

Ref 21685L01/da

11<sup>th</sup> August 2004

ChevronTexaco Limited  
1 Westferry Circus  
Canary Wharf  
London  
E14 4HA

For the attention of **Mr Chris Hughes**

**RE: Groundwater Sampling – Holmer Road Service Station, Hereford**

Dear Chris,

In accordance with your request for RSK ENSR Ltd to undertake groundwater monitoring and sampling at Holmer Road Service Station, Hereford, this letter report details the monitoring activities conducted at the site by RSK ENSR on 13th July 2004. The site location is shown on the attached Figure 1.

The service station was operational at the time of the site visit and a total of 3 No. monitoring wells (MW1, MW2 and MW3) were sampled to determine general conditions at the site. The well locations were all on the forecourt hardstanding and are presented on the attached Figure 2.

The site was previously investigated by RSK ENSR (report 20954-1, dated September 2001) by soil vapour survey, monitoring well installation and laboratory analysis.

**Scope of Work**

The three existing 50mm monitoring wells were gauged for the depth to water and the presence of separate phase hydrocarbons, if present, using an electronic interface probe. Following gauging, each well was purged of three well volumes of groundwater, then the water table was allowed to recover before sampling was performed. All the samples collected were transported under controlled conditions under chain-of-custody protocols to Envirolab which is RSK ENSR's accredited laboratory in Manchester. The samples were analysed for petroleum hydrocarbon parameters which comprised TPH, BTEX, TEL and MTBE.

In addition a desk study using a Landmark 'Envirocheck' report was carried out to determine the historical land-use of the site and the surrounding area. Local environmental sensitive receptors were also identified.

## Desk Study

Published records for the area indicate that the site is underlain by the following geological succession.

Stratum	Description
Fluvio-glacial deposits	Sand and gravel
Raglan Mudstone Formation	Red-brown block mudstone

### 1.1

The fluvio-glacial deposits are classified by the Environment Agency as a minor aquifer with variable permeability and the site does not lie within a groundwater source protection zone.

The River Wye lies approximately 2.0km to the south of the site and has an Environment Agency General Quality Assessment (GQA) Scheme for Chemistry river quality C Fairly Good. In addition the Widemarsh Brook is located 500m to the south of the site and Ayles Brook is located approximately 50m to the east of the site.

The site does not lie within an indicative fluvial or tidal floodplain.

A Landmark 'Envirocheck' report was obtained for the site which included historical maps which are summarised below. Historical maps between 1888 and 2000 were reviewed to determine the historic development of the site and the surrounding area. Extracts from the maps are presented as Figures 3 to 10.

The maps of 1888, 1904, 1929 and 1937 (Figures 3 to 6) show the site as open land on Holmer Road at the edge of a racecourse. The surrounding area is relatively rural with a gas works to the northeast and Ayls Brook 100m to the north.

The map of 1967 (Figure 7) shows the development of the site with a building shown although its use is not identified. To the immediate west of the site are warehouses and to the east beyond Holmer Road there has been additional development including a plastics factory and an engineering depot. The Ayls Brook appears to have been culverted.

The map of 1975 (Figure 8) indicates the site to be a garage and the maps of 1987 (Figure 9) and 2000 (Figure 10) show the surrounding area to be a mix of commercial and residential usage with the site located in a mainly commercial area.

## Results

The results of the gauging exercise and the laboratory analysis are presented in Tables 1 and 2 below and the laboratory report and GC chromatographs are attached.

The results of the groundwater gauging exercise indicate the presence of shallow groundwater beneath the site (see Table 1). Depths to water in the monitoring wells ranged between 2.031

(MW2) and 2.193mbgl (MW1).

Location	Depth to Product (mTOC)	Depth to Water (mTOC)
MW1	-	2.193
MW2	-	2.031
MW3	-	2.092

**Table 1 – July 2004 Groundwater Gauging Results**

The laboratory analytical results for this July 2004 sampling visit are shown in the following table:

Lab. Ref. No.	34667	34668	34669
Location	MW1	MW2	MW3
TPH	<50	<50	<50
Comments	-	-	-
Total BTEX Above Reporting Limits	0	0	0
Benzene	<2	<2	<2
Toluene	<2	<2	<2
Ethylbenzene	<2	<2	<2
Xylenes	<2	<2	<2
MTBE	<5	<5	<5
TEL	<5	<5	<5

**Table 2 – July 2004 Groundwater Analytical Results (µg/l)**

The groundwater sample analytical programme identified all TPH concentrations to be less than the detection limit of 50ppb. All MTBE and TEL results were less than the detection limit of 5ppb and concentrations of BTEX were less than the detection limit of 2ppb in all three wells.

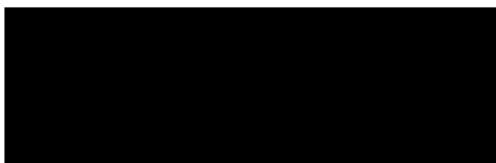
The results for the previous monitoring visit in September 2001 are shown in Table 3 below for comparison purposes.

