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Earth and Environmental Technologies

Subsurface Soil Characterization Report
Former Chevron Bulk Terminal No. 100-1840
SE 6th and SE Union Avenues
Camas, Washington

Prepared for
Chevron U.S.A. Products Company

December 14, 1994
J-5407

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SUBSURFACE SOIL CHARACTERIZATION REPORT
FORMER CHEVRON BULK TERMINAL No. 100-1840
SE 6th AVENUE AND SE UNION AVENUE
CAMAS, WASHINGTON

EXECUTIVE SUMMARY

On September 8 and 9, 1994, Hart Crowser accomplished site characterization activities at former Chevron Bulk Terminal No. 100-1840 located in Camas, Washington. Our activities included completing eighteen test pits with the collection of soil samples for chemical analysis. The following is a summary of our findings.

- Eighteen test pit explorations were completed to a maximum depth of 15 feet below the ground surface (bgs). Soils encountered generally consisted of about 3 to 5 feet of light brown, gravelly SILT overlying light brown, very gravelly SILT with cobbles and boulders up to 4 feet in diameter.

- Thirty-four soil samples collected from the test pits were analyzed for hydrocarbon identification by Washington Ecology Method TPH-HCID, with detected fuel types quantified per Washington methodology. Chemical results detected primarily diesel and oil. Soils with relatively higher concentrations of diesel or oil (i.e., >2,000 mg/kg) were present beneath a sand trap near the former garage, near a sump on the east side of the site, and beneath the former horizontal aboveground storage tanks (ASTs) in the vicinity of monitoring well MW-1.

- Soil samples in which gasoline was detected were also analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX). Benzene and toluene were not detected in any of the eleven samples analyzed. Ethylbenzene and xylene concentrations were below the MTCA Method A Soil Cleanup Levels (20 mg/kg for each), except for sample TP-13/S-1 from test pit TP-13 which had 24 mg/kg total xylenes.

- Five samples were analyzed for polynuclear aromatic hydrocarbons (PAHs) and five samples for total lead. PAH and total lead concentrations were below applicable MTCA Method A cleanup levels except for one sample analyzed for lead. This sample was further analyzed for leachable lead by the Toxicity Characteristic Leaching Procedure (TCLP), with chemical results not detecting any leachable lead.

- For disposal purposes, an oil/water sample was collected from a sump and analyzed for volatile organic compounds (VOCs) and TCLP Priority 8 metals. Chemical results did not detect VOCs, and only low concentrations (<2 mg/L) of barium and lead were detected. Based on these results, water from the sump was approved for pickup and disposal by Spencer Environmental Services.

1.0 INTRODUCTION

1.1 Purpose

This report summarizes the results of our site characterization activities accomplished on September 8 and 9, 1994, at former Chevron Bulk Terminal No. 100-1840 in Camas, Washington (Figure 1). Our purpose was to assess the extent and magnitude of soil with petroleum hydrocarbons beneath the site. Our work was conducted under Chevron release number 1906170.

1.2 Scope

Our scope of work was completed in general accordance with our proposal dated September 6, 1994, and consisted of:

- Completing test pits to delineate the extent of soil with petroleum hydrocarbons beneath the site;
- Collecting soil samples from the test pits for chemical analysis; and
- Preparing a report discussing our activities and the chemical results.

Upon discovery of a sump containing oil and water, we collected a sample of the sump contents for chemical analyses required for disposal.

1.3 Limitations

Hart Crowser performed this work in accordance with generally accepted professional practices related to the nature of the work accomplished, in the same or similar localities, at the time the services were performed. This report is for the specific application to the referenced project and for the exclusive use of Chevron U.S.A. Products Company. No other warranty, express or implied, is made.

2.0 BACKGROUND

2.1 Site Description

The project site is a former bulk terminal located on the southeast corner of the intersection of SE 6th Avenue and SE Union Avenue in Camas, Washington (Figure 1). The site was decommissioned in 1983, with the subsequent removal of the aboveground storage tanks (ASTs), pumps, and associated piping in 1984. An underground fuel oil tank was removed in 1990. All buildings were removed except for the office building. Figure 2 shows current and historical features of the site.

2.2 Previous Site Assessment Findings

Site assessment work by previous consultants have included completing nine soil borings with the installation of monitoring wells into seven of those borings (i.e., MW-1 through MW-7). Wells MW-1 through MW-4 were completed to depths of about 22 feet bgs and wells MW-5 through MW-7 to about 44 feet bgs. Groundwater has only been observed in the deeper wells.

Chemical analyses on soil from the borings indicated the presence of petroleum hydrocarbons in soil beneath the former loading rack, pumps, and horizontal ASTs to depths of up to 20 feet bgs. Chemical results on groundwater from MW-5 through MW-7 have only detected dissolved-phase petroleum hydrocarbons in groundwater from MW-5.

2.3 Soil and Groundwater Conditions

Based on geologic logs for the monitoring wells and borings completed at the site, subsurface soils consist of 3 to 5 feet of slightly gravelly SILT overlying a very dense, gravelly SILT and sandy GRAVEL with cobbles and boulders to a depth of at least 45 feet bgs. A very dense, silty GRAVEL is present from about 18 to 22 feet bgs.

Groundwater levels are approximately 34 feet bgs. Southerly to northwesterly groundwater gradient directions have been observed. The groundwater gradient may be complicated because of the relative proximity of the Washougal and Columbia Rivers and City of Camas production wells.

3.0 FIELD METHODS AND FINDINGS

On September 8 and 9, Hart Crowser accomplished site characterization activities at the site. Our activities included completing eighteen test pits (TP-1 through TP-18) at the site and collecting an oil/water sample from a sump discovered on the site.

3.1 Methods

This section describes the field methods used for this project. Please refer to Appendix A for a detailed discussion of test pit exploration methods, sample collection, and field screening as well as detailed logs of the test pits.

Test Pits Explorations. We completed test pits at the locations shown on Figure 2. The test pits were dug by Tokimatsu, Inc., under subcontract to Hart Crowser. Test pits were accomplished at the locations where former features suggested soil with petroleum hydrocarbons may be present.

Soil Sampling. The test pits were excavated using a trackhoe to a maximum depth of 15 feet bgs, with most completed to depths between 6 and 8 feet. One soil sample was obtained from about 2 feet bgs and the other from the bottom of the test pit.

Field Screening of Soil Samples. We used a photoionization detector (PID) to screen for volatile organic compounds (VOCs). The PID is not compound or concentration specific, but only provides a qualitative indication of the presence of VOCs. Usually, we consider a PID reading of 50 or greater as an indication of the presence of petroleum hydrocarbons.

Sump Sampling. After discovery of a sump containing oil and water in the eastern portion of the site, we collected a sample of the sump contents by submerging sample containers into the oil and water.

3.2 Soil Conditions

Soils encountered generally consisted of about 3 to 5 feet of light brown, gravelly SILT overlying light brown, very gravelly SILT with cobbles and boulders up to 4 feet in diameter.

3.3 Field Evidence of Soil with Petroleum Hydrocarbons

Field screening results and other observations are presented on the test pit logs in Appendix A. Soil samples with PID headspace measurements of 50 or greater were present in test pits TP-5, TP-13, and TP-18. Based on other field observations (olfactory and visual evidence), we also noted soil with petroleum hydrocarbons in test pits TP-1, TP-5, TP-9, TP-13, TP-15, and TP-18.

3.4 Sump Sampling

During our field activities, we discovered a sump containing oil and water on the eastern portion of the site near test pit TP-9. On September 9, 1994, we collected a sample of the oil/water present in the sump for chemical analysis as required for disposal by Spencer Environmental Services.

4.0 CHEMICAL ANALYSES AND RESULTS

All sample analyses were performed by Analytical Technologies, Inc. (ATI), in Durham, Oregon. A copy of the laboratory report is included in Appendix B.

4.1 Analyses Requested

In general, two samples from each test pit were analyzed (total of 34 samples) for hydrocarbon identification (HCID) by Washington Ecology Method TPH-HCID. If gasoline was detected in a sample, the sample was analyzed for gasoline by Washington Method WTPH-G and BTEX by EPA Method 8020. If either diesel or oil were detected in a sample, the sample was analyzed for diesel and oil by Washington Method WTPH-D Extended.

After receipt of the above chemical results, we selected five soil samples with relatively high concentrations (>3000 mg/kg) of diesel and/or oil for analysis for PAHs by EPA Method 8310. Samples selected were from test pits TP-5, TP-9, and TP-18. We also selected five samples in which gasoline was detected for analysis for total lead by EPA Method 6010. These samples were from TP-5, TP-13, and TP-18. One sample from TP-18 was also analyzed for leachable lead by TCLP per EPA Method 1311/7470 after a relatively high total lead concentration had been detected.

For disposal purposes, the oil/water sample collected from the sump was analyzed for volatile organic compounds (VOCs) and leachable Priority 8 metals (i.e., arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) by TCLP per EPA Method 1311/6010/7470.

4.2 Chemical Results

Fuel Types. Table 1 summarizes the chemical results for petroleum hydrocarbons analyses (except PAHs) as well as sample depths, locations, and PID readings. Chemical results are also shown on Figure 3. When detected, gasoline concentrations ranged from 25 to 1,200 mg/kg, diesel concentrations from 24 to 13,000 mg/kg, and oil concentrations from 54 to 14,000 mg/kg. MTCA Method A Soil Cleanup Levels for gasoline, diesel, and oil are 100, 200, and 200 mg/kg, respectively.

BTEX. BTEX analyses results are also presented in Table 1. Of the eleven samples in which gasoline was detected, benzene and toluene were not detected above the detection limit (limits ranged from 0.027 to 0.031 mg/kg due to the correction for moisture content). Ethylbenzene and total xylene concentrations were below MTCA Method A Soil Cleanup Levels (i.e., 20 mg/kg for each) except for sample TP-13/S-1 which had 24 mg/kg total xylenes.

PAHs. Table 2 summarizes the PAH analyses results. Of the five samples analyzed, non-carcinogenic PAHs were detected in five samples and carcinogenic PAHs were detected in two samples. However, carcinogenic PAH concentrations were below MTCA Method A cleanup levels (i.e., total less than 1.0 mg/kg). There are no Method A cleanup levels for non-carcinogenic PAHs.

Lead. Total and leachable lead concentrations are presented in Table 3. Total lead concentrations were below the MTCA Method A cleanup level (350 mg/kg) with the exception of 1,670 mg/kg total lead detected in sample TP-18/S-1. This sample was further analyzed for leachable lead by TCLP, with chemical results not detecting any leachable lead (detection limit of 0.050 mg/kg).

Sump Sample Results. VOCs were not detected in the oil/water sample collected from the sump. In addition, the only leachable metals detected were barium and lead at concentrations of 1.2 and 0.26 mg/L, respectively, below the hazardous waste designation concentrations of 100.0 and 5.0 mg/L, respectively. Based on these results, water from the sump was approved for disposal by Spencer Environmental Services, and was pumped out on November 8, 1994.

5.0 CONCLUSIONS

In order to assess the extent of petroleum hydrocarbons in soil beneath the site, Hart Crowser completed site characterization activities which included chemical testing on a total of 34 soil samples obtained from eighteen test pits.

Although gasoline was present in some soil samples, chemical results on soil detected primarily diesel and oil. Soils with relatively higher concentrations of diesel or oil (i.e., >2,000 mg/kg) were present beneath a sand trap near the former garage, near a sump on the east side of the site, and beneath the former horizontal aboveground storage tanks (ASTs) in the vicinity of monitoring well MW-1.

Analytical results did not detect PAHs or total lead above applicable MTCA Method A Soil Cleanup Levels in selected soil samples except for total lead in one sample. However, TCLP analysis on this sample did not detect leachable lead.

If you have any questions regarding this project, please feel free to call.

HART CROWSER, INC.

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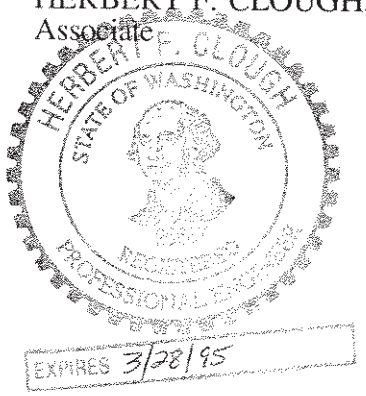
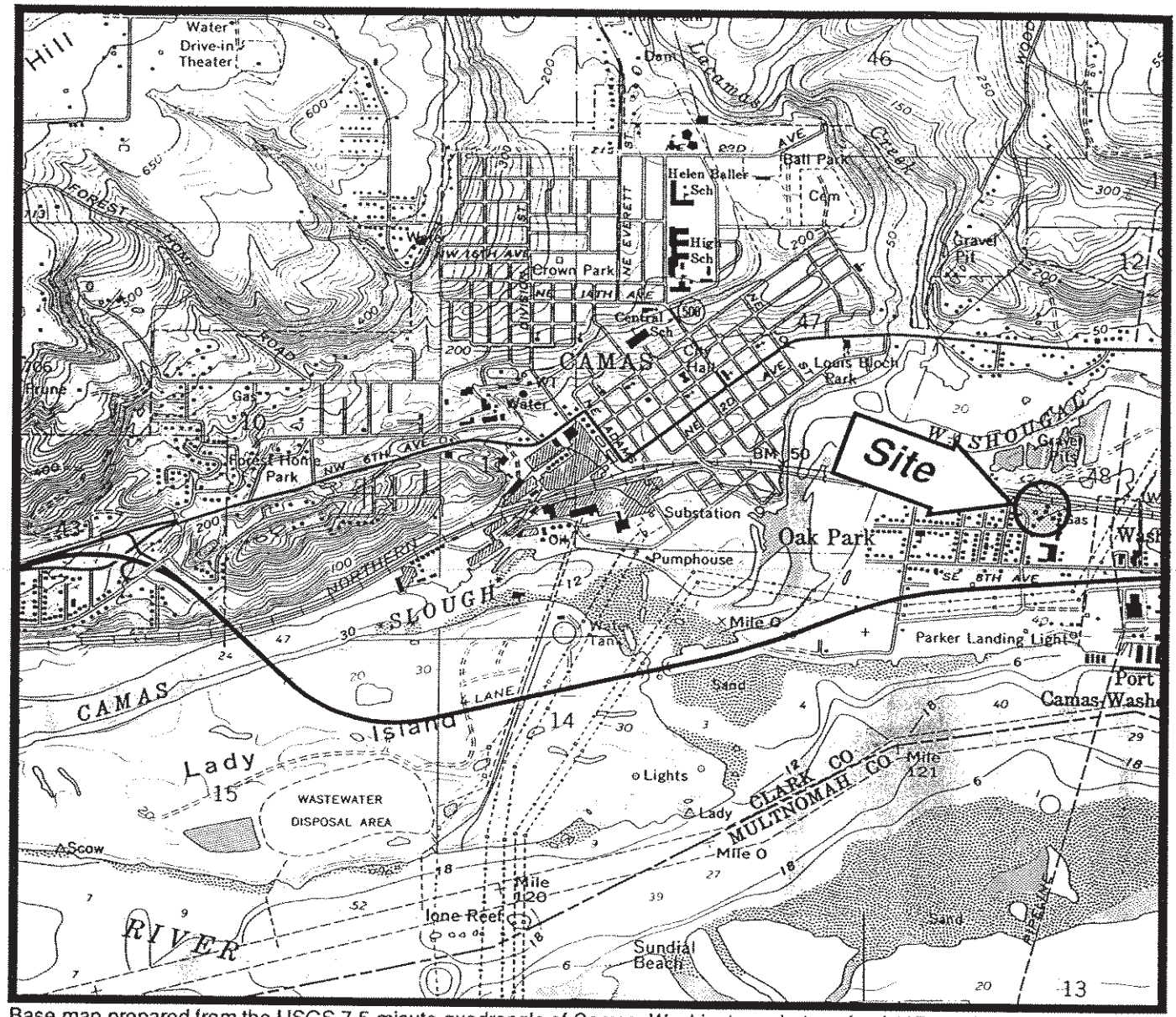


Site Location Map
Former Chevron Bulk Terminal No. 100-1840
Camas, Washington



Base map prepared from the USGS 7.5-minute quadrangle of Camas, Washington, photorevised 1970 and 1975.

SCALE 1 : 24 000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

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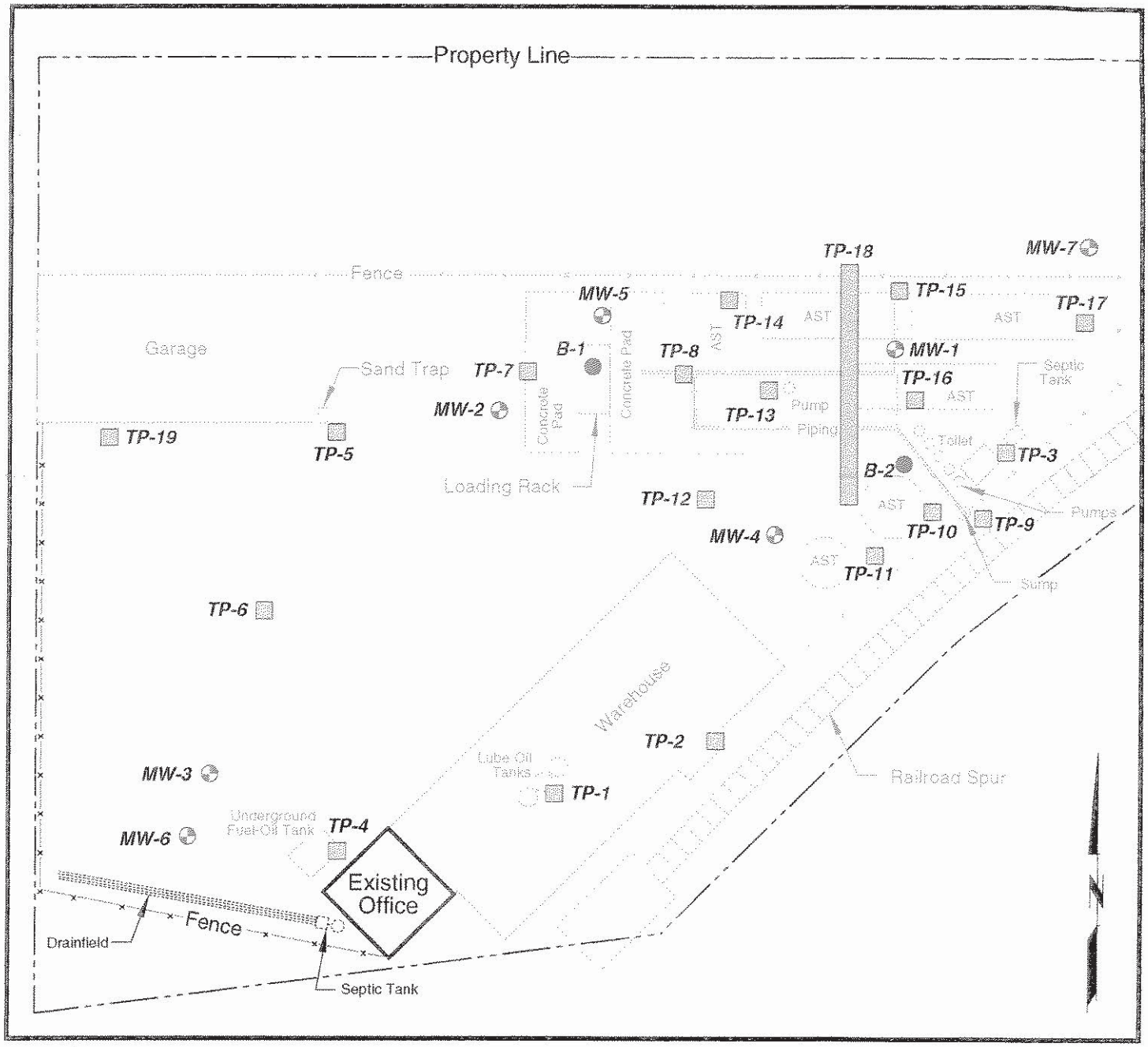
Figure 1

Site Exploration Plan
Former Chevron Bulk Terminal No. 100-1840
Camas, Washington



Note: Base map prepared from Standard Oil Company of California Ground Plan, dated 3/26/21.

Legend:

- TP-1 ▩ Test Pit Location and Designation
- B-1 ◔ Monitoring Well Location and Designation (Previous)
- MW-3 ● Boring Location and Designation (Previous)
- ⋯⋯ Former Feature

0 30 60

Approximate Scale in Feet

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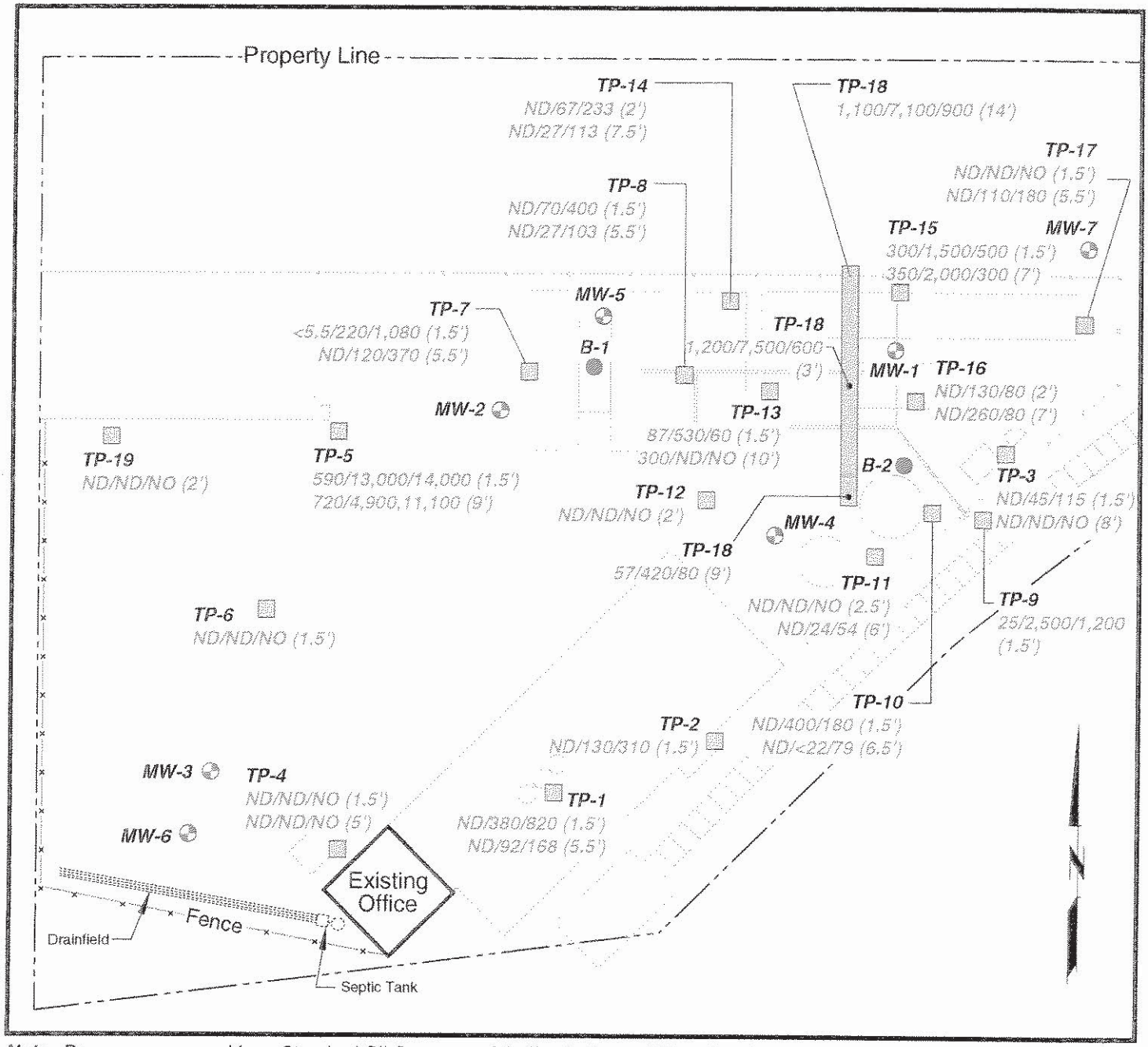
Figure 2

Soil Sample Results
Former Chevron Bulk Terminal No. 100-1840
Camas, Washington



Note: Base map prepared from Standard Oil Company of California Ground Plan, dated 3/26/21.

Legend:

TP-16	Test Pit Location and Designation
ND/130/80 (2')	Gasoline/Diesel/Oil Concentration in Soil in mg/kg and (Sample Depth in Feet)
ND/NO	Not Detected/Not Observed by WTPH-HCID
MW-3	Monitoring Well Location and Designation (Previous)
B-1	Boring Location and Designation (Previous)
	Former Feature

0 30 60

Approximate Scale in Feet

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Figure 3

Table 1 - Soil Chemical Analyses Results: Petroleum Hydrocarbons
Former Chevron Bulk Terminal No. 100-1840
Camas, Washington

Test Pit Sample	Location or General Information	Date	Depth in Feet	PID Reading	Washington Ecology Method						EPA Method 8020			
					WTPH-HCID			WTPH-G	WTPH-D Ext.					
					Gasoline	Diesel	Oil	Gasoline	Diesel	Oil	Benzene	Toluene	Ethyl-benzene	Total Xylenes
								Concentration in mg/kg (ppm)						
TP-1/S-1	Lube Oil Tanks, Warehouse	8-Sep-94	1.5-2.0	<5	ND	Detected	Observed	--	380	820	--	--	--	--
TP-1/S-2	Lube Oil Tanks, Warehouse	8-Sep-94	5.5-6.0	<5	ND	Detected	Observed	--	92	168	--	--	--	--
TP-2/S-1	Loading Door, Warehouse	8-Sep-94	1.5-2.0	<5	ND	Detected	Observed	--	130	310	--	--	--	--
TP-3/S-1	East Portion of AST Area	8-Sep-94	1.5-2.0	<5	ND	Detected	NO	--	45	115	--	--	--	--
TP-3/S-2	East Portion of AST Area	8-Sep-94	8.0-8.5	<5	ND	ND	NO	--	--	--	--	--	--	--
TP-4/S-1	Former Fuel Oil UST	8-Sep-94	1.5-2.0	<5	ND	ND	NO	--	--	--	--	--	--	--
TP-4/S-2	Former Fuel Oil UST	8-Sep-94	5.0-5.5	<5	ND	ND	NO	--	--	--	--	--	--	--
TP-5/S-1	Sand Trap near Garage	8-Sep-94	1.5-2.0	50	Detected	Detected	Observed	590	13,000	14,000	<0.031	<0.031	0.30	1.3
TP-5/S-2	Sand Trap near Garage	8-Sep-94	9.0-9.5	35	Detected	Detected	Observed	720	4,900	11,100	<0.030	<0.030	0.37	1.3
TP-6/S-1	West-Central Area	8-Sep-94	1.5-2.0	<5	ND	ND	NO	--	--	--	--	--	--	--
TP-7/S-1	West Portion of Loading Rack	8-Sep-94	1.5-2.0	<5	Detected	Detected	Observed	<5.5	220	1,080	<0.027	<0.027	<0.027	<0.027
TP-7/S-2	West Portion of Loading Rack	8-Sep-94	5.5-6.0	<5	ND	Detected	Observed	--	120	370	--	--	--	--
TP-8/S-1	East Portion of Loading Rack	8-Sep-94	1.5-2.0	<5	ND	Detected	Observed	--	70	400	--	--	--	--
TP-8/S-2	East Portion of Loading Rack	8-Sep-94	5.5-6.0	<5	ND	Detected	Observed	--	27	103	--	--	--	--
TP-9/S-1	Sump, NE Area	9-Sep-94	1.5-2.0	10	Detected	Detected	Observed	25	2,500	1,200	<0.027	<0.027	<0.027	<0.027
TP-10/S-1	AST/Sump, NE Area	9-Sep-94	1.5-2.0	<5	ND	Detected	NO	--	400	180	--	--	--	--
TP-10/S-2	AST/Sump, NE Area	9-Sep-94	6.5-7.0	<5	ND	Detected	NO	--	<22	79	--	--	--	--
TP-11/S-1	SE Portion of AST Area	9-Sep-94	2.5-3.0	<5	ND	ND	NO	--	--	--	--	--	--	--
TP-11/S-2	SE Portion of AST Area	9-Sep-94	6.0-6.5	<5	ND	Detected	Observed	--	24	54	--	--	--	--
TP-12/S-1	SW Portion of AST Area	9-Sep-94	2.0-2.5	<5	ND	ND	NO	--	--	--	--	--	--	--
MTCA Method A Soil Cleanup Level*:								100	200	200	0.5	40	20	20

Notes:

1. -- = Not applicable or not analyzed.
2. Results corrected for moisture content.
3. *MTCA Method A Soil Cleanup Levels from WAC 173-340 Table 2.

Table 1 - Soil Chemical Analyses Results: Petroleum Hydrocarbons
Former Chevron Bulk Terminal No. 100-1840
Camas, Washington

Test Pit Sample	Location or General Information	Date	Depth in Feet	PID Reading	Washington Ecology Method						EPA Method 8020			
					WTPH-HCID			WTPH-G	WTPH-D Ext.					
					Gasoline	Diesel	Oil	Gasoline	Diesel	Oil	Benzene	Toluene	Ethyl-benzene	Total Xylenes
								Concentration in mg/kg (ppm)						
TP-13/S-1	West Portion of AST Area	9-Sep-94	1.5-2.0	270	Detected	Detected	NO	87	530	60	<0.029	<0.029	5.7	24
TP-13/S-2	West Portion of AST Area	9-Sep-94	10.0-10.5	<5	Detected	ND	NO	300	--	--	<0.030	<0.030	0.095	0.46
TP-14/S-1	NW Portion of AST Area	9-Sep-94	2.0-2.5	<5	ND	Detected	NO	--	67	233	--	--	--	--
TP-14/S-2	NW Portion of AST Area	9-Sep-94	7.5-8.0	<5	ND	Detected	Observed	--	27	113	--	--	--	--
TP-15/S-1	North Portion of AST Area	9-Sep-94	1.5-2.0	<5	Detected	Detected	Observed	300	1,500	500	<0.027	<0.027	<0.027	0.37
TP-15/S-2	North Portion of AST Area	9-Sep-94	7.0-7.5	20	Detected	Detected	Observed	350	2,000	300	<0.028	<0.028	<0.028	1.5
TP-16/S-1	Central Portion of AST Area	9-Sep-94	2.0-2.5	<5	ND	Detected	NO	--	130	80	--	--	--	--
TP-16/S-2	Central Portion of AST Area	9-Sep-94	7.0-7.5	<5	ND	Detected	NO	--	260	80	--	--	--	--
TP-17/S-1	NE Portion of AST Area	9-Sep-94	1.5-2.0	<5	ND	ND	NO	--	--	--	--	--	--	--
TP-17/S-2	NE Portion of AST Area	9-Sep-94	5.5-6.0	<5	ND	Detected	Observed	--	110	180	--	--	--	--
TP-18/S-1	Central Portion of AST Area	9-Sep-94	3.0-3.5	125	Detected	Detected	Observed	1,200	7,500	600	<0.030	<0.030	0.75	2.3
TP-18/S-2	South Portion of AST Area	9-Sep-94	9.0-9.5	12	Detected	Detected	NO	57	420	80	<0.029	<0.029	<0.029	0.075
TP-18/S-3	North Portion of AST Area	9-Sep-94	14.0-14.5	63	Detected	Detected	Observed	1,100	7,100	900	<0.030	<0.030	0.80	1.9
TP-19/S-1	SW Side, Garage	9-Sep-94	2.0-2.5	<5	ND	ND	NO	--	--	--	--	--	--	--
MTCA Method A Soil Cleanup Level*:								100	200	200	0.5	40	20	20

Notes:

1. -- = Not applicable or not analyzed.
2. Results corrected for moisture content.
3. *MTCA Method A Soil Cleanup Levels from WAC 173-340 Table 2.

Table 2 - Soil Chemical Analyses Results: PAHs
Former Chevron Bulk Terminal No. 61001840
Camas, Washington

Polynuclear Aromatic Hydrocarbons (PAHs) by EPA Method 8310

Chemical Compound	Sample: / Date: / Depth in Feet:	TP-5/S-1 8-Sep-94 1.5-2.0	TP-5/S-2 8-Sep-94 9.0-9.5	TP-9/S-1 9-Sep-94 1.5-2.0	TP-18/S-1 9-Sep-94 3.0-3.5	TP-18/S-3 9-Sep-94 14.0-14.5
Non-Carcinogenic		Concentration in mg/kg (ppm)				
Naphthalene		<0.10	<0.10	<0.090	3.6	1.0
Acenaphthylene		<0.21	<0.21	<0.18	<0.99	<1.0
Acenophthene		<0.21	<0.21	<0.18	<0.99	<1.0
Fluorene		1.2	0.12	<0.018	1.8	3.1
Phenanthrene		2.1	0.23	0.042	4.8	4.5
Anthracene		0.053	0.029	<0.0090	<0.048	0.11
Fluoranthene		1.6	1.0	<0.018	2.6	3.4
Pyrene		0.12	0.22	<0.018	<0.099	<0.10
Benzo(g,h,i)perylene		<0.021	0.33	<0.018	<0.099	<0.10
Carcinogenic						
Benzo(a)anthracene		<0.021	0.050	<0.018	<0.099	<0.10
Chrysene		0.055	0.40	<0.018	<0.099	<0.10
Benzo(b)fluoranthene		<0.021	0.059	<0.018	<0.099	<0.10
Benzo(k)fluoranthene		<0.021	0.042	<0.018	<0.099	<0.10
Benzo(a)pyrene		<0.021	0.024	<0.018	<0.099	<0.10
Dibenzo(a,h)anthracene		<0.042	0.12	<0.037	<0.20	<0.20
Indeno(1,2,3-cd)pyrene		<0.021	0.13	<0.018	<0.099	<0.10
MTCA Method A Cleanup Level*:		Total Carcinogenic PAHs Only: 1.0 mg/kg				

Notes:

1. Sample analyses reported on a dry weight basis.
2. Shading denotes detected quantities.
3. *MTCA Method A Soil Cleanup Levels from WAC 173-340 Table 2. There are no Method A Cleanup Levels for non-carcinogenic PAHs.

Table 3 - Soil Chemical Analyses Results: Lead
Former Chevron Bulk Terminal No. 100-1840
Camas, Washington

Test Pit Sample	Date	Depth in Feet	EPA Method 6010 Total Lead	TCLP per EPA Method 1311 Leachable Lead
			Concentration in mg/kg (ppm)	Concentration in mg/L (ppm)
TP-5/S-1	8-Sep-94	1.5-2.0	74	--
TP-5/S-2	8-Sep-94	9.0-9.5	54	--
TP-13/S-1	9-Sep-94	1.5-2.0	26	--
TP-18/S-1	9-Sep-94	3.0-3.5	1,670	<0.050
TP-18/S-3	9-Sep-94	14.0-14.5	37	--
		Regulatory Level*:	250	5.0

Notes:

1. Total lead analyses reported on a dry weight basis.
2. -- = Not analyzed.
3. *Regulatory Levels for Total Lead from WAC 173-340 Table 2 "MTCA Method A Cleanup Levels - Soil" and for Leachable Lead from CFR 261.24 Table 1 "Maximum Concentration of Contaminants for the Toxicity Characteristic."

APPENDIX A
FIELD AND QA/QC PROCEDURES AND TEST PIT LOGS

APPENDIX A
FIELD AND QA/QC PROCEDURES
AND
TEST PIT LOGS

This appendix presents the procedures Hart Crowser personnel used to complete the field and analytical work for this project. The procedures discussed below include:

- Test pits;
- Photoionization detector (PID) headspace measurements;
- Sump sampling; and
- Field quality assurance/quality control (QA/QC).

Test Pits

Test pits were completed for the purposes of assessing geology and obtaining soil samples.

Excavating. On September 8 and 9, 1994, eighteen test pits (TP-1 through TP-18) were completed at the site using a trackhoe. Test pits were excavated by Tokimatsu, Inc., under subcontract to Hart Crowser, Inc. A Hart Crowser representative was present to observe and document the excavation activities. Detailed field logs were prepared for each test pit and are presented in this appendix on Figures A-2 through A-10. Soil samples were described using the soil classification system presented on Figure A-1.

The test pits were generally excavated to depths between 6 and 8 feet below the ground surface (bgs). Soil samples were obtained during the excavating activities. After completing a test pit, the spoils were returned to the pit, compacting them with the trackhoe bucket as the excavation was filled. Density testing was not performed due to the presence of large gravel and cobbles (i.e., unsuitable material for testing).

Sampling. Two soil samples were usually collected from each test pit: one at about 2 feet bgs and the other at the bottom of the test pit. If the sample depth was less than 4 feet, we collected the sample with a stainless steel spoon directly from the test pit. Otherwise, we collected the sample from the trackhoe bucket after obtaining a scoop from the location designated by the Hart Crowser representative.

Soil samples were placed in clean containers supplied by the analytical laboratory. All containers were marked with a sample number, test pit number, date of collection, project number, and sampler's initials. Samples were placed in a cooler with ice until transported to our office or the laboratory for refrigeration.

Decontamination. To reduce the chance for cross contamination between samples, all sampling equipment was cleaned before the completion of each sampling event. Cleaning consisted of washing in a detergent solution, rinsing with tap water, and rinsing with distilled water.

Field Screening. All soil samples were screened in the field for the presence of volatile organic compounds using a photoionization detector.

PID Headspace Measurements

Headspace vapor measurements were made on soil samples using an H-Nu® photoionization detector (PID) to assess the possible presence of volatile organic compounds (VOCs). The PID is not compound or concentration specific, but only provides a qualitative indication of the presence of VOCs.

Soil samples were placed in glass jars (filled less than half full), covered with aluminum foil prior to capping, and were warmed to about ambient temperature. PID measurements were made within 30 minutes of collection by pushing the 10.2 eV probe through the foil cover. Measurements were recorded on the field log. The PID was calibrated using a manufacturer-supplied standard gas.

Sump Sampling

On September 9, 1994, we collected a sample of the oil/water present in the sump near test pit TP-9. The sample was obtained by submerging the clean containers (supplied by the analytical laboratory) into the sump and allowing the oil/water to flow into them. All containers were marked with a sample designation (i.e., "Sump"), date of collection, project number, and sampler's initials. The sample was placed in a cooler with ice until transported to our office or the laboratory for refrigeration.

Field Quality Assurance/Quality Control (QA/QC)

QA/QC was practiced throughout field activities. As discussed above, sampling equipment was decontaminated between each sampling event. All laboratory containers were marked with identifying information to prevent sample mix-up. Chain of custody was maintained and documented at all times.

Key to Exploration Logs

Sample Descriptions

Classification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, grain size, and plasticity estimates, and should not be construed to imply field nor laboratory testing unless presented herein. Visual-manual classification methods of ASTM D 2488 were used as an identification guide.

Soil descriptions consist of the following:
Density/consistency, moisture, color, minor constituents, MAJOR CONSTITUENT, additional remarks.

Density/Consistency

Soil density/consistency in borings is related primarily to the Standard Penetration Resistance. Soil density/consistency in test pits is estimated based on visual observation and is presented parenthetically on the test pit logs.

SAND and GRAVEL Density	Standard Penetration Resistance in Blows/Foot
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	>50

SILT or CLAY Density	Standard Penetration Resistance in Blows/Foot	Approximate Shear Strength in TSF
Very Soft	0 - 2	< 0.125
Soft	2 - 4	0.125 - 0.25
Medium Stiff	4 - 8	0.25 - 0.5
Stiff	8 - 15	0.5 - 1.0
Very Stiff	15 - 30	1.0 - 2.0
Hard	> 30	> 2.0

Moisture

Dry . . . . . .Little perceptible moisture

Damp . . . . . .Some perceptible moisture, probably below optimum.

