

Lattice Property Holdings Limited
Willow Works, Merthyr Tydfil
Factual Site Investigation Report
Mentor No. 015018

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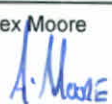
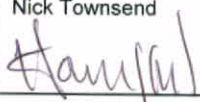
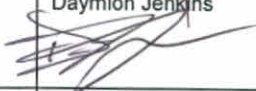
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Date	26 February 2002	10 May 2002	3 July 2002	
Prepared by Signature	Alex Moore	Alex Moore	Alex Moore	
Checked by Signature	Nick Townsend	Nick Townsend	Nick Townsend	
Authorised by Signature	Daymion Jenkins	Daymion Jenkins	Daymion Jenkins	
Project number File reference	13010049	13010049	13010049	

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WILLOW WORKS, MERTHYR TYDFIL

Factual Site Investigation Report Mentor No. 015018

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WILLOW WORKS, MERTHYR TYDFIL

Factual Site Investigation Report Mentor No. 015018

EXECUTIVE SUMMARY

Current Site Status	The site is located at The Willows, Abercanaid, Merthyr Tydfil, CF48 1YF, and occupies an area of 2.83 ha with the site centre located at OS National Grid Reference (NGR) 305279, 204957. The site comprises an active Pressure Reduction Station (PRS) and Transco compound with large areas of site sub let as a transport yard, dairy and garden centre, with small unoccupied areas retained by Lattice Property.
Site History	Site originally developed around 1900 as a wire works, before construction of gas works around 1910. Gas production was undertaken on site until circa 1950 when gas production ceased. The site was subsequently utilised as a depot, and more recently sub leased.
Geology	Made ground over extensive glacial sands and gravels proved to a depth of 17 metres below ground level adjacent to the River Taff. Bedrock strata (Coal Measures) were encountered in a single location.
Hydrogeology	The underlying Coal Measures are a Minor Aquifer, utilised for abstraction within 300 metres of the site. Groundwater was encountered within the superficial gravels at a level of approximately 3 metres below ground level, apparently in hydraulic continuity with the River Taff.
Hydrology	The eastern site boundary directly abuts the River Taff, which flows past the site in a southerly direction. Two culverts have been identified beneath the subject site, discharging into the River Taff.
Site Investigation	Works comprised the excavation of thirty trial pits, eight window samples and six cable tool boreholes, with analysis of ninety seven soil samples and ten groundwater samples and associated leachability testing. Investigation in a number of areas was limited due to operational leased land.

WILLOW WORKS, MERTHYR TYDFIL

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1 INTRODUCTION

1.1 General

WSP Environmental was retained by Lattice Property Holdings Limited to conduct a site investigation and provide an interpretative report on ground conditions at the former gas works site at The Willows, Abercanaid, Merthyr Tydfil, CF48 1YF. This is detailed on Lattice Property Order No. 423145, dated 15 August 2001.

The works were undertaken in accordance with guidance laid out by Lattice Property Holdings (Version 2.5) and followed the requirements of BS5930:1999 Code of Practice for Site Investigation and BS10175:2001 Code of Practice for the Identification of Potentially Contaminated Sites.

1.2 Report Format

The report describes the present site status, available history, geology, hydrogeology, hydrology and environmental status of the site.

1.3 Sources of Information

The following sources of information have been utilised in the preparation of this report:

- Factual Desk Study (Komex Clarke Bond – June 1999 (Ref. 50286));
- Lattice Property Holdings (LPH), Llanishen (Richard Williams 02920 767642);
- Transco, Llanishen (Tony Abdul 02920 588209).

1.4 List of Contacts

The following contacts were made during the course of the research and investigation works:

- Tony Abdul – Network Operations Manager, Transco.

1.5 Site Reconnaissance

Mr Nick Townsend of WSP Environmental undertook a Site Walkover on 10 May 2001. A Transco representative was present during the site walkover.

2 SITE AREA

2.1 Site Location and Description

2.1.1 Site Location

The former "Willow Works Gas Works Site" is located at The Willows, Abercanaid Industrial Estate, Abercanaid, Merthyr Tydfil, Mid Glamorgan, CF48 1YF. The site is located approximately one kilometre to the south of Merthyr Tydfil town centre at OS National Grid Reference (NGR) 305279, 204957. The site occupies an area of 2.83 ha and can be divided into several areas, all of which are generally flat. A site location plan is included as Figure 1.

2.1.2 Site Description

A plan indicating the site layout is included as Figure 2, whilst plates detailing the site condition during our inspection are included as Appendix A. A plan indicating the location of plates is included as Figure 6. For the purposes of clarity, the site has been sub-divided into a number of land parcels labelled A to H. The designation and extent of each parcel is indicated on Figure 2A.

The northern most area (Area A) is currently leased to Unigate Dairies and has an area of 9419m². The area is covered with mixed tarmac, concrete and gravel hardstanding with several buildings present. Structures include a warehouse in the north of this area, a central depot and a disused above ground storage tank and associated pumps in the east. A single storey building in the south-east corner of Area A has been sub let to a security firm. A tarmac road encircles the central warehouse and links up with the main access road from the south.

Area A is surrounded by palisade fencing on all sides. The River Taff runs along the eastern site boundary for its full length of approximately 115 metres. A public footpath runs along the bank of the river between the palisade fencing and the river. The northern boundary is 70 metres long with waste ground lying beyond. The western boundary of Area A is irregular in shape and measures 140 metres in length; the boundary fence comprising a mix of palisade fence and wire mesh.

Area B is covered with rough hardstanding with mature vegetation at the northern fringe and along the western boundary. Area B covers an area of 2600m² and is currently utilised for parking articulated lorry trailers and minibuses. The northern boundary, approximately 100 metres in length, comprises a chain link fence along its entire length. The fence along the southern boundary of this area measures approximately 35 metres in length and is in poor condition.

The central part of Area B was flooded to a depth of approximately 200mm at the time of the preparation of this report.

Area C is surfaced with tarmac and is currently disused. It is rectangular in shape, measures 20 metres by 25 metres and is fenced with chain link on its northern and southern boundaries. The eastern and western boundaries are unfenced.

Area D adjoins Areas B and C, has an area of 3867m² and is currently let to a haulage company. A garage occupies the western area of the site, whilst a large warehouse occupies the eastern site area. The ground cover comprises areas of tarmac and concrete, with occasional areas of ashy gravel hardstanding. A chain link fence forms the western and southern boundary, both of which are 50 metres in length. A damaged chain link fence forms the boundary to the north.

Area E is currently unoccupied and covers an area of 2021 m², of which, 50% is gravel and 50% tarmac hardstanding. A former building base is situated in the north west of the area and a storage building is situated in the north-east. A bunded tank and area of hardstanding are present in the east of this area. Former aggregate storage bays are located on the southern boundary.

The southern boundary comprises palisade fencing and runs for 20 metres to the west, 20 metres to the south and a further 20 metres to the west. The eastern boundary comprises palisade fencing and runs for approximately 60 metres parallel to the access road with a gate at the northern end. The eastern boundary runs parallel to the river, measures 40 metres in length and comprises palisade fencing.

Area F comprises 50% hardstanding (partially tarmac) and 50% topsoil with an area of 1260m². A derelict building is found in the centre with two storage bays on the west side. The building extends below ground level with chambers and pipework evident. The north and east boundaries are of chain link fence and are both approximately 40 metres long, and are both in good condition. The southern boundary adjoins a residential property and comprises dilapidated wooden fencing. A further disused building makes up the eastern boundary with access being provided via a lockable wire mesh gate.

Area G is currently the active Transco compound and is surrounded by palisade fencing. The eastern boundary is 130 metres long and runs parallel to the River Taff. The western boundary is 100 metres long with an access gate at the northern end. A Pressure Reduction Station (PRS), and associated governor buildings occupy the northern part of the area. The remainder of the compound is covered with gravel hardstanding and is generally flat.

Area H is currently sub let to The Willows Garden Centre. It comprises a tarmac car park to the north with a grass verge sloping towards a palisade fence. The garden centre building occupies the central portion of the area with a fenced off yard area surrounding to the south and west.

2.1.3 Site Access

A tarmac access road runs for approximately 180 metres north south up the centre of the site.

2.1.4 Adjoining and Nearby Land Uses

In terms of environmental setting, the River Taff directly abuts the eastern site boundary with residential properties beyond. Light industrial units occupy land to the west, with a private residential dwelling to the south-west of the site. Land to the north and south is not currently occupied.

2.1.5 Site Services

The Desk Study Environmental Assessment for the subject site undertaken by Komex Clarke Bond contains underground service plans for the following utilities:

- Sewerage system (Merthyr Tydfil County Borough Council);
- Telecommunications (British Telecom);
- Water mains (Welsh Water);
- Gas (TRANSCO);

A plan indicating the approximate location of site services is included as Figure 3.

2.2 **Geology, Hydrogeology and Hydrology**

2.2.1 Geology

The published geological map records the site to be underlain by Coal Measures and the Millstone Grit of Carboniferous Age. A nearby British Geological Society (BGS) borehole (350 metres south-west) records coal seams separated by Mudstones and Siltstones at shallow depth (12 mbgl). Extensive glacial deposits (Glacial Till) extend across much of the lowland areas with river alluvium found within most of the river valleys of the region.

2.2.2 Hydrology

The hydrology of the area is dominated by the River Taff, which directly abuts the eastern site boundary and flows in a southerly direction. The water quality of the river is RE2 (water of good quality suitable for all fish populations), Class C (Fair). Surface water from the site is likely to run off into the River Taff to the east, both from areas of hard standing, and via infiltration into the ground where soft cover is present. Average annual rainfall in the area is in the range of 1600 mm (NERC data).

Two culverts have been identified passing beneath the subject site. One crosses the site north-west to south-east, crossing the central portion of the site, discharging into the River Taff. A

second culvert crosses the southern fringe of the site west to east beneath the garden centre, and also discharges into the River Taff.

The Landmark Enviro-Check Report, included within the Desk Study Report, records a surface water abstraction from the River Taff 900 metres downstream for industrial use.

The Landmark Enviro-Check report records two active discharge consents within one kilometre of the subject site. Both are held by Welsh Water, one of which directly relates directly to the site with the other relating to a discharge into the River Taff 900 metres upstream.

2.2.3 Hydrogeology

The published Environment Agency Groundwater Vulnerability Map (Gwent, South and Mid Glamorgan) records the underlying strata a Minor Aquifer overlain by soils of high leaching potential.

The groundwater regime beneath the site is likely to be subdivided into a shallow groundwater table in hydraulic continuity with the River Taff, and deeper groundwater within the underlying Coal Measures.

The Landmark Enviro-Check report records a single licensed groundwater abstraction 300 metres from the site, yielding less than 5 litres per second from a borehole 93 metres deep (presumably within the Coal Measures). The water is utilised for industrial use by TBS (Triumph) Ltd for industrial use.

Previously excavated trial pits by Haliburton NUS Environmental experienced groundwater ingress between 1.80 to 2.70 metres below ground level (mbgl). The groundwater was encountered within the glacial deposits.

2.3 **Site History**

2.3.1 Historical Development of Site

The site history has been determined from the inspection of the historical Ordnance Survey maps contained within the Landmark Enviro-Check Report prepared for the site, and supplemented with additional information from the County Records office and the BG Archives.

The 1876 edition OS Old County Series plan indicates the site area to be undeveloped. An area of tipping is recorded to the north of the site, slightly encroaching on the northern site boundary. A brook bisects the site flowing from west to east across the central site area. A cottage labelled "The Willows" occupies land on the extreme western site boundary. No significant development is recorded on the 1889 edition.

The surrounding land is recorded as marshy, with woodlands with further filling activities being undertaken to the south of the site. The Taff Vale Railway Company and the Plymouth Iron Works are indicated to the east of the River Taff.

Research from the Factual Desk Study Report records the site to be originally developed as a Wire Works around 1900, with the subsequent development of the Merthyr Willows Gas Works occurring between 1908 and 1910.

An undated site plan of the first generation works (likely to be from 1910) shows the retort house in the north of the site, the two gas holders with purifiers to the south, and a CWG plant and scrubbers to the east.

The Willow Works ceased gas production in 1951 and the site was subsequently used as a depot and for storage. The other parts of the site were leased to various companies including Unigate Dairies, Thomas Pie Bakery, Aran Transport and Davies Transport. The gasholders were decommissioned and dismantled circa 1993.

A plan indicating the historical development of the site and the location of the former site boundaries and structures is included as Figure 4.

2.3.2 Previous Site Investigation

Haliburton Environmental undertook a 'boundary survey' of the site in 1993. This comprised 12 no. trial pits excavated at the site boundary to depths of between 0.50 and 3.00 mbgl. Chemical analysis of soil samples identified concentrations of phenol above the ICRL Threshold Trigger Levels for industrial/commercial use in the northern corner of the site, with polycyclic aromatic hydrocarbons (PAH) detected in most trial pits. The investigation also identified concentrations of metals, notably arsenic, zinc and copper above the ICRL Threshold Trigger Levels for industrial/commercial use. Diesel staining and odour were observed in one location, between the River Taff and a bunded diesel tank.

3 SITE INVESTIGATION DATA

3.1 On site Activities

WSP Environmental carried out a site investigation between 1st and 17th October 2001 at the Willows Site.

Prior to any intrusive works, a specialist service location contractor scanned the proposed borehole and trial pit locations. Where services were identified in close proximity to proposed works, they were exposed by hand digging to positively identify their location.

Investigation within leased areas was prohibited or severely limited, due to current operational activities.

The site investigation comprised the advancement of 6 No. boreholes by cable tool percussive techniques to depths ranging between 2.10 and 17.00 mbgl and the excavation of 30 No. trial pits using a back-acting mechanical excavator to depths ranging between 0.80 and 4.30 mbgl. Where trial pitting was deemed too disruptive or too close to existing structures, lightweight portable window sampling equipment was utilised. 8 No. Window samples were drilled to depths varying between 0.50 and 2.50 metres.

During excavation, the trial holes were logged based on in-situ observations and examination of arisings. Representative disturbed samples were taken, preserved and stored at four degrees Celsius prior to dispatch to the laboratory for analyses within 24 hours. Excavated materials were stockpiled on HDPE liners and following logging, were replaced and compacted in the trial pit in reverse order.

The site investigation works were supervised full time by a qualified Environmental Geologist (SCO2 trained and Lattice authorised competent person) who logged the strata and prepared the trial pit, borehole and window sample logs included as Appendices B, C and D.

50mm nominal diameter groundwater monitoring standpipes were installed in each of the boreholes drilled to facilitate groundwater monitoring and sampling. Two separate groundwater monitoring events were undertaken at a two week interval following the site works.

Chemical laboratory analyses were carried out by Alcontrol Geochem Laboratories, and soil, water and leachability chemical laboratory results are presented as Appendix E.

Following the site investigation works the locations of all the boreholes and trial pits were added to an existing topographic survey of the site. This is included as Figure 5.

3.2 Ground conditions

Variable ground conditions were encountered across the site, with made ground being encountered at all exploratory locations during the site investigation. For the purposes of clarity, the site has been sub divided using the same nomenclature as utilised in the site description.

Area A to the north of the site was covered with a mantle of fill materials, the proven thickness of which varied between 1.30 and 2.00 metres below ground level (mbgl) across the area. The fill materials comprised silty sand and gravel sized fragments of ash, clinker concrete and stone. A building foundation was encountered in Trial Pit 22 where reinforced concrete was encountered to a depth of 1.60 mbgl. Natural strata beneath Area A comprised an upper mantle of firm to stiff sandy silt (Trial Pits 22, 23 and 25) overlying moderately compact to compact brown sandy gravels and cobbles with occasional boulders.

Areas B and C encountered similar ground conditions. An upper mantle of sub base (locally 0.10 to 0.20 metres in thickness) overlaid a sequence of fill materials. A thickness of loose red brown and dark brown sandy gravel of ash and clinker was encountered in Trial Pits 31, 32, 36 and 44 and in Borehole 5. Trial Pit 29 encountered a band of soft black fine sandy silt from 0.40 to 1.10 mbgl. This strata was not encountered at any other location. Trial Pit 30 encountered coarse demolition rubble from ground level to a depth of 1.20 mbgl.

At all locations within this area (bar Trial Pits 30 and 32) the basal layer of made ground comprised a dark grey sandy fine to coarse gravel, cobbles and boulders of ash, brick, clinker slag and stone. This layer was deepest in Trial Pit 30 where the natural strata had not been proven at 3.00 mbgl.

Natural strata comprised an upper mantle of silty sand in Trial Pits 31 and 44, whilst elsewhere moderately compact sandy gravels and cobbles were encountered in direct contact with fill materials. Borehole 5 encountered bedrock strata at 6.50 mbgl, comprising highly to totally weathered mudstone.

Area D within the transport yard encountered an upper mantle of hardstanding and sub base overlying a mantle of red brown and brown silty sand and gravel of ash and clinker, with fragments of coal and brick. This in turn overlaid a coarser gravel and cobbles including fragments of brick, stone, pipe, slag and ash, the base of which varies between 1.10 and 3.10 mbgl. The underlying natural strata comprised occasional pockets of silty sand overlying a moderately compact to compact sandy gravel and cobbles.

Area E was covered with a mix of hardstanding and grass cover. A former storage tank base, former building base and former aggregate bunkers were evident at the surface. Proven fill thickness increased south-westwards towards Trial Pit 10, where the base of fill was greater than 3.30 mbgl. The fill materials comprised dark grey sandy fine to coarse gravel and cobbles of stone, with fragments of ash and slag. Trial Pit 9 proved exceptional with a loose red brown sand and gravel of ash, slag, stone and clinker proven to a depth of 2.10 mbgl. Borehole/Trial Pit 3 (unable to be drilled, so extended into a Trial Trench) encountered extensive hydrocarbon contamination, including flowing tar, within the fill materials. Natural strata within Area E, was encountered between 1.30 and 2.10 mbgl and comprised an upper mantle of fine sandy silt (Trial Pit 9) overlying sandy fine to coarse rounded gravel and cobbles.

Area F within the vicinity of an old pump house encountered variable ground conditions. It was noted that the pump house appeared to have sub surface structures within to a depth of approximately 2.00 mbgl. Trial Pit 45 encountered gas pipes not indicated on the service plans and was terminated within the fill at 1.60 mbgl. Fill materials were dark grey silty sands and gravels of ash and slag, with abundant gravel and cobble sized fragments of brick, concrete and masonry. Trial Pit 42 on the western fringe encountered heterogeneous fill with fragments of pipe, steel and glass to a depth of 1.10 mbgl. Borehole 6 encountered 4.50 metres of fill comprising dark grey brown silty sand and gravel with fragments of ash, slag and stone. Natural strata comprised an upper mantle of clayey silt in Trial Pit 42 overlying sandy rounded gravel and cobbles. Borehole 3 proved the natural gravels and cobbles to a depth of 11.00 mbgl.

Area G encountered differing ground conditions to the remainder of the site area. An upper mantle of engineering fill was present across majority of the area to depths varying between 0.60 and 1.20 mbgl. Trial Pits 5 and 7 encountered an extremely heterogeneous layer beneath the engineering fill, comprising very dark grey gravel with fragments of ash, clinker, brick, stone, cable pipe, railway sleepers and whole railway tracks.

A layer of fused slag was identified beneath the footprint of the former gasholders (probably the gasholder bases). This layer proved extremely hard, with reinforcing encountered towards the base and proved difficult to break out, even using a JCB with hydraulic breaker attachment. The thickness of this layer varied between 0.80 and 1.10 metres. Trial Pit 4 did not encounter the slag and Borehole 2 did not penetrate the slag and was re-drilled as Borehole 2A.

Trial Pits 3, 7 and 8 along the western fringe of Area G encountered natural strata at between 2.00 and 3.20 mbgl. An upper mantle of sandy clayey silt was present at each location overlying a silty sandy fine to coarse rounded gravels and cobbles. Trial Pits 5 and 6 encountered silty sandy fine to coarse rounded gravels and cobbles directly beneath the fill.

Boreholes 1 and 2A proved the gravels to depths of 7.50 and 17.00 mbgl respectively. Borehole 2A was extended in an attempt to record the thickness of the gravels, but drilling became

impractical below 17.00 metres. Hydrocarbon contamination was recorded across the area, in association with the surface of the groundwater.

Area H was not investigated due to the presence of a large culvert across the area and disruption to the Garden Centre car park.

A table summarising the ground conditions encountered during the site investigation works is included as Appendix F. A table detailing the visual and olfactory evidence of contamination identified during the site investigation works is included as Appendix G.

3.3 Groundwater

Groundwater was typically encountered beneath the fill materials at a level of approximately 3.00 mbgl. This groundwater appears to be in hydraulic continuity with the River Taff. No significant rise in groundwater level was noted following water strikes. The surface of the groundwater appeared contaminated in a number of locations.

The results of the groundwater monitoring suggest a southerly groundwater flow direction. A plan indicating the groundwater elevation contours is included as Figure 10.

Table 1 summarises the results of the groundwater monitoring undertaken during and following the site works.

TABLE 1: SUMMARY OF GROUNDWATER MONITORING RESULTS

Location	Elevation of BH Base	Depth to Groundwater (metres Above Ordnance Datum)		
		End of site works 28/09/01	Monitoring Event 1 20/11/01	Monitoring Event 2 29/11/01
BH01	150.736m	153.736m	152.876m	152.936m
BH02A	148.285m	154.185m	153.585m	153.545m
BH03	155.129m	157.029m	No Standpipe	No Standpipe
BH04	149.479m	155.379m	154.489m	154.979m
BH05	151.741m	155.441m	154.841m	154.941m
BH06	149.417m	Dry	153.677m	153.717m

3.4 Gas Emissions

Gas monitoring was not included within the scope of the investigation.

3.5 Soil Conditions

The results of the chemical analyses are included as Appendix D. All results are validated by QA/QC data.

WSP Group

FIGURES



Site Location



WSP

Client: Lattice Property Holdings Ltd

Project: Willow Works, Merthyr Tydfil

Title: Site Location Plan

Figure No: 13010049/1

Scale: 1:25000



NOTES:

Key

- Total Land Holding (Lattice Property)
- Transco Area Boundary
- Area covered by WSP Environmental Site Investigation
- GRASS
- TARMAC
- CONCRETE
- GRAVEL
- GRAVEL / SLAG

SITE AREA
3.26 HECTARES

SITE CENTRE
E 305279.48
N 204957.10

SUFFIX	REVISION	INIT	DATE	CHKD

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Interpretative Site Investigation Report

Site:
Willow Works
Merthyr Tydfil

Drawing:
Figure 2 - Site Plan

No: 13010049-02 Scale: 1:1000 Date: 20.02.02

Lattice Property
Prepared by WSP Environmental on behalf of Lattice Property Holdings.

SCALE(m)
0 5 10 15 20
Site area = 0.22 Hectares (0.57 acres)
Site centre = 204957.10 E, 305279.48 N



NOTES:

Key

- Total Land Holding (Lattice Property)
- Transco Area Boundary
- Area covered by WSP Environmental Site Investigation
- Site Sub Divisions
- GRASS
- TARMAC
- CONCRETE
- GRAVEL
- GRAVEL / SLAG

SITE AREA
3.26 HECTARES

SITE CENTRE
E 305279.48
N 204957.10

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Interpretative Site Investigation Report

Site:
Willow Works
Merthyr Tydfil

Drawing:
Figure 2A - Site Sub Divisions

No: 13010049-02a Scale: 1:1000 Date: 20.02.02

Lattice Property
Prepared by WSP Environmental on behalf of Lattice Property Holdings.

SCALE(m)
0 10 20 30
site area = 0.22 Hectares (0.57 acres)
site centre = 204955 E, 100000 N



NOTES:

Key

- Total Land Holding (Lattice Property)
- Transco Area Boundary
- Area covered by WSP Environmental Site Investigation

Services

- BT
- Gas
- Electricity
- Water
- Surface Water
- Foul Water Drain

SITE AREA
3.26 HECTARES

SITE CENTRE
E 305279.48
N 204957.10

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Interpretative Site Investigation Report

Site:
Willow Works Merthyr Tydfil

Drawing:
Figure 3 - Site Services

No: **13010049-03** Scale: **1:1000** Date: **20.02.02**

Lattice Property

Prepared by WSP Environmental on behalf of Lattice Property Holdings.

SCALE(m)
0 5 10 20
Site area = 0.32 Hectares (0.77 acres)
Site centre = 304959.5, 204957.10



- NOTES:**
- Historical Use
1. The Willows
 2. Retort House
 3. CWG Plant
 4. Stores
 5. Underground Storage Tank
 6. Storage Tank
 7. Storage Tank
 8. No1 Gasholder
 9. No2 Gasholder
 10. Stores
 11. Office
 12. Coal Gas Purifiers
 13. Coal Gas Purifiers
 14. Revivifying Floor
 15. Compressor House
 16. Historic Structure (unknown Use)
 17. Historic Structure (unknown Use)
 18. Govonors & Boosters
 19. Historic Structure (unknown Use)
 20. Historic Structure (unknown Use)
 21. Historic Structure (unknown Use)
 22. Historic Structure (unknown Use)
 23. Historic Structure (unknown Use)
 24. Historic Structure (unknown Use)
 25. Office
 26. Historic Structure (unknown Use)
 27. Historic Structure (unknown Use)
 28. Historic Structure (unknown Use)
 29. Historic Structure (unknown Use)
 30. Historic Structure (unknown Use)

- Key**
- Total Land Holding (Lattice Property)
 - Transco Area Boundary
 - Area covered by WSP Environmental Site Investigation
 - Borehole
 - Trial Pit
 - Window Sample
 - Previous Borehole
 - Historical Building

SITE AREA
3.26 HECTARES

SITE CENTRE
E 305279.48
N 204957.10

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Interpretative Site Investigation Report

Site:
Willow Works
Merthyr Tydfil

Drawing:
Figure 4 - Historical Site Layout

No: 13010049-04 Scale: 1:1000 Date: 20.02.02

Lattice Property

Prepared by WSP Environmental on behalf of Lattice Property Holdings.



NOTE: Borehole & Trial Pit Co-ordinates

	EASTING	NORTHING	ELEV
BH1	305359.225	204872.908	156.736
BH2A	305336.189	204922.495	157.585
BH4	305277.109	205071.582	158.379
BH5	305209.135	204957.406	158.441
BH6	305284.053	204884.193	157.717
TPBH3	305311.414	204988.703	158.529
TP3	305344.267	204869.513	157.291
TP4	305349.991	204892.745	157.135
TP5	305337.666	204888.016	157.327
TP6	305345.961	204906.588	157.327
TP7	305328.410	204901.554	157.664
TP8	305320.647	204919.599	158.062
TP9	305322.772	204972.878	158.174
TP10	305295.218	204962.631	158.575
TP11	305283.519	204980.623	158.435
TP12	305297.036	205006.160	158.445
TP13	305275.205	204997.209	158.747
TP19	305267.369	205062.139	158.614
TP22	305226.418	205037.184	158.342
TP23	305199.990	205046.420	158.500
TP25	305209.413	205011.901	158.597
TP27	305253.077	205005.069	158.376
TP28	305232.487	204997.132	158.541
TP29	305215.510	204995.770	158.600
TP30	305206.900	204976.990	158.460
TP31	305261.214	204985.703	158.490
TP32	305245.859	204978.301	158.498
TP34	305269.937	204971.465	158.462
TP35	305252.562	204959.154	158.451
TP36	305225.340	204967.590	158.450
TP39	305236.400	204935.210	158.450
TP40	305223.025	204925.376	158.363
TP42	305270.403	204887.135	157.869
TP43	305249.785	204924.203	158.502
TP44	305215.510	204936.650	158.400
TP45	305277.187	204897.666	157.791
WS14	305295.653	205034.675	158.328
WS17	305269.186	205046.174	158.222
WS18	305264.139	205055.587	158.212
WS20	305250.780	205064.610	158.400
WS21	305242.642	205047.198	158.427
WS37	305282.501	204940.048	158.459
WS38	305265.385	204942.760	158.512
WS41	305277.090	204923.523	158.488

Key

- Total Land Holding (Lattice Property)
- Transco Area Boundary
- Area covered by WSP Environmental Site Investigation
- Borehole
- Trial Pit
- Window Sample
- Previous Borehole

SITE AREA
3.26 HECTARES

SITE CENTRE
E 305279.48
N 204957.10

SUFFIX	REVISION	INIT	DATE	CHKD

WSP Environmental

9, Ty-Nant Court,
Merthyr Tydfil,
Cardiff CF11 8LW
Tel: +44(0) 29 2082 0020
Fax: +44(0) 29 2082 0021

Interpretative Site Investigation Report

Site:
Willow Works
Merthyr Tydfil

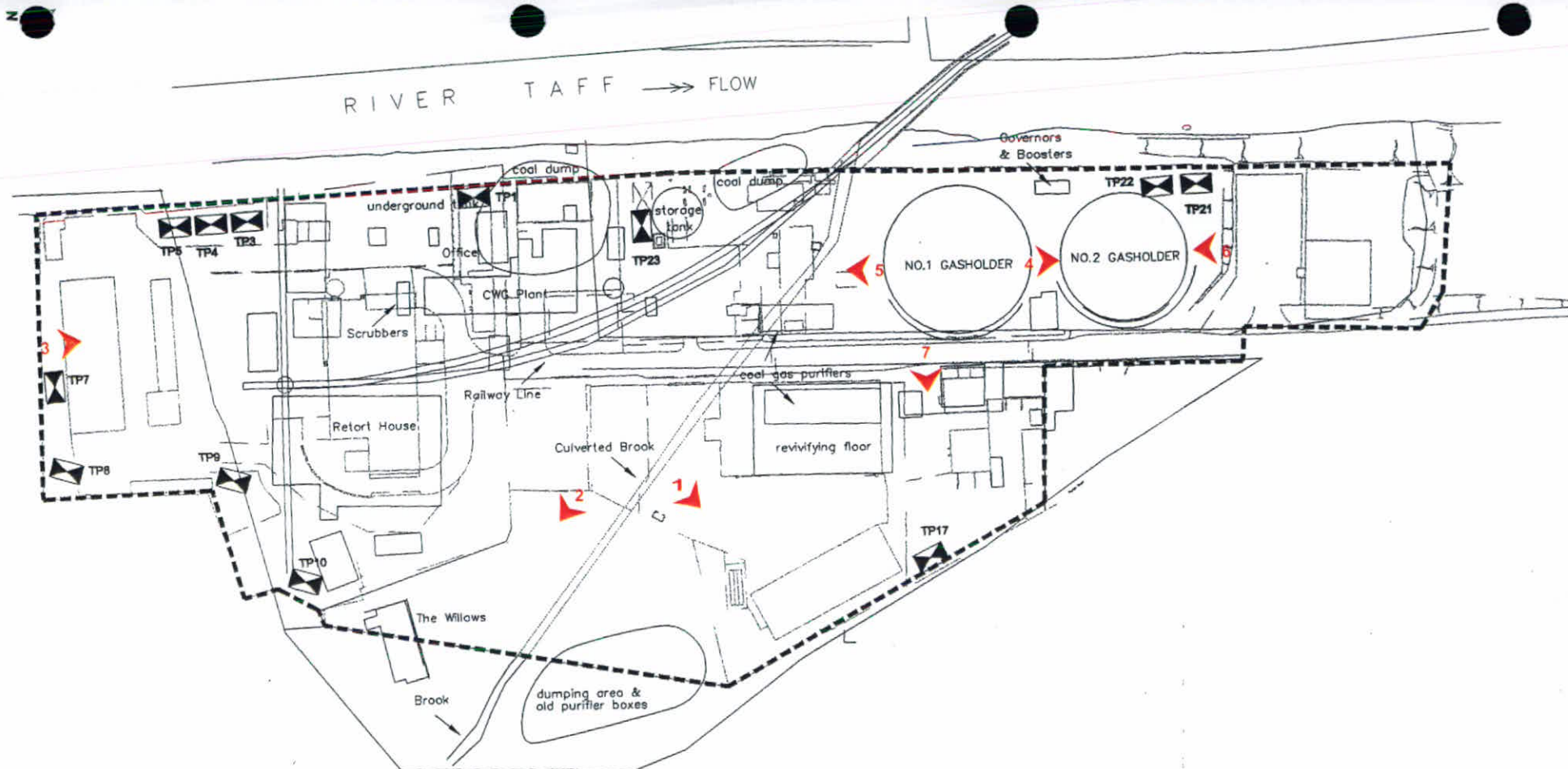
Drawing:
Figure 5 - Exploratory Location Plan

No: 13010049-05 Scale: 1:1000 Date: 20.02.02

LatticeProperty

Prepared by WSP Environmental on behalf of Lattice Property Holdings





WSP

Client : Lattice Property Holdings

Project : Willow Works, Merthyr Tydfil, S Wales

Title : Plan Indicating Location of Plates

Figure No. 6.

Scale : N.T.S.

APPENDIX A
PLATES



Plate 1: View looking south-westwards in Davies Transport Yard (Area D)



Plate 2: View looking north-westwards in Davies Transport Storage Area (Area B)



Plate 3: View looking southwards from northern site boundary within Unigate Site (Area A)



Plate 4: View looking southwards from within Area G towards the Willows Garden Centre in Davies Transport Yard (Area D)



Plate 5: View looking northwards towards PRS within (Area G)



Plate 6: View looking northwards towards PRS within (Area G)



Plate 7: View looking westwards into Area F from access road

APPENDIX B
TRIAL PIT LOGS

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP03				
CLIENT Lattice Property Holdings		DATE 2 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.05	MADE GROUND Loose grey 20mm limestone gravel.		157.24	0.05		
	MADE GROUND Moderately compact light buff brown slightly silty sandy fine, medium and coarse angular gravel and cobbles (engineering fill)					D 01
1.20	MADE GROUND Layer of fused slag, recovered as sandy fine, medium and coarse angular gravel with a slight hydrocarbon odour.		156.09	1.20		
						D 02
2.00	Firm to moderately compact dark brown slightly clayey sandy SILT.		155.29	2.00		
						D 03
2.50	Firm dark grey brown slightly clayey fine sandy SILT with a little fine and medium sub rounded and rounded gravel.		154.79	2.50		
						D 04
3.20	Moderately compact red brown and black slightly silty fine SAND/fine sandy SILT with much fine, medium and coarse sub rounded and rounded gravel and cobbles.		154.09	3.20		
						D 06
3.50	Moderately compact red brown and black slightly silty fine SAND with much fine, medium and coarse sub rounded and rounded gravel and cobbles. Strong odour of hydrocarbons and visible oily sheen with black staining around cobbles.		153.79	3.50		
						D 07
3.70	End of Trial Pit at 3.70 m.		153.59	3.70		
KEY		REMARKS				
Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer				
EASTING 305344.27		NORTHING 204869.61		GROUND LEVEL (mAOD)		
TRIAL PIT WIDTH		TRIAL PIT LENGTH		LOGGED BY A Moore		
WSP ENVIRONMENTAL						

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP04	
CLIENT Lattice Property Holdings		DATE 3 October 2001	
METHOD		PROJECT No 13010049	
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)
0.50	MADE GROUND Moderately compact dark grey brown slightly silty sandy fine, medium and coarse sub angular to angular gravel with occasional cobbles and boulders. Fragments of bricks, coal, slag, and glass.		156.84
1.30	MADE GROUND Loose dark grey brown slightly silty sandy fine, medium and coarse angular gravel. Fragments of coal, metal, brick, whole bricks, insulation and slag.		155.84
2.00	MADE GROUND Loose to moderately compact slightly sandy fine, medium and coarse gravelly sub rounded and rounded cobbles and boulders. Fragments of brick and masonry. Moderate odour of hydrocarbons and visible oily sheen.		155.14
3.10	POSSIBLE MADE GROUND Compact dark grey brown slightly silty sandy fine medium and coarse sub rounded to rounded and sub angular gravel with cobbles and boulders. Moderate odour of hydrocarbons.		154.04
End of Trial Pit at 3.10 m.			
KEY		REMARKS	
Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer	
EASTING 305349.99		NORTHING 204892.74	
TRIAL PIT WIDTH		TRIAL PIT LENGTH	
LOGGED BY A Moore		WSP ENVIRONMENTAL	

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP05	
CLIENT Lattice Property Holdings		DATE 2 October 2001	
METHOD		PROJECT No 13010049	
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)
0.05	MADE GROUND Loose grey 20mm limestone gravel. MADE GROUND Light buff brown slightly silty sandy fine, medium and coarse angular gravel and cobbles (engineering fill)		157.28
0.90	MADE GROUND Loose to moderately compact dark grey brown silty sandy fine, medium and coarse sub angular to angular gravel. Gravel sized fragments of ash, slag, clinker, brick and stone. Cobble sized fragments of cable and pipe, including whole railway tracks.		156.43
1.40	MADE GROUND Layer of fused slag, recovered as sandy fine, medium and coarse angular gravel.		155.93
2.20	MADE GROUND Loose to moderately compact red brown slightly silty ashy sand with much fine, medium and coarse sub angular to rounded gravel and cobbles. Fragments of coal, ash, brick, clinker and concrete.		155.13
3.00	MADE GROUND Moderately compact dark grey and black silty sandy fine, medium and coarse sub rounded to angular gravel and cobbles. Fragments of slag, brick and metal. Strong odour of hydrocarbons and visible oily sheen.		154.33
3.40	Moderately compact to compact dark grey brown and black slightly silty sandy fine, medium and coarse sub rounded and rounded GRAVEL AND COBBLES. Strong odour of hydrocarbons and visible oily sheen.		153.93
3.70	End of Trial Pit at 3.70 m.		153.63
KEY		REMARKS	
Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer	
EASTING 305337.67		NORTHING 204888.02	
TRIAL PIT WIDTH		TRIAL PIT LENGTH	
LOGGED BY A Moore		GROUND LEVEL (mAOD)	
WSP ENVIRONMENTAL			

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP06	
CLIENT Lattice Property Holdings		DATE 4 October 2001	
METHOD		PROJECT No 13010049	
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD) SAMPLES & TESTS DEPTH TYPE TEST RESULTS
0.60	MADE GROUND Moderately compact light buff brown coloured fine, medium and coarse angular gravel with cobbles (engineering fill).		0.00 D 01 0.60 D 02 1.50 D 03
1.50	MADE GROUND Layer of fused slag, recovered as sandy fine, medium and coarse angular gravel.		156.73 155.83
3.00	MADE GROUND Moderately compact dark grey sandy silty fine, medium and coarse sub angular to sub rounded gravel with cobbles and boulders		154.33
3.40	Compact dark grey brown sandy silty fine, medium and coarse sub angular to rounded GRAVEL and COBBLES with occasional boulders. Strong odour of hydrocarbons and visible oily sheen.		D 04
	End of Trial Pit at 3.40 m.		153.93 3.40
KEY		REMARKS	
Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer	
EASTING 305345.96 TRIAL PIT WIDTH		NORTHING 204906.59 TRIAL PIT LENGTH	
GROUND LEVEL (mAOD) LOGGED BY A Moore		WSP ENVIRONMENTAL	

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP07	
CLIENT Lattice Property Holdings		DATE 3 October 2001	
METHOD		PROJECT No 13010049	

DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.05	MADE GROUND Loose grey 20mm limestone gravel. MADE GROUND Moderately compact light buff brown slightly silty sandy fine, medium and coarse angular gravel and cobbles (engineering fill)		157.61	0.05	D 01	
1.00	MADE GROUND Moderately compact dark grey brown slightly silty sandy fine, medium and coarse angular gravel and cobbles. Abundant whole bricks and masonry. Strong odour of hydrocarbons, fragments of insulation.		158.68	1.00 1.00	D 02 B 03	
1.70	MADE GROUND Layer of fused slag, recovered as sandy fine, medium and coarse angular gravel with a slight to moderate hydrocarbon odour.		155.96	1.70 1.70	D 04	
2.40	Firm to stiff brown slightly sandy clayey SILT.		155.26	2.40	D 05	
3.10	Compact red brown slightly silty sandy fine, medium and coarse sub rounded to rounded GRAVEL and COBBLES. Slight odour of hydrocarbons 3.10 to 3.30m, becoming strong odour with visible oily sheen between 3.30 and 3.50m		154.58	3.10	D 06	
3.50	End of Trial Pit at 3.50 m.		154.16	3.50		

KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer	REMARKS No groundwater encountered. Odour of hydrocarbons 1.00 to 1.70m. Slight odour of hydrocarbons 3.10 to 3.30m then strong odour of hydrocarbons and visibly oily sheen 3.30 to 3.50m. Severe overbreak of TP sides to 1.00m then unstable to 1.70m, stable to 3.10m then unstable to base. Moderately easy excavation to 1.70m, hydraulic breaker used from 1.70 to 2.40m - duration 2 hours, then moderately easy excavation to 3.10, becoming moderately difficult to base.
EASTING 305328.41	NORTHING 204901.55	GROUND LEVEL (mAOD)	WSP ENVIRONMENTAL
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY A Moore	

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP08			
CLIENT Lattice Property Holdings		DATE 4 October 2001			
METHOD		PROJECT No 13010049			
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS DEPTH TYPE	TEST RESULTS
0.05	MADE GROUND Loose grey 20mm limestone gravel. MADE GROUND Moderately compact light buff brown slightly silty sandy fine, medium and coarse angular gravel and cobbles (engineering fill)		158.01	0.05	
0.90	MADE GROUND Moderately compact light buff brown slightly silty sandy fine, medium and coarse angular gravel with occasional cobbles (engineering fill).		157.16	0.90	D 01
1.60	MADE GROUND Moderately compact light buff brown slightly silty sandy fine, medium and coarse angular gravel and cobbles (engineering fill)		156.46		D 02
2.10	MADE GROUND Layer of fused slag, recovered as sandy fine, medium and coarse angular gravel with a slight odour of hydrocarbons.		155.96	2.10	
3.20	Firm dark grey brown slightly clayey fine sandy SILT with a little fine and medium sub rounded and rounded gravel.		154.86	3.20	D 04
3.70	Compact grey brown and black slightly silty sandy fine, medium and coarse sub rounded and rounded GRAVEL and COBBLES. Strong odour of hydrocarbons and visible oily sheen from 3.70 to 4.30m.		154.36	3.70	D 05
4.30	End of Trial Pit at 4.30 m.		153.76	4.30	
KEY		REMARKS			
Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer			
EASTING 305320.65		NORTHING 204919.60			
TRIAL PIT WIDTH		TRIAL PIT LENGTH			
GROUND LEVEL (mAOD)		LOGGED BY A Moore			
WSP ENVIRONMENTAL					

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP09																																			
CLIENT Lattice Property Holdings		DATE 5 October 2001																																			
METHOD		PROJECT No 13010049																																			
DEPTH (m)	DESCRIPTION	LEGEND	<table border="1"> <tr> <th rowspan="2">LEVEL m(AOD)</th> <th colspan="2">SAMPLES & TESTS</th> <th rowspan="2">TEST RESULTS</th> </tr> <tr> <th>DEPTH</th> <th>TYPE</th> </tr> <tr> <td>158.12 158.07 157.97</td> <td>0.20</td> <td></td> <td></td> </tr> <tr> <td>156.87</td> <td>1.30</td> <td>D 01</td> <td></td> </tr> <tr> <td>156.07</td> <td>2.10</td> <td>D 02</td> <td></td> </tr> <tr> <td></td> <td>2.50</td> <td>D 03</td> <td></td> </tr> <tr> <td></td> <td></td> <td>D 04</td> <td></td> </tr> <tr> <td>154.87</td> <td>3.30</td> <td>D 05</td> <td></td> </tr> <tr> <td>154.47</td> <td>3.70</td> <td></td> <td></td> </tr> </table>	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS	DEPTH	TYPE	158.12 158.07 157.97	0.20			156.87	1.30	D 01		156.07	2.10	D 02			2.50	D 03				D 04		154.87	3.30	D 05		154.47	3.70		
LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS																																		
	DEPTH	TYPE																																			
158.12 158.07 157.97	0.20																																				
156.87	1.30	D 01																																			
156.07	2.10	D 02																																			
	2.50	D 03																																			
		D 04																																			
154.87	3.30	D 05																																			
154.47	3.70																																				
0.05 0.10 0.20	MADE GROUND Loose grey 20mm limestone gravel. MADE GROUND Tarmacadam. MADE GROUND Loose very dark grey brown slightly silty ashy sand with much fine, medium and coarse sub angular to angular gravel. MADE GROUND Loose red brown and brown sandy fine, medium and coarse angular gravel, cobbles and boulders of ash, brick, slag and masonry. Fragments of ash, coal, metal, pipe, wood, tarmac and brick.																																				
1.30	MADE GROUND Loose red brown sandy fine, medium and coarse angular gravel of slag and stone.																																				
2.10	Firm to moderately compact black slightly clayey fine sandy SILT with a little fine and medium sub rounded gravel, roots and root fibres.																																				
3.30	Moderately compact very dark grey silty sandy fine, medium and coarse sub rounded to rounded GRAVEL and COBBLES. Strong odour of hydrocarbons and visible oily sheen from 3.30 to 3.70m																																				
3.70	End of Trial Pit at 3.70 m.																																				
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. Strong odour of hydrocarbons visible oily sheen from 3.30 to 3.70m. TP sides unstable from GL to 2.10m then stable to 3.30m, becoming unstable to base. Moderately easy to easy excavation to 3.30m, becoming moderately difficult to base.																																			
EASTING 305322.77	NORTHING 204972.88	GROUND LEVEL (mAOD)																																			
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY A Moore																																			

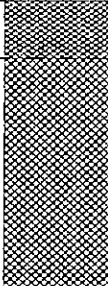
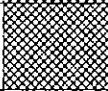
WSP ENVIRONMENTAL

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP10	
CLIENT Lattice Property Holdings		DATE 5 October 2001	
METHOD		PROJECT No 13010049	
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)
0.05	MADE GROUND Tarmacadam. MADE GROUND Sub base.		158.53
0.30	MADE GROUND Dark grey brown slightly sandy silty fine medium and coarse sub angular gravel with occasional sub rounded cobbles. Fragments of ash and slag.		158.28
1.50	MADE GROUND Dark grey slightly sandy fine, medium and coarse gravel and sub rounded cobbles and boulders with fragments of ash and slag. Moderate to strong odour of hydrocarbons.		157.08
3.00	MADE GROUND Dark grey brown sandy fine medium and coarse sub angular gravel with sub rounded cobbles and boulders. Moderate to strong odour of hydrocarbons.		155.58
3.30	End of Trial Pit at 3.30 m.		155.28
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. Moderate to strong odour of hydrocarbons from 1.50 to 3.30m. TP sides unstable from GL to base. Moderately easy to moderately difficult excavation throughout.	
EASTING 305295.22		NORTHING 204962.63	
TRIAL PIT WIDTH		TRIAL PIT LENGTH	
GROUND LEVEL (mAOD)		LOGGED BY A Moore	

WSP ENVIRONMENTAL

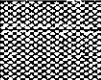
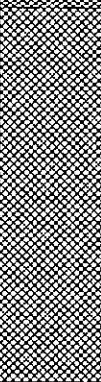
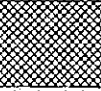
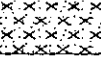
PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP11				
CLIENT Lattice Property Holdings		DATE 4 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.20	MADE GROUND Topsoil.		158.24	0.00	D 01	
0.75 0.80	MADE GROUND Dark grey slightly gravelly fine medium and coarse sand with some vegetation.					
	MADE GROUND Loose buff brown fine and medium sand. <i>End of Trial Pit at 0.80 m.</i>		157.69 157.64	0.80		
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visual or odourous contamination. Severe overbreak of TP sides from GL to base. Easy excavation throughout. Hole terminated at 0.8 m due to marker dust indicating possible buried service.				
EASTING 305283.52 TRIAL PIT WIDTH		NORTHING 204980.63 TRIAL PIT LENGTH		GROUND LEVEL (mAOD) LOGGED BY N Paulakis		WSP ENVIRONMENTAL

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP12	
CLIENT Lattice Property Holdings		DATE 4 October 2001	
METHOD		PROJECT No 13010049	
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)
0.05	MADE GROUND Tarmacadam.		158.40
0.25	MADE GROUND Sub base.		158.20
1.10	MADE GROUND Loose to moderately compact dark grey slightly silty fine medium and coarse angular and sub angular gravelly sand with ash, some slag, and occasional cobbles		157.35
2.00	MADE GROUND Moderately compact dark grey slightly silty fine, medium and coarse angular and sub angular gravelly sand with occasional cobbles. Slight odour of hydrocarbons.		156.45
3.00	Moderately compact to compact dark grey slightly silty fine, medium and coarse SAND with cobbles and boulders. Strong odour of hydrocarbons and visible oily sheen.		155.45
End of Trial Pit at 3.00 m.			
KEY		REMARKS	
Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer	
EASTING 305297.04		NORTHING 205006.16	
TRIAL PIT WIDTH		LOGGED BY N Paulakis	
		GROUND LEVEL (mAOD)	
WSP ENVIRONMENTAL			

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP13				
CLIENT Lattice Property Holdings		DATE 4 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.20	MADE GROUND Reinforced Concrete.		158.55	0.20	D 01	
	MADE GROUND Loose to moderately compact dark grey slightly silty fine, medium and coarse, angular and sub angular gravelly sand with fragments of ash, wood and brick.					
1.00	MADE GROUND Moderately compact dark brown slightly silty sand with much fine and medium sub angular to sub rounded gravel.		157.75	1.00	D 02	
1.30	Moderately compact to compact dark brown slightly silty coarse SAND with much fine, medium and coarse sub angular and sub rounded gravel, cobbles and boulders.					
			157.45	1.30	D 03	
3.20	End of Trial Pit at 3.20 m.		155.55	3.20		
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visual or odourous contamination. TP sides unstable from GL to 1.30m then moderate to severe overbreak to base. Moderately easy excavation to 1.30m, then moderately difficult to base. Hydraulic breaker used from GL to 0.20m.				
EASTING 305275.21		NORTHING 204997.21		GROUND LEVEL (mAOD)		
TRIAL PIT WIDTH		TRIAL PIT LENGTH		LOGGED BY N Paulakis		
WSP ENVIRONMENTAL						

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP19	
CLIENT Lattice Property Holdings		DATE 11 October 2001	
METHOD		PROJECT No 13010049	
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)
0.20	MADE GROUND Topsoil.		158.41
	MADE GROUND Loose to moderately compact dark grey brown silty sand with sub angular and angular gravel, cobbles and boulders. Abundant fragments of brick.		
1.00	MADE GROUND Moderately compact dark grey slightly silty sandy fine, medium and coarse sub angular to sub rounded gravel, cobbles and boulders.		157.51
1.90	Moderately compact to compact dark grey brown very sandy fine, medium and coarse sub angular to angular GRAVEL with abundant sub rounded cobbles and boulders.		156.71
2.70	End of Trial Pit at 2.70 m.		155.91
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visual or odourous contamination. TP sides unstable throughout. Moderately easy to moderately difficult excavation throughout.	
EASTING	NORTHING	GROUND LEVEL (m(AOD))	
305267.37	205082.14		
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY	
		N Paulakis	

WSP ENVIRONMENTAL

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP22				
CLIENT Lattice Property Holdings		DATE 11 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.10	MADE GROUND Tarmacadam.		158.24			
	MADE GROUND Sub base.					
0.30	MADE GROUND Reinforced concrete.		158.04			
1.60	MADE GROUND Loose dark grey brown silty sandy fine, medium and coarse angular and sub angular gravel with cobbles and boulders.		158.74	1.60	D 01	
1.90	Soft brown slightly sandy SILT.		158.44	1.90	D 02	
2.10	End of Trial Pit at 2.10 m.		158.24	2.10		
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visual or odorous contamination. Slight overbreak of TP sides to 1.60m, then moderate to severe overbreak to 1.90m, then stable to base. Hydraulic breaker used from GL to 1.60m, then moderately easy excavation to base.				
EASTING 305226.42		NORTHING 205037.18		GROUND LEVEL (mAOD)		
TRIAL PIT WIDTH		TRIAL PIT LENGTH		LOGGED BY N Paulakis		
WSP ENVIRONMENTAL						

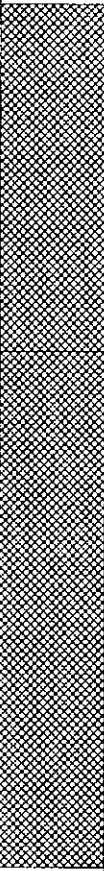
PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP23	
CLIENT Lattice Property Holdings		DATE 11 October 2001	
METHOD		PROJECT No 13010049	
DEPTH	DESCRIPTION	LEGEND	LEVEL m(AOD)
0.05	MADE GROUND Tarmacadam.		158.40
0.20	MADE GROUND Sub base.		158.25
1.00	MADE GROUND Loose to moderately compact dark grey black slightly silty fine, medium and coarse ashy sand with fine, medium and coarse angular and sub angular gravel. Fragments of brick, ash, coal and slag.		157.45
2.00	MADE GROUND Moderately compact dark grey silty sandy fine, medium and coarse sub angular to angular gravel.		156.45
3.20	Firm to stiff/compact slightly sandy SILT with much fine, medium and coarse sub rounded to rounded gravel and occasional cobbles and boulders.		155.25
End of Trial Pit at 3.20 m.			
KEY		REMARKS	
Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer	
EASTING 305199.99		NORTHING 205046.42	
TRIAL PIT WIDTH		GROUND LEVEL (mAOD)	
TRIAL PIT LENGTH		LOGGED BY N Paulakis	
WSP ENVIRONMENTAL			

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP25				
CLIENT Lattice Property Holdings		DATE 11 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.05	MADE GROUND Tarmacadam.		158.45			
0.20	MADE GROUND Sub base.		158.30			
	MADE GROUND Moderately compact dark grey brown fine, medium and coarse angular to sub angular gravel with fragments of slag, coal, ash and brick.					
1.00	MADE GROUND Moderately compact to compact dark grey silty sandy fine, medium and coarse angular to sub angular gravel with occasional sub angular cobbles and boulders.		157.50	1.00		
2.00	Firm/moderately compact brown slightly sandy SILT.		156.50	2.00		
2.50	End of Trial Pit at 2.50 m.		156.00	2.50		
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visual or odourous contamination. Moderate to severe overbreak of TP sides from GL to 2.00m, then TP sides stable to base. Moderately easy excavation throughout. Hydraulic breaker used from GL to 0.05m.				
EASTING 305209.41	NORTHING 205011.90	GROUND LEVEL (mAOD)				
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY N Paulakis				
WSP ENVIRONMENTAL						

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP27				
CLIENT Lattice Property Holdings		DATE 11 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.05	MADE GROUND Tarmacadam.		158.33			
0.20	MADE GROUND Sub base.		158.18			
0.80	MADE GROUND Moderately compact dark grey slightly silty sandy fine, medium and coarse sub angular to angular gravel with occasional fragments of brick, coal and slag.		157.58			
1.30	MADE GROUND Moderately compact dark grey brown sandy fine, medium and coarse sub rounded to angular gravel with occasional cobbles and pockets of brown clay.		157.08			
1.80	MADE GROUND Moderately compact dark brown silty sandy fine, medium and coarse sub angular to angular gravel with occasional sub rounded cobbles.		156.58			
3.00	Moderately compact to compact dark brown silty sandy fine, medium and coarse sub rounded to sub angular GRAVEL with occasional sub rounded cobbles and boulders.		155.38			
End of Trial Pit at 3.00 m.						
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visual or odourous contamination. Moderate to severe overbreak of TP sides to 1.80m, then slight to moderate overbreak to base. Moderately easy excavation throughout. Hydraulic breaker used from GL to 0.05m.				
EASTING 305253.08		NORTHING 205005.07		GROUND LEVEL (m(AOD))		WSP ENVIRONMENTAL
TRIAL PIT WIDTH		TRIAL PIT LENGTH		LOGGED BY N Paulakis		

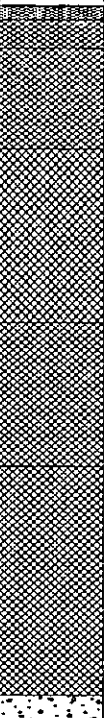
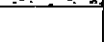
PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP28				
CLIENT Lattice Property Holdings		DATE 11 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.05	MADE GROUND Tarmacadam.		158.48			
0.15	MADE GROUND Sub base.		158.39	0.15		
	MADE GROUND Loose dark grey silty slightly sand and fine, medium and coarse sub angular to angular gravel of ash.				D 01	
0.40			158.14	0.40		
	MADE GROUND. Loose red brown and grey slightly silty sandy fine, medium and coarse angular gravel, cobble and occasionally boulder sized fragments of brick, masonry and concrete.					
0.90			157.84	0.90		
	MADE GROUND Loose to moderately compact dark brown silty sand with much fine, medium and coarse sub angular to sub rounded gravel and cobble sized fragments of brick.				D 02	
1.50			157.04	1.50		
	Moderately compact to compact dark brown slightly silty sandy fine, medium and coarse sub rounded GRAVEL with abundant sub rounded cobbles.				D 03	
2.80			155.74	2.80		
	Moderately compact brown slightly silty fine and medium SAND with much fine, medium and coarse sub rounded to rounded gravel and occasional sub rounded cobbles.				D 04	
3.20	End of Trial Pit at 3.20 m.		155.34	3.20		
KEY		REMARKS				
Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer				
NO EASTING 305232.49		NO NORTHING 204997.13				
NO TRIAL PIT WIDTH		NO TRIAL PIT LENGTH				
NO LOGGED BY N Paulakis		NO GROUND LEVEL (mAOD)				
WSP ENVIRONMENTAL						

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP29	
CLIENT Lattice Property Holdings		DATE 9 October 2001	
METHOD		PROJECT No 13010049	
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)
0.10	MADE GROUND Sub base.		158.40
0.40	MADE GROUND Loose brown silty sandy fine, medium and coarse angular gravel and cobbles of brick. Fragments of pipe coal and slag.		158.10
1.10	MADE GROUND Soft/loose black fine sandy silt.		157.40
1.90	MADE GROUND Loose dark grey slightly silty sandy fine, medium and coarse sub angular to rounded gravel and cobbles. Fragments of slag and brick.		156.60
2.00	Firm/moderately compact brown fine sandy SILT/silty SAND		156.50
End of Trial Pit at 2.00 m.			
KEY		REMARKS	
Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		No groundwater encountered. No discernable visual or odorous contamination. Severe overbreak of TP sides to 0.40m, then TP sides vertical and stable to 1.10 then moderate overbreak to base. Moderately easy excavation throughout.	
EASTING	NORTHING	GROUND LEVEL (mAOD)	
305215.51	204995.77		
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY	
		A Moore	
		WSP ENVIRONMENTAL	

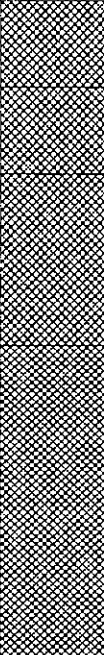
PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP30	
CLIENT Lattice Property Holdings		DATE 9 October 2001	
METHOD		PROJECT No 13010049	
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)
	MADE GROUND Moderately compact dark grey sandy fine, medium and coarse angular gravel, cobbles and boulders of stone, masonry, concrete, brick, reinforcing and wood.		0.00
1.20	MADE GROUND Loose to moderately compact brown grey sandy fine, medium and coarse sub rounded to angular gravel and cobbles. Fragments of ash, brick, slag and clinker.		157.28
3.00	End of Trial Pit at 3.00 m.		155.48
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visual or odourous contamination. Severe overbreak of TP sides from GL to 1.20, becoming unstable to base. Moderately easy excavation throughout.	
EASTING 305206.90		NORTHING 204976.99	
TRIAL PIT WIDTH		TRIAL PIT LENGTH	
LOGGED BY A Moore		WSP ENVIRONMENTAL	

PROJECT Willow Works, Merthyr Tydfil			TRIAL PIT No TP31			
CLIENT Lattice Property Holdings			DATE 8 October 2001			
METHOD			PROJECT No 13010049			
DEPTH	DESCRIPTION	LEGEND	LEVEL	SAMPLES & TESTS		TEST RESULTS
(m)			m(AOD)	DEPTH	TYPE	
0.05	MADE GROUND Tarmacadam. MADE GROUND Sub base.		158.44			
0.40			158.09	0.40		
0.60	MADE GROUND Loose red brown sand and fine, medium and coarse gravel of ash, slag and clinker.		157.89	0.60	D 01	
	MADE GROUND Loose slightly silty, sandy, fine, medium and coarse angular gravel, cobble and occasionally boulder sized fragments of brick, concrete and masonry.					
1.20			157.29	1.20		
	MADE GROUND Moderately compact dark grey slightly silty sandy fine, medium and coarse sub angular to angular gravel with occasional cobbles and fragments of coal and slag.				D 02	
2.15			156.34	2.15		
2.40	MADE GROUND Moderately compact dark grey slightly silty sandy fine, medium and coarse sub rounded to sub angular gravel with occasional sub rounded cobbles and boulders and fragments of coal and slag.		156.09	2.40	D 03	
	Firm/moderately compact brown slightly sandy SILT.					
					D 04	
3.20	End of Trial Pit at 3.20 m.		155.29	3.20		
KEY			REMARKS			
Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio			In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer			
EASTING 305261.21			NORTHING 204985.70			
TRIAL PIT WIDTH			TRIAL PIT LENGTH			
			LOGGED BY N Paulakis			
			WSP ENVIRONMENTAL			

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP32	
CLIENT Lattice Property Holdings		DATE 8 October 2001	
METHOD		PROJECT No 13010049	
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)
0.05	MADE GROUND Tarmacadam. MADE GROUND Sub base.		158.45
0.30	MADE GROUND Loose very dark grey silty sand and fine, medium and coarse sub angular gravel of ash. Fragments of brick, concrete and ash.		158.20
0.60	MADE GROUND Loose to moderately compact dark brown slightly silty sandy fine, medium and coarse angular gravel and cobbles of brick, slag and clinker.		157.90
1.40	MADE GROUND Moderately compact dark brown and orange brown slightly silty very sandy fine, medium and coarse sub rounded to angular gravel and cobbles. Abundant fragments of ash.		157.10
2.80	End of Trial Pit at 2.80 m.		155.70
KEY		REMARKS	
Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer	
EASTING 305245.86		NORTHING 204978.31	
TRIAL PIT WIDTH		TRIAL PIT LENGTH	
GROUND LEVEL (mAOD)		LOGGED BY A Moore	
WSP ENVIRONMENTAL			

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP34	
CLIENT Lattice Property Holdings		DATE 10 October 2001	
METHOD		PROJECT No 13010049	
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD) SAMPLES & TESTS DEPTH TYPE TEST RESULTS
0.05	MADE GROUND Tarmacadam.		158.41
0.15	MADE GROUND Sub base.		158.31
0.50	MADE GROUND Loose to moderately compact very dark grey and black slightly silty ashy sand with much fine, medium and coarse, sub angular and angular gravel and cobbles. Fragments of ash, coal, clinker and brick.		157.96
1.10	MADE GROUND Loose to moderately compact orange brown and grey slightly silty sandy fine, medium and coarse angular gravel of ash and clinker with fragments of coal and brick.		157.36
1.60	MADE GROUND Moderately compact dark grey brown slightly silty sandy fine, medium and coarse sub angular to sub rounded gravel with cobbles and fragments of coal, ash, clinker, pipe and slag.		156.86
2.40	Compact red brown slightly clayey slightly silty sandy fine, medium and coarse sub rounded to rounded GRAVEL and COBBLES. <i>End of Trial Pit at 2.50 m.</i>		158.06
2.50			155.96
KEY		REMARKS	
Sample Types : D - Disturbed S - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer	
EASTING 305269.94	NORTHING 204971.47	GROUND LEVEL (mAOD)	
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY A Moore	
		WSP ENVIRONMENTAL	

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP35				
CLIENT Lattice Property Holdings		DATE 10 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.20	MADE GROUND Reinforced concrete.		158.25	0.20	D 01	
0.60	MADE GROUND Loose dark grey black silty sandy fine, medium and coarse sub rounded to angular gravel and cobbles of slag and ash. Strong odour of hydrocarbons visible oily sheen.		157.85	0.60		
1.10	MADE GROUND Loose dark orange brown and grey silty sandy fine, medium and coarse angular gravel of ash and clinker. Fragments of coal, ash, metal and slag. Slight to moderate odour of hydrocarbons.		157.35	1.10		
1.40	Firm dark grey fine sandy SILT.		157.05	1.40	D 03	
End of Trial Pit at 1.40 m.						
KEY Sample Types : O - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. Strong odour of hydrocarbons and visible oily sheen from 0.20 to 0.60m. Slight odour of hydrocarbons from 0.60 to 1.10m. Slight to moderate overbreak of TP sides to 1.10m then stable to base. Easy excavation throughout. Hydraulic breaker used from GL to 0.20m.				
EASTING 305252.56	NORTHING 204959.15	GROUND LEVEL (mAOD)		WSP ENVIRONMENTAL		
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY A Moore				

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP36			
CLIENT Lattice Property Holdings		DATE 9 October 2001			
METHOD		PROJECT No 13010049			
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS DEPTH TYPE	TEST RESULTS
0.30	MADE GROUND Loose to moderately compact dark grey brown silty sandy fine, medium and coarse angular gravel and occasional cobbles. Slight odour of hydrocarbons.		158.15	0.00 D 01	
0.60	MADE GROUND Loose red brown and orange brown silty sandy fine, medium and coarse angular gravel of ash, slag, and clinker.		157.85	0.30 D 02	
1.20	MADE GROUND Soft to firm dark grey brown/black fine sandy silt with traces of coal.		157.25	0.60 D 03	
2.30	MADE GROUND Loose to moderately compact dark grey brown silty sandy fine, medium and coarse sub angular to sub rounded gravel and cobbles. Abundant fragments of slag, ash and clinker.		156.15	1.20 D 04	
2.60	Moderately compact to compact brown very sandy fine, medium and coarse sub rounded to rounded GRAVEL and COBBLES.		155.85	2.30 D 05	
	End of Trial Pit at 2.60 m.			2.60	
KEY		REMARKS			
Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer			
EASTING 305225.34		NORTHING 204967.59		GROUND LEVEL (mAOD)	
TRIAL PIT WIDTH		TRIAL PIT LENGTH		LOGGED BY A Moore	
WSP ENVIRONMENTAL					

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP39	
CLIENT Lattice Property Holdings		DATE 10 October 2001	
METHOD		PROJECT No 13010049	
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)
	MADE GROUND Moderately compact dark grey brown silty sandy fine, medium and coarse angular gravel and cobbles of ash and clinker. Slight odour of hydrocarbons.		0.00
0.45	MADE GROUND Loose red brown/orange brown silty sandy fine, medium and coarse angular gravel of ash and clinker. Occasional cobble sized fragments of ash, slag and clinker.		0.45
1.10	MADE GROUND Loose to moderately compact light buff brown silty sandy fine, medium and coarse angular gravel of slag, ash and clinker, with pockets of grey clay.		1.10
1.60	MADE GROUND Moderately compact brown slightly silty sandy fine, medium and coarse sub angular to sub rounded gravel and cobbles. Fragments of slag, brick and clinker.		1.60
2.30	MADE GROUND Moderately compact brown slightly silty sandy fine, medium and coarse sub angular to sub rounded gravel and cobbles with abundant boulders. Fragments of slag, brick and clinker.		2.30
2.50	End of Trial Pit at 2.50 m.		2.50
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. Slight odour of hydrocarbons from GL to 0.45m. Slight to moderate overbreak of TP sides to 1.60m then severe overbreak to 2.50m becoming unstable to base. Moderately easy excavation to 1.60m, then moderately difficult to base.	
EASTING	NORTHING	GROUND LEVEL (mAOD)	
305235.40	204935.10		
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY	
		A Moore	

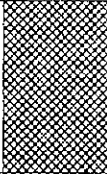
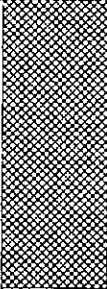
WSP ENVIRONMENTAL

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP40					
CLIENT Lattice Property Holdings		DATE 10 October 2001					
METHOD		PROJECT No 13010049					
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS	
				DEPTH	TYPE		
0.10	MADE GROUND Sub base.		158.26	0.10			
0.45	MADE GROUND Loose dark grey brown silty sandy fine, medium and coarse angular gravel of ash and clinker. Slight to moderate odour of hydrocarbons.						D 01
	MADE GROUND Loose red/orange brown sandy fine, medium and coarse angular gravel of ash and clinker. Fragments of ash, slag and clinker.		157.91	0.45			D 02
1.20	POSSIBLE MADE GROUND Loose to moderately compact orange brown slightly silty sand.		157.16	1.20			D 03
1.35	POSSIBLE MADE GROUND Loose to moderately compact black silty sand with traces of coal.	157.01	1.35	D 04			
1.70	Stiff grey and brown silty CLAY/ clayey SILT with a little fine, medium and coarse gravel.		156.86	1.70	D 05		
2.30	End of Trial Pit at 2.30 m.		156.06	2.30			
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. Slight odour of hydrocarbons from 0.10m to 0.45m. Severe overbreak to 1.35m, the TP sides vertical and stable to base. Easy excavation to 1.70m, then moderately easy to base.					
EASTING 305223.02	NORTHING 204925.38	GROUND LEVEL (mAOD)					
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY A Moore					
WSP ENVIRONMENTAL							

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP42				
CLIENT Lattice Property Holdings		DATE 8 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
	MADE GROUND Loose to moderately compact very dark grey silty sandy fine, medium and coarse sub angular to angular gravel and occasional cobbles. Abundant fragments of yellow pipe, steel and glass.			0.00		
1.10	Firm dark grey brown slightly sandy clayey SILT with a little fine and medium sub rounded gravel		158.77	1.10	D 01	
2.00	Moderately compact to compact very dark grey slightly silty sandy fine, medium and coarse sub rounded to rounded GRAVEL and COBBLES.		155.87	2.00	D 02	
2.70	End of Trial Pit at 2.70 m.		155.17	2.70	D 03	
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visible or odourous contamination. Moderate to severe overbreak of TP sides from GL to base. Moderately easy excavation to 2.00m the moderately difficult to base.				
EASTING 305270.40		NORTHING 204887.14		GROUND LEVEL (mAOD)		
TRIAL PIT WIDTH		TRIAL PIT LENGTH		LOGGED BY A Moore		
WSP ENVIRONMENTAL						

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP43				
CLIENT Lattice Property Holdings		DATE 10 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.20	MADE GROUND Reinforced concrete.		158.30	0.20	D 01	
0.50	MADE GROUND Loose very dark grey black slightly silty sandy fine, medium and coarse angular gravel of clinker, slag and ash. Slight odour of hydrocarbons.		158.00	0.50	D 02	
1.00	MADE GROUND Loose red brown and red slightly silty sandy fine, medium and coarse angular gravel and cobbles of ash, slag and clinker.		157.50	1.00	D 03	
1.50	MADE GROUND Loose red brown and red slightly silty sandy fine, medium and coarse angular gravel and cobbles of ash, slag and clinker with common cobbles of brick.		157.00	1.50	D 04	
2.00	MADE GROUND Moderately compact dark grey fine sandy silt with some fine, medium and coarse sub rounded to rounded gravel. Occasional fragments of coal.		156.50	2.00	D 05	
3.10	MADE GROUND Compact dark brown slightly silty sandy fine, medium and coarse sub rounded to angular gravel, cobbles and boulders of brick slag and masonry.		155.40	3.10	D 06	
3.40	Moderately compact to compact dark brown/grey slightly silty very sandy fine, medium and coarse sub rounded to rounded GRAVEL and COBBLES.		155.10	3.40		
End of Trial Pit at 3.40 m.						
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. Slight odour of hydrocarbons from 0.20 to 0.50m. Moderate to severe overbreak of TP sides to GL to base. Easy excavation to 1.50m then moderately difficult to 3.10m, becoming difficult to base. Hydraulic breaker used from GL to 0.20m.				
EASTING 305249.79		NORTHING 204924.20		GROUND LEVEL (mADD)		WSP ENVIRONMENTAL
TRIAL PIT WIDTH		TRIAL PIT LENGTH		LOGGED BY A Moore		

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP44			
CLIENT Lattice Property Holdings		DATE 9 October 2001			
METHOD		PROJECT No 13010049			
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS DEPTH TYPE	TEST RESULTS
0.20	MADE GROUND Moderately compact very dark grey silty sand and fine, medium and coarse angular gravel of ash, slag and clinker.		158.20	0.00 0.20	D 01
	MADE GROUND Loose red brown and orange brown silty sand and fine, medium and coarse angular gravel of ash, slag and clinker. Abundant gravel sized fragments of slag.				D 02
0.70	MADE GROUND Loose dark grey sandy fine, medium and coarse sub rounded to rounded gravel of weathered mudstone (platelets of weathered mudstone).		157.70	0.70	D 03
1.20	MADE GROUND Loose to moderately compact dark grey brown silty sandy fine, medium and coarse sub angular to sub rounded gravel and cobbles. Occasional cobbles of brick.		157.20	1.20	D 04
1.60	Soft to firm mid brown sandy clayey SILT with roots and root fibres.		156.80	1.60	D 05
2.20	Soft to firm/moderately compact mid brown silty fine SAND.		156.20	2.20	D 06
2.70	End of Trial Pit at 2.70 m.		155.70	2.70	
KEY		REMARKS			
Sample Types : O - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio		In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer			
EASTING 305215.51		NORTHING 204936.65		GROUND LEVEL (mAOD)	
TRIAL PIT WIDTH		TRIAL PIT LENGTH		LOGGED BY A Moore	
WSP ENVIRONMENTAL					

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TP45				
CLIENT Lattice Property Holdings		DATE 8 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.60	MADE GROUND Loose to moderately compact dark grey brown silty sandy fine, medium and coarse angular gravel and cobble sized fragments of brick and masonry. Fragments of pipe and plastic.		157.19	0.00	D 01	
	0.60			D 02		
1.60	MADE GROUND Loose to moderately compact dark grey brown silty sandy fine, medium and coarse angular gravel and cobble sized fragments of brick and masonry. Becoming sub rounded to rounded gravel and cobbles at base. Gas pipe encountered at 1.50m in western side of TP.		156.19	1.60		
End of Trial Pit at 1.60 m.						
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visual or odourous contamination. Moderate to severe overbreak of TP sides from GL to base. Easy excavation throughout.				
EASTING 305277.19		NORTHING 204897.67		GROUND LEVEL (mAOD)		WSP ENVIRONMENTAL
TRIAL PIT WIDTH		TRIAL PIT LENGTH		LOGGED BY A Moore		

APPENDIX C

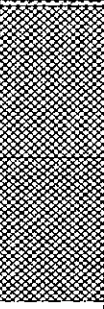
CABLE TOOL PERCUSSION BOREHOLE LOGS

PROJECT Willow Works, Merthyr Tydfil				BOREHOLE No BH01						
CLIENT Lattice Property Holdings				DATE 1 October 2001						
METHOD Cable Tool Rig. 3CX JCB.				PROJECT No 13010049						
GROUNDWATER		DEPTH (m)	DESCRIPTION	LEGEND	LEVEL (mAOD)	SAMPLES & TESTS		SPT 'N'		
STRIKE	WELL					DEPTH	TYPE			
		0.05	MADE GROUND Grey 20mm limestone gravel. MADE GROUND Layer of fused slag, recovered as sandy fine, medium and coarse gravel sized fragments. Layer of reinforcing encountered at 1.80m.		156.80	0.00				
							0.80	D 01		
									D 02	
			1.80	MADE GROUND Dark grey brown slightly silty sandy fine, medium and coarse sub rounded and rounded gravel with cobbles, boulders, ash and slag.		154.04	1.80	D 03		
								2.50		
									D 04	
			3.60	Dark brown sandy fine, medium and coarse sub rounded and rounded GRAVEL and COBBLES. Strong odour of hydrocarbons and visible oily sheen.		153.14	3.60	D 05		
		4.50	Dark brown sandy fine, medium and coarse sub rounded and rounded GRAVEL and COBBLES. Strong hydrocarbon odour and visible oily sheen.			152.24	4.50	D 06		
		6.00	Brown silty sandy fine, medium and coarse sub rounded and sub angular GRAVEL and COBBLES. Strong odour of hydrocarbons and visible oily sheen.			150.74	6.00	D 07		
		7.50	End of Borehole at 7.50 m			149.24	7.50			

KEY			REMARKS Mobilise rig to site. Mobilise extra casing to site. Induction training - 1 hour. Hand dug service inspection pit to 1.10m - 1 hour. Standing whilst JCB with hydraulic breaker attachment used between 1.00 and 1.20m - 1 hour. Chiselling 3.00 to 3.70m - 1.50 hours, 7.30 to 7.50m - 1 hour, 7.50 to 7.50m - 1 hour. Strong odour of hydrocarbons and visible oily sheen from 3.60 to 7.50m.
Sample Types :	Water Levels :	In Situ Tests :	
U - Undisturbed	Water Strike	S - Standard Penetration Test	
D - Disturbed	Water Level	C - Cone Penetration Test	
B - Bulk			
W - Water			
SPT - SPT Spoon			

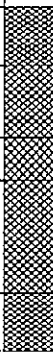
EASTING 305359.22	NORTHING 204872.91	GROUND LEVEL (mAOD)
LOGGED BY N Paulakis	SCALE 1:50	Sheet 1 of 1

WSP ENVIRONMENTAL

PROJECT Willow Works, Merthyr Tydfil				BOREHOLE No BH02				
CLIENT Lattice Property Holdings				DATE 1 October 2001				
METHOD				PROJECT No 13010049				
GROUNDWATER		DEPTH	DESCRIPTION	LEGEND	LEVEL	SAMPLES & TESTS		SPT
STRIKE	WELL	(m)			(mAOD)	DEPTH	TYPE	'N'
		0.05	MADE GROUND Grey 20mm limestone gravel.		157.84			
		1.10	MADE GROUND Dark brown slightly clayey slightly silty sandy fine, medium and coarse sub-angular and angular gravel and cobbles. Fragments of pipe and brick.		156.59			
		2.10	MADE GROUND Layer of fused slag recovered as sandy fine, medium and coarse gravel sized fragments.		155.59			
			End of Borehole at 2.10 m					
KEY Sample Types : U - Undisturbed D - Disturbed B - Bulk W - Water SPT - SPT Spoon Water Levels :  Water Strike  Water Level In Situ Tests : S - Standard Penetration Test C - Cone Penetration Test				REMARKS Hand dug service inspection pit to 1.10m - 1 hour. Standing whilst JCB with hydraulic breaker attachment used between 1.10 and 2.10m - 1 hour. Chiselling 2.00 to 2.00m - 1 hour. Moved location, setup as BH02A.				
EASTING		NORTHING		GROUND LEVEL (mAOD)		WSP ENVIRONMENTAL		
305336.18		204922.50						
LOGGED BY		SCALE		Sheet 1 of 1				
N Paulakis		1:50						