<b>Lab. Ref. No.</b>	25293	25294	25295
<b>Location</b>	<b>MW1</b>	<b>MW2</b>	<b>MW3</b>
<b>TPH</b>	<50	<50	340
<b>Comments</b>	-	-	H/C Range C14-C26
<b>Total BTEX Above Reporting Limits</b>	0	0	0
<b>Benzene</b>	<2	<2	<2
<b>Toluene</b>	<2	<2	<2
<b>Ethylbenzene</b>	<2	<2	<2
<b>Xylenes</b>	<2	<2	<2
<b>MTBE</b>	<5	<5	<5
<b>TEL</b>	<5	<5	<5

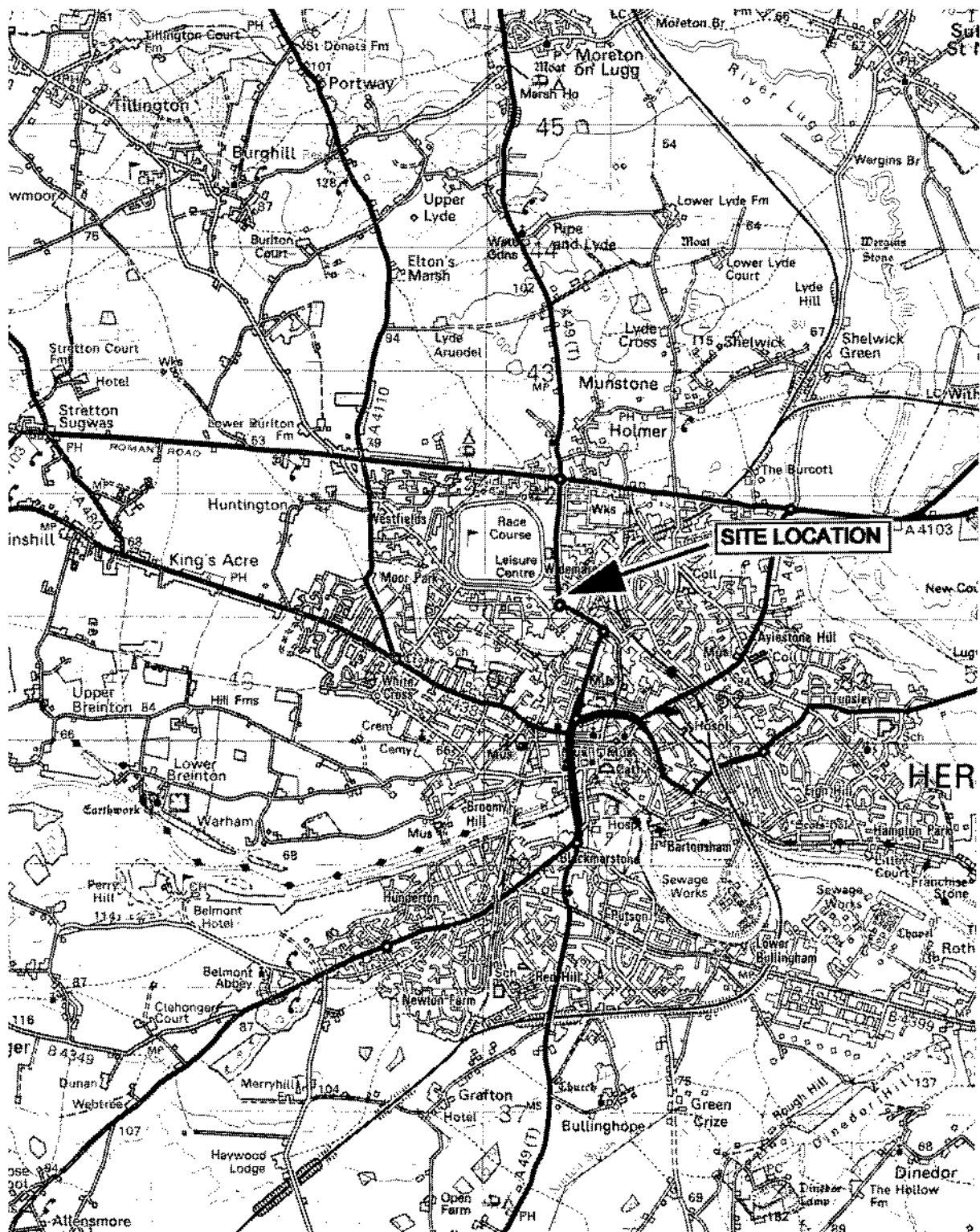
**Table 3 – September 2001 Groundwater Analytical Results (µg/l)**

If there are any queries regarding the information provided, please do not hesitate to contact the undersigned.

