	13.7	0.8	35.2	22	33.7	<0.54	1.7	24.4	1	73.7	103	1.2	29000
1030945	TP315 0.1	<0.3	0.9	0.4	10	0.64	27.6	19	27.5	<0.53	1.6	21	0.9	59.5	92	1.1	28500
1030939	TP316 0.4	<0.3	1.6	0.2	8.8	0.45	23.7	15	19.4	<0.5	1.3	22.9	0.7	53.5	68	0.6	21400
1030937	TP317 0.3	<0.3	1	0.3	9.2	0.76	32.7	21.1	31.9	<0.52	0.9	20.9	1.2	78.8	75	0.8	22600
1030934	TP318 0.4		0.7	0.3	6.1	0.71	30	20.8	37.8	<0.48	0.9	19.4	<0.5	75.1	73	0.9	22700
1030935	TP319 0.3	<0.2	0.9	0.4	9.4	0.57	27.7	23.6	24.6	<0.49	1.9	27.7	1	77.1	106	1.2	25000
1030936	TP320 0.3	<0.3	0.8	0.3	9.8	0.7	31.9	20.8	25.7	<0.51	1.8	26	1	75.8	80	1	28100

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Client Name **7YG Environment**

Contact Ms K Brice

SFA St Athan TF

Soils Sample Analysis

Date Printed	28-Oct-10
Report Number	**EFS/107038M**
Table Number	**1**

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

Units :		mg/kg	mg/kg	pH Units	mg/kg	mg/kg		%	mg/kg	mg/kg	mg/kg	ug/kg					
Method Codes :		ICPWSS	PAHMSUS	PHSOIL	SFAPI	SFAPI	Sub02a	TMSS	TPHFIDUS	TPHFIDUS	TPHUSSI	VOCSW8100					
Method Reporting Limits :		10	0.08		0.5	0.5		0.2	10.0	10.0	10.0	5					
Accreditation Code:		UM		UM	UM	U	U	U	U	UM							
Laboratory ID Number CL/	**Client Sample Description**	**SO4-- (H2O sol) mg/l**	**PAH by MS.16(0.08)**	**pH units (AR)**	**Cyanide(Free) (AR)**	**Phenol Index.(AR)**	**^Asbestos Screen**	**Tot.Moisture @ 105C**	**DRO by GCFID (AR)**	**TPH by GCFID (AR)**	**TPH by GCFID (AR/Si)**	**VOC by GCMS (8100)**					
1030951	TP301 0.4	161	Req	7.7	<0.6	<0.6	NAIIS	22.4	<12.9	<12.9		Req					
1030950	TP302 0.4	86	Req	7.3	<0.6	<0.6	NAIIS	22.7	<12.9	<12.9							
1030949	TP303 0.1	120	Req	7.1	<0.7		NAIIS	23.2			Req	Req					
1030942	TP304 0.1	83	Req	6.9	<0.6	<0.6	NAIIS	22.8	54	80		Req					
1030952	TP306 0.1	73	Req	7.6	<0.7		NAIIS	23.9			Req	Req					
1030941	TP307 0.1	121	Req	6.8	<0.7		NAIIS	24.3			Req	Req					
1030948	TP308 0.2	126	Req	7.1	<0.7	<0.7	NAIIS	24.5	18.5	37							
1030943	TP309 0.3	83	Req	8.3	<0.7	<0.7	NAIIS	25.8	42	59							
1030940	TP310 0.3	83	Req	8.1	<0.6	<0.6	NAIIS	20.6	<12.6	15.1							
1030947	TP311 0.2	93	Req	7.0	<0.7	<0.7	NAIIS	23.5	19.6	35		Req					
1030944	TP312 0.1	133	Req	7.4	<0.7		NAIIS	27.4			Req	Req					
1030938	TP313 0.2	98	Req	8.3	<0.7	<0.7	NAIIS	25.4	18.8	70							
1030946	TP314 0.1	115	Req	7.2	<0.7		NAIIS	26.7			Req	Req					
1030945	TP315 0.1	143	Req	7.1	<0.7	<0.7	NAIIS	24.4	50	108		Req					
1030939	TP316 0.4	89	Req	8.1	<0.7	<0.7	NAIIS	26.4	<13.6	43							
1030937	TP317 0.3	79	Req	8.3	<0.7	<0.7	NAIIS	25.4	13.4	47		Req					
1030934	TP318 0.4	79	Req	8.4	<0.7		NAIIS	23.6			Req	Req					
1030935	TP319 0.3	117	Req	8.2	<0.6	<0.6	NAIIS	17.5	<12.1	52							
1030936	TP320 0.3	85	Req	8.3	<0.6	<0.6	NAIIS	22.3	19.3	71							

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Client Name **7YG Environment**

Contact Ms K Brice

SFA St Athan TF

Soils Sample Analysis

Date Printed	28-Oct-10
Report Number	**EFS/107038M**
Table Number	**1**

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

Units :		mg/kg	ug/kg	mg/kg	mg/kg	æg/kg	æg/kg	mg/kg	mg/kg	% M/M	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
Method Codes :		AMMAR	BTEXHSA	GROHSA	KONECR	OCPsw	OPPsw	Sub05	SVOCMSUS	WSLM59	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC		
Method Reporting Limits :		0.5	20	0.1	0.1	1-30	1-30	10 ug/kg	0.2-10.0	0.01	0.3	0.3	0.3	0.3	0.3		
Accreditation Code:		UM	N		N					N	UM	U	U	U	U		
Laboratory ID Number CL/	**Client Sample Description**	**Exchange.Ammonium AR**	**MTBE**	**GRO (AA)**	**Chromium vi:**	**Organochlorine Pest**	**Organophosphorus Pt**	**^Phenoxy Acid Herbs**	**SVOC (AR)**	**Total Organic Carbon**	**Phenol**	**Cresols**	**Xylenols**	**Trimethylphenols**	**Total Phenols**		
1030951	TP301 0.4	0.6			<0.1												
1030950	TP302 0.4	<0.6			<0.1												
1030949	TP303 0.1	1.3	<26	Req	<0.1	Req	Req	Req	Req	2.4	<0.4	<0.4	<0.4	<0.4	<1.6		
1030942	TP304 0.1	1.4			<0.1												
1030952	TP306 0.1	4.1	<26	Req	<0.1	Req	Req	Req	Req	2.42	<0.4	<0.4	<0.4	<0.4	<1.6		
1030941	TP307 0.1	2.2	<26	Req	<0.1					2.58	<0.4	<0.4	<0.4	<0.4	<1.6		
1030948	TP308 0.2	1.5			<0.1												
1030943	TP309 0.3	<0.7			<0.1												
1030940	TP310 0.3	5.7			<0.1												
1030947	TP311 0.2	1.8			<0.1												
1030944	TP312 0.1	1.7	<28	Req	<0.1	Req	Req	Req	Req	2.74	<0.4	<0.4	<0.4	<0.4	<1.7		
1030938	TP313 0.2	1.9			<0.1												
1030946	TP314 0.1	1.8	<27	Req	<0.1	Req	Req	Req	Req	2.71	<0.4	<0.4	<0.4	<0.4	<1.6		
1030945	TP315 0.1	1.9			0.2												
1030939	TP316 0.4	1.1			<0.1												
1030937	TP317 0.3	1.6			<0.1												
1030934	TP318 0.4	0.9	<26	Req	<0.1	Req	Req	Req	Req	1.4	<0.4	<0.4	<0.4	<0.4	<1.6		
1030935	TP319 0.3	1			<0.1												
1030936	TP320 0.3	1			<0.1												

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SFA St Athan TF

Soils Sample Analysis

Date Printed	28-Oct-10
Report Number	**EFS/107038M**
Table Number	**1**

Where individual results are flagged see report notes 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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP318 0.4	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030934	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	21-Oct-10
Directory:	020PAH.MS20\	**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	5.89	0.14	98	UM
Anthracene	120-12-7	-	< 0.10	-	U
Fluoranthene	206-44-0	7.27	0.38	90	UM
Pyrene	129-00-0	7.57	0.30	92	UM
Benzo[a]anthracene	56-55-3	9.27	0.25	97	UM
Chrysene	218-01-9	9.32	0.25	97	UM
Benzo[b]fluoranthene	205-99-2	10.81	0.38	98	UM
Benzo[k]fluoranthene	207-08-9	10.84	0.12	96	UM
Benzo[a]pyrene	50-32-8	11.24	0.24	95	UM
Indeno[1,2,3-cd]pyrene	193-39-5	12.62	0.17	98	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.10	-	UM
Benzo[g,h,i]perylene	191-24-2	12.95	0.14	89	UM
Total (USEPA16) PAHs	-	-	< 2.96	-	N

"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	100
Perylene-d12	96

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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP319 0.3	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030935	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	21-Oct-10
Directory:	020PAH.MS20\	**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	7.27	0.23	90	UM
Pyrene	129-00-0	7.56	0.17	90	UM
Benzo[a]anthracene	56-55-3	9.27	0.17	95	UM
Chrysene	218-01-9	9.32	0.10	97	UM
Benzo[b]fluoranthene	205-99-2	10.81	0.22	97	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.10	-	UM
Benzo[a]pyrene	50-32-8	11.24	0.15	93	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	-	-	< 2.02	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	80
Acenaphthene-d10	77
Phenanthrene-d10	90
Chrysene-d12	99
Perylene-d12	96

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	96
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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP320 0.3	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030936	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	21-Oct-10
Directory:	020PAH.MS20\	**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	5.89	0.19	98	UM
Anthracene	120-12-7	-	< 0.10	-	U
Fluoranthene	206-44-0	7.27	0.58	90	UM
Pyrene	129-00-0	7.57	0.41	92	UM
Benzo[a]anthracene	56-55-3	9.27	0.37	96	UM
Chrysene	218-01-9	9.32	0.37	99	UM
Benzo[b]fluoranthene	205-99-2	10.81	0.57	97	UM
Benzo[k]fluoranthene	207-08-9	10.84	0.18	96	UM
Benzo[a]pyrene	50-32-8	11.24	0.37	95	UM
Indeno[1,2,3-cd]pyrene	193-39-5	12.62	0.30	94	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.10	-	UM
Benzo[g,h,i]perylene	191-24-2	12.95	0.23	89	UM
Total (USEPA16) PAHs	-	-	< 4.16	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	78
Acenaphthene-d10	75
Phenanthrene-d10	88
Chrysene-d12	96
Perylene-d12	92

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	96
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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP317 0.3	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030937	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	7.27	0.25	90	UM
Pyrene	129-00-0	7.57	0.17	93	UM
Benzo[a]anthracene	56-55-3	9.27	0.17	94	UM
Chrysene	218-01-9	9.32	0.17	93	UM
Benzo[b]fluoranthene	205-99-2	10.81	0.23	97	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	11.24	0.16	96	UM
Indeno[1,2,3-cd]pyrene	193-39-5	12.63	0.11	95	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Total (USEPA16) PAHs	-	-	< 2.24	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	78
Acenaphthene-d10	74
Phenanthrene-d10	88
Chrysene-d12	95
Perylene-d12	91

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	97
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.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP313 0.2	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030938	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	7.27	0.16	89	UM
Pyrene	129-00-0	7.57	0.12	89	UM
Benzo[a]anthracene	56-55-3	9.27	0.10	90	UM
Chrysene	218-01-9	9.32	0.11	85	UM
Benzo[b]fluoranthene	205-99-2	10.81	0.17	97	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	11.24	0.11	99	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Total (USEPA16) PAHs	-	-	< 1.90	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	77
Acenaphthene-d10	74
Phenanthrene-d10	87
Chrysene-d12	90
Perylene-d12	81

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	100
Terphenyl-d14	96

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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP316 0.4	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030939	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	-	< 0.11	-	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Total (USEPA16) PAHs	-	-	< 1.74	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	77
Acenaphthene-d10	74
Phenanthrene-d10	86
Chrysene-d12	90
Perylene-d12	81

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	101
Terphenyl-d14	96

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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP310 0.3	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030940	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	-	< 1.61	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	75
Acenaphthene-d10	71
Phenanthrene-d10	83
Chrysene-d12	86
Perylene-d12	80

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	104
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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP307 0.1	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030941	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	7.27	0.12	89	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	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	78
Acenaphthene-d10	74
Phenanthrene-d10	87
Chrysene-d12	94
Perylene-d12	88

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	101
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.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP304 0.1	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030942	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	-	< 1.66	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	76
Acenaphthene-d10	72
Phenanthrene-d10	85
Chrysene-d12	90
Perylene-d12	82

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	96
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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP309 0.3	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030943	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	-	< 0.11	-	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Total (USEPA16) PAHs	-	-	< 1.73	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	74
Acenaphthene-d10	70
Phenanthrene-d10	82
Chrysene-d12	86
Perylene-d12	79

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	102
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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP312 0.1	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030944	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	-	< 0.11	-	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Total (USEPA16) PAHs	-	-	< 1.76	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	76
Acenaphthene-d10	76
Phenanthrene-d10	84
Chrysene-d12	86
Perylene-d12	77

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	91
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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP315 0.1	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030945	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	7.27	0.10	89	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	10.81	0.12	97	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Total (USEPA16) PAHs	-	-	< 1.73	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	75
Acenaphthene-d10	71
Phenanthrene-d10	83
Chrysene-d12	84
Perylene-d12	76

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	100
Terphenyl-d14	96

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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP314 0.1	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030946	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	-	< 0.11	-	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Total (USEPA16) PAHs	-	-	< 1.75	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	77
Acenaphthene-d10	74
Phenanthrene-d10	85
Chrysene-d12	90
Perylene-d12	82

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	95
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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP311 0.2	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030947	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	-	< 1.67	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	76
Acenaphthene-d10	72
Phenanthrene-d10	84
Chrysene-d12	87
Perylene-d12	78

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	96
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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP308 0.2	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030948	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	-	< 0.11	-	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	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	77
Acenaphthene-d10	73
Phenanthrene-d10	85
Chrysene-d12	87
Perylene-d12	77

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	97
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.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP303 0.1	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030949	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	-	< 1.67	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	76
Acenaphthene-d10	72
Phenanthrene-d10	84
Chrysene-d12	83
Perylene-d12	74

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	101
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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP302 0.4	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030950	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	-	< 1.66	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	76
Acenaphthene-d10	72
Phenanthrene-d10	83
Chrysene-d12	83
Perylene-d12	71

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	100
Terphenyl-d14	96

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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP301 0.4	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030951	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	-	< 1.65	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	75
Acenaphthene-d10	71
Phenanthrene-d10	83
Chrysene-d12	87
Perylene-d12	77

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	101
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:	WYG Environment: SFA St Athan TF		
Sample Details:	TP306 0.1	**Job Number:**	S10_7038M
LIMS ID Number:	CL1030952	**Date Booked in:**	18-Oct-10
QC Batch Number:	2200	**Date Extracted:**	20-Oct-10
Quantitation File:	Initial Calibration	**Date Analysed:**	22-Oct-10
Directory:	020PAH.MS20\	**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	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	-	< 0.11	-	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Total (USEPA16) PAHs	-	-	< 1.68	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	74
Acenaphthene-d10	70
Phenanthrene-d10	81
Chrysene-d12	83
Perylene-d12	76

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	103
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.

Semi-Volatile Organic Compounds

Accredited?: No

Customer and Site Details:	WYG Environment: SFA St Athan TF			**Matrix:**	Soil	**QC Batch Number:**	2195
Sample Details:	TP318 0.4	**Date Booked in:**	18-Oct-10	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1030934	**Date Extracted:**	19-Oct-10	**Operator:**	SO	**Dilution Factor:**	1
Job Number:	S10_7038M	**Date Analysed:**	20-Oct-10	**Directory/Quant File:**	19SVOC.MS16\ 1019_CCC2.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Phenol	108-95-2	-	< 3.0	-	N
bis(2-Chloroethyl)ether	111-44-4	-	< 0.7	-	N
2-Chlorophenol	95-57-8	-	< 3.0	-	N
1,3-Dichlorobenzene	541-73-1	-	< 0.7	-	N
1,4-Dichlorobenzene	106-46-7	-	< 0.7	-	N
Benzyl alcohol	100-51-6	-	< 0.7	-	N
1,2-Dichlorobenzene	95-50-1	-	< 0.7	-	N
2-Methylphenol	95-48-7	-	< 0.7	-	N
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.7	-	N
Hexachloroethane	67-72-1	-	< 0.7	-	N
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.7	-	N
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 3.0	-	N
Nitrobenzene	98-95-3	-	< 0.7	-	N
Isophorone	78-59-1	-	< 0.7	-	N
2-Nitrophenol	88-75-5	-	< 3.0	-	N
2,4-Dimethylphenol	105-67-9	-	< 3.0	-	N
Benzoic Acid	65-85-0 *	-	< 13.0	-	N
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.7	-	N
2,4-Dichlorophenol	120-83-2	-	< 3.0	-	N
1,2,4-Trichlorobenzene	120-82-1	-	< 0.7	-	N
Naphthalene	91-20-3	-	< 0.3	-	N
4-Chlorophenol	106-48-9	-	< 3.0	-	N
4-Chloroaniline	106-47-8 *	-	< 0.7	-	N
Hexachlorobutadiene	87-68-3	-	< 0.7	-	N
4-Chloro-3-methylphenol	59-50-7	-	< 0.7	-	N
2-Methylnaphthalene	91-57-6	-	< 0.3	-	N
1-Methylnaphthalene	90-12-0	-	< 0.3	-	N
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.7	-	N
2,4,6-Trichlorophenol	88-06-2	-	< 3.0	-	N
2,4,5-Trichlorophenol	95-95-4	-	< 3.0	-	N
2-Chloronaphthalene	91-58-7	-	< 0.3	-	N
Biphenyl	92-52-4	-	< 0.3	-	N
Diphenyl ether	101-84-8	-	< 0.3	-	N
2-Nitroaniline	88-74-4	-	< 0.7	-	N
Acenaphthylene	208-96-8	-	< 0.3	-	N
Dimethylphthalate	131-11-3	-	< 0.7	-	N
2,6-Dinitrotoluene	606-20-2	-	< 0.7	-	N
Acenaphthene	83-32-9	-	< 0.3	-	N
3-Nitroaniline	99-09-2	-	< 0.7	-	N

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit	Accr. code
2,4-Dinitrophenol	51-28-5 *	-	< 1.0	-	N
Dibenzofuran	132-64-9	-	< 0.7	-	N
4-Nitrophenol	100-02-7	-	< 7.0	-	N
2,4-Dinitrotoluene	121-14-2	-	< 0.7	-	N
Fluorene	86-73-7	-	< 0.3	-	N
Diethylphthalate	84-66-2	-	< 0.7	-	N
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.7	-	N
4,6-Dinitro-2-methylphenol	534-52-1	-	< 7.0	-	N
4-Nitroaniline	100-01-6	-	< 0.7	-	N
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.7	-	N
4-Bromophenyl-phenylether	101-55-3	-	< 0.7	-	N
Hexachlorobenzene	118-74-1	-	< 0.7	-	N
Pentachlorophenol	87-86-5	-	< 7.0	-	N
Phenanthrene	85-01-8	-	< 0.3	-	N
Anthracene	120-12-7	-	< 0.3	-	N
Di-n-butylphthalate	84-74-2	-	< 0.7	-	N
Fluoranthene	206-44-0	13.07	0.4	100	N
Pyrene	129-00-0	13.42	0.3	100	N
Butylbenzylphthalate	85-68-7	-	< 0.7	-	N
Benzo[a]anthracene	56-55-3	-	< 0.3	-	N
Chrysene	218-01-9	-	< 0.3	-	N
3,3'-Dichlorobenzidine	91-94-1	-	< 3.0	-	N
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.7	-	N
Di-n-octylphthalate	117-84-0	-	< 0.3	-	N
Benzo[b]fluoranthene	205-99-2	16.95	0.4	100	N
Benzo[k]fluoranthene	207-08-9	-	< 0.3	-	N
Benzo[a]pyrene	50-32-8	-	< 0.3	-	N
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.3	-	N
Dibenzo[a,h]anthracene	53-70-3	-	< 0.3	-	N
Benzo[g,h,i]perylene	191-24-2	-	< 0.3	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	85
Naphthalene-d8	80
Acenaphthene-d10	81
Phenanthrene-d10	82
Chrysene-d12	83
Perylene-d12	86

Surrogates	% Rec
2-Fluorophenol	76
Phenol-d5	66
Nitrobenzene-d5	68
2-Fluorobiphenyl	66
2,4,6-Tribromophenol	61
Terphenyl-d14	73

This analysis was conducted on an 'As Recieved' basis.

Concentrations are reported on a dry weight basis.

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

Semi-Volatile Organic Compounds

Accredited?: No

Customer and Site Details:	WYG Environment: SFA St Athan TF			**Matrix:**	Soil	**QC Batch Number:**	2195
Sample Details:	TP312 0.1	**Date Booked in:**	18-Oct-10	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1030944	**Date Extracted:**	19-Oct-10	**Operator:**	SO	**Dilution Factor:**	1
Job Number:	S10_7038M	**Date Analysed:**	20-Oct-10	**Directory/Quant File:**	19SVOC.MS16\ 1019_CCC2.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Phenol	108-95-2	-	< 3.0	-	N
bis(2-Chloroethyl)ether	111-44-4	-	< 0.7	-	N
2-Chlorophenol	95-57-8	-	< 3.0	-	N
1,3-Dichlorobenzene	541-73-1	-	< 0.7	-	N
1,4-Dichlorobenzene	106-46-7	-	< 0.7	-	N
Benzyl alcohol	100-51-6	-	< 0.7	-	N
1,2-Dichlorobenzene	95-50-1	-	< 0.7	-	N
2-Methylphenol	95-48-7	-	< 0.7	-	N
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.7	-	N
Hexachloroethane	67-72-1	-	< 0.7	-	N
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.7	-	N
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 3.0	-	N
Nitrobenzene	98-95-3	-	< 0.7	-	N
Isophorone	78-59-1	-	< 0.7	-	N
2-Nitrophenol	88-75-5	-	< 3.0	-	N
2,4-Dimethylphenol	105-67-9	-	< 3.0	-	N
Benzoic Acid	65-85-0 *	-	< 14.0	-	N
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.7	-	N
2,4-Dichlorophenol	120-83-2	-	< 3.0	-	N
1,2,4-Trichlorobenzene	120-82-1	-	< 0.7	-	N
Naphthalene	91-20-3	-	< 0.3	-	N
4-Chlorophenol	106-48-9	-	< 3.0	-	N
4-Chloroaniline	106-47-8 *	-	< 0.7	-	N
Hexachlorobutadiene	87-68-3	-	< 0.7	-	N
4-Chloro-3-methylphenol	59-50-7	-	< 0.7	-	N
2-Methylnaphthalene	91-57-6	-	< 0.3	-	N
1-Methylnaphthalene	90-12-0	-	< 0.3	-	N
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.7	-	N
2,4,6-Trichlorophenol	88-06-2	-	< 3.0	-	N
2,4,5-Trichlorophenol	95-95-4	-	< 3.0	-	N
2-Chloronaphthalene	91-58-7	-	< 0.3	-	N
Biphenyl	92-52-4	-	< 0.3	-	N
Diphenyl ether	101-84-8	-	< 0.3	-	N
2-Nitroaniline	88-74-4	-	< 0.7	-	N
Acenaphthylene	208-96-8	-	< 0.3	-	N
Dimethylphthalate	131-11-3	-	< 0.7	-	N
2,6-Dinitrotoluene	606-20-2	-	< 0.7	-	N
Acenaphthene	83-32-9	-	< 0.3	-	N
3-Nitroaniline	99-09-2	-	< 0.7	-	N

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit	Accr. code
2,4-Dinitrophenol	51-28-5 *	-	< 1.0	-	N
Dibenzofuran	132-64-9	-	< 0.7	-	N
4-Nitrophenol	100-02-7	-	< 7.0	-	N
2,4-Dinitrotoluene	121-14-2	-	< 0.7	-	N
Fluorene	86-73-7	-	< 0.3	-	N
Diethylphthalate	84-66-2	-	< 0.7	-	N
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.7	-	N
4,6-Dinitro-2-methylphenol	534-52-1	-	< 7.0	-	N
4-Nitroaniline	100-01-6	-	< 0.7	-	N
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.7	-	N
4-Bromophenyl-phenylether	101-55-3	-	< 0.7	-	N
Hexachlorobenzene	118-74-1	-	< 0.7	-	N
Pentachlorophenol	87-86-5	-	< 7.0	-	N
Phenanthrene	85-01-8	-	< 0.3	-	N
Anthracene	120-12-7	-	< 0.3	-	N
Di-n-butylphthalate	84-74-2	-	< 0.7	-	N
Fluoranthene	206-44-0	-	< 0.3	-	N
Pyrene	129-00-0	-	< 0.3	-	N
Butylbenzylphthalate	85-68-7	-	< 0.7	-	N
Benzo[a]anthracene	56-55-3	-	< 0.3	-	N
Chrysene	218-01-9	-	< 0.3	-	N
3,3'-Dichlorobenzidine	91-94-1	-	< 3.0	-	N
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.7	-	N
Di-n-octylphthalate	117-84-0	-	< 0.3	-	N
Benzo[b]fluoranthene	205-99-2	-	< 0.3	-	N
Benzo[k]fluoranthene	207-08-9	-	< 0.3	-	N
Benzo[a]pyrene	50-32-8	-	< 0.3	-	N
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.3	-	N
Dibenzo[a,h]anthracene	53-70-3	-	< 0.3	-	N
Benzo[g,h,i]perylene	191-24-2	-	< 0.3	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	85
Naphthalene-d8	80
Acenaphthene-d10	80
Phenanthrene-d10	82
Chrysene-d12	81
Perylene-d12	83

Surrogates	% Rec
2-Fluorophenol	74
Phenol-d5	65
Nitrobenzene-d5	67
2-Fluorobiphenyl	67
2,4,6-Tribromophenol	63
Terphenyl-d14	74

This analysis was conducted on an 'As Recieved' basis.

Concentrations are reported on a dry weight basis.

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

Semi-Volatile Organic Compounds

Accredited?: No

Customer and Site Details:	WYG Environment: SFA St Athan TF			**Matrix:**	Soil	**QC Batch Number:**	2195
Sample Details:	TP314 0.1	**Date Booked in:**	18-Oct-10	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1030946	**Date Extracted:**	19-Oct-10	**Operator:**	SO	**Dilution Factor:**	1
Job Number:	S10_7038M	**Date Analysed:**	20-Oct-10	**Directory/Quant File:**	19SVOC.MS16\ 1019_CCC2.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Phenol	108-95-2	-	< 3.0	-	N
bis(2-Chloroethyl)ether	111-44-4	-	< 0.7	-	N
2-Chlorophenol	95-57-8	-	< 3.0	-	N
1,3-Dichlorobenzene	541-73-1	-	< 0.7	-	N
1,4-Dichlorobenzene	106-46-7	-	< 0.7	-	N
Benzyl alcohol	100-51-6	-	< 0.7	-	N
1,2-Dichlorobenzene	95-50-1	-	< 0.7	-	N
2-Methylphenol	95-48-7	-	< 0.7	-	N
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.7	-	N
Hexachloroethane	67-72-1	-	< 0.7	-	N
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.7	-	N
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 3.0	-	N
Nitrobenzene	98-95-3	-	< 0.7	-	N
Isophorone	78-59-1	-	< 0.7	-	N
2-Nitrophenol	88-75-5	-	< 3.0	-	N
2,4-Dimethylphenol	105-67-9	-	< 3.0	-	N
Benzoic Acid	65-85-0 *	-	< 14.0	-	N
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.7	-	N
2,4-Dichlorophenol	120-83-2	-	< 3.0	-	N
1,2,4-Trichlorobenzene	120-82-1	-	< 0.7	-	N
Naphthalene	91-20-3	-	< 0.3	-	N
4-Chlorophenol	106-48-9	-	< 3.0	-	N
4-Chloroaniline	106-47-8 *	-	< 0.7	-	N
Hexachlorobutadiene	87-68-3	-	< 0.7	-	N
4-Chloro-3-methylphenol	59-50-7	-	< 0.7	-	N
2-Methylnaphthalene	91-57-6	-	< 0.3	-	N
1-Methylnaphthalene	90-12-0	-	< 0.3	-	N
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.7	-	N
2,4,6-Trichlorophenol	88-06-2	-	< 3.0	-	N
2,4,5-Trichlorophenol	95-95-4	-	< 3.0	-	N
2-Chloronaphthalene	91-58-7	-	< 0.3	-	N
Biphenyl	92-52-4	-	< 0.3	-	N
Diphenyl ether	101-84-8	-	< 0.3	-	N
2-Nitroaniline	88-74-4	-	< 0.7	-	N
Acenaphthylene	208-96-8	-	< 0.3	-	N
Dimethylphthalate	131-11-3	-	< 0.7	-	N
2,6-Dinitrotoluene	606-20-2	-	< 0.7	-	N
Acenaphthene	83-32-9	-	< 0.3	-	N
3-Nitroaniline	99-09-2	-	< 0.7	-	N

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit	Accr. code
2,4-Dinitrophenol	51-28-5 *	-	< 1.0	-	N
Dibenzofuran	132-64-9	-	< 0.7	-	N
4-Nitrophenol	100-02-7	-	< 7.0	-	N
2,4-Dinitrotoluene	121-14-2	-	< 0.7	-	N
Fluorene	86-73-7	-	< 0.3	-	N
Diethylphthalate	84-66-2	-	< 0.7	-	N
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.7	-	N
4,6-Dinitro-2-methylphenol	534-52-1	-	< 7.0	-	N
4-Nitroaniline	100-01-6	-	< 0.7	-	N
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.7	-	N
4-Bromophenyl-phenylether	101-55-3	-	< 0.7	-	N
Hexachlorobenzene	118-74-1	-	< 0.7	-	N
Pentachlorophenol	87-86-5	-	< 7.0	-	N
Phenanthrene	85-01-8	-	< 0.3	-	N
Anthracene	120-12-7	-	< 0.3	-	N
Di-n-butylphthalate	84-74-2	-	< 0.7	-	N
Fluoranthene	206-44-0	-	< 0.3	-	N
Pyrene	129-00-0	-	< 0.3	-	N
Butylbenzylphthalate	85-68-7	-	< 0.7	-	N
Benzo[a]anthracene	56-55-3	-	< 0.3	-	N
Chrysene	218-01-9	-	< 0.3	-	N
3,3'-Dichlorobenzidine	91-94-1	-	< 3.0	-	N
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.7	-	N
Di-n-octylphthalate	117-84-0	-	< 0.3	-	N
Benzo[b]fluoranthene	205-99-2	-	< 0.3	-	N
Benzo[k]fluoranthene	207-08-9	-	< 0.3	-	N
Benzo[a]pyrene	50-32-8	-	< 0.3	-	N
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.3	-	N
Dibenzo[a,h]anthracene	53-70-3	-	< 0.3	-	N
Benzo[g,h,i]perylene	191-24-2	-	< 0.3	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	82
Naphthalene-d8	81
Acenaphthene-d10	78
Phenanthrene-d10	79
Chrysene-d12	79
Perylene-d12	80

Surrogates	% Rec
2-Fluorophenol	73
Phenol-d5	64
Nitrobenzene-d5	63
2-Fluorobiphenyl	65
2,4,6-Tribromophenol	60
Terphenyl-d14	73

This analysis was conducted on an 'As Recieved' basis.