PROJECT Willow Works, Merthyr Tydfil				BOREHOLE No BH02A			
CLIENT Lattice Property Holdings				DATE 3 October 2001			
METHOD				PROJECT No 13010049			
GROUNDWATER		DEPTH	DESCRIPTION	LEGEND	LEVEL	SAMPLES & TESTS	
STRIKE	WELL	(m)			(mAOD)	DEPTH	TYPE
			MADE GROUND Buff brown silty sandy fine, medium and coarse angular and sub angular gravel with occasional cobbles.			0.00	
		1.60	MADE GROUND Brown grey sandy silty clay with much fine, medium and coarse sub angular and sub rounded gravel, cobbles and boulders.		156.09	1.60	D 01
		2.00	MADE GROUND Layer of fused slag, recovered as sandy fine, medium and coarse gravel sized fragments.		155.69		
		2.80	MADE GROUND Brown silty sandy fine, medium and coarse angular and sub angular gravel with occasional cobbles and boulders.		154.89		D 02
		4.00	Dark grey brown silty sandy fine, medium and coarse sub rounded to rounded GRAVEL, with occasional cobbles. Moderate to strong odour of hydrocarbons, visible oily sheen.		153.89	4.00	
		6.00	Brown grey silty sandy fine, medium and coarse sub rounded to rounded GRAVEL and COBBLES.		151.89		D 03
			Continued Next Sheet			9.00	
KEY Sample Types : U - Undisturbed D - Disturbed B - Bulk W - Water SPT - SPT Spoon Water Levels :  Water Strike  Water Level In Situ Tests : S - Standard Penetration Test C - Cone Penetration Test				REMARKS Hand dug service inspection pit to 1.20m - 1 hour. Standing whilst JCB with hydraulic breaker attachment used between 1.20 and 2.80m - 1 hour. Chiselling 3.50 to 3.80m - 0.50 hours, 10.50 to 10.80m - 0.50 hours, 13.40 to 13.60m - 0.50 hours. Moderate to strong odour of hydrocarbons and visible oily sheen from 4.00 to 6.00m. Standing 20 mins waiting for water strike.			
EASTING		NORTHING		GROUND LEVEL (mAOD)			
305336.18		204922.50					
LOGGED BY		SCALE					
N Paulakis		1:50		Sheet 1 of 2			
WSP ENVIRONMENTAL							

PROJECT Willow Works, Merthyr Tydfil				BOREHOLE No BH02A				
CLIENT Lattice Property Holdings				DATE 3 October 2001				
METHOD				PROJECT No 13010049				
GROUNDWATER		DEPTH	DESCRIPTION	LEGEND	LEVEL (mAOD)	SAMPLES & TESTS		SPT N
STRIKE	WELL	(m)				DEPTH	TYPE	
		10.50	Brown grey silty sandy fine, medium and coarse sub rounded to rounded GRAVEL and COBBLES.		147.19			
			Brown grey silty sandy fine, medium and coarse sub rounded to rounded GRAVEL and COBBLES.					
		17.00	End of Borehole at 17.00 m		140.69			
KEY Sample Types : U - Undisturbed D - Disturbed B - Bulk W - Water SPT - SPT Spoon Water Levels : Water Strike Water Level In Situ Tests : S - Standard Penetration Test C - Cone Penetration Test				REMARKS Hand dug service inspection pit to 1.20m - 1 hour. Standing whilst JCB with hydraulic breaker attachment used between 1.20 and 2.80m - 1 hour. Chiselling 3.50 to 3.80m - 0.50 hours. 10.50 to 10.80m - 0.50 hours, 13.40 to 13.60m - 0.50 hours. Moderate to strong odour of hydrocarbons and visible oily sheen from 4.00 to 6.00m. Standing 20 mins waiting for water strike.				
EASTING		NORTHING		GROUND LEVEL (mAOD)		WSP ENVIRONMENTAL		
305336.18		204922.50						
LOGGED BY		SCALE		Sheet 2 of 2				
N Paulakis		1:50						

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No TPBH03																															
CLIENT Lattice Property Holdings		DATE 12 October 2001																															
METHOD		PROJECT No 13010049																															
DEPTH (m)	DESCRIPTION	LEGEND	<table border="1"> <tr> <th rowspan="2">LEVEL m(AOD)</th> <th colspan="2">SAMPLES & TESTS</th> <th rowspan="2">TEST RESULTS</th> </tr> <tr> <th>DEPTH</th> <th>TYPE</th> </tr> <tr> <td>158.33</td> <td></td> <td></td> <td></td> </tr> <tr> <td>158.08</td> <td>0.45</td> <td>D 01</td> <td></td> </tr> <tr> <td>157.93</td> <td>0.60 0.60</td> <td>D 02</td> <td></td> </tr> <tr> <td></td> <td></td> <td>D 03</td> <td></td> </tr> <tr> <td>157.53</td> <td>1.00</td> <td></td> <td></td> </tr> <tr> <td>157.33</td> <td></td> <td></td> <td></td> </tr> </table>	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS	DEPTH	TYPE	158.33				158.08	0.45	D 01		157.93	0.60 0.60	D 02				D 03		157.53	1.00			157.33			
LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS																														
	DEPTH	TYPE																															
158.33																																	
158.08	0.45	D 01																															
157.93	0.60 0.60	D 02																															
		D 03																															
157.53	1.00																																
157.33																																	
0.20	MADE GROUND Concrete.																																
0.45	MADE GROUND Sub-base.																																
0.60	MADE GROUND Compact dark grey fine, medium and coarse sandy gravel with fragments of brick.																																
	MADE GROUND Layer of bricks, mortar and masonry with slates and debris.																																
1.00	MADE GROUND Coarse gravels containing thick tarry water.																																
1.20	End of Trial Pit at 1.20 m.																																
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS Standing groundwater encountered at 1.00m. Thick tarry material (flowing) recorded at 1.00m in association with groundwater strike. Severe overbreak from GL to base. Hydraulic breaker attachment used from GL to 0.20m. , then moderately easy to moderately difficult excavation to base. TP terminated due to inflow of tar.																															
EASTING 305311.41	NORTHING 204988.70	GROUND LEVEL (mAOD)																															
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY N Paulakis																															

PROJECT Willow Works, Merthyr Tydfil				BOREHOLE No BH04				
CLIENT Lattice Property Holdings				DATE 10 October 2001				
METHOD				PROJECT No 13010049				
GROUNDWATER		DEPTH (m)	DESCRIPTION	LEGEND	LEVEL (mAOD)	SAMPLES & TESTS		SPT 'N'
STRIKE	WELL					DEPTH	TYPE	
		0.20	MADE GROUND Reinforced concrete.		158.18	0.20		
			MADE GROUND Dark grey sandy fine, medium and coarse angular gravel sized fragments of slag and ash.				D 01	
		1.00	MADE GROUND Dark grey slightly sandy fine, medium and coarse angular gravel sized fragments of slag and ash.		157.38	1.00	D 02	
		2.00	MADE GROUND Dark grey sandy fine, medium and coarse sub rounded to angular gravel and cobble sized fragments of stone and slag.		156.38	2.00	D 03	
		3.00	Dark grey sandy fine, medium and coarse sub rounded to rounded GRAVEL with abundant cobbles and boulders		155.38	3.00	D 04	
						4.00	D 05	
		5.00	Dark grey sandy fine, medium and coarse sub rounded to rounded GRAVEL and COBBLES with occasional boulders.		153.38	5.00	D 06	
						6.00	D 07	
						7.00	D 08	
		7.50	End of Borehole at 7.50 m		150.88	7.50		
KEY Sample Types : U - Undisturbed D - Disturbed B - Bulk W - Water SPT - SPT Spoon Water Levels :  Water Strike  Water Level In Situ Tests : S - Standard Penetration Test C - Cone Penetration Test				REMARKS JCB with hydraulic breaker attachment used between GL and 0.20m. Hand dug service inspection pit to 1.20m - 1 hour. Chiselling 2.00 to 3.50 - 2.50 hours, 3.80 to 4.20m - 1 hour, 4.60 to 4.80m - 0.50 hours.				
EASTING 305277.11		NORTHING 205071.58		GROUND LEVEL (mAOD)		WSP ENVIRONMENTAL		
LOGGED BY N Paulakis		SCALE 1:50		Sheet 1 of 1				

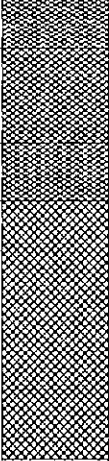
PROJECT Willow Works, Merthyr Tydfil				BOREHOLE No BH05				
CLIENT Lattice Property Holdings				DATE 2 October 2001				
METHOD				PROJECT No 13010049				
GROUNDWATER		DEPTH (m)	DESCRIPTION	LEGEND	LEVEL (mAOD)	SAMPLES & TESTS		SPT 'N'
STRIKE	WELL					DEPTH	TYPE	
		0.20	MADE GROUND Black dark grey sandy slightly silty fine, medium and coarse angular and sub angular gravel of ash.		158.24	0.00 0.20	D 01	
		0.60	MADE GROUND Red sandy fine, medium and coarse angular gravel sized fragments of ash, clinker and slag.		157.84	0.80	D 02	
		0.80	MADE GROUND Black dark grey slightly silty sandy fine, medium and coarse rounded and sub rounded gravel with occasional organic traces.		157.84	0.80	D 03	
			MADE GROUND Dark grey ashy sand with much fine, medium and coarse sub rounded to rounded gravel sized fragments of stone and slag.				D 04	
		2.00	MADE GROUND Dark grey brown ashy silt/sand with sand and gravel sized fragments of coal, ash, clinker and slag.		158.44	2.00	D 05	
		2.70	Brown slightly silty sandy fine, medium and coarse sub rounded and sub angular GRAVEL.		155.74	2.70	D 06	
						3.50	D 07	
		4.50	Brown slightly silty sandy fine, medium and coarse sub rounded to rounded GRAVEL and COBBLES with abundant BOULDERS.		153.84	4.50	D 08	
		5.80	Dark grey brown slightly sandy clayey SILT with some fine and medium sub rounded gravel and occasional traces of coal.		152.64	5.80	D 09	
		6.50	Grey and brown finw grained highly to totally weathered MUDSTONE, recovered as a brown silty clay, with sand and gravel sized lithorelicts of mudstone.		151.94	6.50	D 10	
		7.00	End of Borehole at 7.00 m		151.44	7.00		
KEY				REMARKS				
Sample Types : U - Undisturbed D - Disturbed B - Bulk W - Water SPT - SPT Spoon				Hand dug service inspection pit to 1.20m - 1 hour. Chiselling 2.50 to 2.80 - 0.50 hours, 3.10 to 3.30m - 0.50 hours, 4.00 to 4.50m - 1.00 hours, 5.00 to 5.30m - 0.50 hours. No discerable visual or odourous contamination.				
Water Levels : ☒ Water Strike ☒ Water Level				In Situ Tests : S - Standard Penetration Test C - Cone Penetration Test				
EASTING 305209.14		NORTHING 204957.41		GROUND LEVEL (mAOD)		WSP ENVIRONMENTAL		
LOGGED BY N Paulakis		SCALE 1:50		Sheet 1 of 1				

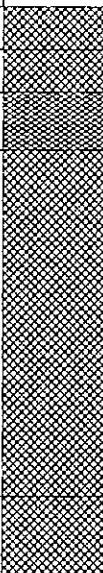
PROJECT Willow Works, Merthyr Tydfil				BOREHOLE No BH06				
CLIENT Lattice Property Holdings				DATE 9 October 2001				
METHOD JCB 3CX				PROJECT No 13010049				
GROUNDWATER		DEPTH (m)	DESCRIPTION	LEGEND	LEVEL (mAOD)	SAMPLES & TESTS		SPT 'N'
STRIKE	WELL					DEPTH	TYPE	
		0.15	MADE GROUND Topsoil.		157.57	0.00		
		1.00	MADE GROUND Dark grey brown sandy silt with much fine and medium angular and sub angular gravel sized fragments of brick and stone.		156.72	1.00	D 01	
		2.00	MADE GROUND Dark grey slightly silty sand with much fine, medium and coarse angular and sub angular gravel with occasional cobbles and fragments of coal, slag clinker and stone.		155.72	2.00	D 02	
		4.50	Dark brown silty sandy fine, medium and coarse angular to sub rounded GRAVEL with some sub angular cobbles. Moderate to strong odour of hydrocarbons.		153.22	4.50	D 03	
		6.50	Brown silty sandy fine, medium and coarse sub angular and sub rounded GRAVEL with sub rounded cobbles.	151.22	6.50	D 04		
		8.00	Brown silty sandy fine, medium and coarse sub rounded to rounded GRAVEL and COBBLES.	149.72	8.00	D 05		
					9.00	D 06		
					10.00	D 07		
Continued Next Sheet								
KEY Sample Types : U - Undisturbed D - Disturbed B - Bulk W - Water SPT - SPT Spoon Water Levels : Water Strike Water Level In Situ Tests : S - Standard Penetration Test C - Cone Penetration Test				REMARKS Hand dug service inspection pit to 1.20m - 1 hour. Chiselling 3.00 to 3.50m - 1.00 hours, 10.50 to 11.00m - 1.00 hour. Moderate to strong odour of hydrocarbons from 4.50 to 6.50m.				
EASTING 305284.05		NORTHING 204884.19		GROUND LEVEL (mAOD)		WSP ENVIRONMENTAL		
LOGGED BY N Paulakis		SCALE 1:50		Sheet 1 of 2				

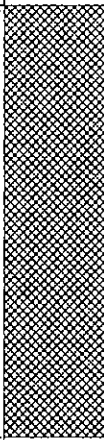
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APPENDIX D

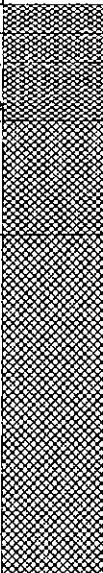
WINDOW SAMPLE LOGS

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No WS14				
CLIENT Lattice Property Holdings		DATE 12 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.17	MADE GROUND Reinforced concrete.		158.16		D 01	
	MADE GROUND Brown/black ashy sand with fine gravel sized fragments of brick.					
0.50	MADE GROUND Dark grey sand and fine, medium and coarse sub rounded gravel of ash with abundant fragments of clinker and rare angular fragments of brick.		157.83			
0.70	MADE GROUND Dark grey silty sand and fine, medium and coarse angular gravel of ash and clinker, with occasional gravel sized fragments of siltstone.		157.63			
1.60	End of Trial Pit at 1.60 m.		158.73			
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visual or olfactory evidence of contamination. Diamond bit concrete corer used from GL to 0.17m. Window sampler refused at 1.60m.				
EASTING	NORTHING	GROUND LEVEL (mAOD)		WSP ENVIRONMENTAL		
305295.65	205034.68					
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY				
		N Townsend				

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No WS17				
CLIENT Lattice Property Holdings		DATE 12 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.15	MADE GROUND Reinforced concrete.		158.07		D 01	
0.30	MADE GROUND Grey brown sandy fine and medium gravel.		157.92			
0.50	MADE GROUND Black brown silty sandy fine, medium and coarse angular gravel of ash and clinker. Rare fragments of coal.		157.72			
1.70	MADE GROUND Black brown silty sandy fine, medium and coarse angular gravel of ash and clinker. Abundant fragments of coal and brick.		156.52			
2.00	MADE GROUND Black brown silty sandy medium and coarse gravel of ash, coal and clinker.		156.22			
End of Trial Pit at 2.00 m.						
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visual or olfactory evidence of contamination. Diamond bit concrete corer used from GL to 0.15. Window sampler refused at 2.00m				
EASTING 305269.19	NORTHING 205046.17	GROUND LEVEL (mAOD)				
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY N Townsend				
WSP ENVIRONMENTAL						

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No WS18				
CLIENT Lattice Property Holdings		DATE 12 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.00	MADE GROUND Dark grey and black sandy fine, medium and coarse angular gravel. MADE GROUND Black silty sandy fine, medium and coarse angular gravel of brick, clinker and ash.		158.21			
1.50	<i>End of Trial Pit at 1.50 m.</i>		158.71		D 01	
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visual or olfactory evidence of contamination. Window sampler refused at 1.50m				
EASTING 305264.14	NORTHING 205055.59	GROUND LEVEL (mAOD)				
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY N Paulakis		WSP ENVIRONMENTAL		

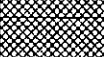
PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No WS20	
CLIENT Lattice Property Holdings		DATE 12 October 2001	
METHOD		PROJECT No 13010049	

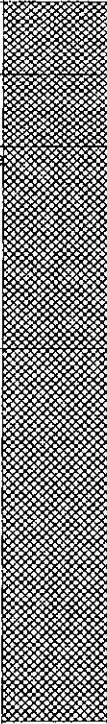
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.10	MADE GROUND Dark grey sandy fine and medium gravel.		158.30			
0.20	MADE GROUND Black silty sand and fine, medium and coarse gravel sized fragments of ash with occasional pockets of tarry material.		158.20			
0.40	MADE GROUND Black sandy silt with much fine, medium and coarse angular gravel of ash and clinker and rare brick fragments.		158.00			
	MADE GROUND Dark brown sandy silt with some fine, medium and coarse gravel of ash and clinker.					
0.80			157.60			
	MADE GROUND Brown black silty sandy gravel of ash, clinker and brick.					
2.00	End of Trial Pit at 2.00 m.		158.40			

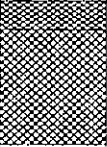
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer			REMARKS No groundwater encountered. Tarry material encountered from 0.10 to 0.20m. Window sampler refused at 2.00m
EASTING 305250.78	NORTHING 205064.61	GROUND LEVEL (mAOD)	WSP ENVIRONMENTAL
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY N Townsend	

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No WS21																									
CLIENT Lattice Property Holdings		DATE 12 October 2001																									
METHOD		PROJECT No 13010049																									
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD) <table border="1"> <thead> <tr> <th colspan="2">SAMPLES & TESTS</th> <th rowspan="2">TEST RESULTS</th> </tr> <tr> <th>DEPTH</th> <th>TYPE</th> </tr> </thead> <tbody> <tr> <td>0.10</td> <td>MADE GROUND Sub base.</td> <td rowspan="5"> </td> </tr> <tr> <td>0.20</td> <td>MADE GROUND Dark grey sandy fine, medium and coarse angular gravel with black staining.</td> </tr> <tr> <td></td> <td>MADE GROUND Dark grey sandy medium and coarse angular gravel of sandstone.</td> </tr> <tr> <td>0.50</td> <td></td> </tr> <tr> <td>0.65</td> <td>MADE GROUND Red brown and grey sandy fine, medium and coarse angular gravel sized fragments of brick.</td> </tr> <tr> <td></td> <td>MADE GROUND Soft black stained silty sand with occasional gravel sized fragments of brick and rare wood and slag.</td> <td></td> <td></td> </tr> <tr> <td>1.20</td> <td>End of Trial Pit at 1.20 m.</td> <td></td> <td></td> </tr> </tbody> </table>	SAMPLES & TESTS		TEST RESULTS	DEPTH	TYPE	0.10	MADE GROUND Sub base.		0.20	MADE GROUND Dark grey sandy fine, medium and coarse angular gravel with black staining.		MADE GROUND Dark grey sandy medium and coarse angular gravel of sandstone.	0.50		0.65	MADE GROUND Red brown and grey sandy fine, medium and coarse angular gravel sized fragments of brick.		MADE GROUND Soft black stained silty sand with occasional gravel sized fragments of brick and rare wood and slag.			1.20	End of Trial Pit at 1.20 m.		
SAMPLES & TESTS		TEST RESULTS																									
DEPTH	TYPE																										
0.10	MADE GROUND Sub base.																										
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0.50																											
0.65	MADE GROUND Red brown and grey sandy fine, medium and coarse angular gravel sized fragments of brick.																										
	MADE GROUND Soft black stained silty sand with occasional gravel sized fragments of brick and rare wood and slag.																										
1.20	End of Trial Pit at 1.20 m.																										
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. Occasional odourless black staining. Window sampler refused at 1.20m.																									
EASTING 305242.64	NORTHING 205047.20	GROUND LEVEL (mAOD)																									
TRIAL PIT WIDTH	TRIAL PIT LENGTH	LOGGED BY N Paulakis																									

WSP ENVIRONMENTAL

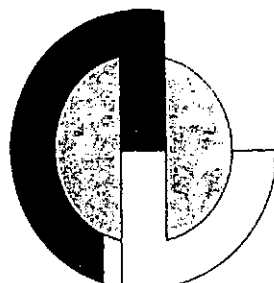
PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No WS37				
CLIENT Lattice Property Holdings		DATE 12 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.20	MADE GROUND Concrete.		158.28		D 01	
0.40	MADE GROUND Sub base.		158.06			
	MADE GROUND Black sandy silt with much fine, medium and coarse angular gravel of clinker, coal and ash. Occasional fragments of wood.					
1.45	MADE GROUND Black silty sandy fine angular gravel. Very strong odour of tar.		157.01		D 02	
1.60	End of Trial Pit at 1.60 m.		156.86			
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. Diamond bit concrete corer used from GL to 0.20m. Very strong odour of tar from 1.45 to 1.60m.				
EASTING 305282.50		NORTHING 204940.05		GROUND LEVEL (mAOD)		
TRIAL PIT WIDTH		TRIAL PIT LENGTH		LOGGED BY N Townsend		
WSP ENVIRONMENTAL						

PROJECT Willow Works, Merthyr Tydfil			TRIAL PIT No WS38			
CLIENT Lattice Property Holdings			DATE 12 October 2001			
METHOD			PROJECT No 13010049			
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.25	MADE GROUND Concrete.		158.28		D 01	
0.50	MADE GROUND Black silty sandy fine, medium and coarse angular gravel with much coal, sand and some brick. Slight gasworks odour.		158.01			
1.20	MADE GROUND Brown black silt with much fine, medium and coarse angular gravel of ash, clinker and coal with occasional organic fibres.		157.31			
2.50	MADE GROUND Soft light brown clay.		158.01			
End of Trial Pit at 2.50 m.						
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - In situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer			REMARKS No groundwater encountered. Slight gasworks odour from 0.25 to 0.50m. Diamond bit concrete corer used from GL to 0.25m. Window sampler refused at 2.50m.			
EASTING 305265.39		NORTHING 204942.76	GROUND LEVEL (mAOD)		WSP ENVIRONMENTAL	
TRIAL PIT WIDTH		TRIAL PIT LENGTH	LOGGED BY N Paulakis			

PROJECT Willow Works, Merthyr Tydfil		TRIAL PIT No WS41				
CLIENT Lattice Property Holdings		DATE 12 October 2001				
METHOD		PROJECT No 13010049				
DEPTH (m)	DESCRIPTION	LEGEND	LEVEL m(AOD)	SAMPLES & TESTS		TEST RESULTS
				DEPTH	TYPE	
0.10	MADE GROUND Concrete.		158.36			
	MADE GROUND Reinforced Concrete.					
0.50	End of Trial Pit at 0.50 m.		157.96			
KEY Sample Types : D - Disturbed B - Bulk W - Water J - Jar CBR - California Bearing Ratio In Situ Tests : VANE - in situ Hand Shear Vane ICBR - In situ CBR PP - Pocket Penetrometer		REMARKS No groundwater encountered. No discernable visual or olfactory evidence of contamination. Diamond bit concrete corer used from GL to 0.50m. Unable to core beyond 0.50m - still in concrete.				
EASTING 305277.09		NORTHING 204923.52		GROUND LEVEL (mAOD)		WSP ENVIRONMENTAL
TRIAL PIT WIDTH		TRIAL PIT LENGTH		LOGGED BY N Townsend		

APPENDIX E

RESULTS OF CHEMICAL ANALYSES



ALCONTROL GEOCHEM

REPORT 01/09582/04/01

**ANALYSIS OF SOIL AND WATER SAMPLES
FROM WILLOW WORKS MERTHYR**

REF: 13010049

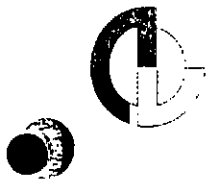
Prepared for

WSP ENVIRONMENTAL

JANUARY 2002

CONTENTS

- 1.0 Log Sheets
- 2.0 Miscellaneous Data
- 3.0 C₁₀ to C₄₀ Hydrocarbons
- 4.0 Asbestos Analysis
- 5.0 Appendix
 - (1) Traces
 - (2) QA/QC



CERTIFICATE OF ANALYSIS

Client: WSP Environmental
9 Ty-Nant Court
Morganstown
Cardiff

CF15 8LW

Attention: Alex Moore

Date: 7 February, 2002

Our Reference: 01/09582/04/01

Your Reference: 13010049

Location: Willow Works Merthyr

A total of 343 samples were received for analysis on Thursday, 4 October 2001. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of UKAS accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Signed

Hazel Davidson
Deputy General Manager
Analytical Services

Compiled By

Anneli Fryer



CERTIFICATE OF ANALYSIS

Client: WSP Environmental
9 Ty-Nant Court
Morganstown
Cardiff

CF15 8LW

Attention: Nick Paulakis

Date: 29 January, 2002

Our Reference: 01/11395/04/01

Your Reference: 13010049

Location: Merthyr

A total of 77 samples were received for analysis on Friday, 23 November 2001. Accredited laboratory tests are defined in the log sheet, but opinions, interpretations and on-site data expressed herein are outside the scope of UKAS accreditation. We are pleased to enclose our final report, it was a pleasure to be of service to you, and we look forward to our continuing association.

Signed

Hazel Davidson

Deputy General Manager
Analytical Services

Compiled By

Anneli Fryer

WSP REMEDIATION	
CARDIFF OFFICE	
FILE	
30 JAN 2002	
REC	
30/1/02	
WSP	

☐ Preliminary
☒ Validated

ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	TP BH3 S1	TP3 T3	TP3 T6	TP4	TP4 T3	TP5 T3	TP5 T5	TP6 T1	TP6 T2	TP6 T3
Depth	0.45-0.60	2.0-2.3	3.2-3.7	0.5-1.3	1.3-2.0	1.4-2.2	3.0-3.4	0.0-0.6	1.5-3.0	3.0-3.4
Sample Date	16/10/01	04/10/01	04/10/01	08/10/01	08/10/01	04/10/01	04/10/01	04/10/01	04/10/01	04/10/01
Sample Number	274-275	39-40	45-46	103-104	105-106	51-52	55-56	57-58	59-60	61-62
pH	7.97	10.35	7.38	7.84	7.87	9.77	6.91	8.12	-	7.52
% Loss on Ignition	7.0	12.0	3.0	4.0	1.0	5.0	9.0	2.0	-	7.0
% Moisture	15.5	11.3	23.7	15.3	11.0	4.7	12.2	6.2	-	9.3
% Stones	32.1	58.3	41.2	16.6	100.0	86.9	21.6	86.9	-	54.1
Cresols	<0.01	<0.01	<0.01	<0.01	<0.01	0.08	<0.01	<0.01	-	<0.01
Xylenols & Ethylphenols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
Naphthols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	-	0.01
Trimethylphenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01
Total Phenols	<0.01	<0.01	<0.01	<0.01	0.01	0.09	<0.01	<0.01	-	0.01
Naphthalene by GC	0.898	< 0.05	< 0.05	0.571	0.398	0.212	1.809	0.130	-	0.527
Acenaphthylene by GC	1.236	0.126	< 0.05	0.068	0.060	0.124	0.185	0.056	-	< 0.05
Acenaphthene by GC	0.161	< 0.05	< 0.05	< 0.05	< 0.05	0.128	0.626	0.133	-	0.112
Fluorene by GC	1.380	< 0.05	< 0.05	0.053	0.067	0.177	0.424	0.095	-	0.124
Phenanthrene by GC	13.945	0.269	0.184	0.581	0.542	1.159	0.851	0.313	-	0.455
Anthracene by GC	4.276	0.102	0.066	0.096	0.118	0.492	0.867	0.166	-	0.203
Fluoranthene by GC	16.929	0.322	0.344	0.922	1.000	1.941	1.292	0.456	-	0.537
Pyrene by GC	12.265	0.177	0.213	0.900	1.445	1.475	1.575	0.391	-	0.423
Cyclopenta(cd)pyrene by GC	0.698	< 0.05	< 0.05	0.119	0.157	0.106	0.124	< 0.05	-	< 0.05
Benzo(a)anthracene by GC	6.855	0.051	0.136	0.564	0.450	0.839	0.375	0.184	-	0.160
Chrysene by GC	6.713	0.085	0.156	0.588	0.576	0.902	0.339	0.202	-	0.183
Benzo(b)fluoranthene by GC	7.595	0.057	0.243	0.801	0.830	1.242	0.393	0.239	-	0.203
Benzo(k)fluoranthene by GC	2.184	< 0.05	0.089	0.201	0.168	0.412	0.114	0.077	-	0.075
Benzo(e)pyrene by GC	4.197	< 0.05	0.163	0.374	0.463	0.741	0.312	0.166	-	0.163
Benzo(a)pyrene by GC	5.862	< 0.05	0.170	0.300	0.329	0.697	0.159	0.145	-	0.119
Indeno[1 2 3-cd]pyrene by GC	3.373	< 0.05	0.129	0.353	0.438	0.688	0.161	0.178	-	0.134
Dibenzo(a,h)anthracene by GC	0.509	< 0.05	< 0.05	< 0.05	0.158	0.127	< 0.05	< 0.05	-	< 0.05
Benzo(g,h,i)perylene by GC	3.333	< 0.05	0.159	0.315	0.403	0.680	0.162	0.125	-	0.114
Anthanthrene by GC	0.993	< 0.05	< 0.05	< 0.05	0.075	0.122	< 0.05	< 0.05	-	< 0.05
Total PAHs by GC	93	1	2	7	8	12	10	3	-	4
Easily-liberatable Cyanide	<1	<1	<1	<1	<1	2	<1	<1	-	<1
Complex Cyanide	<2.5	4.0	2.6	5.1	10.5	244.3	23.9	14.2	-	12.8
Total Cyanide	<2.5	4.0	2.6	5.1	10.5	246.3	23.9	14.2	-	12.8

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

All concentrations expressed in mg/kg of air dried soil samples unless otherwise indicated.

NDP = No Determination Possible

NFP = No Fibres Present

UKAS Accredited

Checked By

Anneli Fryer

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

[illegible]

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

All concentrations expressed in mg/kg of air dried soil samples unless otherwise indicated.

NDP = No Determination Possible

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UKAS Accredited

Checked By

Annetti Fryer

☐ Preliminary
☒ Validated

ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	TP7 T2	TP7 T6	TP8 T1	TP8 T3	TP8 T5	TP9 T1	TP9 DUP T6	TP9 T5	TP10 T1	TP10 T3
Depth	1.0-1.7	3.1-3.5	0.05-0.9	2.1-3.2	3.7-4.3	0.2-1.3	3.1-3.7	3.1-3.7	0.3-1.5	3.0-3.3
Sample Date	04/10/01	04/10/01	04/10/01	04/10/01	04/10/01	08/10/01	08/10/01	08/10/01	08/10/01	08/10/01
Sample Number	65-67	72-73	74-75	78-79	82-83	109-110	165-166	117-118	119-120	123-124
pH	7.79	7.91	8.00	9.78	7.34	7.98	6.86	6.29	7.38	7.28
% Loss on Ignition	12.0	7.0	2.0	1.0	5.0	1.0	6.0	1.0	4.0	6.0
% Moisture	13.5	9.0	5.5	8.0	12.7	16.6	13.5	12.7	12.5	9.1
% Stones	52.5	56.0	71.3	70.9	47.3	32.9	25.6	100.0	100.0	100.0
Cresols	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.08	<0.01	<0.01
Xylenols & Ethylphenols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Naphthols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.15	<0.01	<0.01
Trimethylphenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Phenols	0.02	0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.26	<0.01	<0.01
Naphthalene by GC	1.959	0.404	< 0.05	< 0.05	2.137	0.291	2.850	2.708	0.343	< 0.05
Acenaphthylene by GC	0.973	0.405	< 0.05	< 0.05	0.581	0.056	1.159	1.422	0.057	< 0.05
Acenaphthene by GC	0.057	0.095	0.067	< 0.05	1.928	0.082	0.410	0.463	0.067	< 0.05
Fluorene by GC	0.093	0.210	0.054	< 0.05	1.522	0.130	2.091	0.779	< 0.05	< 0.05
Phenanthrene by GC	2.854	1.398	0.264	0.131	4.353	0.921	1.306	2.037	0.305	0.191
Anthracene by GC	0.945	0.461	0.075	< 0.05	2.080	0.267	0.751	0.929	< 0.05	0.055
Fluoranthene by GC	8.803	1.258	0.309	0.250	2.905	2.341	3.121	4.325	0.387	0.318
Pyrene by GC	8.840	1.122	0.142	0.122	3.422	1.516	2.680	3.716	0.262	0.256
Cyclopenta(cd)pyrene by GC	0.597	0.095	< 0.05	< 0.05	0.195	0.050	< 0.05	0.135	< 0.05	< 0.05
Benzo(a)anthracene by GC	7.038	0.409	0.095	0.056	0.867	1.388	0.947	1.196	0.141	0.138
Chrysene by GC	8.525	0.389	0.108	0.066	0.815	1.512	1.061	1.344	0.228	0.157
Benzo(b)fluoranthene by GC	12.216	0.420	0.116	0.096	0.654	1.755	0.826	1.000	0.283	0.197
Benzo(k)fluoranthene by GC	4.229	0.128	< 0.05	< 0.05	0.140	0.494	0.245	0.292	0.076	0.065
Benzo(e)pyrene by GC	7.878	0.474	0.074	0.066	0.362	0.955	0.400	0.541	0.203	0.137
Benzo(a)pyrene by GC	5.785	0.260	0.061	0.060	0.421	0.961	0.463	0.531	0.126	0.115
Indeno[1 2 3-cd]pyrene by GC	7.636	0.182	0.239	0.081	0.198	0.669	0.310	0.352	< 0.05	0.103
Dibenzo(a,h)anthracene by GC	2.186	< 0.05	0.112	< 0.05	0.055	0.206	0.117	0.132	0.167	< 0.05
Benzo(g,h,i)perylene by GC	7.452	0.207	0.165	< 0.05	0.182	0.600	0.291	0.329	0.131	0.103
Anthanthrene by GC	0.613	0.079	< 0.05	0.067	0.099	0.121	< 0.05	< 0.05	< 0.05	< 0.05
Total PAHs by GC	89	8	2	1.00	23	14	19	22	3	2
Easily-liberatable Cyanide	5	<1	<1	<1	<1	<1	<1	<1	<1	<1
Complex Cyanide	14.6	11.0	<2.5	<2.5	7.6	2.6	11.9	14.9	5.7	3.9
Total Cyanide	19.6	11.0	<2.5	<2.5	7.6	2.6	11.9	14.9	5.7	3.9

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

All concentrations expressed in mg/kg of air dried soil samples unless otherwise indicated.

NDP = No Determination Possible

NFP = No Fibres Present

UKAS Accredited

Checked By

Anneli Fryer

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

[illegible]

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

All concentrations expressed in mg/kg of air dried soil samples unless otherwise indicated.

NDP. = No Determination Possible

NFP = No Fibres Present

UKAS Accredited

Checked By

Anneli Fryer

☐ Preliminary
☒ Validated

ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	TP12 T1	TP12 T2	TP12 T3	TP13 T1	TP13 T3	TP19 S1	TP19 S2	TP22 S1	TP22 S2	TP23 S1
Depth	0.25-1.1	1.1-2.0	2.0-3.0	0.2-1.0	1.3-3.2	0.20-1.00	1.00-1.90	1.60-1.90	1.90-2.10	0.20-1.00
Sample Date	08/10/01	08/10/01	08/10/01	08/10/01	08/10/01	16/10/01	16/10/01	16/10/01	16/10/01	16/10/01
Sample Number	127-128	129-130	131-132	133-134	137-138	284-285	286-287	290-291	292-293	294-295
pH	8.15	-	7.10	8.00	8.10	7.74	8.01	7.26	7.55	7.78
% Loss on Ignition	4.0	-	6.0	22.0	5.0	6.0	6.0	3.0	1.0	54.0
% Moisture	14.9	-	13.2	17.4	8.7	9.4	8.4	6.6	17.3	16.8
% Stones	15.8	-	31.4	9.5	13.9	52.3	76.2	62.7	<0.1	25.6
Cresols	<0.01	-	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.01
Xylenols & Ethylphenols	<0.01	-	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthols	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol	<0.01	-	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.01
Trimethylphenol	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Phenols	<0.01	-	0.03	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	0.01
Naphthalene by GC	0.366	-	1.133	0.709	0.187	1.355	0.711	2.036	24.651	0.940
Acenaphthylene by GC	0.132	-	2.076	0.407	< 0.05	0.137	< 0.05	1.141	4.068	0.148
Acenaphthene by GC	0.328	-	0.690	0.054	0.064	< 0.05	< 0.05	0.151	0.512	< 0.05
Fluorene by GC	0.128	-	3.658	0.100	0.076	0.080	< 0.05	0.453	1.465	0.075
Phenanthrene by GC	1.021	-	1.334	1.635	0.566	0.317	0.114	0.717	4.428	0.189
Anthracene by GC	0.189	-	0.574	0.519	0.146	0.055	< 0.05	0.069	1.126	< 0.05
Fluoranthene by GC	0.731	-	0.566	3.771	0.603	0.406	0.389	0.805	5.136	0.592
Pyrene by GC	0.629	-	0.627	2.937	0.411	0.139	0.116	0.055	3.389	0.095
Cyclopenta(cd)pyrene by GC	< 0.05	-	< 0.05	0.139	< 0.05	< 0.05	< 0.05	< 0.05	0.280	< 0.05
Benzo(a)anthracene by GC	0.361	-	0.083	2.221	0.210	0.077	0.071	< 0.05	2.435	0.062
Chrysene by GC	0.543	-	0.115	2.380	0.223	0.131	0.102	< 0.05	2.779	0.081
Benzo(b)fluoranthene by GC	0.559	-	0.125	3.497	0.259	0.061	< 0.05	< 0.05	4.351	0.099
Benzo(k)fluoranthene by GC	0.113	-	< 0.05	1.150	0.070	< 0.05	0.130	< 0.05	1.493	< 0.05
Benzo(e)pyrene by GC	0.398	-	0.095	2.053	0.203	0.081	0.081	< 0.05	2.735	0.156
Benzo(a)pyrene by GC	0.322	-	< 0.05	2.355	0.114	0.057	0.066	< 0.05	2.963	< 0.05
Indeno[1 2 3-cd]pyrene by GC	0.226	-	< 0.05	1.987	0.152	0.093	0.072	< 0.05	2.376	0.066
Dibenzo(a,h)anthracene by GC	< 0.05	-	< 0.05	0.467	< 0.05	< 0.05	< 0.05	< 0.05	0.541	< 0.05
Benzo(g,h,i)perylene by GC	0.295	-	0.055	1.956	0.116	0.110	0.082	< 0.05	2.298	< 0.05
Anthanthrene by GC	0.066	-	< 0.05	0.484	< 0.05	0.101	0.068	< 0.05	0.633	< 0.05
Total PAHs by GC	6	-	11	29	3	3	2	5	68	3
Easily-liberatable Cyanide	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
Complex Cyanide	<2.5	-	<2.5	3.3	<2.5	<2.5	<2.5	<2.5	<2.5	5.0
Total Cyanide	<2.5	-	<2.5	3.3	<2.5	<2.5	<2.5	<2.5	<2.5	5.0

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

All concentrations expressed in mg/kg of air dried soil samples unless otherwise indicated.

NDP = No Determination Possible

NFP = No Fibres Present

UKAS Accredited

Checked By

Anneli Fryer

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

[illegible]

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

All concentrations expressed in mg/kg of air dried soil samples unless otherwise indicated.