Yours sincerely  
For **RSK ENSR Ltd**



David Anchor  
Principal Environmental Scientist



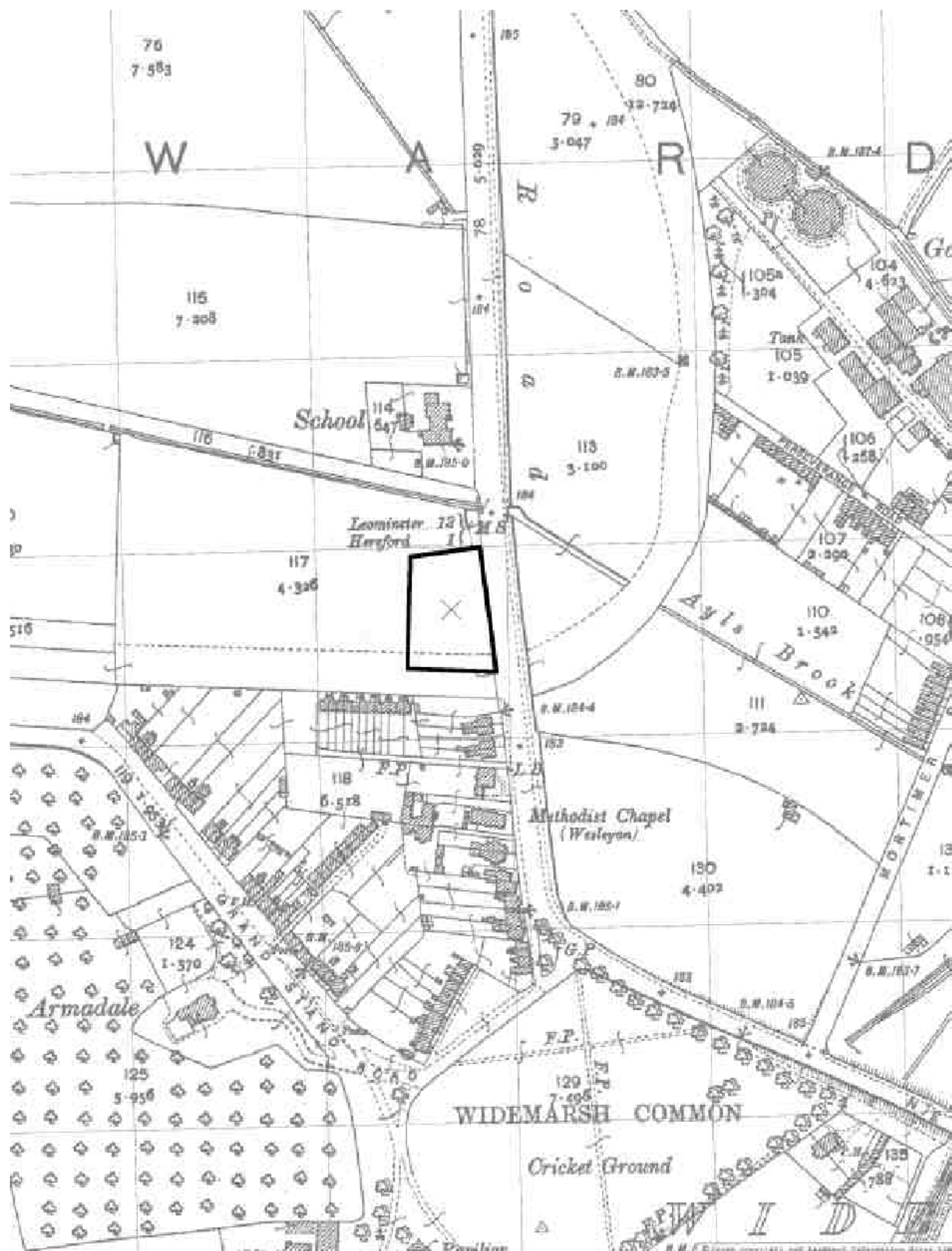
Reproduced from the 1998 Ordnance Survey 1:50,000 Scale Landranger Map 149, OSGR – SQ 505 411  
with the permission of the Controller of Her Majesty's Stationery Office, Crown Copyright. Licence No. AL 52022A  
RSK ENSR Limited, 16 Frogmore Road, Hemel Hempstead, Hertfordshire, HP3 9RW.

**SITE LOCATION MAP**





HISTORICAL MAP (1888)