Concentrations are reported on a dry weight basis.

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

Semi-Volatile Organic Compounds

Accredited?: No

Customer and Site Details:	WYG Environment: SFA St Athan TF			**Matrix:**	Soil	**QC Batch Number:**	2195
Sample Details:	TP303 0.1	**Date Booked in:**	18-Oct-10	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1030949	**Date Extracted:**	19-Oct-10	**Operator:**	SO	**Dilution Factor:**	1
Job Number:	S10_7038M	**Date Analysed:**	20-Oct-10	**Directory/Quant File:**	19SVOC.MS16\ 1019_CCC2.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Phenol	108-95-2	-	< 3.0	-	N
bis(2-Chloroethyl)ether	111-44-4	-	< 0.7	-	N
2-Chlorophenol	95-57-8	-	< 3.0	-	N
1,3-Dichlorobenzene	541-73-1	-	< 0.7	-	N
1,4-Dichlorobenzene	106-46-7	-	< 0.7	-	N
Benzyl alcohol	100-51-6	-	< 0.7	-	N
1,2-Dichlorobenzene	95-50-1	-	< 0.7	-	N
2-Methylphenol	95-48-7	-	< 0.7	-	N
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.7	-	N
Hexachloroethane	67-72-1	-	< 0.7	-	N
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.7	-	N
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 3.0	-	N
Nitrobenzene	98-95-3	-	< 0.7	-	N
Isophorone	78-59-1	-	< 0.7	-	N
2-Nitrophenol	88-75-5	-	< 3.0	-	N
2,4-Dimethylphenol	105-67-9	-	< 3.0	-	N
Benzoic Acid	65-85-0 *	-	< 13.0	-	N
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.7	-	N
2,4-Dichlorophenol	120-83-2	-	< 3.0	-	N
1,2,4-Trichlorobenzene	120-82-1	-	< 0.7	-	N
Naphthalene	91-20-3	-	< 0.3	-	N
4-Chlorophenol	106-48-9	-	< 3.0	-	N
4-Chloroaniline	106-47-8 *	-	< 0.7	-	N
Hexachlorobutadiene	87-68-3	-	< 0.7	-	N
4-Chloro-3-methylphenol	59-50-7	-	< 0.7	-	N
2-Methylnaphthalene	91-57-6	-	< 0.3	-	N
1-Methylnaphthalene	90-12-0	-	< 0.3	-	N
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.7	-	N
2,4,6-Trichlorophenol	88-06-2	-	< 3.0	-	N
2,4,5-Trichlorophenol	95-95-4	-	< 3.0	-	N
2-Chloronaphthalene	91-58-7	-	< 0.3	-	N
Biphenyl	92-52-4	-	< 0.3	-	N
Diphenyl ether	101-84-8	-	< 0.3	-	N
2-Nitroaniline	88-74-4	-	< 0.7	-	N
Acenaphthylene	208-96-8	-	< 0.3	-	N
Dimethylphthalate	131-11-3	-	< 0.7	-	N
2,6-Dinitrotoluene	606-20-2	-	< 0.7	-	N
Acenaphthene	83-32-9	-	< 0.3	-	N
3-Nitroaniline	99-09-2	-	< 0.7	-	N

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit	Accr. code
2,4-Dinitrophenol	51-28-5 *	-	< 1.0	-	N
Dibenzofuran	132-64-9	-	< 0.7	-	N
4-Nitrophenol	100-02-7	-	< 7.0	-	N
2,4-Dinitrotoluene	121-14-2	-	< 0.7	-	N
Fluorene	86-73-7	-	< 0.3	-	N
Diethylphthalate	84-66-2	-	< 0.7	-	N
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.7	-	N
4,6-Dinitro-2-methylphenol	534-52-1	-	< 7.0	-	N
4-Nitroaniline	100-01-6	-	< 0.7	-	N
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.7	-	N
4-Bromophenyl-phenylether	101-55-3	-	< 0.7	-	N
Hexachlorobenzene	118-74-1	-	< 0.7	-	N
Pentachlorophenol	87-86-5	-	< 7.0	-	N
Phenanthrene	85-01-8	-	< 0.3	-	N
Anthracene	120-12-7	-	< 0.3	-	N
Di-n-butylphthalate	84-74-2	-	< 0.7	-	N
Fluoranthene	206-44-0	-	< 0.3	-	N
Pyrene	129-00-0	-	< 0.3	-	N
Butylbenzylphthalate	85-68-7	-	< 0.7	-	N
Benzo[a]anthracene	56-55-3	-	< 0.3	-	N
Chrysene	218-01-9	-	< 0.3	-	N
3,3'-Dichlorobenzidine	91-94-1	-	< 3.0	-	N
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.7	-	N
Di-n-octylphthalate	117-84-0	-	< 0.3	-	N
Benzo[b]fluoranthene	205-99-2	-	< 0.3	-	N
Benzo[k]fluoranthene	207-08-9	-	< 0.3	-	N
Benzo[a]pyrene	50-32-8	-	< 0.3	-	N
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.3	-	N
Dibenzo[a,h]anthracene	53-70-3	-	< 0.3	-	N
Benzo[g,h,i]perylene	191-24-2	-	< 0.3	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	84
Naphthalene-d8	80
Acenaphthene-d10	79
Phenanthrene-d10	80
Chrysene-d12	81
Perylene-d12	81

Surrogates	% Rec
2-Fluorophenol	74
Phenol-d5	64
Nitrobenzene-d5	66
2-Fluorobiphenyl	66
2,4,6-Tribromophenol	56
Terphenyl-d14	72

This analysis was conducted on an 'As Recieved' basis.

Concentrations are reported on a dry weight basis.

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

Semi-Volatile Organic Compounds

Accredited?: No

Customer and Site Details:	WYG Environment: SFA St Athan TF			**Matrix:**	Soil	**QC Batch Number:**	2195
Sample Details:	TP306 0.1	**Date Booked in:**	18-Oct-10	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1030952	**Date Extracted:**	19-Oct-10	**Operator:**	SO	**Dilution Factor:**	1
Job Number:	S10_7038M	**Date Analysed:**	20-Oct-10	**Directory/Quant File:**	19SVOC.MS16\ 1019_CCC2.D	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Phenol	108-95-2	-	< 3.0	-	N
bis(2-Chloroethyl)ether	111-44-4	-	< 0.7	-	N
2-Chlorophenol	95-57-8	-	< 3.0	-	N
1,3-Dichlorobenzene	541-73-1	-	< 0.7	-	N
1,4-Dichlorobenzene	106-46-7	-	< 0.7	-	N
Benzyl alcohol	100-51-6	-	< 0.7	-	N
1,2-Dichlorobenzene	95-50-1	-	< 0.7	-	N
2-Methylphenol	95-48-7	-	< 0.7	-	N
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.7	-	N
Hexachloroethane	67-72-1	-	< 0.7	-	N
N-Nitroso-di-n-propylamine	621-64-7	-	< 0.7	-	N
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 3.0	-	N
Nitrobenzene	98-95-3	-	< 0.7	-	N
Isophorone	78-59-1	-	< 0.7	-	N
2-Nitrophenol	88-75-5	-	< 3.0	-	N
2,4-Dimethylphenol	105-67-9	-	< 3.0	-	N
Benzoic Acid	65-85-0 *	-	< 13.0	-	N
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.7	-	N
2,4-Dichlorophenol	120-83-2	-	< 3.0	-	N
1,2,4-Trichlorobenzene	120-82-1	-	< 0.7	-	N
Naphthalene	91-20-3	-	< 0.3	-	N
4-Chlorophenol	106-48-9	-	< 3.0	-	N
4-Chloroaniline	106-47-8 *	-	< 0.7	-	N
Hexachlorobutadiene	87-68-3	-	< 0.7	-	N
4-Chloro-3-methylphenol	59-50-7	-	< 0.7	-	N
2-Methylnaphthalene	91-57-6	-	< 0.3	-	N
1-Methylnaphthalene	90-12-0	-	< 0.3	-	N
Hexachlorocyclopentadiene	77-47-4 *	-	< 0.7	-	N
2,4,6-Trichlorophenol	88-06-2	-	< 3.0	-	N
2,4,5-Trichlorophenol	95-95-4	-	< 3.0	-	N
2-Chloronaphthalene	91-58-7	-	< 0.3	-	N
Biphenyl	92-52-4	-	< 0.3	-	N
Diphenyl ether	101-84-8	-	< 0.3	-	N
2-Nitroaniline	88-74-4	-	< 0.7	-	N
Acenaphthylene	208-96-8	-	< 0.3	-	N
Dimethylphthalate	131-11-3	-	< 0.7	-	N
2,6-Dinitrotoluene	606-20-2	-	< 0.7	-	N
Acenaphthene	83-32-9	-	< 0.3	-	N
3-Nitroaniline	99-09-2	-	< 0.7	-	N

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit	Accr. code
2,4-Dinitrophenol	51-28-5 *	-	< 1.0	-	N
Dibenzofuran	132-64-9	-	< 0.7	-	N
4-Nitrophenol	100-02-7	-	< 7.0	-	N
2,4-Dinitrotoluene	121-14-2	-	< 0.7	-	N
Fluorene	86-73-7	-	< 0.3	-	N
Diethylphthalate	84-66-2	-	< 0.7	-	N
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.7	-	N
4,6-Dinitro-2-methylphenol	534-52-1	-	< 7.0	-	N
4-Nitroaniline	100-01-6	-	< 0.7	-	N
N-Nitrosodiphenylamine	86-30-6 *	-	< 0.7	-	N
4-Bromophenyl-phenylether	101-55-3	-	< 0.7	-	N
Hexachlorobenzene	118-74-1	-	< 0.7	-	N
Pentachlorophenol	87-86-5	-	< 7.0	-	N
Phenanthrene	85-01-8	-	< 0.3	-	N
Anthracene	120-12-7	-	< 0.3	-	N
Di-n-butylphthalate	84-74-2	-	< 0.7	-	N
Fluoranthene	206-44-0	-	< 0.3	-	N
Pyrene	129-00-0	-	< 0.3	-	N
Butylbenzylphthalate	85-68-7	-	< 0.7	-	N
Benzo[a]anthracene	56-55-3	-	< 0.3	-	N
Chrysene	218-01-9	-	< 0.3	-	N
3,3'-Dichlorobenzidine	91-94-1	-	< 3.0	-	N
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.7	-	N
Di-n-octylphthalate	117-84-0	-	< 0.3	-	N
Benzo[b]fluoranthene	205-99-2	-	< 0.3	-	N
Benzo[k]fluoranthene	207-08-9	-	< 0.3	-	N
Benzo[a]pyrene	50-32-8	-	< 0.3	-	N
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.3	-	N
Dibenzo[a,h]anthracene	53-70-3	-	< 0.3	-	N
Benzo[g,h,i]perylene	191-24-2	-	< 0.3	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	85
Naphthalene-d8	81
Acenaphthene-d10	81
Phenanthrene-d10	81
Chrysene-d12	81
Perylene-d12	83

Surrogates	% Rec
2-Fluorophenol	75
Phenol-d5	67
Nitrobenzene-d5	68
2-Fluorobiphenyl	68
2,4,6-Tribromophenol	66
Terphenyl-d14	76

This analysis was conducted on an 'As Recieved' basis.

Concentrations are reported on a dry weight basis.

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

Gasoline Range Organics
(BTEX and Aliphatic Carbon Ranges)

Customer and Site Details: WYG Environment : SFA St Athan TF
Job Number: S10_7038
Directory: D:\TES\DATA\Y2010\1020HSA_GC12\102010G 2010-10-21 13-16-41\191B0801.D
Method: Headspace GCFID
Accreditation Code: N

Matrix: Soil
Date Booked in: 18-Oct-10
Date extracted: 20-Oct-10
Date Analysed: 21-Oct-10, 15:42

			Concentration, (mg/kg) - as dry weight.					Aliphatics				
Sample ID	Client ID	Benzene	Toluene	Ethyl benzene	m/p-Xylene	o-Xylene	C5 - C6	>C6 - C7	>C7 - C8	>C8 - C10	Total GRO
* CL1030934	TP318 0.4	<0.01	<0.01	<0.01	<0.01	<0.01	<0.3	<0.3	<0.3	<0.3	<0.3
* CL1030941	TP307 0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.3	<0.3	<0.3	<0.3	<0.3
* CL1030944	TP312 0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.3	<0.3	<0.3	<0.3	<0.3
* CL1030946	TP314 0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.3	<0.3	<0.3	<0.3	<0.3
* CL1030949	TP303 0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.3	<0.3	<0.3	<0.3	<0.3
* CL1030952	TP306 0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.3	<0.3	<0.3	<0.3	<0.3

Note: Benzene elutes between C6 and C7, toluene elutes between C7 and C8, ethyl benzene and the xylenes elute between C8 and C9.
Xylenes have been deducted from the C8-C10 band to give the aliphatic fraction, however aromatic compounds may still be contributing to this fraction.

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

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: WYG Environment : SFA St Athan TF
Job Number: S10_7038
QC Batch Number: 102200
Directory: D:\TES\DATA\Y2010\1021TPH_GC3\082B2501.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

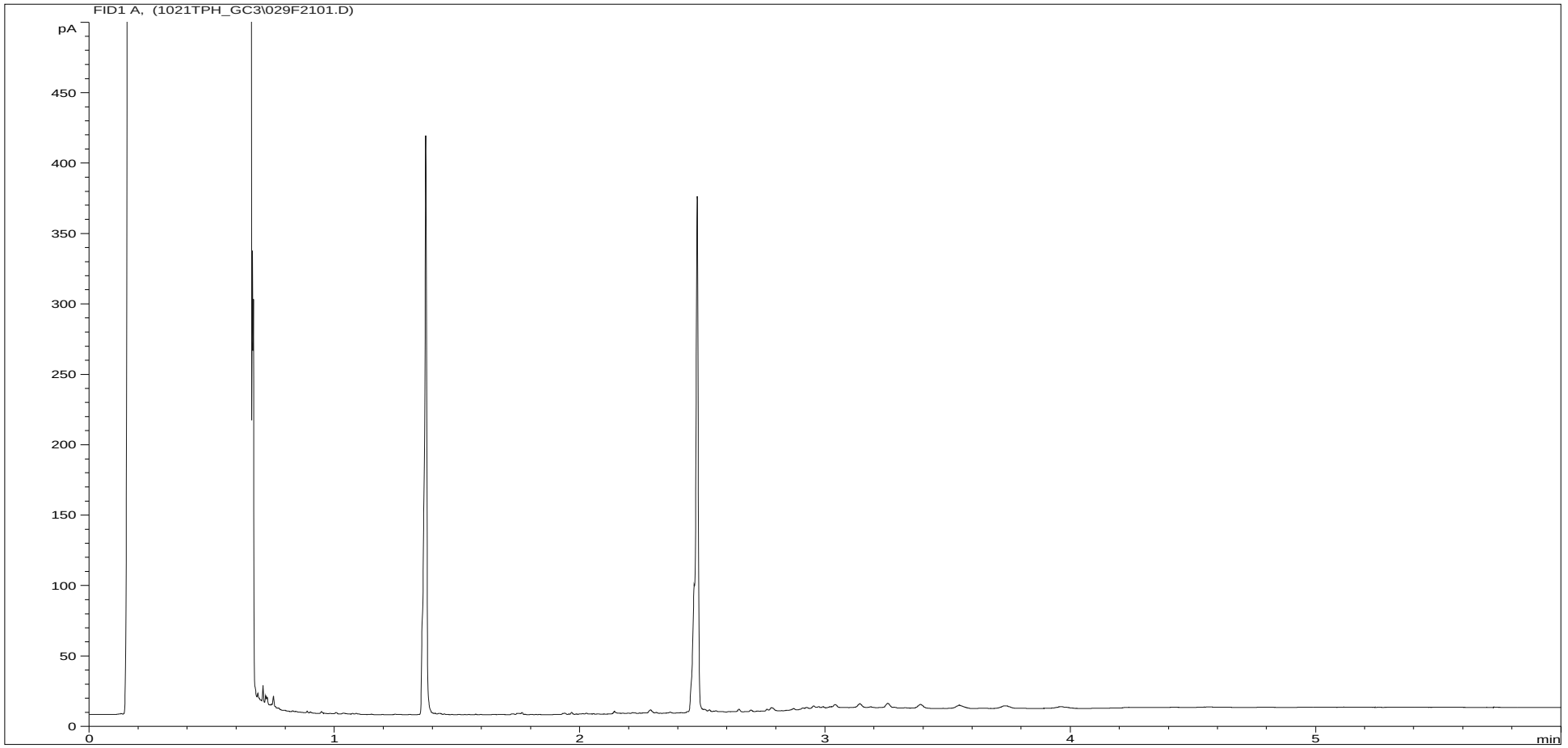
Matrix: Soil
Date Booked ir 18-Oct-10
Date Extracted 20-Oct-10
Date Analysed 21-Oct-10

This sample data is not accredited.

		Concentration, (mg/kg) - as dry weight.											
		>C8 - C10		>C10 - C12		>C12 - C16		>C16 - C21		>C21 - C35		>C8 - C40	
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**
CL1030934	TP318 0.4	<5.4	<5	<5.4	<5	<5.4	<5	<5.4	<5	<11.75	<11.47	<26.8	<26
CL1030941	TP307 0.1	<5	<5	<5	<5	<5	<5	<5	<5	<11.57	<11.57	<26	<26
CL1030944	TP312 0.1	<6	<6	<6	<6	<6	<6	<6	<6	<12.07	<12.07	<28	<28
CL1030946	TP314 0.1	<5.6	<5	<5.6	<5	<5.6	<5	<5.6	<5	<12.25	<11.95	<28.0	<27
CL1030949	TP303 0.1	<5	<5	<5	<5	<5	<5	<5	<5	<11.41	<11.41	<26	<26
CL1030952	TP306 0.1	<5	<5	<5	<5	<5	<5	<5	<5	<11.51	<11.51	<26	<26

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

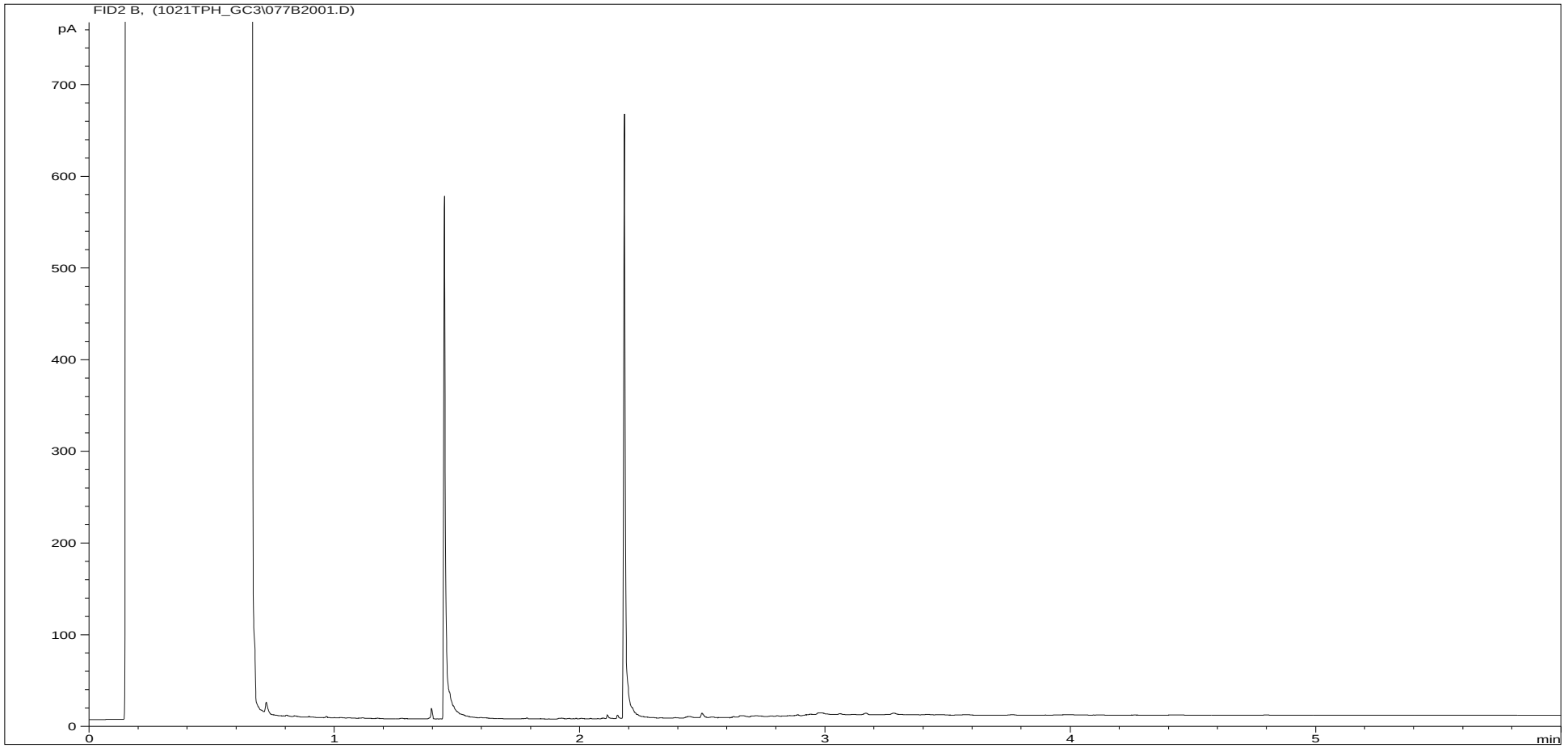
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1030934ALI	**Job Number:**	S10_7038M
Multiplier:	16.4	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	TP318 0.4
Acquisition Date/Time:	21-Oct-10		
Datafile:	D:\TES\DATA\Y2010\1021TPH_GC3\029F2101.D		

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

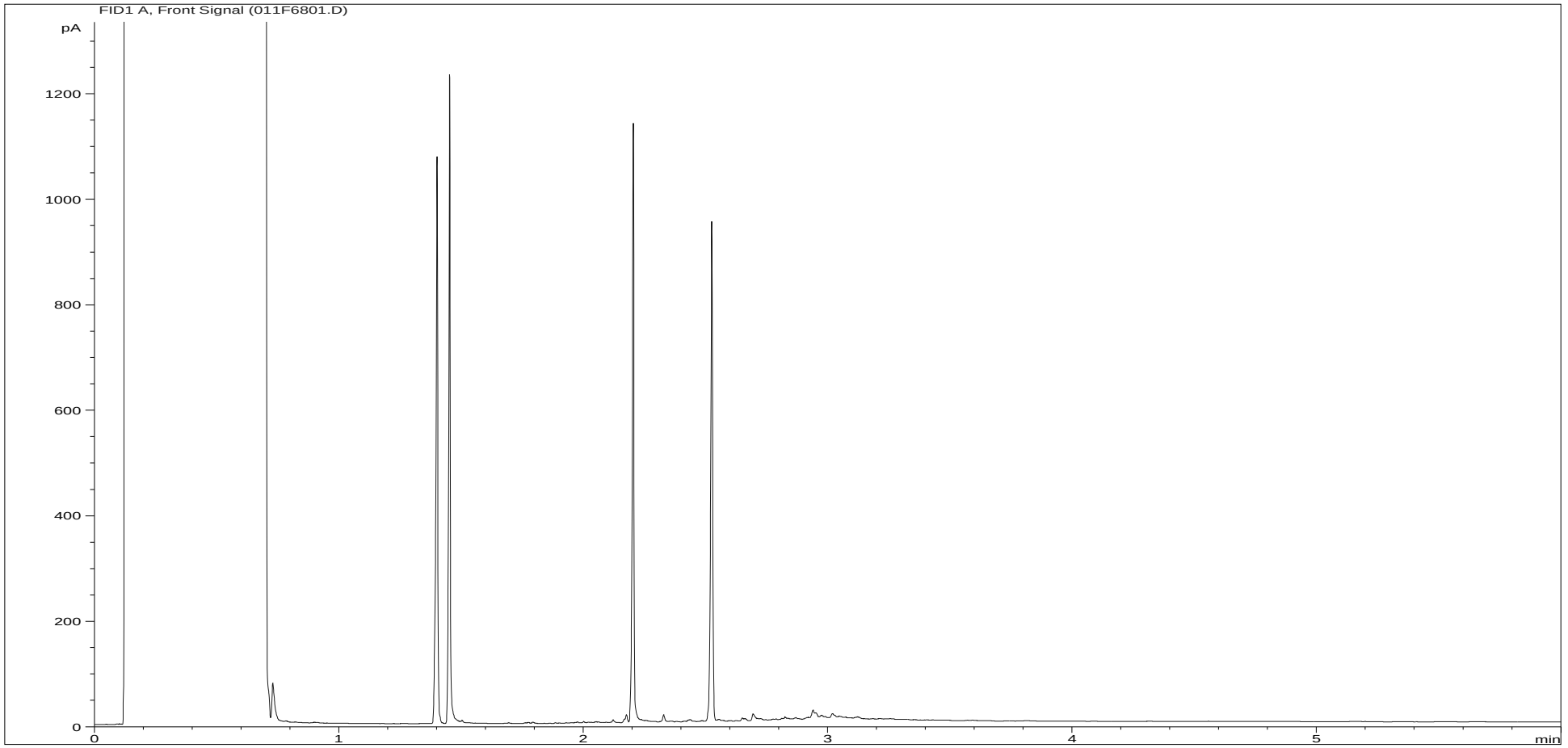
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1030934ARO	**Job Number:**	S10_7038M
Multiplier:	12.4	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	TP318 0.4
Acquisition Date/Time:	21-Oct-10		
Datafile:	D:\TES\DATA\Y2010\1021TPH_GC3\077B2001.D		