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Checked By

Anneli Fryer

☐ Preliminary
☒ Validated

ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	TP23 S2	TP25 S1	TP25 S3	TP27 S2	TP27 S2 DUP	TP27 S3	TP28 S1	TP28 S2	TP29 T2	TP29 T3
Depth	1.00-2.00	0.20-1.00	2.00-2.50	0.80-1.30	0.80-1.30	1.30-1.80	0.15-1.40	0.40-1.50	0.40-1.10	1.10-1.90
Sample Date	16/10/01	16/10/01	16/10/01	16/10/01	16/10/01	16/10/01	16/10/01	16/10/01	11/10/01	11/10/01
Sample Number	296-297	300-301	304-305	308-309	310-311	312-313	316-317	318-319	198-199	200-201
pH	7.83	8.13	7.56	7.77	7.76	7.89	8.05	8.22	7.61	8.03
% Loss on Ignition	6.0	6.0	2.0	6.0	7.0	5.0	21.0	7.0	2.0	11.0
% Moisture	8.1	9.7	17.4	9.2	11.4	9.6	18.7	11.4	22.6	10.0
% Stones	76.0	75.2	<0.1	77.0	49.5	69.0	28.3	60.0	<0.1	49.6
Cresols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Xylenols & Ethylphenols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trimethylphenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Phenols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene by GC	0.497	0.066	0.234	0.240	0.200	< 0.05	0.778	0.570	0.714	0.470
Acenaphthylene by GC	0.109	< 0.05	0.112	< 0.05	0.140	< 0.05	0.202	0.358	0.223	0.072
Acenaphthene by GC	< 0.05	< 0.05	0.107	< 0.05	< 0.05	< 0.05	0.109	0.120	0.098	0.057
Fluorene by GC	0.058	< 0.05	0.147	< 0.05	0.124	< 0.05	0.127	0.141	0.138	0.095
Phenanthrene by GC	0.398	0.055	1.043	0.489	0.535	0.426	0.947	0.636	1.477	0.349
Anthracene by GC	0.106	< 0.05	0.301	0.055	0.081	< 0.05	0.137	0.120	0.271	0.076
Fluoranthene by GC	1.265	0.516	2.578	0.717	0.636	0.589	1.576	1.226	4.942	0.797
Pyrene by GC	0.601	< 0.05	1.530	0.199	0.146	0.092	0.714	0.673	2.991	0.200
Cyclopenta(cd)pyrene by GC	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.052	0.190	< 0.05
Benzo(a)anthracene by GC	0.342	< 0.05	1.082	0.087	0.057	0.068	0.424	0.406	1.253	0.099
Chrysene by GC	0.411	< 0.05	1.290	0.114	< 0.05	0.058	0.571	0.480	1.745	0.157
Benzo(b)fluoranthene by GC	0.596	< 0.05	1.757	0.093	< 0.05	0.058	0.863	0.891	2.176	0.176
Benzo(k)fluoranthene by GC	0.194	< 0.05	0.553	< 0.05	< 0.05	< 0.05	0.260	0.273	0.673	0.058
Benzo(e)pyrene by GC	0.388	< 0.05	1.029	0.114	0.057	0.078	0.602	0.577	1.598	0.218
Benzo(a)pyrene by GC	0.370	< 0.05	0.891	0.091	< 0.05	< 0.05	0.398	0.558	1.109	0.099
Indeno[1 2 3-cd]pyrene by GC	0.346	< 0.05	0.818	0.067	< 0.05	< 0.05	0.360	0.506	1.033	0.091
Dibenzo(a,h)anthracene by GC	0.090	< 0.05	0.197	< 0.05	< 0.05	< 0.05	0.072	0.118	0.260	< 0.05
Benzo(g,h,i)perylene by GC	0.379	< 0.05	0.796	< 0.05	< 0.05	< 0.05	0.423	0.499	1.151	0.092
Anthanthrene by GC	0.053	< 0.05	0.141	< 0.05	< 0.05	< 0.05	0.059	0.099	0.207	< 0.05
Total PAHs by GC	6	0.64	15	2	2	1	9	8	22	3
Easily-liberatable Cyanide	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Complex Cyanide	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	8.2	<2.5	<2.5	<2.5
Total Cyanide	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	8.2	<2.5	<2.5	<2.5

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

All concentrations expressed in mg/kg of air dried soil samples unless otherwise indicated.

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UKAS Accredited

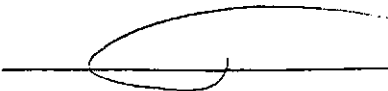
Checked By  Anneli Fryer

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

[illegible]

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☐ Preliminary
☒ Validated

ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	TP30 T2	TP30 T1	TP31 T1	TP31 T3	TP32 T1	TP32 T3	TP34 T2	TP34 T4	TP35 T1	TP35 T2
Depth	1.20-2.00	GL-1.20	0.4-0.6	1.0-2.15	0.3-0.6	1.40-2.00	0.5-1.1	1.6-2.4	0.2-0.6	0.6-1.10
Sample Date	11/10/01	11/10/01	08/10/01	08/10/01	11/10/01	11/10/01	04/10/01	04/10/01	08/10/01	08/10/01
Sample Number	206-207	204-205	139-140	141-142	210-212	215-216	86-87	90-91	147-148	149-150
pH	7.89	7.98	7.50	8.15	7.86	7.77	7.04	7.93	6.53	7.64
% Loss on Ignition	9.0	16.0	4.0	9.0	32.0	7.0	7.0	6.0	25.0	16.0
% Moisture	12.3	15.2	6.4	10.4	16.7	13.0	17.3	10.8	25.4	23.1
% Stones	39.7	66.0	100.0	<0.1	52.0	28.8	52.6	44.0	8.2	38.2
Cresols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	<0.01
Xylenols & Ethylphenols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01
Napththols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trimethylphenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Phenols	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.20	<0.01
Naphthalene by GC	0.152	1.269	0.176	0.726	1.092	0.667	0.064	< 0.05	1.483	0.857
Acenaphthylene by GC	< 0.05	1.055	< 0.05	0.299	0.248	0.166	0.184	< 0.05	1.000	0.878
Acenaphthene by GC	< 0.05	0.189	< 0.05	0.143	0.136	0.165	< 0.05	< 0.05	0.605	0.316
Fluorene by GC	< 0.05	0.150	< 0.05	0.198	0.100	0.119	< 0.05	< 0.05	2.952	0.319
Phenanthrene by GC	0.074	3.229	0.197	1.294	1.179	0.792	0.413	0.163	4.992	2.558
Anthracene by GC	< 0.05	0.487	0.061	0.353	0.398	0.190	0.145	< 0.05	2.744	1.655
Fluoranthene by GC	0.597	4.244	0.324	1.512	5.095	1.867	1.235	0.236	8.425	5.438
Pyrene by GC	< 0.05	1.969	0.220	1.094	2.412	1.161	1.114	0.116	9.000	6.179
Cyclopenta(cd)pyrene by GC	< 0.05	0.119	< 0.05	0.077	0.081	0.055	0.123	< 0.05	0.228	0.265
Benzo(a)anthracene by GC	0.055	1.350	0.154	0.674	1.677	0.874	0.893	0.084	4.517	3.557
Chrysene by GC	< 0.05	1.801	0.158	0.774	2.156	1.058	1.123	0.118	5.549	4.970
Benzo(b)fluoranthene by GC	< 0.05	3.300	0.217	0.996	3.117	1.658	1.829	0.183	12.136	12.769
Benzo(k)fluoranthene by GC	< 0.05	0.761	0.063	0.276	0.865	0.561	0.578	0.055	2.986	3.092
Benzo(e)pyrene by GC	0.101	2.684	0.166	0.610	2.079	1.102	1.191	0.247	6.840	8.088
Benzo(a)pyrene by GC	0.361	2.275	0.162	0.689	1.660	0.996	0.798	0.069	5.249	5.042
Indeno[1 2 3-cd]pyrene by GC	0.059	2.464	0.130	0.566	1.642	0.893	1.138	0.133	7.085	9.310
Dibenzo(a,h)anthracene by GC	< 0.05	0.490	< 0.05	0.131	0.378	0.251	0.213	< 0.05	1.635	1.972
Benzo(g,h,i)perylene by GC	< 0.05	3.075	0.224	0.563	1.690	0.924	1.161	0.138	6.002	7.810
Anthanthrene by GC	< 0.05	1.007	< 0.05	0.165	0.392	0.194	0.099	< 0.05	0.711	0.565
Total PAHs by GC	1	32	2	11	26	14	12	2	84	76
Easily-liberatable Cyanide	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Complex Cyanide	7.1	12.7	9.6	3.2	10.5	<2.5	11.7	4.6	19.8	19.7
Total Cyanide	7.1	12.7	9.6	3.2	10.5	<2.5	11.7	4.6	19.8	19.7

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Anneli Fryer

Table Of Results

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

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☐ Preliminary
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ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	TP36 T4	TP36 T1	TP36 T1 DUP	TP40 T1	TP40 T2	TP42 T2	TP42 T1	TP43 T1	TP43 T2	TP43 T6
Depth	1.20-2.3	GL-0.30	GL-0.30	0.10-0.45	0.45-1.20	1.10-2.00	GL-1.10	0.2-0.5	0.5-1.0	3.1-3.4
Sample Date	11/10/01	11/10/01	11/10/01	11/10/01	11/10/01	11/10/01	11/10/01	08/10/01	08/10/01	08/10/01
Sample Number	227-228	219-220	221-222	239-240	241-242	251-252	249-250	153-154	155-156	163-164
pH	7.71	7.86	7.82	7.72	7.73	7.56	8.10	9.67	7.38	6.43
% Loss on Ignition	15.0	11.0	11.0	26.0	1.0	31.0	7.0	16.0	4.0	6.0
% Moisture	5.9	10.7	13.0	14.0	17.5	22.7	5.7	13.6	16.6	7.4
% Stones	56.9	67.6	71.3	62.9	61.9	<0.1	18.4	<0.1	11.8	16.4
Cresols	<0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
Xylenols & Ethylphenols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol	<0.01	<0.01	<0.01	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01
Trimethylphenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Phenols	<0.01	<0.01	<0.01	0.02	<0.01	0.03	<0.01	<0.01	<0.01	<0.01
Naphthalene by GC	< 0.05	< 0.05	0.423	0.452	2.164	0.050	< 0.05	0.187	0.066	0.290
Acenaphthylene by GC	< 0.05	0.167	0.232	0.104	0.310	< 0.05	< 0.05	0.096	< 0.05	< 0.05
Acenaphthene by GC	< 0.05	< 0.05	0.139	0.257	0.287	< 0.05	0.050	0.056	< 0.05	0.139
Fluorene by GC	< 0.05	0.098	0.102	0.194	0.390	< 0.05	0.051	< 0.05	< 0.05	< 0.05
Phenanthrene by GC	< 0.05	0.959	1.149	1.069	2.378	0.055	0.083	0.593	0.091	0.163
Anthracene by GC	< 0.05	0.295	0.617	0.316	0.634	< 0.05	0.050	0.147	< 0.05	< 0.05
Fluoranthene by GC	0.445	2.441	4.253	6.144	4.908	0.447	0.430	1.119	0.185	0.180
Pyrene by GC	< 0.05	1.949	1.785	2.304	3.751	< 0.05	0.080	0.691	0.103	0.070
Cyclopenta(cd)pyrene by GC	< 0.05	0.112	0.114	0.076	0.595	< 0.05	< 0.05	0.062	< 0.05	< 0.05
Benzo(a)anthracene by GC	< 0.05	1.621	1.013	1.457	2.578	< 0.05	< 0.05	0.548	0.077	0.072
Chrysene by GC	< 0.05	1.898	1.272	1.966	3.025	< 0.05	< 0.05	0.681	0.082	0.108
Benzo(b)fluoranthene by GC	< 0.05	2.572	2.229	3.119	4.126	< 0.05	< 0.05	1.234	0.117	0.052
Benzo(k)fluoranthene by GC	< 0.05	0.824	0.639	0.836	1.075	< 0.05	< 0.05	0.367	< 0.05	0.077
Benzo(e)pyrene by GC	0.101	3.109	1.757	2.653	2.288	0.134	0.218	1.111	0.127	0.051
Benzo(a)pyrene by GC	0.138	1.623	0.910	1.769	2.652	< 0.05	0.575	0.931	< 0.05	< 0.05
Indeno[1 2 3-cd]pyrene by GC	< 0.05	1.408	1.478	1.415	1.896	0.141	0.058	0.804	0.054	< 0.05
Dibenzo(a,h)anthracene by GC	< 0.05	0.335	0.327	0.220	0.466	< 0.05	< 0.05	0.190	< 0.05	0.082
Benzo(g,h,i)perylene by GC	< 0.05	1.383	1.602	1.753	1.572	0.104	< 0.05	0.831	0.112	0.521
Anthanthrene by GC	< 0.05	0.298	0.257	0.587	0.509	0.104	< 0.05	0.141	< 0.05	0.081
Total PAHs by GC	0.68	21	20	27	36	1	2	10	1	2
Easily-liberatable Cyanide	<1	<1	<1	<1	<1	<1	<1	2	<1	<1
Complex Cyanide	<2.5	29.8	16.4	2.9	<2.5	<2.5	<2.5	25.7	11.3	4.6
Total Cyanide	<2.5	29.8	16.4	2.9	<2.5	<2.5	<2.5	27.7	11.3	4.6

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

All concentrations expressed in mg/kg of air dried soil samples unless otherwise indicated.

NDP = No Determination Possible

NFP = No Fibres Present

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Checked By

Anneli Fryer

ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

[illegible]

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

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☐ Preliminary
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ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	TP44 T2	TP44 T3	TP45 T2	TP45 T1	BH1 D2	BH1 D5	BH1	BH1 D7	BH2 D1	BH2A S2
Depth	0.20-0.70	0.70-1.20	0.60-1.60	GL-0.60	0.8-1.8	3.6-4.5	4.5-6.0	6.0-7.5	0.05-1.1	1.60-4.00
Sample Date	11/10/01	11/10/01	11/10/01	11/10/01	04/10/01	04/10/01	04/10/01	04/10/01	04/10/01	11/10/01
Sample Number	257-258	259-260	269-270	267-268	3-4	9-10	11-12	13-14	15-16	170-171
pH	7.35	7.23	7.80	8.02	8.03	8.04	-	7.64	8.15	7.90
% Loss on Ignition	9.0	1.0	8.0	6.0	1.0	3.0	-	1.0	1.0	2.0
% Moisture	11.2	7.7	12.2	5.4	9.7	11.2	-	15.2	7.2	7.5
% Stones	15.9	25.7	49.8	40.8	63.8	100.0	-	100.0	37.5	73.3
Cresols	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	-	<0.01	<0.01	0.01
Xylenols & Ethylphenols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01
Naphthols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	0.02
Trimethylphenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01
Total Phenols	<0.01	<0.01	<0.01	0.01	0.01	0.01	-	<0.01	0.01	0.03
Naphthalene by GC	0.130	< 0.05	0.057	0.291	< 0.05	< 0.05	-	0.056	0.063	1.413
Acenaphthylene by GC	0.072	< 0.05	< 0.05	0.430	< 0.05	0.080	-	< 0.05	< 0.05	0.211
Acenaphthene by GC	< 0.05	< 0.05	0.247	0.722	< 0.05	< 0.05	-	< 0.05	< 0.05	1.715
Fluorene by GC	0.066	< 0.05	0.207	1.429	< 0.05	0.118	-	< 0.05	< 0.05	2.286
Phenanthrene by GC	0.262	< 0.05	1.323	6.546	0.150	0.675	-	0.099	0.196	12.136
Anthracene by GC	0.072	< 0.05	0.319	1.781	< 0.05	0.190	-	< 0.05	0.108	3.310
Fluoranthene by GC	0.478	0.419	2.491	13.524	0.181	0.520	-	0.159	0.297	24.121
Pyrene by GC	0.089	< 0.05	1.414	7.493	0.112	0.383	-	0.083	0.191	15.526
Cyclopenta(cd)pyrene by GC	< 0.05	< 0.05	< 0.05	0.680	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene by GC	< 0.05	< 0.05	1.003	4.067	< 0.05	0.157	-	< 0.05	0.107	11.554
Chrysene by GC	< 0.05	< 0.05	1.196	4.467	< 0.05	0.154	-	< 0.05	0.143	12.530
Benzo(b)fluoranthene by GC	< 0.05	< 0.05	1.620	5.517	0.063	0.148	-	< 0.05	0.154	14.341
Benzo(k)fluoranthene by GC	< 0.05	< 0.05	0.422	1.734	0.074	0.053	-	< 0.05	0.062	4.187
Benzo(e)pyrene by GC	0.098	0.134	1.002	3.818	0.111	0.111	-	0.081	0.104	7.767
Benzo(a)pyrene by GC	< 0.05	< 0.05	0.968	3.487	< 0.05	0.126	-	< 0.05	0.096	8.784
Indeno[1 2 3-cd]pyrene by GC	0.059	< 0.05	0.774	2.372	0.125	0.090	-	< 0.05	0.098	5.927
Dibenzo(a,h)anthracene by GC	< 0.05	< 0.05	0.230	0.581	0.070	< 0.05	-	< 0.05	< 0.05	1.946
Benzo(g,h,i)perylene by GC	< 0.05	< 0.05	0.758	2.527	0.341	0.088	-	< 0.05	0.099	5.889
Anthanthrene by GC	< 0.05	< 0.05	0.190	0.649	< 0.05	< 0.05	-	0.054	< 0.05	1.708
Total PAHs by GC	1	0.55	14	62	1	3	-	0.53	2	135
Easily-liberatable Cyanide	<1	<1	<1	<1	<1	<1	-	<1	<1	<1
Complex Cyanide	<2.5	<2.5	<2.5	<2.5	4.8	3.6	-	<2.5	<2.5	5.0
Total Cyanide	<2.5	<2.5	<2.5	<2.5	4.8	3.6	-	<2.5	<2.5	5.0

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ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

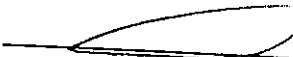
Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	TP44 T2	TP44 T3	TP45 T2	TP45 T1	BH1 D2	BH1 D5	BH1	BH1 D7	BH2 D1	BH2A S2
Depth	0.20-0.70	0.70-1.20	0.60-1.60	GL-0.60	0.8-1.8	3.6-4.5	4.5-6.0	6.0-7.5	0.05-1.1	1.60-4.00
Sample Date	11/10/01	11/10/01	11/10/01	11/10/01	04/10/01	04/10/01	04/10/01	04/10/01	04/10/01	11/10/01
Sample Number	257-258	259-260	269-270	267-268	3-4	9-10	11-12	13-14	15-16	170-171
Elemental Sulphur	<50	<50	<50	<50	71	50	-	<50	<50	1202
Water Soluble Sulphate	45	60	25	40	50	40	-	40	150	120
Water Soluble Chloride	12	80	23	21	38	21	-	17	37	22
Exchangeable Ammonium	13.3	13.3	15.6	17.7	13.5	14.5	-	29.0	24.1	6.5
Arsenic	17	18	9	7	<1	<1	-	<1	3	2
Cadmium	<1	<1	<1	3	<1	<1	-	<1	<1	<1
Chromium	34	28	30	102	8	25	-	23	11	51
Lead	<1	11	33	40	27	26	-	27	103	5
Mercury	<1	<1	<1	<1	<1	<1	-	<1	<1	<1
Selenium	<1	<1	<1	<1	<1	<1	-	<1	<1	<1
Copper	96	18	47	42	31	32	-	24	44	36
Nickel	79	18	25	16	11	7	-	25	12	12
Zinc	36	64	85	96	39	77	-	85	118	63
Boron	<1	<1	<1	<1	<1	<1	-	<1	<1	<1
Benzene	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-
Xylene	-	-	-	-	-	-	-	-	-	-
Total Petroleum Hydrocarbons	-	-	-	-	-	-	-	-	-	-
Asbestos	-	-	-	-	NFP	87	47	67	-	669
2-Isopropyl Phenol by HPLC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01
Catechol by HPLC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01
Resorcinol by HPLC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01

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ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	BH2A S3	BH2A S1	BH3 S1	BH4 T1	BH4 T2	BH4 T4	BH5 S2	BH5 S6	BH5 S8	BH6 S4
Depth	4.00-9.00	GL-1.6	1.0-1.2	0.20-1.00	1.00-2.00	3.00-4.00	0.2-0.6	2.7-3.5	5.8-6.5	3.50-4.50
Sample Date	11/10/01	11/10/01	16/10/01	16/10/01	16/10/01	16/10/01	04/10/01	04/10/01	08/10/01	11/10/01
Sample Number	172-173	168-169	271-273	276-277	278-279	282-283	23-24	31-32	97-98	183-184
pH	7.55	8.39	7.77	10.01	7.95	7.88	7.97	8.05	7.86	7.83
% Loss on Ignition	7.0	1.0	8.0	8.0	3.0	2.0	4.0	5.0	2.0	2.0
% Moisture	14.8	5.3	23.5	13.2	10.6	7.5	4.1	12.5	11.1	6.4
% Stones	66.5	26.6	37.1	28.3	34.2	36.1	56.8	60.6	<0.1	10.4
Cresols	0.01	<0.01	9.04	0.02	0.04	0.24	<0.01	<0.01	<0.01	<0.01
Xylenols & Ethylphenols	<0.01	<0.01	9.60	<0.01	0.01	0.09	<0.01	<0.01	<0.01	<0.01
Naphthols	<0.01	<0.01	0.59	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol	0.01	<0.01	2.37	0.01	0.06	0.25	<0.01	<0.01	<0.01	<0.01
Trimethylphenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Phenols	0.01	<0.01	22.04	0.03	0.11	0.58	<0.01	<0.01	<0.01	<0.01
Naphthalene by GC	0.196	0.758	5.521	1.545	<0.05	0.290	<0.05	<0.05	0.175	0.258
Acenaphthylene by GC	<0.05	<0.05	30.823	2.316	0.518	<0.05	<0.05	0.053	<0.05	0.055
Acenaphthene by GC	<0.05	0.077	2.758	0.298	<0.05	<0.05	<0.05	<0.05	0.068	<0.05
Fluorene by GC	<0.05	0.084	21.139	2.523	0.471	<0.05	<0.05	<0.05	<0.05	0.098
Phenanthrene by GC	0.062	0.212	61.466	25.594	6.871	0.181	0.067	0.205	0.207	0.257
Anthracene by GC	<0.05	<0.05	19.039	7.938	2.065	0.051	<0.05	<0.05	<0.05	0.085
Fluoranthene by GC	1.306	0.165	34.479	31.505	10.245	0.336	0.169	0.173	0.235	0.351
Pyrene by GC	0.069	0.059	26.388	22.770	7.456	0.151	0.086	0.079	0.143	0.143
Cyclopenta(cd)pyrene by GC	<0.05	<0.05	2.023	1.426	0.448	<0.05	<0.05	<0.05	<0.05	0.057
Benzo(a)anthracene by GC	<0.05	<0.05	11.232	13.117	4.164	0.089	0.067	0.058	0.227	0.131
Chrysene by GC	<0.05	0.088	10.288	12.717	4.222	0.103	0.084	0.101	0.145	0.211
Benzo(b)fluoranthene by GC	<0.05	0.065	9.499	13.790	1.444	0.095	0.100	0.090	0.064	<0.05
Benzo(k)fluoranthene by GC	<0.05	<0.05	3.045	4.172	4.609	0.155	<0.05	<0.05	<0.05	0.053
Benzo(e)pyrene by GC	0.150	0.145	4.681	7.070	2.394	0.068	0.086	0.077	0.088	0.062
Benzo(a)pyrene by GC	<0.05	<0.05	8.055	10.173	3.250	0.095	<0.05	<0.05	0.071	<0.05
Indeno(1 2 3-cd)pyrene by GC	<0.05	<0.05	4.183	6.251	2.130	0.099	0.103	0.069	0.059	<0.05
Dibenzo(a,h)anthracene by GC	<0.05	<0.05	0.896	1.020	0.661	0.066	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene by GC	<0.05	<0.05	3.988	6.390	2.309	0.204	0.072	<0.05	0.060	0.053
Anthanthrene by GC	0.102	<0.05	1.845	1.846	0.524	<0.05	<0.05	<0.05	0.473	0.250
Total PAHs by GC	2	2	261	172	54	2	0.83	0.91	2	2
Easily-liberatable Cyanide	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Complex Cyanide	6.0	<2.5	15.4	32.4	<2.5	<2.5	3.5	<2.5	<2.5	2.6
Total Cyanide	6.0	<2.5	15.4	32.4	<2.5	<2.5	3.5	<2.5	<2.5	2.6

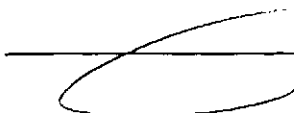
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ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	BH2A S3	BH2A S1	BH3 S1	BH4 T1	BH4 T2	BH4 T4	BH5 S2	BH5 S6	BH5 S8	BH6 S4
Depth	4.00-9.00	GL-1.6	1.0-1.2	0.20-1.00	1.00-2.00	3.00-4.00	0.2-0.6	2.7-3.5	5.8-6.5	3.50-4.50
Sample Date	11/10/01	11/10/01	16/10/01	16/10/01	16/10/01	16/10/01	04/10/01	04/10/01	08/10/01	11/10/01
Sample Number	172-173	168-169	271-273	276-277	278-279	282-283	23-24	31-32	97-98	183-184
Elemental Sulphur	64	70	326	<50	<50	<50	<50	<50	<50	<50
Water Soluble Sulphate	20	55	135	780	635	40	210	95	20	20
Water Soluble Chloride	40	65	45	55	25	20	10	23	21	50
Exchangeable Ammonium	14.5	9.1	0.8	20.2	14.4	5.6	23.4	24.3	4.3	15.4
Arsenic	2	1	278	18	5	4	<1	<1	7	<1
Cadmium	<1	<1	4	<1	<1	<1	<1	<1	<1	<1
Chromium	16	11	21	29	56	30	16	18	11	38
Lead	9	39	255	293	46	14	<1	9	20	<1
Mercury	<1	<1	<1	<1	<1	<1	<1	<1	2	<1
Selenium	2	2	<1	<1	<1	<1	<1	<1	1	<1
Copper	37	30	72	58	28	20	59	31	51	23
Nickel	36	10	16	15	<1	14	19	15	22	2
Zinc	96	87	203	104	103	104	5	39	69	36
Boron	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	-	-	153.753	-	-	-	-	-	-	-
Toluene	-	-	218.586	-	-	-	-	-	-	-
Ethylbenzene	-	-	29.26	-	-	-	-	-	-	-
Xylene	-	-	229.14	-	-	-	-	-	-	-
Total Petroleum Hydrocarbons	-	-	2624	-	-	-	-	-	-	282
Asbestos	-	-	-	-	-	-	-	-	-	-
2-Isopropyl Phenol by HPLC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Catechol by HPLC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Resorcinol by HPLC	<0.01	<0.01	0.44	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

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ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	BH6 S4 DUP	BH6 S5	BH6 S1	SKIP2	SKIP3	WS14 S1	WS17 S1	WS18 S1	WS20 S1	WS21 S1
Depth	3.50-4.50	4.50-6.50	GL-1.00			0.7-1.0	0.3-1.2	1.00-1.50	1.00-2.00	0.9-1.2
Sample Date	11/10/01	11/10/01	11/10/01	23/10/01	23/10/01	16/10/01	16/10/01	16/10/01	16/10/01	16/10/01
Sample Number	185-186	187-189	176-177	340-341	342-343	324-325	326-327	328-329	330-331	332-333
pH	7.75	7.53	8.07	8.36	8.34	7.99	7.98	7.51	7.60	7.76
% Loss on Ignition	1.0	1.0	8.0	4.0	1.0	8.0	10.0	10.0	2.0	4.0
% Moisture	12.6	9.0	11.7	5.6	6.6	19.7	12.6	11.2	7.9	13.2
% Stones	40.1	61.8	43.8	72.3	40.2	41.5	38.0	76.2	53.7	36.7
Cresols	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.07	<0.01	0.01	0.02
Xylenols & Ethylphenols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.01
Naphthols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.01	0.02
Trimethylphenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Phenols	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.11	<0.01	0.02	0.05
Naphthalene by GC	0.266	0.122	0.289	0.893	0.532	0.425	0.855	0.327	0.286	1.642
Acenaphthylene by GC	0.055	< 0.05	< 0.05	0.149	0.546	0.135	1.961	0.216	0.632	3.054
Acenaphthene by GC	< 0.05	< 0.05	< 0.05	0.193	0.797	0.063	0.361	< 0.05	0.115	0.619
Fluorene by GC	0.079	< 0.05	< 0.05	0.181	1.163	0.105	1.775	0.085	0.624	3.312
Phenanthrene by GC	0.290	0.093	0.089	0.733	4.327	0.841	17.109	0.247	7.810	33.699
Anthracene by GC	0.073	< 0.05	< 0.05	0.212	0.744	0.176	6.801	0.073	5.086	9.659
Fluoranthene by GC	0.467	1.054	1.138	0.922	2.391	1.925	27.854	0.765	21.654	43.409
Pyrene by GC	0.241	0.118	0.068	0.800	2.257	1.184	19.497	0.235	15.948	30.601
Cyclopenta(cd)pyrene by GC	0.052	< 0.05	< 0.05	0.053	0.099	0.065	0.960	< 0.05	1.672	1.445
Benzo(a)anthracene by GC	0.182	0.064	< 0.05	0.469	0.789	0.825	10.423	0.193	8.568	14.959
Chrysene by GC	0.268	0.104	0.055	0.536	0.719	0.957	10.144	0.223	7.982	16.721
Benzo(b)fluoranthene by GC	< 0.05	0.155	< 0.05	0.631	0.662	1.337	12.391	0.183	10.208	19.573
Benzo(k)fluoranthene by GC	0.180	< 0.05	< 0.05	0.274	0.209	0.401	3.733	0.076	2.857	5.508
Benzo(e)pyrene by GC	0.115	0.232	0.148	0.433	0.403	0.791	6.947	0.260	5.460	11.006
Benzo(a)pyrene by GC	< 0.05	0.060	< 0.05	0.445	0.576	0.756	8.403	0.088	7.850	13.186
Indeno[1 2 3-cd]pyrene by GC	< 0.05	0.085	< 0.05	0.384	0.306	0.672	5.650	0.129	5.222	8.951
Dibenzo(a,h)anthracene by GC	< 0.05	< 0.05	< 0.05	0.078	0.052	0.149	1.370	0.051	0.983	1.913
Benzo(g,h,i)perylene by GC	0.086	0.096	< 0.05	0.429	0.293	0.640	5.360	0.095	4.388	8.027
Anthanthrene by GC	1.662	< 0.05	< 0.05	0.051	0.072	0.089	1.421	< 0.05	1.876	2.324
Total PAHs by GC	4	2	2	8	17	12	143	3	109	230
Easily-liberatable Cyanide	<1	<1	<1	3	<1	8	2	<1	<1	<1
Complex Cyanide	2.7	2.7	<2.5	<2.5	<2.5	5.8	26.4	65.0	<2.5	35.9
Total Cyanide	2.7	2.7	<2.5	3.8	<2.5	13.8	28.4	65.0	<2.5	35.9

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All concentrations expressed in mg/kg of air dried soil samples unless otherwise indicated.

NDP = No Determination Possible

NFP = No Fibres Present

UKAS Accredited

Checked By  Anneli Fryer

Table Of Results

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

All concentrations expressed in mg/kg of air dried soil samples unless otherwise indicated.

NDP = No Determination Possible

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UKAS Accredited

Checked By

Anneli Fryer

☐ Preliminary
☒ Validated

ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: SOIL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	WS37 S1	WS38 S1	CRM6138/5140	CRM6138/5140 B					
Depth	GL-1.00	0.25-1.10							
Sample Date	16/10/01	16/10/01	08/10/01	16/10/01					
Sample Number	334-335	337-338	167	339					
pH	5.76	7.38	-	-					
% Loss on Ignition	15.0	13.0	-	-					
% Moisture	13.2	13.6	-	-					
% Stones	60.0	34.0	-	-					
Cresols	0.04	<0.01	-	-					
Xylenols & Ethylphenols	0.08	<0.01	-	-					
Naphthols	<0.01	<0.01	-	-					
Phenol	0.05	<0.01	-	-					
Trimethylphenol	<0.01	<0.01	-	-					
Total Phenols	0.18	<0.01	-	-					
Naphthalene by GC	6.486	0.743	2.85	3.47					
Acenaphthylene by GC	1.821	0.056	7.75	5.29					
Acenaphthene by GC	0.353	0.062	2.38	0.57					
Fluorene by GC	1.253	0.076	2.38	4.45					
Phenanthrene by GC	47.604	0.385	119.17	92.68					
Anthracene by GC	6.025	< 0.05	6.00	8.56					
Fluoranthene by GC	44.006	0.627	78.48	65.15					
Pyrene by GC	32.452	0.203	78.76	71.14					
Cyclopenta(cd)pyrene by GC	0.053	< 0.05	0.42	0.32					
Benzo(a)anthracene by GC	14.141	0.129	19.12	27.74					
Chrysene by GC	18.274	0.205	32.95	27.04					
Benzo(b)fluoranthene by GC	19.727	0.170	28.64	16.59					
Benzo(k)fluoranthene by GC	6.459	0.052	6.97	15.81					
Benzo(e)pyrene by GC	9.913	0.372	16.71	12.82					
Benzo(a)pyrene by GC	3.899	0.118	3.58	4.92					
Indeno[1 2 3-cd]pyrene by GC	8.600	0.234	12.34	10.04					
Dibenzo(a,h)anthracene by GC	2.462	0.137	1.00	2.85					
Benzo(g,h,i)perylene by GC	8.001	0.192	14.08	9.89					
Anthanthrene by GC	0.050	0.066	0.30	1.62					
Total PAHs by GC	232	4	438.46	381					
Easily-liberatable Cyanide	11	<1	121	108					
Complex Cyanide	480.6	5.6	2734.8	2854.0					
Total Cyanide	491.6	5.6	2855.8	2962.0					

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Table Of Results

Sample Type: SOIL
Location: Willow Works Merthyr
Reference: 13010049

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

All concentrations expressed in mg/kg of air dried soil samples unless otherwise indicated.

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ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: L_MGL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL (Leachate)
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	TP BH3 S1	TP4	TP35 T2	TP40 T1	TP45 T1	BH3 S1	WS21 S1			
Depth	0.45-0.60	0.5-1.3	0.6-1.10	0.10-0.45	GL-0.60	1.0-1.2	0.9-1.2			
Sample Date	16/10/01	08/10/01	08/10/01	11/10/01	11/10/01	16/10/01	16/10/01			
Sample Number	274-275	103-104	149-150	239-240	267-268	271-273	332-333			
pH	8.05	7.88	7.91	8.13	8.03	7.90	7.78			
TOC	1	1	35	8	5	13	<1			
Conductivity (uS/cm)	47	82	355	133	69	155	99			
Cresols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Xylenols & Ethylphenols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Naphthols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Phenol	0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.01			
Trimethylphenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
Total Phenols	0.01	0.01	0.01	0.01	0.01	0.01	0.01			
Naphthalene	0.000308	0.000055	0.000102	0.000115	0.000116	0.000933	<0.00001			
Acenaphthene	<0.00001	<0.00001	0.000098	0.000104	0.000092	0.012516	0.000041			
Fluorene	<0.00001	<0.00001	0.00023	0.0005	0.000187	0.044908	<0.00001			
Phenanthrene	0.000111	<0.00001	0.000474	0.005664	0.000354	0.019146	0.00006			
Anthracene	<0.00001	<0.00001	0.00016	0.001478	0.000101	0.006099	0.00003			
Fluoranthene	<0.00001	<0.00001	0.000262	0.008772	0.000406	0.002941	0.000656			
Pyrene	0.000161	<0.00001	0.000376	0.006739	0.00038	0.002249	0.000508			
Benzo(a)anthracene	0.000083	<0.00001	0.000187	0.003511	0.000248	0.00027	0.000089			
Chrysene	0.000083	<0.00001	0.000225	0.003984	0.00031	0.000236	0.000089			
Benzo(b)fluoranthene	<0.00001	<0.00001	0.000167	0.003287	0.000176	0.000062	0.000044			
Benzo(k)fluoranthene	<0.00001	<0.00001	0.00023	0.003395	0.000239	0.000092	0.000067			
Benzo(e)pyrene	<0.00001	<0.00001	0.000188	0.002251	0.000181	0.000049	0.000043			
Benzo(a)pyrene	<0.00001	<0.00001	0.000027	0.000747	0.000038	0.000058	<0.00001			
Indeno(1/2/3-cd)pyrene	<0.00001	<0.00001	0.000184	0.002127	0.00017	<0.00001	<0.00001			
Di-benz(a,h)anthracene	<0.00001	<0.00001	<0.00001	0.00037	<0.00001	<0.00001	<0.00001			
Benzo(g,h,i)perylene	<0.00001	<0.00001	0.000186	0.001719	0.000165	<0.00001	<0.00001			
Total PAH	0.000747	0.000055	0.003096	0.044763	0.003163	0.089558	0.001627			
Easily-liberatable Cyanide	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5			
Complex Cyanide	<0.5	<0.5	7.3	<0.5	<0.5	<0.5	<0.5			
Total Cyanide	<0.5	<0.5	7.90	<0.5	<0.5	<0.5	<0.5			
Sulphate	10	7	107	26	2.2	35	19			
Total Ammonium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05			
Lead	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05			

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All results expressed as mg/l soil unless otherwise stated.