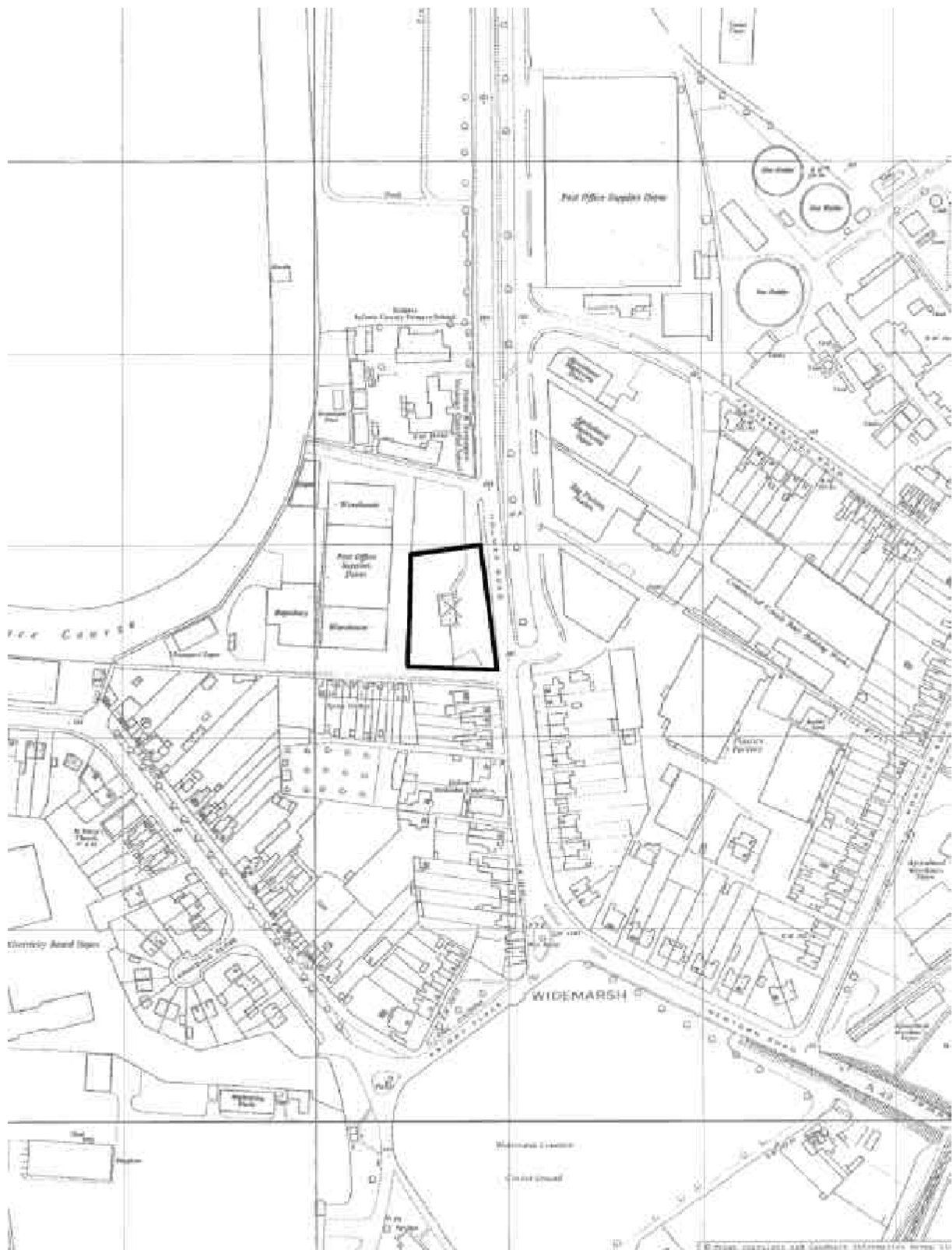
HISTORICAL MAP (1904)