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

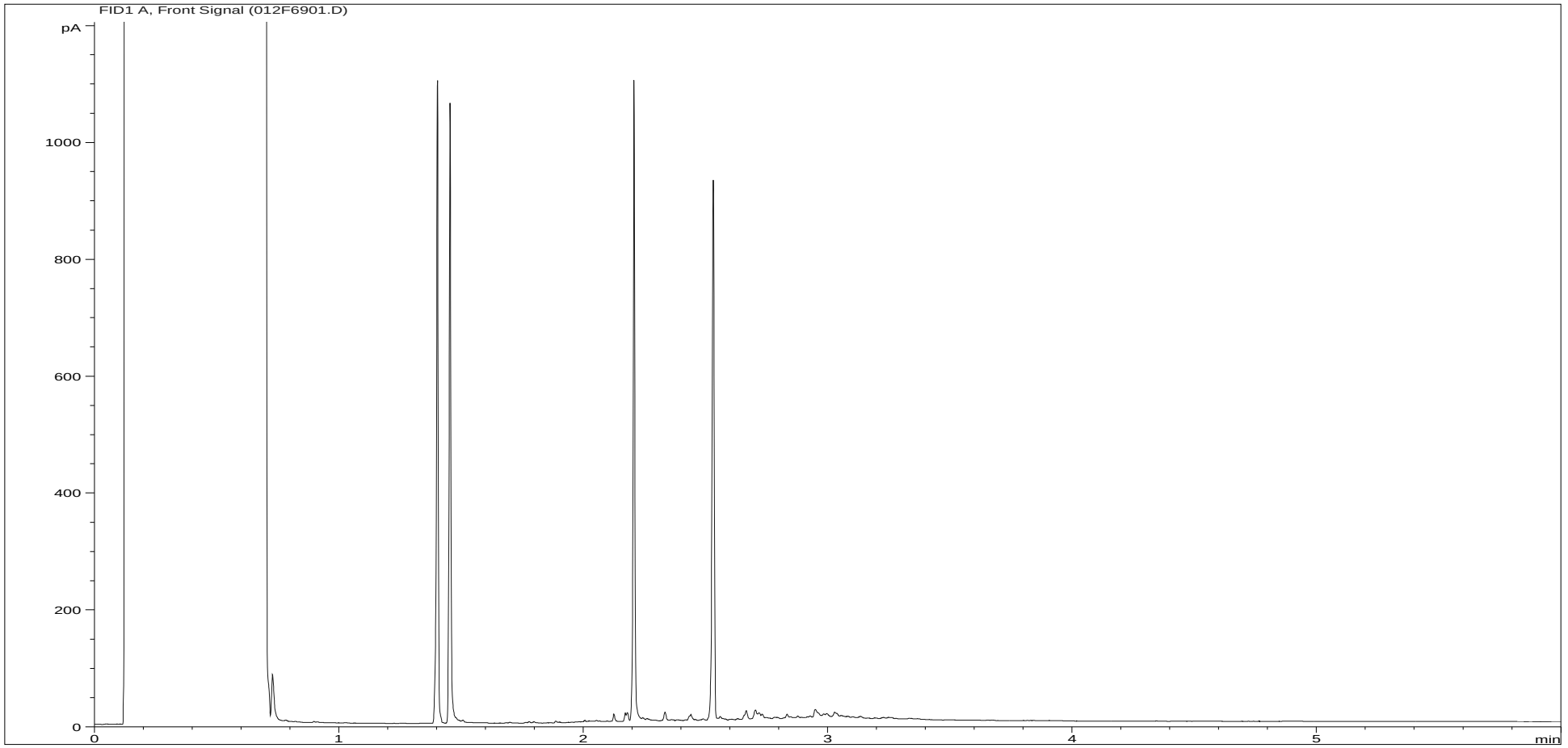
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030935	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP319 0.3
Acquisition Date/Time:	21-Oct-10, 01:14:59		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\011F6801.D		

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

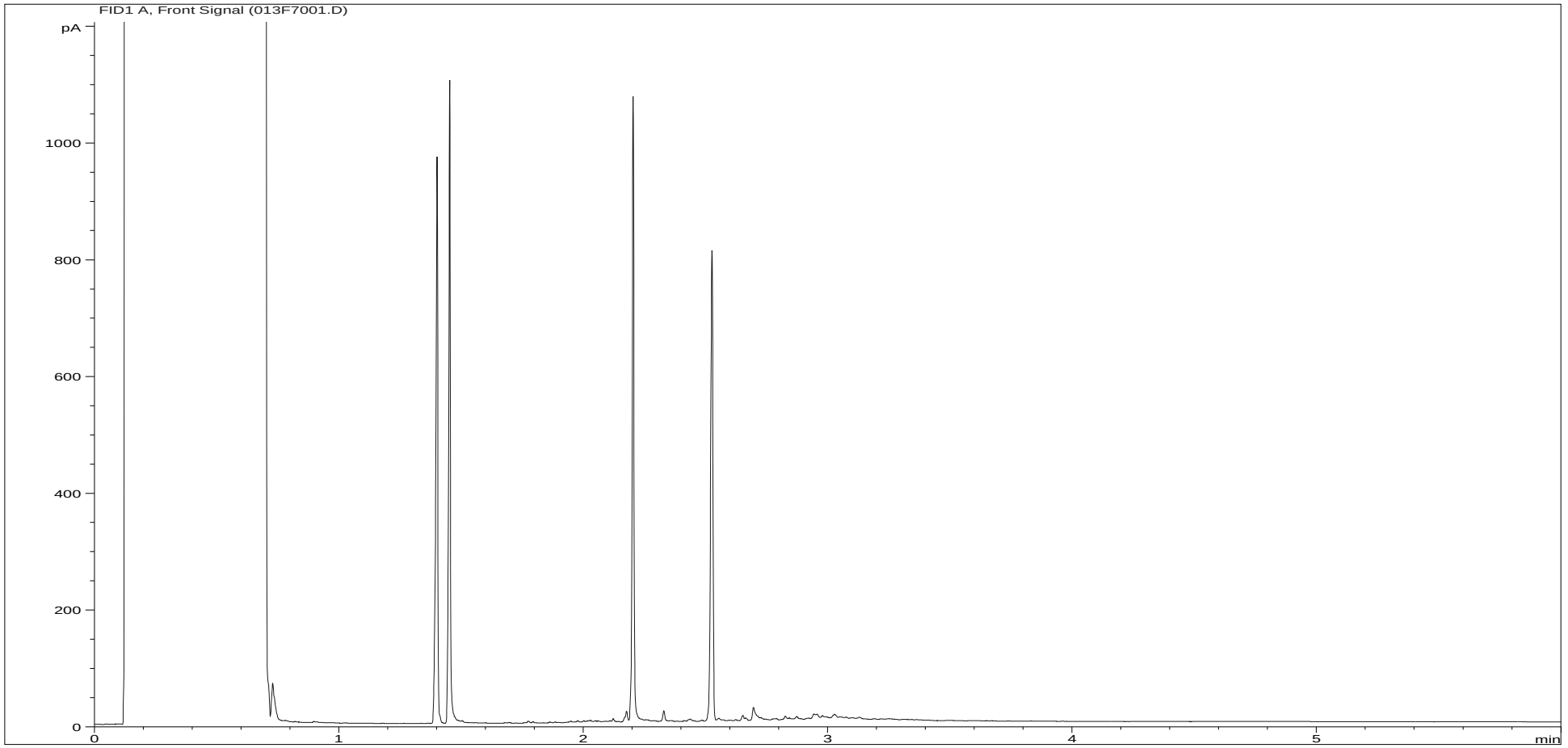
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030936	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP320 0.3
Acquisition Date/Time:	21-Oct-10, 01:27:45		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\012F6901.D		

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

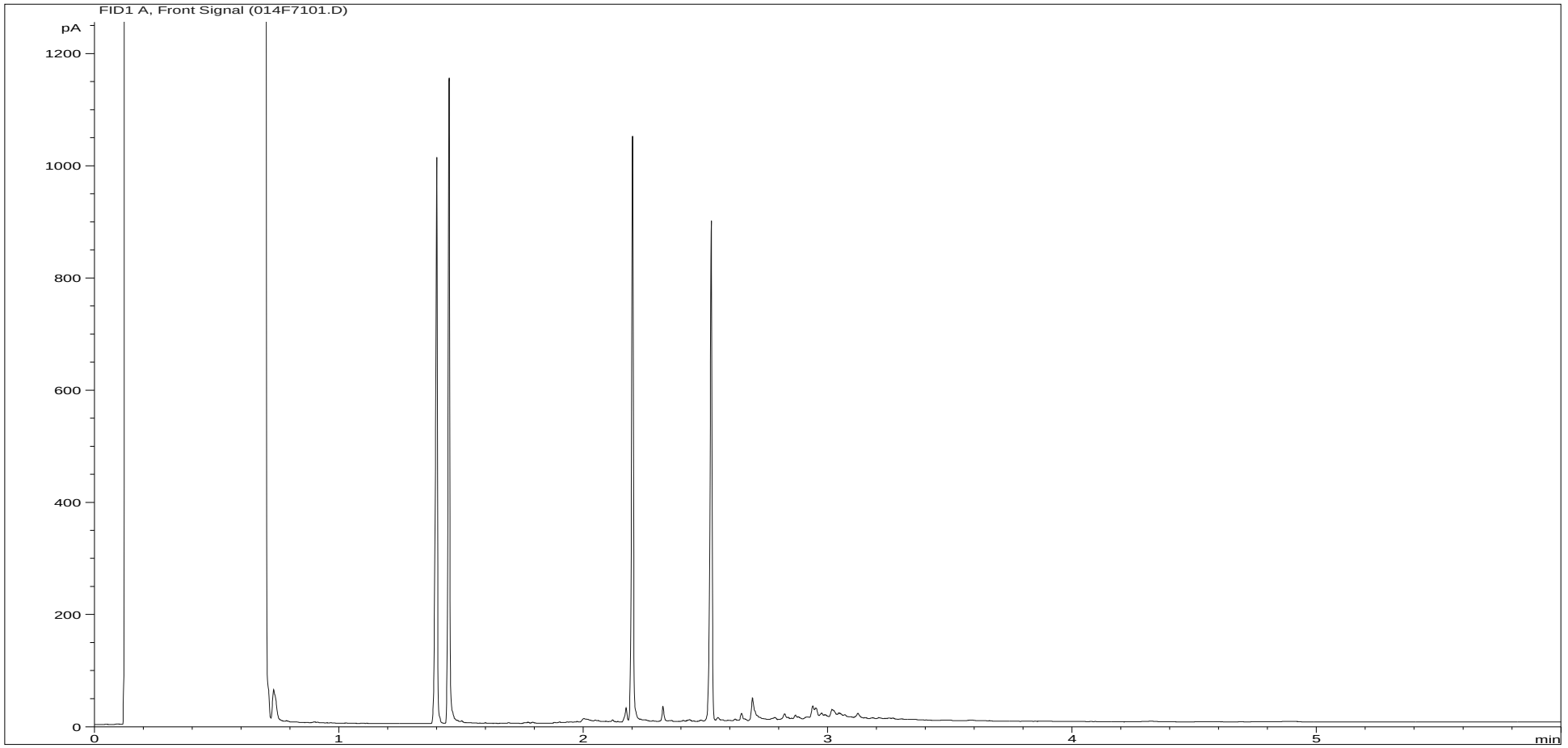
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030937	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP317 0.3
Acquisition Date/Time:	21-Oct-10, 01:39:42		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\013F7001.D		

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

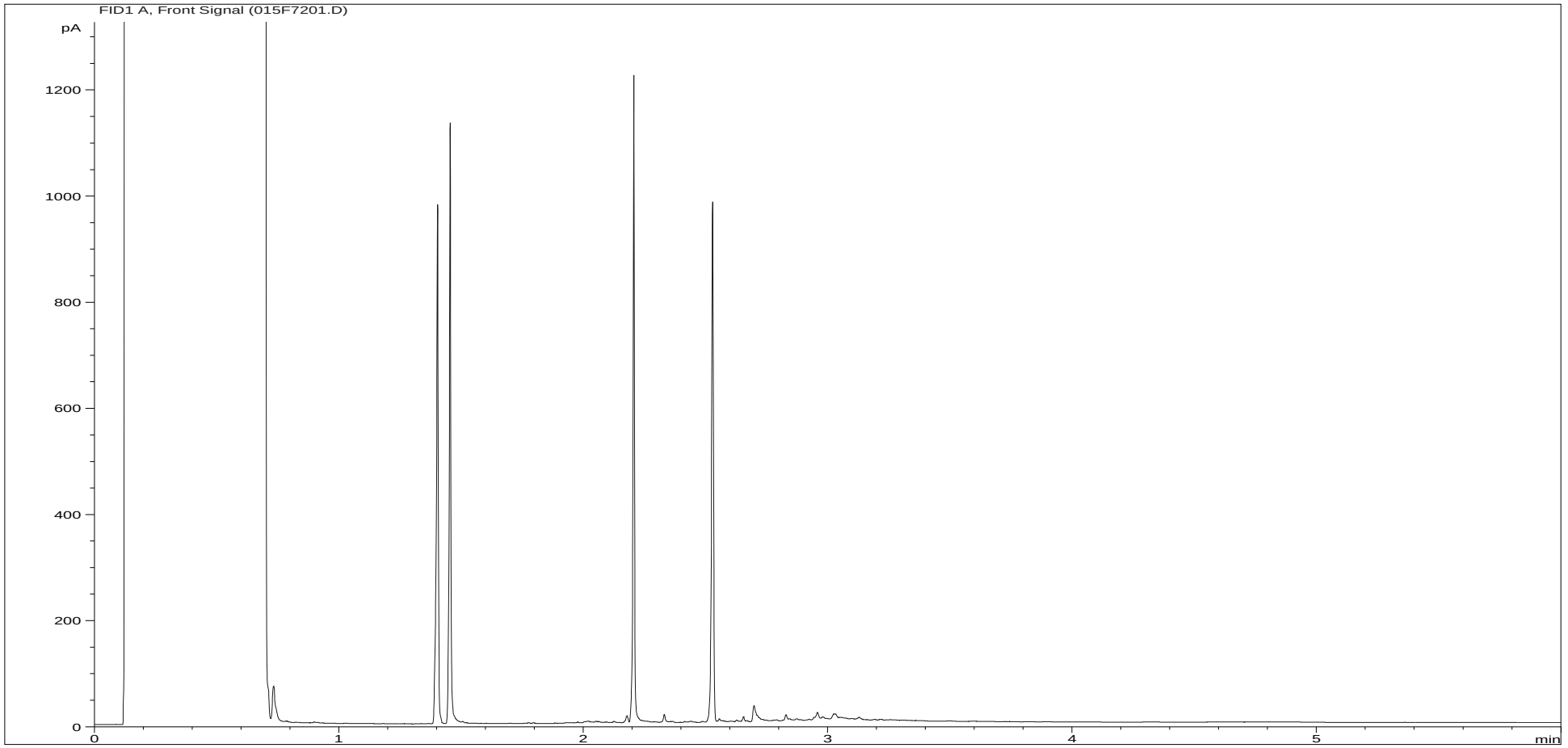
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030938	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP313 0.2
Acquisition Date/Time:	21-Oct-10, 01:51:41		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\014F7101.D		

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

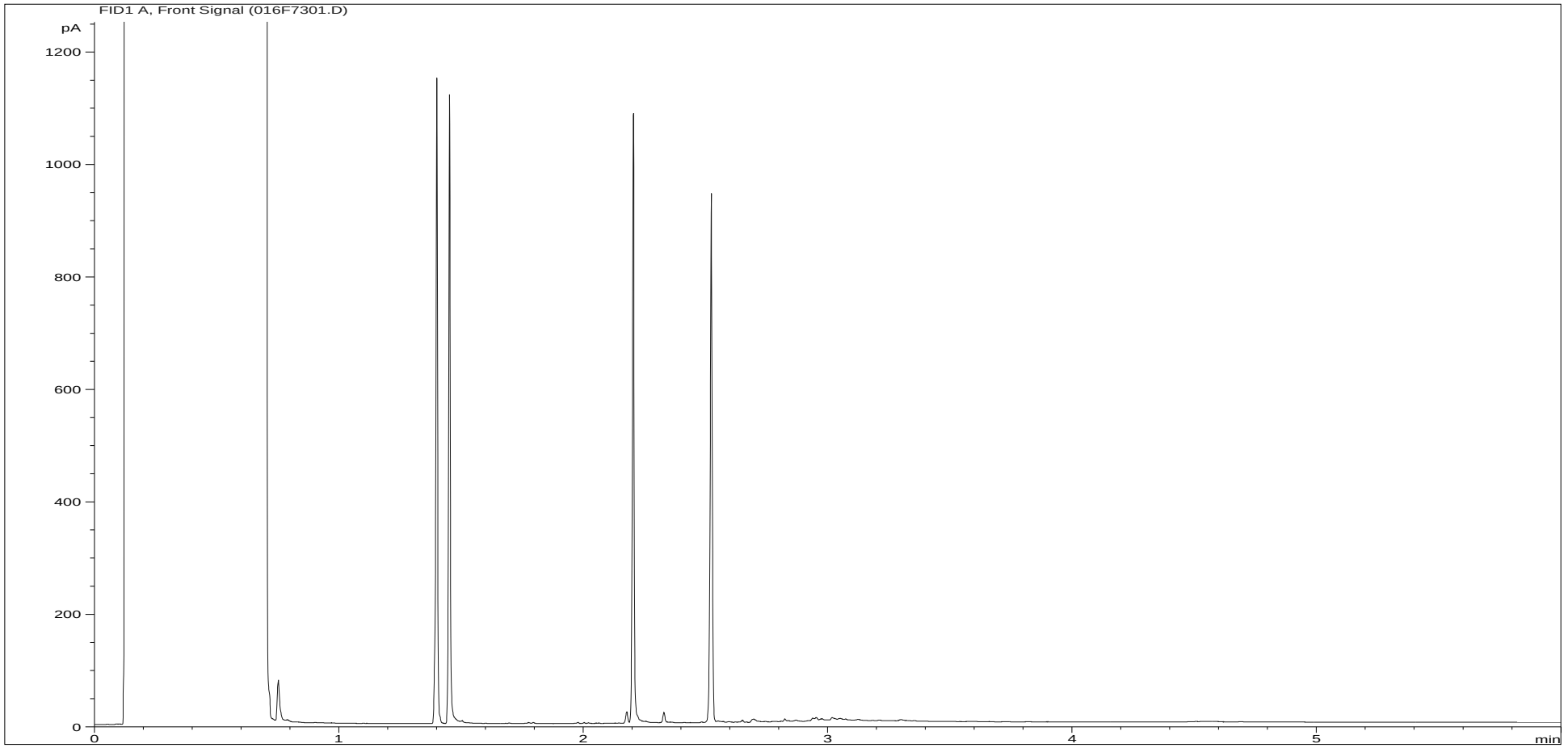
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030939	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP316 0.4
Acquisition Date/Time:	21-Oct-10, 02:03:45		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\015F7201.D		

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

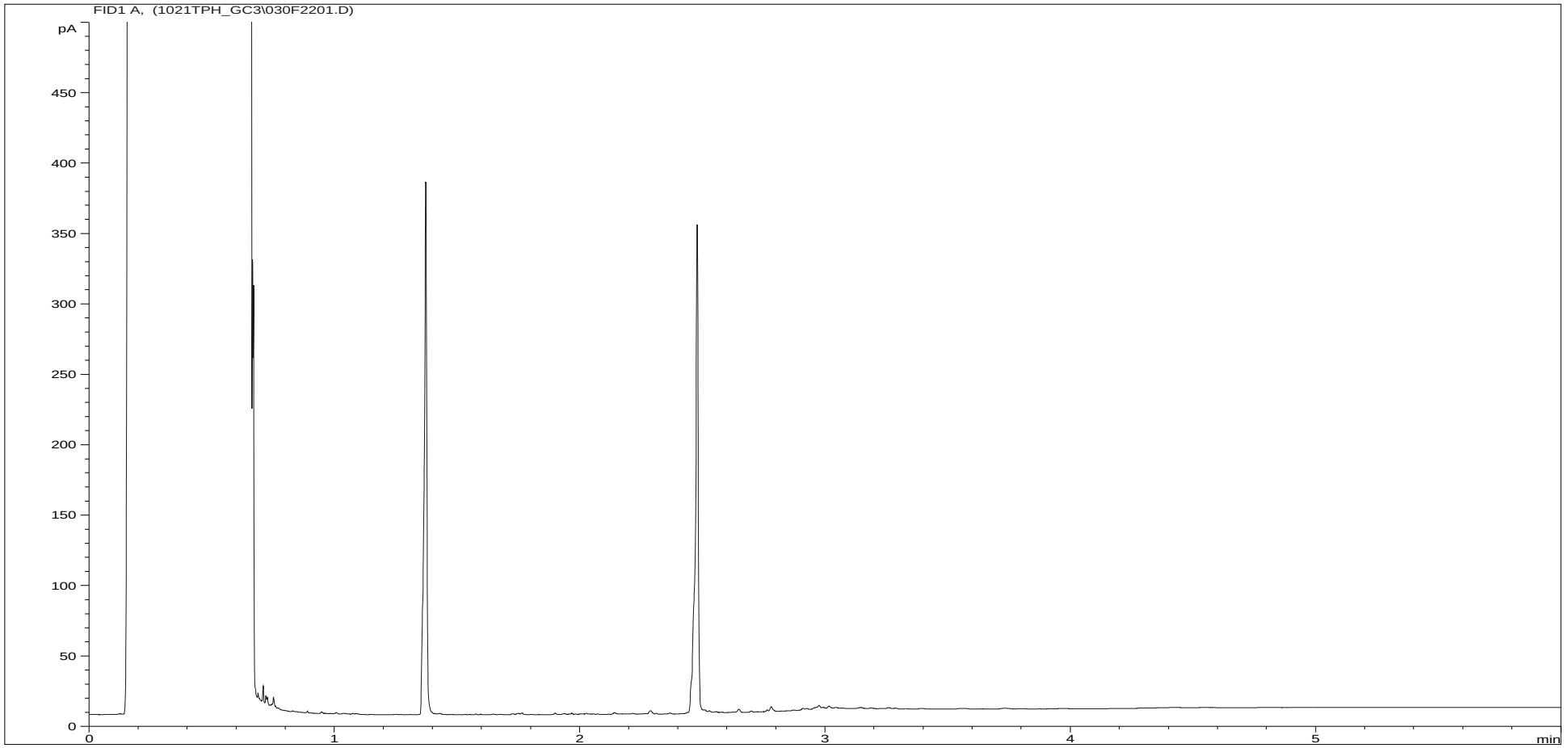
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030940	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP310 0.3
Acquisition Date/Time:	21-Oct-10, 02:16:11		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\016F7301.D		

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

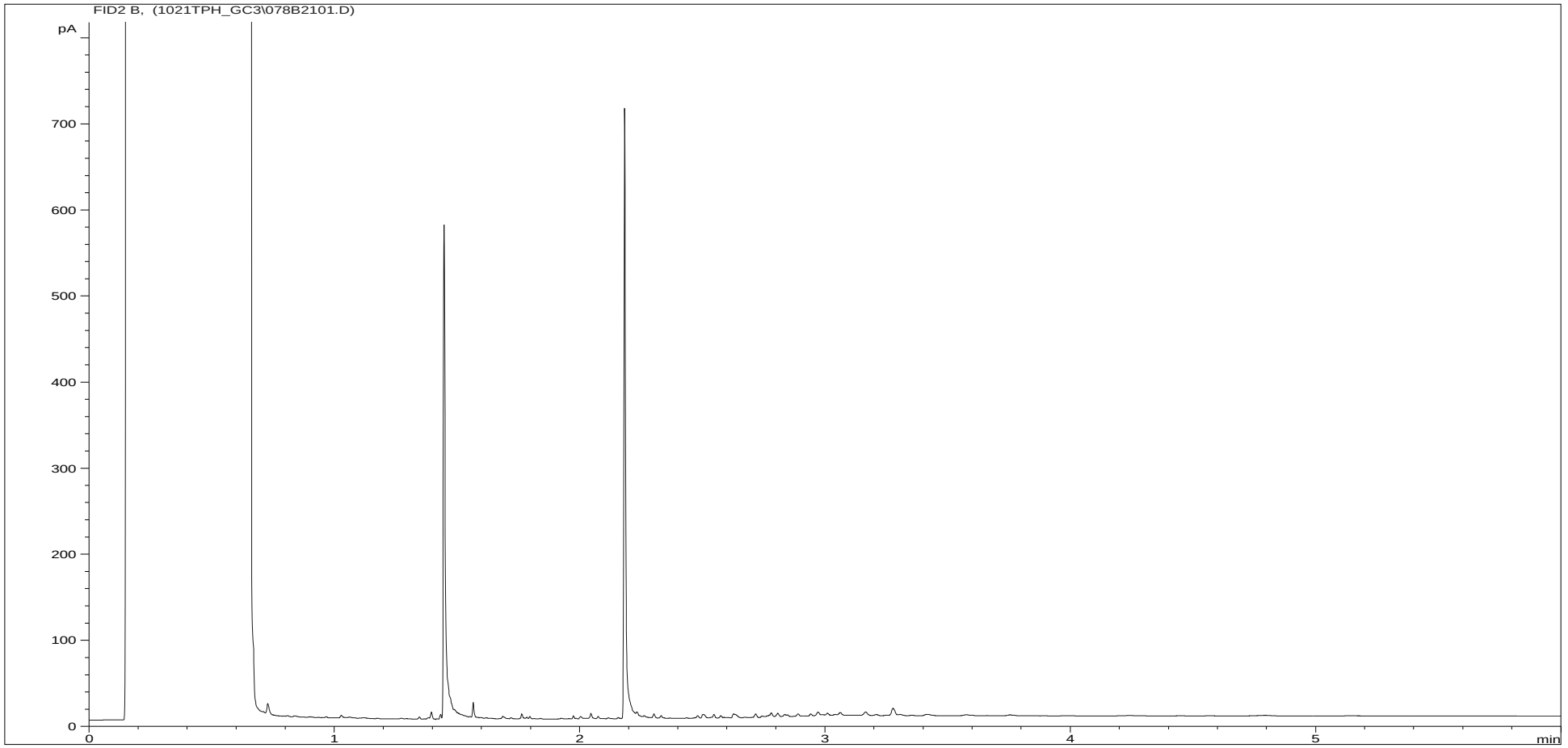
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1030941ALI	**Job Number:**	S10_7038M
Multiplier:	15.58	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	TP307 0.1
Acquisition Date/Time:	21-Oct-10		
Datafile:	D:\TES\DATA\Y2010\1021TPH_GC3\030F2201.D		

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

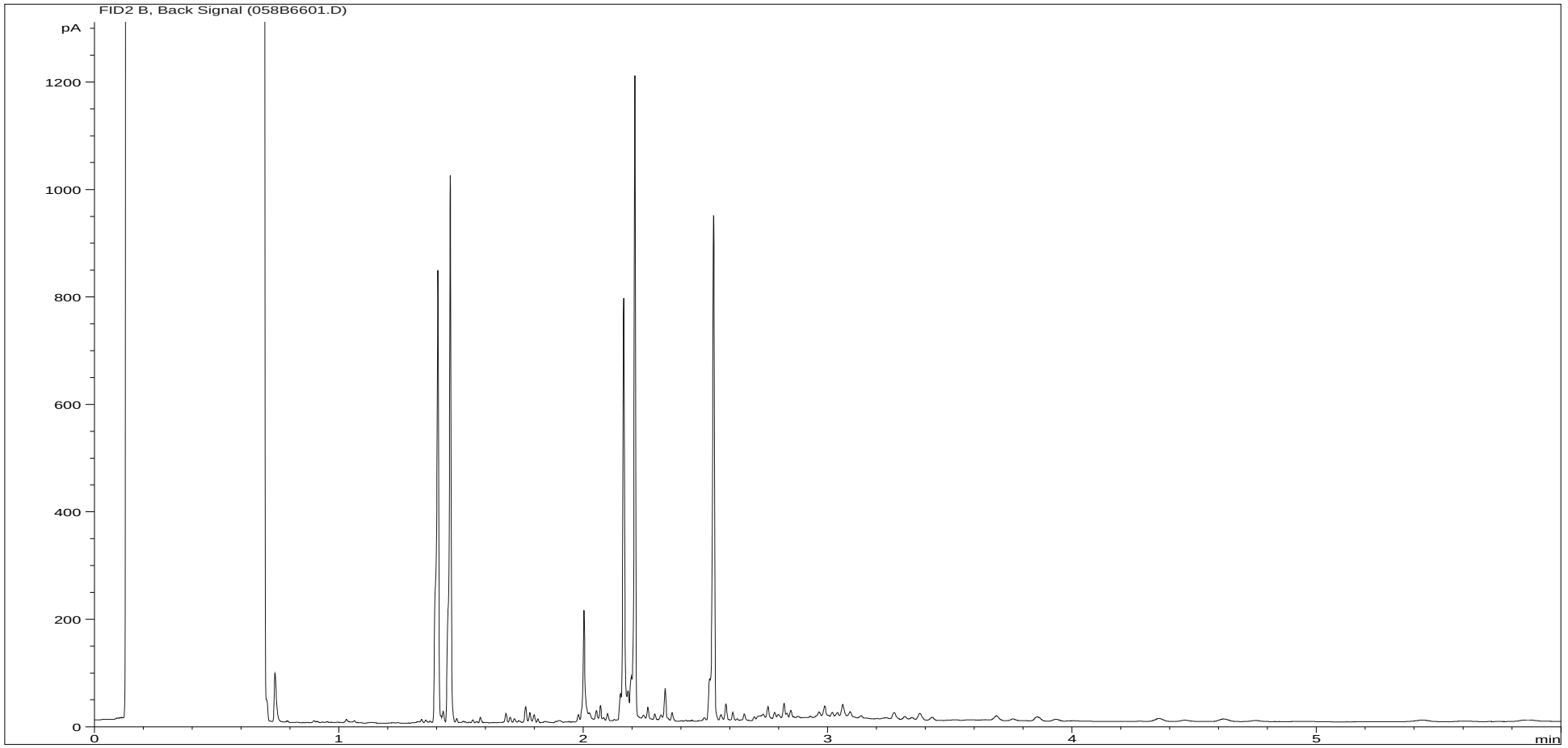
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1030941ARO	**Job Number:**	S10_7038M
Multiplier:	11.02	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	TP307 0.1
Acquisition Date/Time:	21-Oct-10		
Datafile:	D:\TES\DATA\Y2010\1021TPH_GC3\078B2101.D		