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NFP = No Fibres Present

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Table Of Results

Export Filename: L_MGL.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL (Leachate)
Location: Willow Works Merthyr
Reference: 13010049

[illegible]

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ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: L_MGKG.CSV
Client Name: WSP Environmental
Job Number: 01/09582/04/01

Sample Type: SOIL (Leachate)
Location: Willow Works Merthyr
Reference: 13010049

Client Sample ID	TP BH3 S1	TP4	TP35 T2	TP40 T1	TP45 T1	BH3 S1	WS21 S1			
Depth	0.45-0.60	0.5-1.3	0.6-1.10	0.10-0.45	GL-0.60	1.0-1.2	0.9-1.2			
Sample Date	16/10/01	08/10/01	08/10/01	11/10/01	11/10/01	16/10/01	16/10/01			
Sample Number	274-275	103-104	149-150	239-240	267-268	271-273	332-333			
pH	8.05	7.88	7.91	8.13	8.03	7.90	7.78			
TOC	10	10	350	80	50	130	<10			
Conductivity (uS/cm)	47	82	355	133	69	155	99			
Cresols	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Xylenols & Ethylphenols	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Naphthols	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Phenol	0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1			
Trimethylphenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
Total Phenols	0.1	0.1	0.1	0.1	0.1	0.1	0.1			
Naphthalene	0.00308	0.00055	0.00102	0.00115	0.00116	0.00933	<0.0001			
Acenaphthene	<0.0001	<0.0001	0.00098	0.00104	0.00092	0.12516	0.00041			
Fluorene	<0.0001	<0.0001	0.0023	0.005	0.00187	0.44908	<0.0001			
Phenanthrene	0.00111	<0.0001	0.00474	0.05664	0.00354	0.19146	0.0006			
Anthracene	<0.0001	<0.0001	0.0016	0.01478	0.00101	0.06099	0.0003			
Fluoranthene	<0.0001	<0.0001	0.00262	0.08772	0.00406	0.02941	0.00656			
Pyrene	0.00161	<0.0001	0.00376	0.06739	0.0038	0.02249	0.00508			
Benzo(a)anthracene	0.00083	<0.0001	0.00187	0.03511	0.00248	0.0027	0.00089			
Chrysene	0.00083	<0.0001	0.00225	0.03984	0.0031	0.00236	0.00089			
Benzo(b)fluoranthene	<0.0001	<0.0001	0.00167	0.03287	0.00176	0.00062	0.00044			
Benzo(k)fluoranthene	<0.0001	<0.0001	0.0023	0.03395	0.00239	0.00092	0.00067			
Benzo(e)pyrene	<0.0001	<0.0001	0.00188	0.02251	0.00181	0.00049	0.00043			
Benzo(a)pyrene	<0.0001	<0.0001	0.00027	0.00747	0.00038	0.00058	<0.0001			
Indeno(1/2/3-cd)pyrene	<0.0001	<0.0001	0.00184	0.02127	0.0017	<0.0001	<0.0001			
Di-benz(a/h)anthracene	<0.0001	<0.0001	<0.0001	0.0037	<0.0001	<0.0001	<0.0001			
Benzo(g/h/l)perylene	<0.0001	<0.0001	0.00186	0.01719	0.00165	<0.0001	<0.0001			
Total PAH	0.00747	0.00055	0.03096	0.44763	0.03163	0.89558	0.01627			
Easily-liberatable Cyanide	<5	<5	6	<5	<5	<5	<5			
Complex Cyanide	<5	<5	73	<5	<5	<5	<5			
Total Cyanide	<5	<5	79	<5	<5	<5	<5			
Sulphate	100	70	1070	260	22	350	190			
Total Ammonium	<2	<2	<2	<2	<2	<2	<2			
Arsenic	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5			
Lead	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5			

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NFP = No Fibres Present

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ALcontrol Geochem

C₁₀ to C₄₀ Hydrocarbons

Job Number : 01/09582/04/01

Client : WSP Environmental

Ref : 13010049

Sample Type : SOIL

Units : mg/kg

Sample No	Sample Identity	Depth	Total Soluble Extract	Diesel Range Hydrocarbons	Mineral Oil	Carbon Range Distribution			Interpretation
						C ₁₀ -C ₂₀	C ₂₁ -C ₃₀	C ₃₁ -C ₄₀	
9	BH1 D5	3.6-4.5		87					possible lube oil
11	BH1	4.5-6.0		47					possible lube oil
13	BH1 D7	6.0-7.5		67					possible lube oil
39	TP3 T3	2.0-2.3		21					unknown cluster at C18
45	TP3 T6	3.2-3.7		254					possible Biodegraded Diesel
55	TP5 T5	3.0-3.4		793					possible lube oil
61	TP6 T3	3.0-3.4		7					No Identification Possible
65	TP7 T2	1.0-1.7		69					unknown pattern detected
72	TP7 T6	3.1-3.5		417					PAH'S
82	TP8 T5	3.7-4.3		748					PAH'S
105	TP4 T3	1.3-2.0		106					possible lube oil
117	TP9 T5	3.1-3.7		104					possible Biodegraded Diesel.
123	TP10 T3	3.0-3.3		88					possible lube oil
129	TP12 T2	1.1-2.0		304					possible lube oil
131	TP12 T3	2.0-3.0		236					possible Biodegraded Diesel.
137	TP13 T3	1.3-3.2		17					No Identification Possible
147	TP35 T1	0.2-0.6		637					Biodegraded Diesel
149	TP35 T2	0.6-1.10		453					Biodegraded Diesel
153	TP43 T1	0.2-0.5		7					No Identification Possible

ALcontrol Geochem

C₁₀ to C₄₀ Hydrocarbons

Job Number : 01/09582/04/01

Client : WSP Environmental

Ref : 13010049

Sample Type : SOIL

Units : mg/kg

Sample No	Sample Identity	Depth	Total Soluble Extract	Diesel Range Hydrocarbons	Mineral Oil	Carbon Range Distribution			Interpretation
						C ₁₀ -C ₂₀	C ₂₁ -C ₃₀	C ₃₁ -C ₄₀	
163	TP43 T6	3.1-3.4		13					No Identification Possible
165	TP9 DUP T6	3.1-3.7		140					possible Biodegraded Diesel.
170	BH2A S2	1.60-4.00		669					PAH'S/Possible Lube oil
183	BH6 S4	3.50-4.50		282					possible lube oil
185	BH6 S4 DUP	3.50-4.50		294					possible lube oil
187	BH6 S5	4.50-6.50		376					possible lube oil
219	TP36 T1	GL-0.30		61					unknown pattern detected
221	TP36 T1 DUP	GL-0.30		95					unknown pattern detected
239	TP40 T1	0.10-0.45		416					possible lube oil
251	TP42 T2	1.10-2.00		284					possible lube oil
271	BH3 S1	1.0-1.2		2624					PAH'S
274	TP BH3 S1	0.45-0.60		621					PAH'S
337	WS38 S1	0.25-1.10		368					Possible Lube oil/possible biodegraded diesel

☐ Preliminary
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ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: WATER.CSV
Client Name: WSP Environmental
Job Number: 01/11395/04/01

Sample Type: WATER
Location: Merthyr
Reference: 13010049

Client Sample ID	BH1 W2	BH1 W1	BH2A W1	BH2A W2	BH4 W2	BH4 W1	BH5 W2	BH5 W1	BH6 W2	BH6 W1
Depth	3.8	3.86	4.10	4.14	3.40	3.89	3.5	3.60	4.0	4.04
Sample Date	30/11/01	23/11/01	23/11/01	30/11/01	30/11/01	23/11/01	30/11/01	23/11/01	30/11/01	23/11/01
Sample Number	43-49	1-7	8-14	50-56	57-63	22-28	64-70	29-35	71-77	36-42
pH	8.83	8.41	8.12	8.62	8.66	8.43	8.63	8.38	8.60	8.39
TOC	<1	7	9	5	1	3	1	4	2	4
Suspended solids	138	1358	760	530	250	3168	488	12770	230	674
Conductivity (uS/cm)	159	427	850	675	672	740	642	697	603	652
Cresols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Xylenols & Ethylphenols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenol	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trimethylphenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Phenols	0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene	0.002178	<0.00001	<0.00001	<0.00001	0.006919	0.000793	0.000147	<0.00001	0.000112	<0.00001
Acenaphthene	0.000212	0.000017	0.00013	0.000023	0.001635	0.000025	0.000025	<0.00001	0.000024	<0.00001
Fluorene	0.000236	0.000011	0.000055	0.000043	0.001206	0.000184	0.00004	<0.00001	0.000028	<0.00001
Phenanthrene	0.000525	0.000011	0.000049	0.00012	0.00259	0.000668	0.000143	<0.00001	0.000094	<0.00001
Anthracene	0.000142	<0.00001	0.000022	0.000034	0.000901	0.000186	0.000042	<0.00001	0.000026	<0.00001
Fluoranthene	0.000162	0.000019	0.000033	0.000053	0.000892	0.000275	0.000044	<0.00001	0.000059	<0.00001
Pyrene	0.000242	0.000025	0.000044	0.000072	0.001263	0.000413	0.000055	<0.00001	0.000082	<0.00001
Benzo(a)anthracene	0.000071	0.000012	0.000015	0.000022	0.000378	0.000169	<0.00001	<0.00001	0.000019	<0.00001
Chrysene	0.000085	0.000017	0.000024	0.000033	0.000396	0.000179	<0.00001	<0.00001	0.000027	<0.00001
Benzo(b)fluoranthene	0.000026	<0.00001	0.000014	<0.00001	0.000112	0.000087	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(k)fluoranthene	0.000029	<0.00001	0.000011	<0.00001	0.000146	0.000076	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(e)pyrene	0.000028	<0.00001	0.000012	<0.00001	0.000136	0.000063	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(a)pyrene	0.000044	<0.00001	0.000016	<0.00001	0.000259	0.000111	<0.00001	<0.00001	<0.00001	<0.00001
Indeno(1/2/3-cd)pyrene	<0.00001	<0.00001	<0.00001	<0.00001	0.000072	0.000037	<0.00001	<0.00001	<0.00001	<0.00001
Di-benz(a/h)anthracene	<0.00001	<0.00001	<0.00001	<0.00001	0.000025	0.000014	<0.00001	<0.00001	<0.00001	<0.00001
Benzo(g/h/l)perylene	<0.00001	<0.00001	<0.00001	<0.00001	0.000088	0.000046	<0.00001	<0.00001	<0.00001	<0.00001
Total PAH	0.00398	0.000112	0.000425	0.000399	0.017018	0.003326	0.000495	<0.00001	0.000471	<0.00001
Easily-liberatable Cyanide	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Complex Cyanide	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8
Total Cyanide	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8
Sulphate	10	49	114	97	95	95	87	87	89	85
Sulphide	0.03	0.04	0.03	0.04	0.04	0.04	0.03	0.04	0.03	0.04
Chloride	3.9	15	15	16	11	17	10	15	11	14

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

All results are expressed as mg/l unless otherwise stated.

NDP = No Determination Possible

NFP = No Fibres Present

UKAS Accredited

Checked By

Anneli Fryer

☐ Preliminary
☒ Validated

ALcontrol Geochem Analytical Services

Table Of Results

Export Filename: WATER.CSV
Client Name: WSP Environmental
Job Number: 01/11395/04/01

Sample Type: WATER
Location: Merthyr
Reference: 13010049

Client Sample ID	BH1 W2	BH1 W1	BH2A W1	BH2A W2	BH4 W2	BH4 W1	BH5 W2	BH5 W1	BH6 W2	BH6 W1
Depth	3.8	3.86	4.10	4.14	3.40	3.89	3.5	3.60	4.0	4.04
Sample Date	30/11/01	23/11/01	23/11/01	30/11/01	30/11/01	23/11/01	30/11/01	23/11/01	30/11/01	23/11/01
Sample Number	43-49	1-7	8-14	50-56	57-63	22-28	64-70	29-35	71-77	36-42
Total Ammonium	0.4	0.8	2.1	3.6	0.4	0.4	0.5	0.4	0.4	0.3
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	0.09
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Copper	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	<0.05	0.06	0.05	<0.05	<0.05	0.06	<0.05	0.05	<0.05	0.05
Zinc	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Iron	0.06	0.65	0.11	<0.05	<0.05	0.09	0.24	<0.05	0.25	0.18
Benzene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001
Toluene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001
Ethylbenzene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001
Xylene	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	<0.001	<0.001
Total Petroleum Hydrocarbons	<0.01	0.091	0.098	<0.01	0.042	<0.01	-	-	<0.01	<0.01
Cadmium by ICP-USN	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Chromium by ICP-USN	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001
Mercury Low Dutch Target AA	<0.00005	<0.00005	0.00014	<0.00005	<0.00005	0.00032	<0.00005	<0.00005	<0.00005	<0.00005
Nitrate	1.0	0.5	0.4	0.7	3.1	2.7	3.9	1.2	5.6	6.1
2-Isopropyl Phenol by HPLC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Catechol by HPLC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Resorcinol by HPLC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

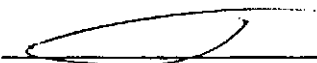
All results are expressed as mg/l unless otherwise stated.

NDP = No Determination Possible

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UKAS Accredited

Checked By



Anneli Fryer

C₁₀ to C₄₀ Hydrocarbons

Client : WSP Environmental

Sample Type : WATER

Units : $\mu\text{g/l}$ Page 12 of 16



CERTIFICATE OF ANALYSIS

Client Details: Alcontrol Geochem

Page 2 of 3 pages

Address: Chester Street
Chester
CH4 8RD

Your Ref No. 67/9582

Our Report No: 5738

17th October 2001

1 no. bulk sample submitted for analysis on 12.10.01

The sample detailed below has been analysed qualitatively for asbestos in accordance with
In House Method 001 based upon MDHS 77

Lab Sample No.	Client Sample Ref.	Description	Results of Asbestos type(s)
10688	67	Cement Boarding	Chrysotile - Significant

NOTE: Estimates of asbestos content are defined as Trace (<2%), Significant (2-50%) and Substantial (>50%).
Estimate of asbestos content is outside the scope of accreditation.

Andrew Craig
Operations Manager - Asbestos
ALCONTROL TECHNICHEM

APPENDIX

APPENDIX

1. Results are expressed as mg/Kg dry weight unless otherwise stated, excluding analyses in (2) below.
2. Leach tests, cyanide, phenols by MS, hexavalent chrome, flash point, acid soluble sulphides, TPH by IR and volatiles are performed on wet soil as received, and results are expressed as mg/Kg of wet soil or mg/l of leachate of specified leach test. Ammoniacal nitrogen and total phenols by HPLC are performed on wet sample but are then re-calculated and expressed as mg/kg of dry soil.
3. ICP metals results are analysed using a screening program and the data is accurate to within 20%.
4. The majority of analyses are run to an accuracy of 10%, but this may be improved upon if legally defensible data is required.
5. Every fifth sample is run in duplicate, but not reported, as part of our internal QC procedure.
6. A sub sample of all samples received will be retained free of charge for two months for soils and one month for waters (sample size permitting), but may then be discarded unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage.
7. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
8. Please note that we take no responsibility for any test performed by sub-contractors (marked with an asterisk).
9. Asbestos screen is done in-house on soils and if no fibres are found will be reported as NFP-no fibres present. If asbestos is detected then identification & quantification is carried out by a sub-contractor. If a sample is suspected of containing asbestos then drying & crushing will be suspended on that sample until the asbestos result is known. If asbestos is present then no analysis requiring dry sample will be undertaken.
10. NDP-No determination possible due to insufficient/unsuitable sample.

UKAS ACCREDITED TEST METHODS

METHOD No	METHOD TITLE	UNITS
TM002	Determination of pH in soil using the HANNAH H1931402 Micro Processor pH meter	pH
TM004	Solvent extraction of soil	mg/kg
TM009	Class separation of hydrocarbons by thin layer chromatography (using Iatroscan)	mg/l mg/kg
TM015	Kone Analyser - Operator's Guide	N/A
TM018	Determination of Loss on Ignition in soils	% w/w
TM019	Determination of anions using ion chromatography	mg/l
TM021	The determination of total dissolved solids in waters.	mg/l
TM022	The determination of total suspended solids in waters	mg/l
TM023	The determination of pH in water samples using the 3040 ion analyser	pH
TM024	Determination of Exchangeable Ammonium in soil samples	mgNH ₄ /kg
TM027	Determination of phenol as C ₆ H ₅ OH using the Dr Lange photometer	mg/l mg/kg
TM028	Determination of chemical oxygen demand (COD) using the Hach COD reactor system	mgO /l
TM036	Determination of electrical conductivity using the Ciba Corning meter	mScm ⁻¹
TM043	Determination of alkalinity in aqueous samples	mg/l mg/kg
TM045	Determination of BOD ₅ (ATU) using the Ciba Corning Oxygen Meter	mg/l
TM049	Leco CS444 - Operator's Guide	N/A
TM050	Determination using the Leco CS444 Total Organic Carbon	%
TM053	Determination of Bulk Gas Composition (Suite 1)	% v/v

UKAS ACCREDITED TEST METHODS

METHOD No	METHOD TITLE	UNITS
TM055	GC-MS Engine determination of polynuclear aromatic hydrocarbons in oil based mud by mass selective detection	µg/l mg/kg
TM056	Hydrocarbon analysis using the THA	
TM057	Determination of saturates by gas chromatography	µg/l µg/kg mg/l mg/kg
TM059	Determination of whole oil by gas chromatography	N/A
TM060	Analysis of drilling cuttings	µg/l % wt
TM061	Determination of total petroleum hydrocarbons by gas chromatography	µg/l µg/kg mg/l mg/kg
TM062	Determination of phenols by HPLC	mg/l mg/kg
TM063	Analysis of BTEX hydrocarbons by GC-MSD/Tekmar	µg/l
TM064	Analysis of volatile hydrocarbons by GC-MS/Tekmar	µg/l
TM065	Preparation of Standard Solutions for Calibration Quality Control of Emission Spectrometers	N/A
TM066	Analysis of acid digested samples by Inductively Coupled Plasma - general operation	N/A
TM067	Total (Acid-Soluble) sulphate determination in soils using Leco CS444	%
TM068	Total sulphur determination using Leco CS444	%
TM070	Determination of total polychlorinated biphenyls (PCB's)	µg/l µg/kg mg/l mg/kg
TM071	Determination of acid /base neutrals by GCMS	µg/l mg/kg
TM072	Determination of phenols by GCMS	µg/l mg/kg
TM073	Determination of organochlorine and organophosphorous pesticides by GCMS	µg/l mg/kg
TM074	Determination of polynuclear aromatic hydrocarbons (PAH) by GC-MS	µg/l µg/kg mg/l mg/kg

UKAS ACCREDITED TEST METHODS

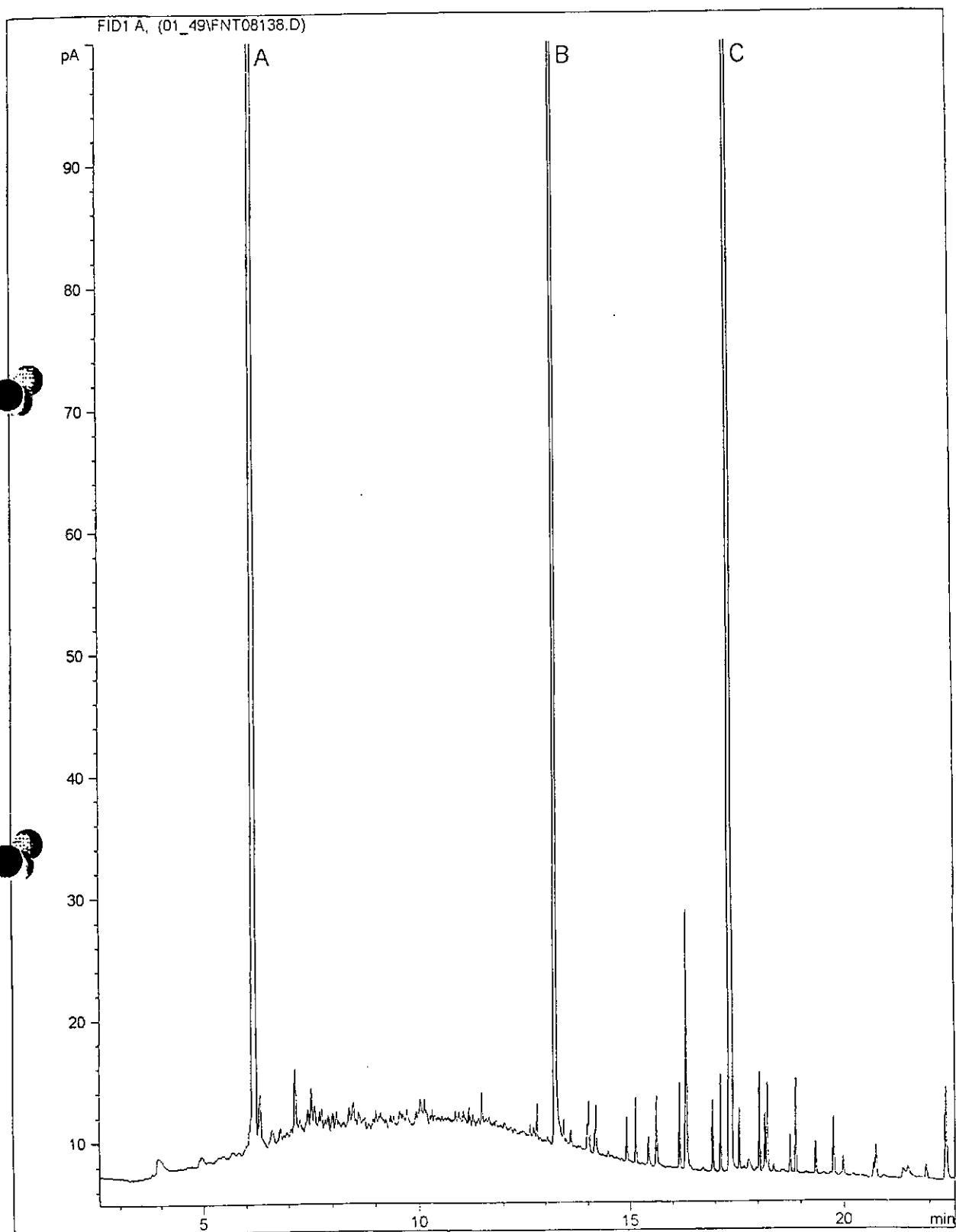
METHOD No	METHOD TITLE	UNITS
TM078	Solid phase extraction of waters	mg/l
TM083	Determination of Sodium and Potassium by Flame Photometer	mg/l mg/kg
TM084	Analysis of aqueous samples for phenol – using the Alliance distillation instrument	mg/l
TM085	Analysis of water samples for sulphate using the Dionex ion chromatograph	mgSO ₄ ²⁻ /l
TM087	Measurement of semi- and non-volatile petroleum hydrocarbons in soil or water samples by infra-red spectroscopy	mg/l mg/kg
TM089	Determination of Gasoline Range Organic Hydrocarbons (GRO) and BTEX(MTBE) compounds by Headspace GC-FID	µg/l µg/kg mg/l mg/kg
TM090	Determination of total organic carbon/total organic carbon in water and waste water	mgC/l
TM097	Determination of Chloride using the Kone Analyser	mg Cl /l mg Cl /kg
TM098	Determination of Sulphate using the Kone Analysers	mg SO ₄ ²⁻ /l
TM099	Determination of Ammonium in water samples and cation exchange capacity in soil samples using the Kone Analyser	mg NH ₄ -N/l
TM100	Determination of Phosphate using the Kone Analyser	mg PO ₄ /l
TM101	Determination of Sulphide in water samples using the Kone Analyser	mg S ²⁻ /l
TM102	Determination of Nitrate using the Kone Analyser	mg NO ₃ /l
TM103	Determination of Nitrite using the Kone Analyser	mg NO ₂ /l
TM104	Determination of Fluoride using the Kone Analyser	mg F /l
TM107	The determination of Chemical Oxygen Demand using the COD Dr Lange Kit	mg O /l

UKAS ACCREDITED TEST METHODS

METHOD No	METHOD TITLE	UNITS
TM108	Determination of Thiocyanate by Colourmetric Spectroscopic Analysis	mg SCN ⁻ /l mg SCN ⁻ /kg
TM109	Total Carbon Determination using LECO CS444	%
TM112	Determination of S1 & S2 compounds by Pyrolysis -Gas Chromatography.	Area %
TM113	Determination of Total Cyanide by Steam Distillation	mg CN ⁻ /l mg CN ⁻ /kg
TM114	Determination of Aromatics by Gas Chromatography	N/A
TM116	Preparation & Analysis of Volatile Hydrocarbons by Headspace GC-MSD/HP7694 Headspace Autosampler	µg/l µg/kg
TM 127	The determination of Trace Level Mercury in Aqueous Media and soil extracts by Atomic Absorption Spectroscopy	µg/l
TM 128	The determination of Ultra-Trace Level Arsenic and Selenium in aqueous Media and soil extracts by Hydride Generation Atomic Absorption Spectrophotometry	µg/l

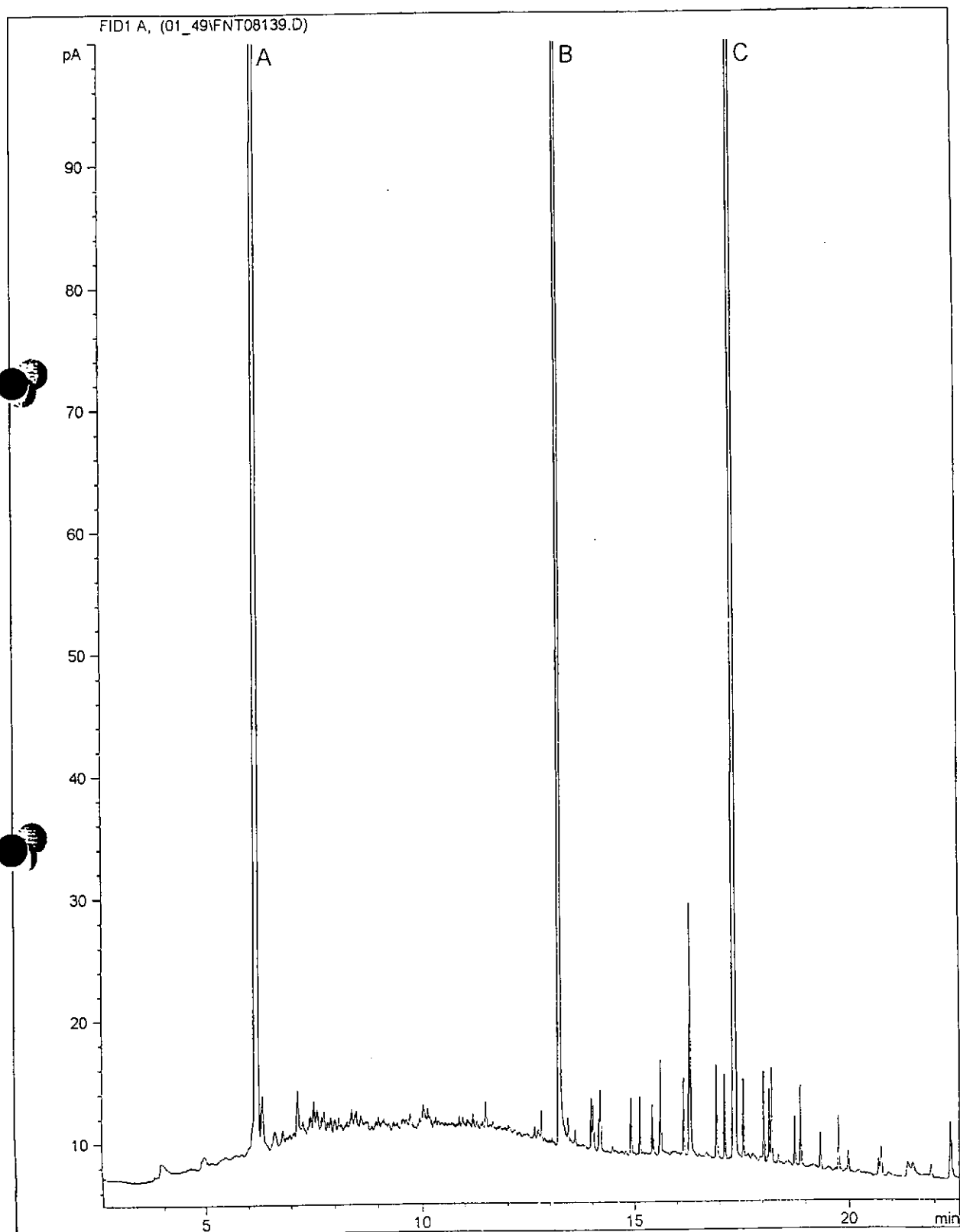
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Diesel Range Organics Analysis
By G.C.

11395-001



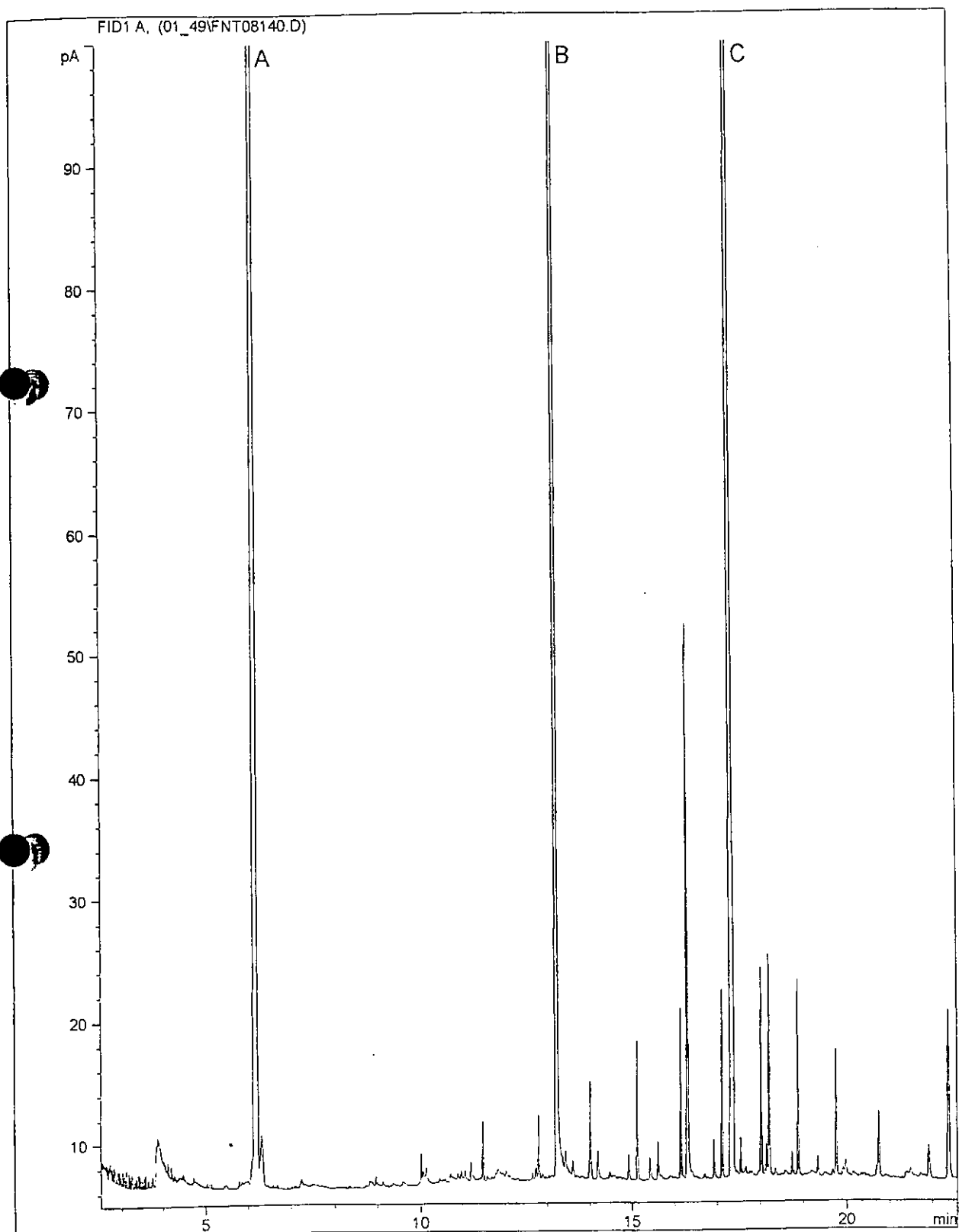
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Diesel Range Organics Analysis
By G.C.

11395-008



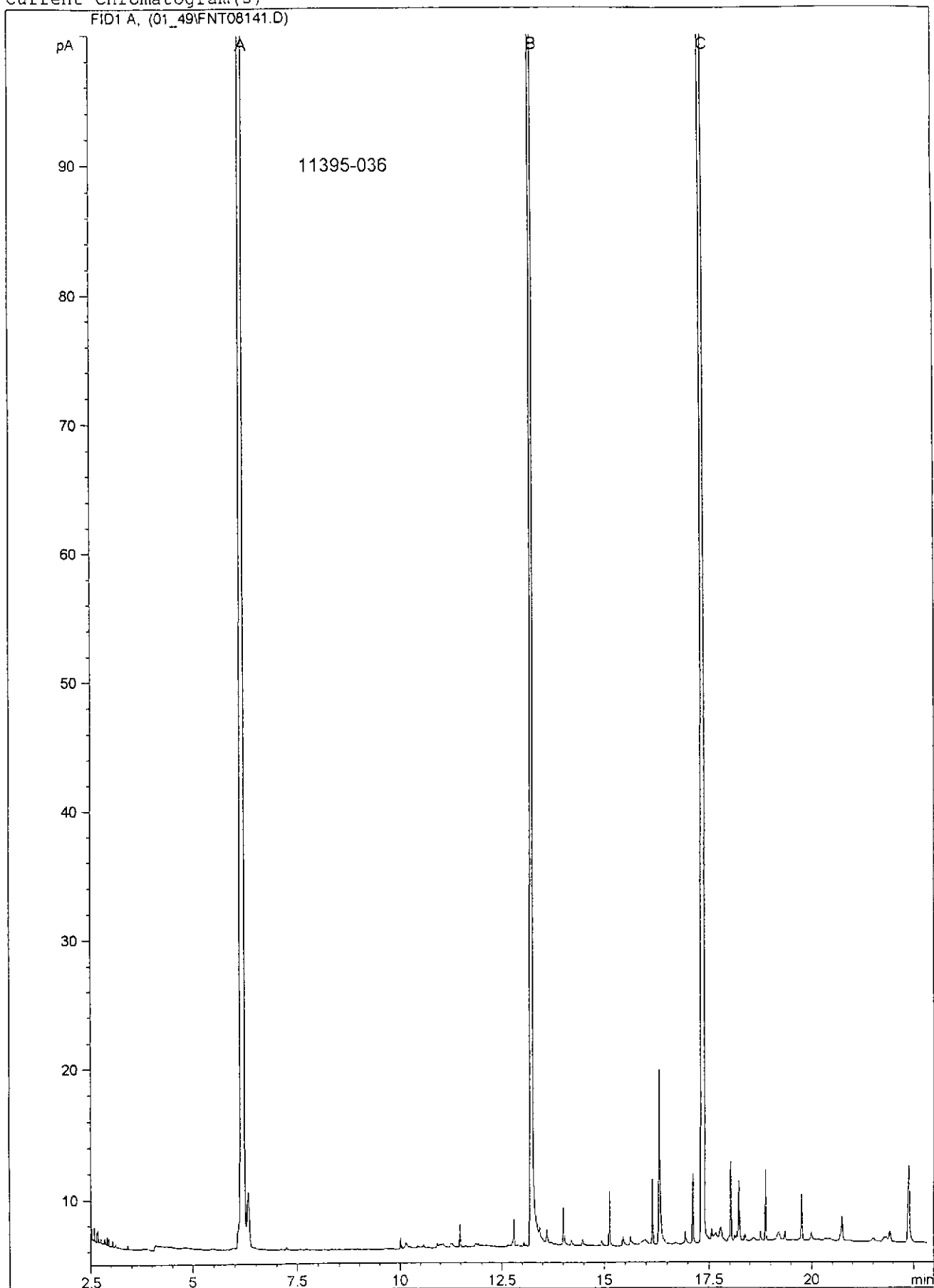
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Diesel Range Organics Analysis
By G.C.

11395-022



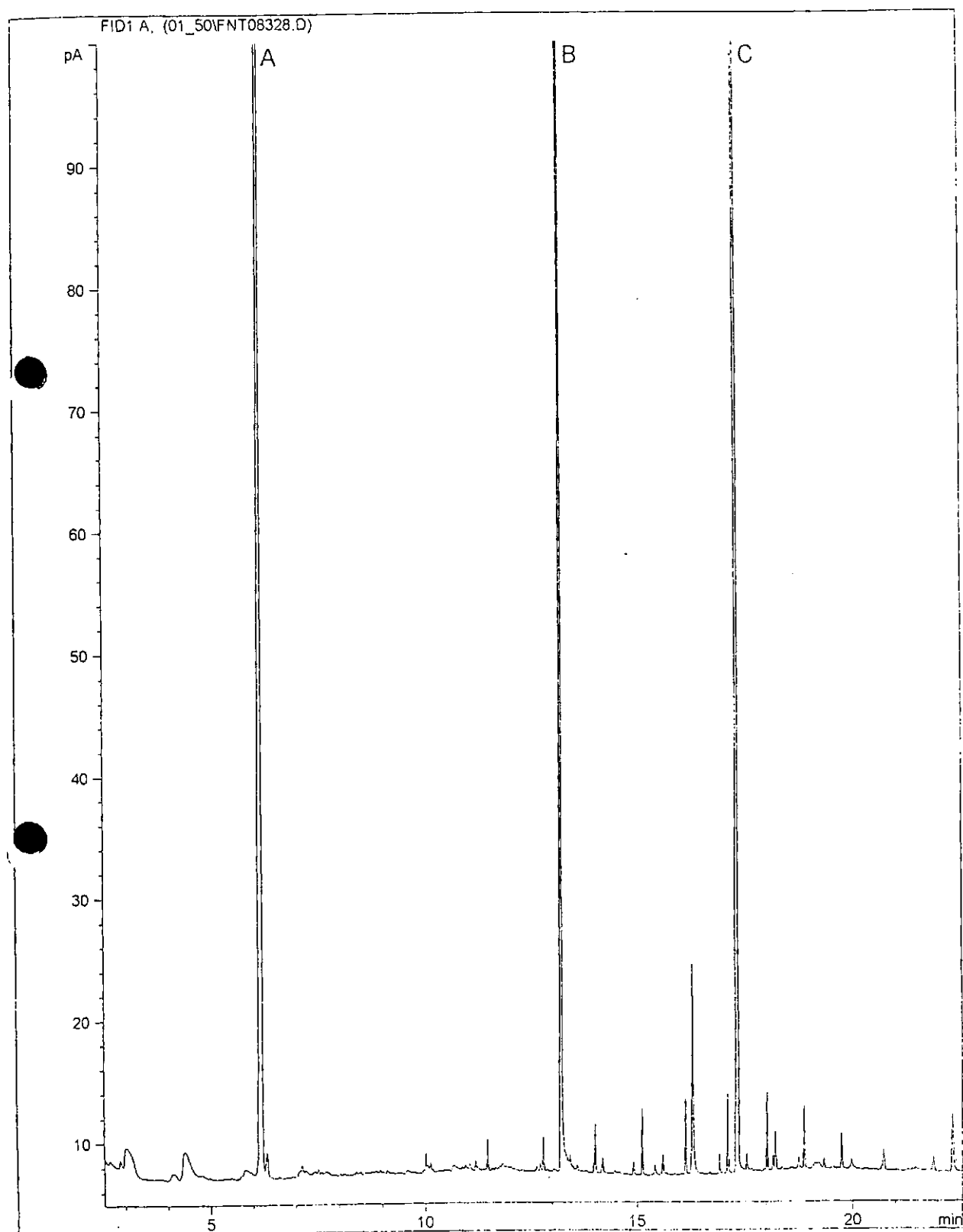
Current Chromatogram(s)

FID1 A, (01_49\FNT08141.D)



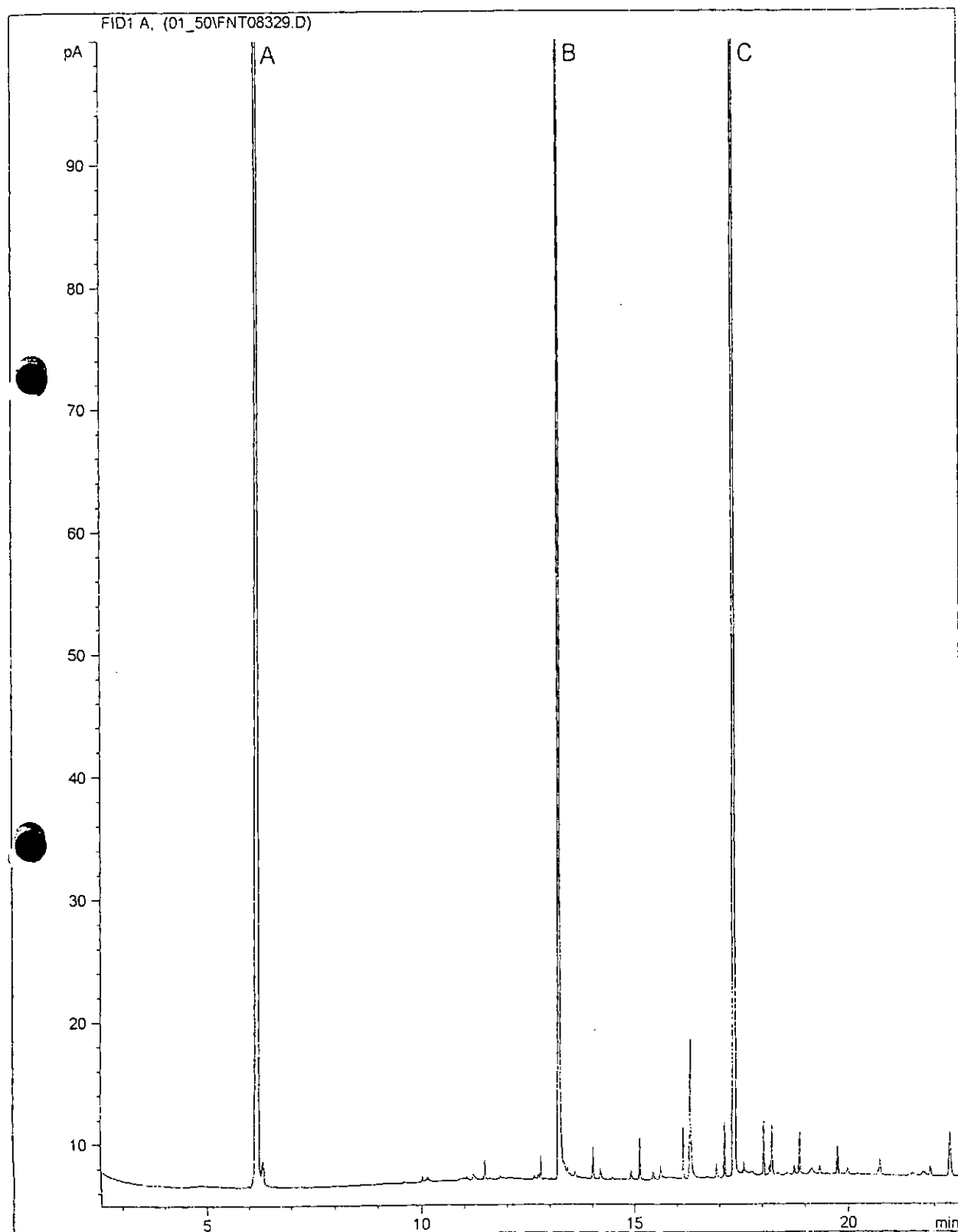
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Diesel Range Organics Analysis
By G.C.