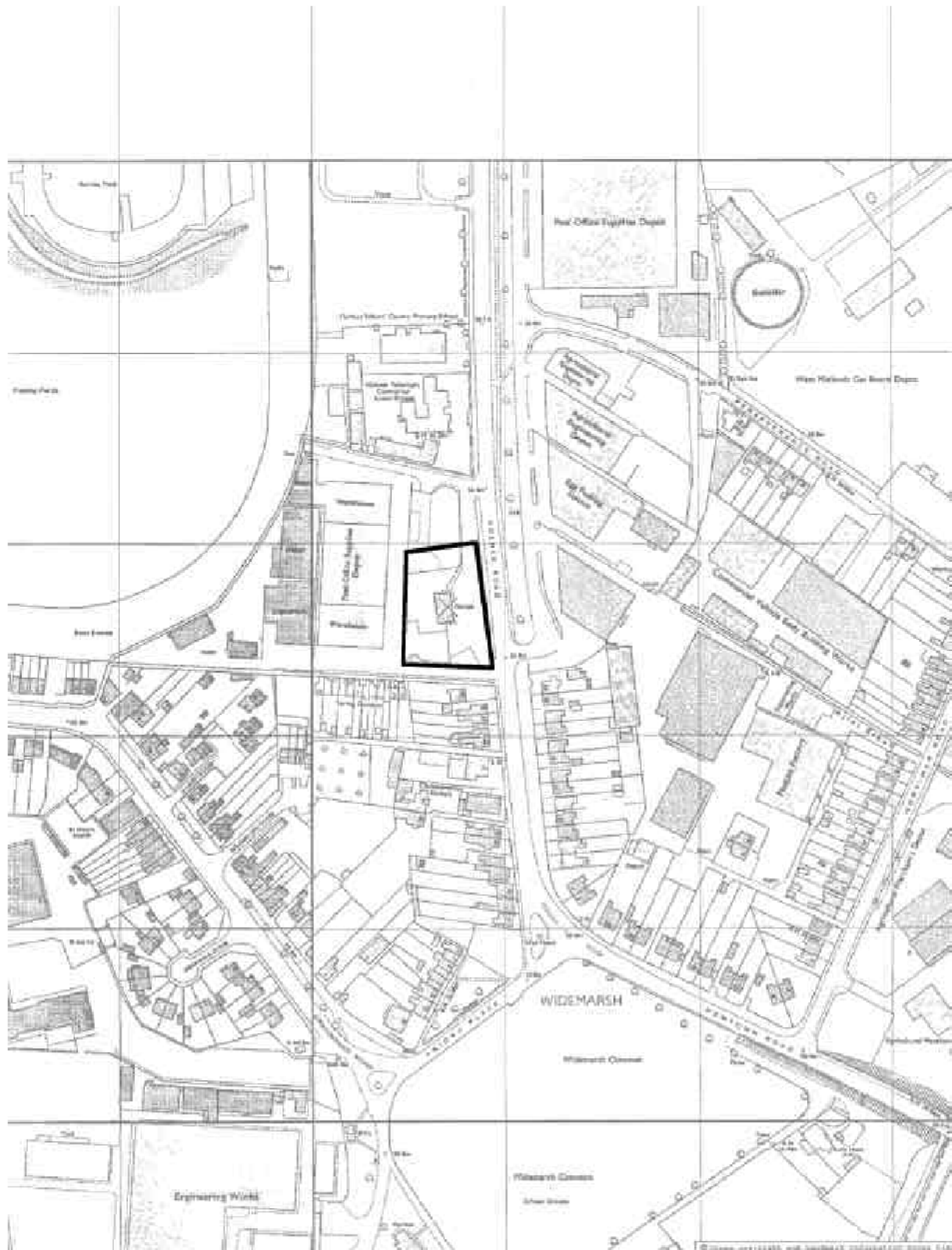




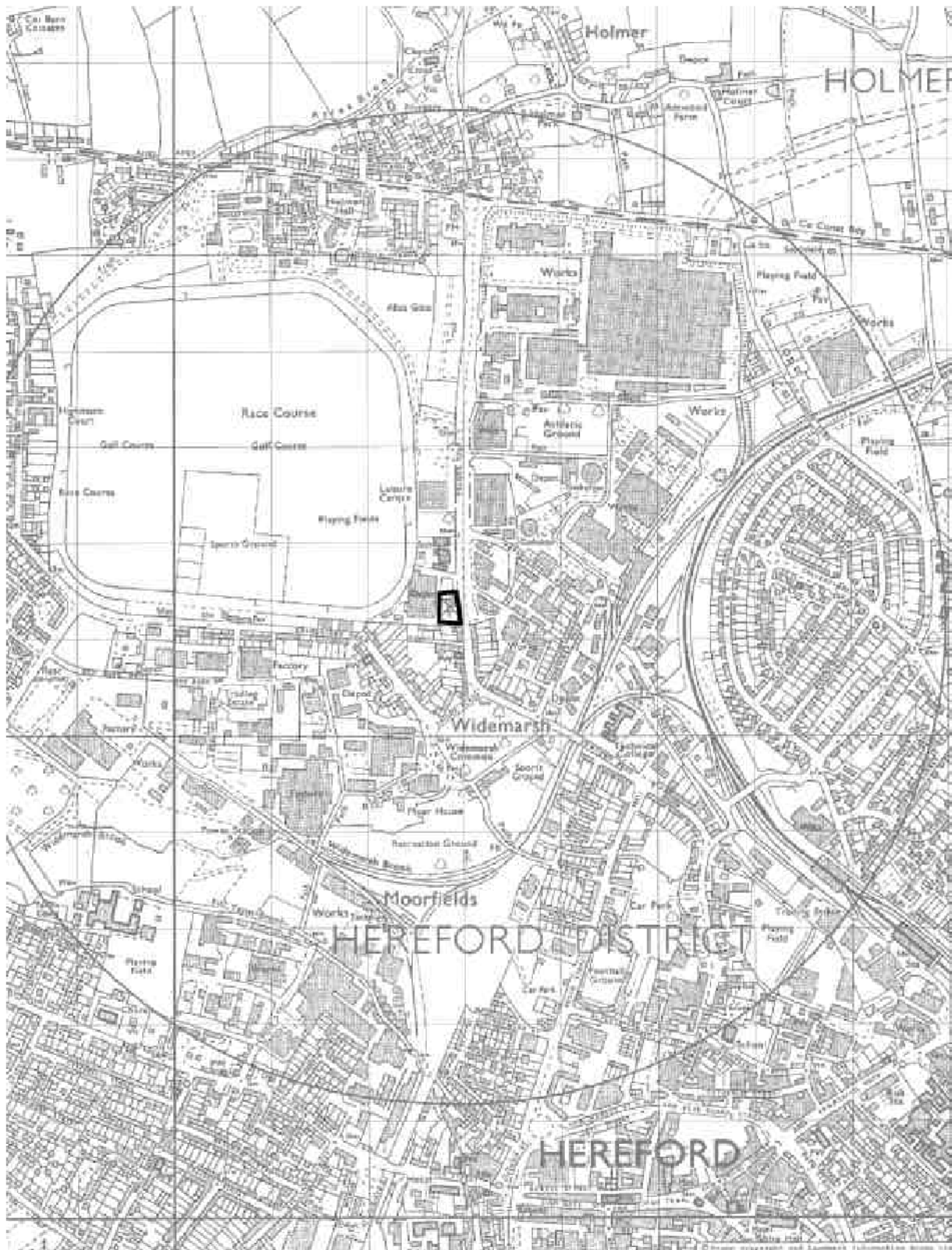
HISTORICAL MAP (1937)