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

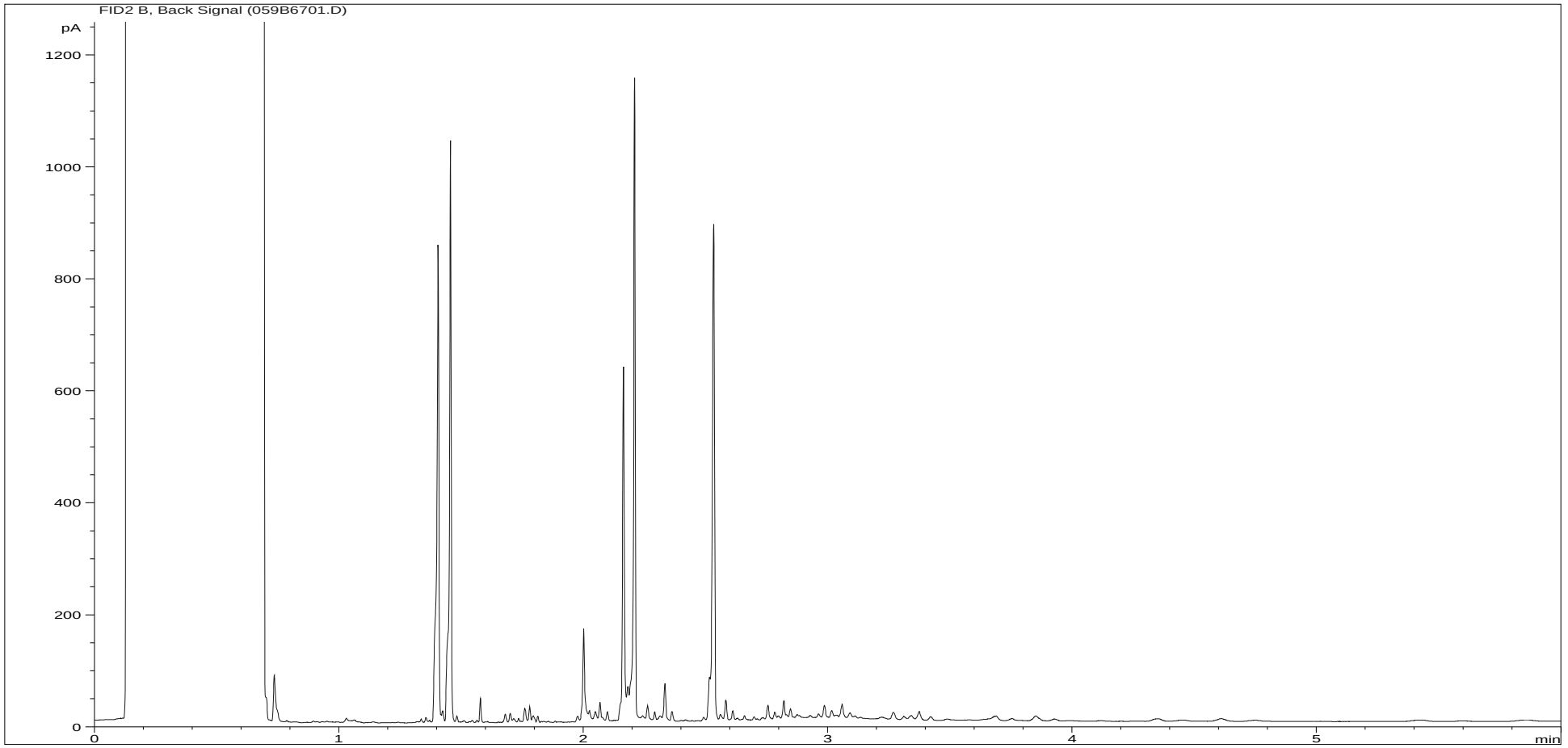
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030942	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP304 0.1
Acquisition Date/Time:	21-Oct-10, 00:49:12		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\058B6601.D		

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

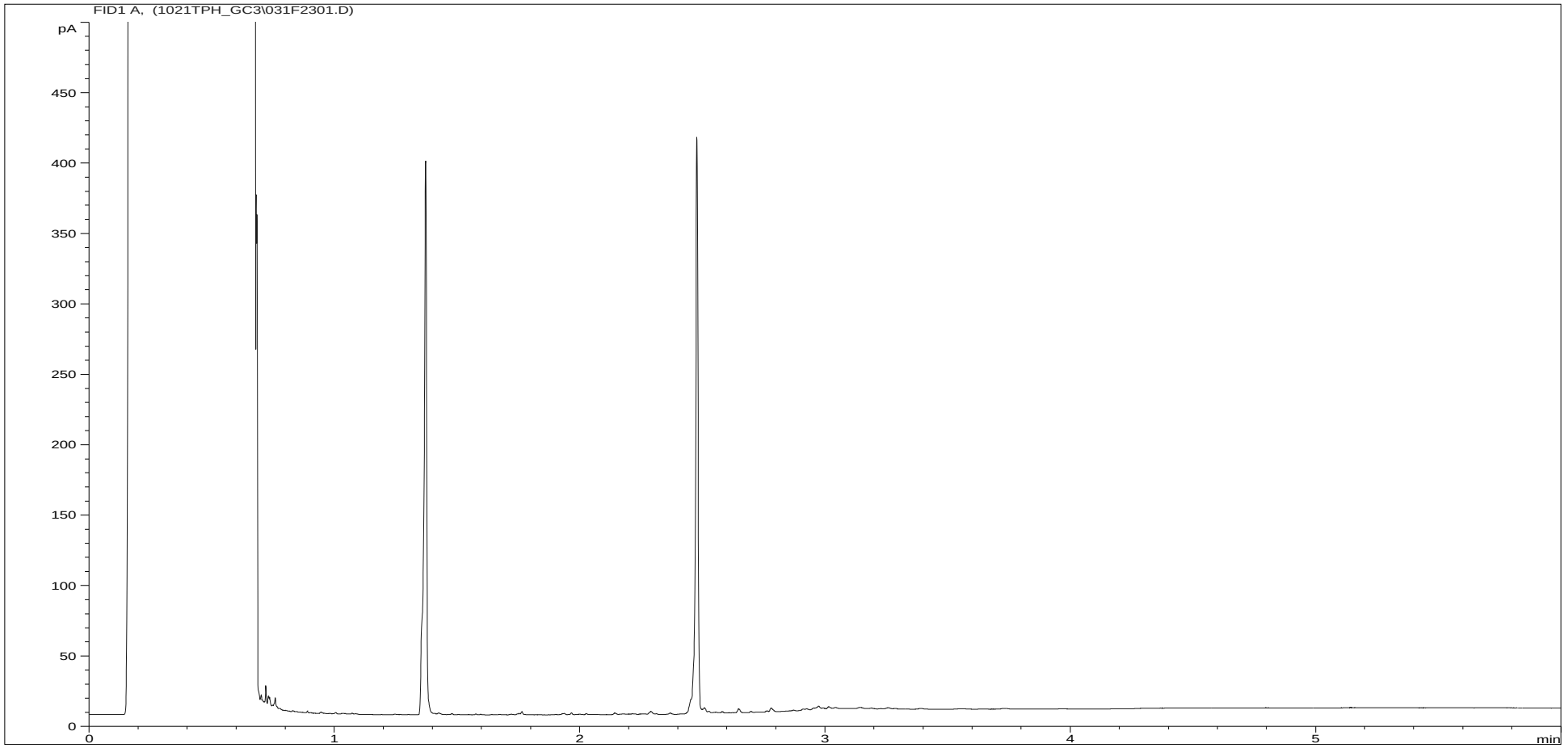
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030943	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP309 0.3
Acquisition Date/Time:	21-Oct-10, 01:01:55		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\059B6701.D		

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

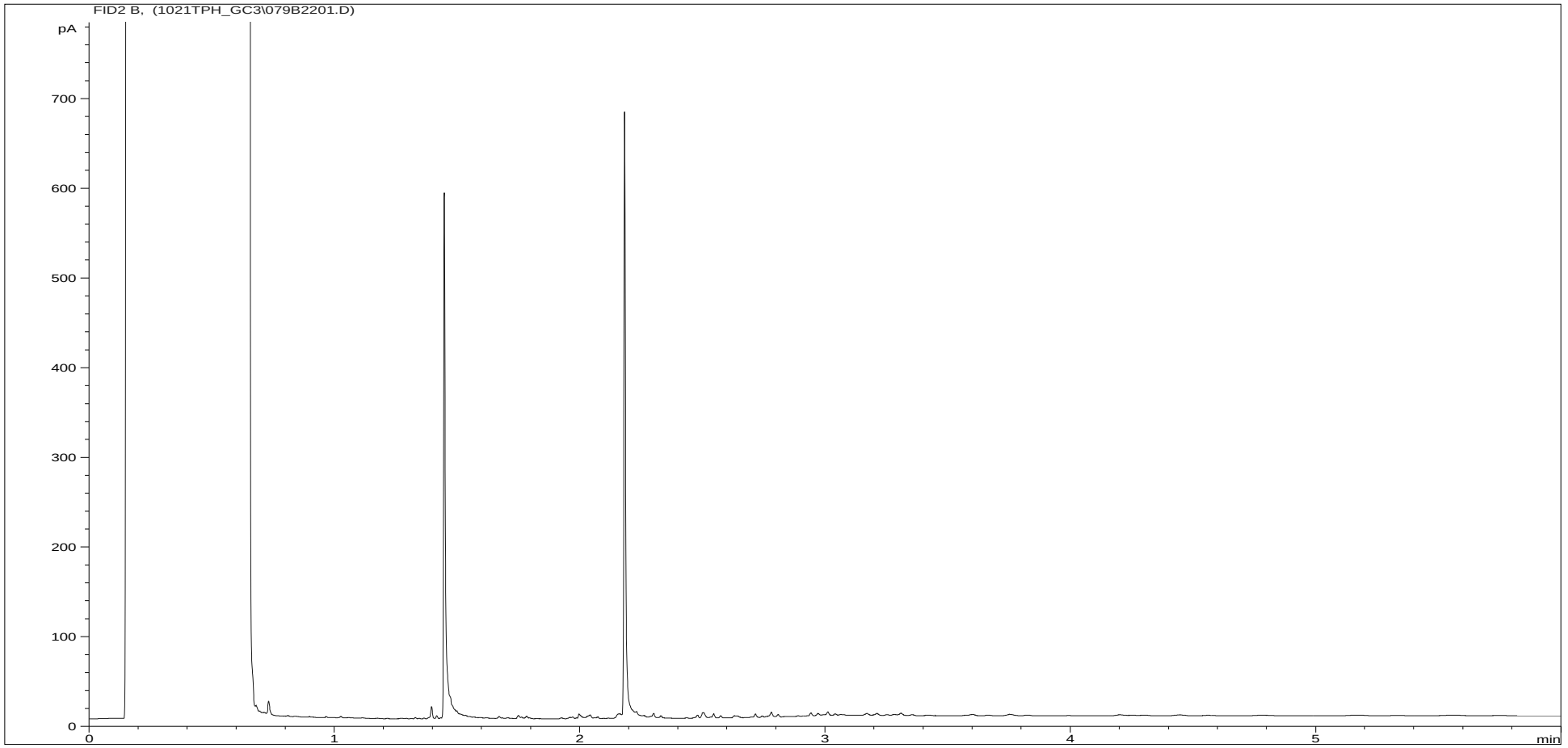
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1030944ALI	**Job Number:**	S10_7038M
Multiplier:	15.58	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	TP312 0.1
Acquisition Date/Time:	21-Oct-10		
Datafile:	D:\TES\DATA\Y2010\1021TPH_GC3\031F2301.D		

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

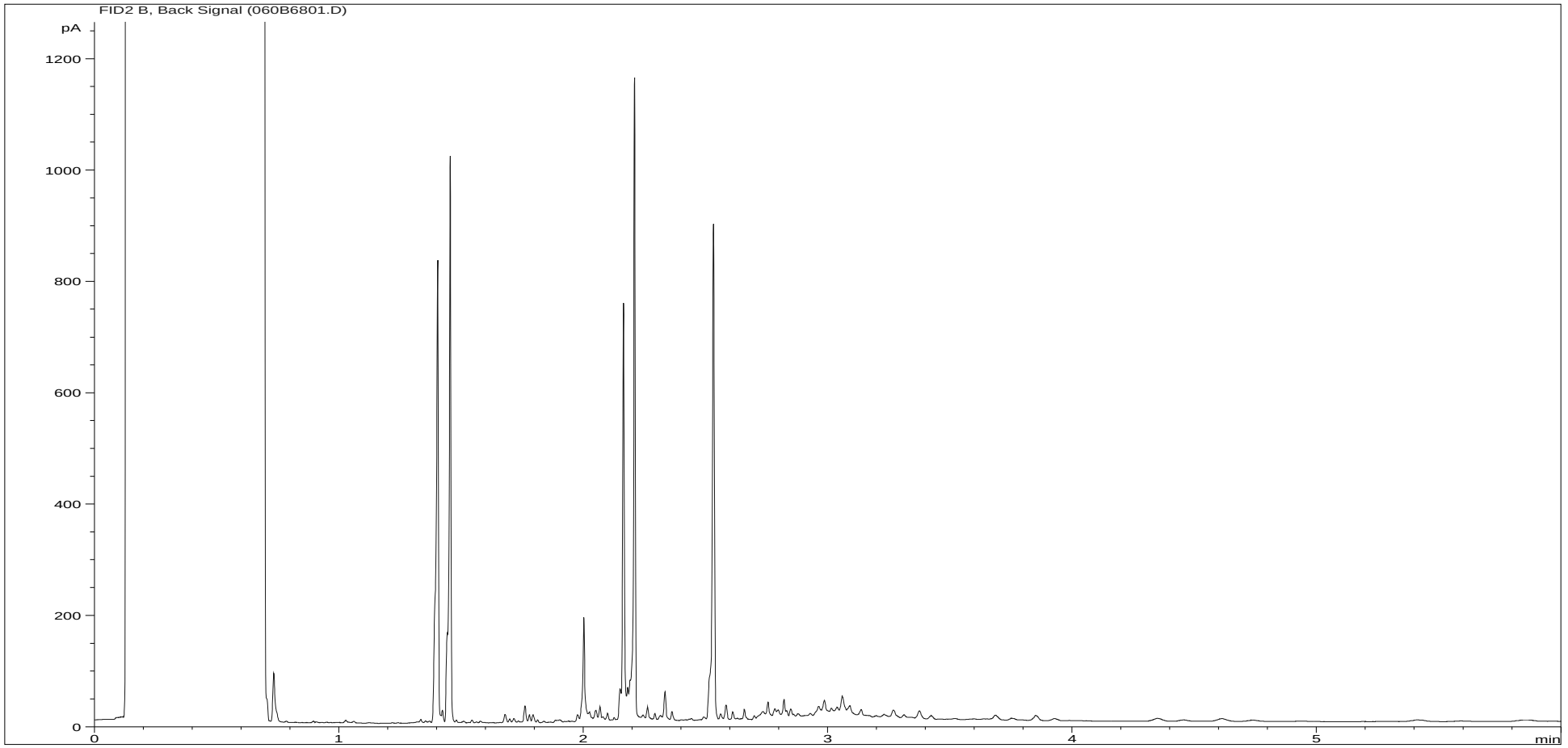
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1030944ARO	**Job Number:**	S10_7038M
Multiplier:	12.16	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	TP312 0.1
Acquisition Date/Time:	21-Oct-10		
Datafile:	D:\TES\DATA\Y2010\1021TPH_GC3\079B2201.D		

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

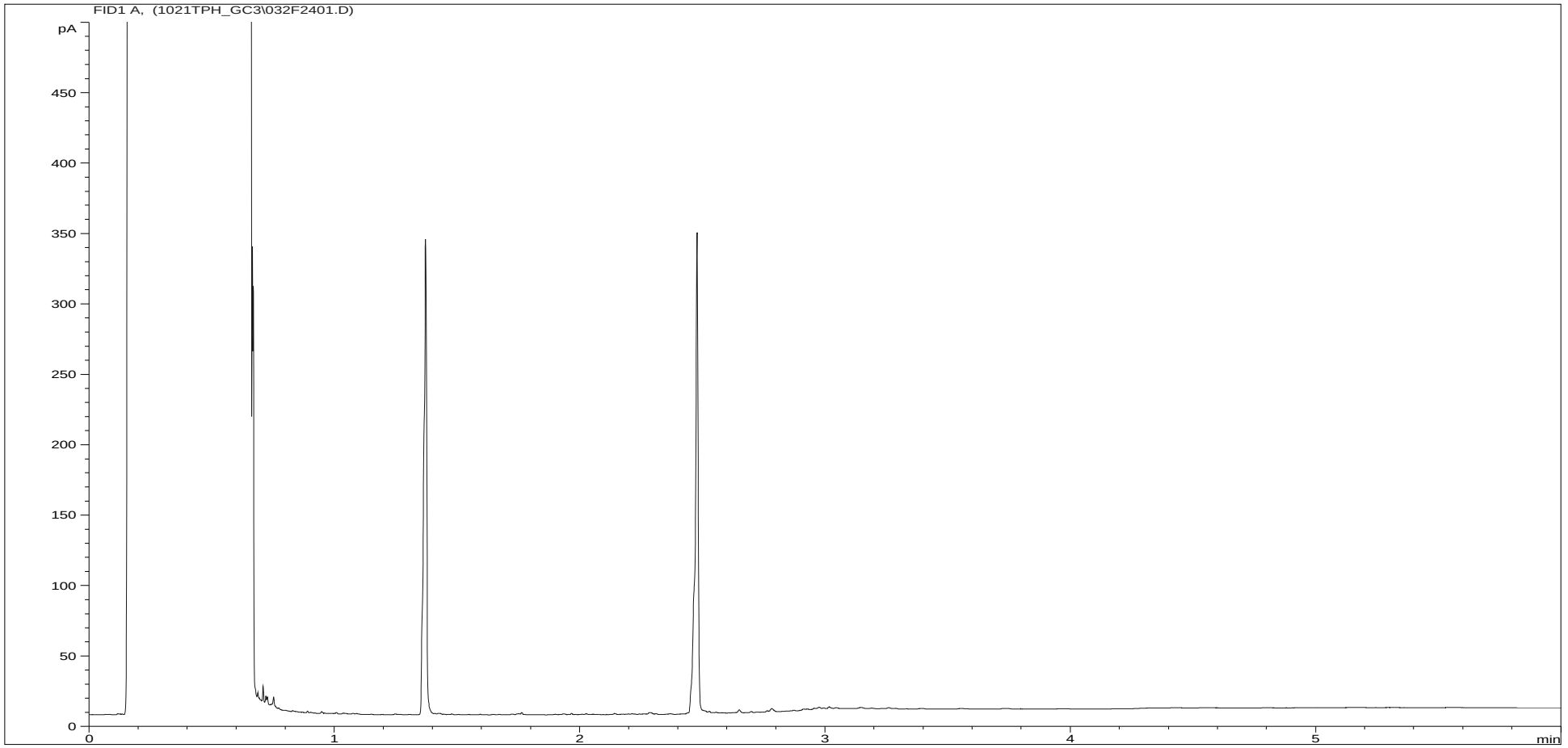
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030945	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP315 0.1
Acquisition Date/Time:	21-Oct-10, 01:14:59		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\060B6801.D		

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

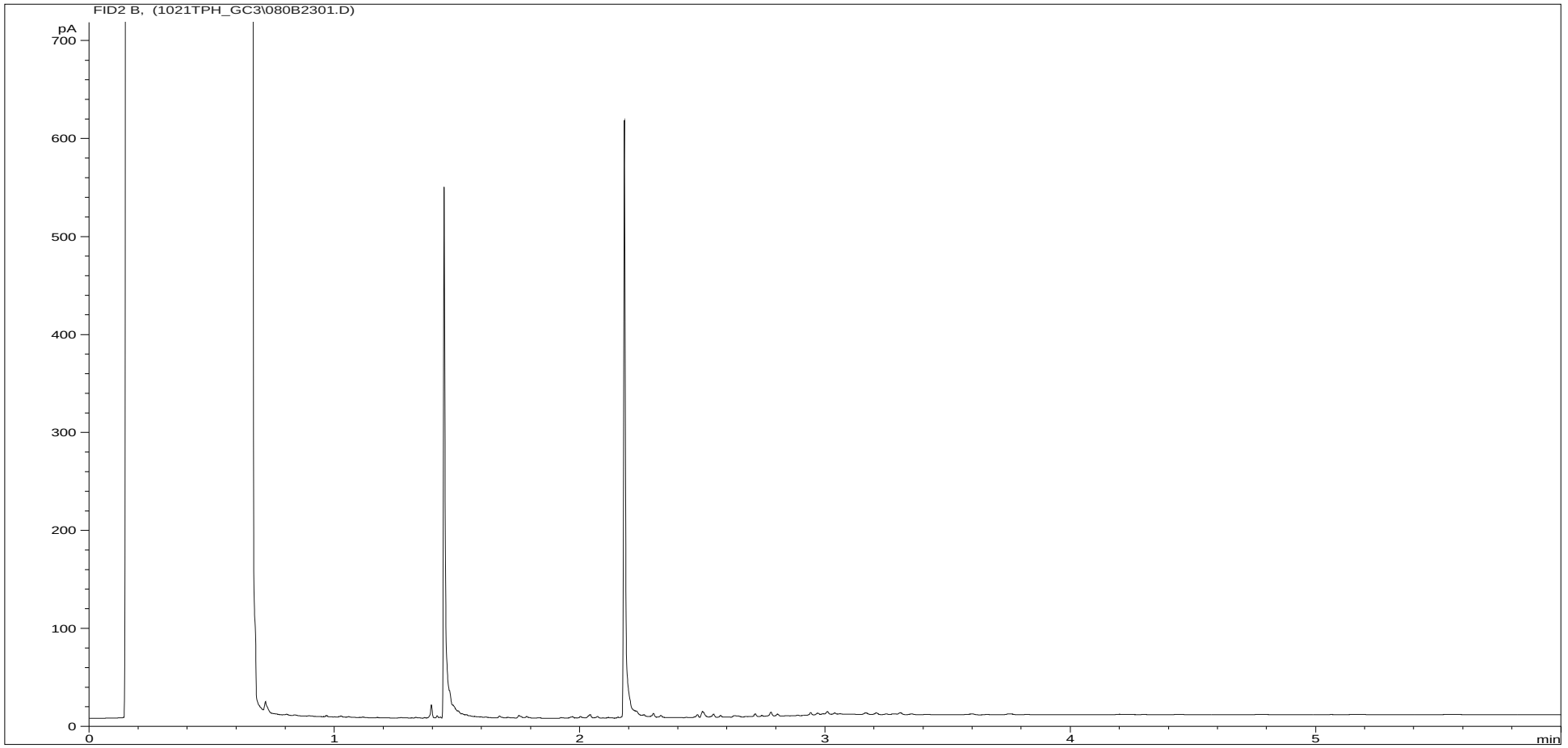
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1030946ALI	**Job Number:**	S10_7038M
Multiplier:	16.4	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	TP314 0.1
Acquisition Date/Time:	21-Oct-10		
Datafile:	D:\TES\DATA\Y2010\1021TPH_GC3\032F2401.D		

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

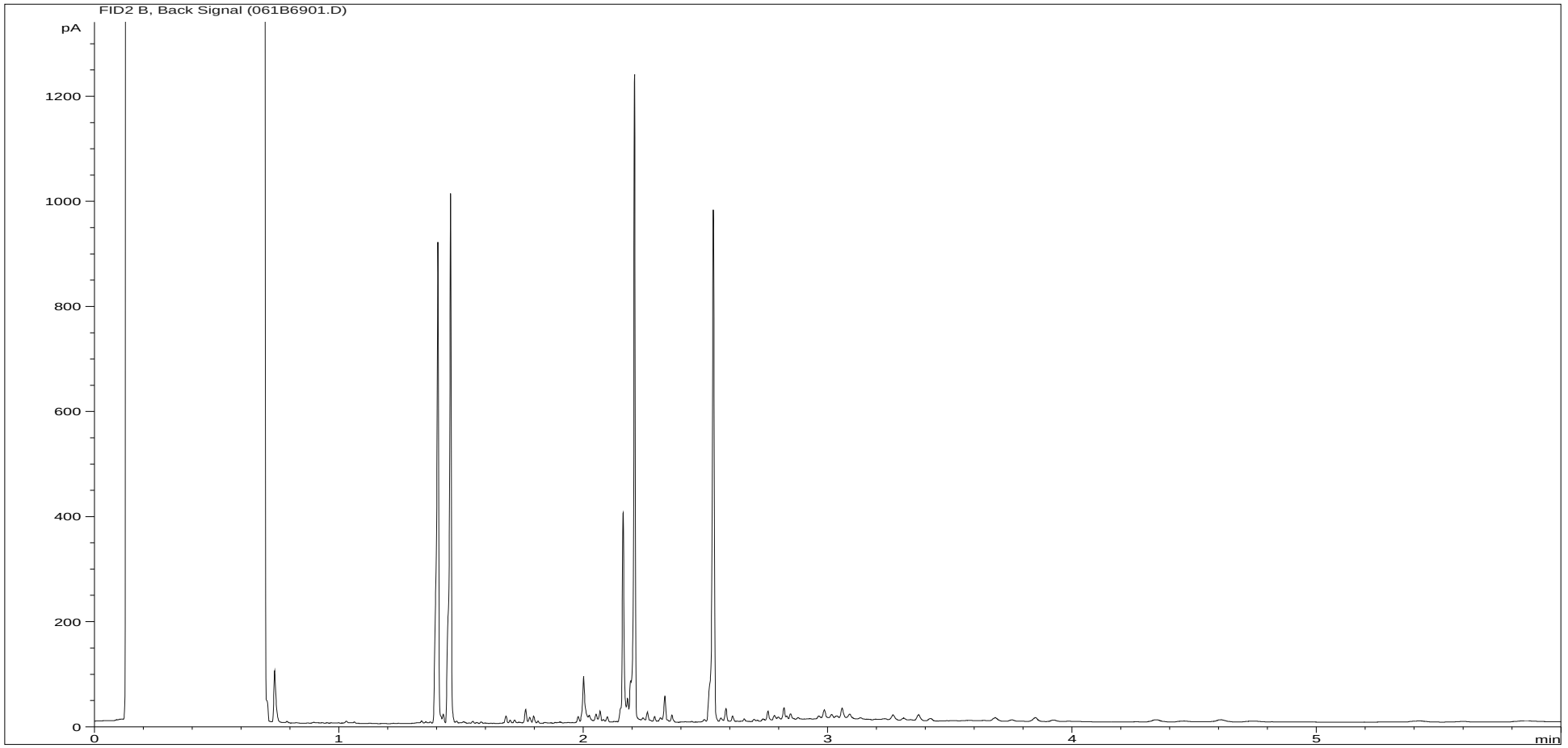
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1030946ARO	**Job Number:**	S10_7038M
Multiplier:	12.4	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	TP314 0.1
Acquisition Date/Time:	21-Oct-10		
Datafile:	D:\TES\DATA\Y2010\1021TPH_GC3\080B2301.D		

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

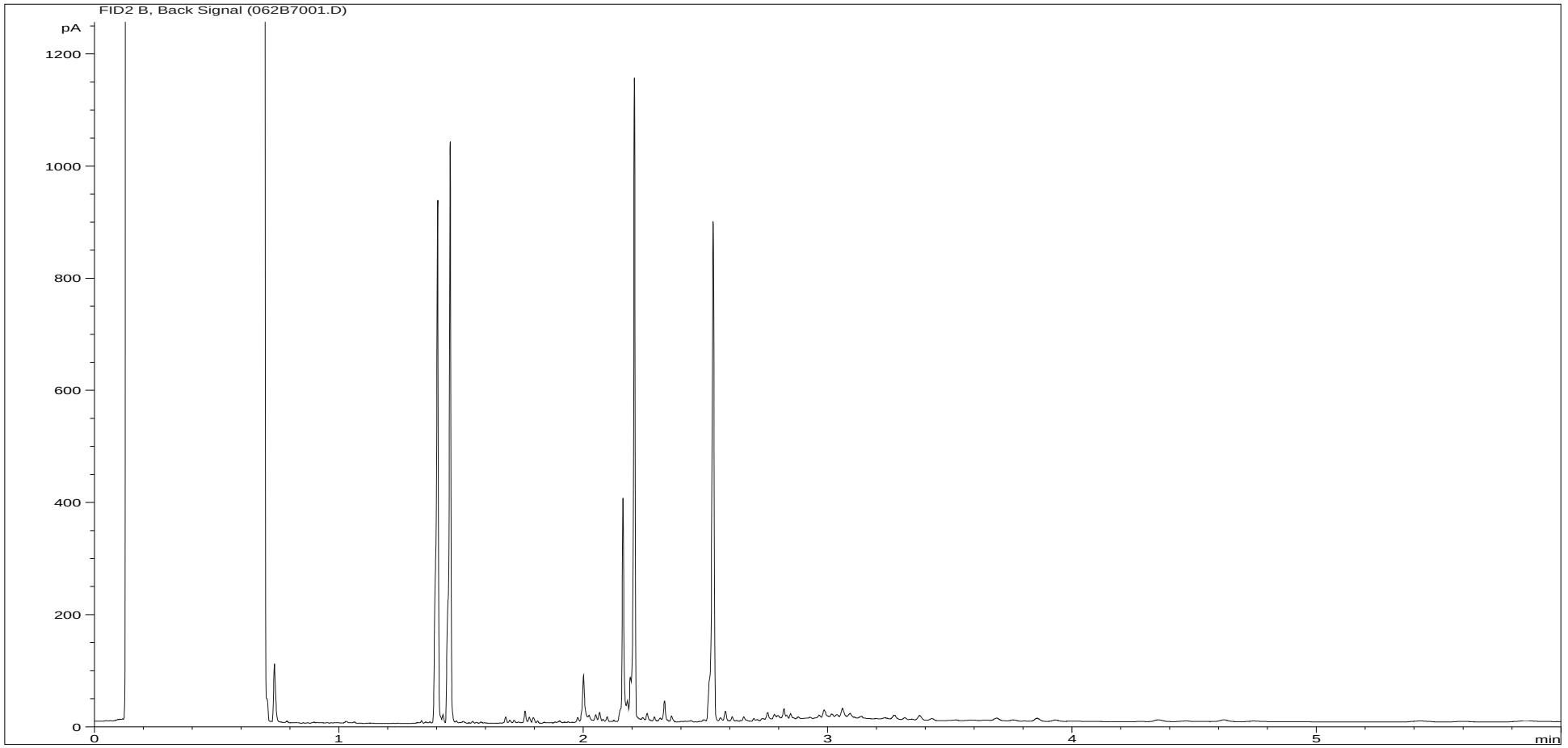
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030947	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP311 0.2
Acquisition Date/Time:	21-Oct-10, 01:27:45		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\061B6901.D		