11395-043



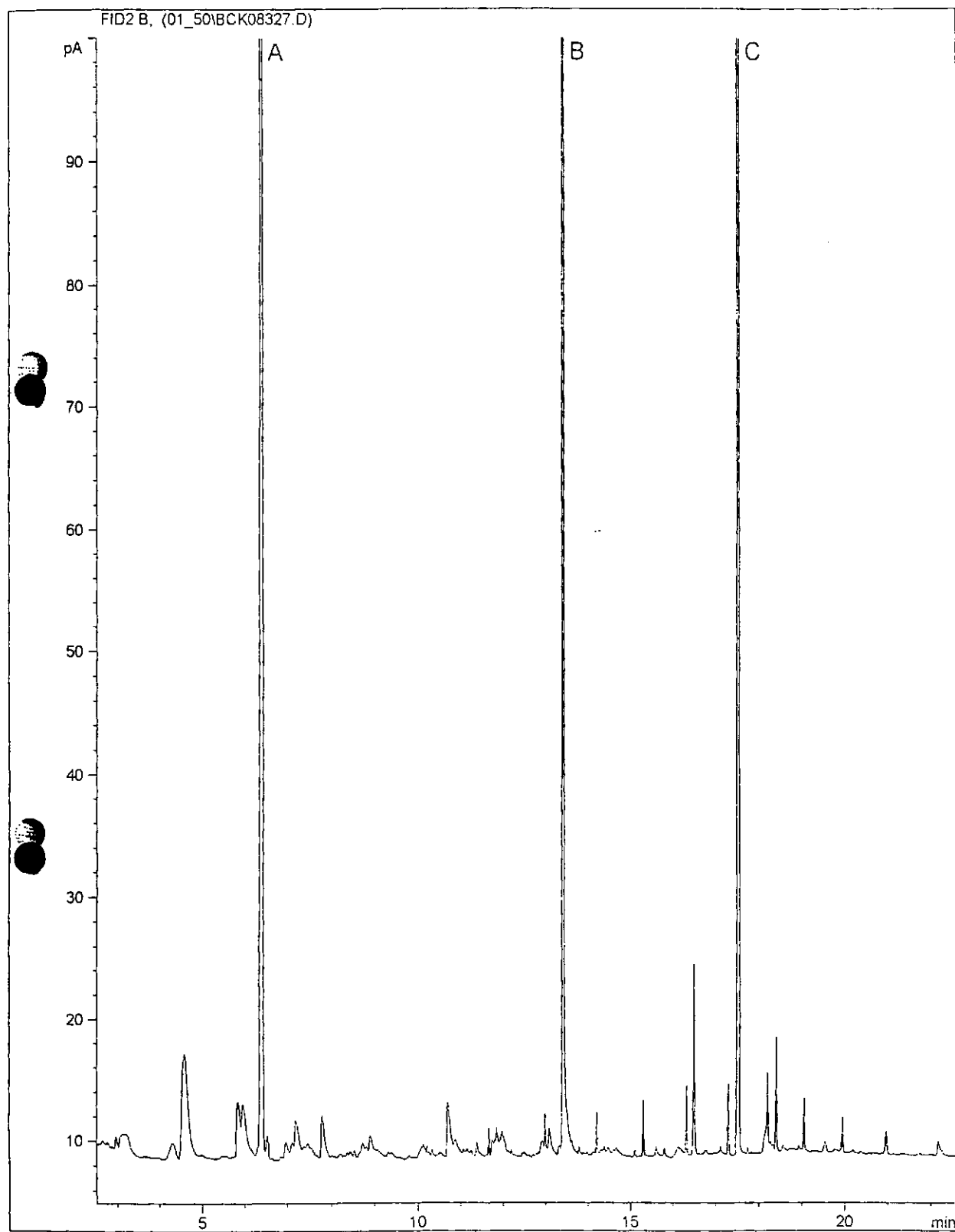
GEOCHEM ANALYTICAL SERVICES
Diesel Range Organics Analysis
By G.C.

11395-050



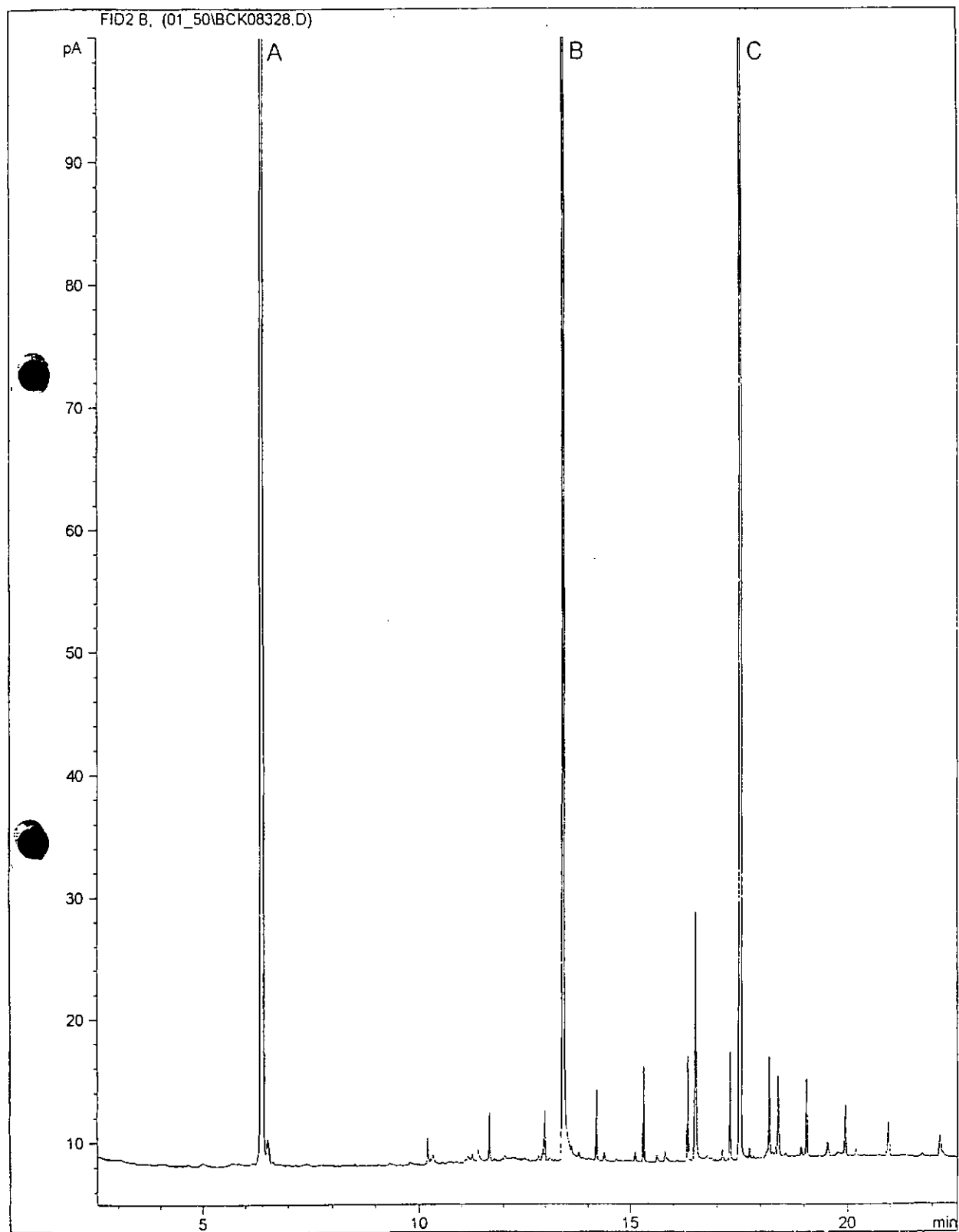
GEOCHEM ANALYTICAL SERVICES
Diesel Range Organics Analysis
By G.C.

11395-057



GEOCHEM ANALYTICAL SERVICES
Diesel Range Organics Analysis
By G.C.

11395-071



Quantitation Report

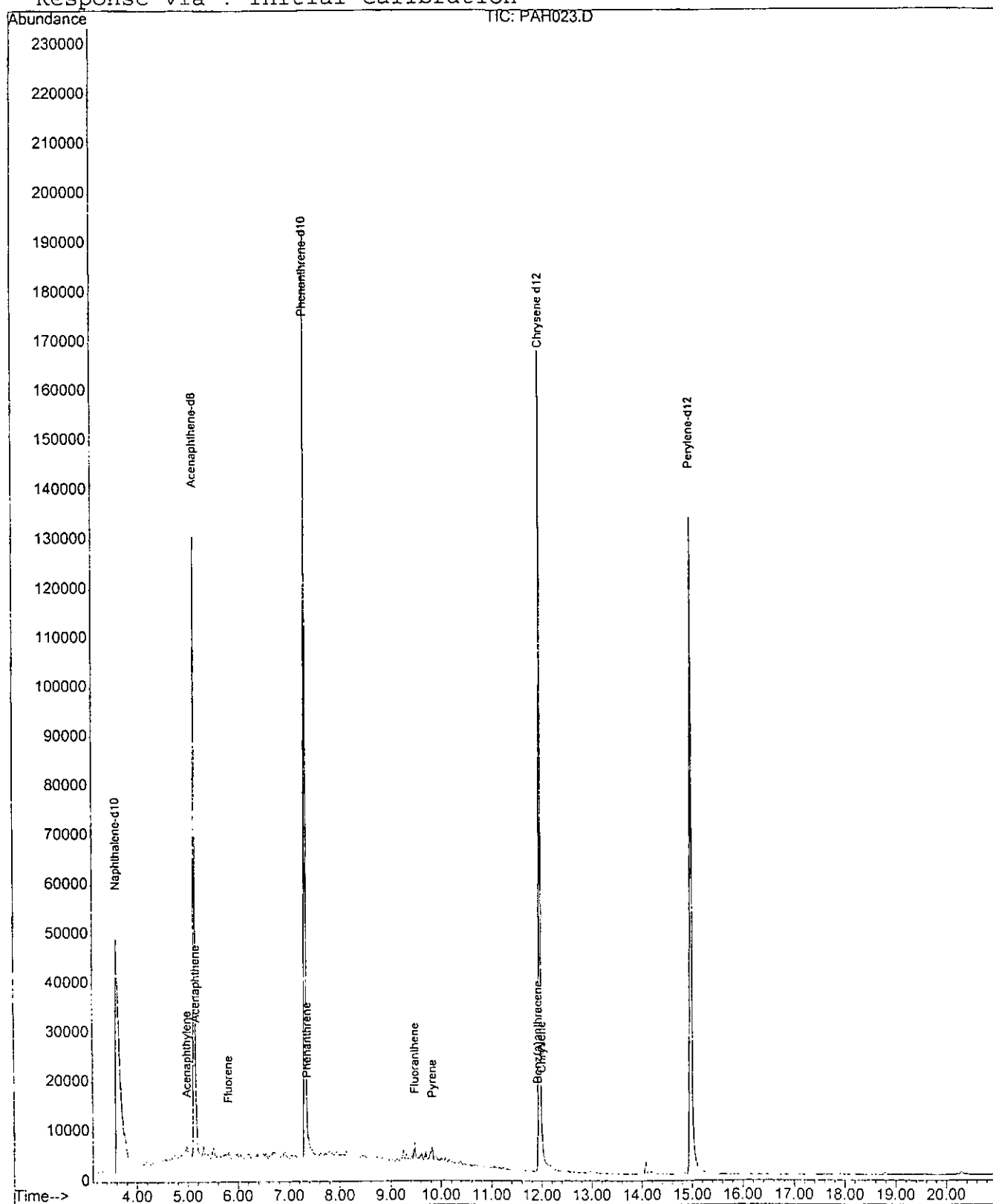
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 Operator: ALcontrol
 Inst : GC/MS Ins
 Multiplr: 0.00
 Sample Amount: 0.00

MS Integration Params: EVENTS.E
 Quant Time: Dec 10 12:49 2001

Quant Results File: BPAH19.RES

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 Title : Polynuclear Aromatic Hydrocarbons
 Last Update : Mon Dec 10 12:41:26 2001
 Response via : Initial Calibration



Quantitation Report

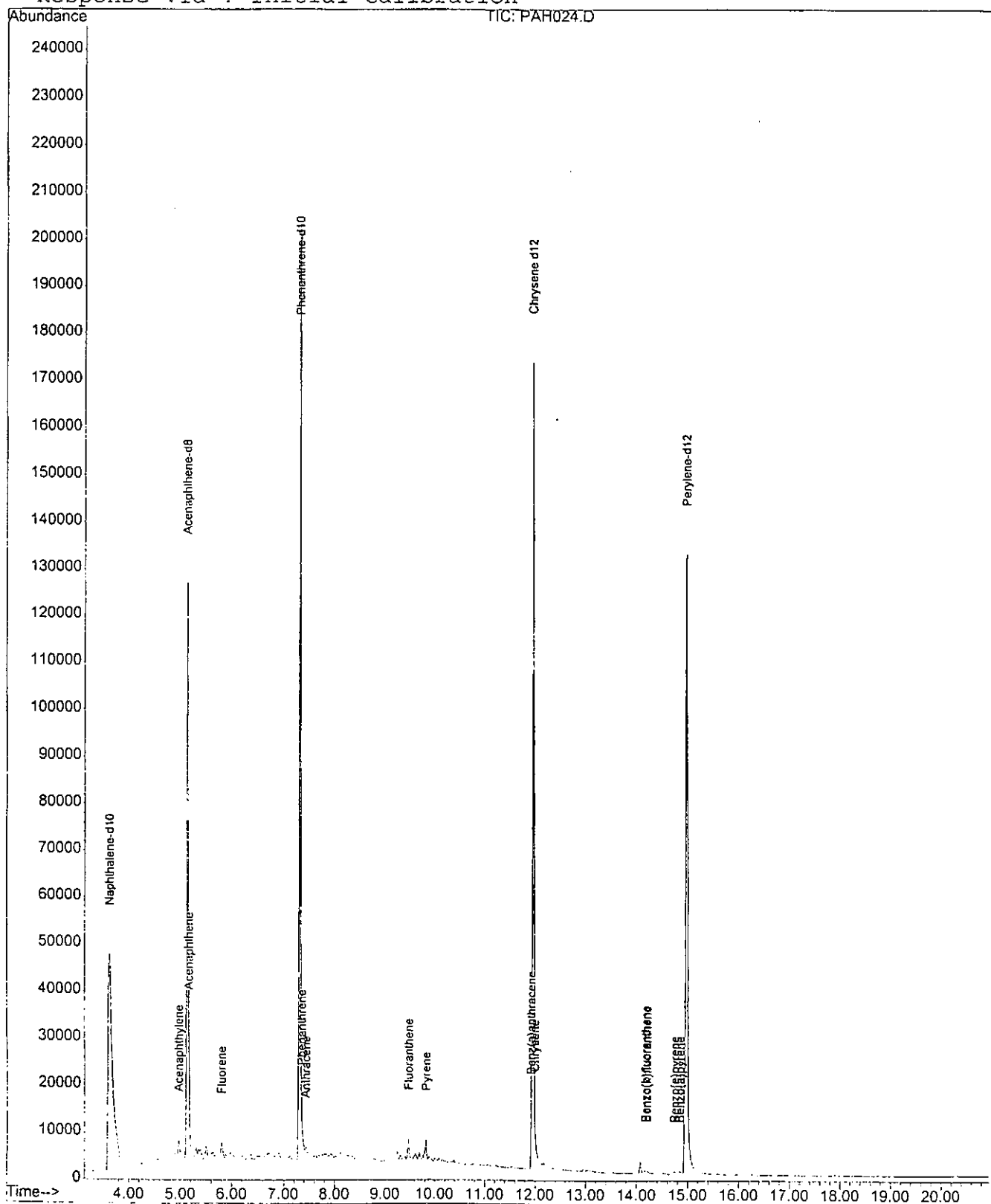
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 Misc : WSP Remediation/Water

Vial: 22
 Operator: ALcontrol
 Inst : GC/MS Ins
 Multiplr: 0.00
 Sample Amount: 0.00

MS Integration Params: EVENTS.E
 Quant Time: Dec 10 12:55 2001

Quant Results File: BPAH19.RES

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 Last Update : Mon Dec 10 12:41:26 2001
 Response via : Initial Calibration



Quantitation Report

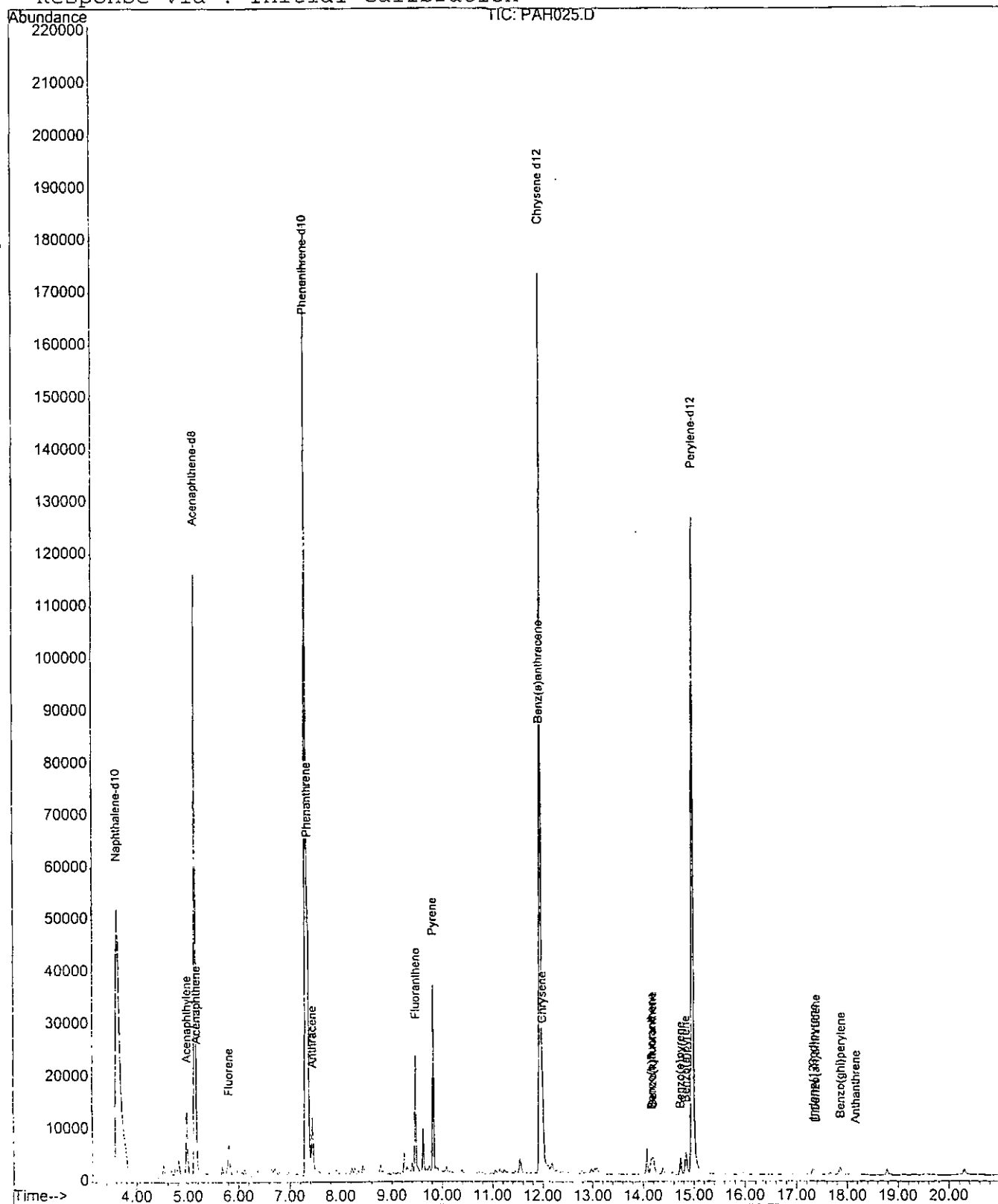
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 Inst : GC/MS Ins
 Multiplr: 0.00
 Sample Amount: 0.00

MS Integration Params: EVENTS.E
 Quant Time: Dec 10 12:57 2001

Quant Results File: BPAH19.RES

Method : C:\HPCHEM\1\METHODS\BPAH19.M (Chemstation Integrator)
 Title : Polynuclear Aromatic Hydrocarbons
 Last Update : Mon Dec 10 12:41:26 2001
 Response via : Initial Calibration



Quantitation Report

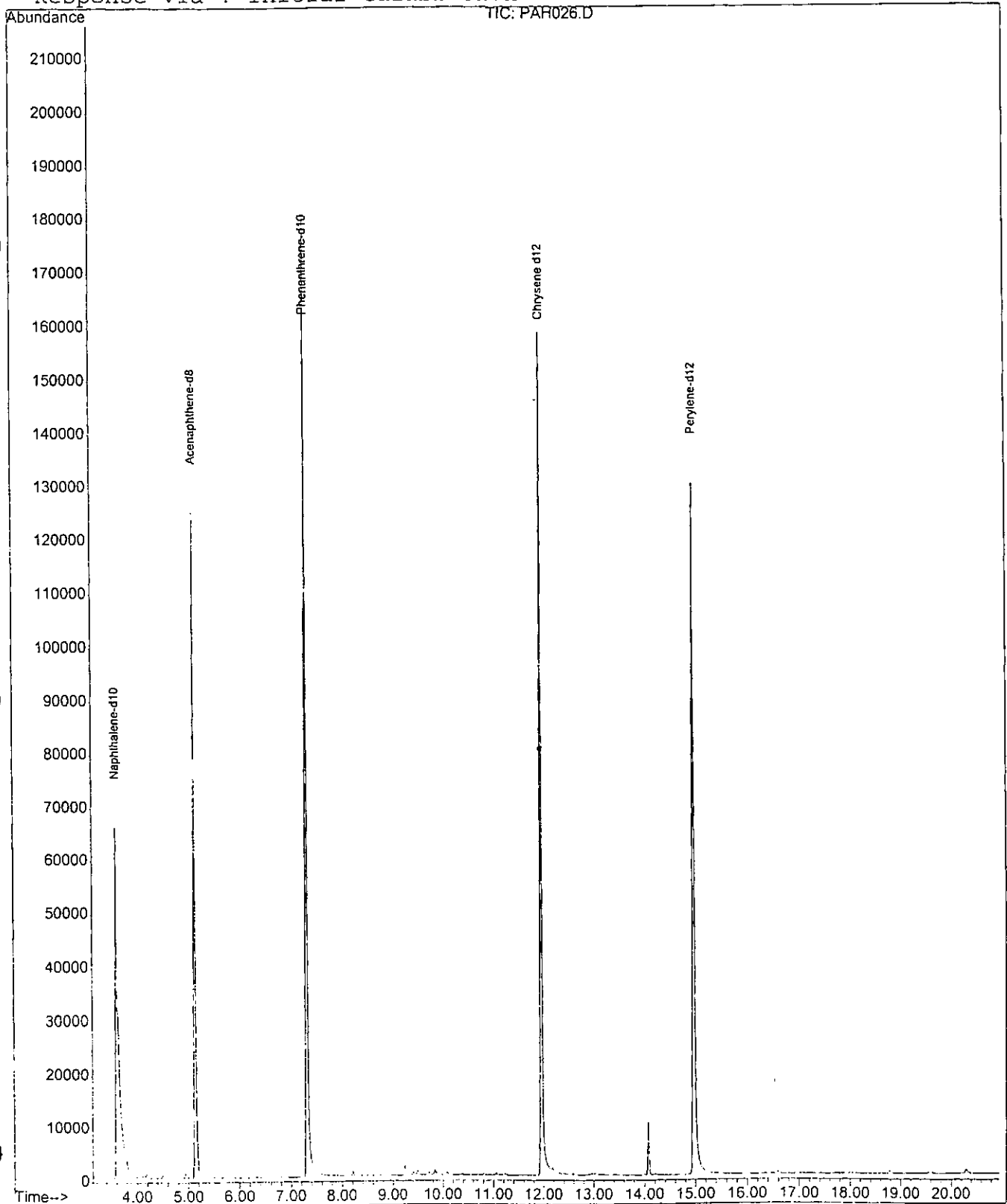
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Misc : WSP Remediation/Water

Vial: 24
Operator: ALcontrol
Inst : GC/MS Ins
Multiplr: 0.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Dec 10 13:00 2001

Quant Results File: BPAH19.RES

Method : C:\HPCHEM\1\METHODS\BPAH19.M (Chemstation Integrator)
Title : Polynuclear Aromatic Hydrocarbons
Last Update : Mon Dec 10 12:41:26 2001
Response via : Initial Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\120601\PAH027.D
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 Sample : 200111395-036/BH6
 Misc : WSP Remediation/Water

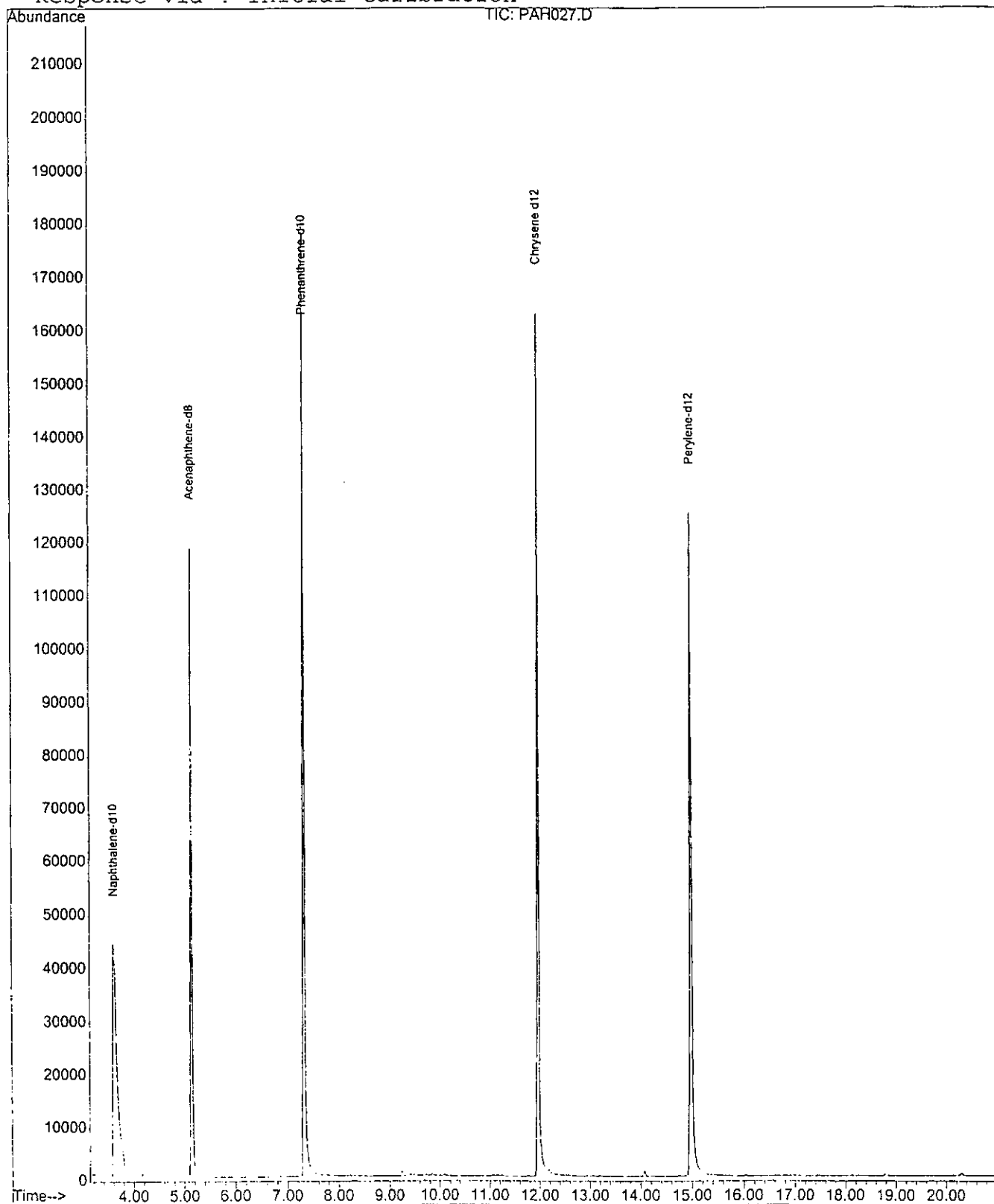
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Quant Time: Dec 10 13:03 2001

Quant Results File: BPAH19.RES

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 Title : Polynuclear Aromatic Hydrocarbons
 Last Update : Mon Dec 10 12:41:26 2001
 Response via : Initial Calibration



Quantitation Report

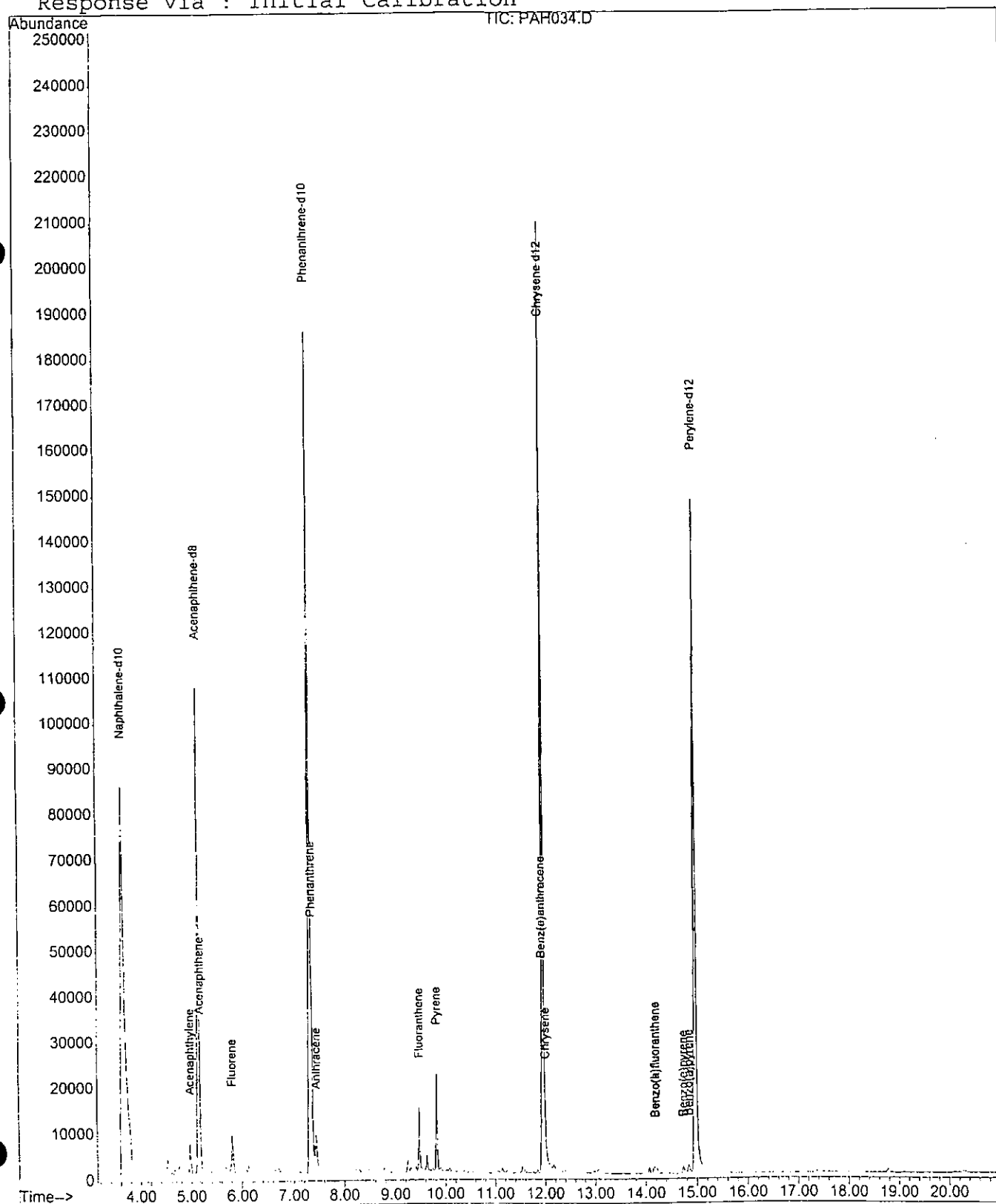
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 Misc : WSP Remediation/Water

Vial: 30
 Operator: ALcontrol
 Inst : GC/MS Ins
 Multiplr: 0.00
 Sample Amount: 0.00

MS Integration Params: EVENTS.E
 Quant Time: Dec 12 9:49 2001

Quant Results File: BPAH19.RES

Method : C:\HPCHEM\1\METHODS\BPAH19.M (Chemstation Integrator)
 Title : Polynuclear Aromatic Hydrocarbons
 Last Update : Tue Dec 11 17:05:02 2001
 Response via : Initial Calibration



Quantitation Report

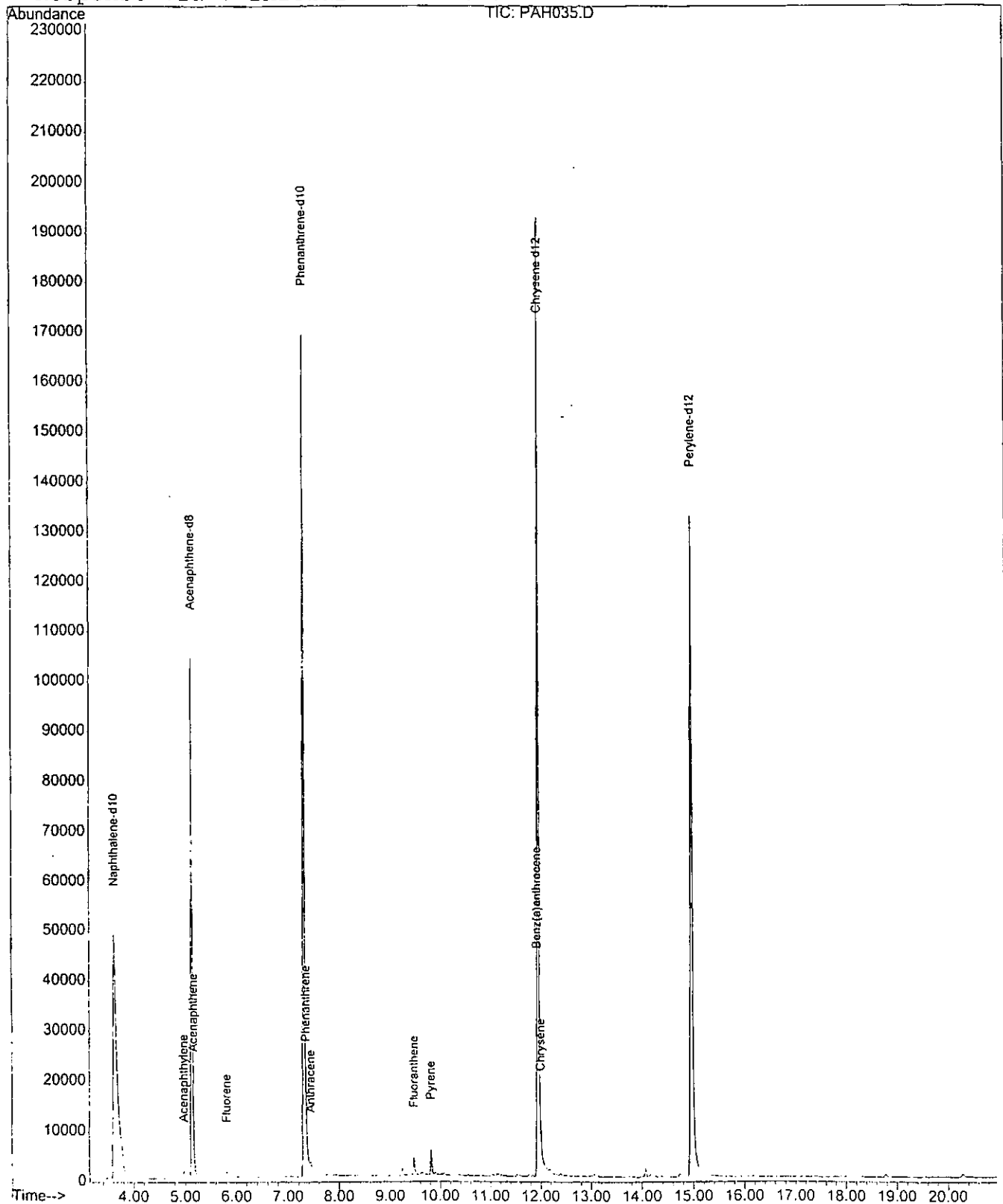
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 Inst : GC/MS Ins
 Multiplr: 0.00
 Sample Amount: 0.00

MS Integration Params: EVENTS.E
 Quant Time: Dec 12 9:53 2001

Quant Results File: BPAH19.RES

Method : C:\HPCHEM\1\METHODS\BPAH19.M (Chemstation Integrator)
 Title : Polynuclear Aromatic Hydrocarbons
 Last Update : Tue Dec 11 17:05:02 2001
 Response via : Initial Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\121001\PAH036.D
Acq On : 11 Dec 2001 9:35
Sample : 200111395-057/BH4 W1
Misc : WSP Remediation/Water