Moist . . . . . Probably near optimum moisture content.

Wet . . . . . Much perceptible moisture, probably above optimum.

Minor Constituents

	Estimated Percentage
Not Identified in description	0 - 5
Slightly (clayey, silty, etc.)	5 - 12
Clayey, silty, sandy, gravelly	12 - 30
Very (clayey, silty, etc.)	30 - 50

Legends

Soil Sampling

BORING SYMBOLS

- Spilt Spoon
- Shelby Tube
- Cuttings
- Core Run
- * No Sample Recovery
- P Tube Pushed, Not Driven

TEST PIT SAMPLES

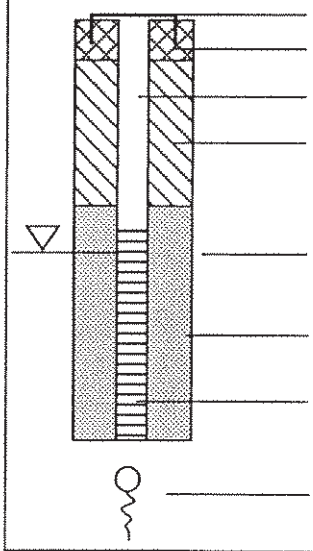
- Grab (Jar)
- Bag
- Shelby Tube

Test Symbols

GS	Grain Size Classification
K	Permeability
AL	Atterberg Limits

Water Content in Percent
Liquid Limit
Natural
Plastic Limit

Groundwater Observations and Monitoring Well Construction



HARTCROWSER
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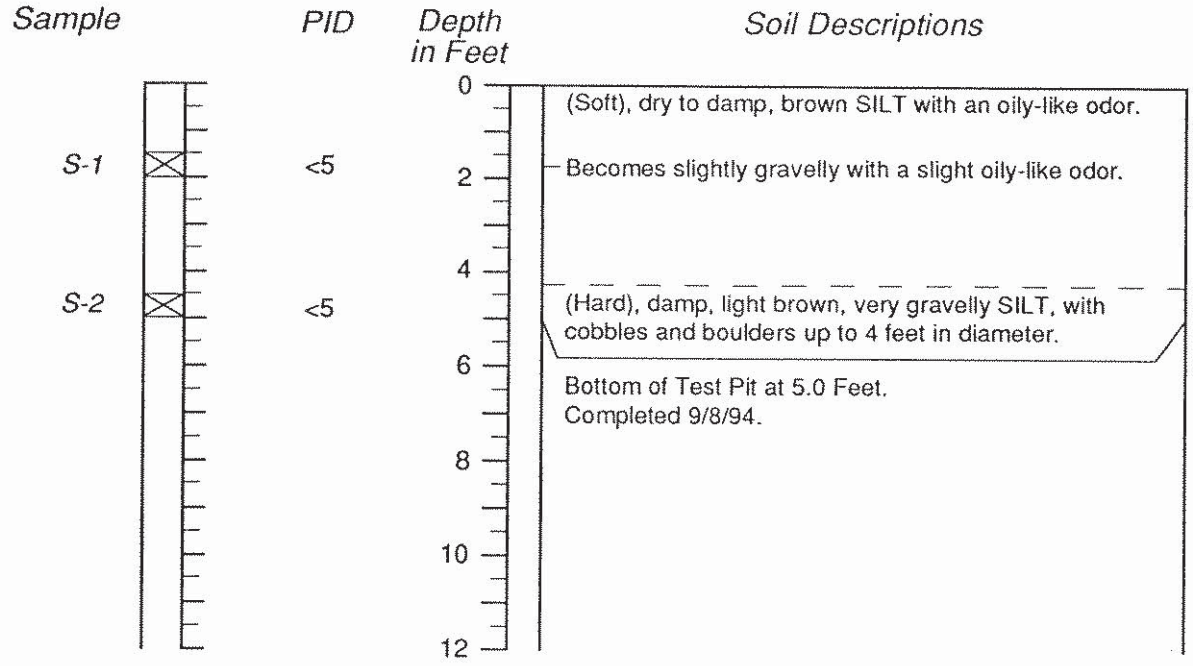
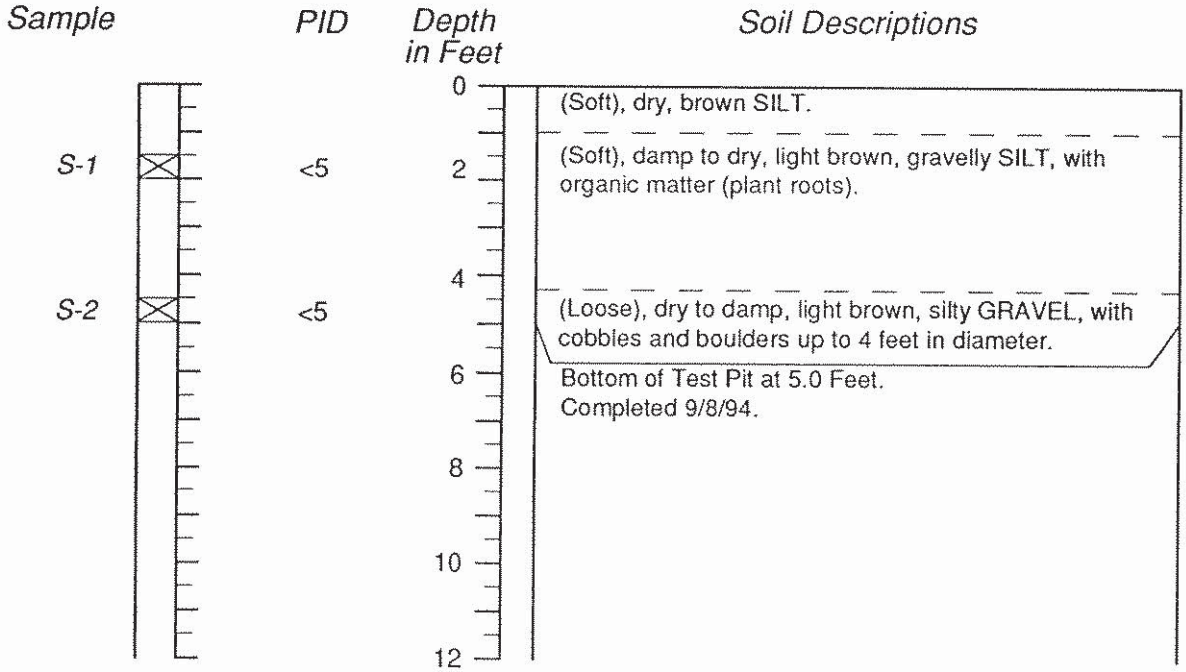
Figure A-1

Test Pit Log TP-1



Test Pit Log TP-2



1. Refer to Figure A-1 for explanation of descriptions and symbols
2. Soil descriptions and stratum lines are interpretive and actual may be gradual.
3. Groundwater level, if indicated, was at time of test pit exploration. Level may vary with time.

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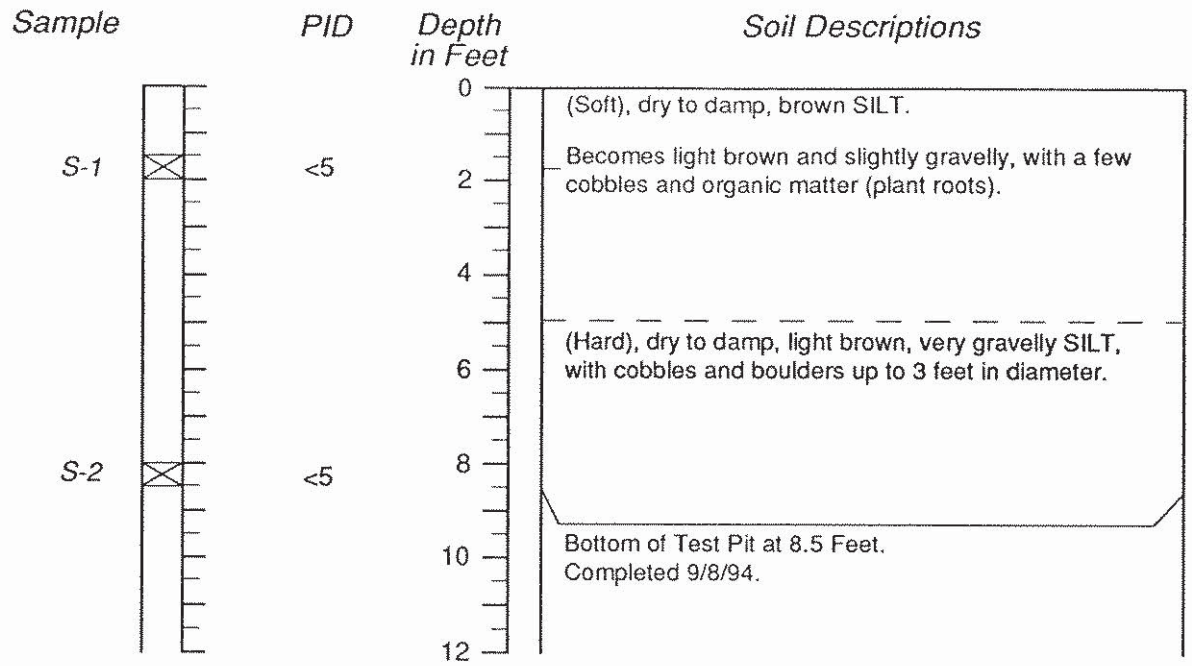
Figure A-2

Test Pit Log TP-3



Test Pit Log TP-4

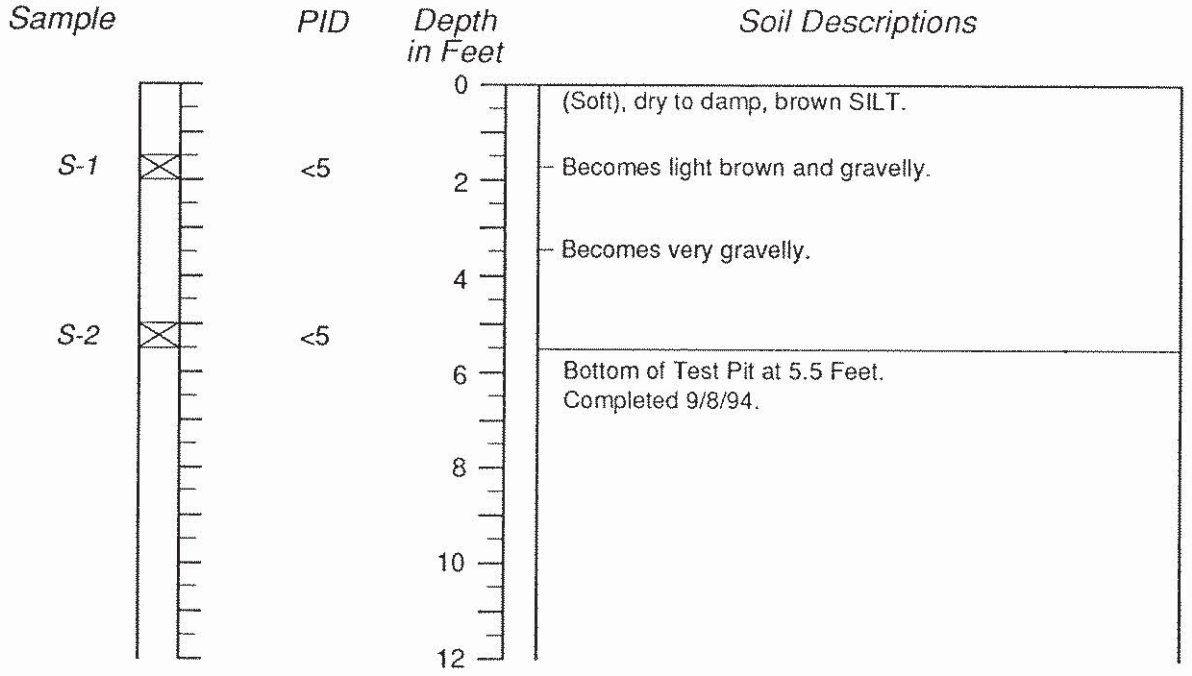


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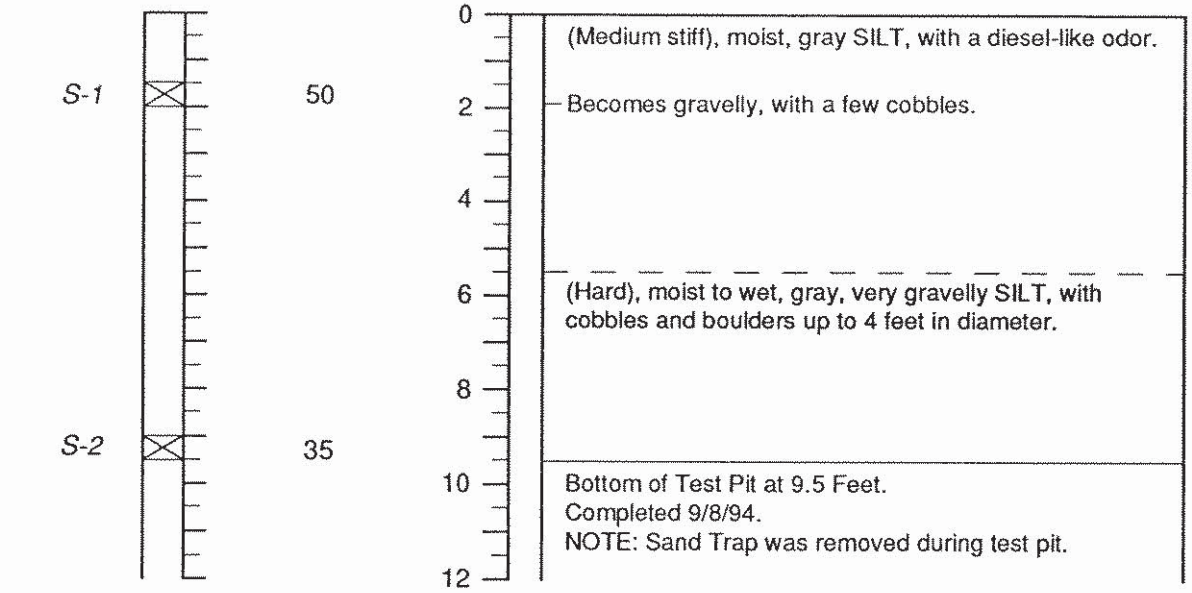
Figure A-3

Test Pit Log TP-5



Test Pit Log TP-6

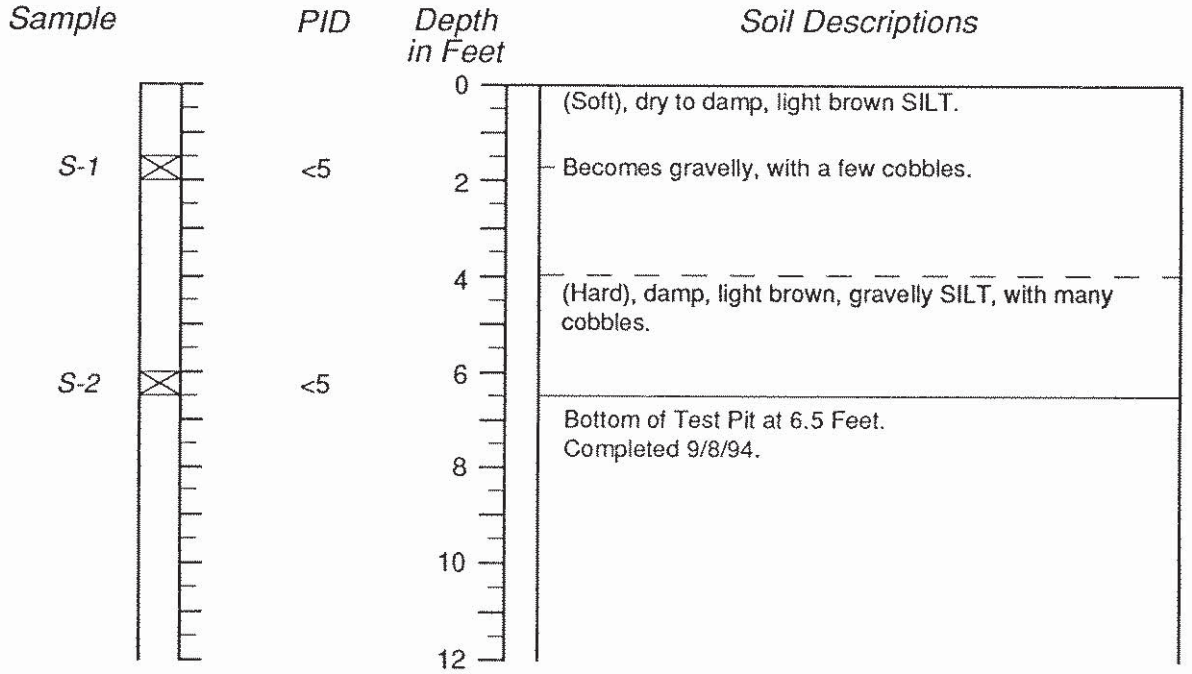


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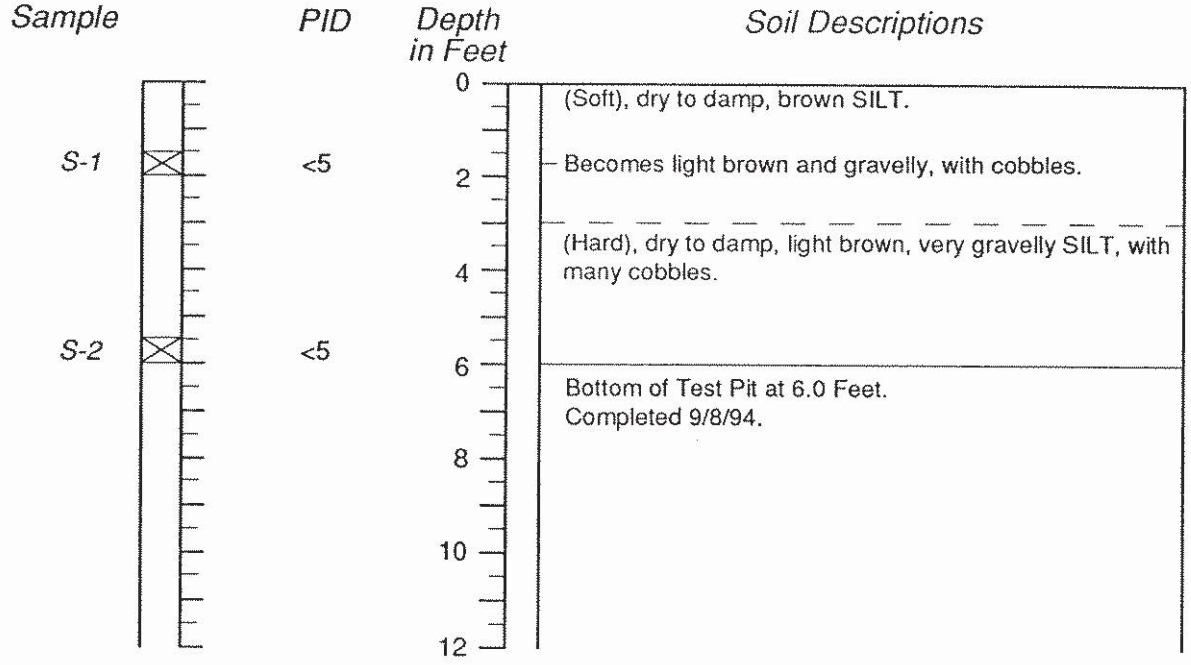
Figure A-4

Test Pit Log TP-7



Test Pit Log TP-8

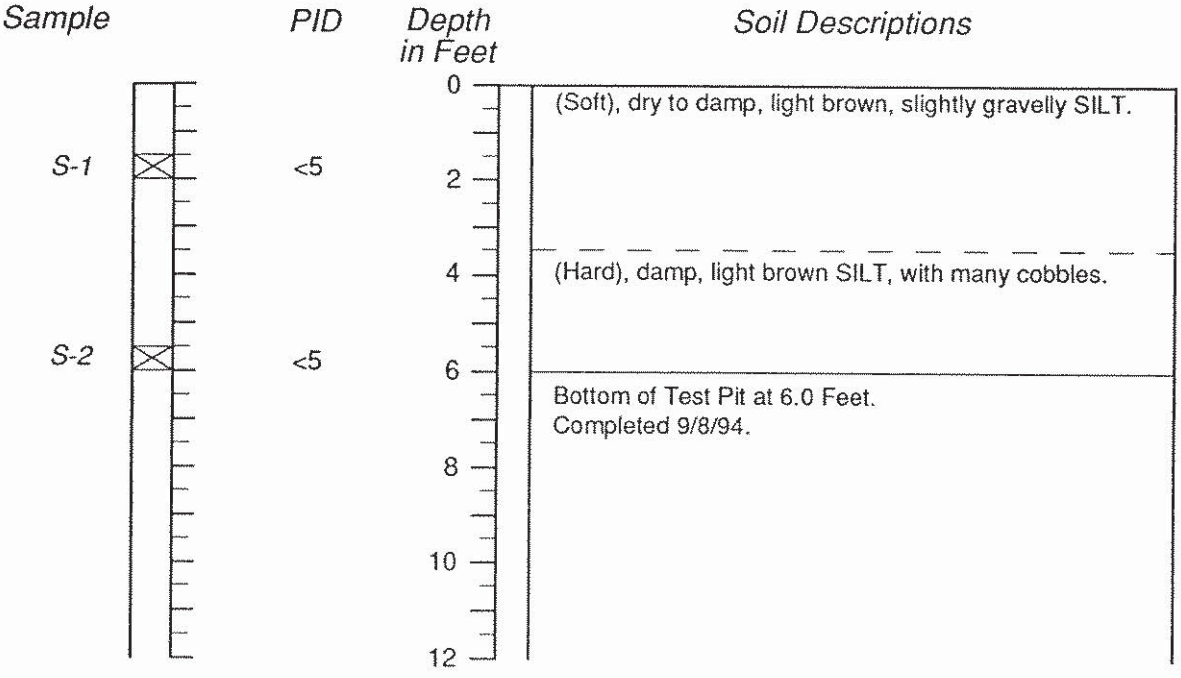


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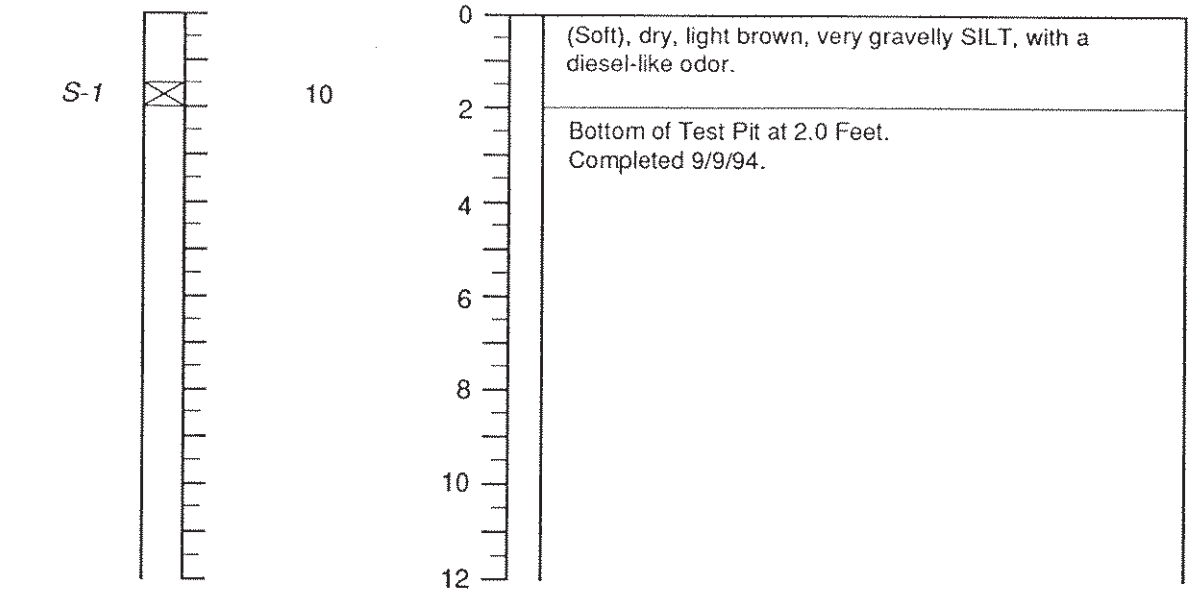
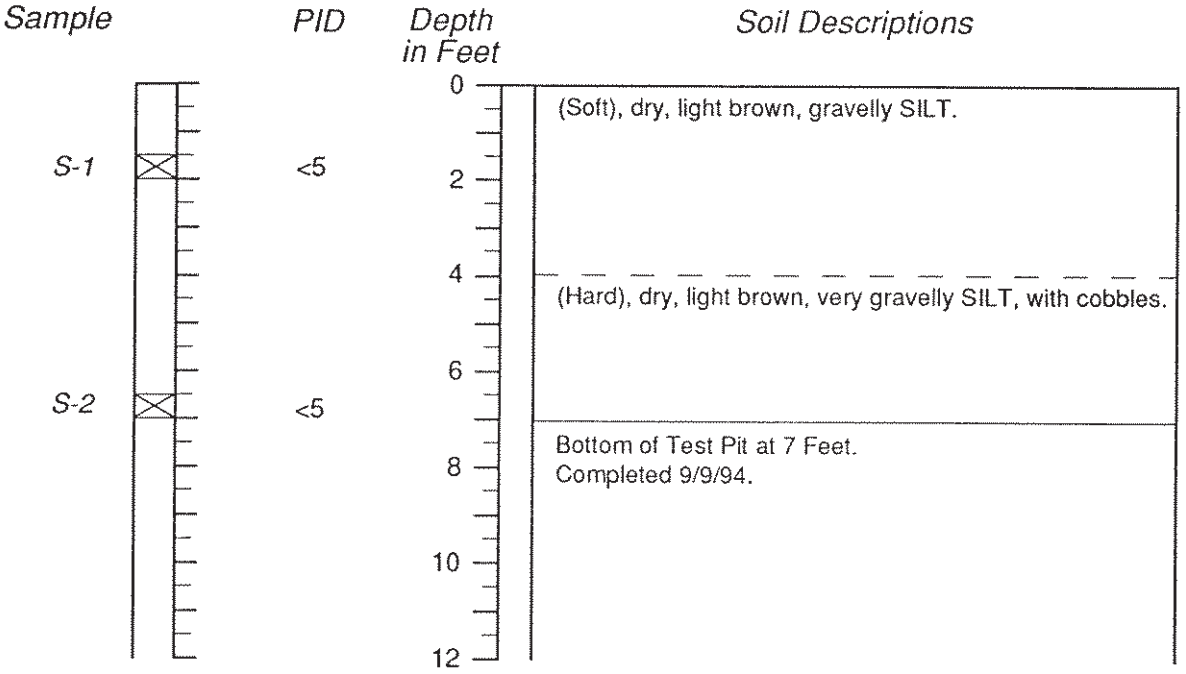
Figure A-5

Test Pit Log TP-9



Test Pit Log TP-10



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2. Soil descriptions and stratum lines are interpretive and actual may be gradual.
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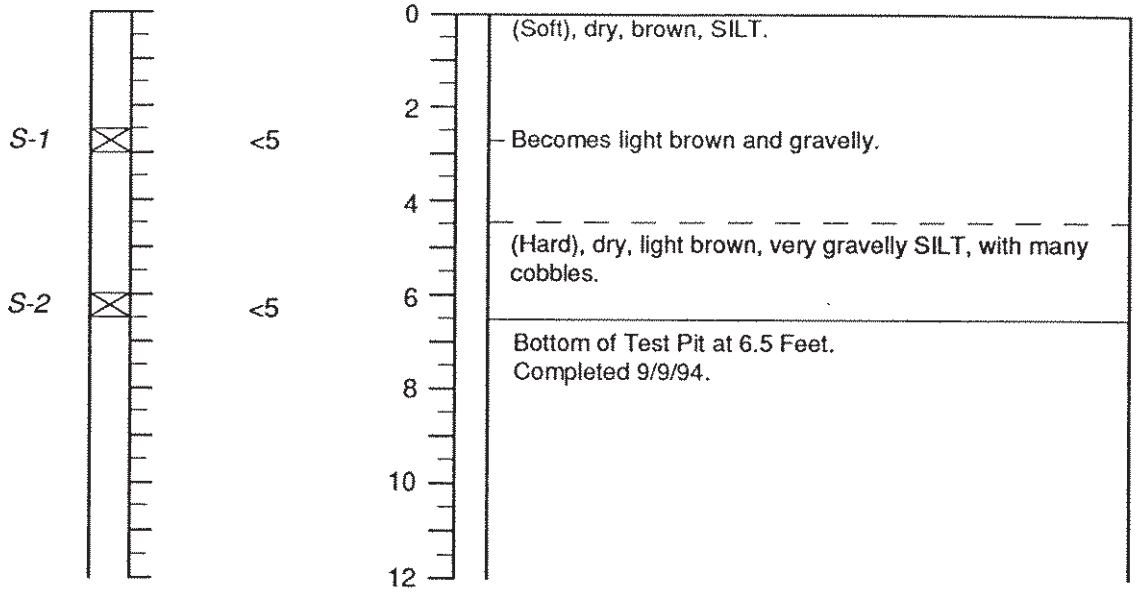
Figure A-6

Test Pit Log TP-11



Test Pit Log TP-12

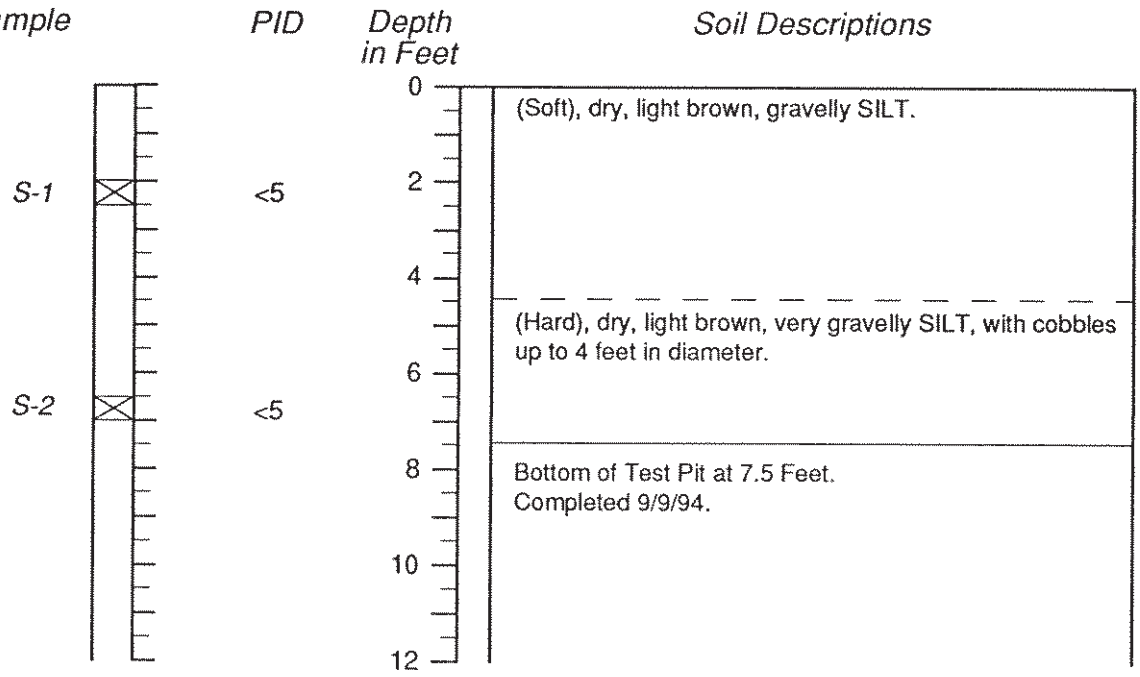


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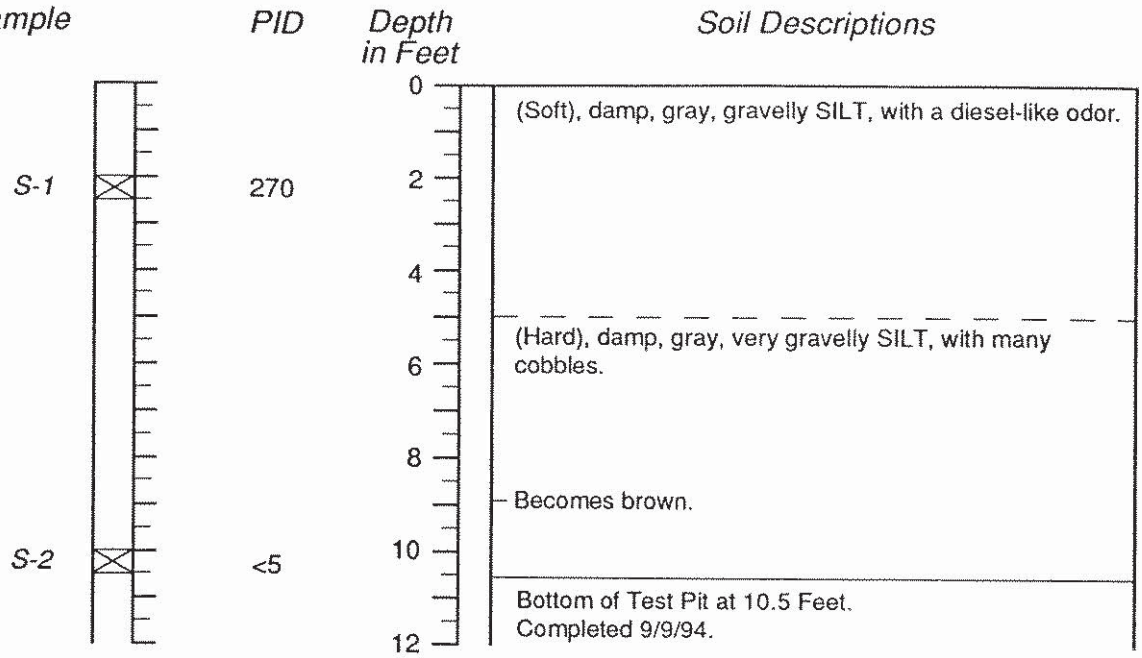
Figure A-7

Test Pit Log TP-13



Test Pit Log TP-14

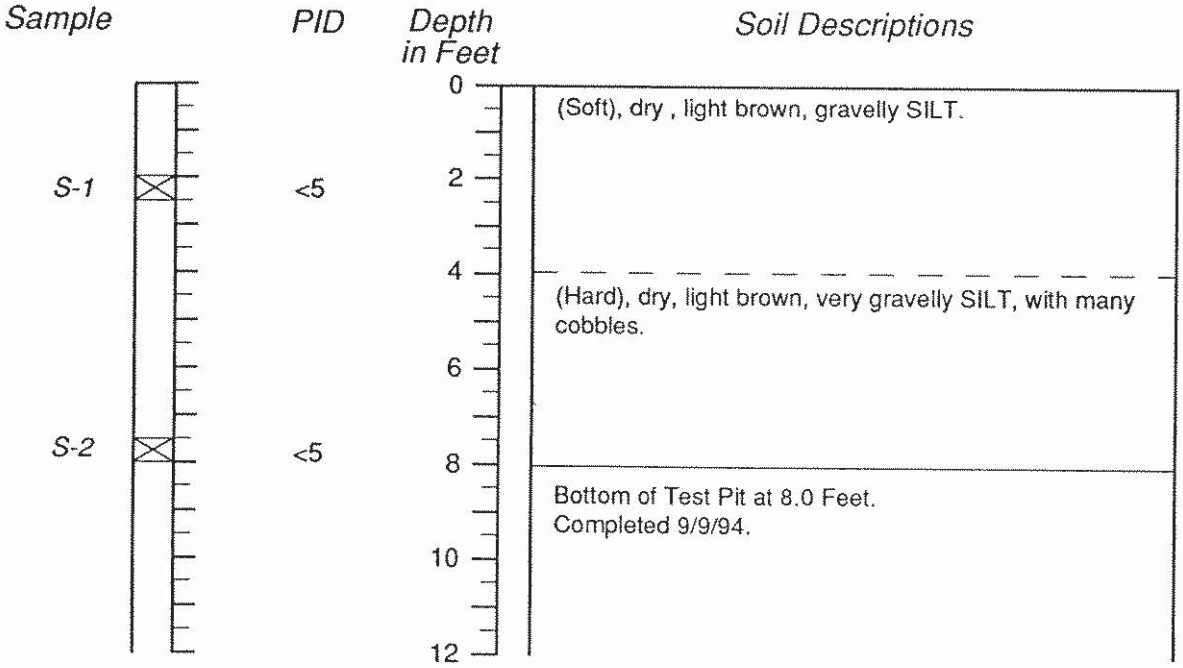


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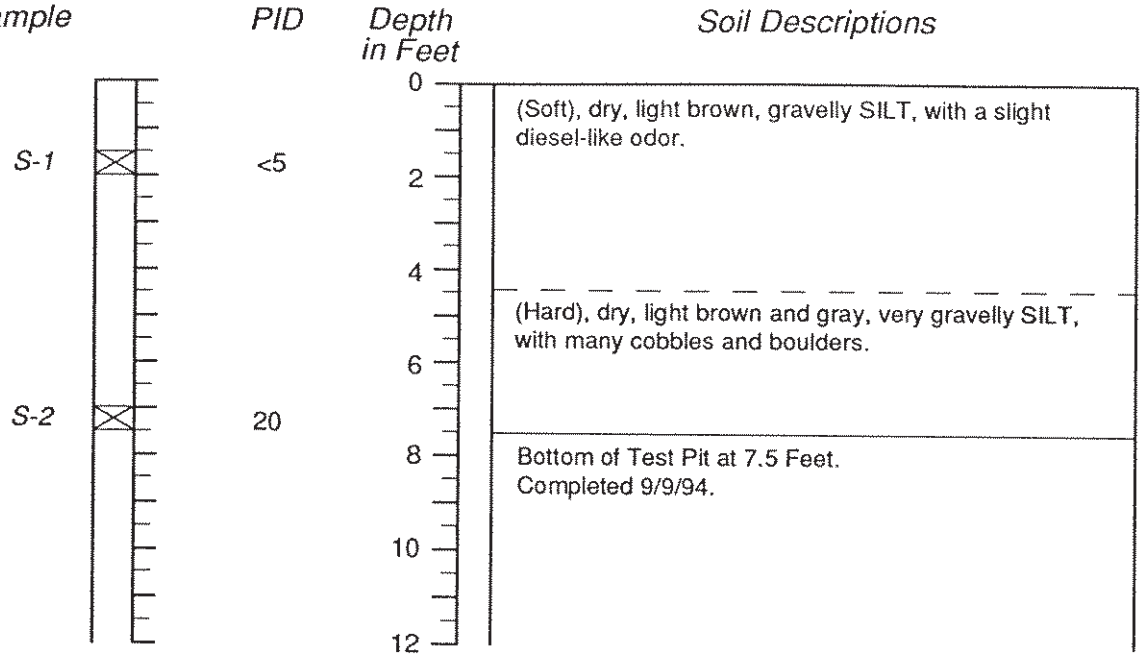
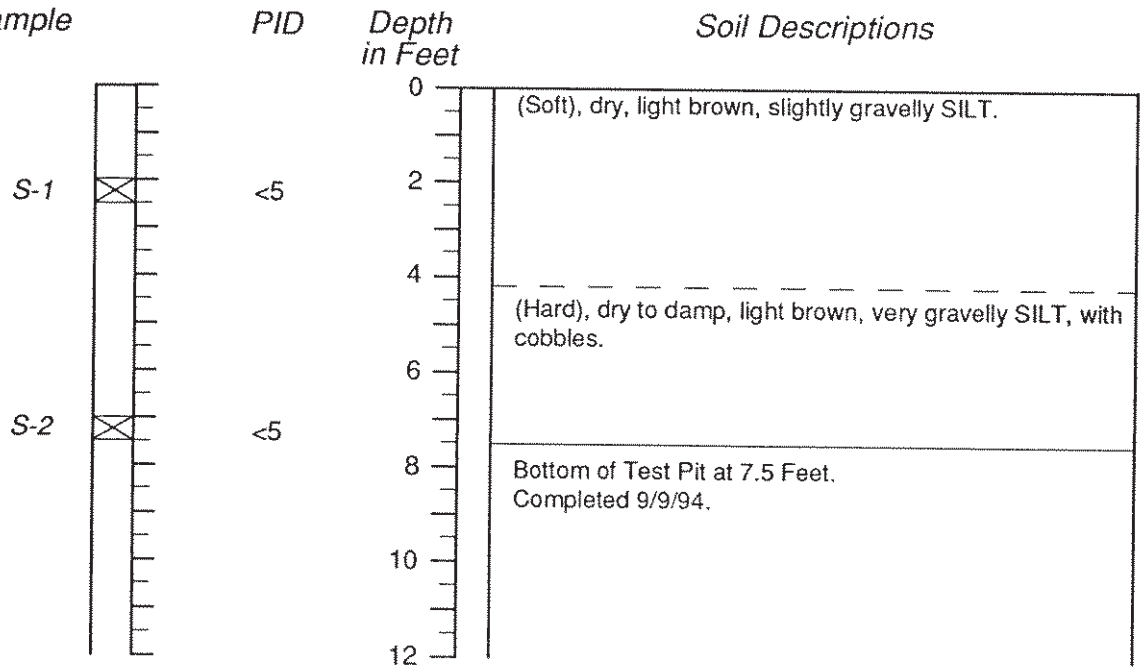
Figure A-8