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

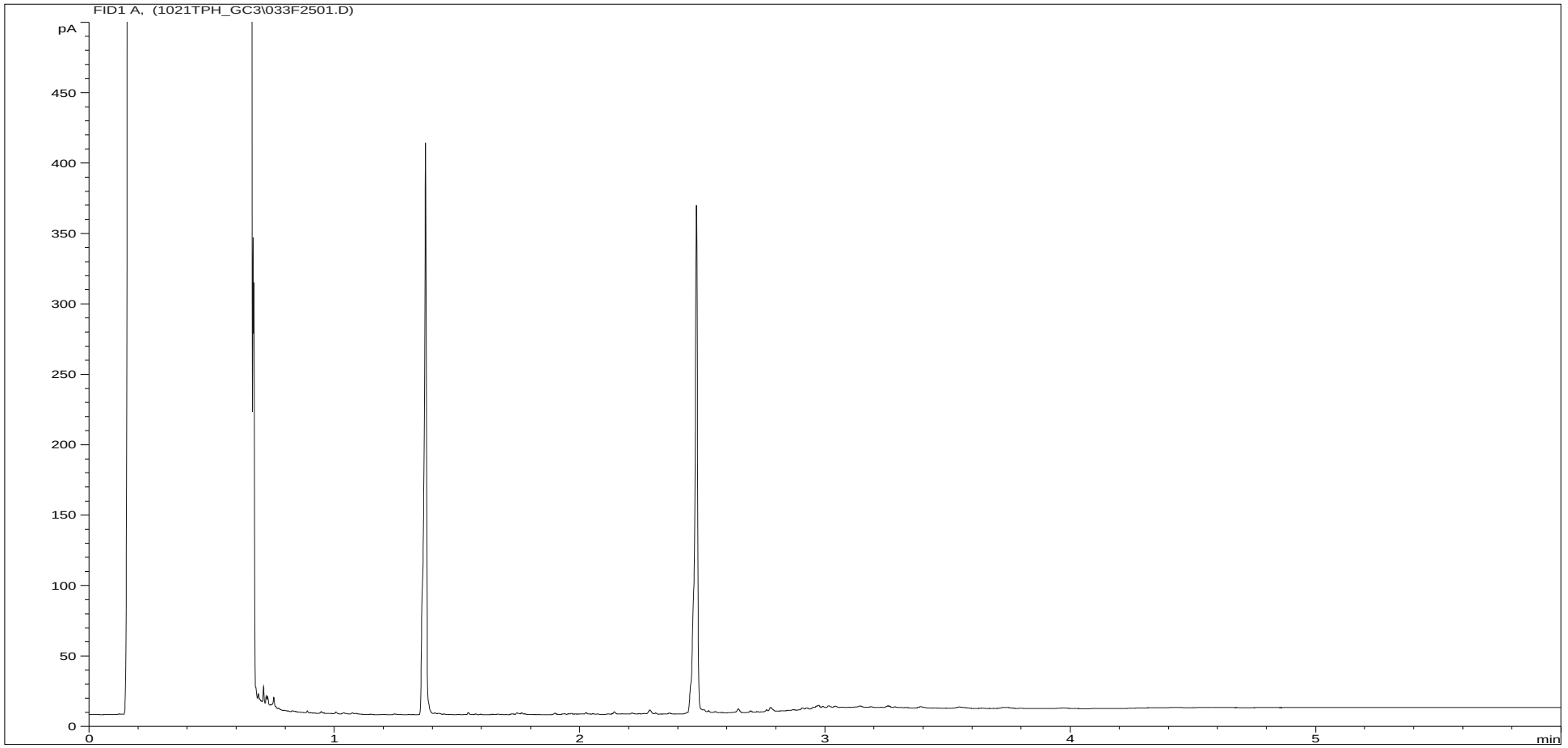
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030948	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP308 0.2
Acquisition Date/Time:	21-Oct-10, 01:39:42		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\062B7001.D		

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

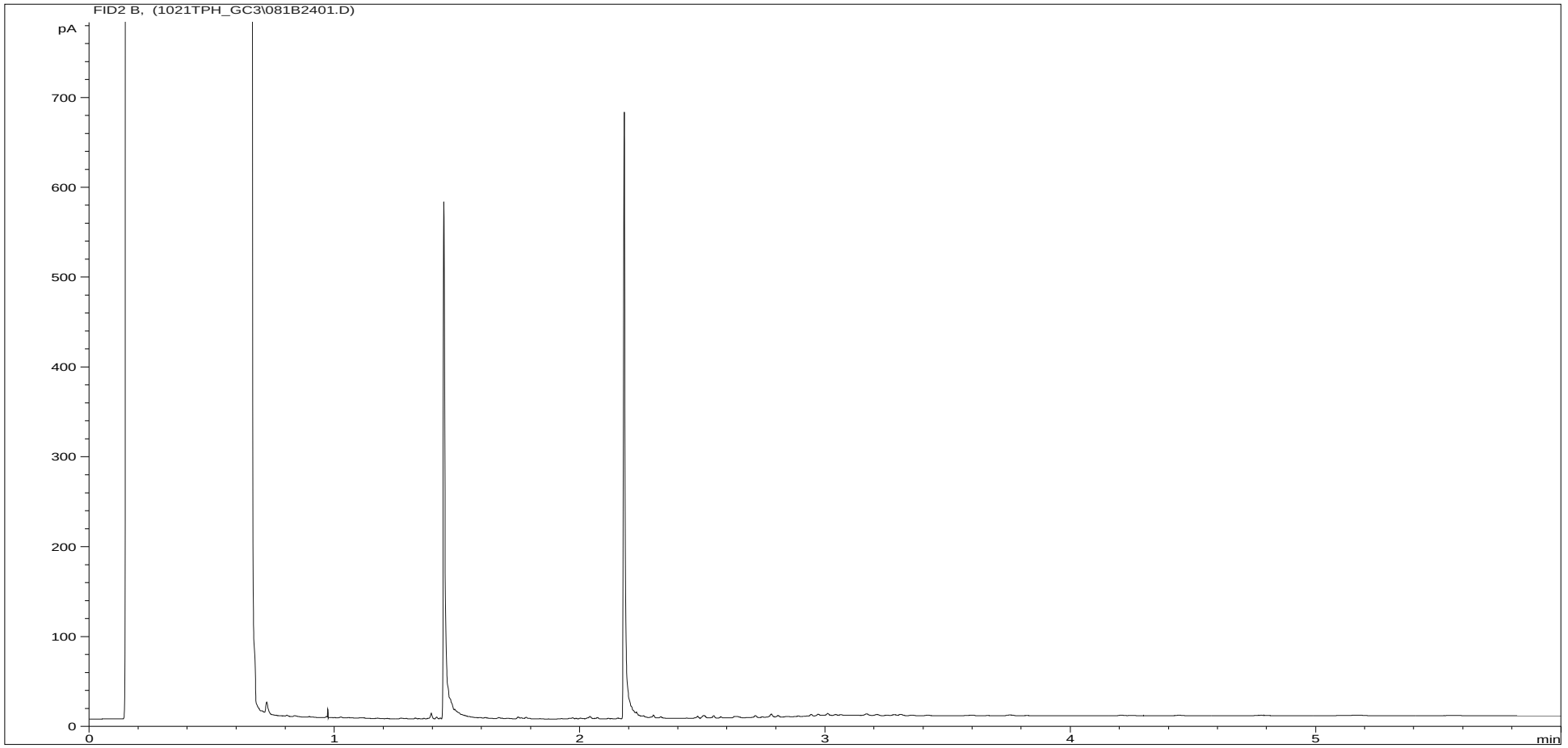
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1030949ALI	**Job Number:**	S10_7038M
Multiplier:	15.58	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	TP303 0.1
Acquisition Date/Time:	21-Oct-10		
Datafile:	D:\TES\DATA\Y2010\1021TPH_GC3\033F2501.D		

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

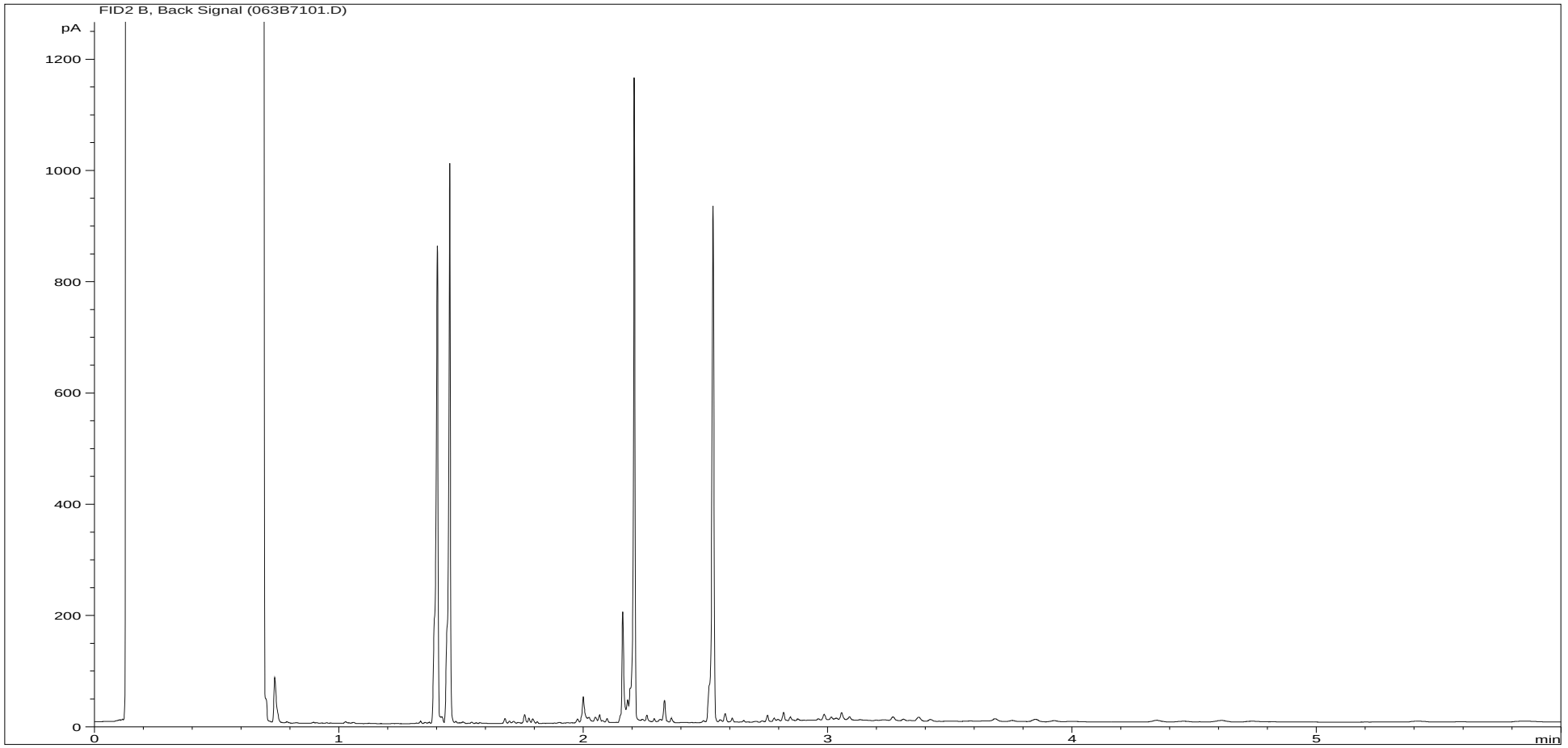
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1030949ARO	**Job Number:**	S10_7038M
Multiplier:	12.16	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	TP303 0.1
Acquisition Date/Time:	21-Oct-10		
Datafile:	D:\TES\DATA\Y2010\1021TPH_GC3\081B2401.D		

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

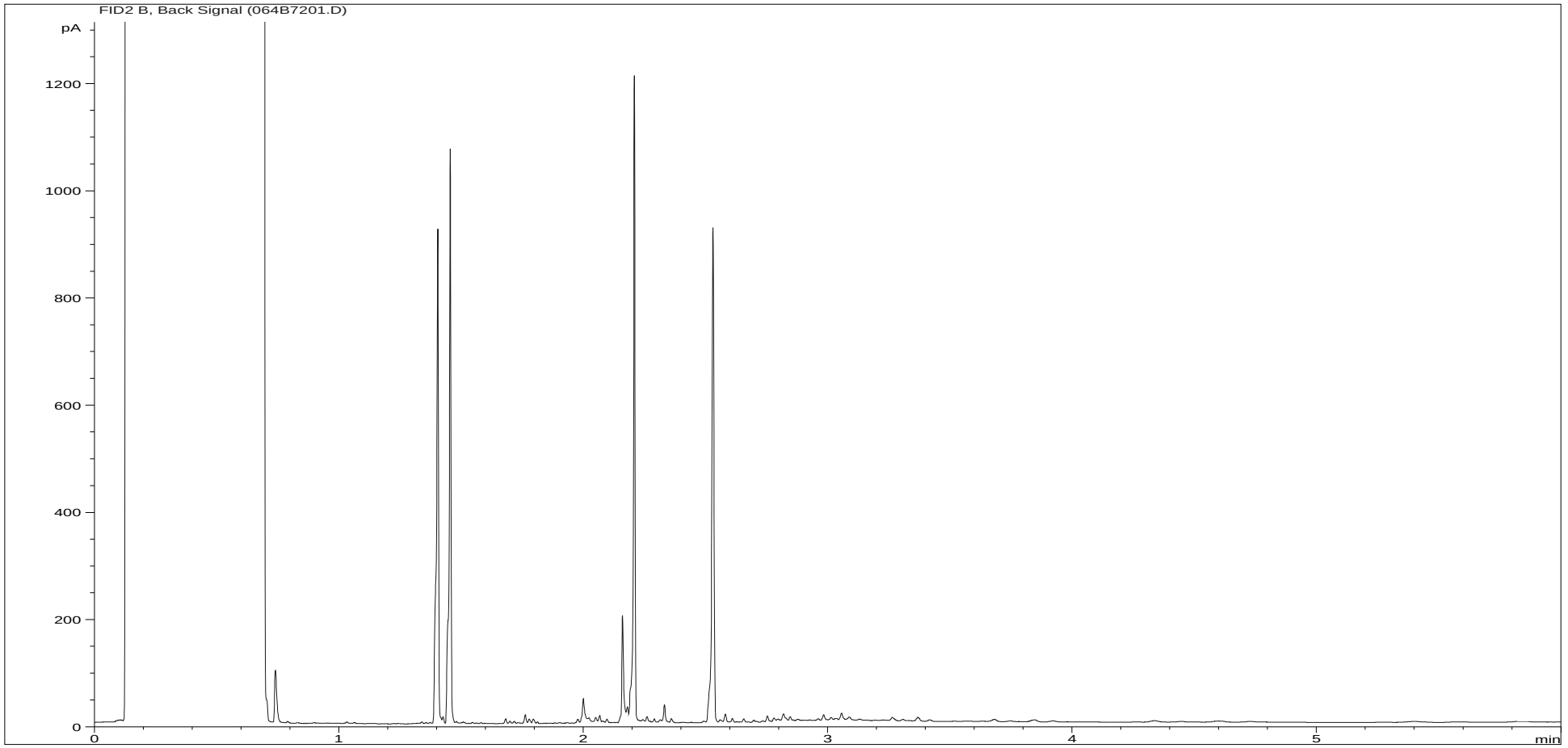
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030950	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP302 0.4
Acquisition Date/Time:	21-Oct-10, 01:51:41		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\063B7101.D		

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

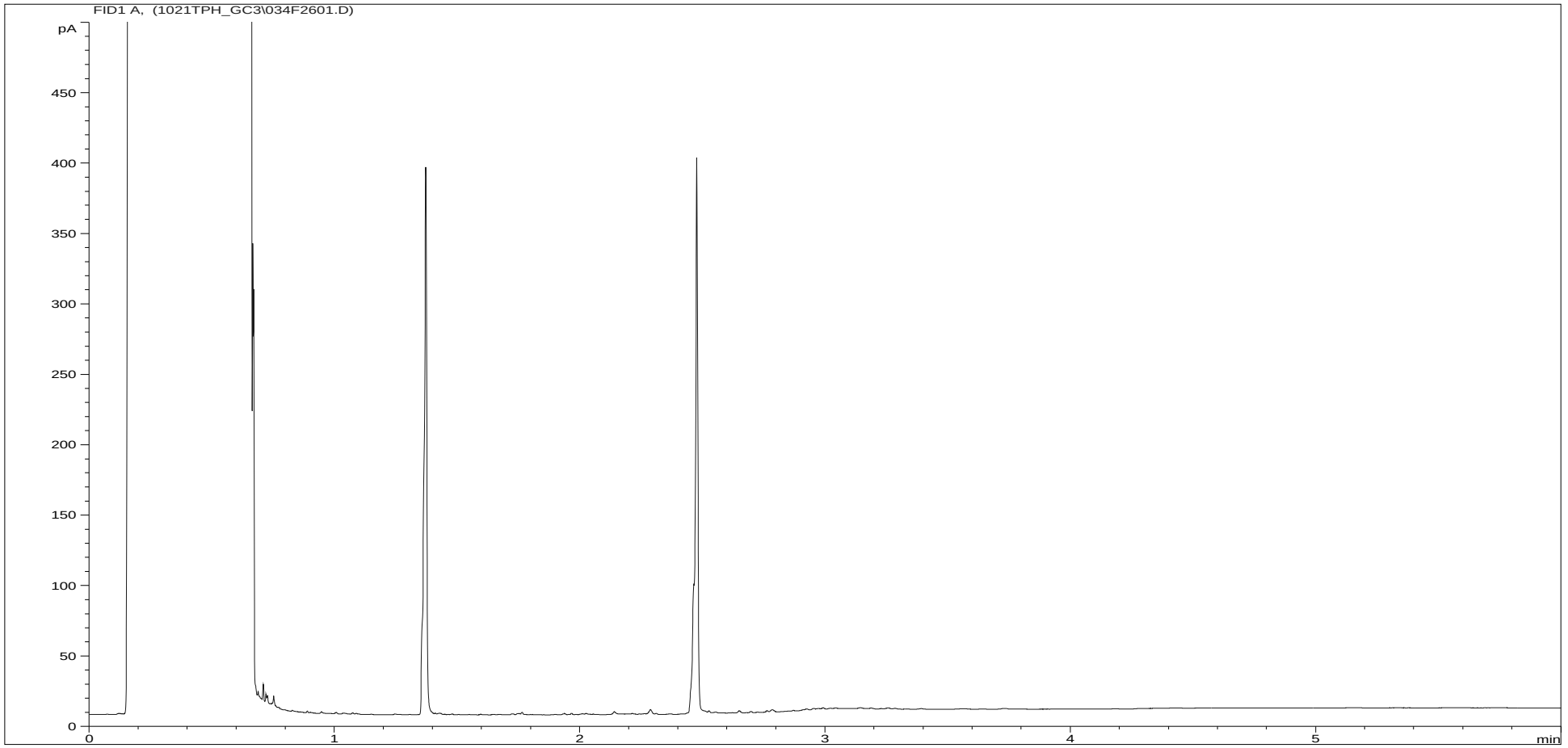
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1030951	**Job Number:**	S10_7038M
Multiplier:	8	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_MAX_RUNF.M	**Client Sample Ref:**	TP301 0.4
Acquisition Date/Time:	21-Oct-10, 02:03:45		
Datafile:	D:\TES\DATA\Y2010\1020TPH_GC14\102010 2010-10-20 10-15-56\064B7201.D		

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

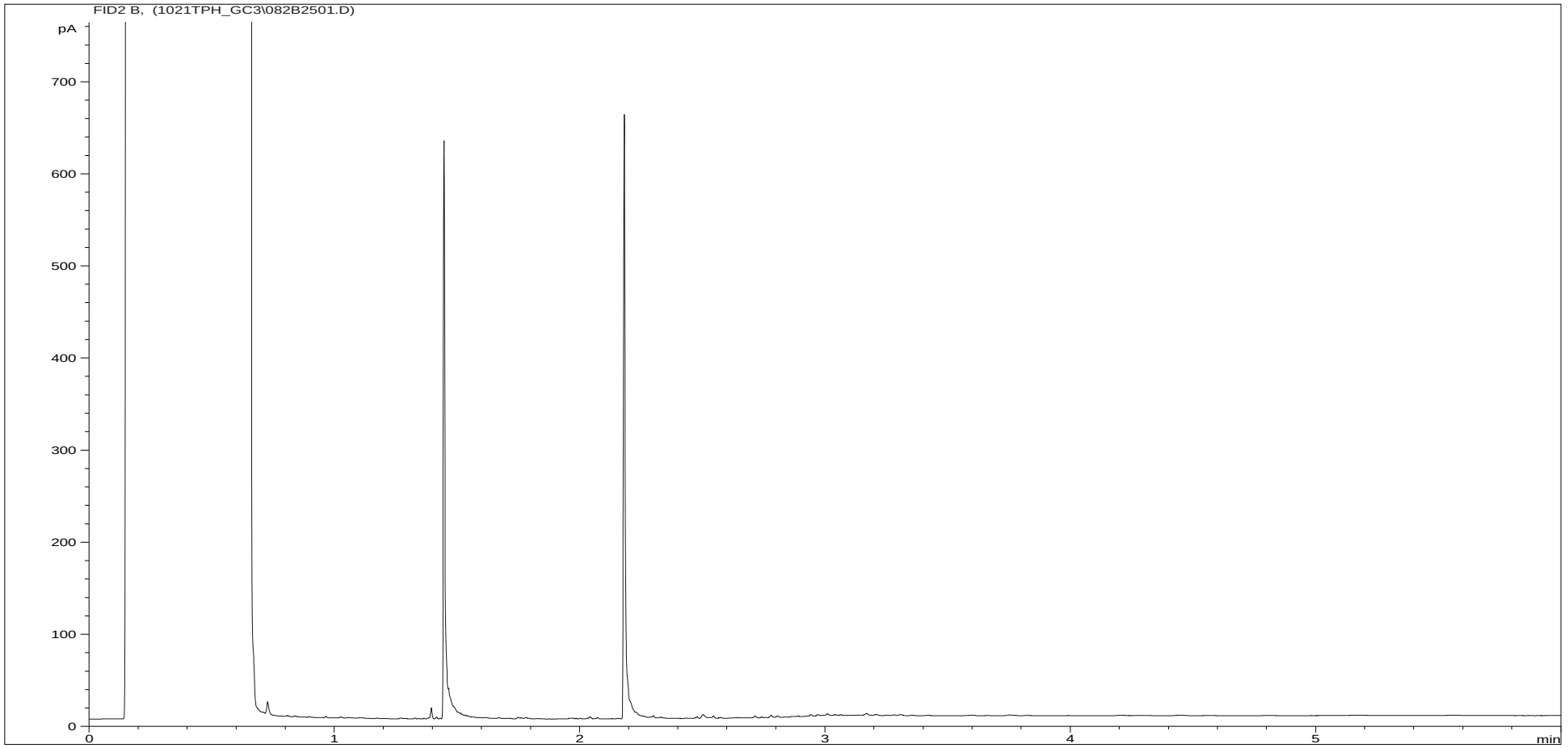
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1030952ALI	**Job Number:**	S10_7038M
Multiplier:	15.2	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	TP306 0.1
Acquisition Date/Time:	21-Oct-10		
Datafile:	D:\TES\DATA\Y2010\1021TPH_GC3\034F2601.D		

Where individual results are flagged see report notes 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:	CL1030952ARO	**Job Number:**	S10_7038M
Multiplier:	11.78	**Client:**	WYG Environment
Dilution:	1	**Site:**	SFA St Athan TF
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	TP306 0.1
Acquisition Date/Time:	21-Oct-10		
Datafile:	D:\TES\DATA\Y2010\1021TPH_GC3\082B2501.D		

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

Volatile Organic Compounds by PTGCMS

Accredited?: Yes

Customer and Site Details: WYG Environment: SFA St Athan TF
Sample Details: TP318 0.4
LIMS ID Number: CL1030934
Job Number: S10_7038M

Directory/Quant file: 010\1019VOC\ Initial Calibration
Date Booked in: 18-Oct-10
Date Analysed: 20-Oct-10
Operator: KZ

Matrix: Soil
Method: Purge & trap
Multiplier: 5
Position: 36

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Dichlorodifluoromethane	75-71-8	-	< 7	-	UM
Chloromethane	74-87-3	-	< 7	-	UM
Vinyl Chloride	75-01-4 *	-	< 7	-	N
Bromomethane	74-83-9 *	-	< 33	-	N
Chloroethane	75-00-3	-	< 33	-	UM
Trichlorofluoromethane	75-69-4	-	< 7	-	UM
1,1-Dichloroethene	75-35-4	-	< 7	-	UM
trans 1,2-Dichloroethene	156-60-5	-	< 7	-	U
1,1-Dichloroethane	75-34-3	-	< 7	-	UM
2,2-Dichloropropane	594-20-7	-	< 7	-	UM
cis 1,2-Dichloroethene	156-59-2	-	< 7	-	UM
Bromochloromethane	74-97-5	-	< 7	-	UM
Chloroform	67-66-3	-	< 7	-	UM
1,1,1-Trichloroethane	71-55-6	-	< 7	-	UM
Carbon Tetrachloride	56-23-5	-	< 7	-	UM
1,1-Dichloropropene	563-58-6	-	< 7	-	UM
Benzene	71-43-2	-	< 7	-	UM
1,2-Dichloroethane	107-06-2	-	< 7	-	UM
Trichloroethene	79-01-6	-	< 7	-	UM
1,2-Dichloropropane	78-87-5	-	< 7	-	UM
Dibromomethane	74-95-3	-	< 7	-	UM
Bromodichloromethane	75-27-4	-	< 7	-	UM
cis 1,3-Dichloropropene	10061-01-5 *	-	< 7	-	N
Toluene	108-88-3	-	< 7	-	UM
trans 1,3-Dichloropropene	10061-02-6 *	-	< 7	-	N
1,1,2-Trichloroethane	79-00-5	-	< 7	-	UM
Tetrachloroethene	127-18-4	-	< 33	-	UM
1,3-Dichloropropane	142-28-9	-	< 7	-	UM
Dibromochloromethane	124-48-1	-	< 7	-	UM
1,2-Dibromoethane	106-93-4	-	< 7	-	U
Chlorobenzene	108-90-7	-	< 7	-	UM
Ethylbenzene	100-41-4	-	< 7	-	UM
1,1,1,2-Tetrachloroethane	630-20-6	-	< 7	-	UM
m and p-Xylene	108-38-3/106-42-3	-	< 7	-	UM
o-Xylene	95-47-6	-	< 7	-	UM

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Styrene	100-42-5	-	< 7	-	UM
Bromoform	75-25-2	-	< 7	-	UM
iso-Propylbenzene	98-82-8	-	< 7	-	UM
1,1,2,2-Tetrachloroethane	79-34-5	-	< 7	-	U
Propylbenzene	103-65-1	-	< 7	-	U
Bromobenzene	108-86-1	-	< 7	-	UM
1,2,3-Trichloropropane	96-18-4	-	< 7	-	U
2-Chlorotoluene	95-49-8 **	-	< 13	-	N
1,3,5-Trimethylbenzene	108-67-8 **	-	< 13	-	N
4-Chlorotoluene	106-43-4 **	-	< 13	-	N
tert-Butylbenzene	98-06-6 **	-	< 13	-	N
1,2,4-Trimethylbenzene	95-63-6 **	-	< 13	-	N
sec-Butylbenzene	135-98-8 **	-	< 13	-	N
p-Isopropyltoluene	99-87-6 **	-	< 13	-	N
1,3-Dichlorobenzene	541-73-1 **	-	< 13	-	N
1,4-Dichlorobenzene	106-46-7 **	-	< 13	-	N
n-Butylbenzene	104-51-8 **	-	< 13	-	N
1,2-Dichlorobenzene	95-50-1 **	-	< 13	-	N
1,2-Dibromo-3-chloropropane	96-12-8 **	-	< 65	-	N
1,2,4-Trichlorobenzene	120-82-1 **	-	< 65	-	N
Hexachlorobutadiene	87-68-3 **	-	< 65	-	N
Naphthalene	91-20-3 **	-	< 65	-	N
1,2,3-Trichlorobenzene	87-61-6 **	-	< 65	-	N

Concentrations are reported on a dry weight basis

** Last internal standard low due to sample matrix effect. Detection limits for all compounds quantified by this ISD raised accordingly. These compounds are not UKAS accredited.