HISTORICAL MAP (1967)

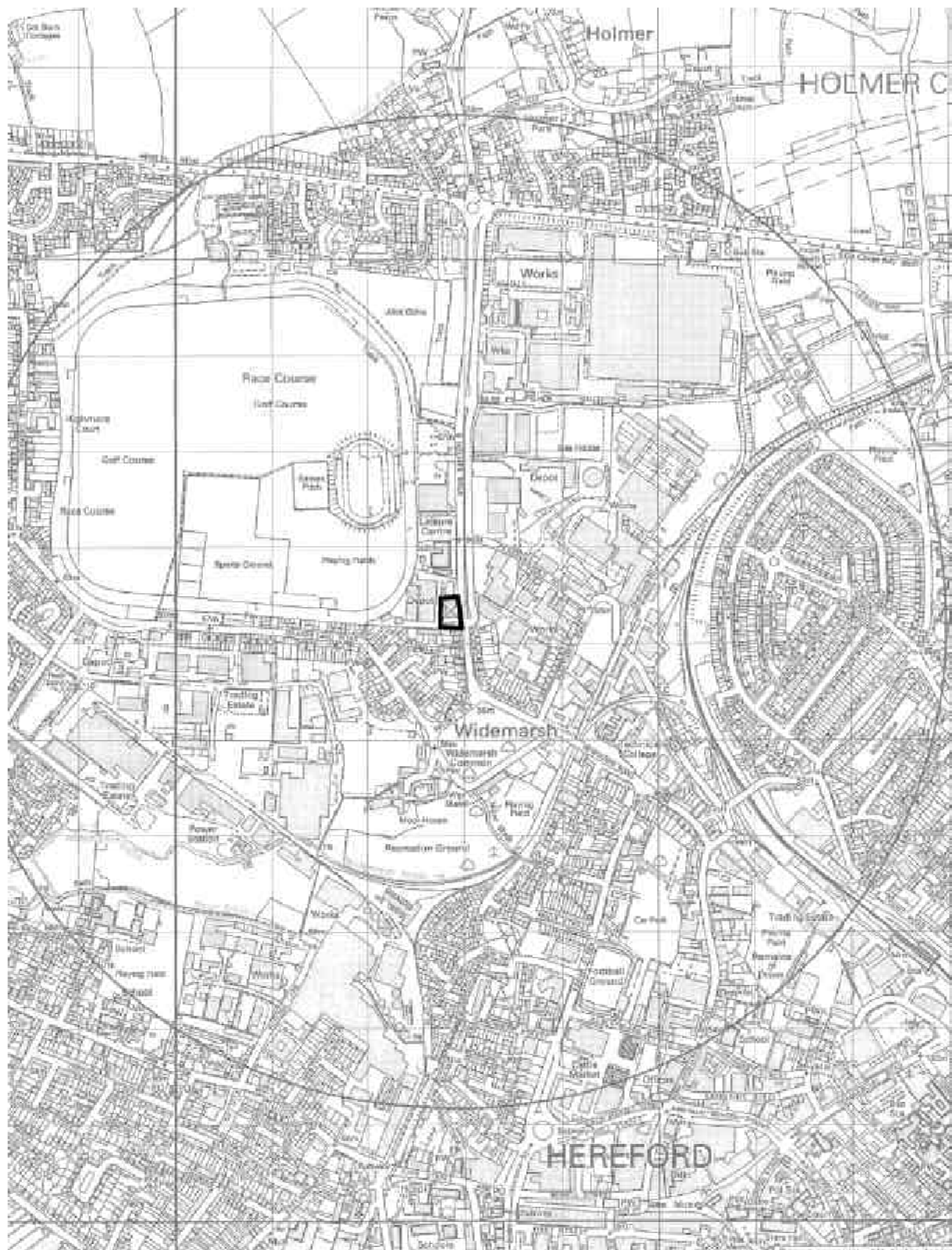


HISTORICAL MAP (1975)



HISTORICAL MAP (1987)





**HISTORICAL MAP (2000)**

Date: 19 July 2004  
Your ref: 21685  
Our ref: 21685-010

Envirolab  
Units 7&8  
Sandpits Business Park  
Mottram Road  
Hyde  
Cheshire  
SK14 3AR

### Test Report

Sample(s) of Water from Chevron Texaco, Holmer Road, Hereford  
Received from RSK ENSR Limited, Hemel  
16 Frogmore Road  
Hemel Hempstead  
Hertfordshire  
HP3 9RW

Date of receipt 15 July 2004  
Date of analysis 15 July 2004

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### Method Statement

TPH and BTEX analysis is performed in accordance with procedure A-T-007.

MTBE and Tetraethyl Lead analysis is performed in accordance with procedure A-T-006.