Test Pit Log TP-15



Test Pit Log TP-16



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2. Soil descriptions and stratum lines are interpretive and actual may be gradual.
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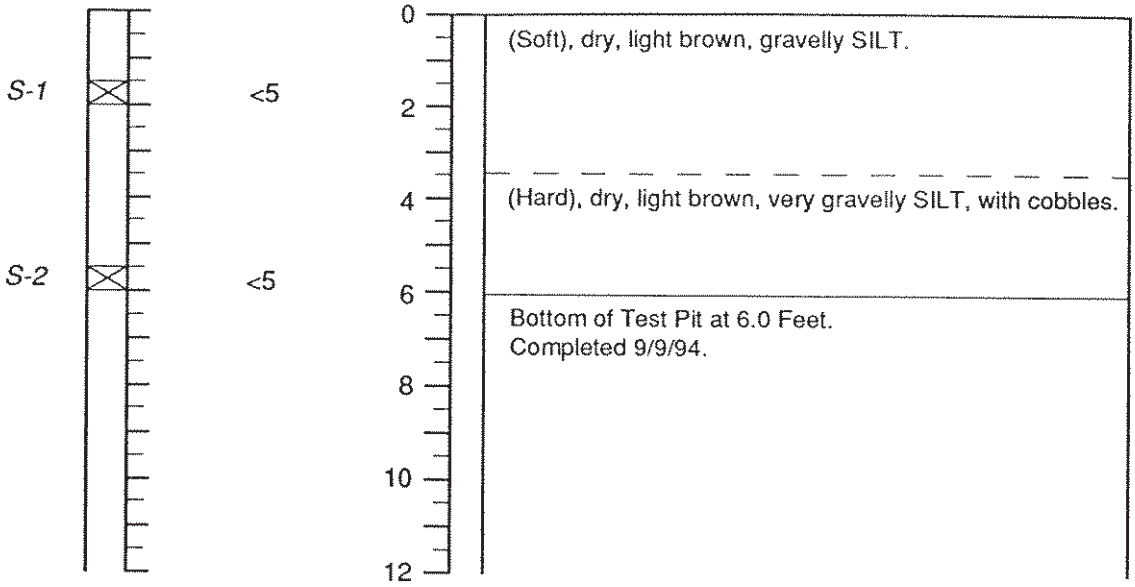
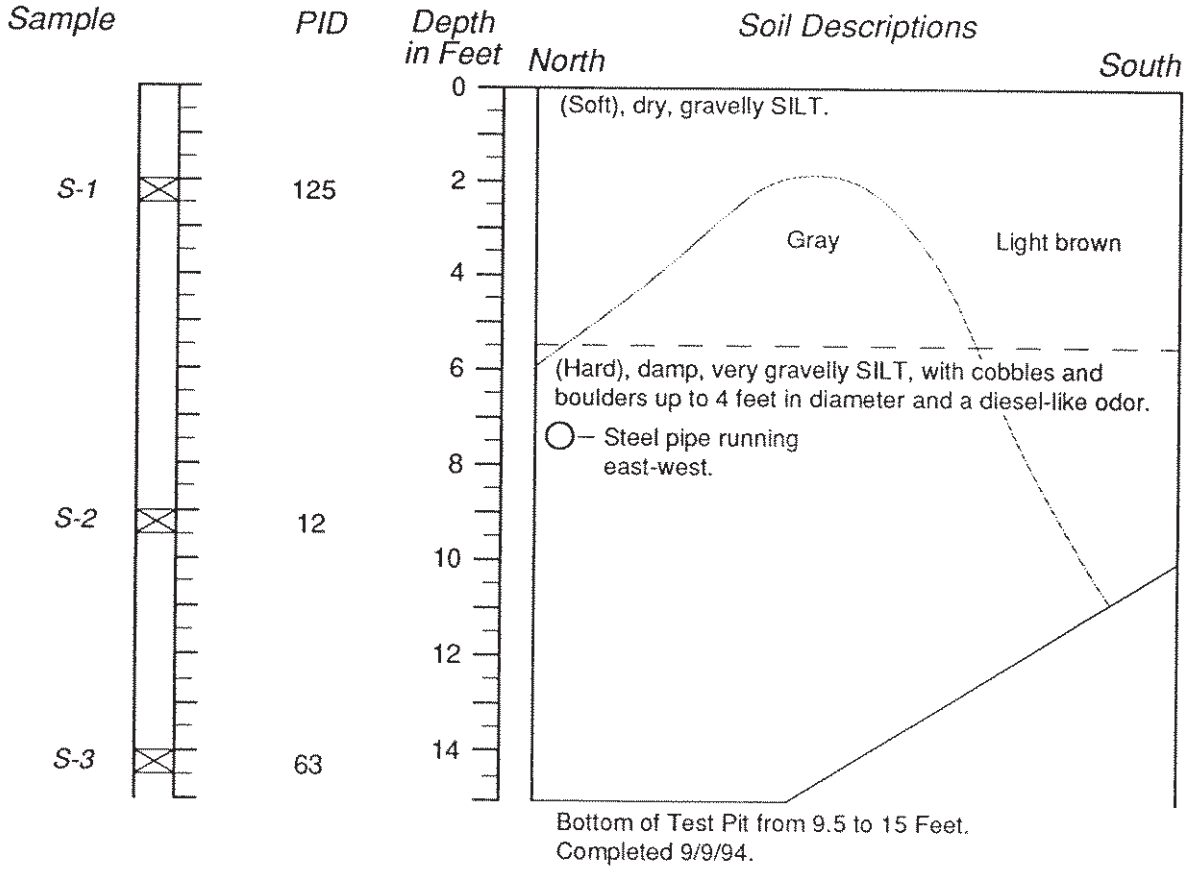
Figure A-9

Test Pit Log TP-17



Test Pit Log TP-18



1. Refer to Figure A-1 for explanation of descriptions and symbols
2. Soil descriptions and stratum lines are interpretive and actual may be gradual.
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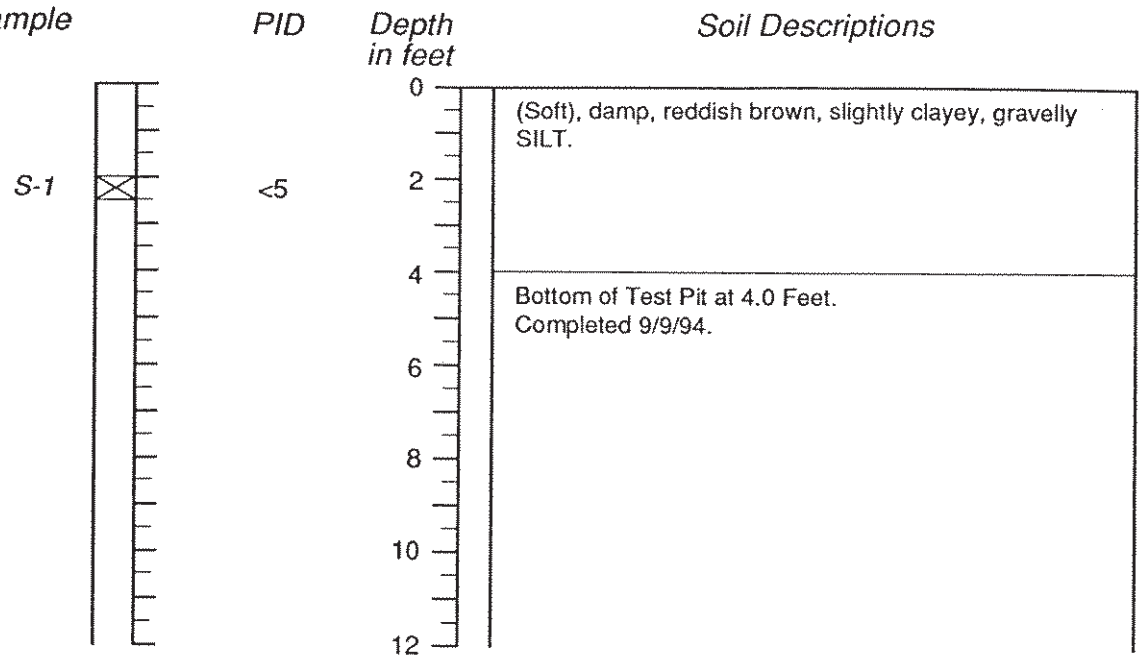
Figure A-10

Test Pit Log TP-19



1. Refer to Figure A-1 for explanation of descriptions and symbols
2. Soil descriptions and stratum lines are interpretive and actual may be gradual.
3. Groundwater level, if indicated, was at time of test pit exploration. Level may vary with time.

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Figure A-11

APPENDIX B
LABORATORY TESTING PROGRAM AND REPORT

APPENDIX B
LABORATORY TESTING PROGRAM AND REPORT

A laboratory testing program was performed to assess the chemical quality of soil samples. Analytical laboratory documentation of the test results and QA/QC results are presented at the end of the laboratory report.

Chemical Analyses on Soil

Chemical analyses on soil samples consisted of:

- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020.
- Hydrocarbon identification (HCID) by Washington Ecology Method WTPH-HCID;
- Gasoline by Washington Ecology Method WTPH-G;
- Diesel and oil by Washington Ecology Method WTPH-D Extended;
- Polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8310;
- Total lead by EPA Method 6010; and
- Leachable lead by Toxicity Characteristic Leaching Procedure (TCLP) per EPA Method 1311/7470.

Chemical Analyses on Sump Sample

Chemical analyses on the sump sample ("Sump") consisted of:

- Leachable Priority 8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver) by Toxicity Characteristic Leaching Procedure (TCLP) per EPA Method 1311/6010/7470; and
- Volatile organic compounds (VOCs) by EPA Method 8240.

Laboratory Quality Assurance/Quality Control (QA/QC)

As part of their QA/QC program, the analytical laboratory conducts QA/QC checks on the samples. These include analysis of surrogate compounds, method blanks, laboratory duplicates, matrix spikes, matrix spike duplicates, blank spikes, and blank spike duplicates. Acceptability or control limits for analyses are statistically derived by the laboratory in accordance with EPA guidelines. Please see the laboratory report for QA/QC results and discussions.

Surrogate Analyses. In a surrogate analysis, a known amount of a compound(s) similar to the constituent of interest is added to a sample and measured. The surrogate analysis assesses the accuracy of a chemical measurement by comparing the measured value to the actual spiked value. All surrogates were within control limits, except for one surrogate (Toluene-D8) in the VOC analysis of the sump sample. However, the other two surrogates for this sample were within control limits.

Method Blanks. A method, or laboratory blank, is a sample prepared in the laboratory along with the actual samples and analyzed for the same parameters at the same time. It is used to assess if detected contaminants may have been the result of contamination of the samples in the laboratory. Analytes were not detected in any of the method blanks.

Laboratory Duplicate. A laboratory duplicate is a second laboratory sample taken from a submitted sample and prepared along with the original. It is analyzed and compared to the first to assess the precision of the analytical method. This comparison is normally expressed by the relative percent difference (RPD) between the original and duplicate samples. The RPD results were within control limits.

Matrix Spike Analyses. Matrix spike analyses are performed on samples submitted to the laboratory which are of the same matrix as the actual sample. It is spiked with known levels of the constituents of interest. These analyses are used to assess the potential for matrix interference with recovery or detection of the constituents of interest and the accuracy of the determination. The spiked sample results are compared to the expected result (i.e., sample concentration plus spike amount) and reported as percent recovery.

All matrix spike analyses were within control limits except for the following: one WTPH-D analysis, one PAH analysis, and the mercury analysis. For the former, the percent recovery could not be calculated. For the PAH analysis, the matrix spike sample produced a high percent recovery of phenanthrene, presumably due to elevated concentrations of hydrocarbons in the sample. For the latter, the spiked result was slightly below control limits. In all cases, the blank spikes are reported (see discussion below).

Duplicate Matrix Spikes. In addition, a second matrix spike sample (a.k.a. the matrix spike duplicate) is prepared as above and analyzed. This is compared to the initial matrix spike to assess the precision of the analytical method (i.e., RPD). All RPD were within control limits, except one of the WTPH-D analyses for which the percent recovery could not be calculated. In this case, the blank spikes are reported (see discussion below).

Blank Spikes. Blank spikes and blank spike duplicate analyses are similar to the above matrix spike and matrix spike duplicate analyses, except that the sample matrix used is a laboratory-pure matrix. These analyses are performed as part of the laboratory's QC program to check that instrumentation is running properly. They are reported if matrix interferences in the matrix spike and duplicate samples are out of control limits. All blank spikes and blank spike duplicates were within control limits.

Analytical**Technologies,**Inc.

17400 S.W. Upper Boones Ferry Road, Suite 270 Durham, OR. 97224
(503) 684-0447 (503) 620-0393 (FAX)

ATI I.D. 409600

OCT 17 1994

HART CROWSER

October 11, 1994

Rick Ernst
Hart Crowser
SW Centerpointe Dr.
Suite 240
Lake Oswego, OR 97035

Project Name/Number: Chevron 61001840 / J-5407

Attention: Rick Ernst

On September 12, 1994, Analytical Technologies, Inc. received one oil/water and thirty-four soil samples for analysis for the above listed project. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

All analyses met our laboratory's quality assurance criteria with the following exceptions; due to matrix interferences, several quality control parameters were out of limits for TPH-D, EPA 8240, and EPA 8310 analyses. Please see case narratives. Please note that the TPH-HCID analyses were networked to Analytical Technologies, Inc. in Renton, Washington.

If you have any questions or comments, please do not hesitate to contact us at (503)684-0447.

Fred Voosen
Project Manager

Alan J. Kleinschmidt
Laboratory Manager

AJK:alm
Enclosure

Analytical**Technologies**, Inc.

SAMPLE CROSS REFERENCE SHEET

CLIENT: Hart Crowser
PROJECT #: J-5407
PROJECT NAME: Chevron 61001840
ATI I.D.: 409600

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
409600-1	TP-1/S-1	9/08/94	SOIL
409600-2	TP-2/S-1	9/08/94	SOIL
409600-3	TP-3/S-1	9/08/94	SOIL
409600-4	TP-4/S-1	9/08/94	SOIL
409600-5	TP-5/S-1	9/08/94	SOIL
409600-6	TP-5/S-2	9/08/94	SOIL
409600-7	TP-6/S-1	9/08/94	SOIL
409600-8	TP-7/S-1	9/08/94	SOIL
409600-9	TP-8/S-1	9/08/94	SOIL
409600-10	TP-9/S-1	9/09/94	SOIL
409600-11	TP-10/S-1	9/09/94	SOIL
409600-12	TP-11/S-1	9/09/94	SOIL
409600-13	TP-12/S-1	9/09/94	SOIL
409600-14	TP-13/S-1	9/09/94	SOIL
409600-15	TP-13/S-2	9/09/94	SOIL
409600-16	TP-14/S-1	9/09/94	SOIL
409600-17	TP-15/S-1	9/09/94	SOIL
409600-18	TP-15/S-2	9/09/94	SOIL
409600-19	TP-16/S-1	9/09/94	SOIL
409600-20	TP-17/S-1	9/09/94	SOIL
409600-21	TP-18/S-1	9/09/94	SOIL
409600-22	TP-18/S-2	9/09/94	SOIL
409600-23	TP-18/S-3	9/09/94	SOIL
409600-24	TP-19/S-1	9/09/94	SOIL
409600-25	SUMP	9/09/94	OIL/WATER
409600-26	TP-1/S-2	9/08/94	SOIL
409600-27	TP-3/S-2	9/08/94	SOIL
409600-28	TP-4/S-2	9/08/94	SOIL
409600-29	TP-7/S-2	9/08/94	SOIL
409600-30	TP-8/S-2	9/08/94	SOIL

Analytical Technologies, Inc.

SAMPLE CROSS REFERENCE SHEET

CLIENT: Hart Crowser **ATI I.D.:** 409600
PROJECT #: J-5407
PROJECT NAME: Chevron 61001840

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
409600-31	TP-10/S-2	9/9/94	SOIL
409600-32	TP-11/S-2	9/9/94	SOIL
409600-33	TP-14/S-2	9/9/94	SOIL
409600-34	TP-16/S-2	9/9/94	SOIL
409600-35	TP-17/S-2	9/9/94	SOIL

----------TOTALS----------

MATRIX	# SAMPLES
SOIL, OIL, WATER	35

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.

ANALYTICAL SCHEDULE

CLIENT:	Hart Crowser	**ATI I.D.:**	409600
PROJECT #:	J-5407		
PROJECT NAME:	Chevron 61001840		

ANALYSIS	TECHNIQUE	REFERENCE	LAB
Hydrocarbon Identification	GC/FID	WA TPH-HCID	R
BETX	GC/PID	EPA 8020M	PLD
Petroleum Hydrocarbon	GC/FID	WA TPH-G	PLD
Petroleum Hydrocarbon	GC/FID	WA TPH-D Ext	PLD
Volatile Organic Compounds	GCMS	EPA 8240	PLD
PAHs	HPLC/UV/FLUOR	EPA 8310	PLD
Lead	ICAP	EPA 6010	PLD
TCLP Arsenic	ICAP	EPA 6010	PLD
TCLP Barium	ICAP	EPA 6010	PLD
TCLP Cadmium	ICAP	EPA 6010	PLD
TCLP Chromium	ICAP	EPA 6010	PLD
TCLP Lead	ICAP	EPA 6010	PLD
TCLP Mercury	AA/Cold Vapor	EPA 7470	PLD
TCLP Selenium	ICAP	EPA 6010	PLD
TCLP Silver	ICAP	EPA 6010	PLD

PLD = ATI - Portland
R = ATI - Renton
SD = ATI - San Diego
PHX = ATI - Phoenix
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST:	TPH-HCID (WASHINGTON)	ATI I.D.:	409600
CLIENT:	Hart Crowser	DATE SAMPLED:	09/08, 09/94
PROJECT #:	J-5407	DATE RECEIVED:	09/12/94
PROJECT NAME:	Chevron 61001840	DATE EXTRACTED:	09/13,14,16/94
SAMPLE MATRIX:	SOIL	DATE ANALYZED:	09/13,14,19/94
		UNITS:	mg/Kg

ATI ID	CLIENT ID	GASOLINE C7 - C12	DIESEL C12 - C24	> C24	SURROGATE (50% - 150%)
409600-0	Method Blank	Less than 20	Less than 50	Less than 100	109%
409600-0a	Method Blank	Less than 20	Less than 50	Less than 100	101%
409600-0b	Method Blank	Less than 20	Less than 50	Less than 100	121%
409600-1	TP-1/S-1	Less than 20	Greater than 50	Greater than 100	108%
409600-2	TP-2/S-1	Less than 20	Greater than 50	Greater than 100	114%
409600-3	TP-3/S-1	Less than 20	Greater than 50	Less than 100	105%
409600-4	TP-4/S-1	Less than 20	Less than 50	Less than 100	104%
409600-5	TP-5/S-1	Greater than 20	Greater than 50	Greater than 100	135%
409600-6	TP-5/S-2	Greater than 20	Greater than 50	Greater than 100	118%
409600-7	TP-6/S-1	Less than 20	Less than 50	Less than 100	104%
409600-8	TP-7/S-1	Greater than 20	Greater than 50	Greater than 100	111%
409600-9	TP-8/S-1	Less than 20	Greater than 50	Greater than 100	107%
409600-10	TP-9/S-1	Greater than 20	Greater than 50	Greater than 100	138%

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST:	TPH-HCID (WASHINGTON)	ATI I.D.:	409600
CLIENT:	Hart Crowser	DATE SAMPLED:	09/08, 09/94
PROJECT #:	J-5407	DATE RECEIVED:	09/12/94
PROJECT NAME:	Chevron 61001840	DATE EXTRACTED:	09/13, 14/94
SAMPLE MATRIX:	SOIL	DATE ANALYZED:	09/13, 14/94
		UNITS:	mg/Kg

ATI ID	CLIENT ID	GASOLINE C7 - C12	DIESEL C12 - C24	> C24	SURROGATE (50% - 150%)
409600-11	TP-10/S-1	Less than 20	Greater than 50	Less than 100	110%
409600-12	TP-11/S-1	Less than 20	Less than 50	Less than 100	111%
409600-13	TP-12/S-1	Less than 20	Less than 50	Less than 100	110%
409600-14	TP-13/S-1	Greater than 20	Greater than 50	Less than 100	110%
409600-15	TP-13/S-2	Greater than 20	Less than 50	Less than 100	105%
409600-16	TP-14/S-1	Less than 20	Greater than 50	Less than 100	111%
409600-17	TP-15/S-1	Greater than 20	Greater than 50	Greater than 100	120%
409600-18	TP-15/S-2	Greater than 20	Greater than 50	Greater than 100	123%
409600-19	TP-16/S-1	Less than 20	Greater than 50	Less than 100	114%
409600-20	TP-17/S-1	Less than 20	Less than 50	Less than 100	118%
409600-21	TP-18/S-1	Greater than 20	Greater than 50	Greater than 100	127%
409600-22	TP-18/S-2	Greater than 20	Greater than 50	Less than 100	114%

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

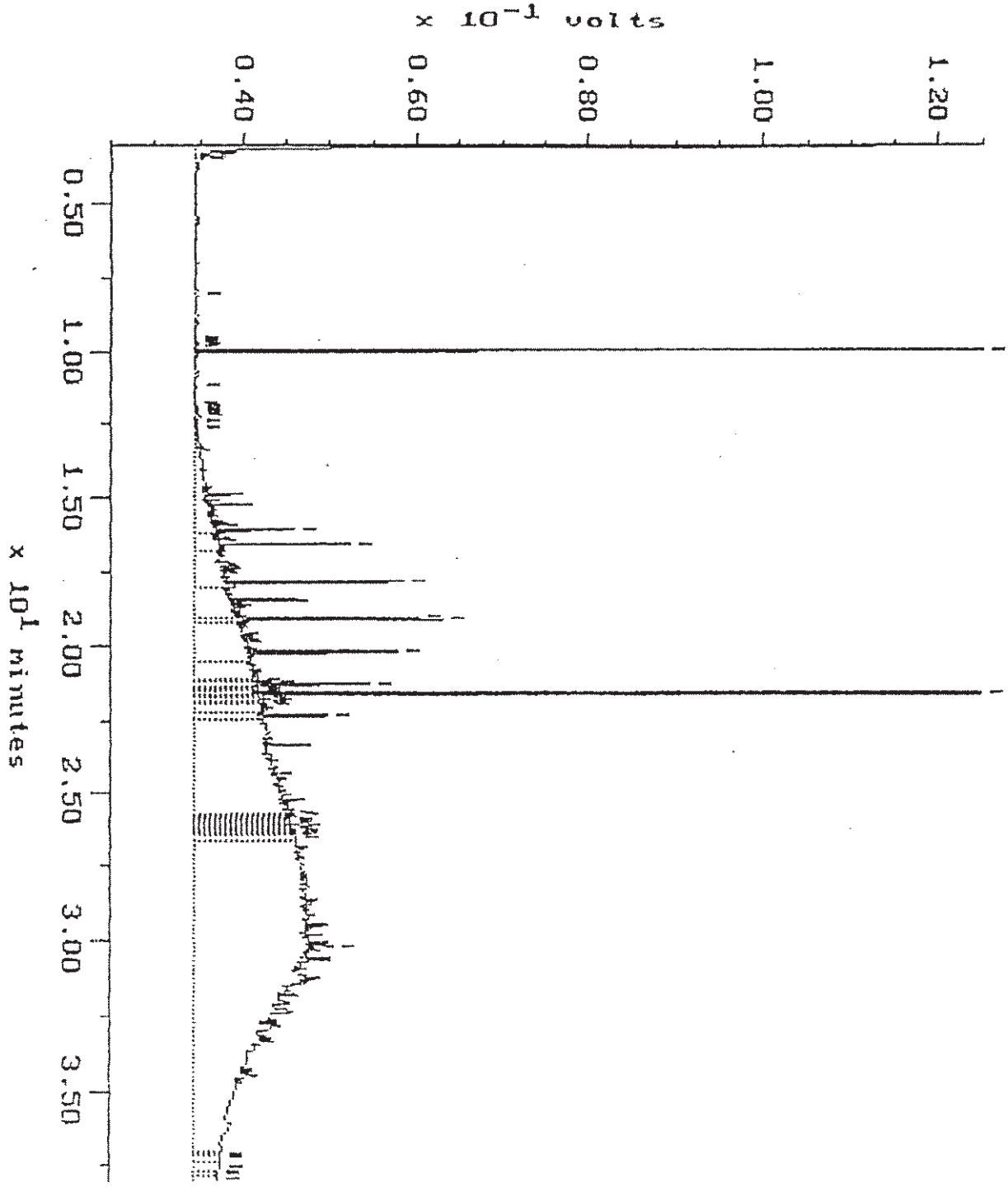
TEST:	TPH-HCID (WASHINGTON)	ATI I.D.:	409600
CLIENT:	Hart Crowser	DATE SAMPLED:	09/08, 09/94
PROJECT #:	J-5407	DATE RECEIVED:	09/12/94
PROJECT NAME:	Chevron 61001840	DATE EXTRACTED:	09/14,16/94
SAMPLE MATRIX:	SOIL	DATE ANALYZED:	09/14,19/94
		UNITS:	mg/Kg

ATI ID	CLIENT ID	GASOLINE C7 - C12	DIESEL C12 - C24	> C24	SURROGATE (50% - 150%)
409600-23	TP-18/S-3	Greater than 20	Greater than 50	Greater than 100	129%
409600-24	TP-19/S-1	Less than 20	Less than 50	Less than 100	108%
409600-26	TP-1/S-2	Less than 20	Greater than 50	Greater than 100	125%
409600-27	TP-3/S-2	Less than 20	Less than 50	Less than 100	109%
409600-28	TP-4/S-2	Less than 20	Less than 50	Less than 100	114%
409600-29	TP-7/S-2	Less than 20	Greater than 50	Greater than 100	123%
409600-30	TP-8/S-2	Less than 20	Greater than 50	Greater than 100	118%
409600-31	TP-10/S-2	Less than 20	Greater than 50	Less than 100	114%
409600-32	TP-11/S-2	Less than 20	Greater than 50	Greater than 100	119%
409600-33	TP-14/S-2	Less than 20	Greater than 50	Greater than 100	123%
409600-34	TP-16/S-2	Less than 20	Greater than 50	Less than 100	119%
409600-35	TP-17/S-2	Less than 20	Greater than 50	Greater than 100	118%

WA DOE WTPH-HCID

409600-1

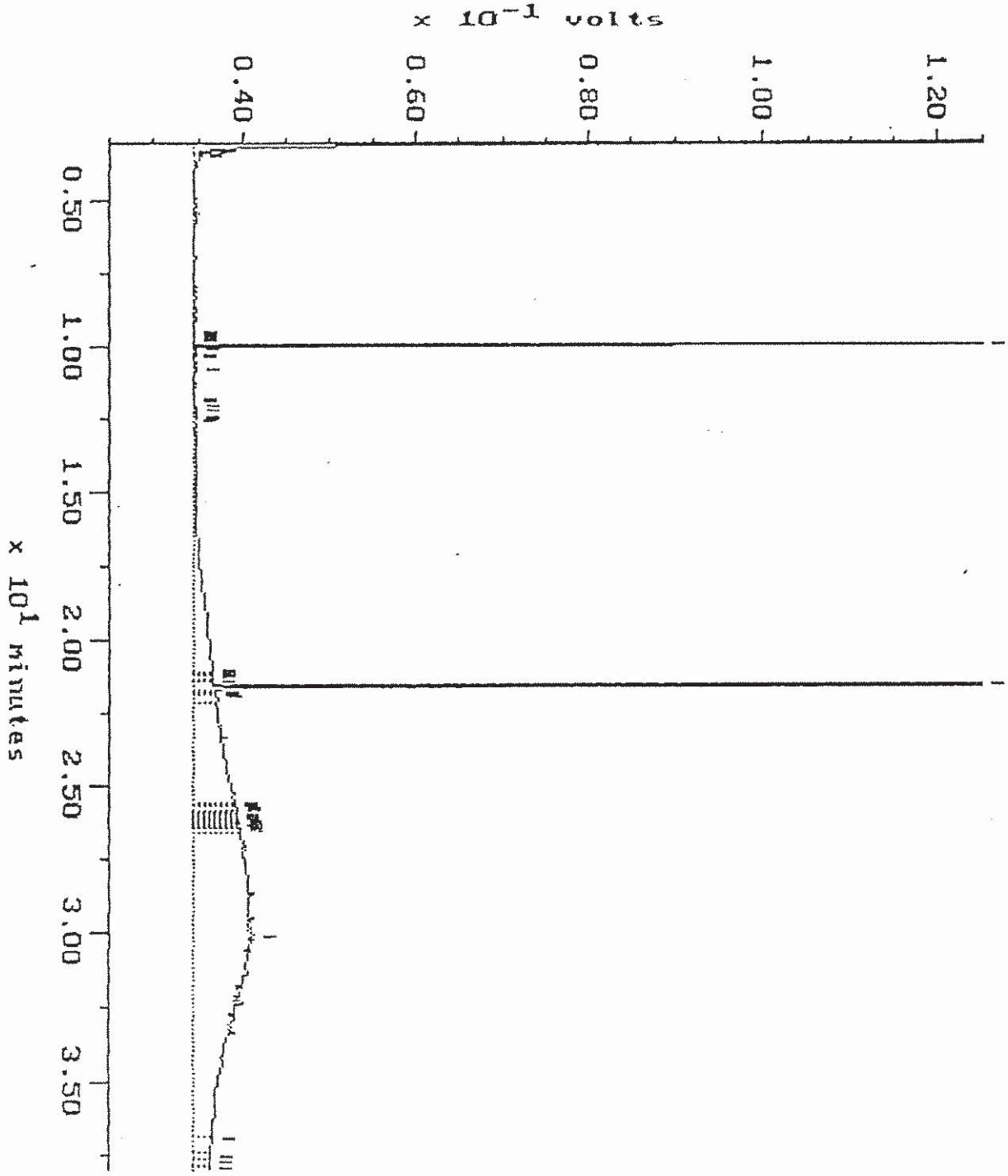
Sample: 409184-1 Channel: WILMA Filename: R9138W04
Acquired: 13-SEP-94 23:56 Method: F:\BRO2\MAXDATA\WILMA\FUEL0913 Operator: BRO



WA DOE WTPH-HCID

409600-2

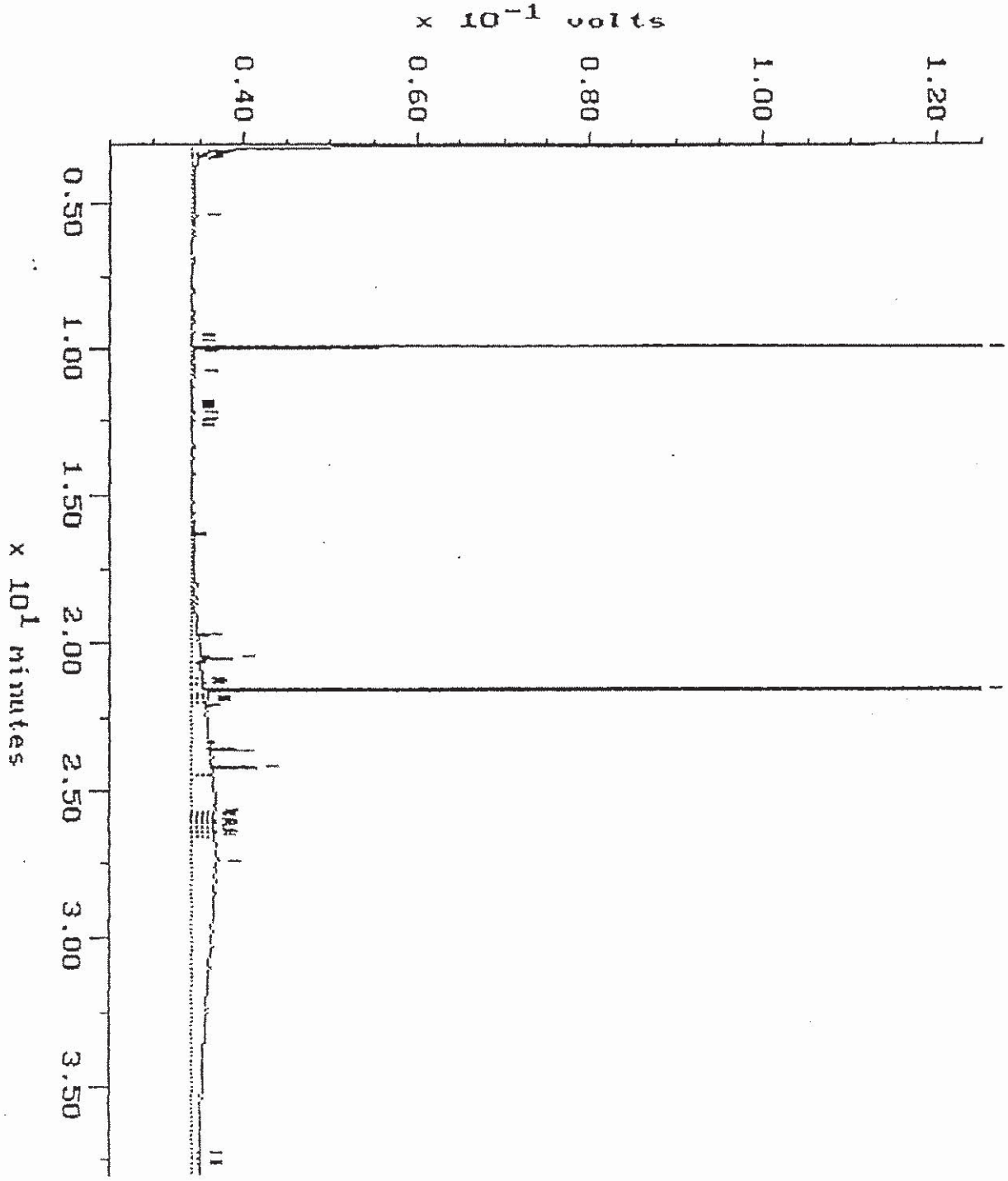
Sample: 409104-2 Channel: WILMA Filename: R9138W06
Acquired: 14-SEP-94 1:29 Method: F:\BRO2\MAXDATA\WILMA\FUEL0913 Operator: BRO



WA DOE WTPH-HCID

409600-3

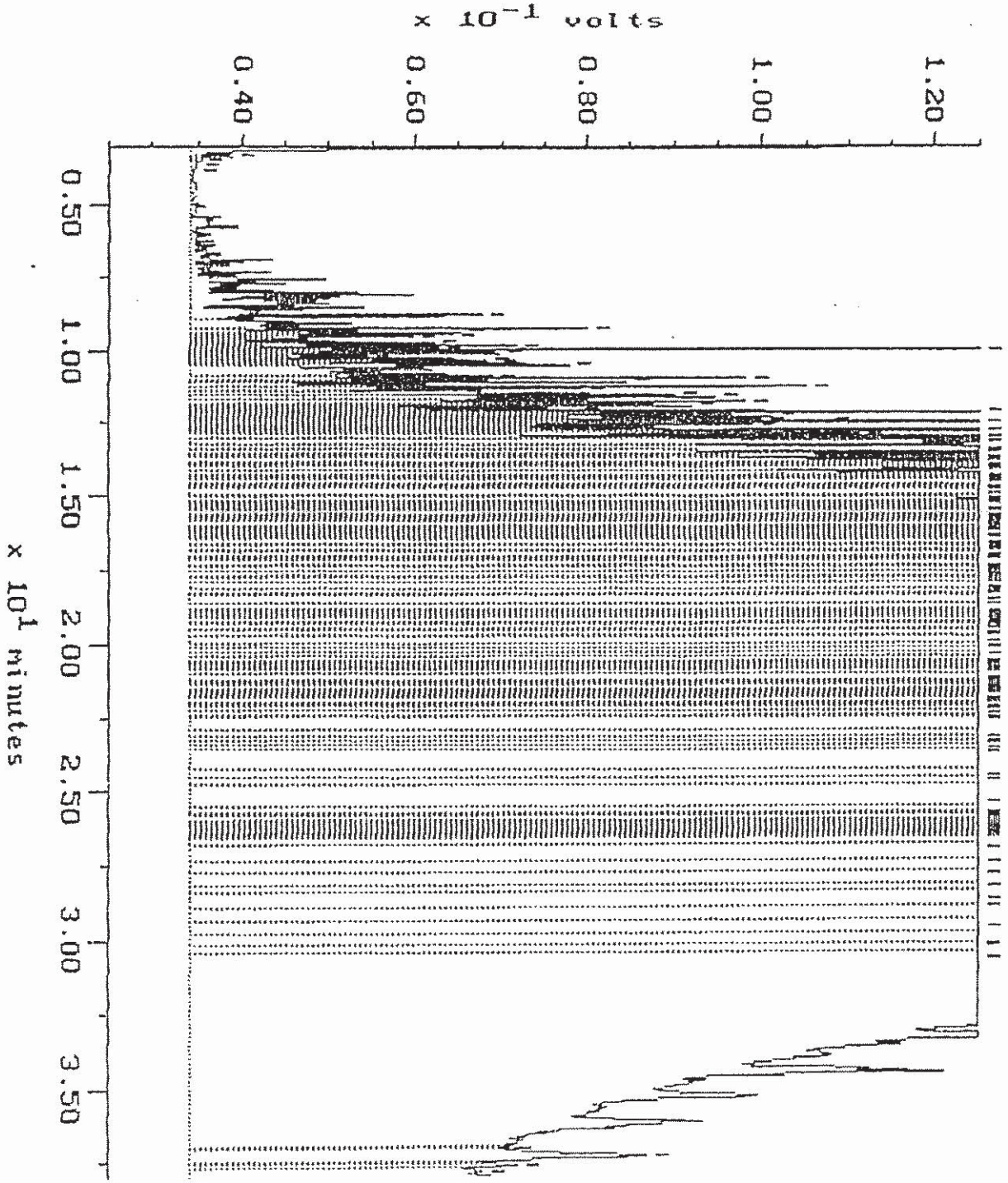
Sample: 409104-3 Channel: WILMA Filename: R9138W07
Acquired: 14-SEP-94 2:16 Method: F:\BRO2\MAXDATA\WILMA\FUEL0913 Operator: BRO