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	2.99	102	Dibromofluoromethane	100
1,4-Difluorobenzene	3.27	102	Toluene-d8	85
Chlorobenzene-d5	4.29	91	Bromofluorobenzene	89
1,4-Dichlorobenzene-d4	5.06	62		

This analysis was conducted on an 'As Recieved' basis.

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

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

Volatile Organic Compounds by PTGCMS

Accredited?: Yes

Customer and Site Details: WYG Environment: SFA St Athan TF
Sample Details: TP317 0.3
LIMS ID Number: CL1030937
Job Number: S10_7038M

Directory/Quant file: 010\1019VOC\ Initial Calibration
Date Booked in: 18-Oct-10
Date Analysed: 20-Oct-10
Operator: KZ

Matrix: Soil
Method: Purge & trap
Multiplier: 5
Position: 37

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Dichlorodifluoromethane	75-71-8	-	< 7	-	UM
Chloromethane	74-87-3	-	< 7	-	UM
Vinyl Chloride	75-01-4 *	-	< 7	-	N
Bromomethane	74-83-9 *	-	< 34	-	N
Chloroethane	75-00-3	-	< 34	-	UM
Trichlorofluoromethane	75-69-4	-	< 7	-	UM
1,1-Dichloroethene	75-35-4	-	< 7	-	UM
trans 1,2-Dichloroethene	156-60-5	-	< 7	-	U
1,1-Dichloroethane	75-34-3	-	< 7	-	UM
2,2-Dichloropropane	594-20-7	-	< 7	-	UM
cis 1,2-Dichloroethene	156-59-2	-	< 7	-	UM
Bromochloromethane	74-97-5	-	< 7	-	UM
Chloroform	67-66-3	-	< 7	-	UM
1,1,1-Trichloroethane	71-55-6	-	< 7	-	UM
Carbon Tetrachloride	56-23-5	-	< 7	-	UM
1,1-Dichloropropene	563-58-6	-	< 7	-	UM
Benzene	71-43-2	-	< 7	-	UM
1,2-Dichloroethane	107-06-2	-	< 7	-	UM
Trichloroethene	79-01-6	-	< 7	-	UM
1,2-Dichloropropane	78-87-5	-	< 7	-	UM
Dibromomethane	74-95-3	-	< 7	-	UM
Bromodichloromethane	75-27-4	-	< 7	-	UM
cis 1,3-Dichloropropene	10061-01-5 *	-	< 7	-	N
Toluene	108-88-3	-	< 7	-	UM
trans 1,3-Dichloropropene	10061-02-6 *	-	< 7	-	N
1,1,2-Trichloroethane	79-00-5	-	< 7	-	UM
Tetrachloroethene	127-18-4	-	< 34	-	UM
1,3-Dichloropropane	142-28-9	-	< 7	-	UM
Dibromochloromethane	124-48-1	-	< 7	-	UM
1,2-Dibromoethane	106-93-4	-	< 7	-	U
Chlorobenzene	108-90-7	-	< 7	-	UM
Ethylbenzene	100-41-4	-	< 7	-	UM
1,1,1,2-Tetrachloroethane	630-20-6	-	< 7	-	UM
m and p-Xylene	108-38-3/106-42-3	-	< 7	-	UM
o-Xylene	95-47-6	-	< 7	-	UM

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Styrene	100-42-5	-	< 7	-	UM
Bromoform	75-25-2	-	< 7	-	UM
iso-Propylbenzene	98-82-8	-	< 7	-	UM
1,1,2,2-Tetrachloroethane	79-34-5	-	< 7	-	U
Propylbenzene	103-65-1	-	< 7	-	U
Bromobenzene	108-86-1	-	< 7	-	UM
1,2,3-Trichloropropane	96-18-4	-	< 7	-	U
2-Chlorotoluene	95-49-8 **	-	< 13	-	N
1,3,5-Trimethylbenzene	108-67-8 **	-	< 13	-	N
4-Chlorotoluene	106-43-4 **	-	< 13	-	N
tert-Butylbenzene	98-06-6 **	-	< 13	-	N
1,2,4-Trimethylbenzene	95-63-6 **	-	< 13	-	N
sec-Butylbenzene	135-98-8 **	-	< 13	-	N
p-Isopropyltoluene	99-87-6 **	-	< 13	-	N
1,3-Dichlorobenzene	541-73-1 **	-	< 13	-	N
1,4-Dichlorobenzene	106-46-7 **	-	< 13	-	N
n-Butylbenzene	104-51-8 **	-	< 13	-	N
1,2-Dichlorobenzene	95-50-1 **	-	< 13	-	N
1,2-Dibromo-3-chloropropane	96-12-8 **	-	< 67	-	N
1,2,4-Trichlorobenzene	120-82-1 **	-	< 67	-	N
Hexachlorobutadiene	87-68-3 **	-	< 67	-	N
Naphthalene	91-20-3 **	-	< 67	-	N
1,2,3-Trichlorobenzene	87-61-6 **	-	< 67	-	N

Concentrations are reported on a dry weight basis

** Last internal standard low due to sample matrix effect. Detection limits for all compounds quantified by this ISD raised accordingly. These compounds are not UKAS accredited.

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	2.99	94	Dibromofluoromethane	100
1,4-Difluorobenzene	3.27	94	Toluene-d8	80
Chlorobenzene-d5	4.29	80	Bromofluorobenzene	87
1,4-Dichlorobenzene-d4	5.06	50		

This analysis was conducted on an 'As Recieved' basis.

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

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

Volatile Organic Compounds by PTGCMS

Accredited?: Yes

Customer and Site Details: WYG Environment: SFA St Athan TF
Sample Details: TP307 0.1
LIMS ID Number: CL1030941
Job Number: S10_7038M

Directory/Quant file: 010\1019VOC\ Initial Calibration
Date Booked in: 18-Oct-10
Date Analysed: 20-Oct-10
Operator: KZ

Matrix: Soil
Method: Purge & trap
Multiplier: 5
Position: 38

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Dichlorodifluoromethane	75-71-8	-	< 7	-	UM
Chloromethane	74-87-3	-	< 7	-	UM
Vinyl Chloride	75-01-4 *	-	< 7	-	N
Bromomethane	74-83-9 *	-	< 33	-	N
Chloroethane	75-00-3	-	< 33	-	UM
Trichlorofluoromethane	75-69-4	-	< 7	-	UM
1,1-Dichloroethene	75-35-4	-	< 7	-	UM
trans 1,2-Dichloroethene	156-60-5	-	< 7	-	U
1,1-Dichloroethane	75-34-3	-	< 7	-	UM
2,2-Dichloropropane	594-20-7	-	< 7	-	UM
cis 1,2-Dichloroethene	156-59-2	-	< 7	-	UM
Bromochloromethane	74-97-5	-	< 7	-	UM
Chloroform	67-66-3	-	< 7	-	UM
1,1,1-Trichloroethane	71-55-6	-	< 7	-	UM
Carbon Tetrachloride	56-23-5	-	< 7	-	UM
1,1-Dichloropropene	563-58-6	-	< 7	-	UM
Benzene	71-43-2	-	< 7	-	UM
1,2-Dichloroethane	107-06-2	-	< 7	-	UM
Trichloroethene	79-01-6	-	< 7	-	UM
1,2-Dichloropropane	78-87-5	-	< 7	-	UM
Dibromomethane	74-95-3	-	< 7	-	UM
Bromodichloromethane	75-27-4	-	< 7	-	UM
cis 1,3-Dichloropropene	10061-01-5 *	-	< 7	-	N
Toluene	108-88-3	-	< 7	-	UM
trans 1,3-Dichloropropene	10061-02-6 *	-	< 7	-	N
1,1,2-Trichloroethane	79-00-5	-	< 7	-	UM
Tetrachloroethene	127-18-4	-	< 33	-	UM
1,3-Dichloropropane	142-28-9	-	< 7	-	UM
Dibromochloromethane	124-48-1	-	< 7	-	UM
1,2-Dibromoethane	106-93-4	-	< 7	-	U
Chlorobenzene	108-90-7	-	< 7	-	UM
Ethylbenzene	100-41-4	-	< 7	-	UM
1,1,1,2-Tetrachloroethane	630-20-6	-	< 7	-	UM
m and p-Xylene	108-38-3/106-42-3	-	< 7	-	UM
o-Xylene	95-47-6	-	< 7	-	UM

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Styrene	100-42-5	-	< 7	-	UM
Bromoform	75-25-2	-	< 7	-	UM
iso-Propylbenzene	98-82-8	-	< 7	-	UM
1,1,2,2-Tetrachloroethane	79-34-5	-	< 7	-	U
Propylbenzene	103-65-1	-	< 7	-	U
Bromobenzene	108-86-1	-	< 7	-	UM
1,2,3-Trichloropropane	96-18-4	-	< 7	-	U
2-Chlorotoluene	95-49-8 **	-	< 13	-	N
1,3,5-Trimethylbenzene	108-67-8 **	-	< 13	-	N
4-Chlorotoluene	106-43-4 **	-	< 13	-	N
tert-Butylbenzene	98-06-6 **	-	< 13	-	N
1,2,4-Trimethylbenzene	95-63-6 **	-	< 13	-	N
sec-Butylbenzene	135-98-8 **	-	< 13	-	N
p-Isopropyltoluene	99-87-6 **	-	< 13	-	N
1,3-Dichlorobenzene	541-73-1 **	-	< 13	-	N
1,4-Dichlorobenzene	106-46-7 **	-	< 13	-	N
n-Butylbenzene	104-51-8 **	-	< 13	-	N
1,2-Dichlorobenzene	95-50-1 **	-	< 13	-	N
1,2-Dibromo-3-chloropropane	96-12-8 **	-	< 66	-	N
1,2,4-Trichlorobenzene	120-82-1 **	-	< 66	-	N
Hexachlorobutadiene	87-68-3 **	-	< 66	-	N
Naphthalene	91-20-3 **	-	< 66	-	N
1,2,3-Trichlorobenzene	87-61-6 **	-	< 66	-	N

Concentrations are reported on a dry weight basis

** Last internal standard low due to sample matrix effect. Detection limits for all compounds quantified by this ISD raised accordingly. These compounds are not UKAS accredited.

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	2.99	94	Dibromofluoromethane	102
1,4-Difluorobenzene	3.27	93	Toluene-d8	76
Chlorobenzene-d5	4.29	77	Bromofluorobenzene	89
1,4-Dichlorobenzene-d4	5.06	51		

This analysis was conducted on an 'As Recieved' basis.

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

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

Volatile Organic Compounds by PTGCMS

Accredited?: Yes

Customer and Site Details:	WYG Environment: SFA St Athan TF	**Directory/Quant file:**	010\1019VOC\ Initial Calibration	**Matrix:**	Soil
Sample Details:	TP304 0.1	**Date Booked in:**	18-Oct-10	**Method:**	Purge & trap
LIMS ID Number:	CL1030942	**Date Analysed:**	20-Oct-10	**Multiplier:**	5
Job Number:	S10_7038M	**Operator:**	KZ	**Position:**	39

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Dichlorodifluoromethane	75-71-8	-	< 6	-	UM
Chloromethane	74-87-3	-	< 6	-	UM
Vinyl Chloride	75-01-4 *	-	< 6	-	N
Bromomethane	74-83-9 *	-	< 32	-	N
Chloroethane	75-00-3	-	< 32	-	UM
Trichlorofluoromethane	75-69-4	-	< 6	-	UM
1,1-Dichloroethene	75-35-4	-	< 6	-	UM
trans 1,2-Dichloroethene	156-60-5	-	< 6	-	U
1,1-Dichloroethane	75-34-3	-	< 6	-	UM
2,2-Dichloropropane	594-20-7	-	< 6	-	UM
cis 1,2-Dichloroethene	156-59-2	-	< 6	-	UM
Bromochloromethane	74-97-5	-	< 6	-	UM
Chloroform	67-66-3	-	< 6	-	UM
1,1,1-Trichloroethane	71-55-6	-	< 6	-	UM
Carbon Tetrachloride	56-23-5	-	< 6	-	UM
1,1-Dichloropropene	563-58-6	-	< 6	-	UM
Benzene	71-43-2	-	< 6	-	UM
1,2-Dichloroethane	107-06-2	-	< 6	-	UM
Trichloroethene	79-01-6	-	< 6	-	UM
1,2-Dichloropropane	78-87-5	-	< 6	-	UM
Dibromomethane	74-95-3	-	< 6	-	UM
Bromodichloromethane	75-27-4	-	< 6	-	UM
cis 1,3-Dichloropropene	10061-01-5 *	-	< 6	-	N
Toluene	108-88-3	-	< 6	-	UM
trans 1,3-Dichloropropene	10061-02-6 *	-	< 6	-	N
1,1,2-Trichloroethane	79-00-5	-	< 6	-	UM
Tetrachloroethene	127-18-4	-	< 32	-	UM
1,3-Dichloropropane	142-28-9	-	< 6	-	UM
Dibromochloromethane	124-48-1	-	< 6	-	UM
1,2-Dibromoethane	106-93-4	-	< 6	-	U
Chlorobenzene	108-90-7	-	< 6	-	UM
Ethylbenzene	100-41-4	-	< 6	-	UM
1,1,1,2-Tetrachloroethane	630-20-6	-	< 6	-	UM
m and p-Xylene	108-38-3/106-42-3	-	< 6	-	UM
o-Xylene	95-47-6	-	< 6	-	UM

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Styrene	100-42-5	-	< 6	-	UM
Bromoform	75-25-2	-	< 6	-	UM
iso-Propylbenzene	98-82-8	-	< 6	-	UM
1,1,2,2-Tetrachloroethane	79-34-5	-	< 6	-	U
Propylbenzene	103-65-1	-	< 6	-	U
Bromobenzene	108-86-1	-	< 6	-	UM
1,2,3-Trichloropropane	96-18-4	-	< 6	-	U
2-Chlorotoluene	95-49-8 **	-	< 13	-	N
1,3,5-Trimethylbenzene	108-67-8 **	-	< 13	-	N
4-Chlorotoluene	106-43-4 **	-	< 13	-	N
tert-Butylbenzene	98-06-6 **	-	< 13	-	N
1,2,4-Trimethylbenzene	95-63-6 **	-	< 13	-	N
sec-Butylbenzene	135-98-8 **	-	< 13	-	N
p-Isopropyltoluene	99-87-6 **	-	< 13	-	N
1,3-Dichlorobenzene	541-73-1 **	-	< 13	-	N
1,4-Dichlorobenzene	106-46-7 **	-	< 13	-	N
n-Butylbenzene	104-51-8 **	-	< 13	-	N
1,2-Dichlorobenzene	95-50-1 **	-	< 13	-	N
1,2-Dibromo-3-chloropropane	96-12-8 **	-	< 65	-	N
1,2,4-Trichlorobenzene	120-82-1 **	-	< 65	-	N
Hexachlorobutadiene	87-68-3 **	-	< 65	-	N
Naphthalene	91-20-3 **	-	< 65	-	N
1,2,3-Trichlorobenzene	87-61-6 **	-	< 65	-	N

Concentrations are reported on a dry weight basis

** Last internal standard low due to sample matrix effect. Detection limits for all compounds quantified by this ISD raised accordingly. These compounds are not UKAS accredited.

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	2.99	98	Dibromofluoromethane	101
1,4-Difluorobenzene	3.27	96	Toluene-d8	78
Chlorobenzene-d5	4.29	80	Bromofluorobenzene	90
1,4-Dichlorobenzene-d4	5.06	53		

This analysis was conducted on an 'As Recieved' basis.

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

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

Volatile Organic Compounds by PTGCMS

Accredited?: No

Customer and Site Details: WYG Environment: SFA St Athan TF
Sample Details: TP312 0.1
LIMS ID Number: CL1030944
Job Number: S10_7038M

Directory/Quant file: 010\1019VOC\ Initial Calibration
Date Booked in: 18-Oct-10
Date Analysed: 20-Oct-10
Operator: KZ

Matrix: Soil
Method: Purge & trap
Multiplier: 5
Position: 40

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Dichlorodifluoromethane	75-71-8	-	< 7	-	N
Chloromethane	74-87-3	-	< 7	-	N
Vinyl Chloride	75-01-4	-	< 7	-	N
Bromomethane	74-83-9	-	< 34	-	N
Chloroethane	75-00-3	-	< 34	-	N
Trichlorofluoromethane	75-69-4	-	< 7	-	N
1,1-Dichloroethene	75-35-4	-	< 7	-	N
trans 1,2-Dichloroethene	156-60-5	-	< 7	-	N
1,1-Dichloroethane	75-34-3	-	< 7	-	N
2,2-Dichloropropane	594-20-7	-	< 7	-	N
cis 1,2-Dichloroethene	156-59-2	-	< 7	-	N
Bromochloromethane	74-97-5	-	< 7	-	N
Chloroform	67-66-3	-	< 7	-	N
1,1,1-Trichloroethane	71-55-6	-	< 7	-	N
Carbon Tetrachloride	56-23-5	-	< 7	-	N
1,1-Dichloropropene	563-58-6	-	< 7	-	N
Benzene	71-43-2	-	< 7	-	N
1,2-Dichloroethane	107-06-2	-	< 7	-	N
Trichloroethene	79-01-6	-	< 7	-	N
1,2-Dichloropropane	78-87-5	-	< 7	-	N
Dibromomethane	74-95-3	-	< 7	-	N
Bromodichloromethane	75-27-4	-	< 7	-	N
cis 1,3-Dichloropropene	10061-01-5	-	< 7	-	N
Toluene	108-88-3	-	< 7	-	N
trans 1,3-Dichloropropene	10061-02-6	-	< 7	-	N
1,1,2-Trichloroethane	79-00-5	-	< 7	-	N
Tetrachloroethene	127-18-4	-	< 34	-	N
1,3-Dichloropropane	142-28-9	-	< 7	-	N
Dibromochloromethane	124-48-1	-	< 7	-	N
1,2-Dibromoethane	106-93-4	-	< 7	-	N
Chlorobenzene	108-90-7	-	< 7	-	N
Ethylbenzene	100-41-4	-	< 7	-	N
1,1,1,2-Tetrachloroethane	630-20-6	-	< 7	-	N
m and p-Xylene	108-38-3/106-42-3	-	< 7	-	N
o-Xylene	95-47-6	-	< 7	-	N

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Styrene	100-42-5	-	< 7	-	N
Bromoform	75-25-2	-	< 7	-	N
iso-Propylbenzene	98-82-8	-	< 7	-	N
1,1,2,2-Tetrachloroethane	79-34-5	-	< 7	-	N
Propylbenzene	103-65-1	-	< 7	-	N
Bromobenzene	108-86-1	-	< 7	-	N
1,2,3-Trichloropropane	96-18-4	-	< 7	-	N
2-Chlorotoluene	95-49-8	-	< 7	-	N
1,3,5-Trimethylbenzene	108-67-8	-	< 7	-	N
4-Chlorotoluene	106-43-4	-	< 7	-	N
tert-Butylbenzene	98-06-6	-	< 7	-	N
1,2,4-Trimethylbenzene	95-63-6	-	< 7	-	N
sec-Butylbenzene	135-98-8	-	< 7	-	N
p-Isopropyltoluene	99-87-6	-	< 7	-	N
1,3-Dichlorobenzene	541-73-1	-	< 7	-	N
1,4-Dichlorobenzene	106-46-7	-	< 7	-	N
n-Butylbenzene	104-51-8	-	< 7	-	N
1,2-Dichlorobenzene	95-50-1	-	< 7	-	N
1,2-Dibromo-3-chloropropane	96-12-8	-	< 34	-	N
1,2,4-Trichlorobenzene	120-82-1	-	< 34	-	N
Hexachlorobutadiene	87-68-3	-	< 34	-	N
Naphthalene	91-20-3	-	< 34	-	N
1,2,3-Trichlorobenzene	87-61-6	-	< 34	-	N

Concentrations are reported on a dry weight basis

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	2.99	89	Dibromofluoromethane	102
1,4-Difluorobenzene	3.27	88	Toluene-d8	84
Chlorobenzene-d5	4.29	72	Bromofluorobenzene	84
1,4-Dichlorobenzene-d4	5.06	42		

This analysis was conducted on an 'As Recieved' basis.

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

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

Volatile Organic Compounds by PTGCMS

Accredited?: No

Customer and Site Details: WYG Environment: SFA St Athan TF
Sample Details: TP315 0.1
LIMS ID Number: CL1030945
Job Number: S10_7038M

Directory/Quant file: 010\1019VOC\ Initial Calibration
Date Booked in: 18-Oct-10
Date Analysed: 20-Oct-10
Operator: KZ

Matrix: Soil
Method: Purge & trap
Multiplier: 5
Position: 41

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Dichlorodifluoromethane	75-71-8	-	< 7	-	N
Chloromethane	74-87-3	-	< 7	-	N
Vinyl Chloride	75-01-4	-	< 7	-	N
Bromomethane	74-83-9	-	< 33	-	N
Chloroethane	75-00-3	-	< 33	-	N
Trichlorofluoromethane	75-69-4	-	< 7	-	N
1,1-Dichloroethene	75-35-4	-	< 7	-	N
trans 1,2-Dichloroethene	156-60-5	-	< 7	-	N
1,1-Dichloroethane	75-34-3	-	< 7	-	N
2,2-Dichloropropane	594-20-7	-	< 7	-	N
cis 1,2-Dichloroethene	156-59-2	-	< 7	-	N
Bromochloromethane	74-97-5	-	< 7	-	N
Chloroform	67-66-3	-	< 7	-	N
1,1,1-Trichloroethane	71-55-6	-	< 7	-	N
Carbon Tetrachloride	56-23-5	-	< 7	-	N
1,1-Dichloropropene	563-58-6	-	< 7	-	N
Benzene	71-43-2	-	< 7	-	N
1,2-Dichloroethane	107-06-2	-	< 7	-	N
Trichloroethene	79-01-6	-	< 7	-	N
1,2-Dichloropropane	78-87-5	-	< 7	-	N
Dibromomethane	74-95-3	-	< 7	-	N
Bromodichloromethane	75-27-4	-	< 7	-	N
cis 1,3-Dichloropropene	10061-01-5	-	< 7	-	N
Toluene	108-88-3	-	< 7	-	N
trans 1,3-Dichloropropene	10061-02-6	-	< 7	-	N
1,1,2-Trichloroethane	79-00-5	-	< 7	-	N
Tetrachloroethene	127-18-4	-	< 33	-	N
1,3-Dichloropropane	142-28-9	-	< 7	-	N
Dibromochloromethane	124-48-1	-	< 7	-	N
1,2-Dibromoethane	106-93-4	-	< 7	-	N
Chlorobenzene	108-90-7	-	< 7	-	N
Ethylbenzene	100-41-4	-	< 7	-	N
1,1,1,2-Tetrachloroethane	630-20-6	-	< 7	-	N
m and p-Xylene	108-38-3/106-42-3	-	< 7	-	N
o-Xylene	95-47-6	-	< 7	-	N

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Styrene	100-42-5	-	< 7	-	N
Bromoform	75-25-2	-	< 7	-	N
iso-Propylbenzene	98-82-8	-	< 7	-	N
1,1,2,2-Tetrachloroethane	79-34-5	-	< 7	-	N
Propylbenzene	103-65-1	-	< 7	-	N
Bromobenzene	108-86-1	-	< 7	-	N
1,2,3-Trichloropropane	96-18-4	-	< 7	-	N
2-Chlorotoluene	95-49-8	-	< 7	-	N
1,3,5-Trimethylbenzene	108-67-8	-	< 7	-	N
4-Chlorotoluene	106-43-4	-	< 7	-	N
tert-Butylbenzene	98-06-6	-	< 7	-	N
1,2,4-Trimethylbenzene	95-63-6	-	< 7	-	N
sec-Butylbenzene	135-98-8	-	< 7	-	N
p-Isopropyltoluene	99-87-6	-	< 7	-	N
1,3-Dichlorobenzene	541-73-1	-	< 7	-	N
1,4-Dichlorobenzene	106-46-7	-	< 7	-	N
n-Butylbenzene	104-51-8	-	< 7	-	N
1,2-Dichlorobenzene	95-50-1	-	< 7	-	N
1,2-Dibromo-3-chloropropane	96-12-8	-	< 33	-	N
1,2,4-Trichlorobenzene	120-82-1	-	< 33	-	N
Hexachlorobutadiene	87-68-3	-	< 33	-	N
Naphthalene	91-20-3	-	< 33	-	N
1,2,3-Trichlorobenzene	87-61-6	-	< 33	-	N

Concentrations are reported on a dry weight basis

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	2.99	86	Dibromofluoromethane	100
1,4-Difluorobenzene	3.27	85	Toluene-d8	79
Chlorobenzene-d5	4.29	68	Bromofluorobenzene	84
1,4-Dichlorobenzene-d4	5.06	41		

This analysis was conducted on an 'As Recieved' basis.

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

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

Volatile Organic Compounds by PTGCMS

Accredited?: No

Customer and Site Details: WYG Environment: SFA St Athan TF
Sample Details: TP314 0.1
LIMS ID Number: CL1030946
Job Number: S10_7038M

Directory/Quant file: 010\1019VOC\ Initial Calibration
Date Booked in: 18-Oct-10
Date Analysed: 20-Oct-10
Operator: KZ

Matrix: Soil
Method: Purge & trap
Multiplier: 5
Position: 42

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Dichlorodifluoromethane	75-71-8	-	< 7	-	N
Chloromethane	74-87-3	-	< 7	-	N
Vinyl Chloride	75-01-4	-	< 7	-	N
Bromomethane	74-83-9	-	< 34	-	N
Chloroethane	75-00-3	-	< 34	-	N
Trichlorofluoromethane	75-69-4	-	< 7	-	N
1,1-Dichloroethene	75-35-4	-	< 7	-	N
trans 1,2-Dichloroethene	156-60-5	-	< 7	-	N
1,1-Dichloroethane	75-34-3	-	< 7	-	N
2,2-Dichloropropane	594-20-7	-	< 7	-	N
cis 1,2-Dichloroethene	156-59-2	-	< 7	-	N
Bromochloromethane	74-97-5	-	< 7	-	N
Chloroform	67-66-3	-	< 7	-	N
1,1,1-Trichloroethane	71-55-6	-	< 7	-	N
Carbon Tetrachloride	56-23-5	-	< 7	-	N
1,1-Dichloropropene	563-58-6	-	< 7	-	N
Benzene	71-43-2	-	< 7	-	N
1,2-Dichloroethane	107-06-2	-	< 7	-	N
Trichloroethene	79-01-6	-	< 7	-	N
1,2-Dichloropropane	78-87-5	-	< 7	-	N
Dibromomethane	74-95-3	-	< 7	-	N
Bromodichloromethane	75-27-4	-	< 7	-	N
cis 1,3-Dichloropropene	10061-01-5	-	< 7	-	N
Toluene	108-88-3	-	< 7	-	N
trans 1,3-Dichloropropene	10061-02-6	-	< 7	-	N
1,1,2-Trichloroethane	79-00-5	-	< 7	-	N
Tetrachloroethene	127-18-4	-	< 34	-	N
1,3-Dichloropropane	142-28-9	-	< 7	-	N
Dibromochloromethane	124-48-1	-	< 7	-	N
1,2-Dibromoethane	106-93-4	-	< 7	-	N
Chlorobenzene	108-90-7	-	< 7	-	N
Ethylbenzene	100-41-4	-	< 7	-	N
1,1,1,2-Tetrachloroethane	630-20-6	-	< 7	-	N
m and p-Xylene	108-38-3/106-42-3	-	< 7	-	N
o-Xylene	95-47-6	-	< 7	-	N

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Styrene	100-42-5	-	< 7	-	N
Bromoform	75-25-2	-	< 7	-	N
iso-Propylbenzene	98-82-8	-	< 7	-	N
1,1,2,2-Tetrachloroethane	79-34-5	-	< 7	-	N
Propylbenzene	103-65-1	-	< 7	-	N
Bromobenzene	108-86-1	-	< 7	-	N
1,2,3-Trichloropropane	96-18-4	-	< 7	-	N
2-Chlorotoluene	95-49-8	-	< 7	-	N
1,3,5-Trimethylbenzene	108-67-8	-	< 7	-	N
4-Chlorotoluene	106-43-4	-	< 7	-	N
tert-Butylbenzene	98-06-6	-	< 7	-	N
1,2,4-Trimethylbenzene	95-63-6	-	< 7	-	N
sec-Butylbenzene	135-98-8	-	< 7	-	N
p-Isopropyltoluene	99-87-6	-	< 7	-	N
1,3-Dichlorobenzene	541-73-1	-	< 7	-	N
1,4-Dichlorobenzene	106-46-7	-	< 7	-	N
n-Butylbenzene	104-51-8	-	< 7	-	N
1,2-Dichlorobenzene	95-50-1	-	< 7	-	N
1,2-Dibromo-3-chloropropane	96-12-8	-	< 34	-	N
1,2,4-Trichlorobenzene	120-82-1	-	< 34	-	N
Hexachlorobutadiene	87-68-3	-	< 34	-	N
Naphthalene	91-20-3	-	< 34	-	N
1,2,3-Trichlorobenzene	87-61-6	-	< 34	-	N

Concentrations are reported on a dry weight basis

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	2.99	88	Dibromofluoromethane	101
1,4-Difluorobenzene	3.27	87	Toluene-d8	81
Chlorobenzene-d5	4.29	70	Bromofluorobenzene	83
1,4-Dichlorobenzene-d4	5.06	43		

This analysis was conducted on an 'As Recieved' basis.