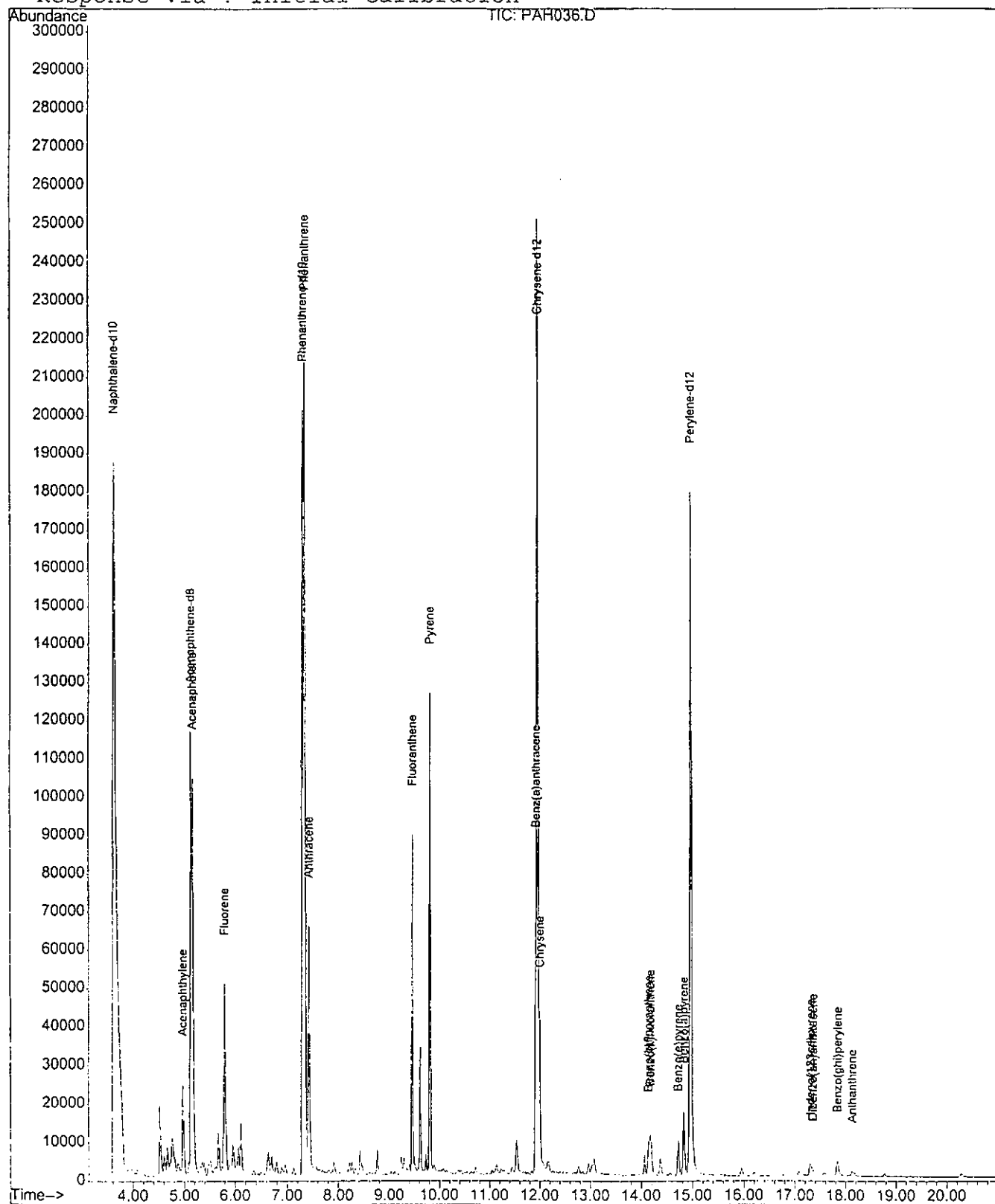
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Inst : GC/MS Ins
Multiplr: 0.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E

Quant Time: Dec 12 9:54 2001

Quant Results File: BPAH19.RES

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Title        : Polynuclear Aromatic Hydrocarbons
Last Update   : Tue Dec 11 17:05:02 2001
Response via  : Initial Calibration
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Quantitation Report

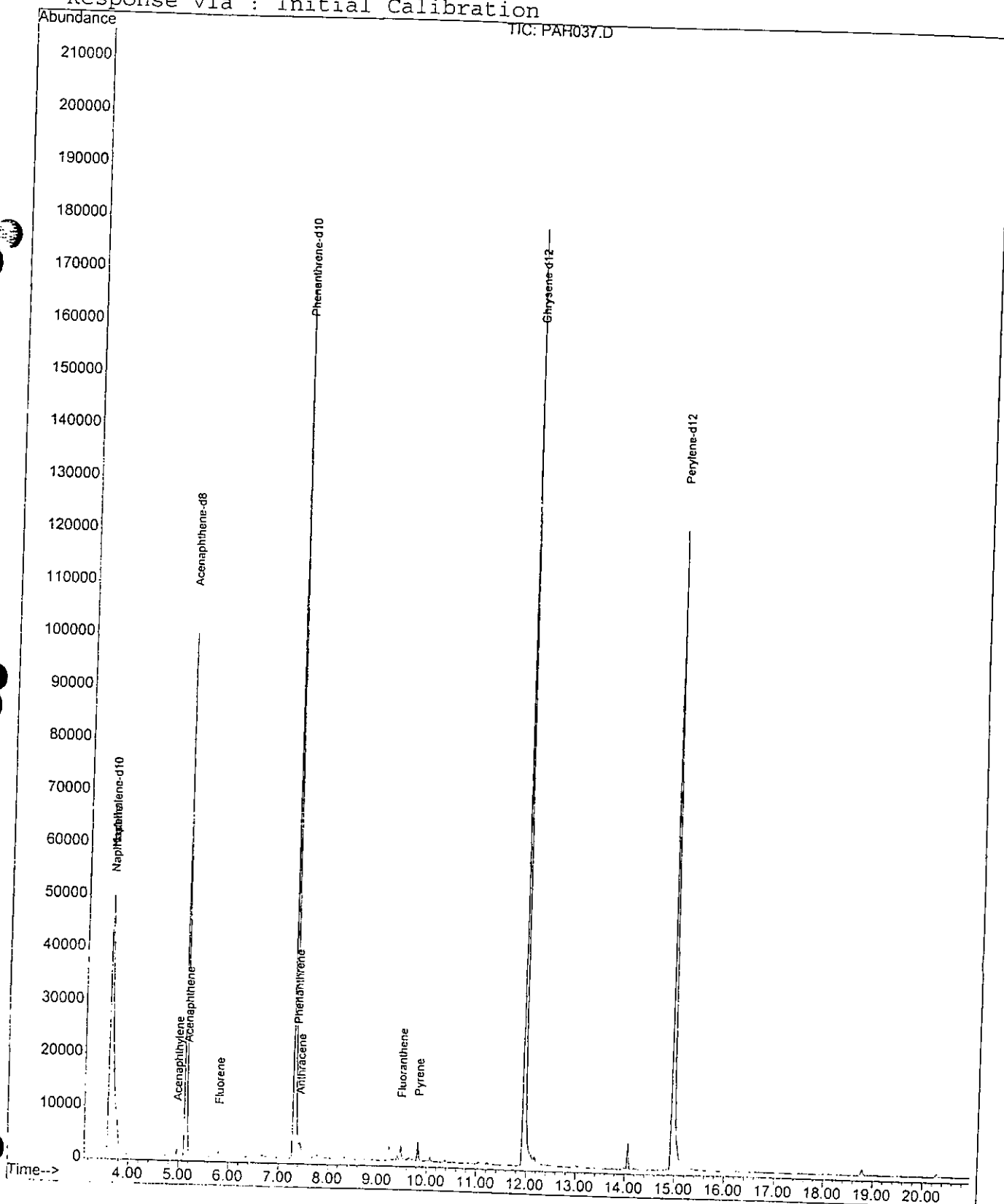
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 Misc : WSP Remediation/Water

Vial: 33
 Operator: ALcontro
 Inst : GC/MS In
 Multiplr: 0.00
 Sample Amount: 0.00

MS Integration Params: EVENTS.E
 Quant Time: Dec 12 9:58 2001

Quant Results File: BPAH19.R

Method : C:\HPCHEM\1\METHODS\BPAH19.M (Chemstation Integrator)
 Title : Polynuclear Aromatic Hydrocarbons
 Last Update : Tue Dec 11 17:05:02 2001
 Response via : Initial Calibration



Quantitation Report

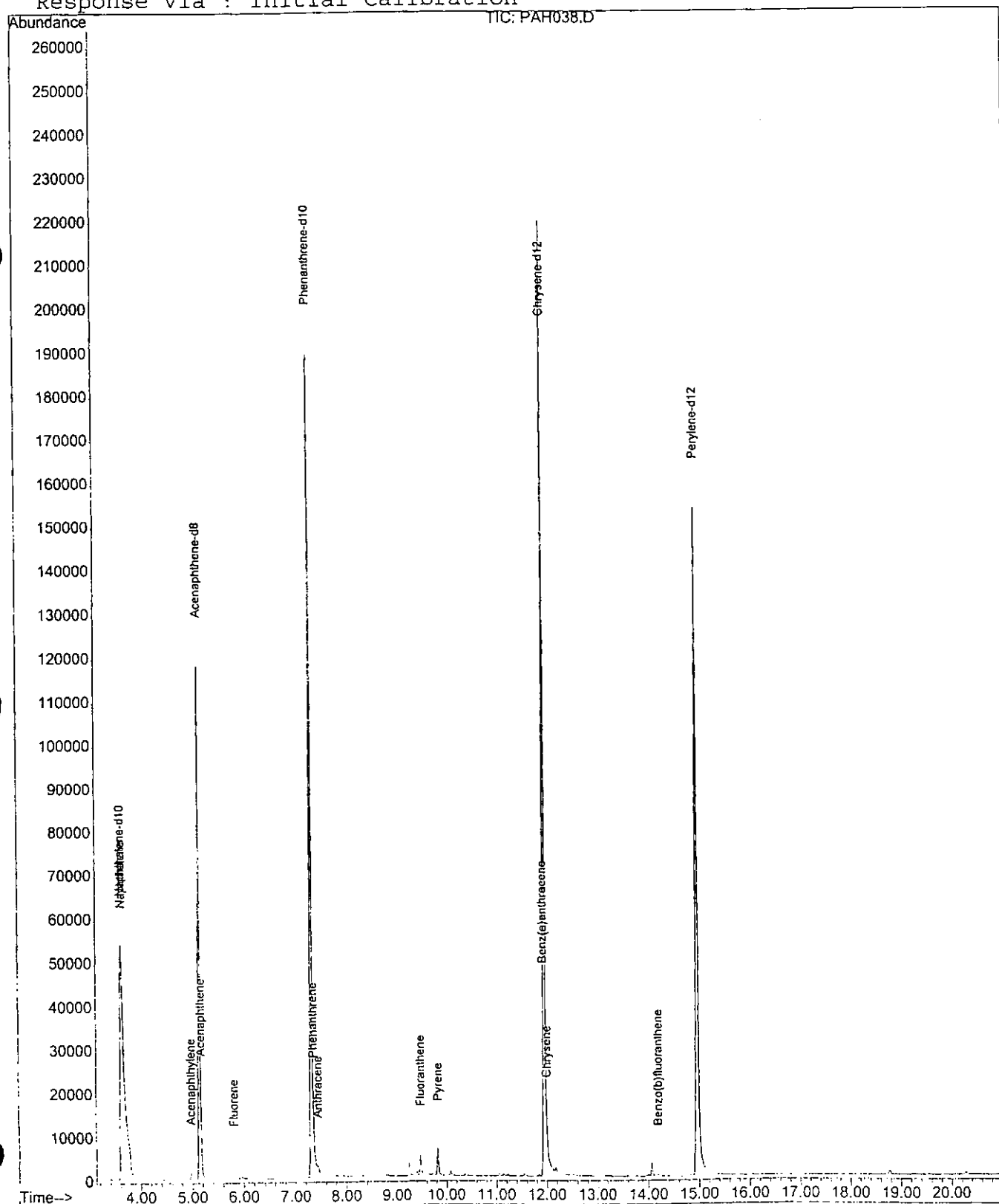
Data File : C:\HPCHEM\1\DATA\121001\PAH038.D
 Acq On : 11 Dec 2001 10:31
 Sample : 200111395-071/BH6 W1
 Misc : WSP Remediation/Water

Vial: 34
 Operator: ALcontrol
 Inst : GC/MS Ins
 Multiplr: 0.00
 Sample Amount: 0.00

MS Integration Params: EVENTS.E
 Quant Time: Dec 12 10:01 2001

Quant Results File: BPAH19.RES

Method : C:\HPCHEM\1\METHODS\BPAH19.M (Chemstation Integrator)
 Title : Polynuclear Aromatic Hydrocarbons
 Last Update : Tue Dec 11 17:05:02 2001
 Response via : Initial Calibration



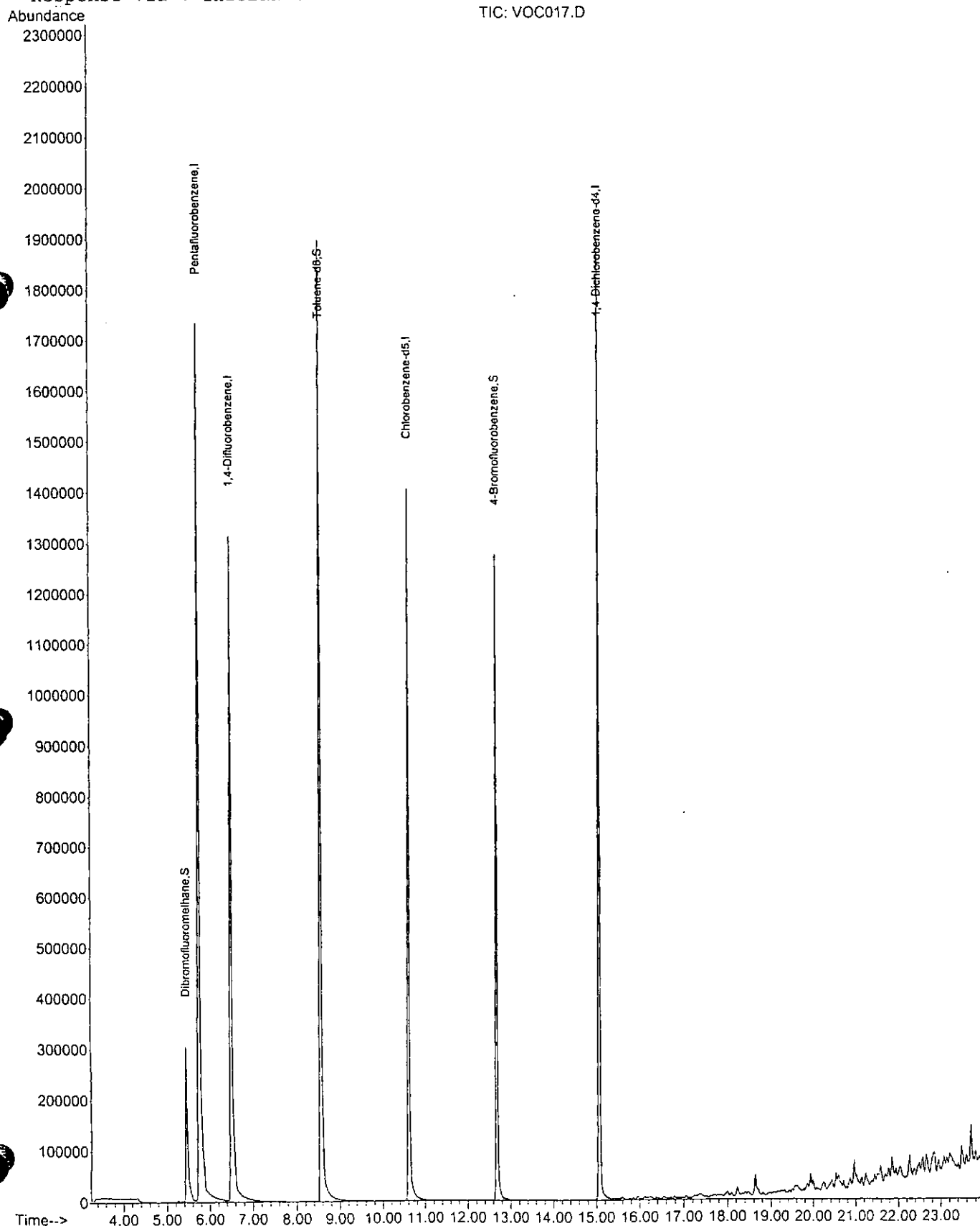
Data File : C:\MSDCHEM\1\DATA\031201\VOC017.D
 Acq On : 3 Dec 2001 23:15
 Sample : 11395-007 BH1
 Misc : WSP Remediation/Water

Vial: 17
 Operator: Geochem Analytical Service
 Inst : 00B MSD59
 Multiplr: 1.00
 Sample Amount: 0.00

MS Integration Params: EVENTS.E
 Quant Time: Dec 4 16:21 2001

Quant Results File: HS_VOC1.RES

Method : C:\MSDCHEM\1\METHODS\HS_VOC1.M (Chemstation Integrator)
 Title : Volatile Organic Compounds (EPA 624/8260)
 Last Update : Tue Dec 04 15:34:20 2001
 Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\031201\VOC018.D

Vial: 18

Acq On : 3 Dec 2001 23:51

Operator: Geochem Analytical Service

Sample : 11395-014 BH2A

Inst : 00B MSD59

Misc : WSP Remediation/Water

Multiplr: 1.00

Sample Amount: 0.00

MS Integration Params: EVENTS.E

Quant Time: Dec 4 16:21 2001

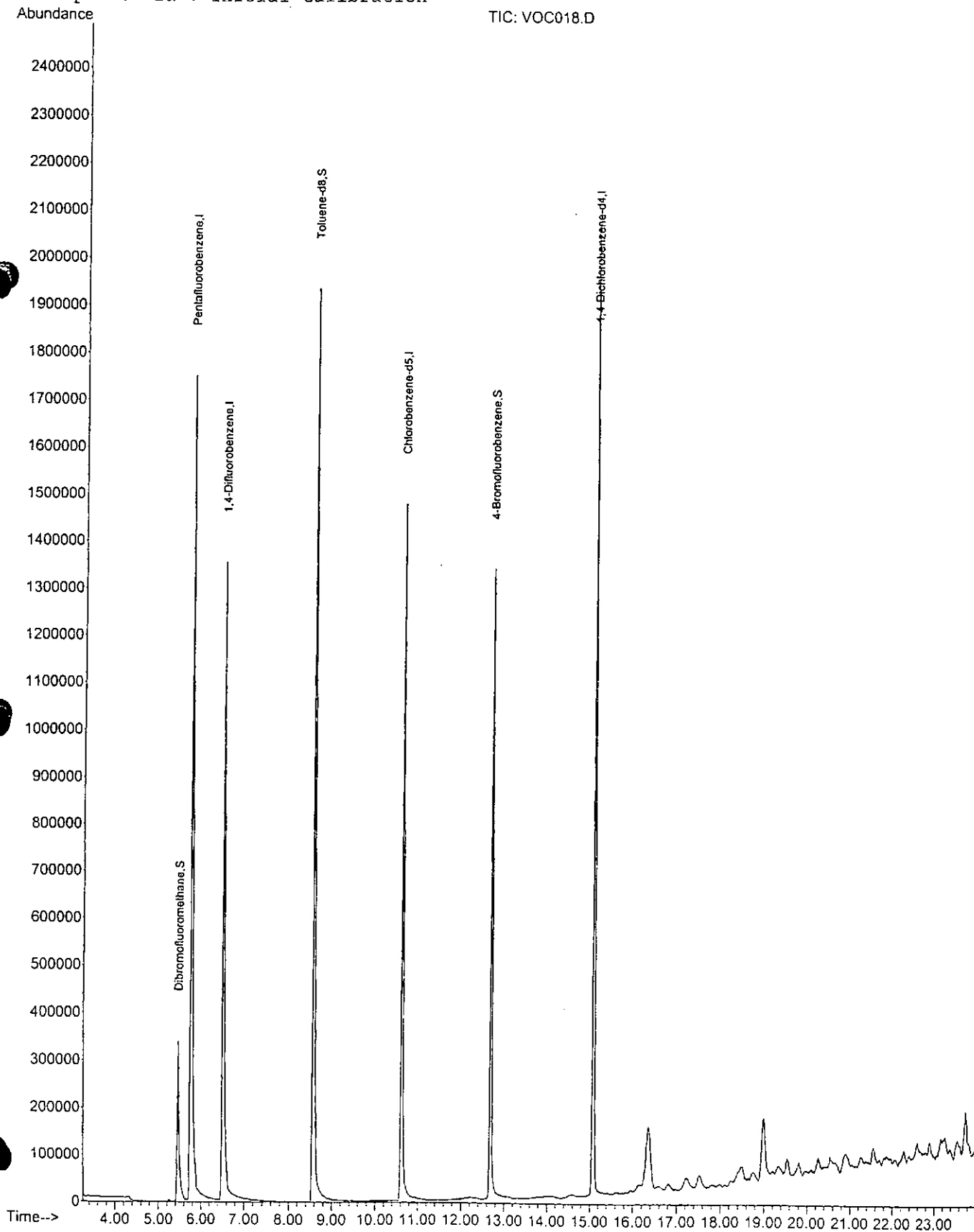
Quant Results File: HS_VOC1.RES

Method : C:\MSDCHEM\1\METHODS\HS_VOC1.M (Chemstation Integrator)

Title : Volatile Organic Compounds (EPA 624/8260)

Last Update : Tue Dec 04 15:34:20 2001

Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\031201\VOC019.D

Vial: 19

Acq On : 4 Dec 2001 00:26

Operator: Geochem Analytical Service

Sample : 11395-028 BH4

Inst : 00B MSD59

Misc : WSP Remediation/Water

Multiplr: 1.00

Sample Amount: 0.00

MS Integration Params: EVENTS.E

Quant Time: Dec 4 16:22 2001

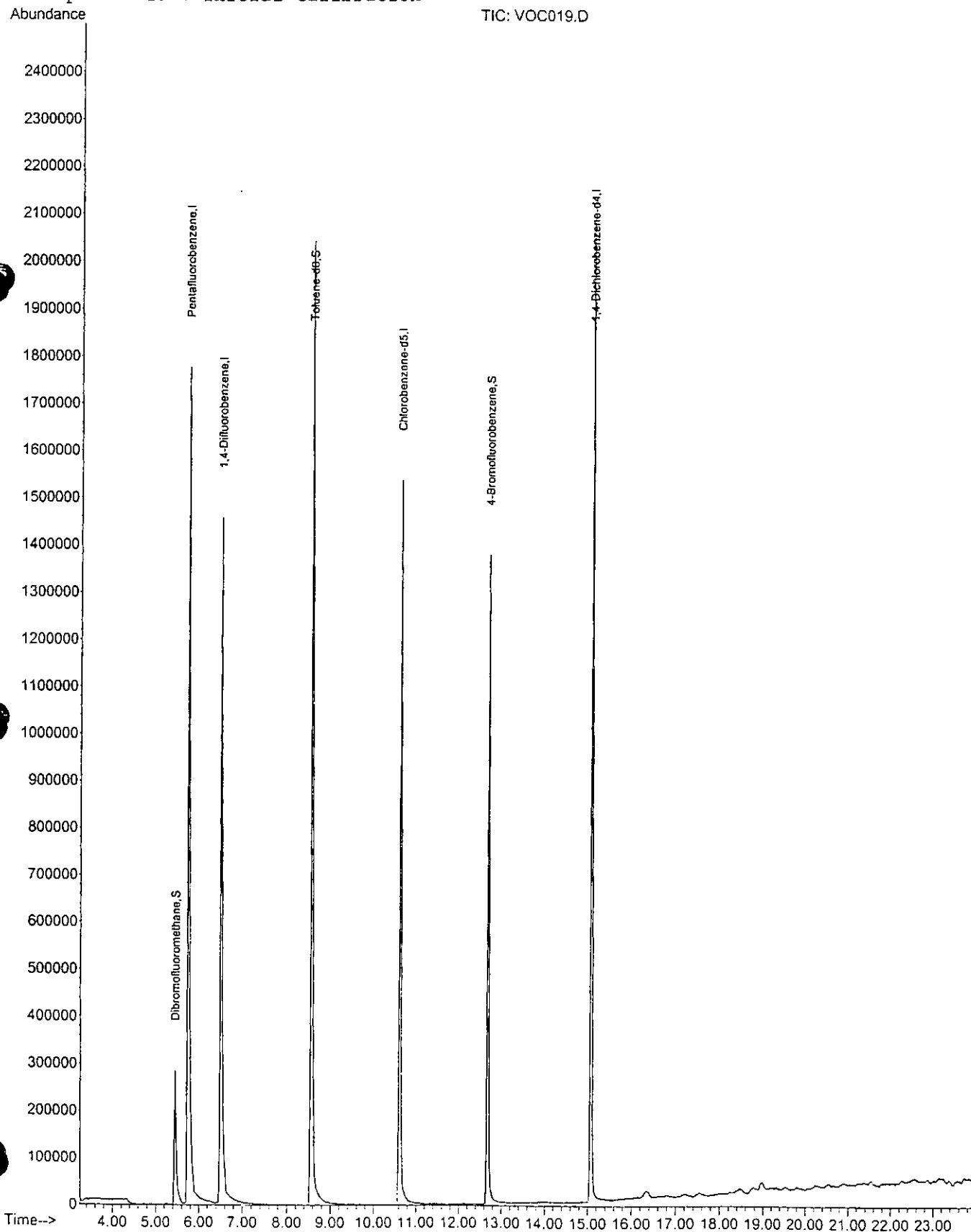
Quant Results File: HS_VOC1.RES

Method : C:\MSDCHEM\1\METHODS\HS_VOC1.M (Chemstation Integrator)

Title : Volatile Organic Compounds (EPA 624/8260)

Last Update : Tue Dec 04 15:34:20 2001

Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\031201\VOC020.D

Vial: 20

Acq On : 4 Dec 2001 1:01

Operator: Geochem Analytical Service

Sample : 11395-042 BH6

Inst : 00B MSD59

Misc : WSP Remediation/Water

Multiplr: 1.00

Sample Amount: 0.00

MS Integration Params: EVENTS.E

Quant Time: Dec 4 16:23 2001

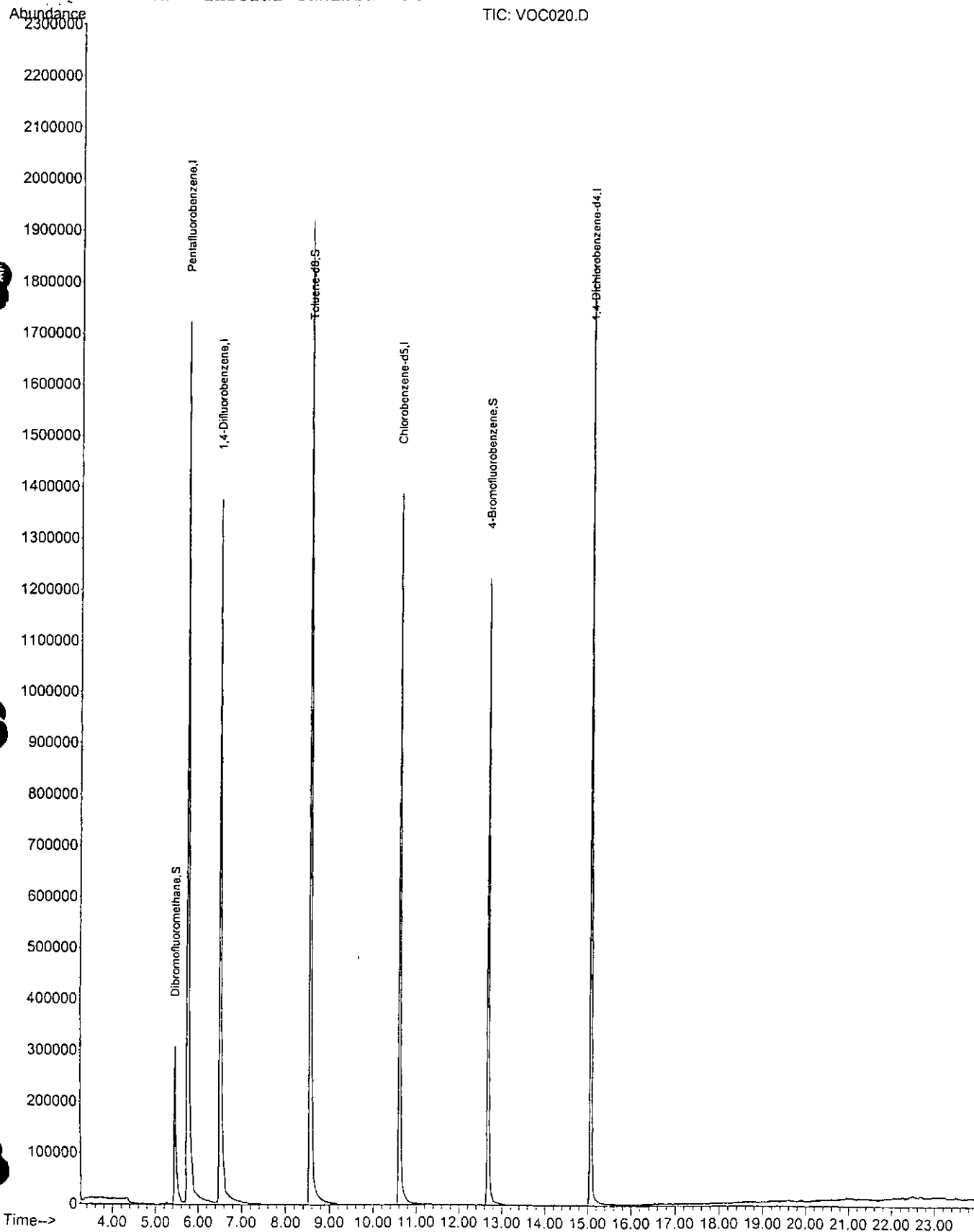
Quant Results File: HS_VOC1.RES

Method : C:\MSDCHEM\1\METHODS\HS_VOC1.M (Chemstation Integrator)

Title : Volatile Organic Compounds (EPA 624/8260)

Last Update : Tue Dec 04 15:34:20 2001

Response via : Initial Calibration



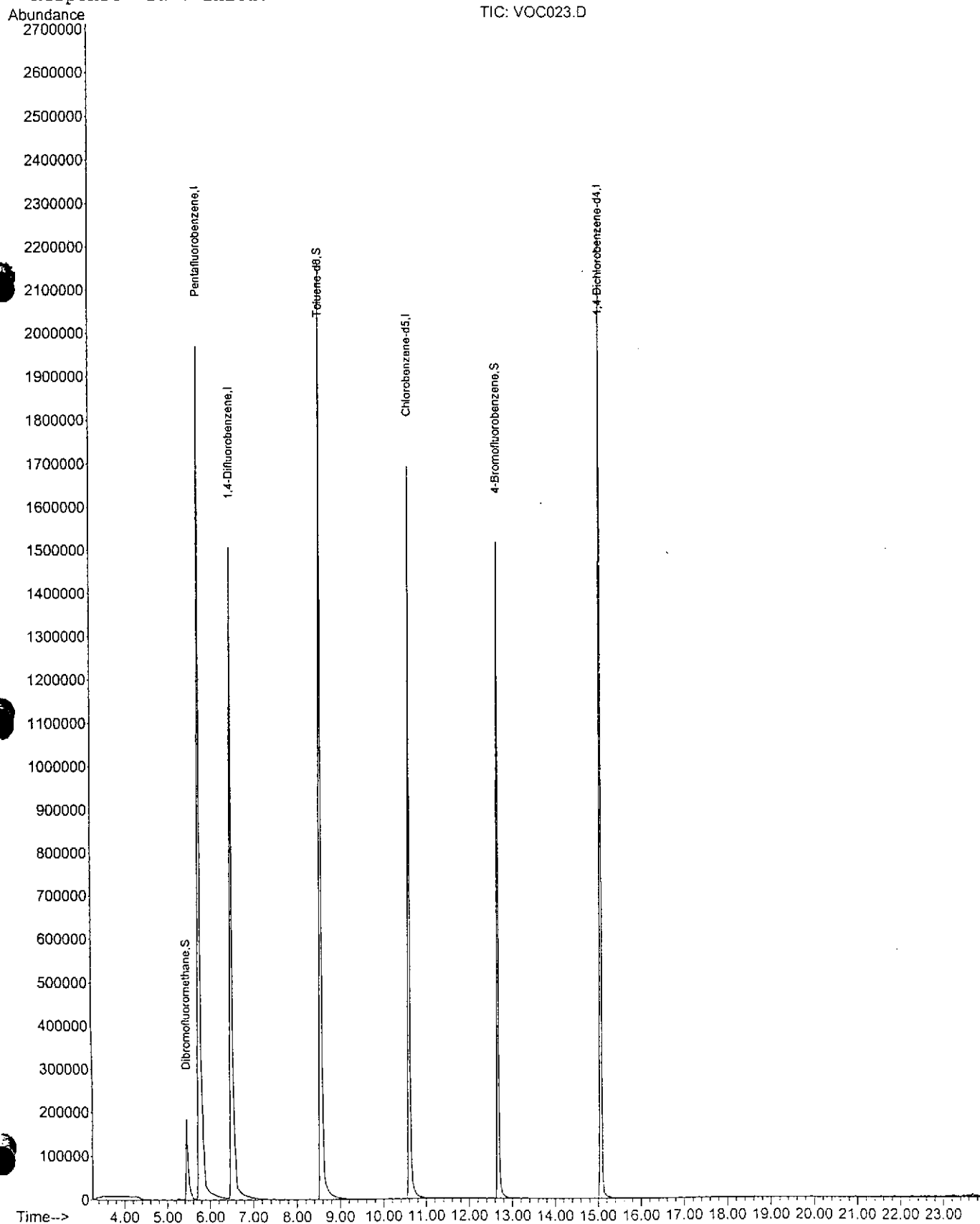
Data File : C:\MSDCHEM\1\DATA\061201\VOC023.D
Acq On : 7 Dec 2001 4:17
Sample : 11395-049 BH1 W1
Misc : WSP Remediation/Water

Vial: 23
Operator: Geochem Analytical Service
Inst : 00B MSD59
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Dec 7 15:58 2001

Quant Results File: HS_VOC1.RES

Method : C:\MSDCHEM\1\METHODS\HS_VOC1.M (Chemstation Integrator)
Title : Volatile Organic Compounds (EPA 624/8260)
Last Update : Fri Dec 07 14:06:47 2001
Response via : Initial Calibration



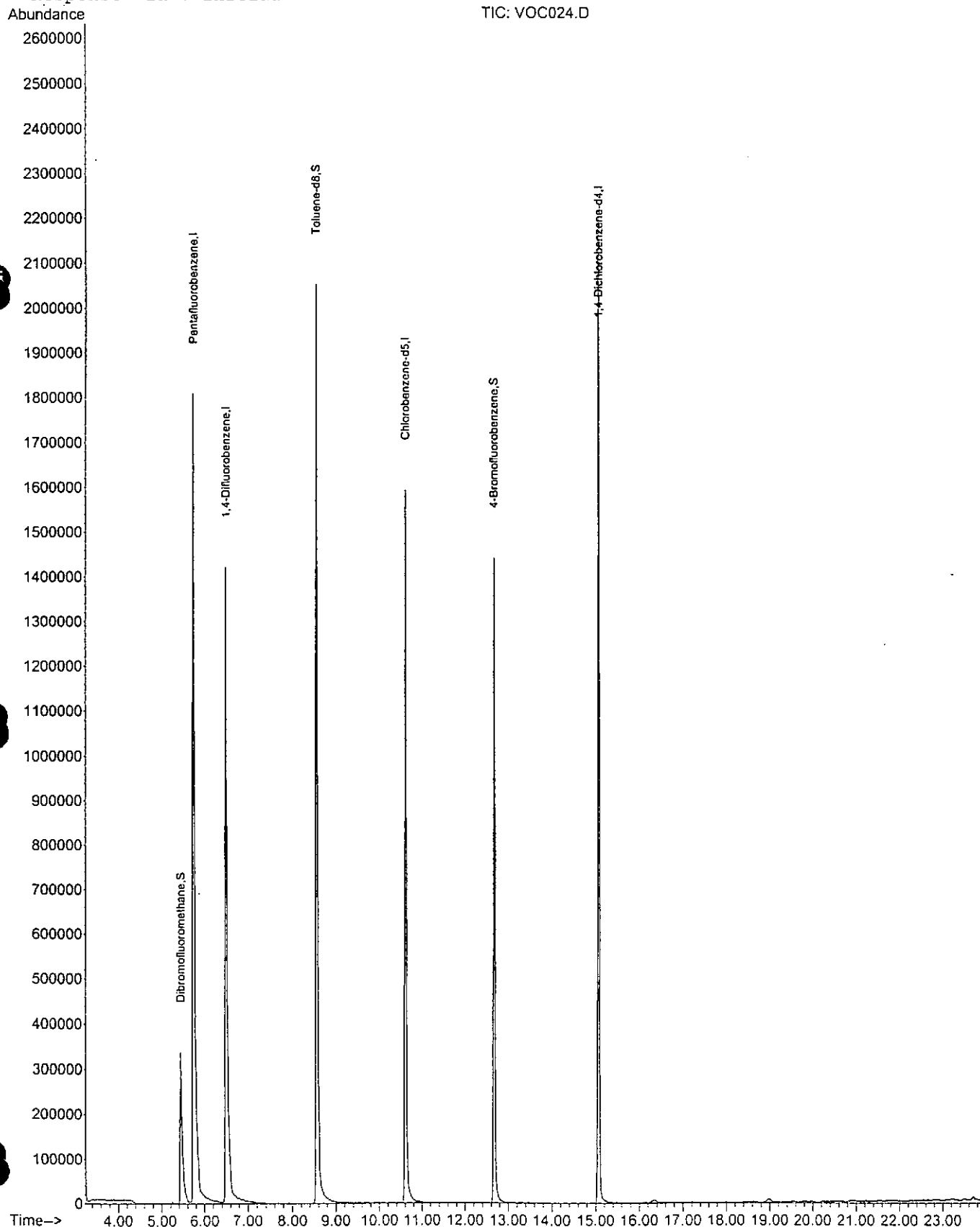
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Acq On : 7 Dec 2001 4:52
Sample : 11395-056 BH2A W1
Misc : WSP Remediation/Water

Vial: 24
Operator: Geochem Analytical Service
Inst : 00B MSD59
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Dec 7 15:59 2001

Quant Results File: HS_VOC1.RES

Method : C:\MSDCHEM\1\METHODS\HS_VOC1.M (Chemstation Integrator)
Title : Volatile Organic Compounds (EPA 624/8260)
Last Update : Fri Dec 07 14:06:47 2001
Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\061201\VOC025.D