WA DOE WTPH-HCID

409600-S

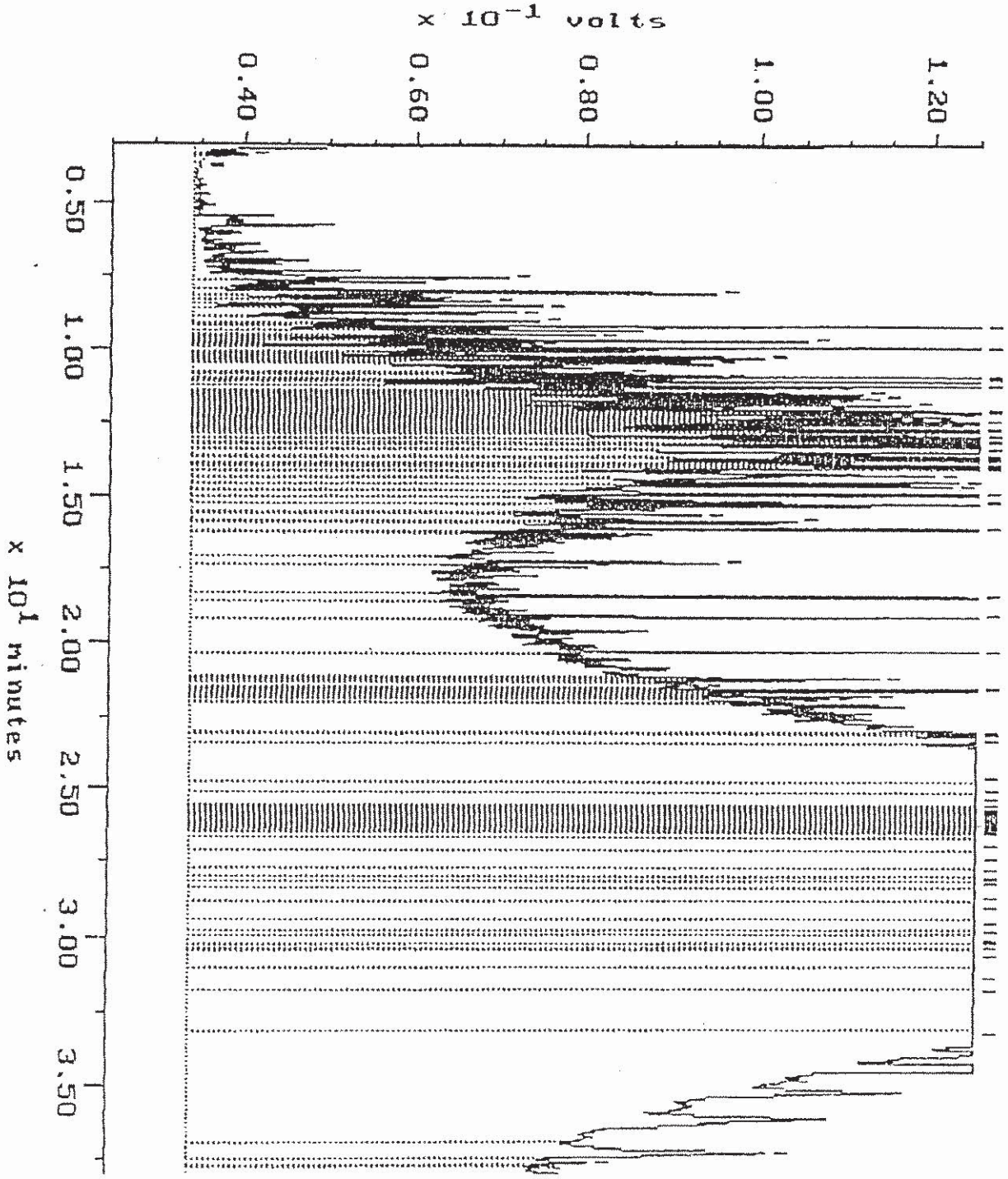
Sample: 409104-S Channel: WILMA Filename: R9138W09
Acquired: 14-SEP-94 3:50 Method: F:\BRO2\MAXDATA\WILMA\FUEL0913 Operator: BRO



WA DOE WTPH-HCID

409600-6

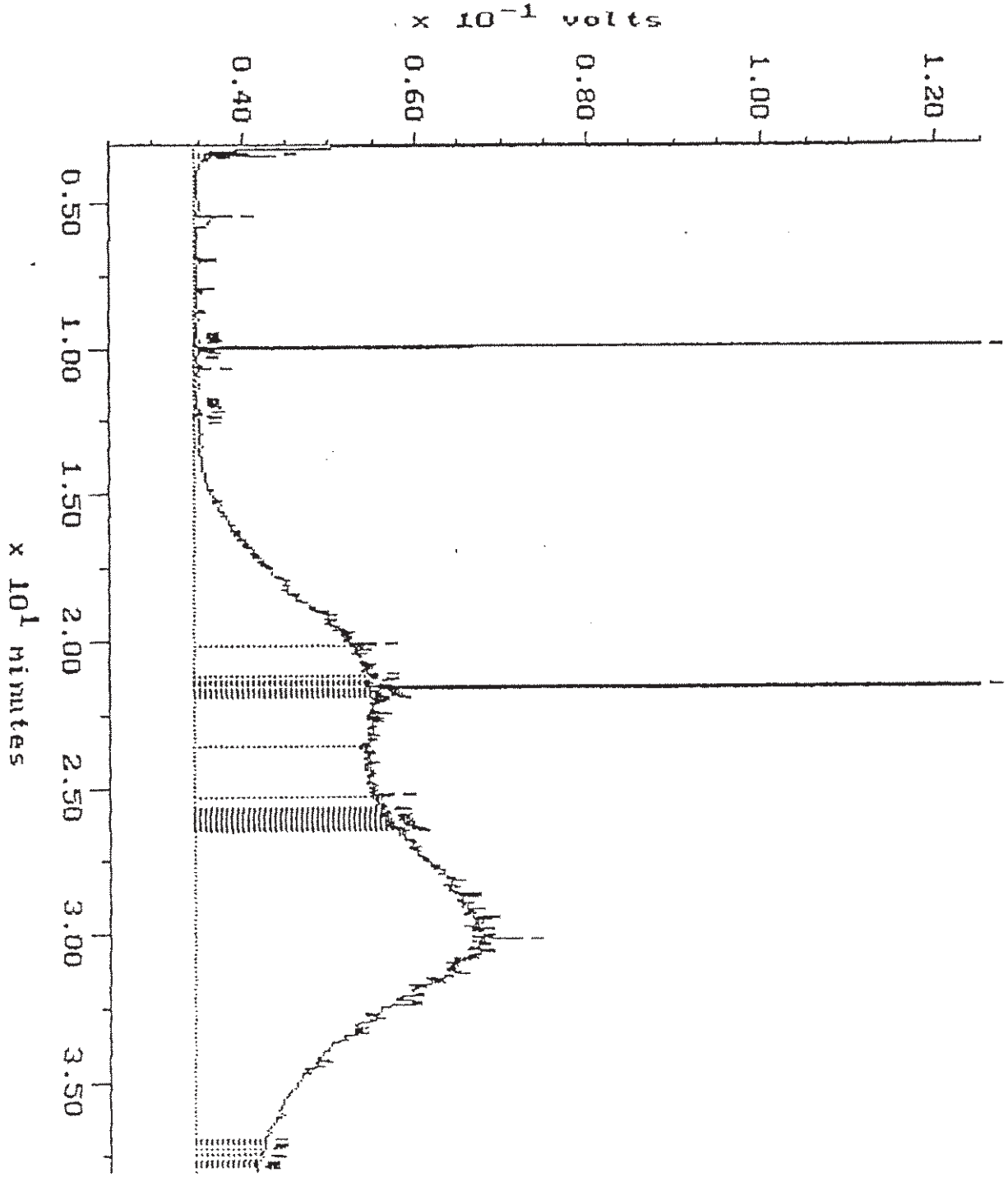
Sample: 409104-6 Channel: WILMA Filename: R9138W11
Acquired: 14-SEP-94 5:24 Method: F:\BRO2\MAXDATA\WILMA\FUEL0913 Operator: BRO



WA DOE WTPH-HCID

408600-8

Sample: 409104-8 Channel: WILMA Filename: R9138W16
Acquired: 14-SEP-94 9:18 Method: F:\BRO2\MAXDATA\WILMA\FUEL0913 Operator: BRO



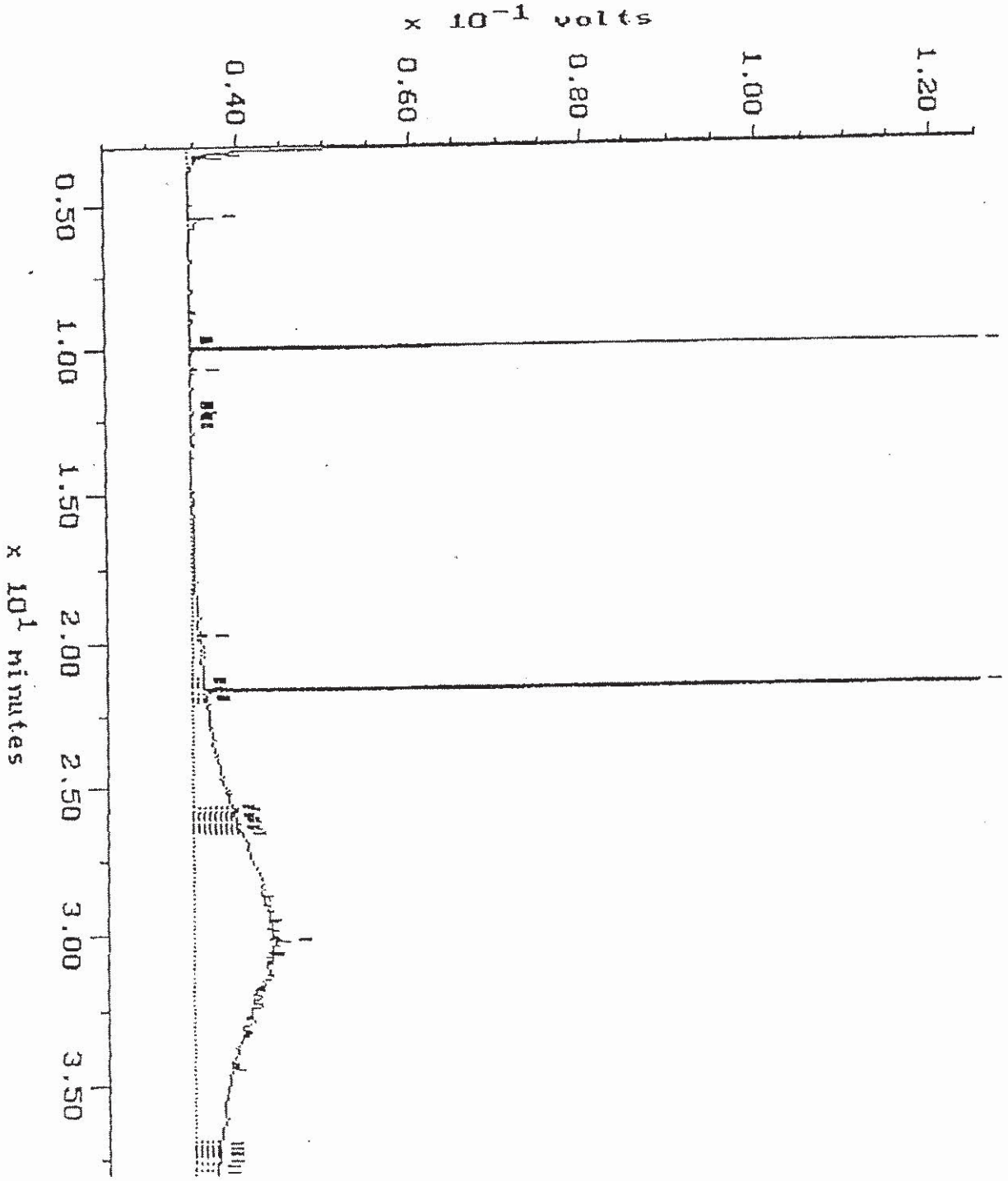
WA DOE WTPH-HCID

409600-9

Sample: 409104-9
Acquired: 14-SEP-94 10:52

Channel: WILMA
Method: F:\BR02\MAXDATA\WILMA\FUEL0913

Filename: R9138W18
Operator: BRO



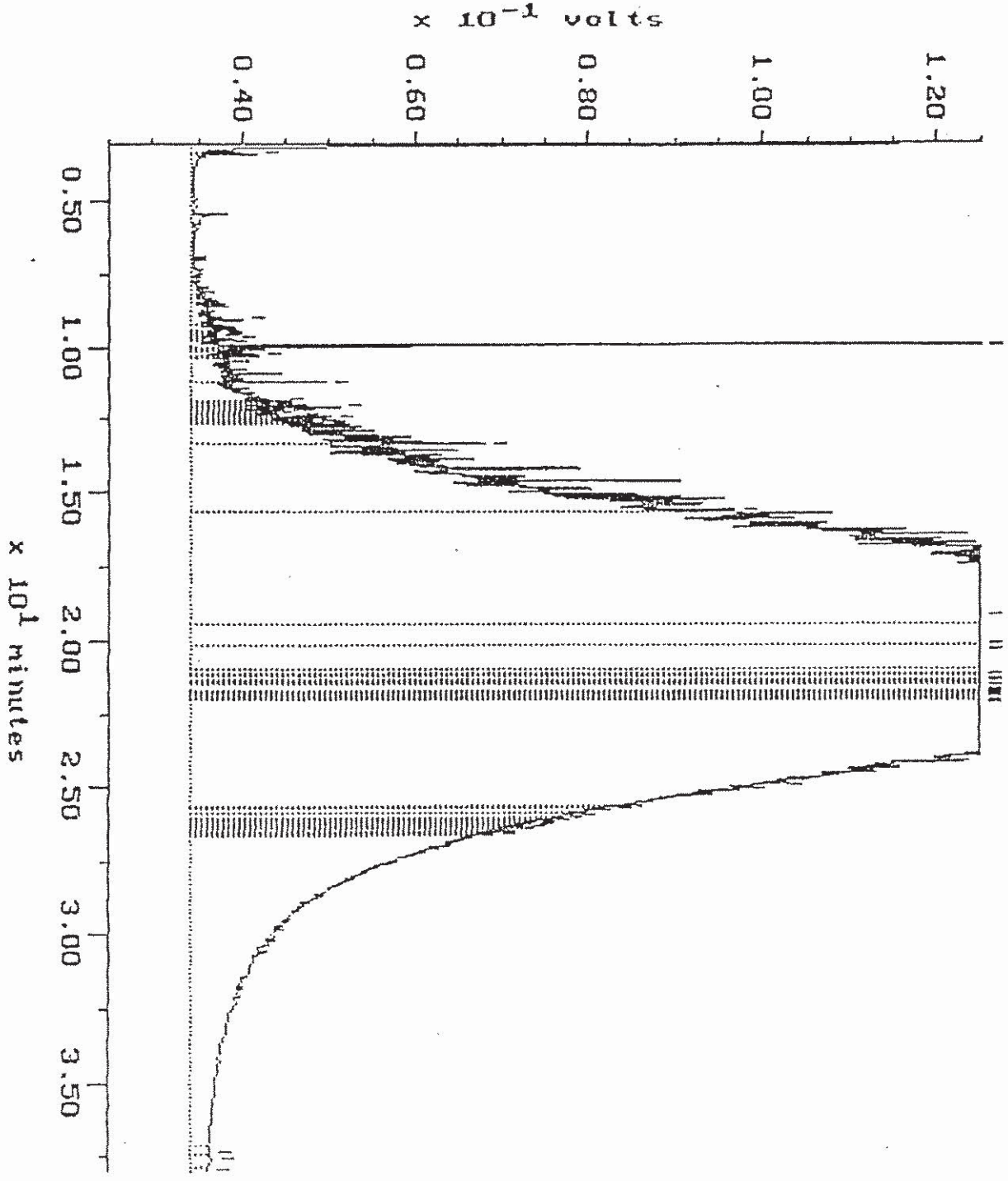
WA DOE WTPH-HCID

409104-10

Sample: 409104-10
Acquired: 14-SEP-94 12:25

Channel: WILMA
Method: F:\BRO2\MAXDATA\WILMA\FUEL0913

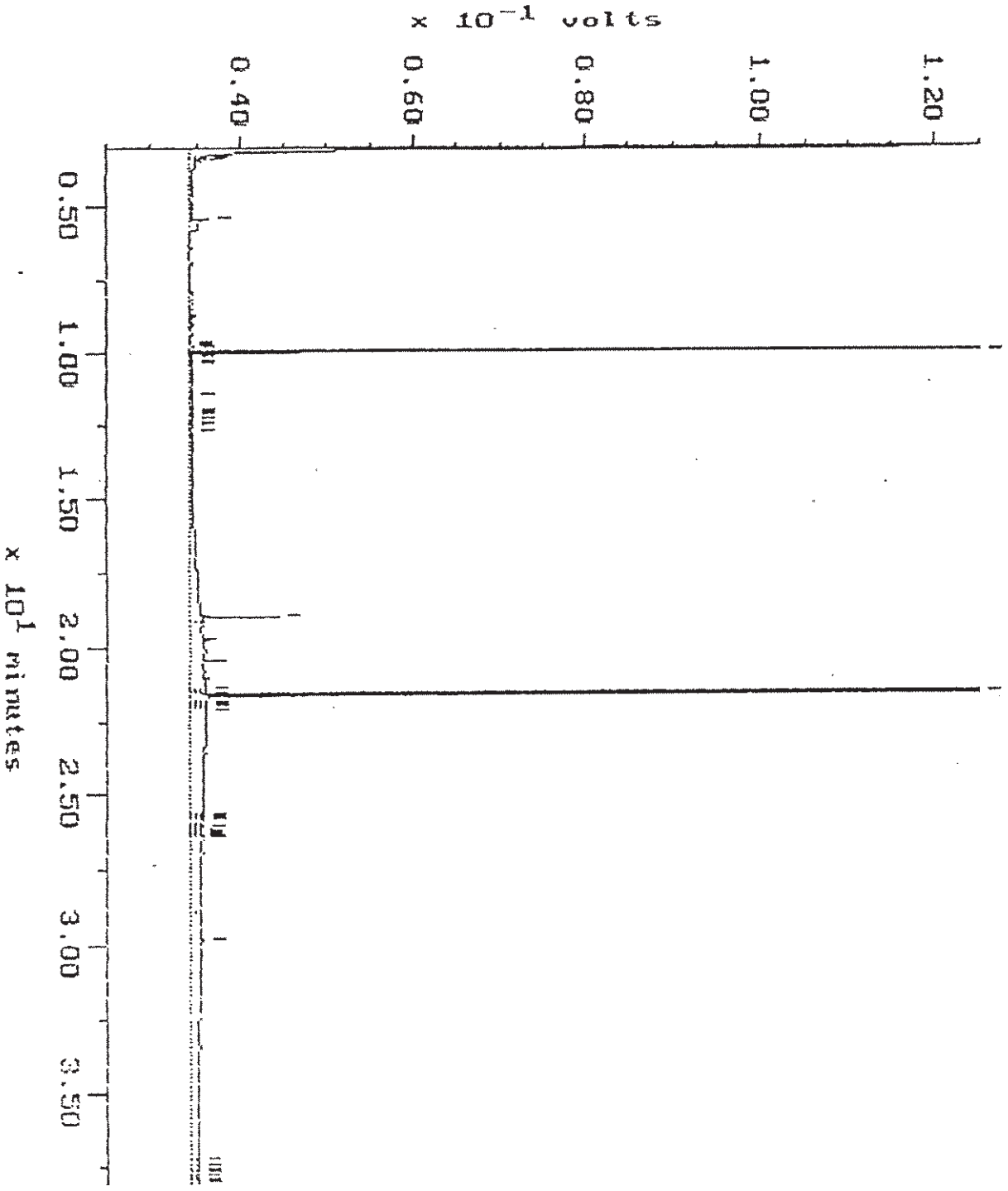
Filename: R9138H20
Operator: BRO



WA DOE WTPH-HCID

409600-11

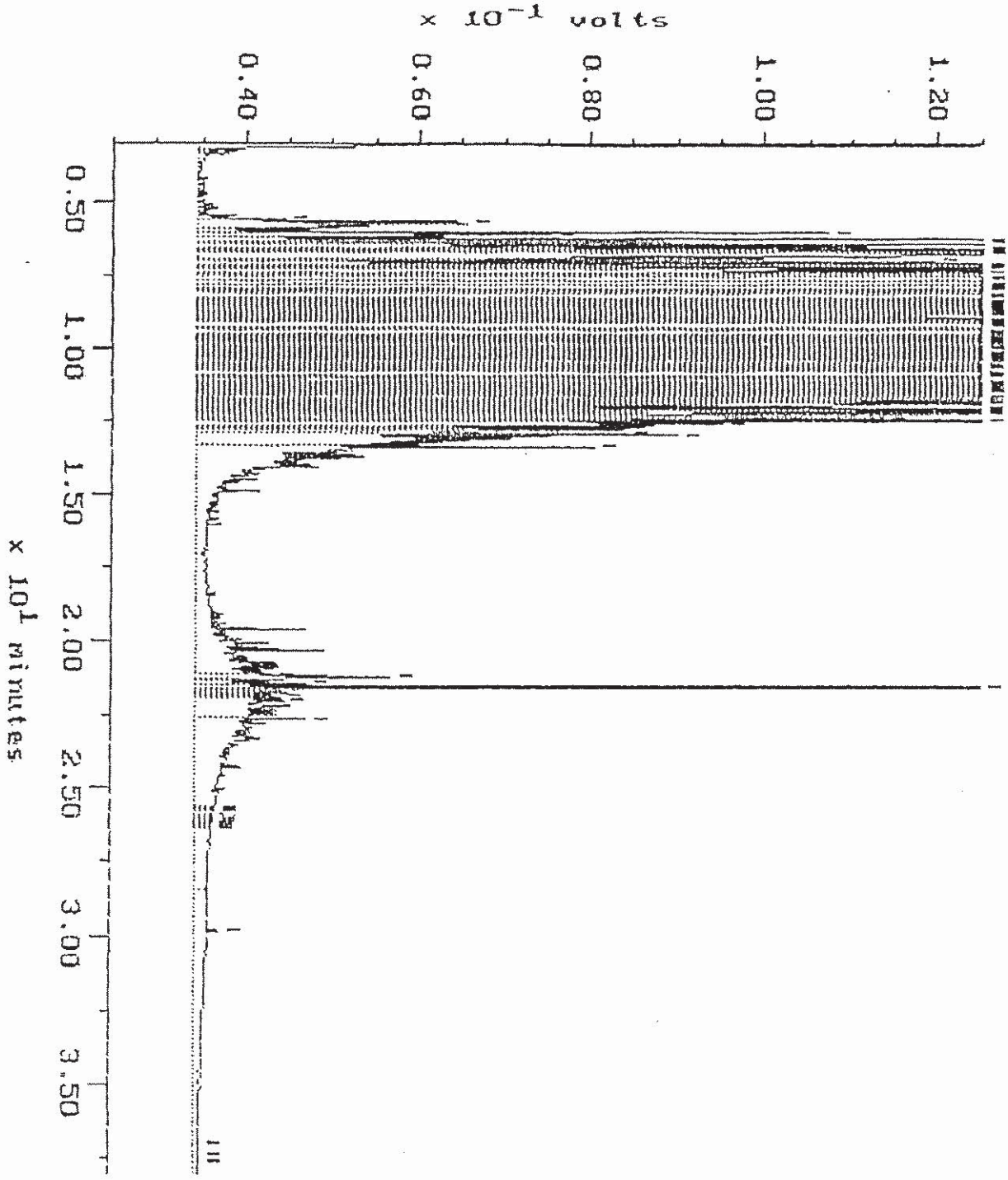
Sample: 409104-11 Channel: WILMA Filename: R9148W02
Acquired: 14-SEP-94 16:21 Method: F:\BRO2\MAXDATA\WILMA\FUEL0914 Operator: BRO



WA DOE WTPH-HCID

40600-14

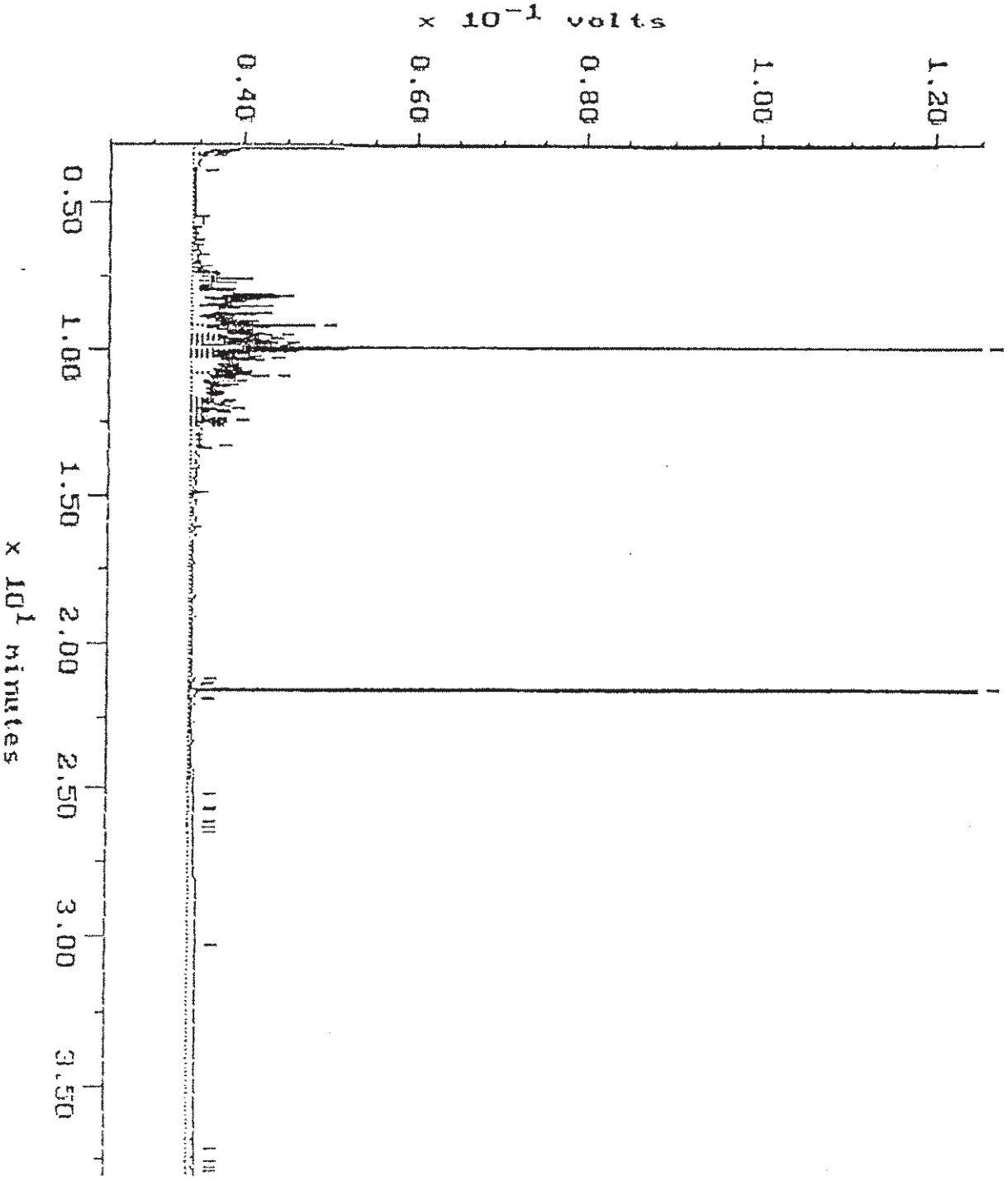
Sample: 409104-14 Channel: WILMA Filename: R9148W05
Acquired: 14-SEP-94 18:42 Method: F:\BRO2\MAXDATA\WILMA\FUEL0914 Operator: BRO



WA DOE WTPH-HCID

409104-15

Sample: 409104-15 Channel: WILMA Filename: R9148W06
Acquired: 14-SEP-94 19:29 Method: F:\BRO2\MAXDATA\WILMA\FUEL0914 Operator: BRO



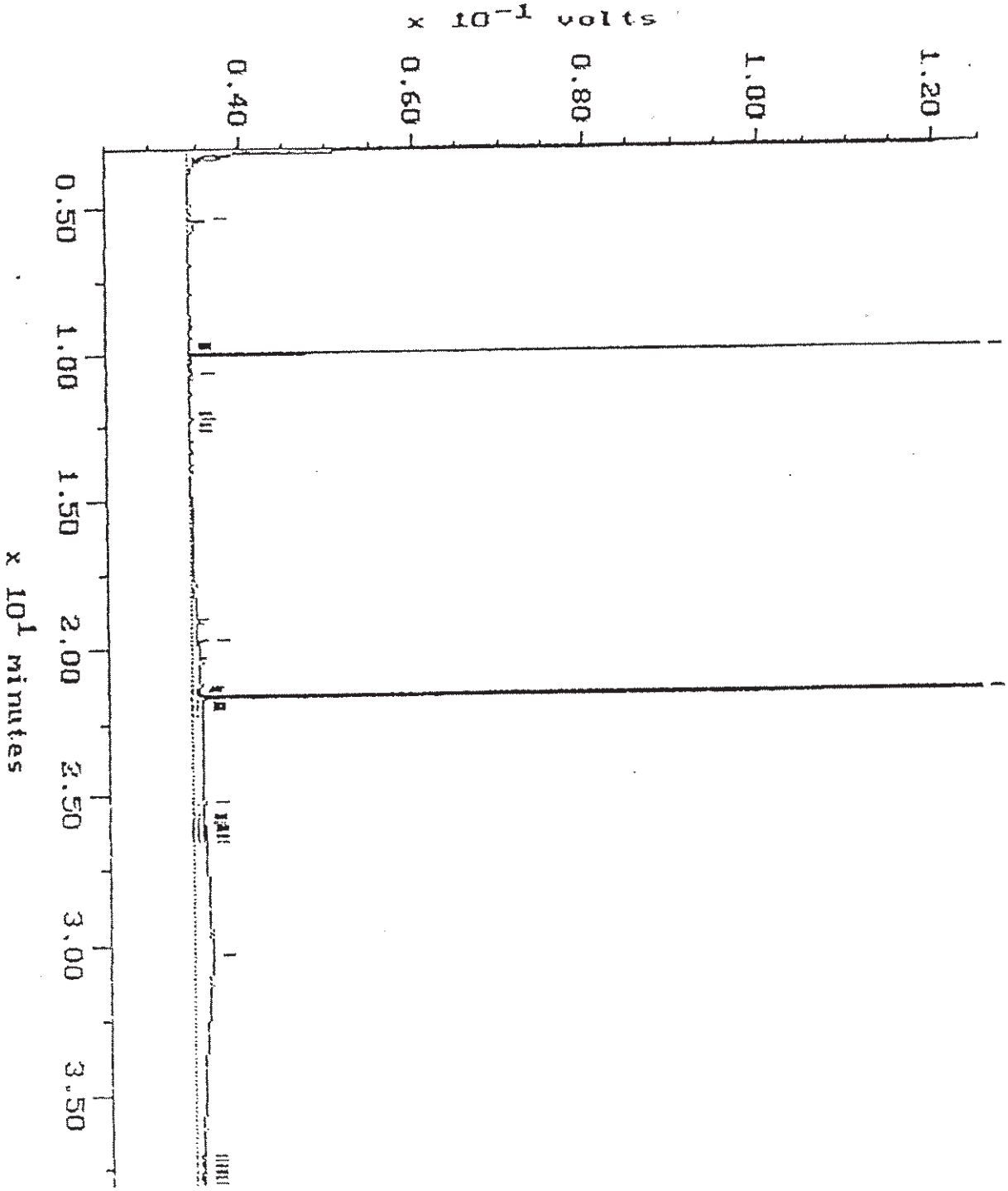
WA DOE WTPH-HCID

409600-16

Sample: 409104-16
Acquired: 14-SEP-94 20:16

Channel: WILMA
Method: F:\BRO2\MAXDATA\WILMA\FUEL0914

Filename: R9148W07
Operator: BRO



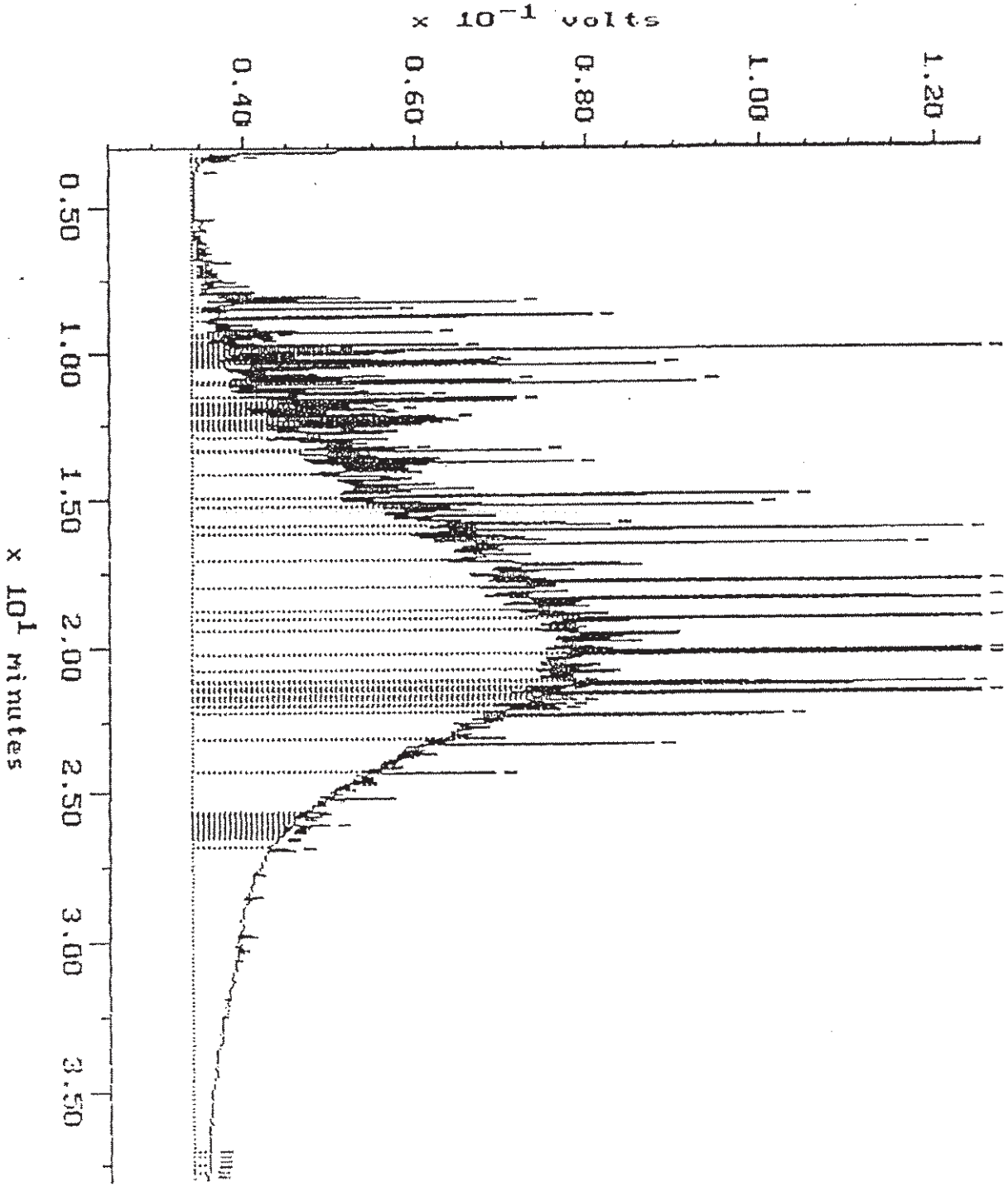
WA DOE WTPH-HCID

409600-17

Sample: 409104-17
Acquired: 14-SEP-94 21:49

Channel: WILMA
Method: F:\BRO2\MAXDATA\WILMA\FUEL0914

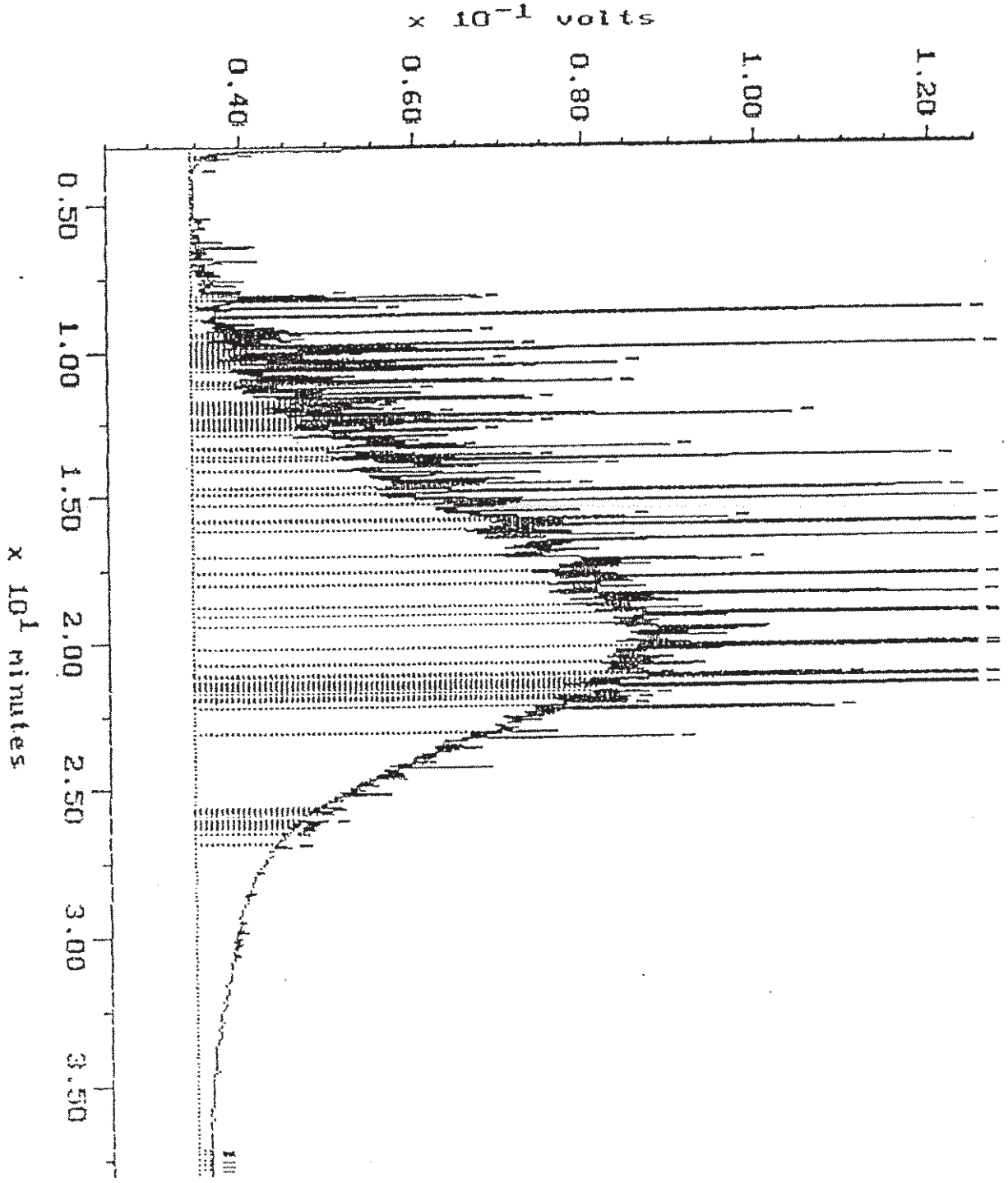
Filename: R9148W09
Operator: BRO



WA DOE WTPH-HCID

409600-13

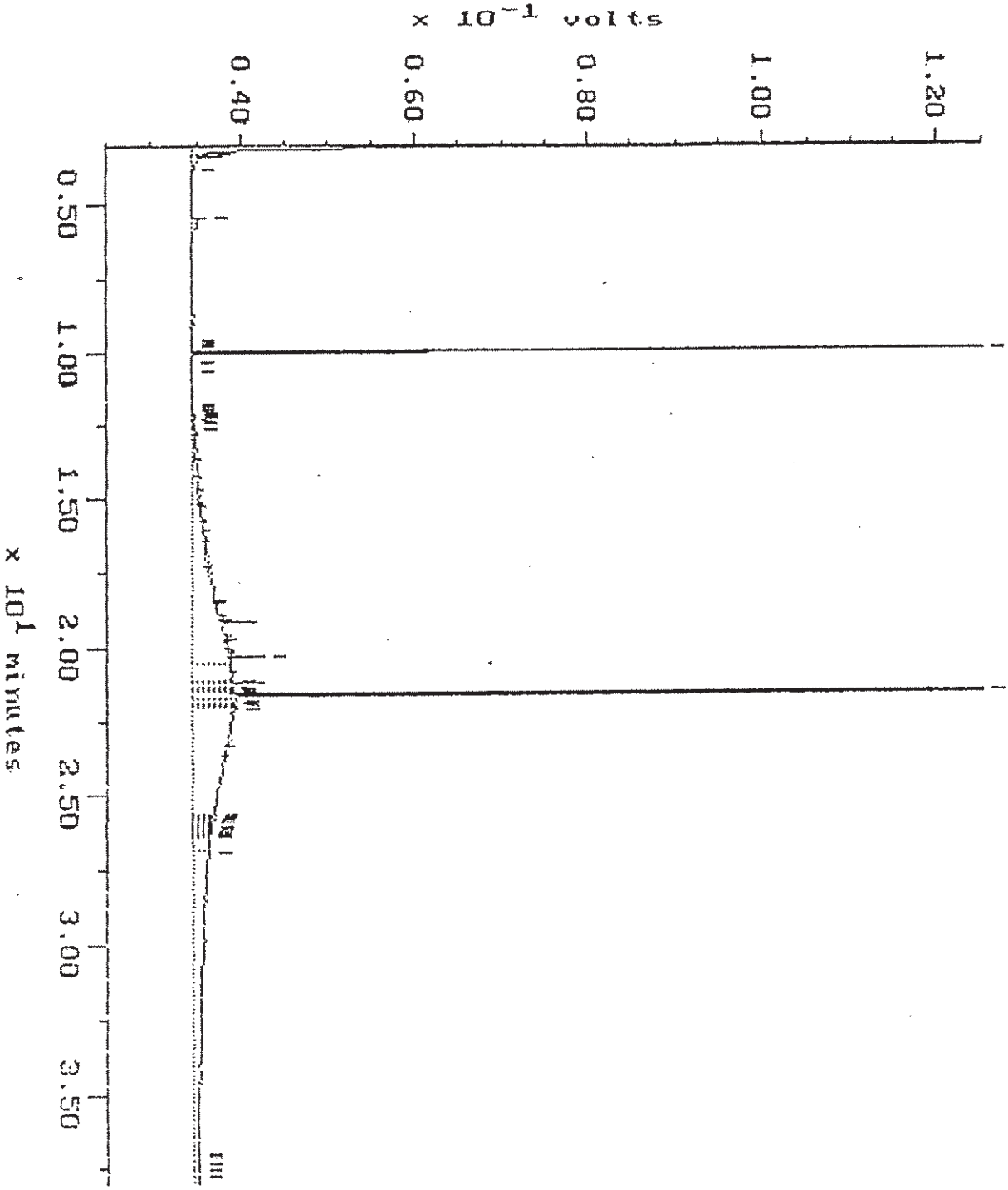
Sample: 409104-18 Channel: WILMA Filename: R9148W13
Acquired: 15-SEP-94 0:55 Method: F:\BRO2\MAXDATA\WILMA\FUEL0914 Operator: BRO