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

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

Volatile Organic Compounds by PTGCMS

Accredited?: Yes

Customer and Site Details: WYG Environment: SFA St Athan TF
Sample Details: TP311 0.2
LIMS ID Number: CL1030947
Job Number: S10_7038M

Directory/Quant file: 010\1019VOC\ Initial Calibration
Date Booked in: 18-Oct-10
Date Analysed: 20-Oct-10
Operator: KZ

Matrix: Soil
Method: Purge & trap
Multiplier: 5
Position: 43

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Dichlorodifluoromethane	75-71-8	-	< 7	-	UM
Chloromethane	74-87-3	-	< 7	-	UM
Vinyl Chloride	75-01-4 *	-	< 7	-	N
Bromomethane	74-83-9 *	-	< 33	-	N
Chloroethane	75-00-3	-	< 33	-	UM
Trichlorofluoromethane	75-69-4	-	< 7	-	UM
1,1-Dichloroethene	75-35-4	-	< 7	-	UM
trans 1,2-Dichloroethene	156-60-5	-	< 7	-	U
1,1-Dichloroethane	75-34-3	-	< 7	-	UM
2,2-Dichloropropane	594-20-7	-	< 7	-	UM
cis 1,2-Dichloroethene	156-59-2	-	< 7	-	UM
Bromochloromethane	74-97-5	-	< 7	-	UM
Chloroform	67-66-3	-	< 7	-	UM
1,1,1-Trichloroethane	71-55-6	-	< 7	-	UM
Carbon Tetrachloride	56-23-5	-	< 7	-	UM
1,1-Dichloropropene	563-58-6	-	< 7	-	UM
Benzene	71-43-2	-	< 7	-	UM
1,2-Dichloroethane	107-06-2	-	< 7	-	UM
Trichloroethene	79-01-6	-	< 7	-	UM
1,2-Dichloropropane	78-87-5	-	< 7	-	UM
Dibromomethane	74-95-3	-	< 7	-	UM
Bromodichloromethane	75-27-4	-	< 7	-	UM
cis 1,3-Dichloropropene	10061-01-5 *	-	< 7	-	N
Toluene	108-88-3	-	< 7	-	UM
trans 1,3-Dichloropropene	10061-02-6 *	-	< 7	-	N
1,1,2-Trichloroethane	79-00-5	-	< 7	-	UM
Tetrachloroethene	127-18-4	-	< 33	-	UM
1,3-Dichloropropane	142-28-9	-	< 7	-	UM
Dibromochloromethane	124-48-1	-	< 7	-	UM
1,2-Dibromoethane	106-93-4	-	< 7	-	U
Chlorobenzene	108-90-7	-	< 7	-	UM
Ethylbenzene	100-41-4	-	< 7	-	UM
1,1,1,2-Tetrachloroethane	630-20-6	-	< 7	-	UM
m and p-Xylene	108-38-3/106-42-3	-	< 7	-	UM
o-Xylene	95-47-6	-	< 7	-	UM

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Styrene	100-42-5	-	< 7	-	UM
Bromoform	75-25-2	-	< 7	-	UM
iso-Propylbenzene	98-82-8	-	< 7	-	UM
1,1,2,2-Tetrachloroethane	79-34-5	-	< 7	-	U
Propylbenzene	103-65-1	-	< 7	-	U
Bromobenzene	108-86-1	-	< 7	-	UM
1,2,3-Trichloropropane	96-18-4	-	< 7	-	U
2-Chlorotoluene	95-49-8 **	-	< 13	-	N
1,3,5-Trimethylbenzene	108-67-8 **	-	< 13	-	N
4-Chlorotoluene	106-43-4 **	-	< 13	-	N
tert-Butylbenzene	98-06-6 **	-	< 13	-	N
1,2,4-Trimethylbenzene	95-63-6 **	-	< 13	-	N
sec-Butylbenzene	135-98-8 **	-	< 13	-	N
p-Isopropyltoluene	99-87-6 **	-	< 13	-	N
1,3-Dichlorobenzene	541-73-1 **	-	< 13	-	N
1,4-Dichlorobenzene	106-46-7 **	-	< 13	-	N
n-Butylbenzene	104-51-8 **	-	< 13	-	N
1,2-Dichlorobenzene	95-50-1 **	-	< 13	-	N
1,2-Dibromo-3-chloropropane	96-12-8 **	-	< 65	-	N
1,2,4-Trichlorobenzene	120-82-1 **	-	< 65	-	N
Hexachlorobutadiene	87-68-3 **	-	< 65	-	N
Naphthalene	91-20-3 **	-	< 65	-	N
1,2,3-Trichlorobenzene	87-61-6 **	-	< 65	-	N

Concentrations are reported on a dry weight basis

** Last internal standard low due to sample matrix effect. Detection limits for all compounds quantified by this ISD raised accordingly. These compounds are not UKAS accredited.

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	2.99	93	Dibromofluoromethane	101
1,4-Difluorobenzene	3.27	93	Toluene-d8	83
Chlorobenzene-d5	4.29	79	Bromofluorobenzene	86
1,4-Dichlorobenzene-d4	5.06	50		

This analysis was conducted on an 'As Recieved' basis.

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

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

Volatile Organic Compounds by PTGCMS

Accredited?: No

Customer and Site Details: WYG Environment: SFA St Athan TF
Sample Details: TP303 0.1
LIMS ID Number: CL1030949
Job Number: S10_7038M

Directory/Quant file: 010\1019VOC\ Initial Calibration
Date Booked in: 18-Oct-10
Date Analysed: 20-Oct-10
Operator: KZ

Matrix: Soil
Method: Purge & trap
Multiplier: 5
Position: 44

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Dichlorodifluoromethane	75-71-8	-	< 7	-	N
Chloromethane	74-87-3	-	< 7	-	N
Vinyl Chloride	75-01-4	-	< 7	-	N
Bromomethane	74-83-9	-	< 33	-	N
Chloroethane	75-00-3	-	< 33	-	N
Trichlorofluoromethane	75-69-4	-	< 7	-	N
1,1-Dichloroethene	75-35-4	-	< 7	-	N
trans 1,2-Dichloroethene	156-60-5	-	< 7	-	N
1,1-Dichloroethane	75-34-3	-	< 7	-	N
2,2-Dichloropropane	594-20-7	-	< 7	-	N
cis 1,2-Dichloroethene	156-59-2	-	< 7	-	N
Bromochloromethane	74-97-5	-	< 7	-	N
Chloroform	67-66-3	-	< 7	-	N
1,1,1-Trichloroethane	71-55-6	-	< 7	-	N
Carbon Tetrachloride	56-23-5	-	< 7	-	N
1,1-Dichloropropene	563-58-6	-	< 7	-	N
Benzene	71-43-2	-	< 7	-	N
1,2-Dichloroethane	107-06-2	-	< 7	-	N
Trichloroethene	79-01-6	-	< 7	-	N
1,2-Dichloropropane	78-87-5	-	< 7	-	N
Dibromomethane	74-95-3	-	< 7	-	N
Bromodichloromethane	75-27-4	-	< 7	-	N
cis 1,3-Dichloropropene	10061-01-5	-	< 7	-	N
Toluene	108-88-3	-	< 7	-	N
trans 1,3-Dichloropropene	10061-02-6	-	< 7	-	N
1,1,2-Trichloroethane	79-00-5	-	< 7	-	N
Tetrachloroethene	127-18-4	-	< 33	-	N
1,3-Dichloropropane	142-28-9	-	< 7	-	N
Dibromochloromethane	124-48-1	-	< 7	-	N
1,2-Dibromoethane	106-93-4	-	< 7	-	N
Chlorobenzene	108-90-7	-	< 7	-	N
Ethylbenzene	100-41-4	-	< 7	-	N
1,1,1,2-Tetrachloroethane	630-20-6	-	< 7	-	N
m and p-Xylene	108-38-3/106-42-3	-	< 7	-	N
o-Xylene	95-47-6	-	< 7	-	N

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Styrene	100-42-5	-	< 7	-	N
Bromoform	75-25-2	-	< 7	-	N
iso-Propylbenzene	98-82-8	-	< 7	-	N
1,1,2,2-Tetrachloroethane	79-34-5	-	< 7	-	N
Propylbenzene	103-65-1	-	< 7	-	N
Bromobenzene	108-86-1	-	< 7	-	N
1,2,3-Trichloropropane	96-18-4	-	< 7	-	N
2-Chlorotoluene	95-49-8	-	< 7	-	N
1,3,5-Trimethylbenzene	108-67-8	-	< 7	-	N
4-Chlorotoluene	106-43-4	-	< 7	-	N
tert-Butylbenzene	98-06-6	-	< 7	-	N
1,2,4-Trimethylbenzene	95-63-6	-	< 7	-	N
sec-Butylbenzene	135-98-8	-	< 7	-	N
p-Isopropyltoluene	99-87-6	-	< 7	-	N
1,3-Dichlorobenzene	541-73-1	-	< 7	-	N
1,4-Dichlorobenzene	106-46-7	-	< 7	-	N
n-Butylbenzene	104-51-8	-	< 7	-	N
1,2-Dichlorobenzene	95-50-1	-	< 7	-	N
1,2-Dibromo-3-chloropropane	96-12-8	-	< 33	-	N
1,2,4-Trichlorobenzene	120-82-1	-	< 33	-	N
Hexachlorobutadiene	87-68-3	-	< 33	-	N
Naphthalene	91-20-3	-	< 33	-	N
1,2,3-Trichlorobenzene	87-61-6	-	< 33	-	N

Concentrations are reported on a dry weight basis

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	2.99	89	Dibromofluoromethane	100
1,4-Difluorobenzene	3.27	88	Toluene-d8	77
Chlorobenzene-d5	4.29	71	Bromofluorobenzene	85
1,4-Dichlorobenzene-d4	5.06	43		

This analysis was conducted on an 'As Recieved' basis.

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

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

Volatile Organic Compounds by PTGCMS

Accredited?: Yes

Customer and Site Details: WYG Environment: SFA St Athan TF
Sample Details: TP301 0.4
LIMS ID Number: CL1030951
Job Number: S10_7038M

Directory/Quant file: 010\1019VOC\ Initial Calibration
Date Booked in: 18-Oct-10
Date Analysed: 20-Oct-10
Operator: KZ

Matrix: Soil
Method: Purge & trap
Multiplier: 5
Position: 45

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Dichlorodifluoromethane	75-71-8	-	< 6	-	UM
Chloromethane	74-87-3	-	< 6	-	UM
Vinyl Chloride	75-01-4 *	-	< 6	-	N
Bromomethane	74-83-9 *	-	< 32	-	N
Chloroethane	75-00-3	-	< 32	-	UM
Trichlorofluoromethane	75-69-4	-	< 6	-	UM
1,1-Dichloroethene	75-35-4	-	< 6	-	UM
trans 1,2-Dichloroethene	156-60-5	-	< 6	-	U
1,1-Dichloroethane	75-34-3	-	< 6	-	UM
2,2-Dichloropropane	594-20-7	-	< 6	-	UM
cis 1,2-Dichloroethene	156-59-2	-	< 6	-	UM
Bromochloromethane	74-97-5	-	< 6	-	UM
Chloroform	67-66-3	-	< 6	-	UM
1,1,1-Trichloroethane	71-55-6	-	< 6	-	UM
Carbon Tetrachloride	56-23-5	-	< 6	-	UM
1,1-Dichloropropene	563-58-6	-	< 6	-	UM
Benzene	71-43-2	-	< 6	-	UM
1,2-Dichloroethane	107-06-2	-	< 6	-	UM
Trichloroethene	79-01-6	-	< 6	-	UM
1,2-Dichloropropane	78-87-5	-	< 6	-	UM
Dibromomethane	74-95-3	-	< 6	-	UM
Bromodichloromethane	75-27-4	-	< 6	-	UM
cis 1,3-Dichloropropene	10061-01-5 *	-	< 6	-	N
Toluene	108-88-3	-	< 6	-	UM
trans 1,3-Dichloropropene	10061-02-6 *	-	< 6	-	N
1,1,2-Trichloroethane	79-00-5	-	< 6	-	UM
Tetrachloroethene	127-18-4	-	< 32	-	UM
1,3-Dichloropropane	142-28-9	-	< 6	-	UM
Dibromochloromethane	124-48-1	-	< 6	-	UM
1,2-Dibromoethane	106-93-4	-	< 6	-	U
Chlorobenzene	108-90-7	-	< 6	-	UM
Ethylbenzene	100-41-4	-	< 6	-	UM
1,1,1,2-Tetrachloroethane	630-20-6	-	< 6	-	UM
m and p-Xylene	108-38-3/106-42-3	-	< 6	-	UM
o-Xylene	95-47-6	-	< 6	-	UM

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Styrene	100-42-5	-	< 6	-	UM
Bromoform	75-25-2	-	< 6	-	UM
iso-Propylbenzene	98-82-8	-	< 6	-	UM
1,1,2,2-Tetrachloroethane	79-34-5	-	< 6	-	U
Propylbenzene	103-65-1	-	< 6	-	U
Bromobenzene	108-86-1	-	< 6	-	UM
1,2,3-Trichloropropane	96-18-4	-	< 6	-	U
2-Chlorotoluene	95-49-8 **	-	< 13	-	N
1,3,5-Trimethylbenzene	108-67-8 **	-	< 13	-	N
4-Chlorotoluene	106-43-4 **	-	< 13	-	N
tert-Butylbenzene	98-06-6 **	-	< 13	-	N
1,2,4-Trimethylbenzene	95-63-6 **	-	< 13	-	N
sec-Butylbenzene	135-98-8 **	-	< 13	-	N
p-Isopropyltoluene	99-87-6 **	-	< 13	-	N
1,3-Dichlorobenzene	541-73-1 **	-	< 13	-	N
1,4-Dichlorobenzene	106-46-7 **	-	< 13	-	N
n-Butylbenzene	104-51-8 **	-	< 13	-	N
1,2-Dichlorobenzene	95-50-1 **	-	< 13	-	N
1,2-Dibromo-3-chloropropane	96-12-8 **	-	< 64	-	N
1,2,4-Trichlorobenzene	120-82-1 **	-	< 64	-	N
Hexachlorobutadiene	87-68-3 **	-	< 64	-	N
Naphthalene	91-20-3 **	-	< 64	-	N
1,2,3-Trichlorobenzene	87-61-6 **	-	< 64	-	N

Concentrations are reported on a dry weight basis

** Last internal standard low due to sample matrix effect. Detection limits for all compounds quantified by this ISD raised accordingly. These compounds are not UKAS accredited.

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	2.99	93	Dibromofluoromethane	102
1,4-Difluorobenzene	3.28	94	Toluene-d8	84
Chlorobenzene-d5	4.29	85	Bromofluorobenzene	91
1,4-Dichlorobenzene-d4	5.06	59		

This analysis was conducted on an 'As Recieved' basis.

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

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

Volatile Organic Compounds by PTGCMS

Accredited?: Yes

Customer and Site Details:	WYG Environment: SFA St Athan TF	**Directory/Quant file:**	010\1019VOC\ Initial Calibration	**Matrix:**	Soil
Sample Details:	TP306 0.1	**Date Booked in:**	18-Oct-10	**Method:**	Purge & trap
LIMS ID Number:	CL1030952	**Date Analysed:**	20-Oct-10	**Multiplier:**	5
Job Number:	S10_7038M	**Operator:**	KZ	**Position:**	46

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Dichlorodifluoromethane	75-71-8	-	< 7	-	UM
Chloromethane	74-87-3	-	< 7	-	UM
Vinyl Chloride	75-01-4 *	-	< 7	-	N
Bromomethane	74-83-9 *	-	< 33	-	N
Chloroethane	75-00-3	-	< 33	-	UM
Trichlorofluoromethane	75-69-4	-	< 7	-	UM
1,1-Dichloroethene	75-35-4	-	< 7	-	UM
trans 1,2-Dichloroethene	156-60-5	-	< 7	-	U
1,1-Dichloroethane	75-34-3	-	< 7	-	UM
2,2-Dichloropropane	594-20-7	-	< 7	-	UM
cis 1,2-Dichloroethene	156-59-2	-	< 7	-	UM
Bromochloromethane	74-97-5	-	< 7	-	UM
Chloroform	67-66-3	-	< 7	-	UM
1,1,1-Trichloroethane	71-55-6	-	< 7	-	UM
Carbon Tetrachloride	56-23-5	-	< 7	-	UM
1,1-Dichloropropene	563-58-6	-	< 7	-	UM
Benzene	71-43-2	-	< 7	-	UM
1,2-Dichloroethane	107-06-2	-	< 7	-	UM
Trichloroethene	79-01-6	-	< 7	-	UM
1,2-Dichloropropane	78-87-5	-	< 7	-	UM
Dibromomethane	74-95-3	-	< 7	-	UM
Bromodichloromethane	75-27-4	-	< 7	-	UM
cis 1,3-Dichloropropene	10061-01-5 *	-	< 7	-	N
Toluene	108-88-3	-	< 7	-	UM
trans 1,3-Dichloropropene	10061-02-6 *	-	< 7	-	N
1,1,2-Trichloroethane	79-00-5	-	< 7	-	UM
Tetrachloroethene	127-18-4	-	< 33	-	UM
1,3-Dichloropropane	142-28-9	-	< 7	-	UM
Dibromochloromethane	124-48-1	-	< 7	-	UM
1,2-Dibromoethane	106-93-4	-	< 7	-	U
Chlorobenzene	108-90-7	-	< 7	-	UM
Ethylbenzene	100-41-4	-	< 7	-	UM
1,1,1,2-Tetrachloroethane	630-20-6	-	< 7	-	UM
m and p-Xylene	108-38-3/106-42-3	-	< 7	-	UM
o-Xylene	95-47-6	-	< 7	-	UM

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit	Accr. code
Styrene	100-42-5	-	< 7	-	UM
Bromoform	75-25-2	-	< 7	-	UM
iso-Propylbenzene	98-82-8	-	< 7	-	UM
1,1,2,2-Tetrachloroethane	79-34-5	-	< 7	-	U
Propylbenzene	103-65-1	-	< 7	-	U
Bromobenzene	108-86-1	-	< 7	-	UM
1,2,3-Trichloropropane	96-18-4	-	< 7	-	U
2-Chlorotoluene	95-49-8 **	-	< 13	-	N
1,3,5-Trimethylbenzene	108-67-8 **	-	< 13	-	N
4-Chlorotoluene	106-43-4 **	-	< 13	-	N
tert-Butylbenzene	98-06-6 **	-	< 13	-	N
1,2,4-Trimethylbenzene	95-63-6 **	-	< 13	-	N
sec-Butylbenzene	135-98-8 **	-	< 13	-	N
p-Isopropyltoluene	99-87-6 **	-	< 13	-	N
1,3-Dichlorobenzene	541-73-1 **	-	< 13	-	N
1,4-Dichlorobenzene	106-46-7 **	-	< 13	-	N
n-Butylbenzene	104-51-8 **	-	< 13	-	N
1,2-Dichlorobenzene	95-50-1 **	-	< 13	-	N
1,2-Dibromo-3-chloropropane	96-12-8 **	-	< 66	-	N
1,2,4-Trichlorobenzene	120-82-1 **	-	< 66	-	N
Hexachlorobutadiene	87-68-3 **	-	< 66	-	N
Naphthalene	91-20-3 **	-	< 66	-	N
1,2,3-Trichlorobenzene	87-61-6 **	-	< 66	-	N

Concentrations are reported on a dry weight basis

** Last internal standard low due to sample matrix effect. Detection limits for all compounds quantified by this ISD raised accordingly. These compounds are not UKAS accredited.

"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	2.99	91	Dibromofluoromethane	100
1,4-Difluorobenzene	3.27	90	Toluene-d8	81
Chlorobenzene-d5	4.29	75	Bromofluorobenzene	81
1,4-Dichlorobenzene-d4	5.06	44		

This analysis was conducted on an 'As Recieved' basis.

Note: Volatile compounds degrade with time, and this may affect the integrity of the data depending on the timescale between sampling and analysis. It is recommended that analysis takes place within 7 days of sampling.

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

Phenoxy Acid Herbicides

Customer and Site Details : WYG Environment - SFA St Athan TF
Report Number : **EFS/107038**
Report Date : 28/10/2010

Matrix (level) : Water
Units : ug/l

This sample data is not accredited.

TES Lab ID Number	Client Reference	Date Sampled	2,4,5-T	2,4,5-TP (fenoprop)	2,4-D	2,4-DB	2,4-dinitrophenol	4-CPA	Bromoxynil	dichlorprop (2,4-DP)	Dinoseb	DNOC	Ioxynil	MCPA	MCPB	MCPP	Phenoxyacetic acid	Phenoxybutyric acid	Phenoxypropionic acid					
CL/1030934	TP318 0.4		<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13					
CL/1030944	TP312 0.1		<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14					
CL/1030946	TP314 0.1		<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14					
CL/1030949	TP303 0.1		<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13					
CL/1030952	TP306 0.1		<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13					

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

Organochlorine Pesticides by GCMS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP318 0.4	**Job Number:**	S10_7038
LIMS ID Number:	CL1030934	**Date Booked in:**	18-Oct-10
QC Batch Number:	2196	**Date Extracted:**	19-Oct-10
Quantitation File:	OCP_CCC1.D	**Date Analysed:**	19-Oct-10
Directory:	019SVOC_MS9\	**Matrix:**	Soil
Dilution:	3	**Ext Method:**	Soxhlet

Accredited?: No

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit	Accr. code
Benzene, 1,3,5-trichloro-	108-70-3	-	< 4.0	-	**N**
Benzene, 1,2,3-trichloro-	120-82-1	-	< 4.0	-	**N**
2,6-Dichlorobenzonitrile	1194-65-6	-	< 4.0	-	**N**
Benzene, 1,2,3,4-tetrachloro-	634-66-2	-	< 4.0	-	**N**
Benzene, pentachloro-	608-93-5	-	< 4.0	-	**N**
Tecnazene	117-18-0	-	< 12.0	-	**N**
Trifluralin	1582-09-8	-	< 39.0	-	**N**
alpha HCH	319-84-6	-	< 8.0	-	N
Benzene, hexachloro-	118-74-1	-	< 8.0	-	**N**
beta-HCH	319-85-7	-	< 8.0	-	**N**
gamma HCH	58-89-9	-	< 4.0	-	**N**
Propyzamide	23950-58-5	-	< 8.0	-	**N**
chlorthalonil	1897-45-6	-	< 8.0	-	**N**
Triallate	2303-17-5	-	< 8.0	-	**N**
delta.-Lindane	319-86-8	-	< 8.0	-	**N**
Heptachlor	76-44-8	-	< 12.0	-	**N**
Aldrin-R	309-00-2	-	< 8.0	-	**N**
Triadimefon	43121-43-3	-	< 8.0	-	**N**
pendimethalin	40487-42-1	-	< 39.0	-	**N**
Heptachlor epoxide	1024-57-3	-	< 8.0	-	**N**
trans-chlordane	5103-74-2	-	< 8.0	-	**N**
isodrin	465-73-6	-	< 8.0	-	**N**
o,p'-DDE	3424-82-6	-	< 8.0	-	**N**
cis-Chlordane	5103-71-9	-	< 8.0	-	**N**
endosulfan I	115-29-7	-	< 4.0	-	**N**
p,p'-dde	72-59-3	-	< 20.0	-	**N**
Dieldrin	60-57-1	-	< 20.0	-	**N**
o,p'-DDD	53-19-0	-	< 20.0	-	**N**
Endrin	72-20-8	-	< 12.0	-	**N**
Endosulfan II	33213-65-9	-	< 39.0	-	**N**
pp'-DDD	72-54-8	-	< 20.0	-	**N**
o,p'-DDT	789-02-6	-	< 12.0	-	**N**
endosulfan sulfate	1031-07-8	-	< 20.0	-	N
p,p'-DDT	50-29-3	-	< 20.0	-	N
endrin ketone	53494-70-5	-	< 118.0	-	N
Methoxychlor	72-43-5	-	< 20.0	-	N
cis-Permethrin	52645-53-1	-	< 12.0	-	N
trans-Permethrin	51877-74-8	-	< 12.0	-	N

Internal Standards	% Area
Naphthalene D8	98
Phenanthrene D10	95
Perylene d12	109

Surrogates	% Rec
gamma.hch - d6	53
pp-ddt- d8	15

Organochlorine Pesticides by GCMS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP312 0.1	**Job Number:**	S10_7038
LIMS ID Number:	CL1030944	**Date Booked in:**	18-Oct-10
QC Batch Number:	2196	**Date Extracted:**	19-Oct-10
Quantitation File:	OCP_CCC1.D	**Date Analysed:**	19-Oct-10
Directory:	019SVOC_MS9\	**Matrix:**	Soil
Dilution:	3	**Ext Method:**	Soxhlet

Accredited?: No

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit	Accr. code
Benzene, 1,3,5-trichloro-	108-70-3	-	< 4.0	-	**N**
Benzene, 1,2,3-trichloro-	120-82-1	-	< 4.0	-	**N**
2,6-Dichlorobenzonitrile	1194-65-6	-	< 4.0	-	**N**
Benzene, 1,2,3,4-tetrachloro-	634-66-2	-	< 4.0	-	**N**
Benzene, pentachloro-	608-93-5	-	< 4.0	-	**N**
Tecnazene	117-18-0	-	< 12.0	-	**N**
Trifluralin	1582-09-8	-	< 41.0	-	**N**
alpha HCH	319-84-6	-	< 8.0	-	N
Benzene, hexachloro-	118-74-1	-	< 8.0	-	**N**
beta-HCH	319-85-7	-	< 8.0	-	**N**
gamma HCH	58-89-9	-	< 4.0	-	**N**
Propyzamide	23950-58-5	-	< 8.0	-	**N**
chlorthalonil	1897-45-6	-	< 8.0	-	**N**
Triallate	2303-17-5	-	< 8.0	-	**N**
delta.-Lindane	319-86-8	-	< 8.0	-	**N**
Heptachlor	76-44-8	-	< 12.0	-	**N**
Aldrin-R	309-00-2	-	< 8.0	-	**N**
Triadimefon	43121-43-3	-	< 8.0	-	**N**
pendimethalin	40487-42-1	-	< 41.0	-	**N**
Heptachlor epoxide	1024-57-3	-	< 8.0	-	**N**
trans-chlordane	5103-74-2	-	< 8.0	-	**N**
isodrin	465-73-6	-	< 8.0	-	**N**
o,p'-DDE	3424-82-6	-	< 8.0	-	**N**
cis-Chlordane	5103-71-9	-	< 8.0	-	**N**
endosulfan I	115-29-7	-	< 4.0	-	**N**
p,p'-dde	72-59-3	-	< 21.0	-	**N**
Dieldrin	60-57-1	-	< 21.0	-	**N**
o,p'-DDD	53-19-0	-	< 21.0	-	**N**
Endrin	72-20-8	-	< 12.0	-	**N**
Endosulfan II	33213-65-9	-	< 41.0	-	**N**
pp'-DDD	72-54-8	-	< 21.0	-	**N**
o,p'-DDT	789-02-6	-	< 12.0	-	**N**
endosulfan sulfate	1031-07-8	-	< 21.0	-	N
p,p'-DDT	50-29-3	-	< 21.0	-	N
endrin ketone	53494-70-5	-	< 124.0	-	N
Methoxychlor	72-43-5	-	< 21.0	-	N
cis-Permethrin	52645-53-1	-	< 12.0	-	N
trans-Permethrin	51877-74-8	-	< 12.0	-	N

Internal Standards	% Area
Naphthalene D8	70
Phenanthrene D10	64
Perylene d12	73

Surrogates	% Rec
gamma.hch - d6	89
pp-ddt- d8	27

Organochlorine Pesticides by GCMS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP314 0.1	**Job Number:**	S10_7038
LIMS ID Number:	CL1030946	**Date Booked in:**	18-Oct-10
QC Batch Number:	2196	**Date Extracted:**	19-Oct-10
Quantitation File:	OCP_CCC1.D	**Date Analysed:**	19-Oct-10
Directory:	019SVOC_MS9\	**Matrix:**	Soil
Dilution:	3	**Ext Method:**	Soxhlet