Acq On : 7 Dec 2001 5:28

Sample : 11395-063 BH4 W1

Misc : WSP Remediation/Water

Vial: 25

Operator: Geochem Analytical Service

Inst : 00B MSD59

Multiplr: 1.00

Sample Amount: 0.00

MS Integration Params: EVENTS.E

Quant Time: Dec 7 15:59 2001

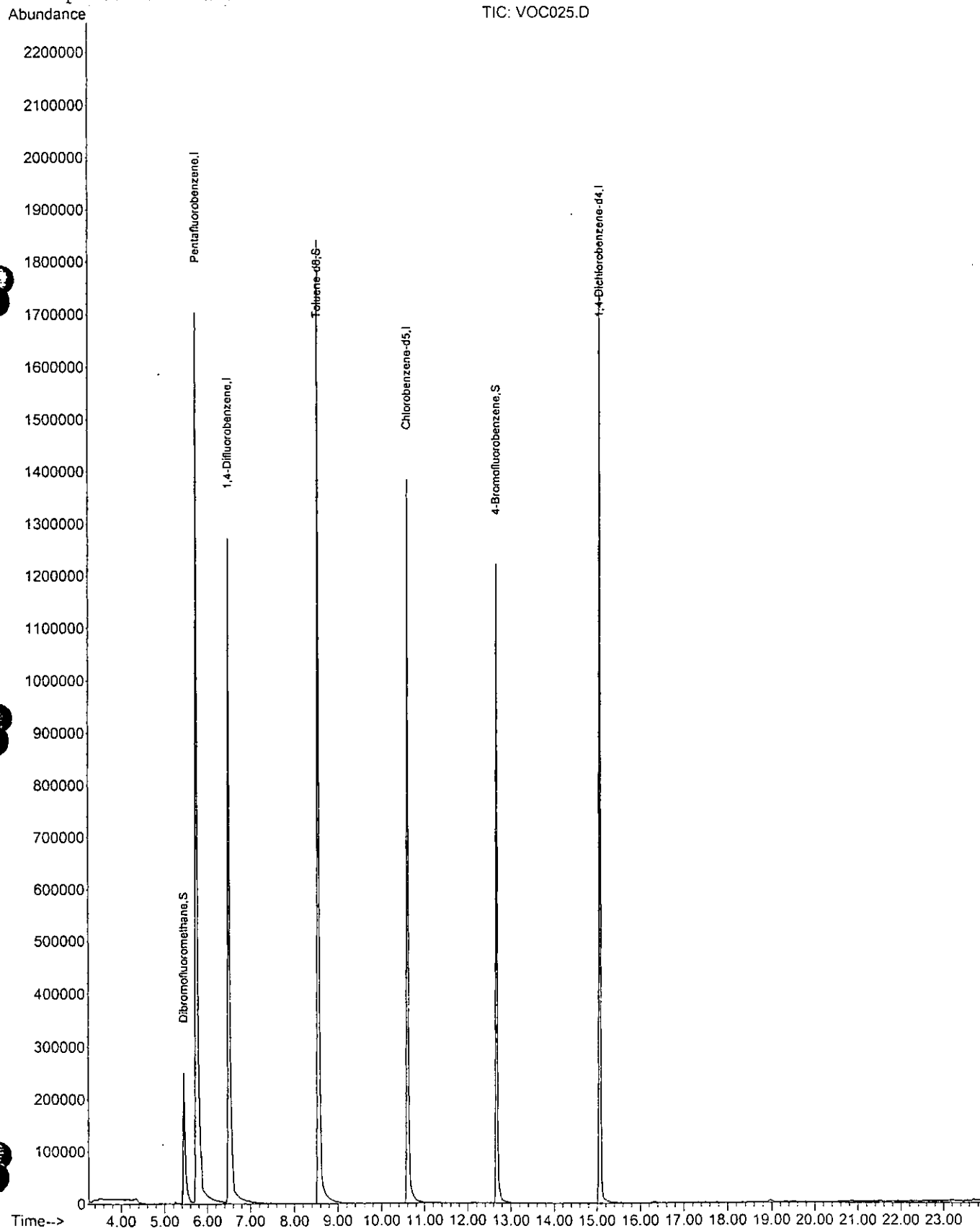
Quant Results File: HS_VOC1.RES

Method : C:\MSDCHEM\1\METHODS\HS_VOC1.M (Chemstation Integrator)

Title : Volatile Organic Compounds (EPA 624/8260)

Last Update : Fri Dec 07 14:06:47 2001

Response via : Initial Calibration



Data File : C:\MSDCHEM\1\DATA\061201\VOC026.D

Acq On : 7 Dec 2001 6:03

Sample : 11395-077 BH6 W1

Misc : WSP Remediation/Water

Vial: 26

Operator: Geochem Analytical Servi

Inst : 00B MSD59

Multiplr: 1.00

Sample Amount: 0.00

MS Integration Params: EVENTS.E

Quant Time: Dec 7 16:00 2001

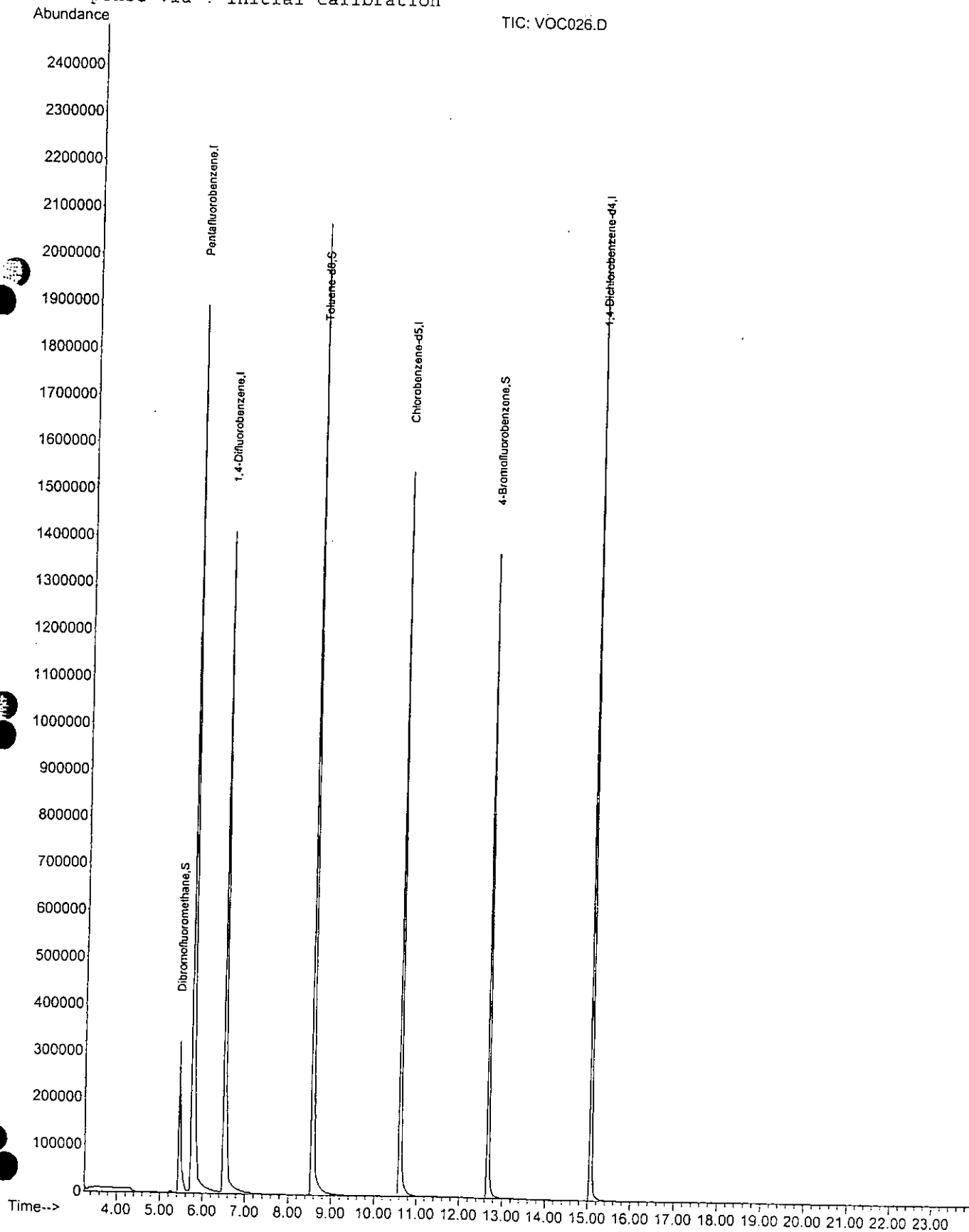
Quant Results File: HS_VOC1.RES

Method : C:\MSDCHEM\1\METHODS\HS_VOC1.M (Chemstation Integrator)

Title : Volatile Organic Compounds (EPA 624/8260)

Last Update : Fri Dec 07 14:06:47 2001

Response via : Initial Calibration



ALcontrol Geochem

Volatile Organic Compounds (EPA 624/8260)

Sample Identity - Spiked Blank

Client / Sample matrix - Spiked Blank/Water

Units - µg/l

Date Acquired - 3 Dec 2001 14:26

Instrument Name - 00B MSD59

CAS No	Compound	Conc.	CAS No	Compound	Conc.
75-71-8	Dichlorodifluoromethane	<1	106-93-4	1,2-Dibromoethane	<1
74-87-3	Chloromethane	<1	127-18-4	Tetrachloroethene	<1
75-01-4	Vinyl Chloride	<1	630-20-6	1,1,1,2-Tetrachloroethane	<1
74-83-9	Bromomethane	<1	108-90-7	Chlorobenzene	<1
75-00-3	Chloroethane	<1	100-41-4	Ethylbenzene	<1
75-69-4	Trichlorofluoromethane	<1	108-38-3*	p/m-Xylene	<1
156-60-5	trans-1,2-Dichloroethene	<1	75-25-2	Bromoform	<1
75-09-2	Dichloromethane	<1	100-42-5	Styrene	<1
75-15-0	Carbon disulphide	<1	79-34-5	1,1,2,2-Tetrachloroethane	<1
75-35-4	1,1-Dichloroethene	<1	95-47-6	o-Xylene	<1
75-34-3	1,1-Dichloroethane	<1	96-18-4	1,2,3-Trichloropropane	<1
1634-04-4	tert-butyl methyl ether	<1	98-82-8	Isopropylbenzene	<1
156-59-2	cis-1,2-Dichloroethene	<1	108-86-1	Bromobenzene	<1
74-97-5	Bromochloromethane	<1	95-49-8	2-Chlorotoluene	<1
67-66-3	Chloroform	<1	103-65-1	Propylbenzene	<1
594-20-7	2,2-Dichloropropane	<1	106-43-4	4-Chlorotoluene	<1
107-06-2	1,2-Dichloroethane	<1	95-63-6	1,2,4-Trimethylbenzene	<1
71-55-6	1,1,1-Trichloroethane	<1	99-87-6	4-Isopropyltoluene	<1
563-58-6	1,1-Dichloropropene	<1	108-67-8	1,3,5-Trimethylbenzene	<1
71-43-2	Benzene	<1	541-73-1	1,3-Dichlorobenzene	<1
56-23-5	Carbontetrachloride	<1	106-46-7	1,4-Dichlorobenzene	<1
74-95-3	Dibromomethane	<1	135-98-8	sec-Butylbenzene	<1
78-87-5	1,2-Dichloropropane	<1	98-06-6	tert-Buylbenzene	<1
75-27-4	Bromodichloromethane	<1	95-50-1	1,2-Dichlorobenzene	<1
79-01-6	Trichloroethene	<1	104-51-8	n-Butylbenzene	<1
10061-01-5	cis-1,3-Dichloropropene	<1	96-12-8	1,2-Dibromo-3-chloropropane	<1
10061-02-6	trans-1,3-Dichloropropene	<1	120-82-1	1,2,4-Trichlorobenzene	<1
79-00-5	1,1,2-Trichloroethane	<1	91-20-3	Naphthalene	<1
108-88-3	Toluene	<1	87-61-6	1,2,3-Trichlorobenzene	<1
142-28-9	1,3-Dichloropropane	<1	87-68-3	Hexachlorobutadiene	<1
124-48-1	Dibromochloromethane	<1			

N.B. * also CAS No. 106-42-3

** Water blank subtracted

Data File : C:\MSDCHEM\1\DATA\031201\VOC002.D

Vial: 2

Acq On : 3 Dec 2001 14:26

Operator: Geochem Analytical Service

Sample : Spiked Blank

Inst : 00B MSD59

Misc : Spiked Blank/Water

Multiplr: 1.00

Sample Amount: 0.00

MS Integration Params: EVENTS.E

Quant Time: Dec 4 11:35 2001

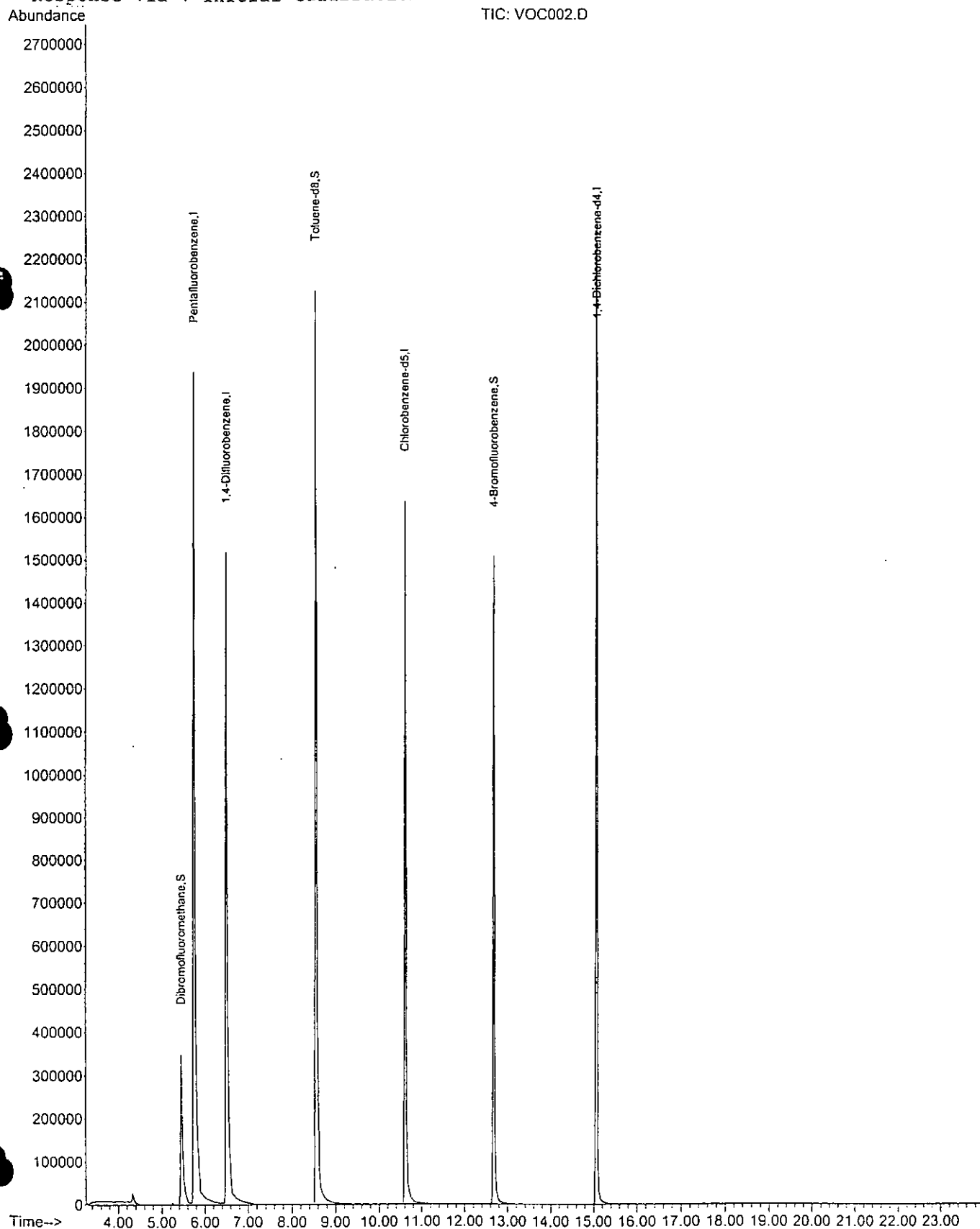
Quant Results File: HS_VOC1.RES

Method : C:\MSDCHEM\1\METHODS\HS_VOC1.M (Chemstation Integrator)

Title : Volatile Organic Compounds (EPA 624/8260)

Last Update : Tue Dec 04 15:34:20 2001

Response via : Initial Calibration



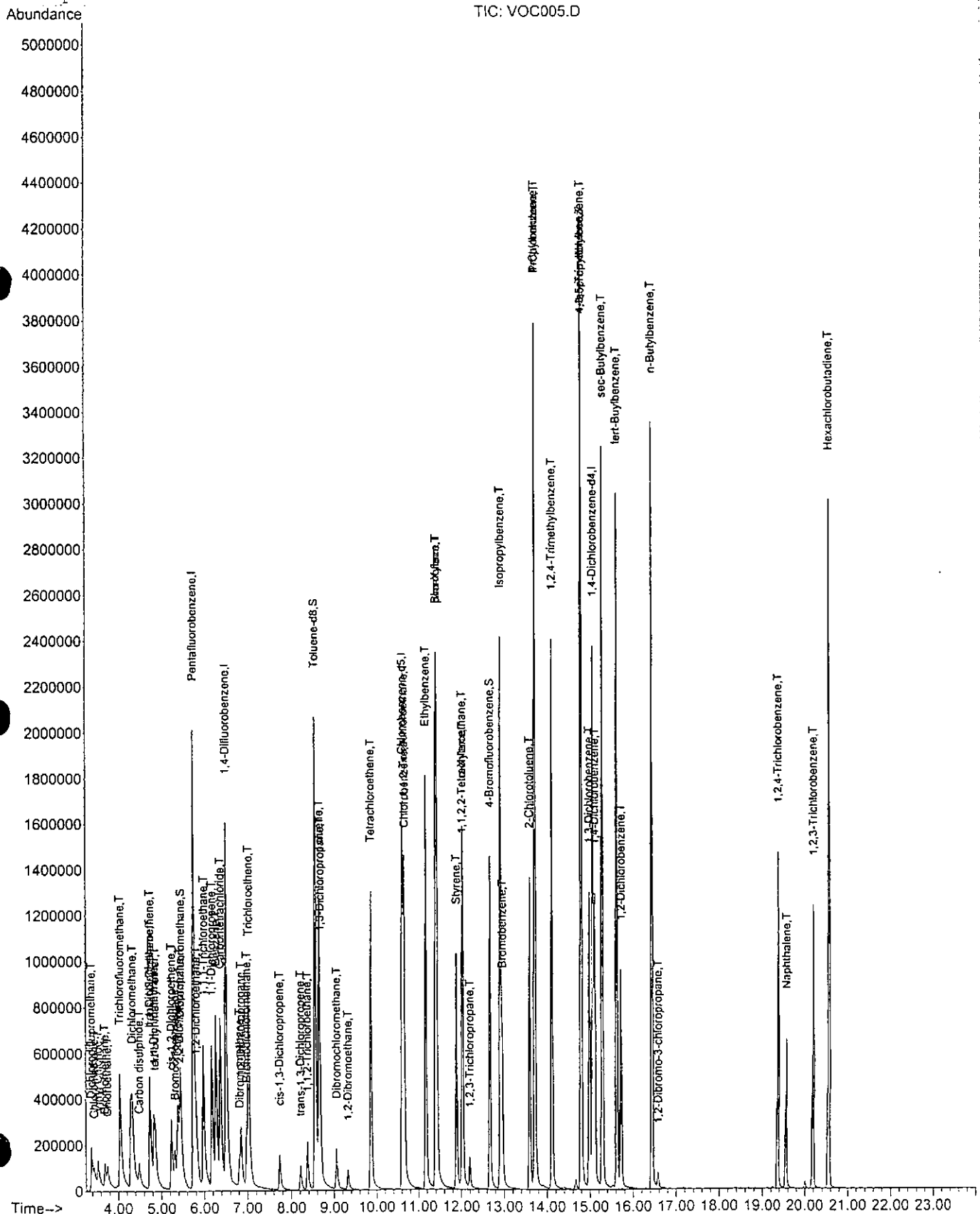
Data File : C:\MSDCHEM\1\DATA\031201\VOC005.D
Acq On : 3 Dec 2001 16:12
Sample : 500ppb VOC Std
Misc : Calibration Std/Water

Vial: 5
Operator: Geochem Analytical Service
Inst : 00B MSD59
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Dec 4 15:25 2001

Quant Results File: HS_VOC1.RES

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Method      : C:\MSDCHEM\1\METHODS\HS_VOC1.M (Chemstation Integrator)
Title       : Volatile Organic Compounds (EPA 624/8260)
Last Update : Tue Dec 04 15:34:20 2001
Response via : Initial Calibration
```



ALcontrol Geochem

Volatile Organic Compounds (EPA 624/8260)

Sample Identity - Spiked Blank

Client / Sample matrix - Spiked Blank/Water

Units - µg/l

Date Acquired - 6 Dec 2001 15:56

Instrument Name - 00B MSD59

CAS No	Compound	Conc.	CAS No	Compound	Conc.
75-71-8	Dichlorodifluoromethane	<1	106-93-4	1,2-Dibromoethane	<1
74-87-3	Chloromethane	<1	127-18-4	Tetrachloroethene	<1
75-01-4	Vinyl Chloride	<1	630-20-6	1,1,1,2-Tetrachloroethane	<1
74-83-9	Bromomethane	<1	108-90-7	Chlorobenzene	<1
75-00-3	Chloroethane	<1	100-41-4	Ethylbenzene	<1
75-69-4	Trichlorofluoromethane	<1	108-38-3*	p/m-Xylene	<1
156-60-5	trans-1,2-Dichloroethene	<1	75-25-2	Bromoform	<1
75-09-2	Dichloromethane	<1	100-42-5	Styrene	<1
75-15-0	Carbon disulphide	<1	79-34-5	1,1,2,2-Tetrachloroethane	<1
75-35-4	1,1-Dichloroethene	<1	95-47-6	o-Xylene	<1
75-34-3	1,1-Dichloroethane	<1	96-18-4	1,2,3-Trichloropropane	<1
1634-04-4	tert-butyl methyl ether	<1	98-82-8	Isopropylbenzene	<1
156-59-2	cis-1,2-Dichloroethene	<1	108-86-1	Bromobenzene	<1
74-97-5	Bromochloromethane	<1	95-49-8	2-Chlorotoluene	<1
67-66-3	Chloroform	<1	103-65-1	Propylbenzene	<1
594-20-7	2,2-Dichloropropane	<1	106-43-4	4-Chlorotoluene	<1
107-06-2	1,2-Dichloroethane	<1	95-63-6	1,2,4-Trimethylbenzene	<1
71-55-6	1,1,1-Trichloroethane	<1	99-87-6	4-Isopropyltoluene	<1
563-58-6	1,1-Dichloropropene	<1	108-67-8	1,3,5-Trimethylbenzene	<1
71-43-2	Benzene	<1	541-73-1	1,3-Dichlorobenzene	<1
56-23-5	Carbontetrachloride	<1	106-46-7	1,4-Dichlorobenzene	<1
74-95-3	Dibromomethane	<1	135-98-8	sec-Butylbenzene	<1
78-87-5	1,2-Dichloropropane	<1	98-06-6	tert-Butylbenzene	<1
75-27-4	Bromodichloromethane	<1	95-50-1	1,2-Dichlorobenzene	<1
79-01-6	Trichloroethene	<1	104-51-8	n-Butylbenzene	<1
10061-01-5	cis-1,3-Dichloropropene	<1	96-12-8	1,2-Dibromo-3-chloropropane	<1
10061-02-6	trans-1,3-Dichloropropene	<1	120-82-1	1,2,4-Trichlorobenzene	<1
79-00-5	1,1,2-Trichloroethane	<1	91-20-3	Naphthalene	<1
108-88-3	Toluene	<1	87-61-6	1,2,3-Trichlorobenzene	<1
142-28-9	1,3-Dichloropropane	<1	87-68-3	Hexachlorobutadiene	<1
124-48-1	Dibromochloromethane	<1			

N.B. * also CAS No. 106-42-3

** Water blank subtracted

Data File : C:\MSDCHEM\1\DATA\061201\VOC002.D

Vial: 2

Acq On : 6 Dec 2001 15:56

Operator: Geochem Analytical Service

Sample : Spiked Blank

Inst : 00B MSD59

Misc : Spiked Blank/Water

Multiplr: 1.00

Sample Amount: 0.00

MS Integration Params: EVENTS.E

Quant Time: Dec 7 12:09 2001

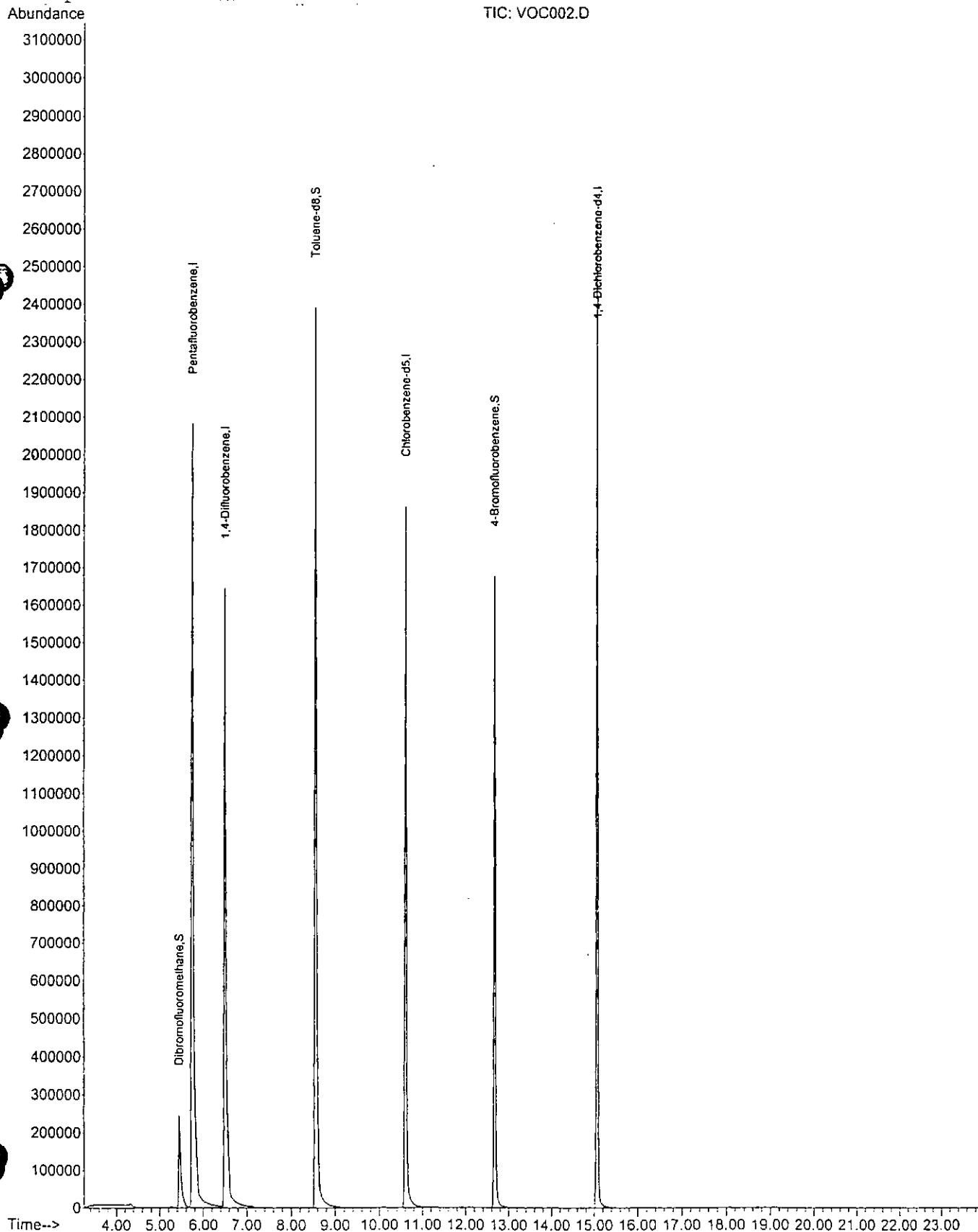
Quant Results File: HS_VOC1.RES

Method : C:\MSDCHEM\1\METHODS\HS_VOC1.M (Chemstation Integrator)

Title : Volatile Organic Compounds (EPA 624/8260)

Last Update : Fri Dec 07 14:06:47 2001

Response via : Initial Calibration

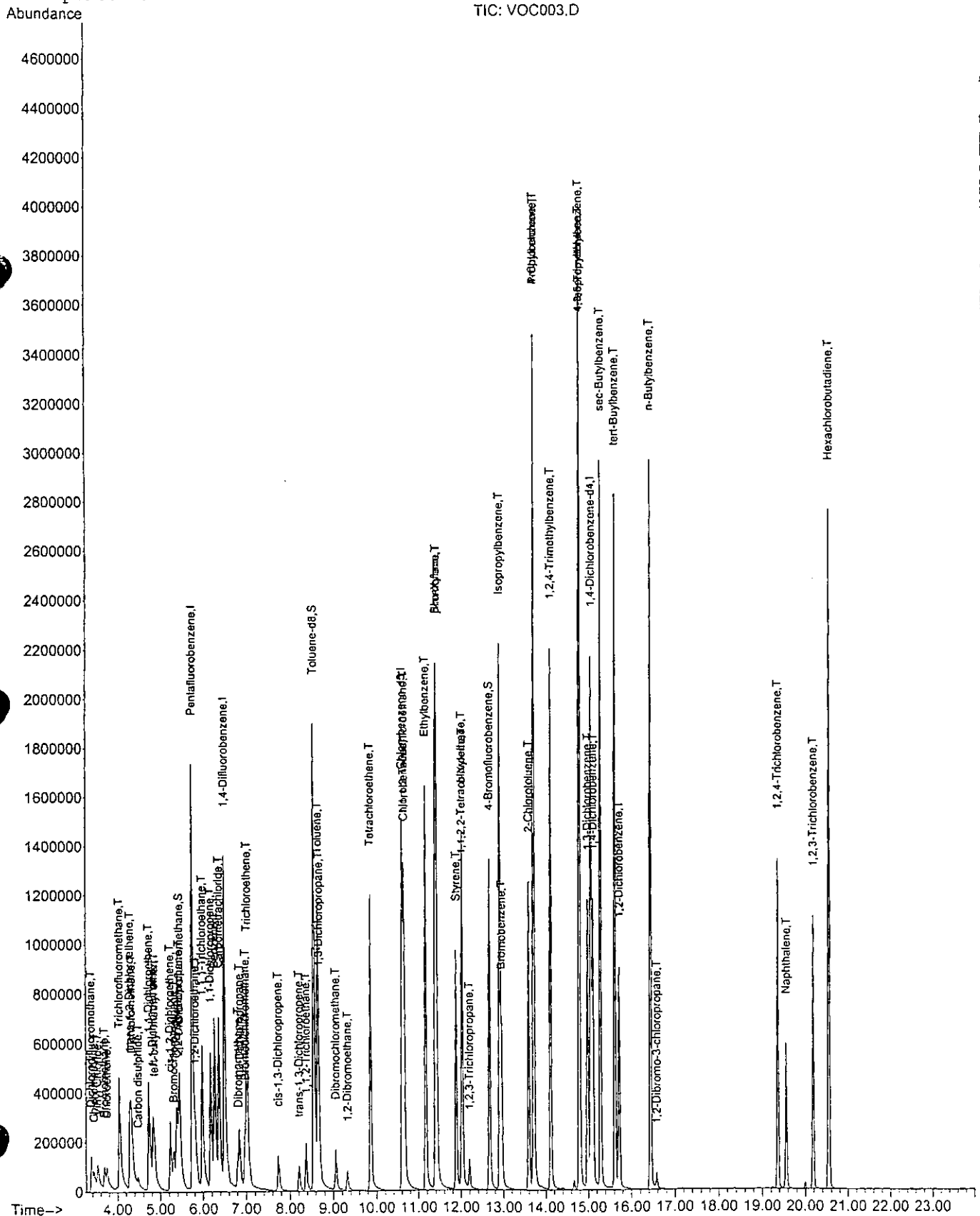


Vial: 3
Operator: Geochem Analytical Service
Inst : 00B MSD59
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Dec 7 14:06 2001

Quant Results File: HS_VOC1.RES

Method : C:\MSDCHEM\1\METHODS\HS_VOC1.M (Chemstation Integrator)
Title : Volatile Organic Compounds (EPA 624/8260)
Last Update : Fri Dec 07 14:06:47 2001
Response via : Initial Calibration



APPENDIX F

SUMMARY OF GROUND CONDITIONS

SUMMARY OF GROUND CONDITIONS

Location	Date	Maximum Depth	Purpose of Exploratory Point	Visual observations
TP 1			Investigate general ground conditions.	Not excavated
TP 2			Investigate general ground conditions.	Not excavated
TP 3	02/10/01	3.70m	Investigate ground conditions proximal to former gasholder.	Made ground from GL to 2.00m Alluvium from 2.00 to 3.70m
TP 4	03/10/01	3.10m	Investigate ground conditions proximal to former gasholder.	Made ground from GL to 3.10m
TP 5	02/10/01	3.70m	Investigate ground conditions proximal to former gasholder.	Made ground from GL to 3.40m Glacial till from 3.40 to 3.70m
TP 6	04/10/01	3.40m	Investigate ground conditions proximal to former gasholder.	Made ground from GL to 3.40m Glacial till from 3.00 to 3.40m
TP 7	02/10/01	3.50m	Investigate ground conditions proximal to former gasholder.	Made ground from GL to 0.75m Alluvium from 2.40 to 3.10m Glacial till from 3.10 to 3.50m
TP 8	02/10/01	4.30m	Investigate ground conditions proximal to former gasholder.	Made ground from GL to 3.20m Alluvium from 3.20 to 3.70m Glacial till from 3.70 to 4.30m
TP 9	02/10/01	3.70m	Investigate ground conditions in former coal dump area.	Made ground from GL to 2.10m Alluvium from 2.10 to 3.30m Glacial till from 3.30 to 3.70m
TP 10	04/10/01	3.30m	Investigate ground conditions in former coal storage area.	Made ground from GL to 0.80m
TP 11	04/10/01	0.80m	Investigate ground conditions in area of former railway.	Made ground from GL to 0.70m Terminated on service duct
TP 12	04/10/01	3.00m	Investigate ground conditions in former coal dump area.	Made ground from GL to 2.00m Glacial till from 2.00 to 3.00m
TP 13	04/10/01	3.20	Investigate ground conditions in area of former railway/CWG plant.	Made ground from GL to 1.30m Glacial till from 1.30 to 3.20m
WS 14	12/10/01	1.60m	Investigate ground conditions in former coal dump area.	Made ground from GL to 1.60m Refused at 1.60m
TP 15			Investigate ground conditions in former CWG plant.	Not excavated
TP 16			Investigate ground conditions proximal underground tank.	Not excavated
WS 17	12/10/01	2.00m	Investigate ground conditions in area of scrubbers.	Made ground from GL to 2.00m
WS 18	12/10/01	1.50m	Investigate general ground conditions.	Made ground from GL to 1.50m
TP 19	11/10/01	2.70m	Investigate general ground conditions.	Made ground from GL to 1.90m Glacial till from 1.90 to 2.70m
WS 20	12/10/01	2.00m	Investigate ground conditions in area of former railway.	Made ground from GL to 2.00m

SUMMARY OF GROUND CONDITIONS (continued)

Location	Date	Maximum Depth	Purpose of Exploratory Point	Visual observations
WS 21	12/10/01	1.20m	Investigate ground conditions in area of former retort house.	Made ground from GL to 1.20m
TP 22	11/10/01	2.10m	Investigate ground conditions in area of former retort house.	Made ground from GL to 1.60m Alluvium from 1.60 to 2.10m
TP 23	11/10/01	3.20m	Investigate general ground conditions.	Made ground from GL to 2.00m Glacial till from 2.00 to 3.20m
TP 24			Investigate ground conditions in area of former retort house.	Not excavated
TP 25	11/10/01	2.50m	Investigate ground conditions in area of former retort house.	Made ground from GL to 0.60m Alluvium from 2.00 to 2.50m
TP 26			Investigate general ground conditions.	Not excavated
TP 27	11/10/01	3.00m	Investigate general ground conditions.	Made ground from GL to 1.80m Glacial Till from 1.80 to 3.00m
TP 28	11/10/01	3.20m	Investigate general ground conditions.	Made ground from GL to 1.50m Alluvium from 1.50 to 2.80m Glacial till from 2.80 to 3.20m
TP 29		2.00m	Investigate ground conditions in area used for storage of road trailers.	Made ground from GL to 1.90m Alluvium from 1.90 to 2.00m
TP 30		3.00m	Investigate ground conditions in area used for storage of road trailers.	Made ground from GL to 3.00m
TP 31	04/10/01	3.20m	Investigate general ground conditions.	Made ground from GL to 2.40m Alluvium from 2.40 to 3.20m
TP 32		2.80m	Investigate general ground conditions.	Made ground from GL to 2.80m
TP 33			Investigate general ground conditions.	Not excavated
TP 34	02/10/01	1.40m	Investigate general ground conditions.	Made ground from GL to 1.10m Glacial till from 1.10 to 1.40m
TP 35	02/10/01	1.40m	Investigate general ground conditions.	Made ground from GL to 1.10m Alluvium from 1.10 to 1.40m
TP 36		2.60m	Investigate general ground conditions.	Made ground from GL to 2.30m Weathered Mudstone from 2.30 to 2.60m
WS 37	12/10/01	1.60m	Investigate ground conditions proximal to former purifiers.	Made ground from GL to 1.60m
WS 38	12/10/01	2.50m	Investigate ground conditions proximal to former reviving floor.	Made ground from GL to 2.50m
TP 39		2.50m	Investigate ground conditions proximal to current vehicle workshop.	Made ground from GL to 2.50m
TP 40		2.30m	Investigate ground conditions proximal to current vehicle workshop.	Made ground from GL to 1.70m Alluvium from 1.70 to 2.30m
WS 41	12/10/01	0.50m	Investigate ground conditions proximal to former purifiers.	Made ground from GL to 0.50m Concrete from GL to 0.50m

SUMMARY OF GROUND CONDITIONS (continued)

Location	Date	Maximum Depth	Purpose of Exploratory Point	Visual observations
TP 42		2.70m	Investigate ground conditions proximal to former reviving floor.	Made ground from GL to 1.10m Alluvium from 1.10 to 2.00m Glacial till from 2.00 to 2.70m
TP 43		3.40m	Investigate ground conditions proximal to current vehicle workshop.	Made ground from GL to 3.10m Glacial till from 3.10 to 3.40m
TP 44		2.70m	Investigate general ground conditions.	Made ground from GL to 1.60m Alluvium from 1.60 to 2.70m
TP 45		1.60m	Investigate general ground conditions.	Made ground from GL to 1.60m
BH 01	01/10/01	7.50m	Investigate ground conditions and groundwater in former holder area.	Made ground from GL to 3.60m Glacial till from 3.60 to 7.50m
BH 02	01/10/01	2.10m	Investigate ground conditions and groundwater in former holder area.	Made ground from GL to 2.10m Unable to penetrate slag
BH02A	03/10/01	17.00m	Investigate ground conditions and groundwater in former holder area.	Made ground from GL to 4.00m Glacial till from 4.00 to 17.00m
BH03			Investigate ground conditions and groundwater in area of identified diesel odours/staining.	Not drilled
BH 04	10/10/01	7.50m	Investigate ground conditions and groundwater in area of petrol pump & above ground tank.	Made ground from GL to 3.00m Glacial Till from 3.00 to 7.50m
BH 05	02/10/01	7.00m	Investigate ground conditions and groundwater in former dumping area	Made ground from GL to 2.70m Glacial till from 2.70 to 6.50m Weathered mudstone from 6.50 to 7.00m
BH 06	09/10/01	11.00m	Investigate ground conditions and groundwater (potential on site migration).	Made ground from GL to 4.50m Glacial till from 4.50 to 11.00m