WA DOE WTPH-HCID

409104-19 600-ft

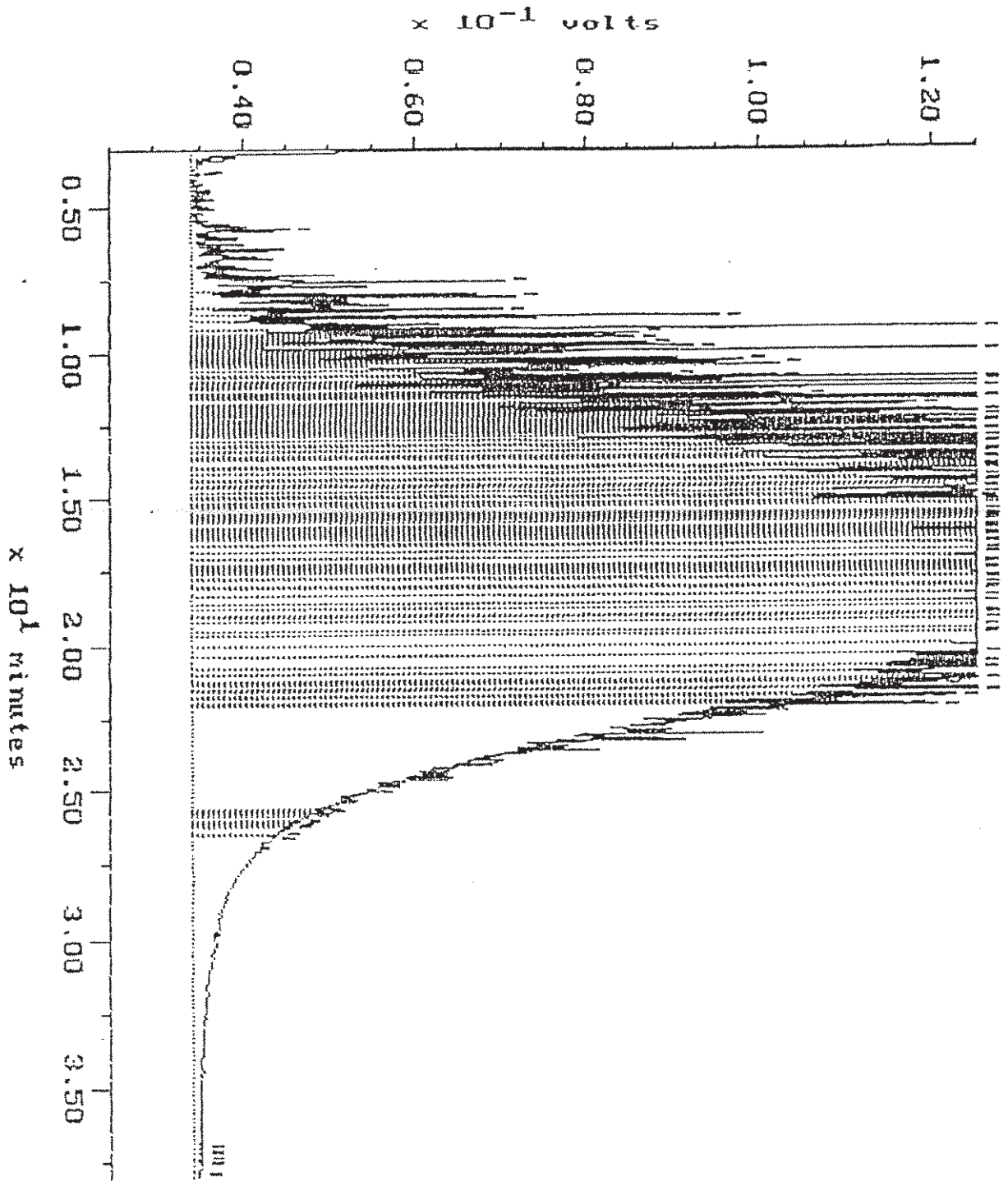
Sample: 409104-19 Channel: WILMA Filename: R9148W14
Acquired: 15-SEP-94 1:42 Method: F:\BRO2\MAXDATA\WILMA\FUEL0914 Operator: BRO



WA DOE WTPH-HCID

409609-21

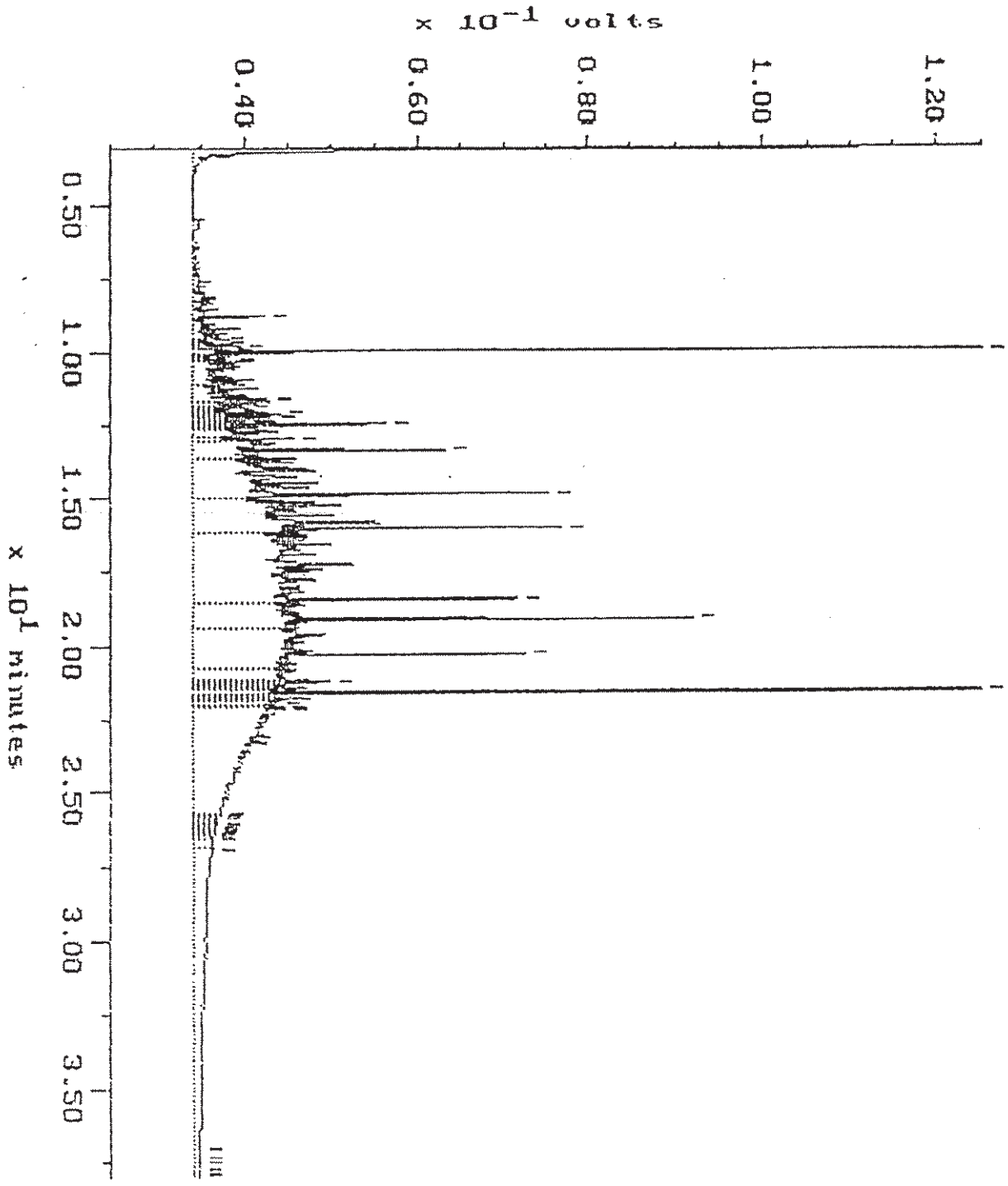
Sample: 409104-21 Channel: WILMA Filename: R9148W16
Acquired: 15-SEP-94 3:15 Method: F:\BRO2\MAXDATA\WILMA\FUEL0914 Operator: BRO



WA DOE WTPH-HCID

409600-22

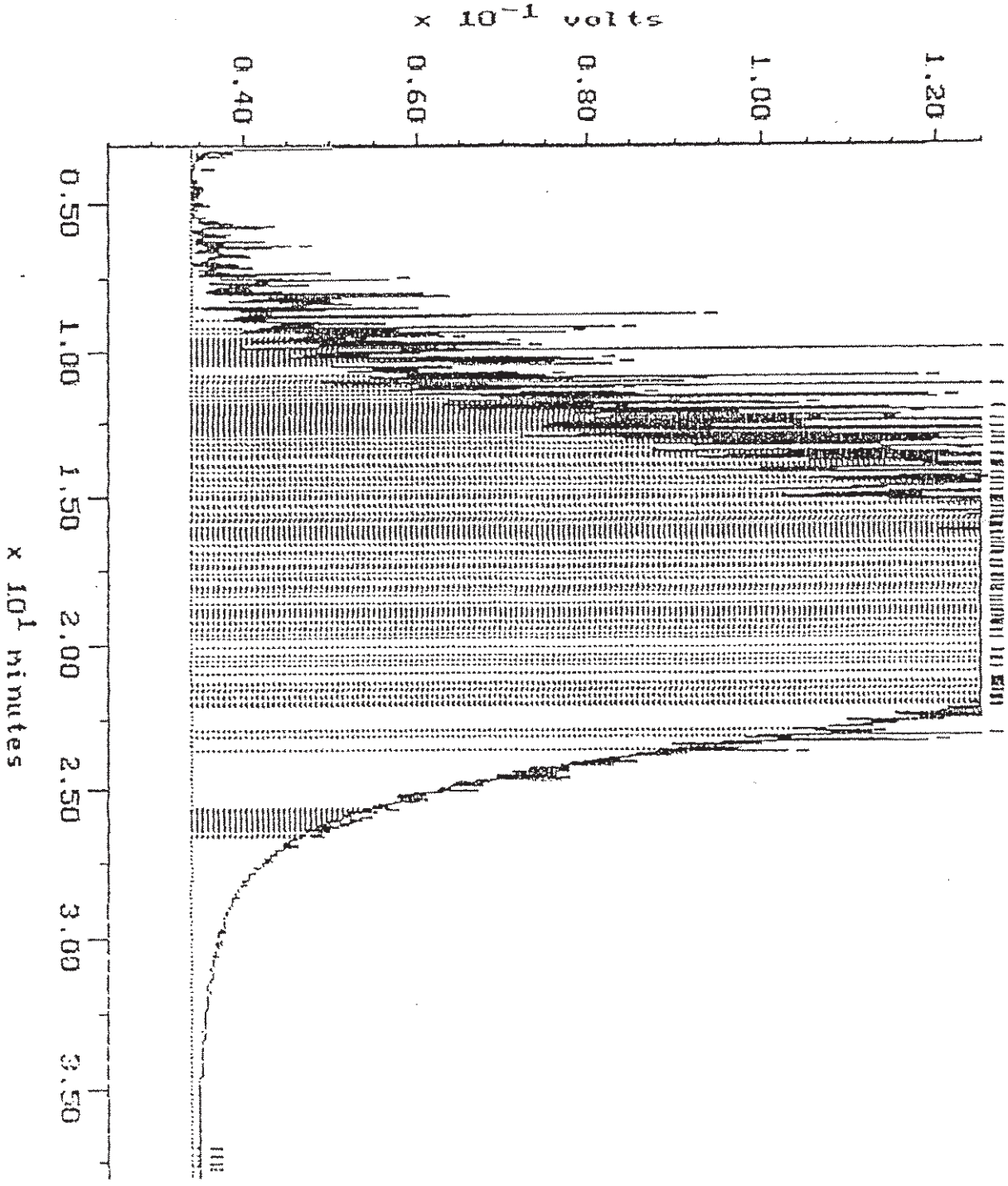
Sample: 409104-22 Channel: WILMA Filename: R9148W17
Acquired: 15-SEP-94 4:02 Method: F:\BRO2\MAXDATA\WILMA\FUEL0914 Operator: BRO



WA DOE WTPH-HCID

409104-23

Sample: 409104-23 Channel: WILMA Filename: R9148W18
Acquired: 15-SEP-94 4:49 Method: F:\BRO2\MAXDATA\WILMA\FUEL0914 Operator: BRO