Accredited?: No

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit	Accr. code
Benzene, 1,3,5-trichloro-	108-70-3	-	< 4.0	-	**N**
Benzene, 1,2,3-trichloro-	120-82-1	-	< 4.0	-	**N**
2,6-Dichlorobenzonitrile	1194-65-6	-	< 4.0	-	**N**
Benzene, 1,2,3,4-tetrachloro-	634-66-2	-	< 4.0	-	**N**
Benzene, pentachloro-	608-93-5	-	< 4.0	-	**N**
Tecnazene	117-18-0	-	< 12.0	-	**N**
Trifluralin	1582-09-8	-	< 41.0	-	**N**
alpha HCH	319-84-6	-	< 8.0	-	N
Benzene, hexachloro-	118-74-1	-	< 8.0	-	**N**
beta-HCH	319-85-7	-	< 8.0	-	**N**
gamma HCH	58-89-9	-	< 4.0	-	**N**
Propyzamide	23950-58-5	-	< 8.0	-	**N**
chlorthalonil	1897-45-6	-	< 8.0	-	**N**
Triallate	2303-17-5	-	< 8.0	-	**N**
delta.-Lindane	319-86-8	-	< 8.0	-	**N**
Heptachlor	76-44-8	-	< 12.0	-	**N**
Aldrin-R	309-00-2	-	< 8.0	-	**N**
Triadimefon	43121-43-3	-	< 8.0	-	**N**
pendimethalin	40487-42-1	-	< 41.0	-	**N**
Heptachlor epoxide	1024-57-3	-	< 8.0	-	**N**
trans-chlordane	5103-74-2	-	< 8.0	-	**N**
isodrin	465-73-6	-	< 8.0	-	**N**
o,p'-DDE	3424-82-6	-	< 8.0	-	**N**
cis-Chlordane	5103-71-9	-	< 8.0	-	**N**
endosulfan I	115-29-7	-	< 4.0	-	**N**
p,p'-dde	72-59-3	-	< 20.0	-	**N**
Dieldrin	60-57-1	-	< 20.0	-	**N**
o,p'-DDD	53-19-0	-	< 20.0	-	**N**
Endrin	72-20-8	-	< 12.0	-	**N**
Endosulfan II	33213-65-9	-	< 41.0	-	**N**
pp'-DDD	72-54-8	-	< 20.0	-	**N**
o,p'-DDT	789-02-6	-	< 12.0	-	**N**
endosulfan sulfate	1031-07-8	-	< 20.0	-	N
p,p'-DDT	50-29-3	-	< 20.0	-	N
endrin ketone	53494-70-5	-	< 123.0	-	N
Methoxychlor	72-43-5	-	< 20.0	-	N
cis-Permethrin	52645-53-1	-	< 12.0	-	N
trans-Permethrin	51877-74-8	-	< 12.0	-	N

Internal Standards	% Area
Naphthalene D8	77
Phenanthrene D10	72
Perylene d12	80

Surrogates	% Rec
gamma.hch - d6	81
pp-ddt- d8	25

Organochlorine Pesticides by GCMS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP303 0.1	**Job Number:**	S10_7038
LIMS ID Number:	CL1030949	**Date Booked in:**	18-Oct-10
QC Batch Number:	2196	**Date Extracted:**	19-Oct-10
Quantitation File:	OCP_CCC1.D	**Date Analysed:**	19-Oct-10
Directory:	019SVOC_MS9\	**Matrix:**	Soil
Dilution:	3	**Ext Method:**	Soxhlet

Accredited?: No

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit	Accr. code
Benzene, 1,3,5-trichloro-	108-70-3	-	< 4.0	-	**N**
Benzene, 1,2,3-trichloro-	120-82-1	-	< 4.0	-	**N**
2,6-Dichlorobenzonitrile	1194-65-6	-	< 4.0	-	**N**
Benzene, 1,2,3,4-tetrachloro-	634-66-2	-	< 4.0	-	**N**
Benzene, pentachloro-	608-93-5	-	< 4.0	-	**N**
Tecnazene	117-18-0	-	< 12.0	-	**N**
Trifluralin	1582-09-8	-	< 39.0	-	**N**
alpha HCH	319-84-6	-	< 8.0	-	N
Benzene, hexachloro-	118-74-1	-	< 8.0	-	**N**
beta-HCH	319-85-7	-	< 8.0	-	**N**
gamma HCH	58-89-9	-	< 4.0	-	**N**
Propyzamide	23950-58-5	-	< 8.0	-	**N**
chlorthalonil	1897-45-6	-	< 8.0	-	**N**
Triallate	2303-17-5	-	< 8.0	-	**N**
delta.-Lindane	319-86-8	-	< 8.0	-	**N**
Heptachlor	76-44-8	-	< 12.0	-	**N**
Aldrin-R	309-00-2	-	< 8.0	-	**N**
Triadimefon	43121-43-3	-	< 8.0	-	**N**
pendimethalin	40487-42-1	-	< 39.0	-	**N**
Heptachlor epoxide	1024-57-3	-	< 8.0	-	**N**
trans-chlordane	5103-74-2	-	< 8.0	-	**N**
isodrin	465-73-6	-	< 8.0	-	**N**
o,p'-DDE	3424-82-6	-	< 8.0	-	**N**
cis-Chlordane	5103-71-9	-	< 8.0	-	**N**
endosulfan I	115-29-7	-	< 4.0	-	**N**
p,p'-dde	72-59-3	-	< 20.0	-	**N**
Dieldrin	60-57-1	-	< 20.0	-	**N**
o,p'-DDD	53-19-0	-	< 20.0	-	**N**
Endrin	72-20-8	-	< 12.0	-	**N**
Endosulfan II	33213-65-9	-	< 39.0	-	**N**
pp'-DDD	72-54-8	-	< 20.0	-	**N**
o,p'-DDT	789-02-6	-	< 12.0	-	**N**
endosulfan sulfate	1031-07-8	-	< 20.0	-	N
p,p'-DDT	50-29-3	-	< 20.0	-	N
endrin ketone	53494-70-5	-	< 117.0	-	N
Methoxychlor	72-43-5	-	< 20.0	-	N
cis-Permethrin	52645-53-1	-	< 12.0	-	N
trans-Permethrin	51877-74-8	-	< 12.0	-	N

Internal Standards	% Area
Naphthalene D8	129
Phenanthrene D10	71
Perylene d12	78

Surrogates	% Rec
gamma.hch - d6	82
pp-ddt- d8	24

Organochlorine Pesticides by GCMS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP306 0.1	**Job Number:**	S10_7038
LIMS ID Number:	CL1030952	**Date Booked in:**	18-Oct-10
QC Batch Number:	2196	**Date Extracted:**	19-Oct-10
Quantitation File:	OCP_CCC1.D	**Date Analysed:**	19-Oct-10
Directory:	019SVOC_MS9\	**Matrix:**	Soil
Dilution:	3	**Ext Method:**	Soxhlet

Accredited?: No

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit	Accr. code
Benzene, 1,3,5-trichloro-	108-70-3	-	< 4.0	-	**N**
Benzene, 1,2,3-trichloro-	120-82-1	-	< 4.0	-	**N**
2,6-Dichlorobenzonitrile	1194-65-6	-	< 4.0	-	**N**
Benzene, 1,2,3,4-tetrachloro-	634-66-2	-	< 4.0	-	**N**
Benzene, pentachloro-	608-93-5	-	< 4.0	-	**N**
Tecnazene	117-18-0	-	< 12.0	-	**N**
Trifluralin	1582-09-8	-	< 39.0	-	**N**
alpha HCH	319-84-6	-	< 8.0	-	N
Benzene, hexachloro-	118-74-1	-	< 8.0	-	**N**
beta-HCH	319-85-7	-	< 8.0	-	**N**
gamma HCH	58-89-9	-	< 4.0	-	**N**
Propyzamide	23950-58-5	-	< 8.0	-	**N**
chlorthalonil	1897-45-6	-	< 8.0	-	**N**
Triallate	2303-17-5	-	< 8.0	-	**N**
delta.-Lindane	319-86-8	-	< 8.0	-	**N**
Heptachlor	76-44-8	-	< 12.0	-	**N**
Aldrin-R	309-00-2	-	< 8.0	-	**N**
Triadimefon	43121-43-3	-	< 8.0	-	**N**
pendimethalin	40487-42-1	-	< 39.0	-	**N**
Heptachlor epoxide	1024-57-3	-	< 8.0	-	**N**
trans-chlordane	5103-74-2	-	< 8.0	-	**N**
isodrin	465-73-6	-	< 8.0	-	**N**
o,p'-DDE	3424-82-6	-	< 8.0	-	**N**
cis-Chlordane	5103-71-9	-	< 8.0	-	**N**
endosulfan I	115-29-7	-	< 4.0	-	**N**
p,p'-dde	72-59-3	-	< 20.0	-	**N**
Dieldrin	60-57-1	-	< 20.0	-	**N**
o,p'-DDD	53-19-0	-	< 20.0	-	**N**
Endrin	72-20-8	-	< 12.0	-	**N**
Endosulfan II	33213-65-9	-	< 39.0	-	**N**
pp'-DDD	72-54-8	-	< 20.0	-	**N**
o,p'-DDT	789-02-6	-	< 12.0	-	**N**
endosulfan sulfate	1031-07-8	-	< 20.0	-	N
p,p'-DDT	50-29-3	-	< 20.0	-	N
endrin ketone	53494-70-5	-	< 118.0	-	N
Methoxychlor	72-43-5	-	< 20.0	-	N
cis-Permethrin	52645-53-1	-	< 12.0	-	N
trans-Permethrin	51877-74-8	-	< 12.0	-	N

Internal Standards	% Area
Naphthalene D8	77
Phenanthrene D10	72
Perylene d12	80

Surrogates	% Rec
gamma.hch - d6	83
pp-ddt- d8	25

Organophosphorous Pesticides by GCMS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP318 0.4	**Job Number:**	S10_7038
LIMS ID Number:	CL1030934	**Date Booked in:**	18-Oct-10
QC Batch Number:	2197	**Date Extracted:**	19-Oct-10
Quantitation File:	OPP_CCC1.D	**Date Analysed:**	19-Oct-10
Directory:	019SVOC_MS9\	**Matrix:**	Soil
Dilution:	3	**Ext Method:**	Soxhlet

Accredited?: No

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit	Accr. code
Dichlorvos	62-73-7	-	< 8.0	-	**N**
Mevinphos	7786-34-7	-	< 8.0	-	**N**
Methocrifos	62610-77-9	-	< 8.0	-	**N**
Dimethoate	60-51-5	-	< 12.0	-	**N**
Propetamphos	31218-83-4	-	< 8.0	-	**N**
Diazinon	333-41-5	-	< 4.0	-	**N**
Phosfamidon	13171-21-6	-	< 20.0	-	**N**
Etrimphos	5598-13-0	-	< 8.0	-	N
Methyl chlorpyriphos	5598-13-0	-	< 8.0	-	**N**
Methyl parathion	298-00-0	-	< 39.0	-	**N**
Pirimiphos methyl	29232-93-7	-	< 8.0	-	**N**
Fenitrothion	122-14-5	-	< 20.0	-	**N**
Malathion	121-75-5	-	< 8.0	-	**N**
Chlorpyrifos	2921-88-2	-	< 8.0	-	**N**
Fenthion	55-38-9	-	< 39.0	-	**N**
Pirimiphos ethyl	23505-41-1	-	< 8.0	-	**N**
Parathion	56-38-2	-	< 20.0	-	**N**
Clofenvinfos	470-90-6	-	< 12.0	-	**N**
Enthion	563-12-2	-	< 12.0	-	**N**
Triazophos	24017-47-8	-	< 12.0	-	**N**
Carbofenthion	786-19-6	-	< 12.0	-	**N**
Phosalone	2310-17-0	-	< 20.0	-	**N**
Azinphos-Methyl	86-50-0	-	< 20.0	-	**N**
Azinphos-ethyl	2642-71-9	-	< 20.0	-	**N**

Internal Standards	% Area
Naphthalene-d8	114
Phenanthrene-d10	94
Perylene-d12	101

Surrogates	% Rec
Malathion-d6	73
Chlorpyrifos-ethyl-d10	80

Organophosphorous Pesticides by GCMS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP312 0.1	**Job Number:**	S10_7038
LIMS ID Number:	CL1030944	**Date Booked in:**	18-Oct-10
QC Batch Number:	2197	**Date Extracted:**	19-Oct-10
Quantitation File:	OPP_CCC1.D	**Date Analysed:**	19-Oct-10
Directory:	019SVOC_MS9\	**Matrix:**	Soil
Dilution:	3	**Ext Method:**	Soxhlet

Accredited?: No

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit	Accr. code
Dichlorvos	62-73-7	-	< 8.0	-	**N**
Mevinphos	7786-34-7	-	< 8.0	-	**N**
Methocrifos	62610-77-9	-	< 8.0	-	**N**
Dimethoate	60-51-5	-	< 12.0	-	**N**
Propetamphos	31218-83-4	-	< 8.0	-	**N**
Diazinon	333-41-5	-	< 4.0	-	**N**
Phosfamidon	13171-21-6	-	< 21.0	-	**N**
Etrimphos	5598-13-0	-	< 8.0	-	N
Methyl chlorpyriphos	5598-13-0	-	< 8.0	-	**N**
Methyl parathion	298-00-0	-	< 41.0	-	**N**
Pirimiphos methyl	29232-93-7	-	< 8.0	-	**N**
Fenitrothion	122-14-5	-	< 21.0	-	**N**
Malathion	121-75-5	-	< 8.0	-	**N**
Chlorpyrifos	2921-88-2	-	< 8.0	-	**N**
Fenthion	55-38-9	-	< 41.0	-	**N**
Pirimiphos ethyl	23505-41-1	-	< 8.0	-	**N**
Parathion	56-38-2	-	< 21.0	-	**N**
Clofenvinfos	470-90-6	-	< 12.0	-	**N**
Enthion	563-12-2	-	< 12.0	-	**N**
Triazophos	24017-47-8	-	< 12.0	-	**N**
Carbofenthion	786-19-6	-	< 12.0	-	**N**
Phosalone	2310-17-0	-	< 21.0	-	**N**
Azinphos-Methyl	86-50-0	-	< 21.0	-	**N**
Azinphos-ethyl	2642-71-9	-	< 21.0	-	**N**

Internal Standards	% Area
Naphthalene-d8	61
Phenanthrene-d10	82
Perylene-d12	87

Surrogates	% Rec
Malathion-d6	74
Chlorpyrifos-ethyl-d10	78

Organophosphorous Pesticides by GCMS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP314 0.1	**Job Number:**	S10_7038
LIMS ID Number:	CL1030946	**Date Booked in:**	18-Oct-10
QC Batch Number:	2197	**Date Extracted:**	19-Oct-10
Quantitation File:	OPP_CCC1.D	**Date Analysed:**	19-Oct-10
Directory:	019SVOC_MS9\	**Matrix:**	Soil
Dilution:	3	**Ext Method:**	Soxhlet

Accredited?: No

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit	Accr. code
Dichlorvos	62-73-7	-	< 8.0	-	**N**
Mevinphos	7786-34-7	-	< 8.0	-	**N**
Methocrifos	62610-77-9	-	< 8.0	-	**N**
Dimethoate	60-51-5	-	< 12.0	-	**N**
Propetamphos	31218-83-4	-	< 8.0	-	**N**
Diazinon	333-41-5	-	< 4.0	-	**N**
Phosfamidon	13171-21-6	-	< 20.0	-	**N**
Etrimphos	5598-13-0	-	< 8.0	-	N
Methyl chlorpyriphos	5598-13-0	-	< 8.0	-	**N**
Methyl parathion	298-00-0	-	< 41.0	-	**N**
Pirimiphos methyl	29232-93-7	-	< 8.0	-	**N**
Fenitrothion	122-14-5	-	< 20.0	-	**N**
Malathion	121-75-5	-	< 8.0	-	**N**
Chlorpyrifos	2921-88-2	-	< 8.0	-	**N**
Fenthion	55-38-9	-	< 41.0	-	**N**
Pirimiphos ethyl	23505-41-1	-	< 8.0	-	**N**
Parathion	56-38-2	-	< 20.0	-	**N**
Clofenvinfos	470-90-6	-	< 12.0	-	**N**
Enthion	563-12-2	-	< 12.0	-	**N**
Triazophos	24017-47-8	-	< 12.0	-	**N**
Carbofenthion	786-19-6	-	< 12.0	-	**N**
Phosalone	2310-17-0	-	< 20.0	-	**N**
Azinphos-Methyl	86-50-0	-	< 20.0	-	**N**
Azinphos-ethyl	2642-71-9	-	< 20.0	-	**N**

Internal Standards	% Area
Naphthalene-d8	62
Phenanthrene-d10	82
Perylene-d12	90

Surrogates	% Rec
Malathion-d6	78
Chlorpyrifos-ethyl-d10	83

Organophosphorous Pesticides by GCMS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP303 0.1	**Job Number:**	S10_7038
LIMS ID Number:	CL1030949	**Date Booked in:**	18-Oct-10
QC Batch Number:	2197	**Date Extracted:**	19-Oct-10
Quantitation File:	OPP_CCC1.D	**Date Analysed:**	19-Oct-10
Directory:	019SVOC_MS9\	**Matrix:**	Soil
Dilution:	3	**Ext Method:**	Soxhlet

Accredited?: No

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit	Accr. code
Dichlorvos	62-73-7	-	< 8.0	-	**N**
Mevinphos	7786-34-7	-	< 8.0	-	**N**
Methocrifos	62610-77-9	-	< 8.0	-	**N**
Dimethoate	60-51-5	-	< 12.0	-	**N**
Propetamphos	31218-83-4	-	< 8.0	-	**N**
Diazinon	333-41-5	-	< 4.0	-	**N**
Phosfamidon	13171-21-6	-	< 20.0	-	**N**
Etrimphos	5598-13-0	-	< 8.0	-	N
Methyl chlorpyriphos	5598-13-0	-	< 8.0	-	**N**
Methyl parathion	298-00-0	-	< 39.0	-	**N**
Pirimiphos methyl	29232-93-7	-	< 8.0	-	**N**
Fenitrothion	122-14-5	-	< 20.0	-	**N**
Malathion	121-75-5	-	< 8.0	-	**N**
Chlorpyrifos	2921-88-2	-	< 8.0	-	**N**
Fenthion	55-38-9	-	< 39.0	-	**N**
Pirimiphos ethyl	23505-41-1	-	< 8.0	-	**N**
Parathion	56-38-2	-	< 20.0	-	**N**
Clofenvinfos	470-90-6	-	< 12.0	-	**N**
Enthion	563-12-2	-	< 12.0	-	**N**
Triazophos	24017-47-8	-	< 12.0	-	**N**
Carbofenthion	786-19-6	-	< 12.0	-	**N**
Phosalone	2310-17-0	-	< 20.0	-	**N**
Azinphos-Methyl	86-50-0	-	< 20.0	-	**N**
Azinphos-ethyl	2642-71-9	-	< 20.0	-	**N**

Internal Standards	% Area
Naphthalene-d8	67
Phenanthrene-d10	89
Perylene-d12	95

Surrogates	% Rec
Malathion-d6	76
Chlorpyrifos-ethyl-d10	83

Organophosphorous Pesticides by GCMS (SIM)

Customer and Site Details:	WYG Environment: SFA St Athan TF		
Sample Details:	TP306 0.1	**Job Number:**	S10_7038
LIMS ID Number:	CL1030952	**Date Booked in:**	18-Oct-10
QC Batch Number:	2197	**Date Extracted:**	19-Oct-10
Quantitation File:	OPP_CCC1.D	**Date Analysed:**	19-Oct-10
Directory:	019SVOC_MS9\	**Matrix:**	Soil
Dilution:	3	**Ext Method:**	Soxhlet

Accredited?: No

Target Compounds	CAS #	R.T. (min)	Concentration ug/kg	% Fit	Accr. code
Dichlorvos	62-73-7	-	< 8.0	-	**N**
Mevinphos	7786-34-7	-	< 8.0	-	**N**
Methocrifos	62610-77-9	-	< 8.0	-	**N**
Dimethoate	60-51-5	-	< 12.0	-	**N**
Propetamphos	31218-83-4	-	< 8.0	-	**N**
Diazinon	333-41-5	-	< 4.0	-	**N**
Phosfamidon	13171-21-6	-	< 20.0	-	**N**
Etrimphos	5598-13-0	-	< 8.0	-	N
Methyl chlorpyriphos	5598-13-0	-	< 8.0	-	**N**
Methyl parathion	298-00-0	-	< 39.0	-	**N**
Pirimiphos methyl	29232-93-7	-	< 8.0	-	**N**
Fenitrothion	122-14-5	-	< 20.0	-	**N**
Malathion	121-75-5	-	< 8.0	-	**N**
Chlorpyrifos	2921-88-2	-	< 8.0	-	**N**
Fenthion	55-38-9	-	< 39.0	-	**N**
Pirimiphos ethyl	23505-41-1	-	< 8.0	-	**N**
Parathion	56-38-2	-	< 20.0	-	**N**
Clofenvinfos	470-90-6	-	< 12.0	-	**N**
Enthion	563-12-2	-	< 12.0	-	**N**
Triazophos	24017-47-8	-	< 12.0	-	**N**
Carbofenthion	786-19-6	-	< 12.0	-	**N**
Phosalone	2310-17-0	-	< 20.0	-	**N**
Azinphos-Methyl	86-50-0	-	< 20.0	-	**N**
Azinphos-ethyl	2642-71-9	-	< 20.0	-	**N**

Internal Standards	% Area
Naphthalene-d8	68
Phenanthrene-d10	92
Perylene-d12	104

Surrogates	% Rec
Malathion-d6	78
Chlorpyrifos-ethyl-d10	83

ESG Asbestos Limited

Certificate of Analysis for Asbestos in Soils

1089

ASBESTOS ANALYSIS RESULTS - SOIL ANALYSIS

Client:	Scientifics Environmental Chemistry	Page 1 of 1
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	Report No:ANO-0488-387
For the attention of :	WYG Environment	Report Date:25/10/10
Site Address:	SFA St Athan TF	Project Number:S107038

SAMPLE NUMBER	SAMPLE DATE	SAMPLE LOCATION	Sample Type	DEPTH (M)	TEST DATE	% asbestos by dry weight**	ASBESTOS FIBRE TYPES IDENTIFIED
CL/1030934		TP318 0.4			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030935		TP319 0.3			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030936		TP320 0.3			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030937		TP317 0.3			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030938		TP313 0.2			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030939		TP316 0.4			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030940		TP310 0.3			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030941		TP307 0.1			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030942		TP304 0.1			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030943		TP309 0.3			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030944		TP312 0.1			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030945		TP315 0.1			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030946		TP314 0.1			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030947		TP311 0.2			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030948		TP308 0.2			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030949		TP303 0.1			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030950		TP302 0.4			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030951		TP301 0.4			25/10/2010	Screen Only	No Asbestos Identified in Sample
CL/1030952		TP306 0.1			25/10/2010	Screen Only	No Asbestos Identified in Sample

*Sampling carried out by client ** Detection limit advised by client

The sample analysis for the above results was carried out using the procedures detailed in ESG Asbestos Limited in house method (SCI-ASB-020) based on HSE document MDHS 90 - Asbestos Contaminated Land - Draft 5 - November 1997 (withdrawn). Fibre identific

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	AMMAR	As Received	Determination of Exchangeable Ammonium in Soil using potassium chloride extraction, discrete colorimetric detection
Soil	BTEXHSA	As Received	Determination of Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) by Headspace GCFID
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Air Dried	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Air Dried	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Air Dried	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	ICPWSS	Air Dried	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	KONECR	Air Dried	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	OCPsw	As Received	Determination of Organochlorine Pesticide (OCP) compounds in samples by hexane/isooctane followed by GCMS detection
Soil	OPPsw	As Received	Determination of Organophosphorus Pesticide (OPP) compounds by dichloromethane/isooctane followed by GCMS detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PHEHPLC	As Received	Determination of Phenols by methanol extraction followed by HPLC detection
Soil	PHSOIL	As Received	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.
Soil	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Soil	Subcon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
Soil	SVOCMSUS	As Received	Determination of Semi Volatile Organic Compounds in soil samples by hexane / acetone extraction followed by GCMS detection
Soil	TMSS	As Received	Determination of the Total Moisture content at 105ºC by loss on oven drying gravimetric analysis
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection.
Soil	TPHUSSI	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection including quantitation of Aromatic and Aliphatic fractions.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	VOCSW8100	As Received	Determination of Volatile Organic Compounds (VOC) by purge and trap followed by GCMS detection
Soil	WSLM59	Air Dried	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on an air dried basis
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Oil analysis specific

Unless stated otherwise,
- Results are expressed as mg/kg
- SG is expressed as g/cm^3@ 15^{o}C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile
CR Denotes Crocidolite
AM Denotes Amosite
NAIIS No Asbestos Identified in Sample

Symbol Reference

^ Sub-contracted analysis. Note: The accreditation status is that assigned by the subcontract laboratory.
$$ Unable to analyse due to the nature of the sample
¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols. This may have resulted in deterioration of the sample(s) during transit to the laboratory. Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling
¥ Results for guidance only due to possible interference
& Blank corrected result
I.S Insufficient sample to complete requested analysis
I.S(g) Insufficient sample to re-analyse, results for guidance only
Intf Unable to analyse due to interferences
N.D Not determined
N.Det Not detected
Req Analysis requested, see attached sheets for results
Þ Raised detection limit due to nature of the sample
***** All accreditation has been removed by the laboratory for this result
‡ MCERTS accreditation has been removed 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 further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

END OF REPORT

Sample Descriptions

Client : WYG Environment

Site : SFA St Athan TF

Report Number : S10_7038M

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1030934	TP318 0.4	Brown Gravel SILT
CL/1030935	TP319 0.3	Brown Gravel SILT
CL/1030936	TP320 0.3	Brown Gravel SILT
CL/1030937	TP317 0.3	Brown Gravel SILT
CL/1030938	TP313 0.2	Brown SILT
CL/1030939	TP316 0.4	Brown SILT
CL/1030940	TP310 0.3	Brown Gravel SILT
CL/1030941	TP307 0.1	Brown SILT
CL/1030942	TP304 0.1	Brown SILT
CL/1030943	TP309 0.3	Brown SILT
CL/1030944	TP312 0.1	Brown SILT
CL/1030945	TP315 0.1	Brown SILT
CL/1030946	TP314 0.1	Brown SILT
CL/1030947	TP311 0.2	Brown SILT
CL/1030948	TP308 0.2	Brown Stone SILT
CL/1030949	TP303 0.1	Brown SILT
CL/1030950	TP302 0.4	Brown SILT
CL/1030951	TP301 0.4	Brown SILT
CL/1030952	TP306 0.1	Brown SILT

END OF REPORT

Appendix G - CIRIA 552 Risk Assessment Methodology

The following tables are derived from CIRIA C552 and have been used to define the risk rating presented in the Qualitative Risk Assessment matrix in Section 11.0.

Classification of consequence

Classification	Definition
Severe	Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short term risk of pollution (note; Water Resources Act contains no scope for considering significant pollution) of sensitive water resource. Catastrophic damage to building/property. A short term risk to a particular ecosystem, or organism forming part of such ecosystem. (Note the definitions of ecological systems within the Draft Circular on Contaminated Land DETR, 2000).
Medium	Chronic damage to human health ('significant harm', as defined In DETR, 2000). Pollution of sensitive water resources (note; Water Resources Act contains no scope for considering significant pollution). A significant change in a particular ecosystem, or an organism forming part of such an ecosystem. (Note the definitions of ecological systems within the Draft Circular on Contaminated Land DETR, 2000).
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm', as defined In DETR, 2000). Damage to sensitive buildings/structures/services or the environment.
Minor	Harm, although not necessarily significant harm, which may results in a financial loss, or expenditure to resolve. Non-permanent heath effects to human health (easily prevented by means such as persona protective clothing etc). Easily repairable effects of damage to buildings, structures and services.

Classification of probability

Classification	Definition
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the ling term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollutant linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period that such an event would take place, and is even less likely in the sorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Matrix of consequence against probability to gain a risk classification

		Consequence			
		Severe	**Medium**	**Mild**	**Minor**
Probability	**High Likelihood**	Very High Risk	High Risk	Moderate Risk	Moderate/Low Risk
	Likely	High Risk	Moderate Risk	Moderate/Low Risk	Low Risk
	Low likelihood	Moderate Risk	Moderate/Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate/Low Risk	Low Risk	Very Low Risk	Very Low Risk

Appendix H – Proposed Development Plan

WYG Planning & Design
part of the WYG group

MoD housing for DTC
St Athan

Tremains Farm

Illustrative layout

TF:MP02
revision C

Capacity

Unit type	No.
3B	110
4B	59
Total	169

Farmers access

modelled flood outline
(100% blockage)

LEAP

Notes:
Modelled flood outline as provided electronically by Entec, 23 January 2009.

The location of the site boundary has been estimated under vegetation canopies and/or where site features are unclear on the topographic survey.

North

0 10 20 30 40 50 metres

A038833[2]drgTF:MP02 revision C 07 May 2009

File: A038833[2]drf[P]TFv1.mcd Scale 1:500@A0

creative minds safe hands

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Email: info@wyg.com www.wyg.com

Based upon the WS Atkins aerial topographic survey, 2002, provided by the Welsh Assembly Government, moved from local grid to national grid with an additional translation of X=3.140, Y=2.638m (translation B).