  
Rachel Davies  
Analytical Chemist

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Tests marked "TM" in this report are not included in the UKAS Accreditation Schedule for Envirolab.

Analytical results reflect the quality of the sample at the time of analysis only.



Report No. 21685-010

signed 

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Envirolab Ref	34667	34668	34669
Location	MW1	MW2	MW3
TPH	<50	<50	<50
Comments	-	-	-
Total BTEX above Reporting Limit	0	0	0
Benzene	<2	<2	<2
Toluene	<2	<2	<2
Ethylbenzene	<2	<2	<2
Xylene	<2	<2	<2
MTBE	<5	<5	<5
Tetraethyl Lead	<5	<5	<5

Table 1- Water TPH, BTEX, MTBE and Tetraethyl Lead Results (ppb)

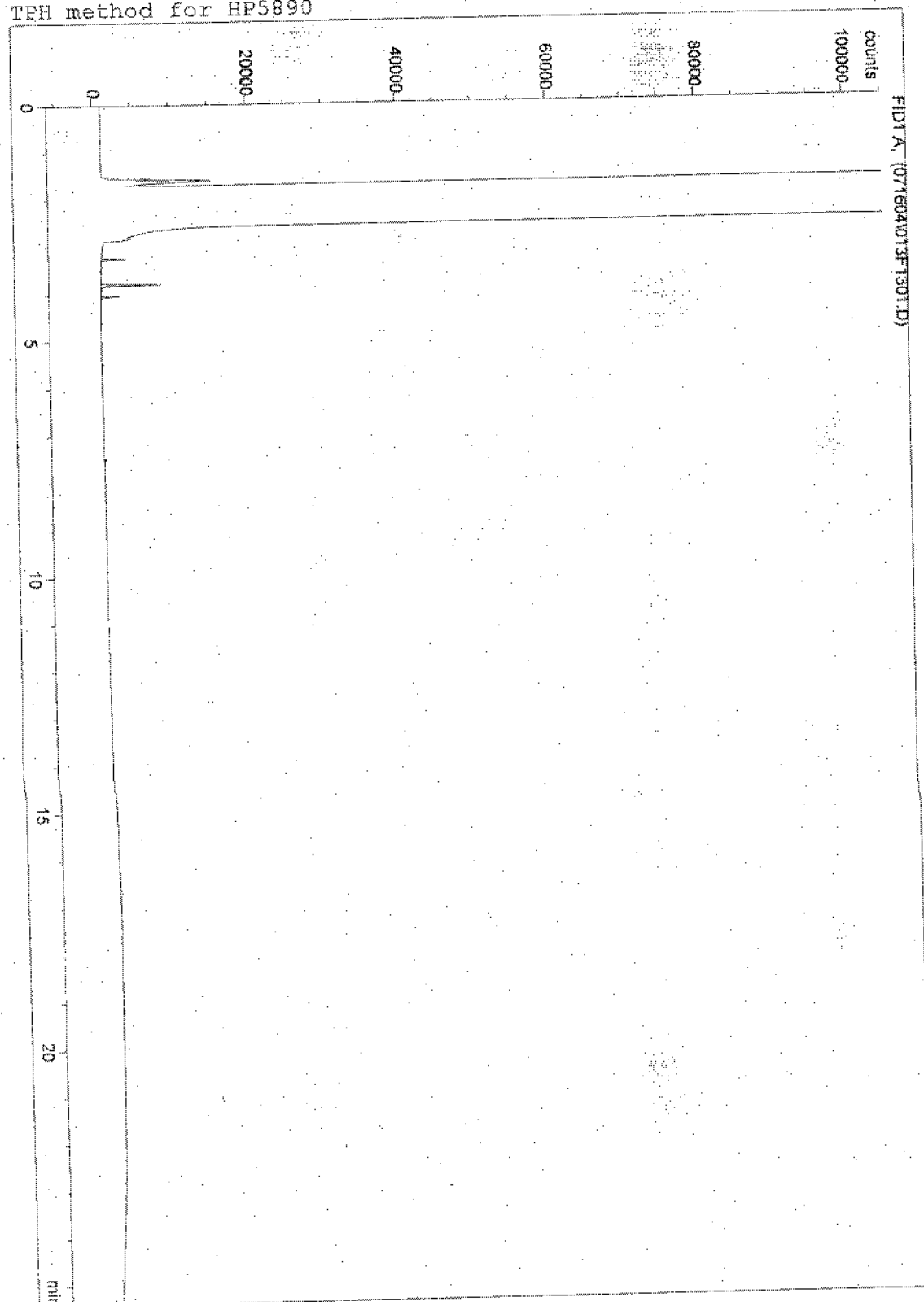


Injection Date : 7/17/04 1:34:45 AM  
Sample Name : 34669  
Acq. Operator : SD

Seq. Line : 13  
Vial : 13  
Inj : 1  
Inj Volume : 1 µl

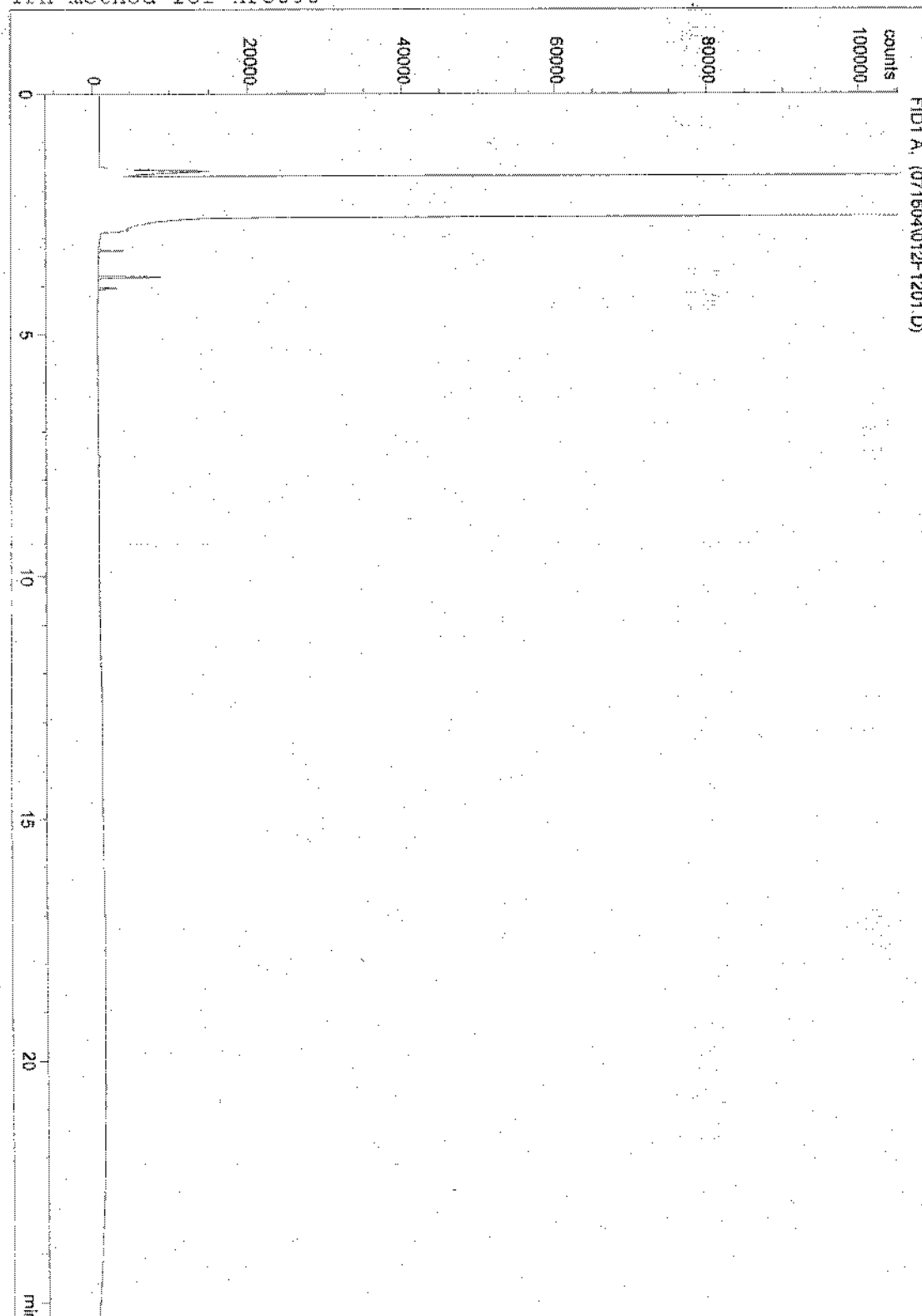
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Last changed : 5/11/04 11:33:28 AM by RD  
Analysis Method : C:\HPCHEM\1\METHODS\WATER1.M  
Last changed : 7/19/04 11:08:01 AM by RD  
(modified after loading)

TPH method for HP5890



Injection Date : 7/17/04 12:57:40 AM Seq. Line : 12  
Sample Name : 34668 Vial : 12  
Acq. Operator : SD Inj : 1  
Inj Volume : 1 µl  
Acq. Method : C:\HPCHEM\1\METHODS\WATER1.M  
Last changed : 5/11/04 11:33:28 AM by RD  
Analysis Method : C:\HPCHEM\1\METHODS\WATER1.M  
Last changed : 7/19/04 11:08:01 AM by RD  
(modified after loading)

TPH method for HP5890



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Injection Date	: 7/17/04 12:20:35 AM	Seq. Line	: 11
Sample Name	: 34667	Vial	: 11
Acq. Operator	: SD	Inj	: 1
		Inj Volume	: 1 µl

Acq. Method : C:\HPCHEM\1\METHODS\WATER1.M  
Last changed : 5/11/04 11:33:28 AM by RD  
Analysis Method : C:\HPCHEM\1\METHODS\WATER1.M  
Last changed : 7/19/04 11:08:01 AM by RD  
(modified after loading)

TPH method for HP5890