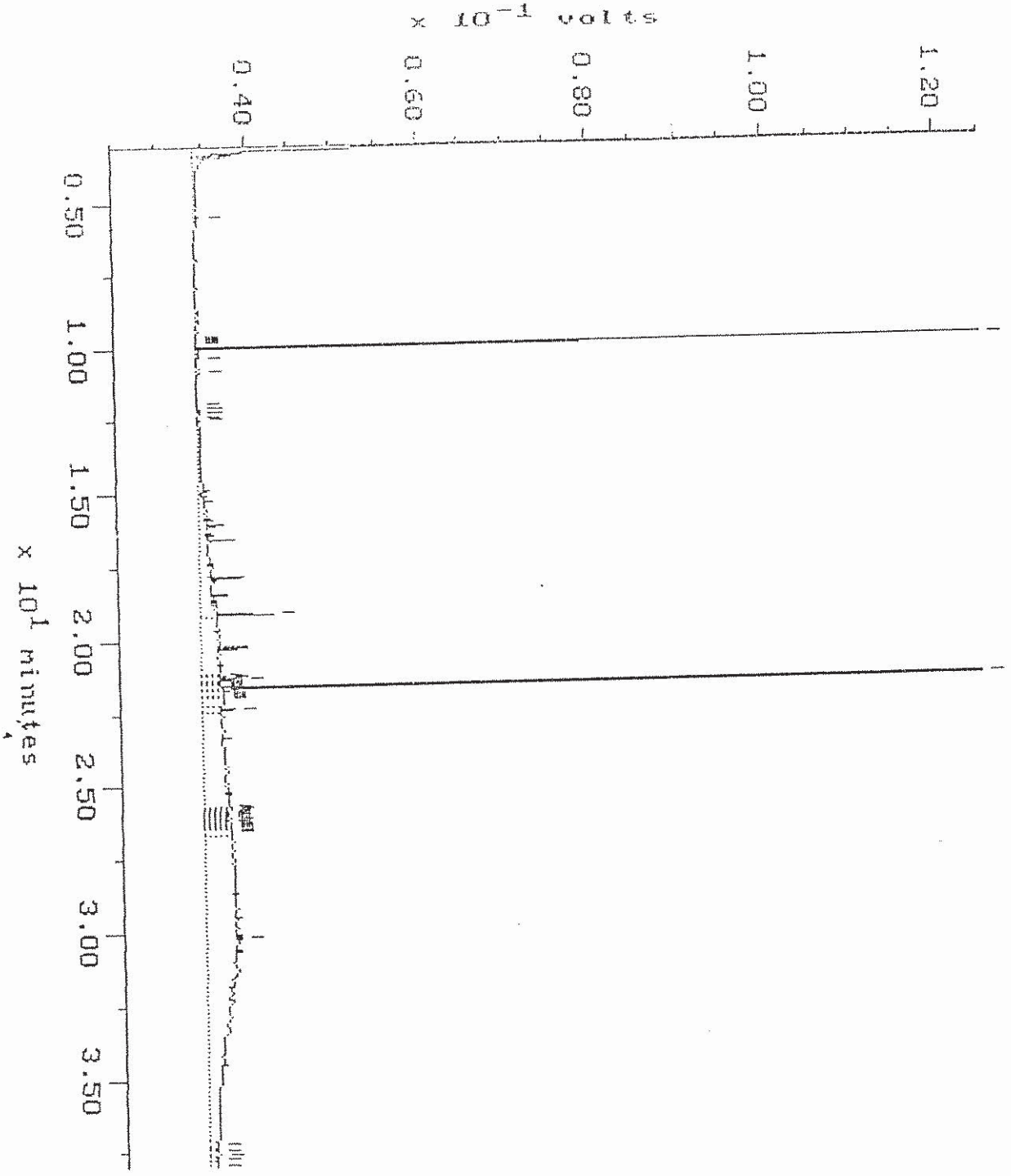
WA DOE WTPH-HCID

409600-26

Sample: 409116-1
Acquired: 19-SEP-94 1:04

Channel: WILMA
Method: F:\3R02\MAXDATA\WILMA\FUEL0918

Filename: R9189W10
Operator: BRO



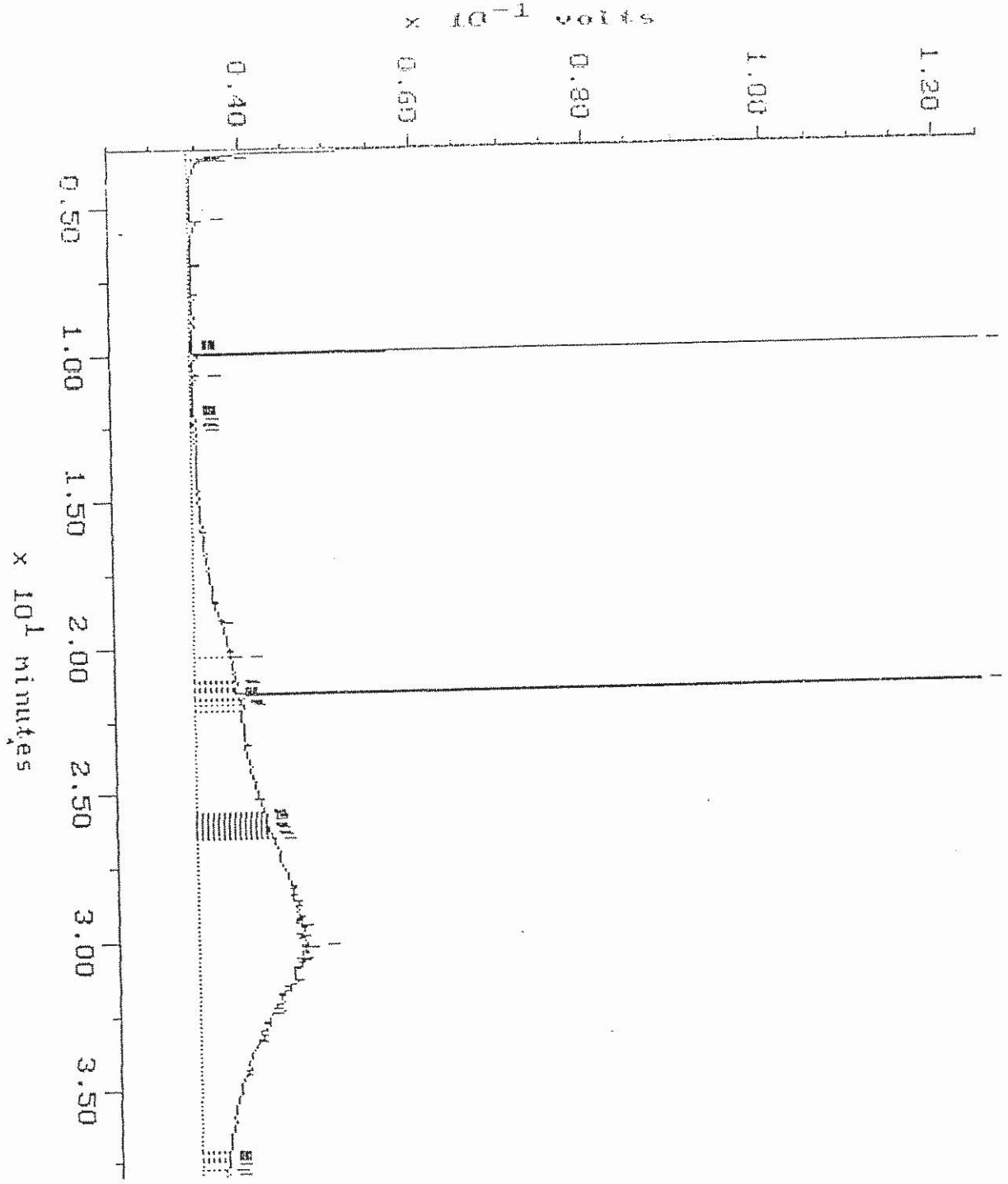
WA DOE WTPH-HCID

409600-29

Sample: 409116-4
Acquired: 19-SEP-94 5:45

Channel: WILMA
Method: F:\BRO2\MAXDATA\WILMA\FUEL0918

Filename: R9188W16
Operator: BRO



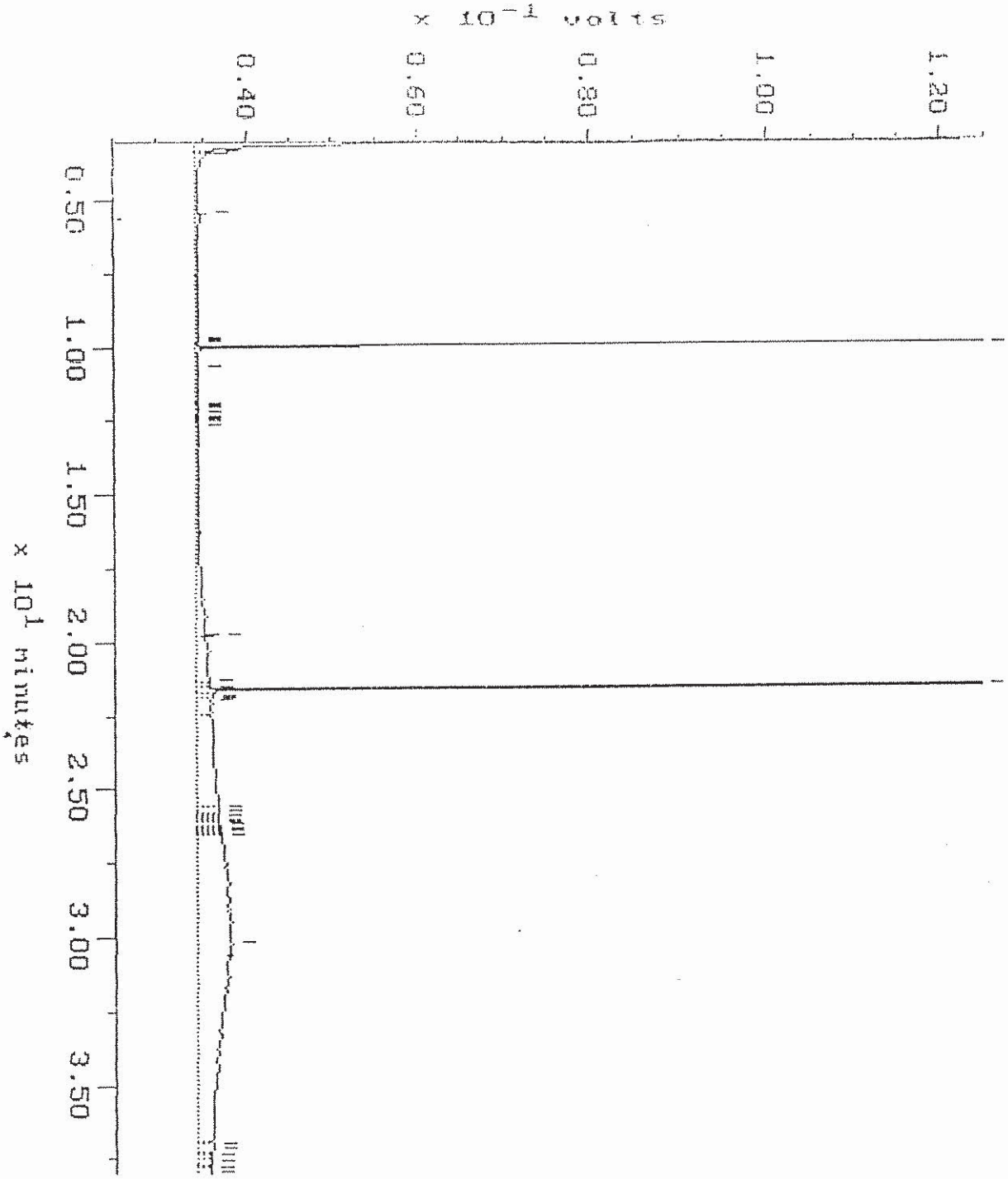
WA DOE WTPH-HCID

409688-30

Sample: 409116-5
Acquired: 19-SEP-94 6:32

Channel: WILMA
Method: F:\BRO2\MAXDATA\WILMA\FUEL2918

Filename: R9188W17
Operator: BRO



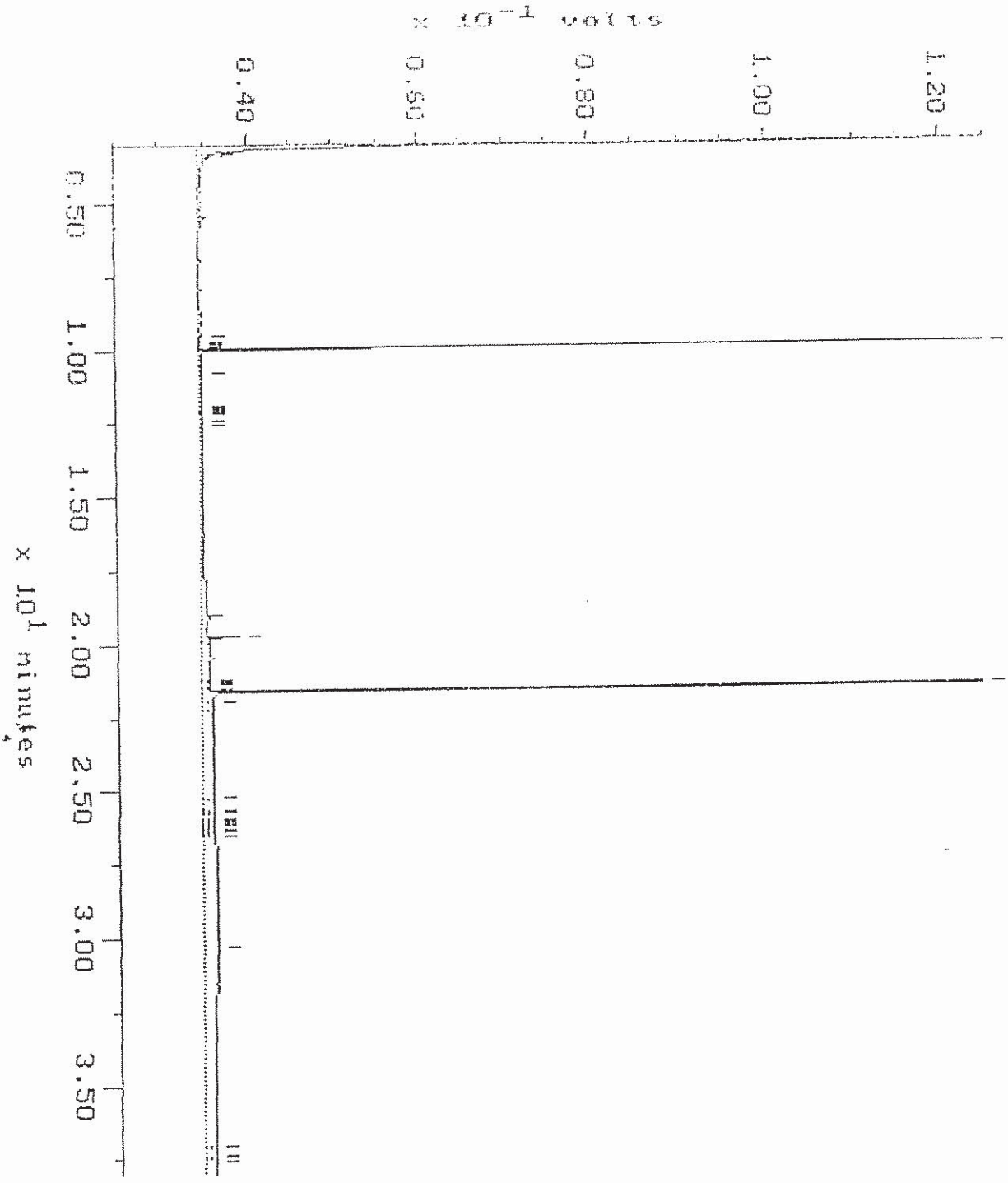
WA DOE WTPH-HCID

408600-31

Sample: 409116-6
Acquired: 19-SEP-94 7:18

Channel: WILMA
Method: F:\BR02\MAXDATA\WILMA\FUEL0918

Filename: R9108W18
Operator: BRD



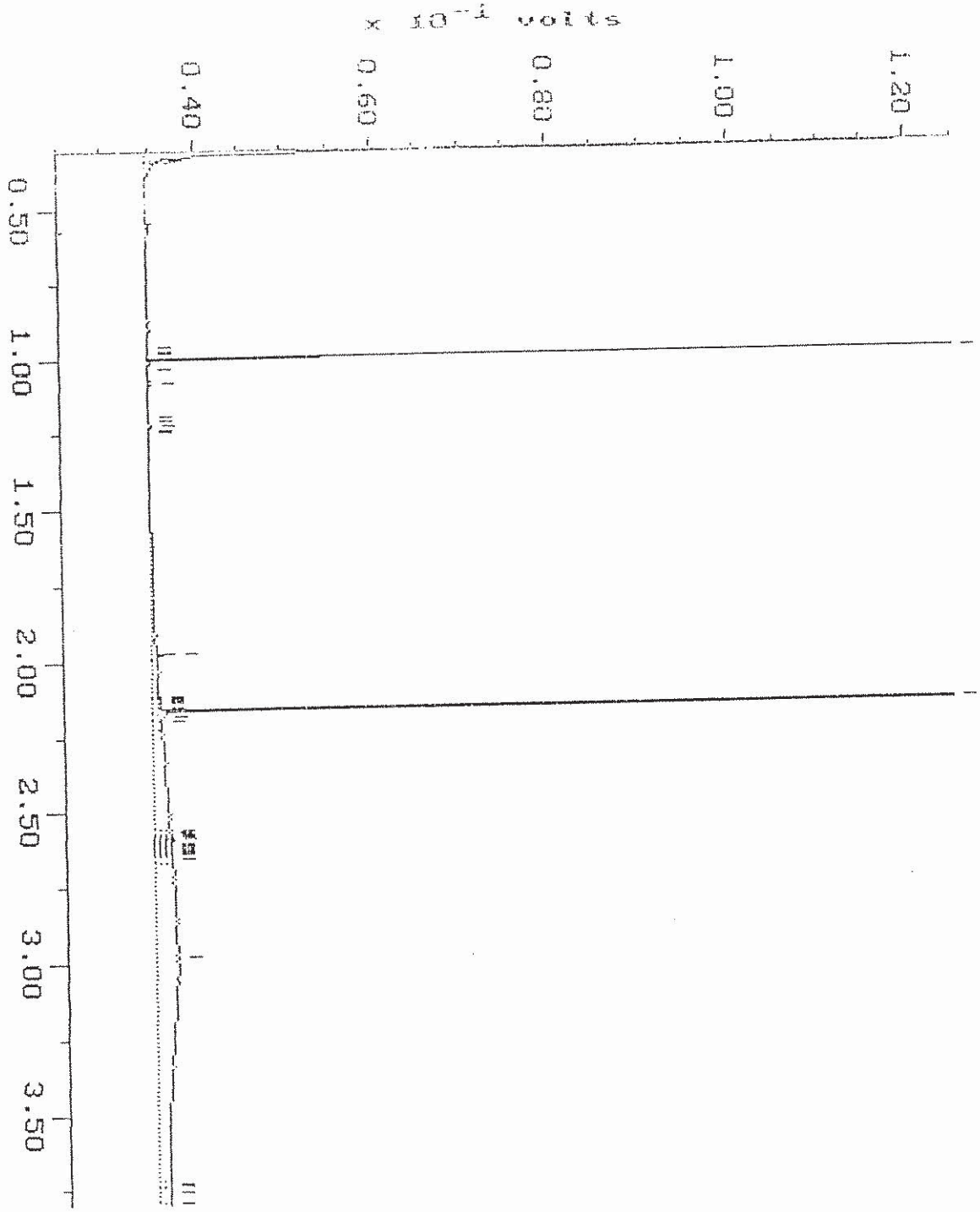
WA DOE WTPH-HCID

4916B-3L

Sample: 469116-7
Acquired: 19-SEP-94 8:05

Channel: WILM3
Method: F:\B302\MAXDATA\WILMA\FUEL0918

Filename: R9183W19
Operator: BRO



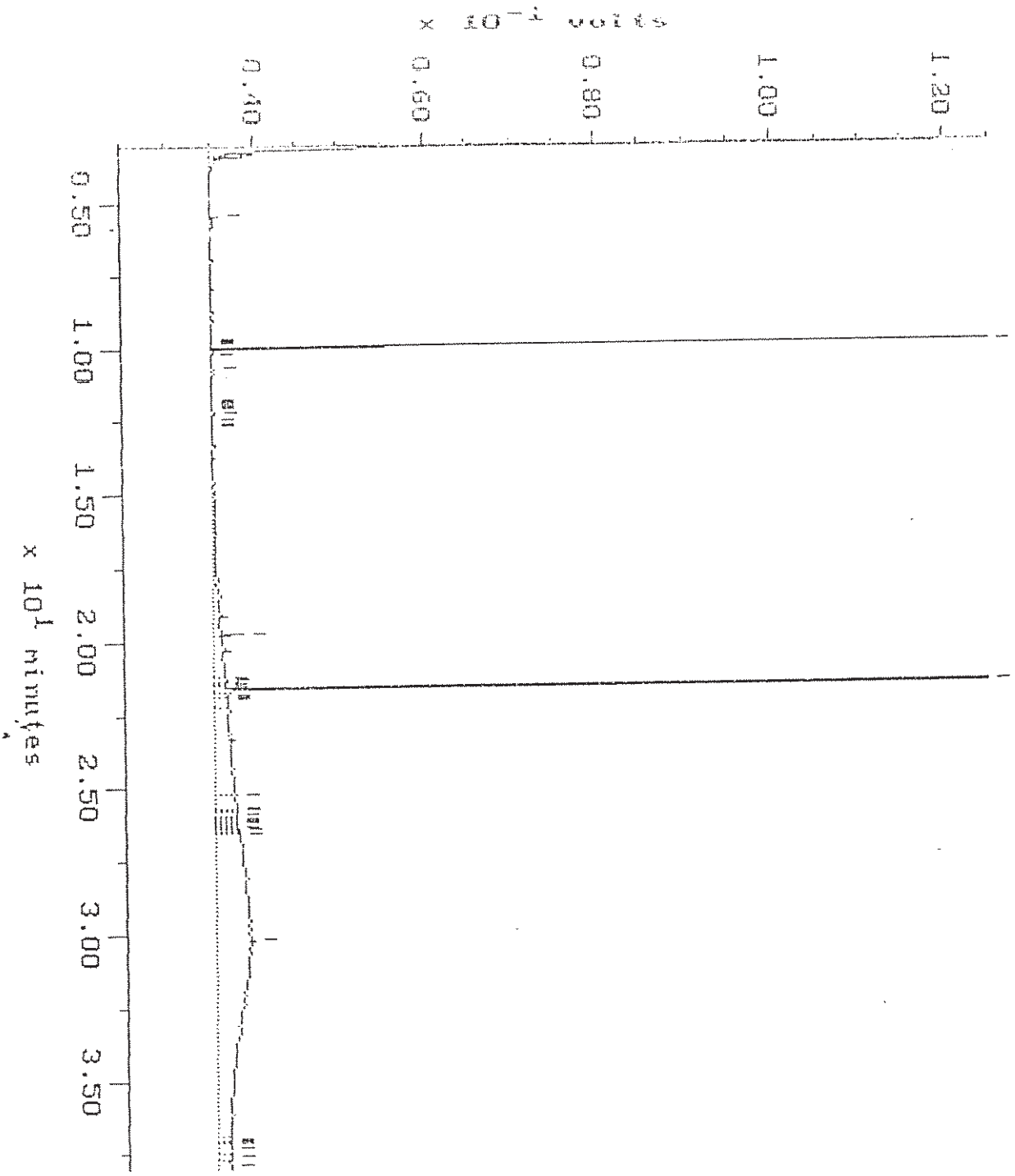
WA DOE WTPH-HCID

9960-33

Sample: 409116-8
Acquired: 19-SEP-94 9:52

Channel: WILMA
Method: F:\SRO3\MAXDATA\WILMA\FUEL0918

Filename: 99180M20
Operator: SRO



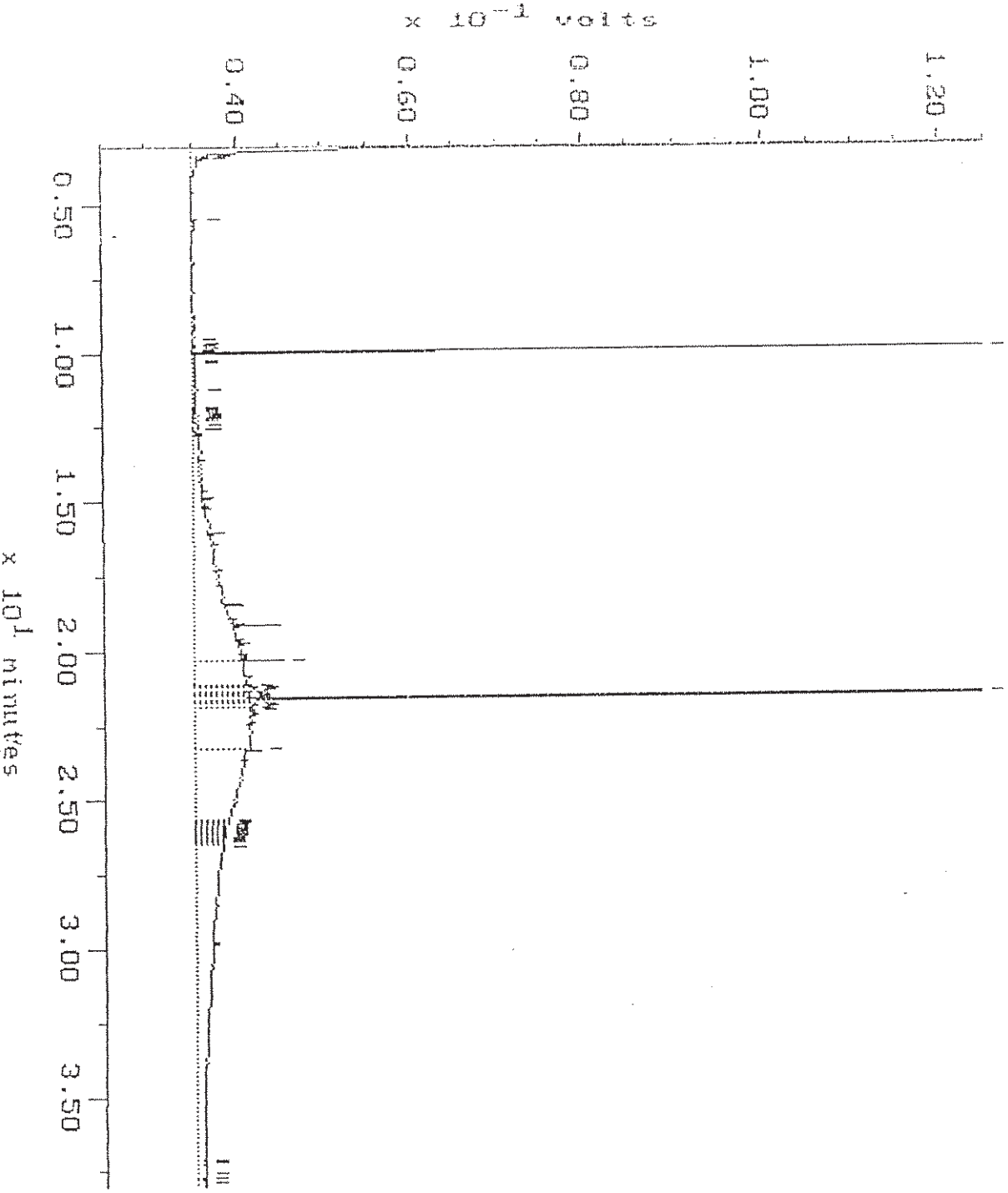
WA DOE WTPH-HCID

409360-34

Sample: 409116-9
Acquired: 19-SEP-94 9:38

Channel: WILMA
Method: F:\5802\MAXDATA\WILMA\FUEL0918

Filename: R9188W21
Operator: SRO



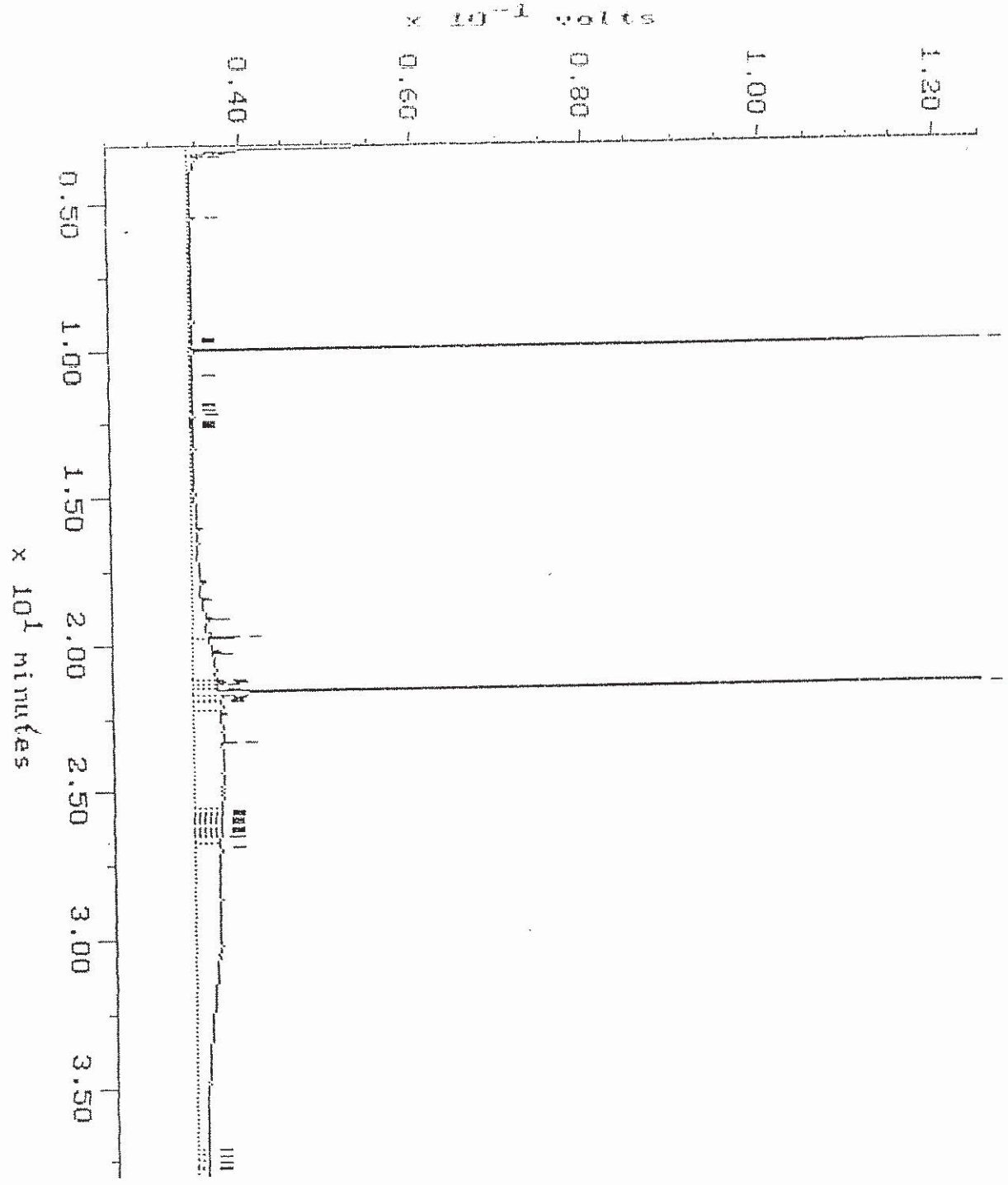
WA DOE WTPH-HCID

407600-35

Sample: 409116-10
Acquired: 18-SEP-94 23:31

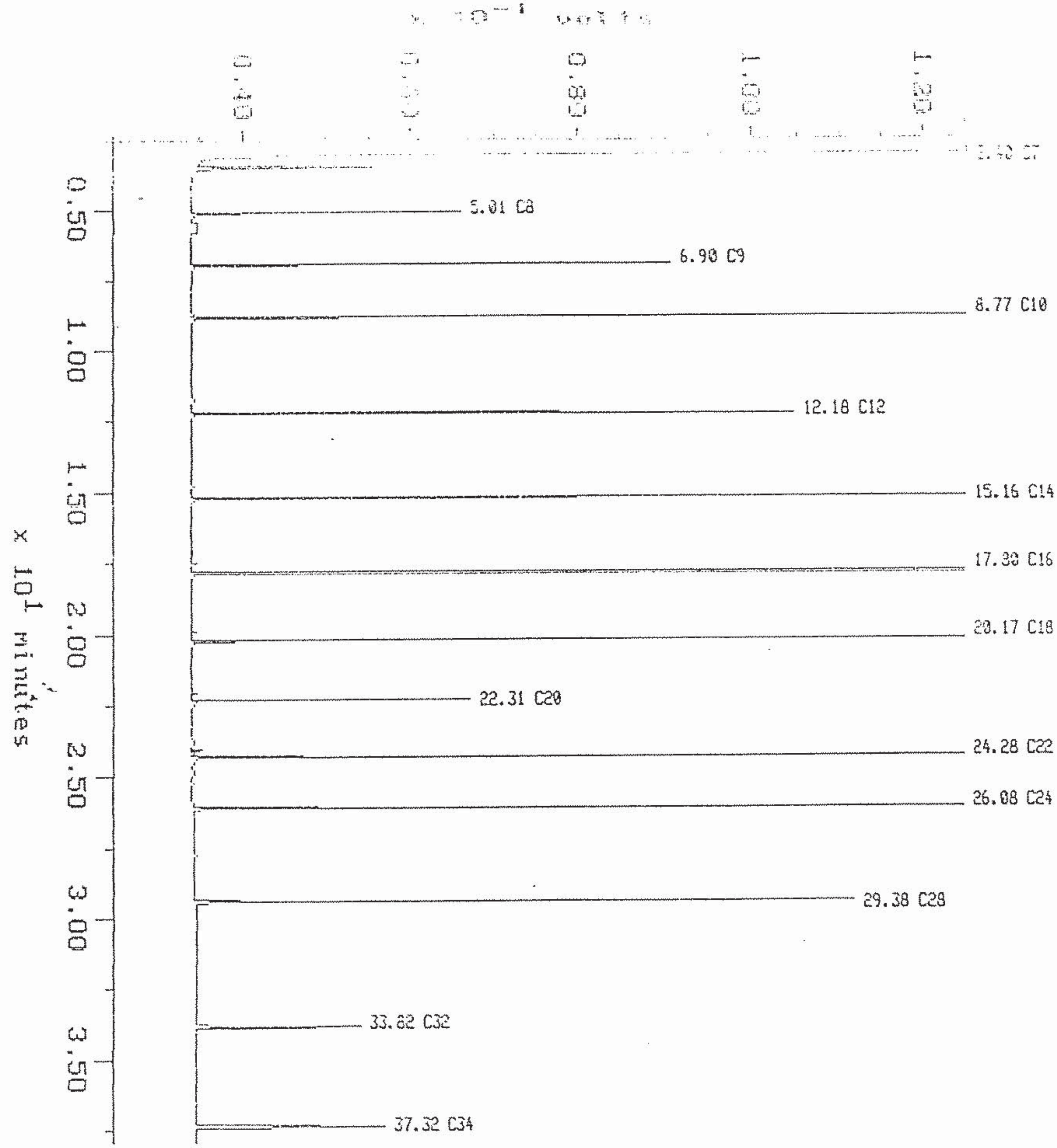
Channel: WILMA
Method: F:\BRO2\MAXDATA\WILMA\FUEL0918

Filename: R9188W03
Operator: BRO



Alkane

Sample: ALKANE   Channel: WILMA   Filename: [illegible]
Acquired: [illegible]   Method: [illegible]   Operator: [illegible]
Inj Vol: [illegible]



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY SUMMARY RESULTS

TEST:	BETX (EPA 8020M)	ATI I.D.:	409600
CLIENT:	Hart Crowser	DATE RECEIVED:	09/12/94
PROJECT #:	J-5407	DATE EXTRACTED:	09/20/94
PROJECT NAME:	Chevron 61001840	DATE ANALYZED:	09/21/94
SAMPLE MATRIX:	SOIL	UNITS:	mg/Kg

RESULTS CORRECTED FOR MOISTURE CONTENT

ATI I.D.	CLIENT I.D.	DATE SAMPLED	DF	MRL	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES	TFT (50%-138%)
409600-0	Method Blank	N/A	1	0.025	ND	ND	ND	ND	105%
409600-5	TP-5/S-1	09/08/94	1	0.031	ND	ND	0.30	1.3	84%
409600-6	TP-5/S-2	09/08/94	1	0.030	ND	ND	0.37	1.3	92%
409600-8	TP-7/S-1	09/08/94	1	0.027	ND	ND	ND	ND	93%
409600-10	TP-9/S-1	09/09/94	1	0.027	ND	ND	ND	ND	100%
409600-14	TP-13/S-1	09/09/94	1	0.029	ND	ND	5.7	24	94%
409600-15	TP-13/S-2	09/09/94	1	0.030	ND	ND	0.095	0.46	83%
409600-17	TP-15/S-1	09/09/94	1	0.027	ND	ND	ND	0.37	84%
409600-18	TP-15/S-2	09/09/94	1	0.028	ND	ND	ND	1.5	102%
409600-21	TP-18/S-1	09/09/94	1	0.030	ND	ND	0.75	2.3	89%
409600-22	TP-18/S-2	09/09/94	1	0.029	ND	ND	ND	0.075	88%
409600-23	TP-18/S-3	09/09/94	1	0.030	ND	ND	0.80	1.9	90%

Analyst: CS 9-22-94

Reviewer: LO 9/22/94

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY SPIKE RESULTS

		ATI ID:	409600
METHOD:	BETX (EPA 8020M)	QC SAMPLE:	409600-8
CLIENT:	Hart Crowser	DATE EXTRACTED:	09/20/94
PROJECT #:	J-5407	DATE ANALYZED:	09/21/94
PROJECT NAME:	Chevron 61001840	DILUTION FACTOR:	1
SAMPLE MATRIX:	SOIL	UNITS:	mg/kg

RESULTS CORRECTED FOR MOISTURE CONTENT

PARAMETER		SAMPLE RESULT	SPIKE CONC.	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
BENZENE	<	0.027	1.10	0.90	82	0.96	87	6
TOLUENE	<	0.027	1.10	1.00	91	1.05	95	5
ETHYLBENZENE	<	0.027	1.10	1.00	91	1.06	96	6
TOTAL XYLENES	<	0.027	3.30	2.98	90	3.15	95	6
SURROGATE:								
TRIFLUOROTOLUENE (50% - 138%)					86%		87%	

CONTROL LIMITS

	% REC	RPD
BENZENE	55-121	20
TOLUENE	54-125	20
ETHYLBENZENE	55-127	20
TOTAL XYLENES	50-140	20

Analyst: CS 9-22-94

Reviewer: LO 9/22/94

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST:	TPH-GASOLINE (Washington)	ATI I.D.:	409600
CLIENT:	Hart Crowser	DATE RECEIVED:	09/12/94
PROJECT #:	J-5407	DATE EXTRACTED:	09/20/94
PROJECT NAME:	Chevron 61001840	UNITS:	mg/Kg
SAMPLE MATRIX:	SOIL		

RESULTS CORRECTED FOR MOISTURE CONTENT

ATI ID	CLIENT ID	DATE SAMPLED	DATE ANALYZED	DF	MRL	GASOLINE (C7 - C12)	TFT (56%-143%)
409600-0	Method Blank	N/A	09/21/94	1	5.0	ND	110%
409600-5	TP-5/S-1	09/08/94	09/22/94	5	31	590	84%
409600-6	TP-5/S-2	09/08/94	09/22/94	5	30	720	93%
409600-8	TP-7/S-1	09/08/94	09/22/94	1	5.5	ND	98%
409600-10	TP-9/S-1	09/09/94	09/21/94	1	5.5	25	104%
409600-14	TP-13/S-1	09/09/94	09/23/94	50	290	9400	96%
409600-15	TP-13/S-2	09/09/94	09/22/94	1	6.0	87	89%
409600-17	TP-15/S-1	09/09/94	09/21/94	1	5.5	300	88%
409600-18	TP-15/S-2	09/09/94	09/22/94	5	28	350	104%
409600-21	TP-18/S-1	09/09/94	09/22/94	10	60	1200	88%
409600-22	TP-18/S-2	09/09/94	09/23/94	1	5.7	57	99%
409600-23	TP-18/S-3	09/09/94	09/23/94	10	60	1100	100%

Analyst: CS 9-23-94

Reviewer: JJ 9/23/94

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY DUPLICATE RESULTS

		ATI ACCESSION:	409600
TEST:	TPH-GASOLINE (Washington)	QC SAMPLE:	409600-8
CLIENT:	Hart Crowser	DATE EXTRACTED:	09/20/94
PROJECT #:	J-5407	DATE ANALYZED:	09/22/94
PROJECT NAME:	Chevron 61001840	DILUTION FACTOR:	1
SAMPLE MATRIX:	SOIL	UNITS:	mg/Kg

RESULTS CORRECTED FOR MOISTURE CONTENT

PARAMETER	MRL	SAMPLE RESULT	SAMPLE DUP RESULT	RPD
GASOLINE	5.5	ND	ND	N/A
SURROGATE:				
TRIFLUOROTOLUENE (56% - 143%)		98%	101%	

CONTROL LIMITS

	RPD
Gasoline	20

Analyst: CS 9-23-94

Reviewer: [illegible] 9/23/94

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY DUPLICATE RESULTS

		ATI ACCESSION:	409600
TEST:	TPH-GASOLINE (Washington)	QC SAMPLE:	409600-22
CLIENT:	Hart Crowser	DATE EXTRACTED:	09/20/94
PROJECT #:	J-5407	DATE ANALYZED:	09/23/94
PROJECT NAME:	Chevron 61001840	DILUTION FACTOR:	1
SAMPLE MATRIX:	SOIL	UNITS:	mg/Kg

RESULTS CORRECTED FOR MOISTURE CONTENT

PARAMETER	MRL	SAMPLE RESULT	SAMPLE DUP RESULT	RPD
GASOLINE	5.7	57	64	12
SURROGATE:				
TRIFLUOROTOLUENE (56% - 143%)		99%	94%	

CONTROL LIMITS

	RPD
Gasoline	20

Analyst: CS 9-23-94

Reviewer: AM 9/23/94

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY SPIKE RESULTS

		ATI ACCESSION:	409600
TEST:	TPH-GASOLINE (WASHINGTON)	**QC SAMPLE:**	409600-10
CLIENT:	Hart Crowser	**DATE EXTRACTED:**	09/20/94
PROJECT #:	J-5407	**DATE ANALYZED:**	09/22/94
PROJECT NAME:	Chevron 61001840	**DILUTION FACTOR:**	1
SAMPLE MATRIX:	SOIL	**UNITS:**	mg/Kg

RESULTS CORRECTED FOR MOISTURE CONTENT

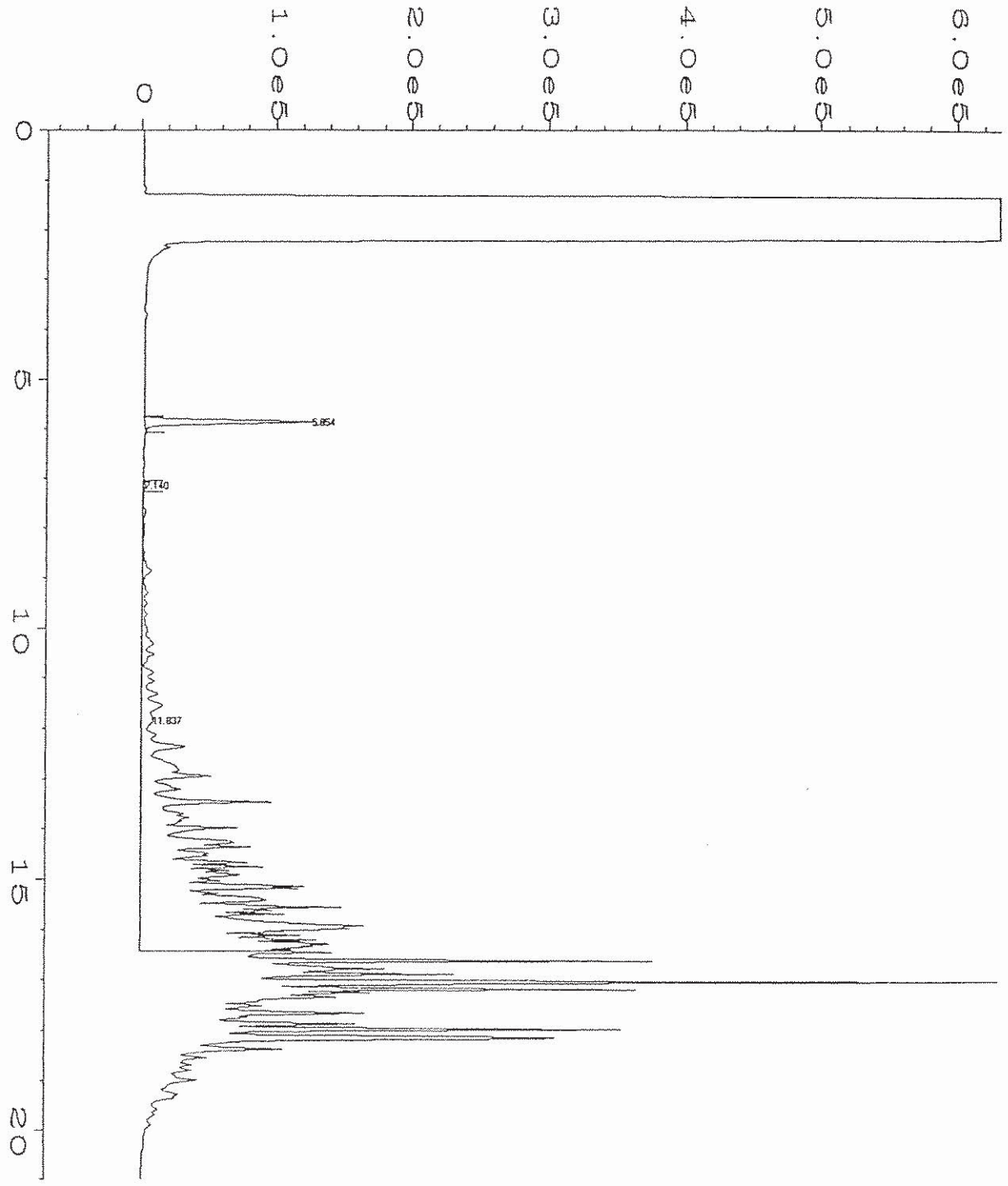
PARAMETER	SAMPLE RESULT	SPIKE CONC.	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
GASOLINE	25	110	106	74	109	76	3
SURROGATE: TRIFLUOROTOLUENE (56% - 143%)			89%		98%		

CONTROL LIMITS

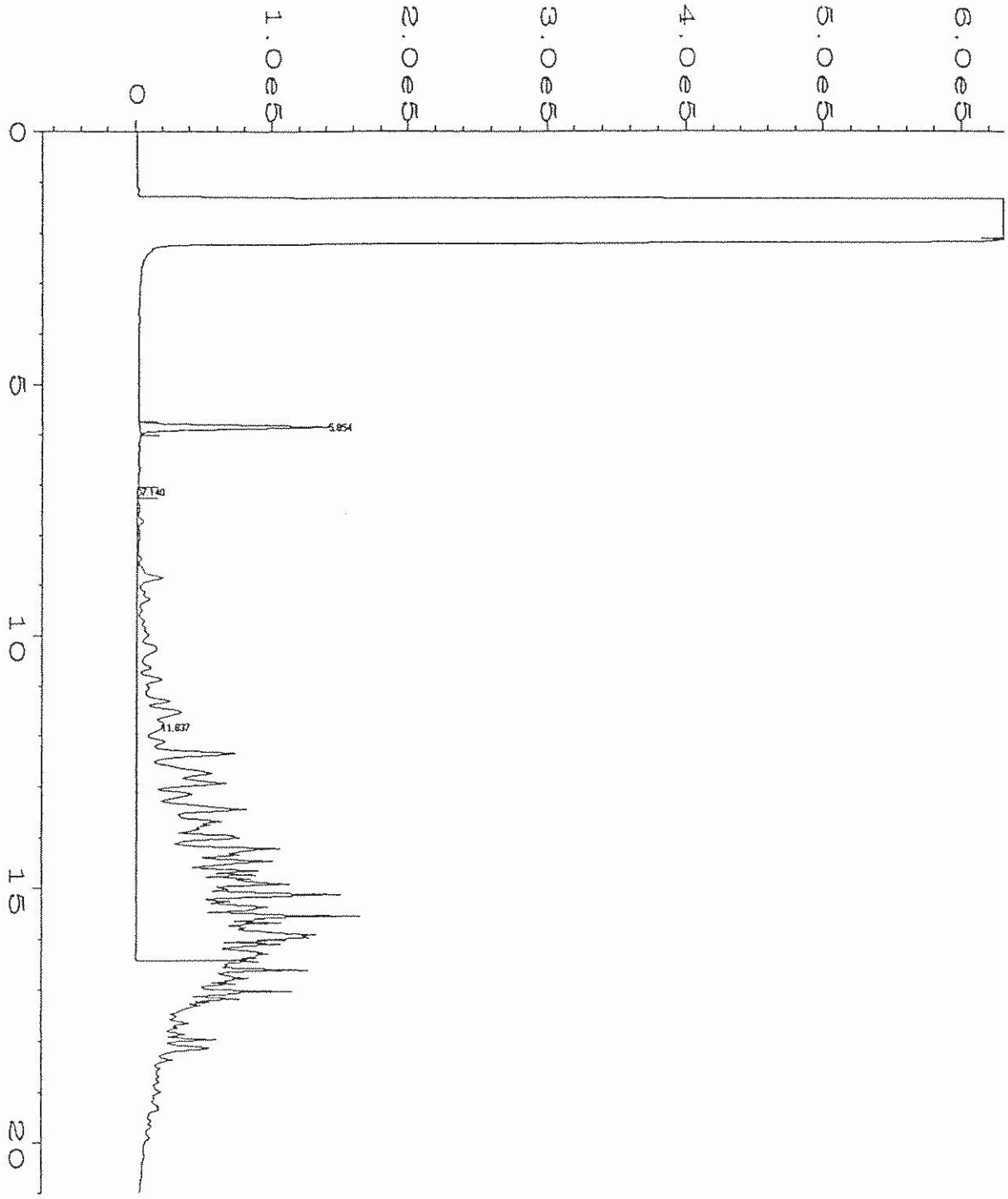
	% REC	RPD
Gasoline	50 - 128	20

Analyst: CS 9-22-94

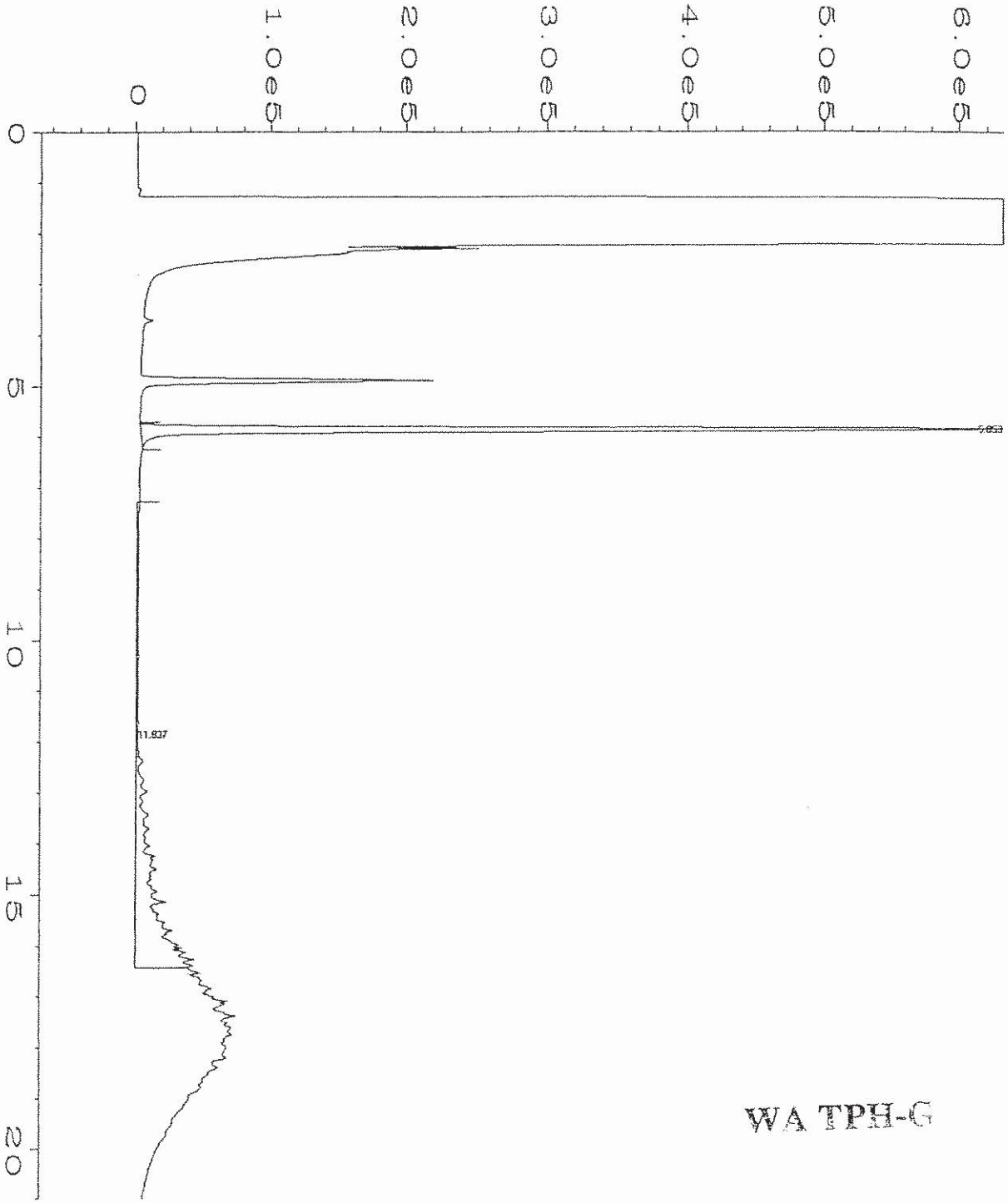
Reviewer: LS 9/22/94



Data File Name	: F:\DATA\FUELS\CRICK\D\940922\010R0101.D		
Operator	: !!FUELS!!	Page Number	: 1
Instrument	: CRICK	Vial Number	: 10
Sample Name	: 409600-5 1:5	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 06:03 PM	Instrument Method	: TPHG.MTH
Report Created on	: 23 Sep 94 09:44 AM	Analysis Method	: W-TPHG.MT
Last Recalib on	: 07 SEP 94 11:38 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

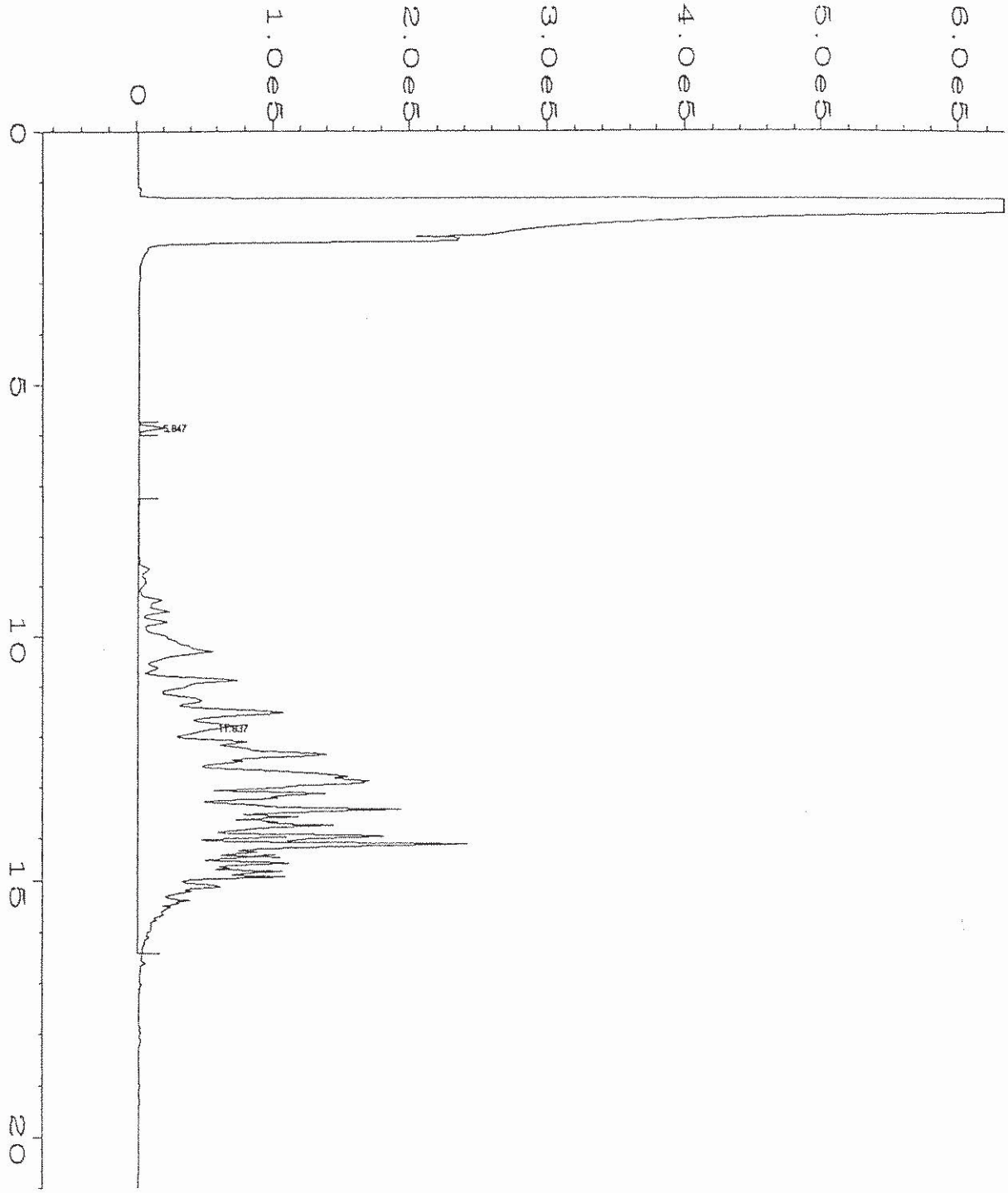


Data File Name	: F:\DATA\FUELS\CRICK\D\940922\011R0101.D		
Operator	: !!FUELS!!	Page Number	: 1
Instrument	: CRICK	Vial Number	: 11
Sample Name	: 409600-6 1:5	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 06:31 PM	Instrument Method	: TPHG.MTH
Report Created on	: 23 Sep 94 09:49 AM	Analysis Method	: W-TPHG.MTH
Last Recalib on	: 07 SEP 94 11:38 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

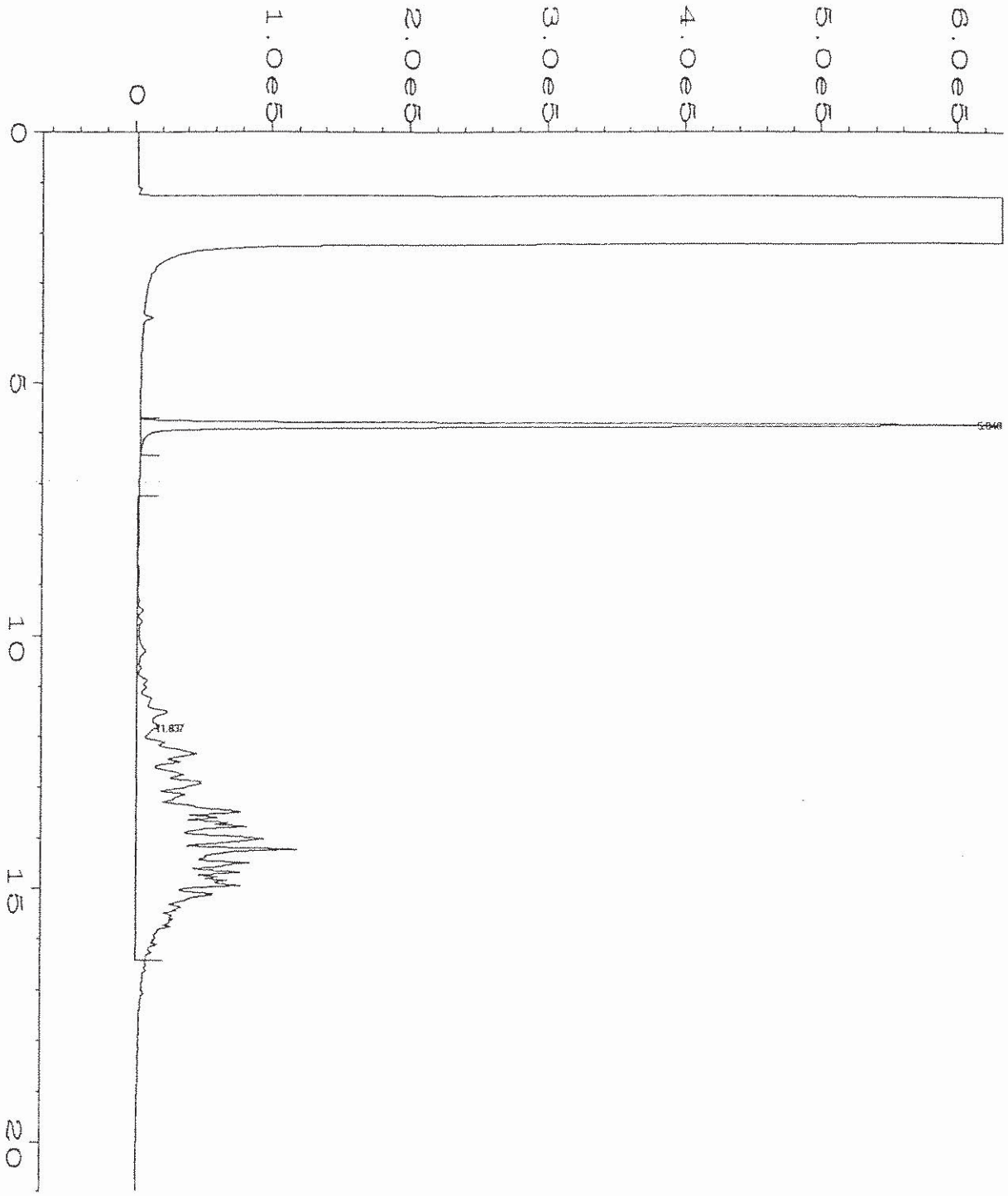


WA TPH-G

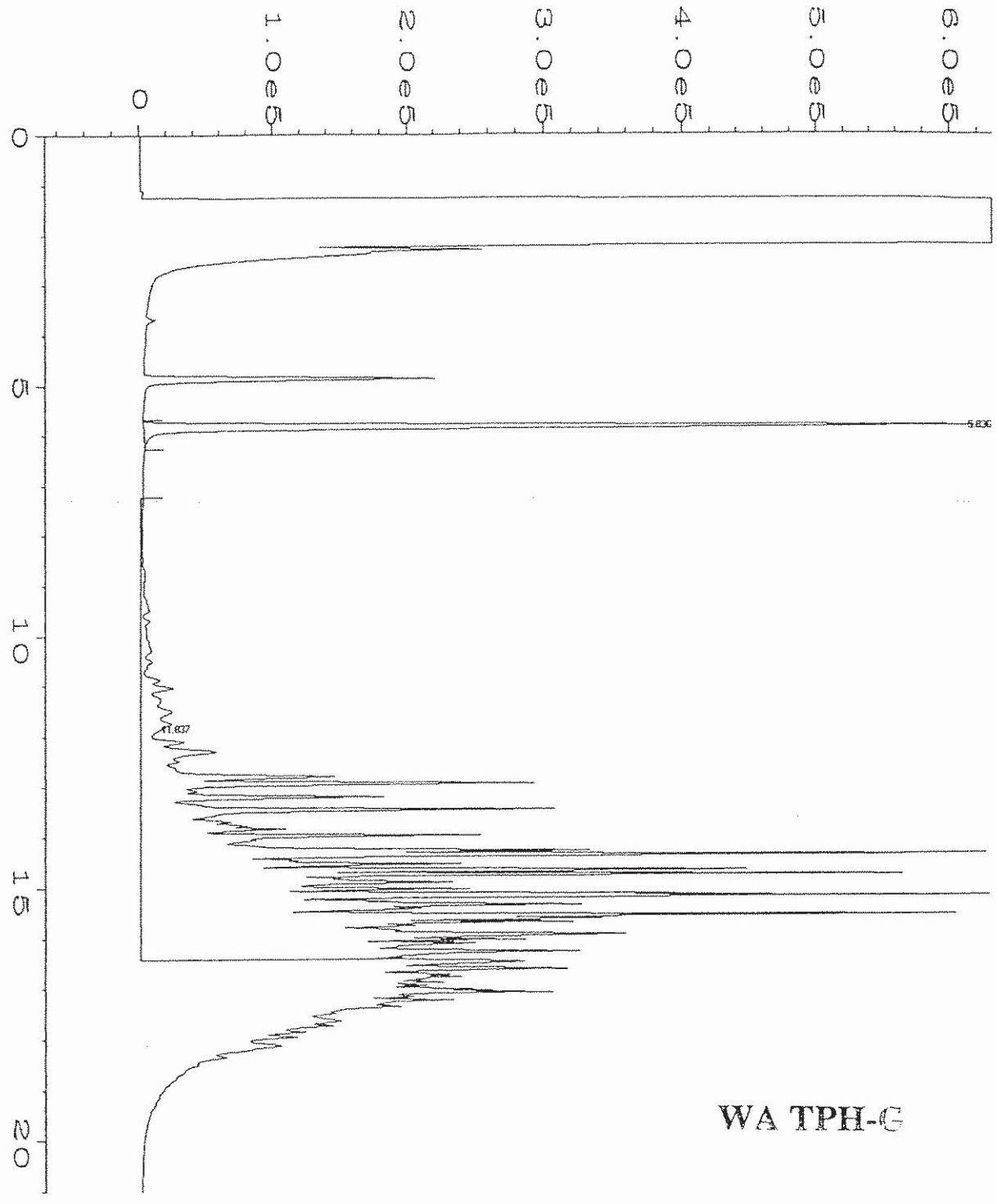
Data File Name	: F:\DATA\FUELS\CRICK\D\940921\008R0101.D		
Operator	: !!FUELS!!	Page Number	: 1
Instrument	: CRICK	Vial Number	: 8
Sample Name	: 409600-10	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 21 Sep 94 04:09 PM	Instrument Method	: TPHG.MTH
Report Created on	: 21 Sep 94 06:03 PM	Analysis Method	: W-TPHG.MT
Last Recalib on	: 07 SEP 94 11:38 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



Data File Name	: F:\DATA\FUELS\CRICK\D\940923\004R0101.D		
Operator	: !!FUELS!!	Page Number	: 1
Instrument	: CRICK	Vial Number	: 4
Sample Name	: 409600-14 1:50	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 23 Sep 94 12:48 PM	Instrument Method	: TPHG.MTH
Report Created on	: 23 Sep 94 01:39 PM	Analysis Method	: W-TPHG.MT
Last Recalib on	: 07 SEP 94 11:38 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

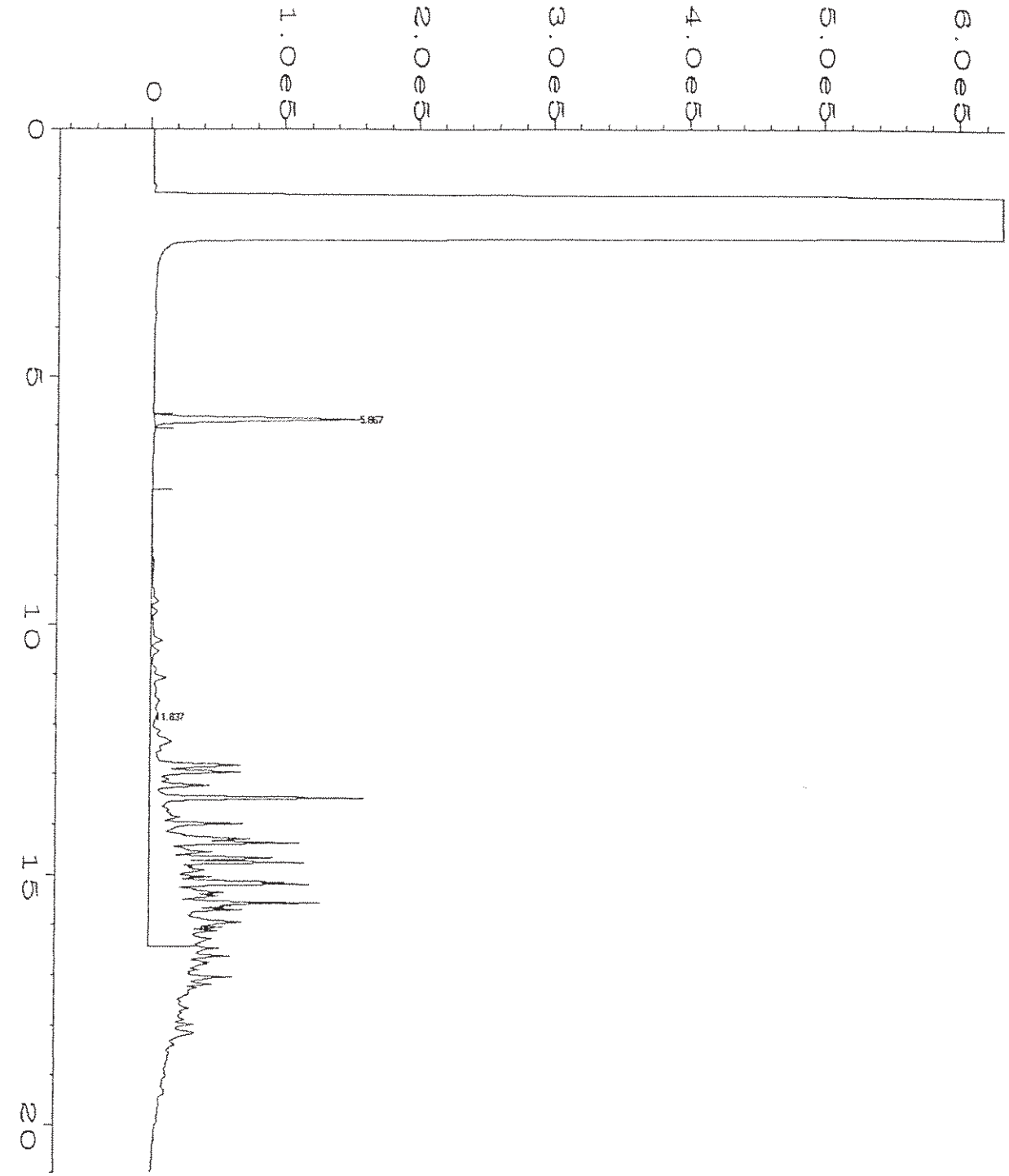


Data File Name	: F:\DATA\FUELS\CRICK\D\940922\018R0101.D		
Operator	: !!FUELS!!	Page Number	: 1
Instrument	: CRICK	Vial Number	: 18
Sample Name	: 409600-15	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 09:47 PM	Instrument Method	: TPHG.MTH
Report Created on	: 23 Sep 94 10:05 AM	Analysis Method	: W-TPHG.MT
Last Recalib on	: 07 SEP 94 11:38 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



WA TPH-G

Data File Name	: F:\DATA\FUELS\CRICK\D\940921\011R0101.D		
Operator	: !!FUELS!!	Page Number	: 1
Instrument	: CRICK	Vial Number	: 11
Sample Name	: 409600-17	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 21 Sep 94 06:26 PM	Instrument Method	: TPHG.MTH
Report Created on	: 22 Sep 94 11:10 AM	Analysis Method	: W-TPHG.MT
Last Recalib on	: 07 SEP 94 11:38 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



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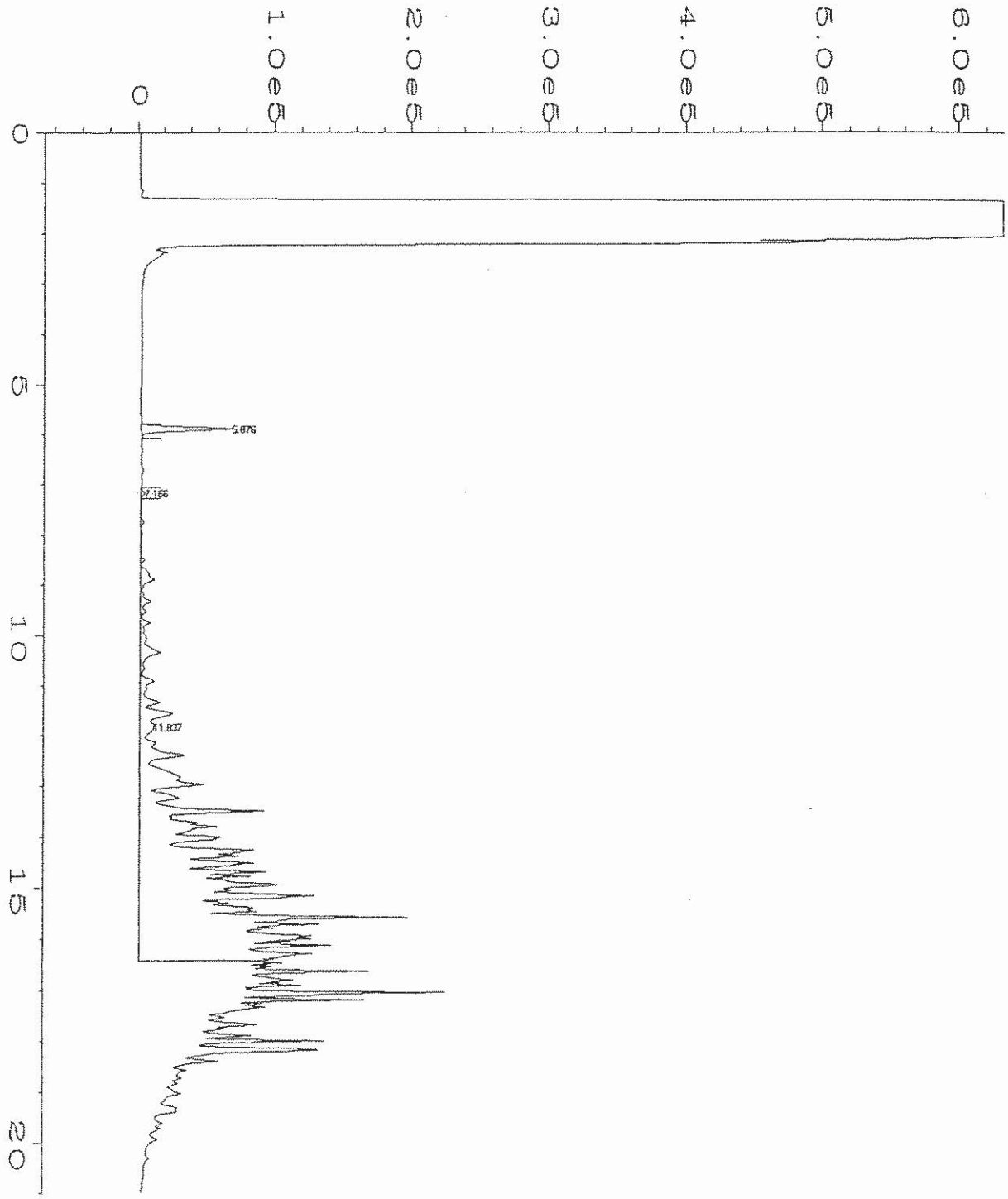
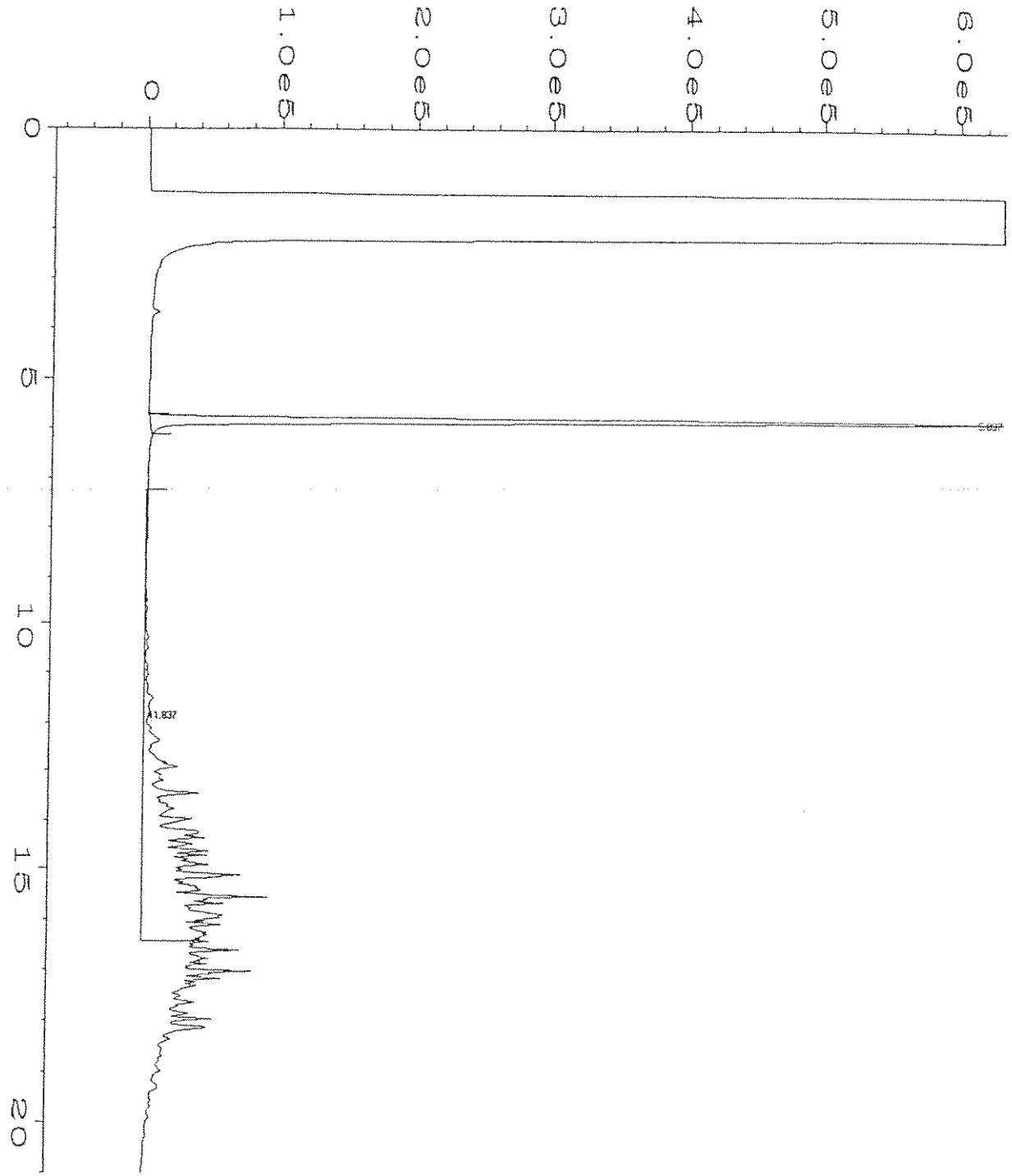
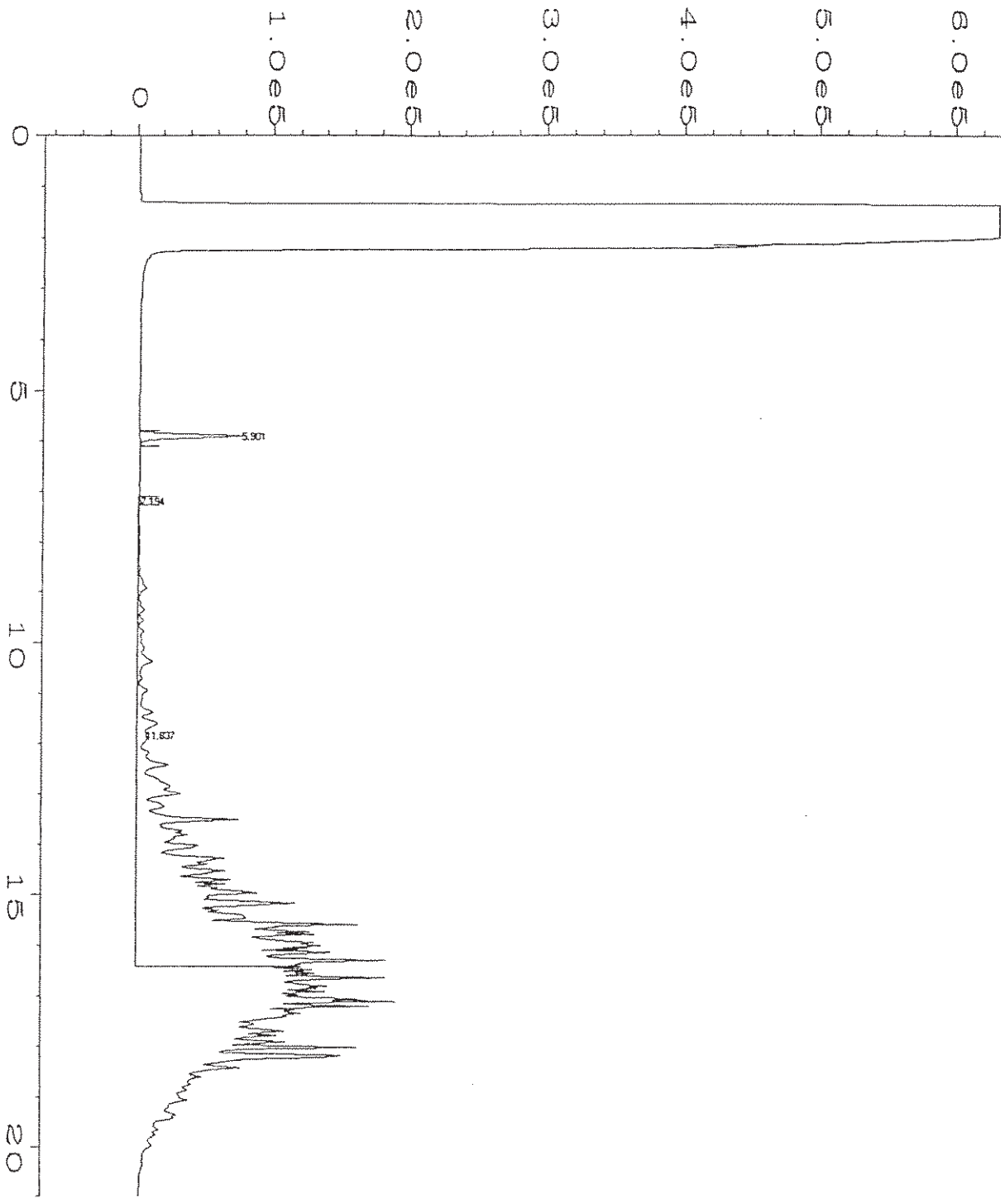
Operator	: !!FUELS!!	Page Number	: 1
Instrument	: CRICK	Vial Number	: 21
Sample Name	: 409600-18 1:5	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 11:11 PM	Instrument Method	: TPHG.MTH
Report Created on	: 23 Sep 94 10:12 AM	Analysis Method	: W-TPHG.MT
Last Recalib on	: 07 SEP 94 11:38 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



Data File Name	: F:\DATA\FUELS\CRICK\D\940922\022R0101.D		
Operator	: !!FUELS!!	Page Number	: 1
Instrument	: CRICK	Vial Number	: 22
Sample Name	: 409600-21 1:10	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 11:39 PM	Instrument Method	: TPHG.MTH
Report Created on	: 23 Sep 94 10:14 AM	Analysis Method	: W-TPHG.MTH
Last Recalib on	: 07 SEP 94 11:38 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



Data File Name	: F:\DATA\FUELS\CRICK\D\940923\003R0101.D		
Operator	: !!FUELS!!	Page Number	: 1
Instrument	: CRICK	Vial Number	: 3
Sample Name	: 409600-22	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 23 Sep 94 12:20 PM	Instrument Method	: TPHG.MTH
Report Created on	: 23 Sep 94 01:33 PM	Analysis Method	: W-TPHG.MTI
Last Recalib on	: 07 SEP 94 11:38 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



Data File Name	: F:\DATA\FUELS\CRICK\D\940922\023R0101.D		
Operator	: !!FUELS!!	Page Number	: 1
Instrument	: CRICK	Vial Number	: 23
Sample Name	: 409600-23 1:10	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 23 Sep 94 00:07 AM	Instrument Method	: TPHG.MTH
Report Created on	: 23 Sep 94 10:16 AM	Analysis Method	: W-TPHG.MTI
Last Recalib on	: 07 SEP 94 11:38 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Analytical**Technologies,**Inc.

CASE NARRATIVE
Accession #409600
WA TPH-D (Extended)

Twenty grams of sample was extracted with methylene chloride by horn sonication (EPA Method 3550). The final volume was 10.0 mls.

The extracts were analyzed using a gas chromatograph with a FID detector . The resulting chromatograms were quantitated between C12 and C34 using at least five point calibration curves.

ATI Accession #409600-1 was used for the matrix spike (MS) and matrix spike duplicate (MSD). The sample was analyzed at a 1:4 dilution and had a diesel result of 1200 mg/kg. The sample was spiked with 250 mg/kg of diesel for the MS/MSD. The matrix spike and matrix spike duplicate were analyzed at a 1:4 dilution and had diesel results of 1050 mg/Kg and 974 mg/Kg respectively. The percent recoveries are below the established control limits of 65%-142%. The percent recoveries are flagged "NC" indicating not calculable.

The blank spike and blank spike duplicate met all criteria and are reported with the MS/MSD.

Bryan Green

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST:	TPH-D Extended (Washington)	**ATI I.D.:**	409600
CLIENT:	Hart Crowser	**DATE RECEIVED:**	09/12/94
PROJECT #:	J-5407	**DATE EXTRACTED:**	09/21/94
PROJECT NAME:	Chevron 61001840	**UNITS:**	mg/Kg
SAMPLE MATRIX:	Soil		

RESULTS CORRECTED FOR MOISTURE CONTENT

ATI ID	CLIENT ID	DATE SAMPLED	DATE ANALYZED	DF	MRL	DIESEL C12 - C34	SURROGATES (59% - 144%)
409600-0	Method Blank	N/A	09/21/94	1	20	ND	108%
409600-1	TP-1/S-1	09/08/94	09/22/94	4	92	1200	108%
409600-2	TP-2/S-1	09/08/94	09/22/94	1	22	440	109%
409600-3	TP-3/S-1	09/08/94	09/22/94	1	22	160	106%
409600-5	TP-5/S-1	09/08/94	09/22/94	50	1200	27000	132%
409600-6	TP-5/S-2	09/08/94	09/22/94	50	1200	16000	136%
409600-8	TP-7/S-1	09/08/94	09/23/94	4	88	1300	110%
409600-9	TP-8/S-1	09/08/94	09/22/94	1	24	470	105%
409600-10	TP-9/S-1	09/09/94	09/21/94	10	220	3700	116%
409600-11	TP-10/S-1	09/09/94	09/23/94	2	44	580	115%
409600-14	TP-13/S-1	09/09/94	09/21/94	1	24	590	104%
409600-16	TP-14/S-1	09/09/94	09/22/94	1	22	300	110%
409600-17	TP-15/S-1	09/09/94	09/23/94	4	88	2000	117%
409600-18	TP-15/S-2	09/09/94	09/23/94	5	110	2300	114%
409600-19	TP-16/S-1	09/09/94	09/22/94	1	22	210	107%
409600-21	TP-18/S-1	09/09/94	09/23/94	20	480	8100	138%
409600-22	TP-18/S-2	09/09/94	09/22/94	1	23	500	101%
409600-23	TP-18/S-3	09/09/94	09/23/94	20	480	8000	144%

Analyst: BJ 9/23/94

Reviewer: CS 9-23-94

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST:	TPH-D (Washington)	ATI I.D.:	409600
CLIENT:	Hart Crowser	DATE RECEIVED:	09/12/94
PROJECT #:	J-5407	DATE EXTRACTED:	09/21/94
PROJECT NAME:	Chevron 61001840	UNITS:	mg/Kg
SAMPLE MATRIX:	Soil		

RESULTS CORRECTED FOR MOISTURE CONTENT

ATI ID	CLIENT ID	DATE SAMPLED	DATE ANALYZED	DF	MRL	DIESEL C12 - C24	SURROGATES (59% - 144%)
409600-0	Method Blank	N/A	09/21/94	1	20	ND	108%
409600-1	TP-1/S-1	09/08/94	09/22/94	4	92	380	106%
409600-2	TP-2/S-1	09/08/94	09/22/94	1	22	130	109%
409600-3	TP-3/S-1	09/08/94	09/22/94	1	22	45	106%
409600-5	TP-5/S-1	09/08/94	09/22/94	50	1200	13000	109%
409600-6	TP-5/S-2	09/08/94	09/22/94	50	1200	4900	110%
409600-8	TP-7/S-1	09/08/94	09/23/94	4	88	220	108%
409600-9	TP-8/S-1	09/08/94	09/22/94	1	24	70	105%
409600-10	TP-9/S-1	09/09/94	09/21/94	10	220	2500	114%
409600-11	TP-10/S-1	09/09/94	09/23/94	2	44	400	115%
409600-14	TP-13/S-1	09/09/94	09/21/94	1	24	530	104%
409600-16	TP-14/S-1	09/09/94	09/22/94	1	22	67	110%
409600-17	TP-15/S-1	09/09/94	09/23/94	4	88	1500	115%
409600-18	TP-15/S-2	09/09/94	09/23/94	5	110	2000	110%
409600-19	TP-16/S-1	09/09/94	09/22/94	1	22	130	107%
409600-21	TP-18/S-1	09/09/94	09/23/94	20	480	7500	121%
409600-22	TP-18/S-2	09/09/94	09/22/94	1	23	420	101%
409600-23	TP-18/S-3	09/09/94	09/23/94	20	480	7100	135%

Analyst: BR 10/4/94

Reviewer: CS 10-5-94

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST:	TPH-D (Washington)	ATI I.D.:	409600
CLIENT:	Hart Crowser	DATE RECEIVED:	09/12/94
PROJECT #:	J-5407	DATE EXTRACTED:	09/22/94
PROJECT NAME:	Chevron 61001840	UNITS:	mg/Kg
SAMPLE MATRIX:	Soil		

RESULTS CORRECTED FOR MOISTURE CONTENT

ATI ID	CLIENT ID	DATE SAMPLED	DATE ANALYZED	DF	MRL	DIESEL C12 - C24	SURROGATES (59% - 144%)
409600-0	Method Blank	N/A	09/22/94	1	20	ND	95%
409600-26	TP-1/S-2	09/08/94	09/22/94	1	24	92	92%
409600-29	TP-7/S-2	09/08/94	09/22/94	1	22	120	94%
409600-30	TP-8/S-2	09/08/94	09/22/94	1	24	27	93%
409600-31	TP-10/S-2	09/09/94	09/22/94	1	22	ND	97%
409600-32	TP-11/S-2	09/09/94	09/24/94	1	22	24	96%
409600-33	TP-14/S-2	09/09/94	09/23/94	1	23	27	98%
409600-34	TP-16/S-2	09/09/94	09/24/94	1	22	260	100%
409600-35	TP-17/S-2	09/09/94	09/23/94	1	23	110	102%

Analyst: BH 10/4/94

Reviewer: CS 10-5-94

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY DUPLICATE RESULTS

		ATI ACCESSION:	409600
TEST:	TPH-D Extended (Washington)	QC SAMPLE:	409600-14
CLIENT:	Hart Crowser	DATE EXTRACTED:	09/21/94
PROJECT #:	J-5407	DATE ANALYZED:	09/21/94
PROJECT NAME:	Chevron 61001840	DILUTION FACTOR:	1
SAMPLE MATRIX:	Soil	UNITS:	mg/Kg

RESULTS CORRECTED FOR MOISTURE CONTENT

PARAMETER	MRL	SAMPLE RESULT	SAMPLE DUP RESULT	RPD
DIESEL	24	590	580	2
SURROGATE:				
O-TERPHENYL (59% - 144%)		104%	112%	

CONTROL LIMITS

	RPD
DIESEL	23

Analyst: TBJ 9/22/94

Reviewer: LO 9/22/94

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY DUPLICATE RESULTS

		ATI ACCESSION:	409600
TEST:	TPH-D Extended (Washington)	QC SAMPLE:	409600-2
CLIENT:	Hart Crowser	DATE EXTRACTED:	09/21/94
PROJECT #:	J-5407	DATE ANALYZED:	09/22/94
PROJECT NAME:	Chevron 61001840	DILUTION FACTOR:	1
SAMPLE MATRIX:	Soil	UNITS:	mg/Kg

RESULTS CORRECTED FOR MOISTURE CONTENT

PARAMETER	MRL	SAMPLE RESULT	SAMPLE DUP RESULT	RPD
DIESEL	22	440	370	17
SURROGATE:				
O-TERPHENYL (59% - 144%)		109%	105%	

CONTROL LIMITS

	RPD
DIESEL	23

Analyst: JJ 9/22/94

Reviewer: US 9/22/94

Analytical**Technologies**, Inc.

GAS CHROMATOGRAPHY DUPLICATE RESULTS

		ATI ACCESSION:	409600
TEST:	TPH-D Extended (Washington)	QC SAMPLE:	409600-35
CLIENT:	Hart Crowser	DATE EXTRACTED:	09/22/94
PROJECT #:	J-5407	DATE ANALYZED:	09/23/94
PROJECT NAME:	Chevron 61001840	DILUTION FACTOR:	1
SAMPLE MATRIX:	Soil	UNITS:	mg/Kg

RESULTS CORRECTED FOR MOISTURE CONTENT

PARAMETER	MRL	SAMPLE RESULT	SAMPLE DUP RESULT	RPD
DIESEL	23	290	280	4
SURROGATE:				
O-TERPHENYL (59% - 144%)		102%	97%	

CONTROL LIMITS

	RPD
DIESEL	23

Analyst: TPL 9/26/94

Reviewer: 9/26/94

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY SPIKE RESULTS

		ATI ACCESSION:	409600
TEST:	TPH-D Extended (Washington)	**QC SAMPLE:**	409600-1
CLIENT:	Hart Crowser	**DATE EXTRACTED:**	09/21/94
PROJECT #:	J-5341	**DATE ANALYZED:**	09/22/94
PROJECT NAME:	Chevron 60090614	**DILUTION FACTOR:**	4
SAMPLE MATRIX:	SOIL	**UNITS:**	mg/Kg

RESULTS CORRECTED FOR MOISTURE CONTENT

PARAMETER	SAMPLE RESULT	SPIKE CONC.	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
DIESEL	1200	287	1050	NC	974	NC	8
SURROGATE:							
O-TERPHENYL (59% - 144%)			122%		123%		

CONTROL LIMITS

	% REC	RPD
DIESEL	65 - 142	20

NC = Not calculable

Analyst: PP 9/23/94

Reviewer: CS 9-23-94

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY SPIKE RESULTS

		ATI ACCESSION:	409600
TEST:	TPH-D Extended (Washington)	QC SAMPLE:	409600-31
CLIENT:	Hart Crowser	DATE EXTRACTED:	09/22/94
PROJECT #:	J-5407	DATE ANALYZED:	09/22/94
PROJECT NAME:	Chevron 61001840	DILUTION FACTOR:	1
SAMPLE MATRIX:	SOIL	UNITS:	mg/Kg

RESULTS CORRECTED FOR MOISTURE CONTENT

PARAMETER	SAMPLE RESULT	SPIKE CONC.	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
DIESEL	79	278	368	104	344	95	7
SURROGATE:							
O-TERPHENYL (59% - 144%)			102%		98%		

CONTROL LIMITS

	% REC	RPD
DIESEL	65 - 142	20

Analyst: TH 9/26/94

Reviewer: [signature] 9/26/94

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY SPIKE RESULTS

		ATI ACCESSION:	409600
TEST:	TPH-D Extended (Washington)	QC SAMPLE:	Method Blank
CLIENT:	Hart Crowser	DATE EXTRACTED:	09/21/94
PROJECT #:	J-5407	DATE ANALYZED:	09/21/94
PROJECT NAME:	Chevron 61001840	DILUTION FACTOR:	1
SAMPLE MATRIX:	Soil	UNITS:	mg/Kg

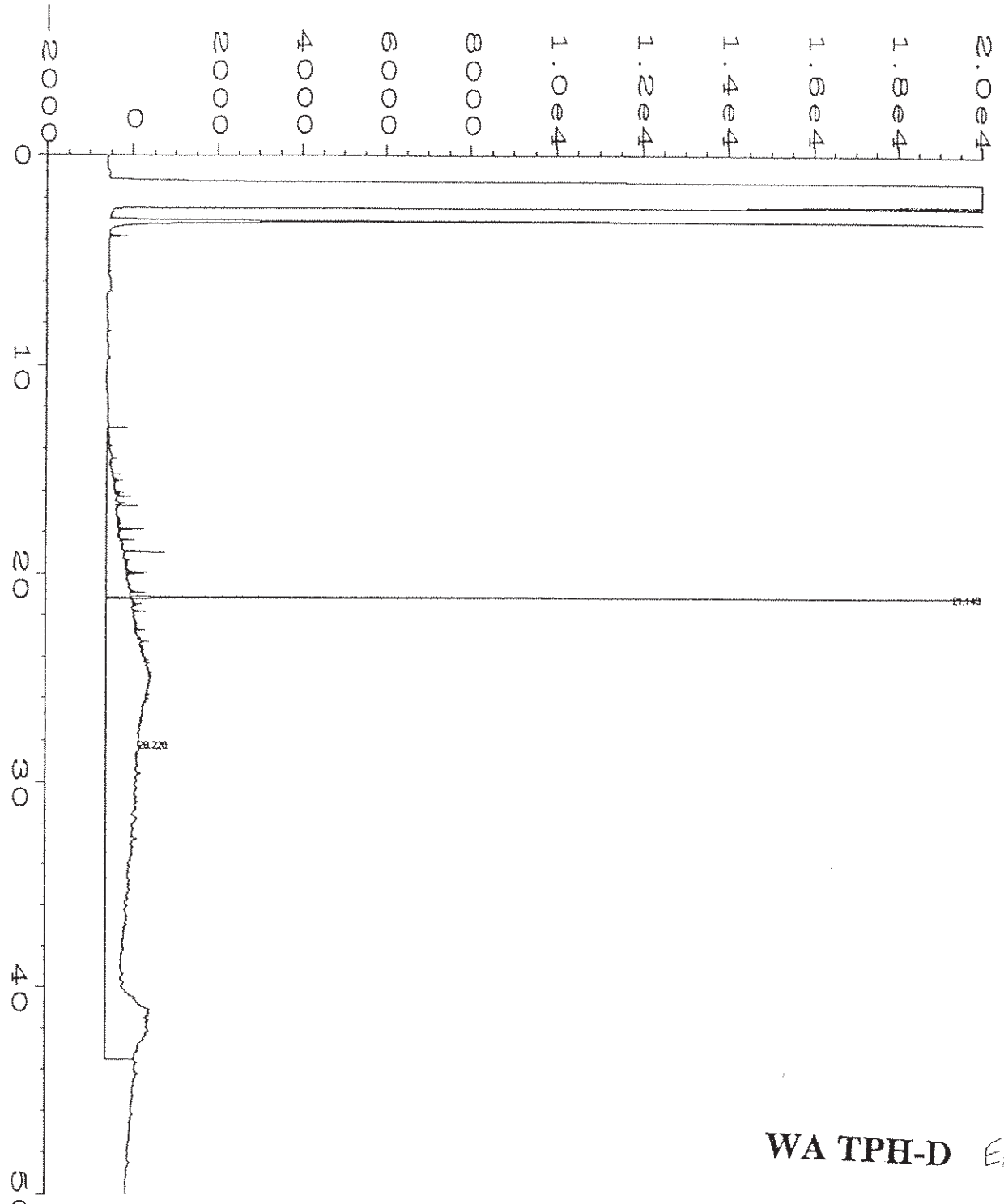
PARAMETER	SAMPLE RESULT	SPIKE CONC.	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
DIESEL	< 20	250	232	93	218	87	6
SURROGATE:							
O-TERPHENYL (59% - 144%)			115%		114%		

CONTOL LIMITS

	% REC	RPD
DIESEL	65 - 136	20

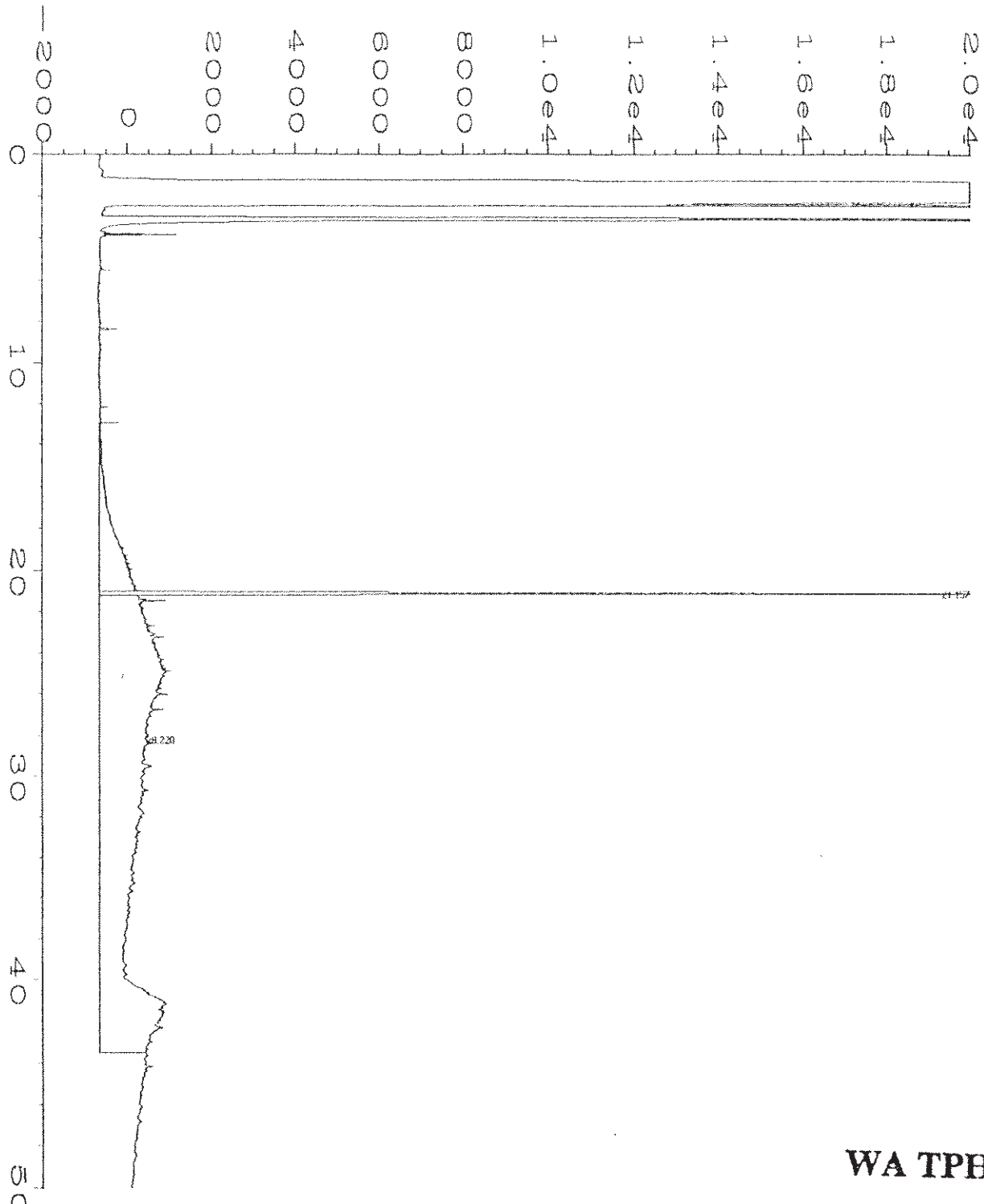
Analyst: JBJ 9/22/94

Reviewer: LD 9/22/94



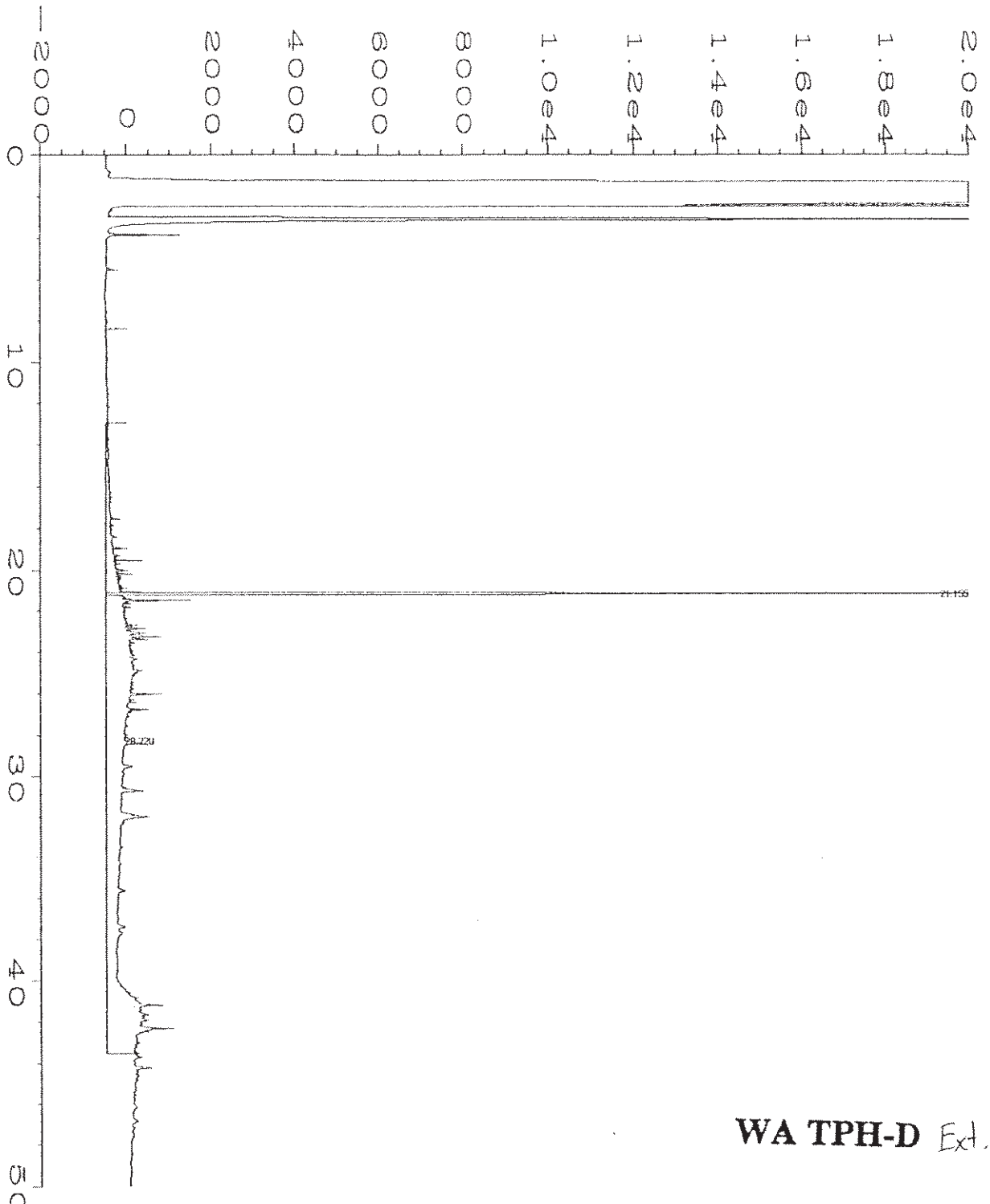
WA TPH-D Ecl.

Data File Name	: F:\DATA\FUELS\GAUSS\D\940922\052R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 52
Sample Name	: 409600-1 1:4	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 05:29 PM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 10:48 AM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



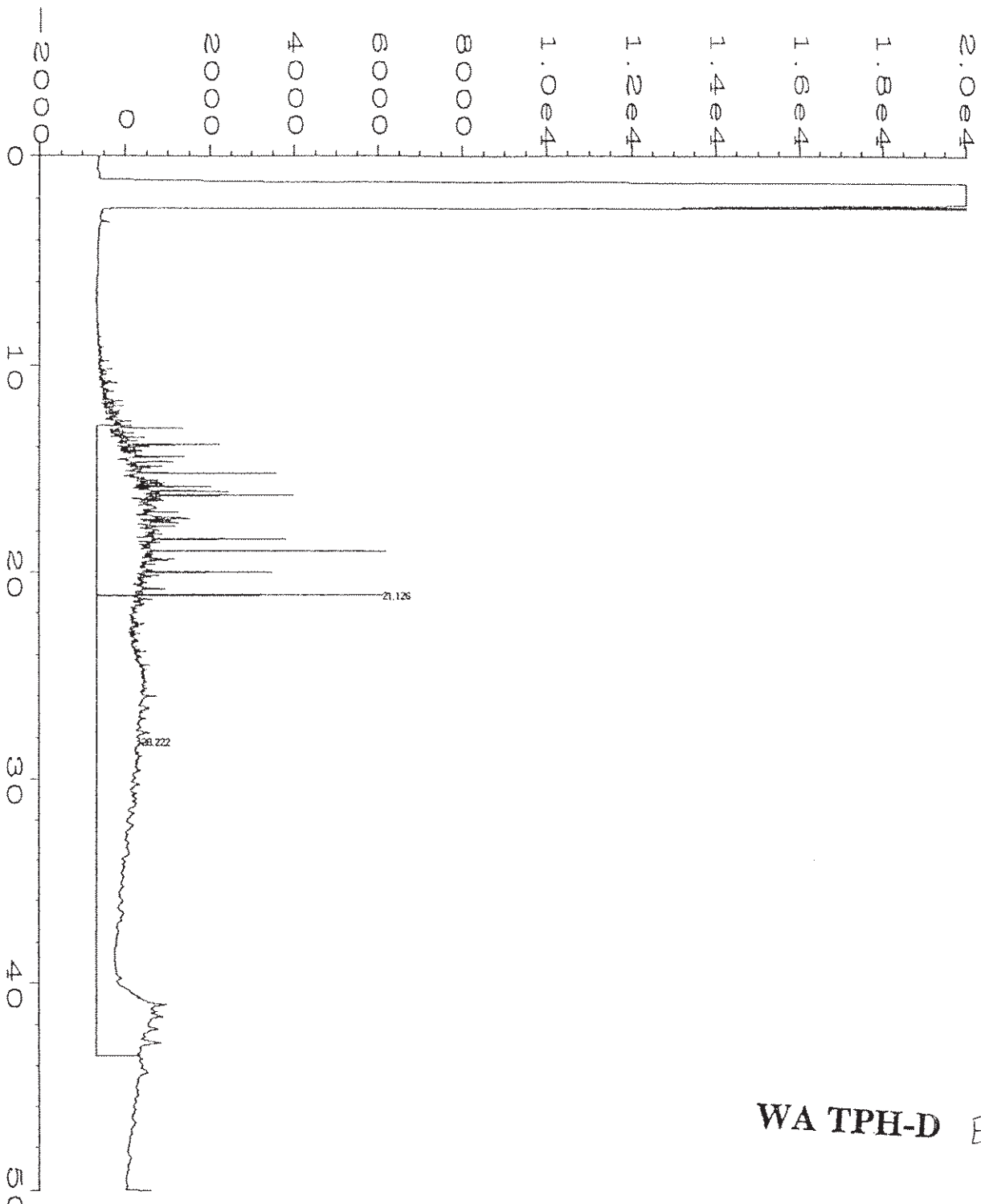
WA TPH-D

Data File Name	: F:\DATA\FUELS\GAUSS\D\940921\064R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 64
Sample Name	: 409600-2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 06:41 AM	Instrument Method	: OHCID.MTH
Report Created on	: 22 Sep 94 09:47 AM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



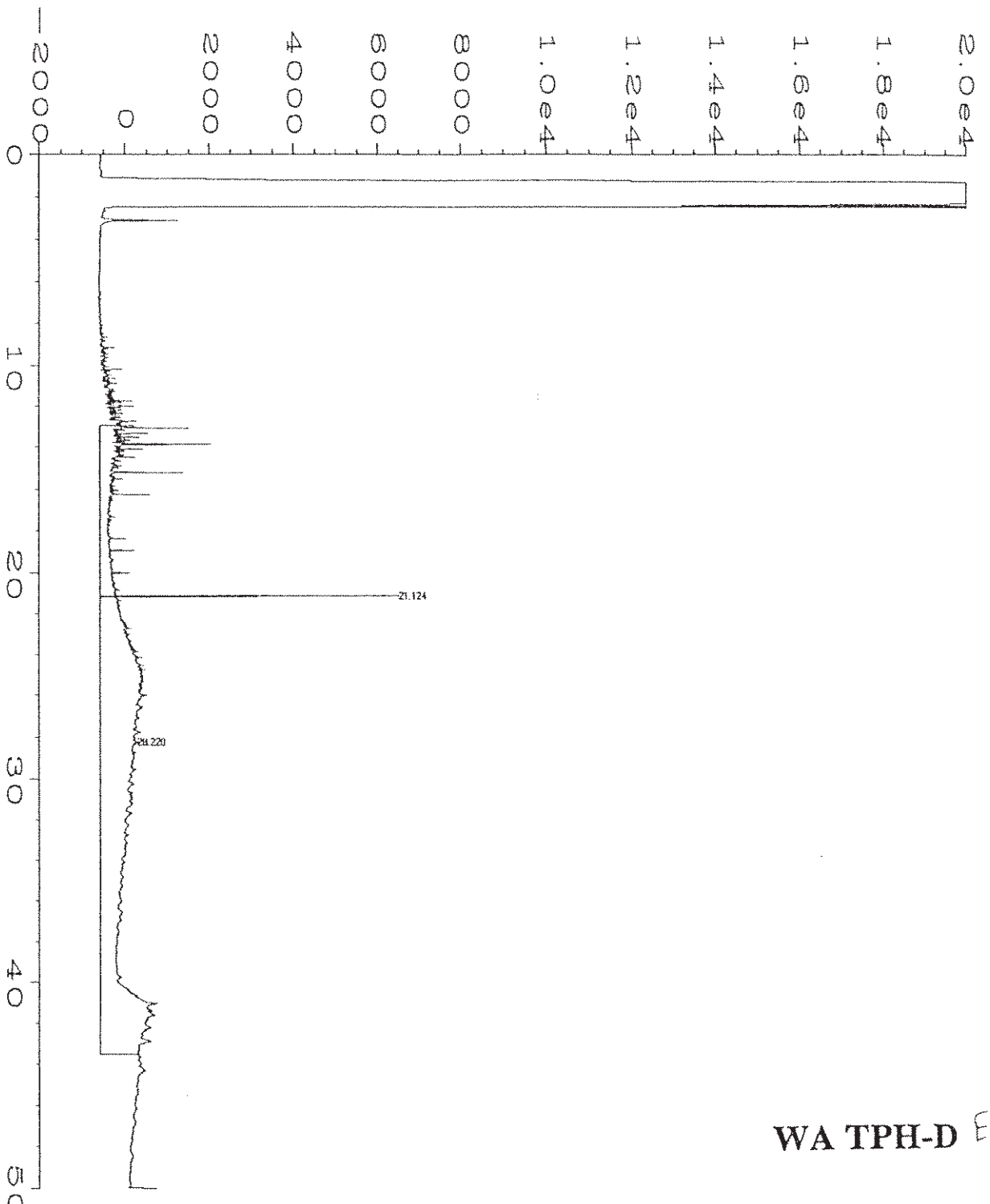
WA TPH-D Ext.

Data File Name	: F:\DATA\FUELS\GAUSS\D\940921\066R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 66
Sample Name	: 409600-3	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 08:42 AM	Instrument Method	: OHCID.MTH
Report Created on	: 22 Sep 94 09:49 AM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



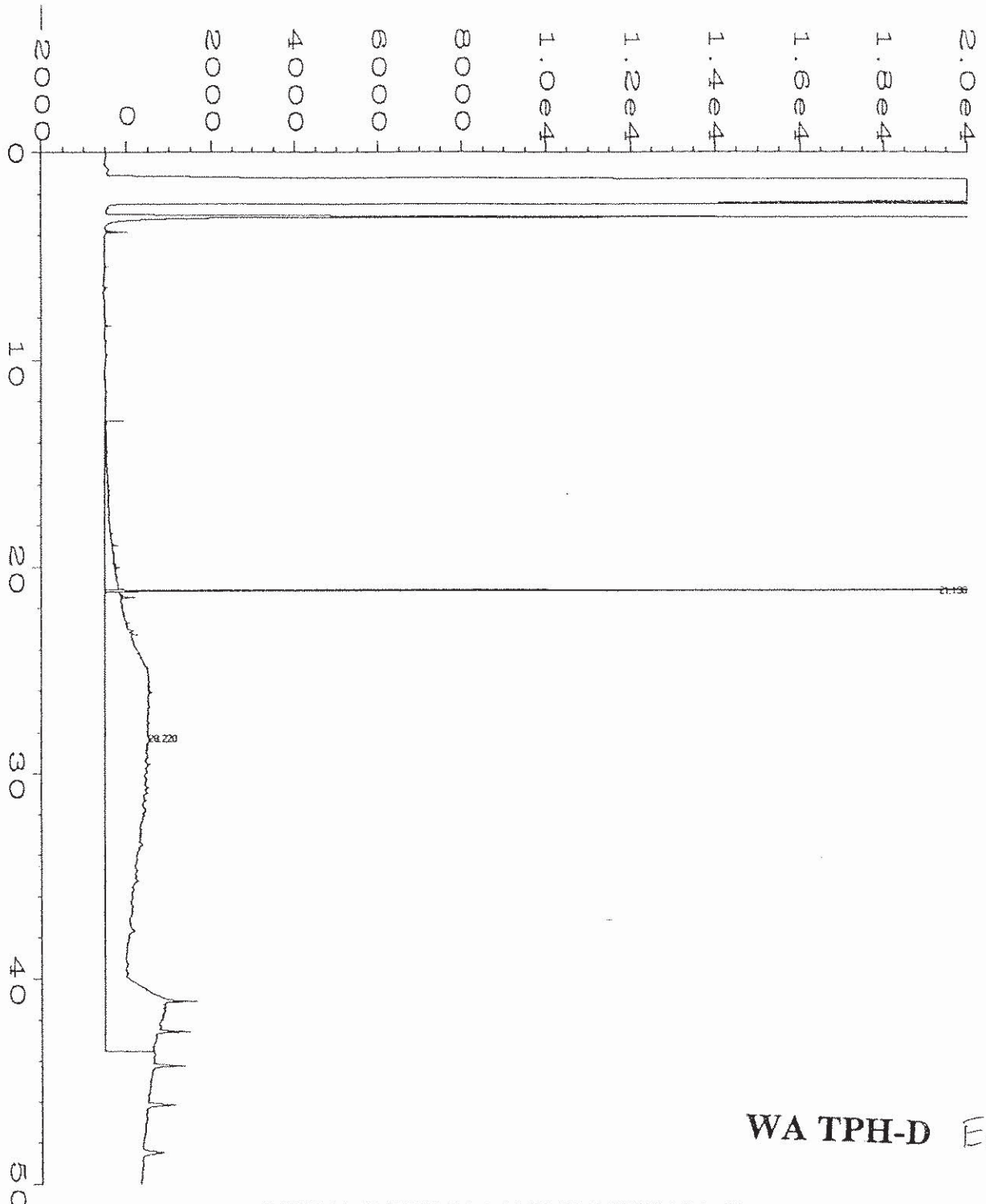
WA TPH-D Ext.

Data File Name	: F:\DATA\FUELS\GAUSS\D\940922\057R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 57
Sample Name	: 409600-5 1:50	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 10:21 PM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 10:56 AM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



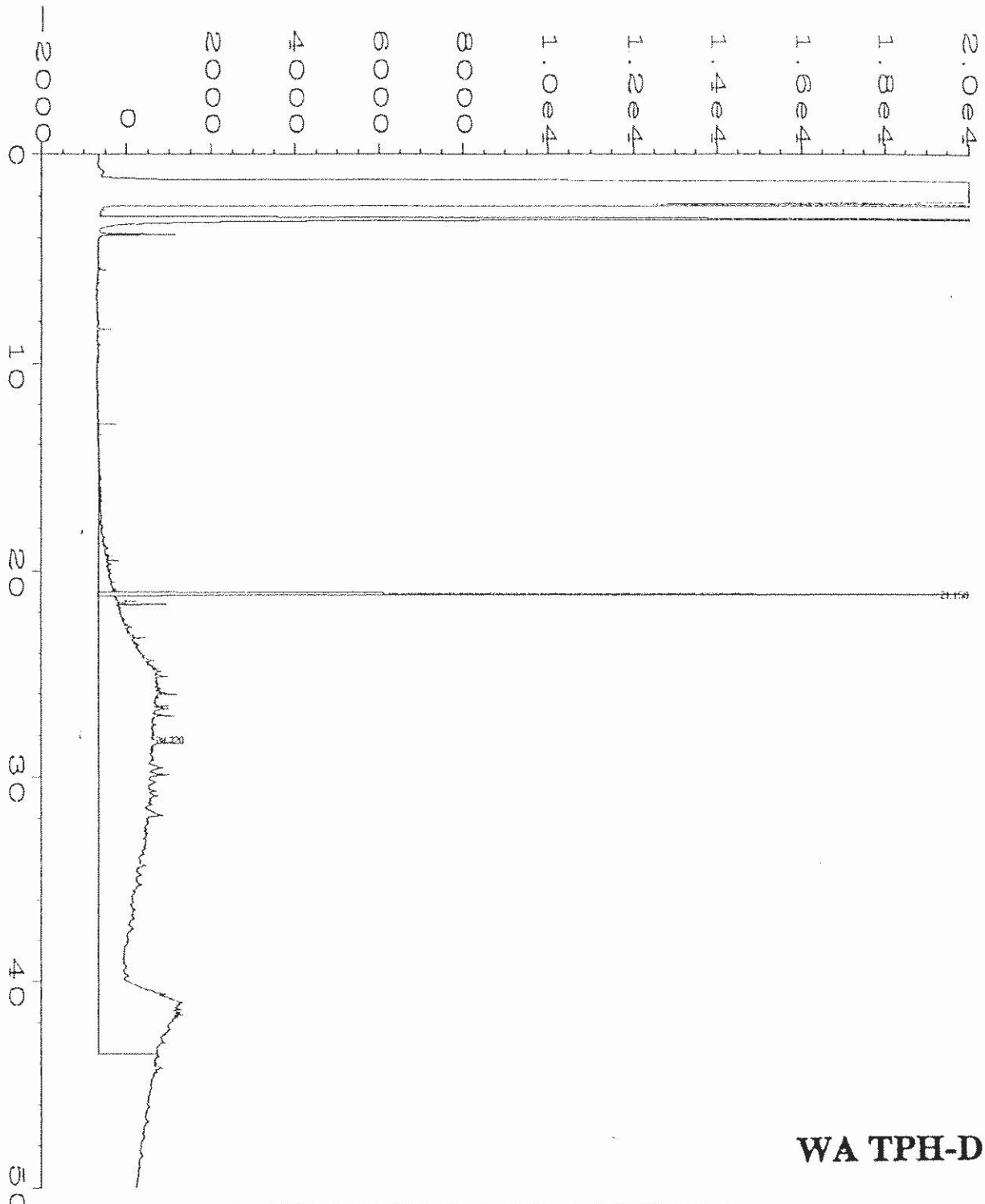
WA TPH-D Ext.

Data File Name	: F:\DATA\FUELS\GAUSS\D\940922\058R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 58
Sample Name	: 409600-6 1:50	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 11:20 PM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 10:58 AM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



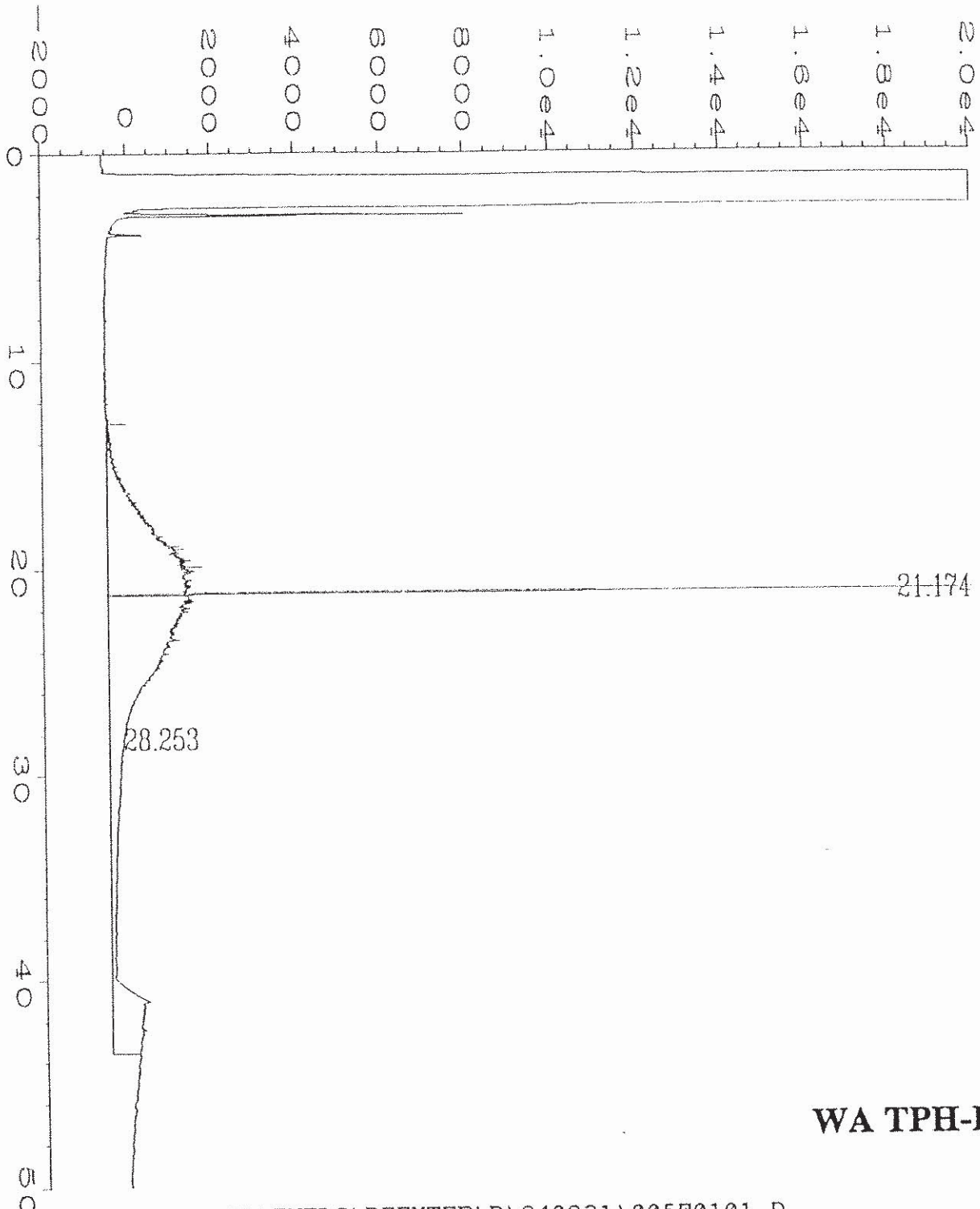
WA TPH-D Ext.

Data File Name	: F:\DATA\FUELS\GAUSS\D\940922\059R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 59
Sample Name	: 409600-8 1:4	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 23 Sep 94 00:20 AM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 10:59 AM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



WA TPH-D Ext.

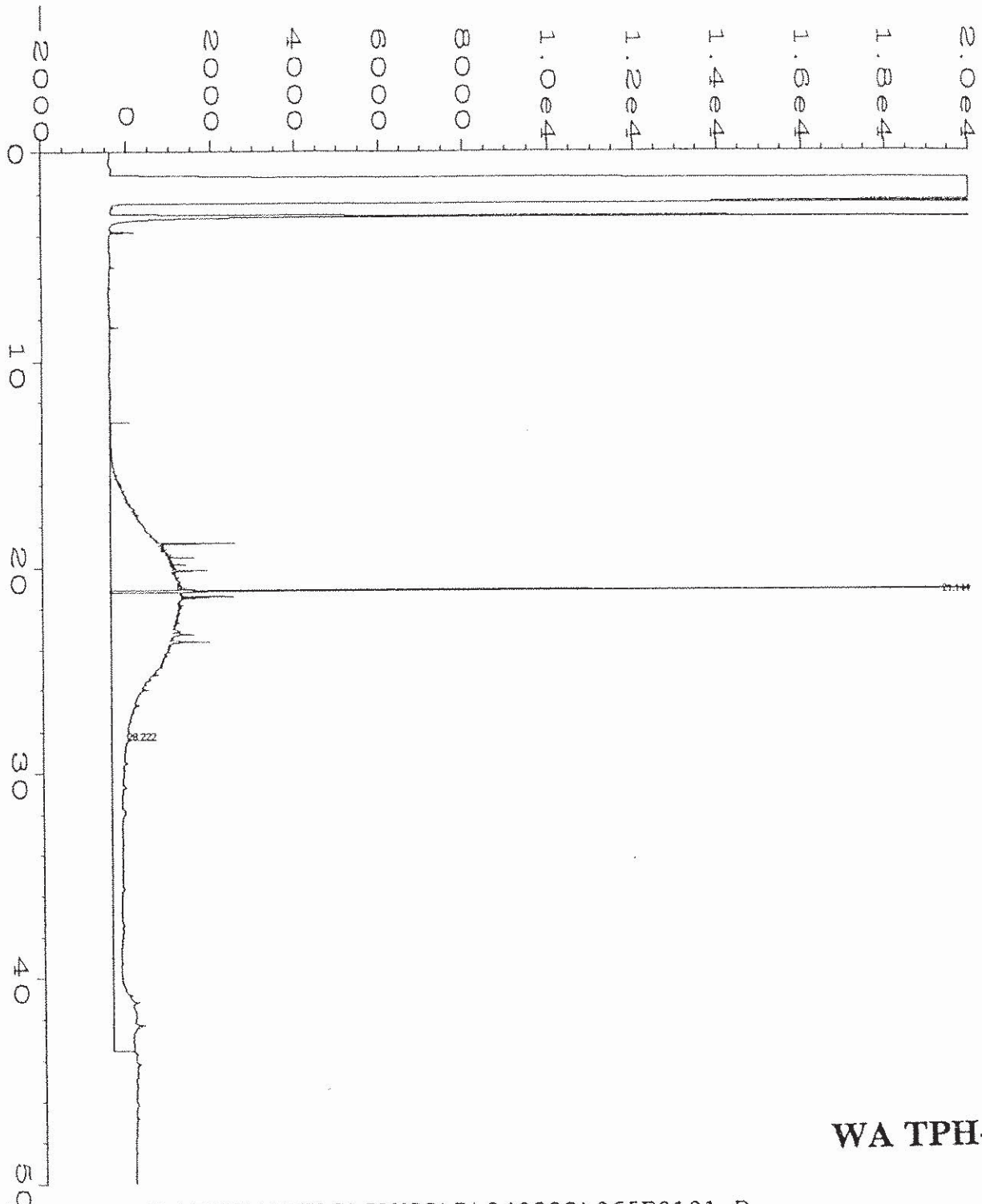
Data File Name	: F:\DATA\FUELS\GAUSS\D\940921\062R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 62
Sample Name	: 409600-9	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 04:42 AM	Instrument Method	: OHCID.MTH
Report Created on	: 22 Sep 94 09:45 AM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



WA TPH-D Ext.

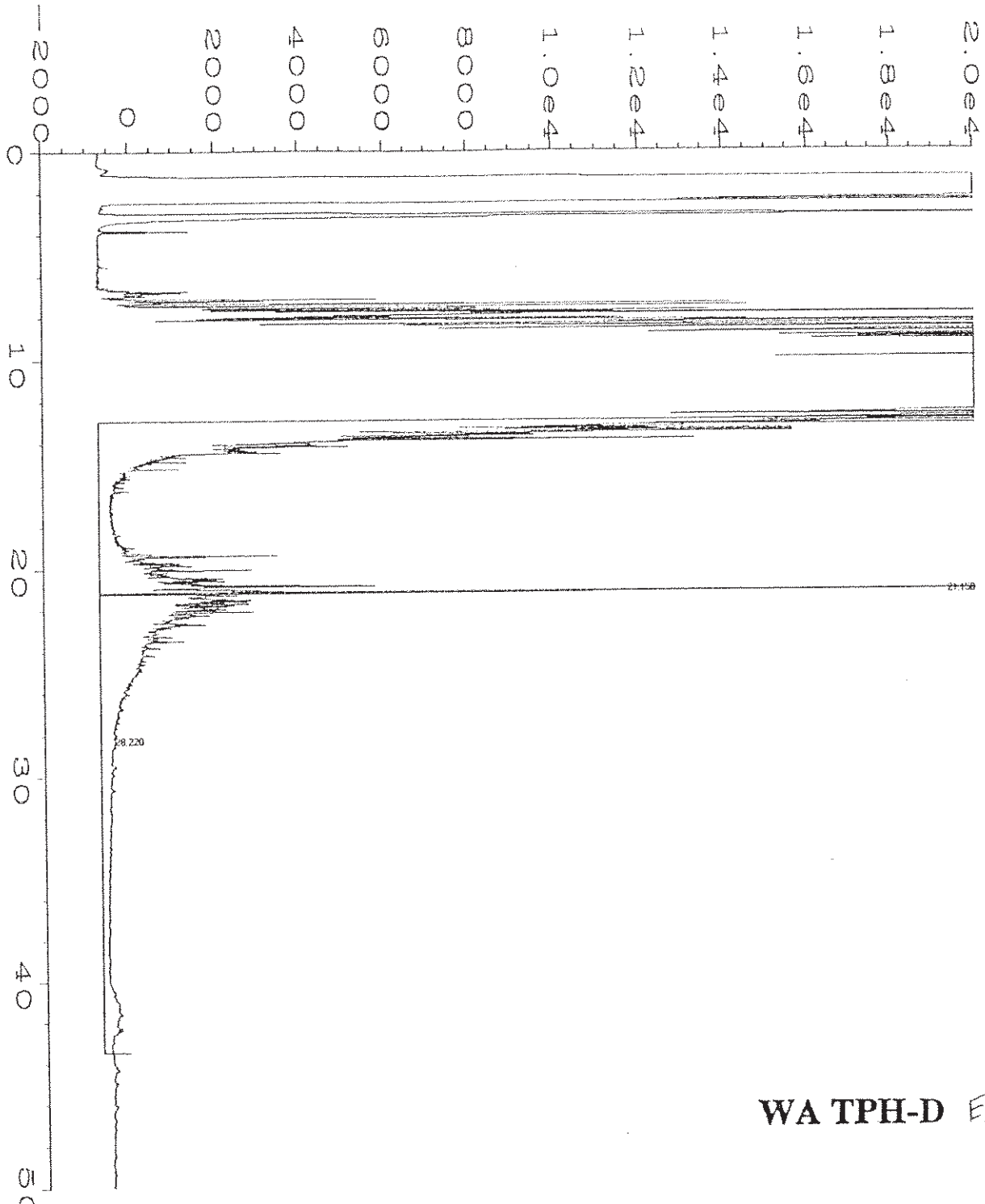
Data File Name : F:\DATA\FUELS\DEEMTER\D\940921\005F0101.D
Operator : FUELS
Instrument : DEEMTER
Sample Name : 409600-10 1:10
Run Time Bar Code:
Acquired on : 21 Sep 94 07:31 PM
Report Created on: 22 Sep 94 10:01 AM
Last Recalib on : 21 SEP 94 12:05 PM
Multiplier : 1

Page Number : 1
Vial Number : 5
Injection Number : 1
Sequence Line : 1
Instrument Method: OHCID.MTH
Analysis Method : WF-TPHDX.MT
Sample Amount : 0
ISTD Amount :



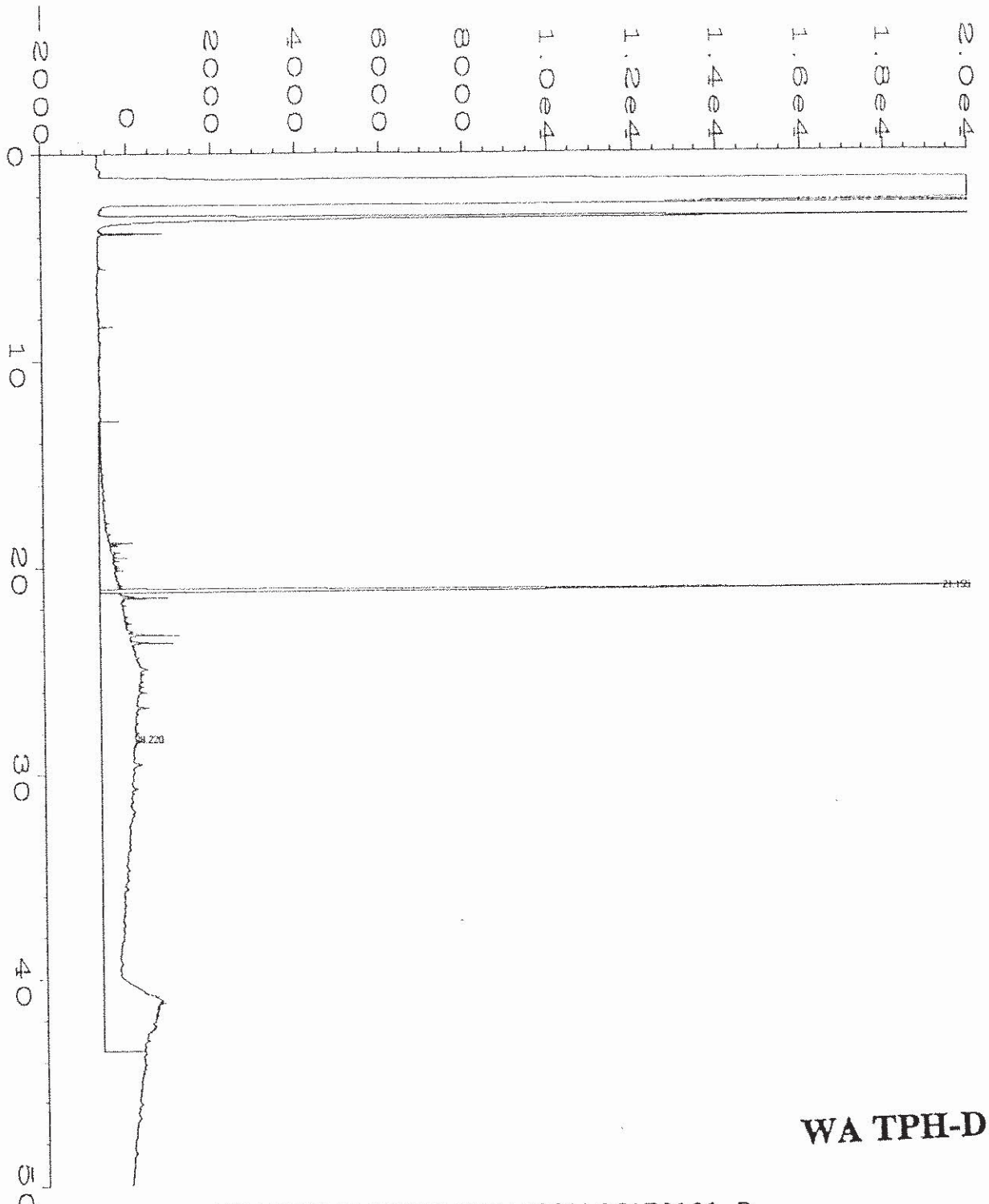
WA TPH-D Ex

Data File Name	: F:\DATA\FUELS\GAUSS\D\940922\065R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 65
Sample Name	: 409600-11 1:2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 23 Sep 94 06:21 AM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 11:06 AM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



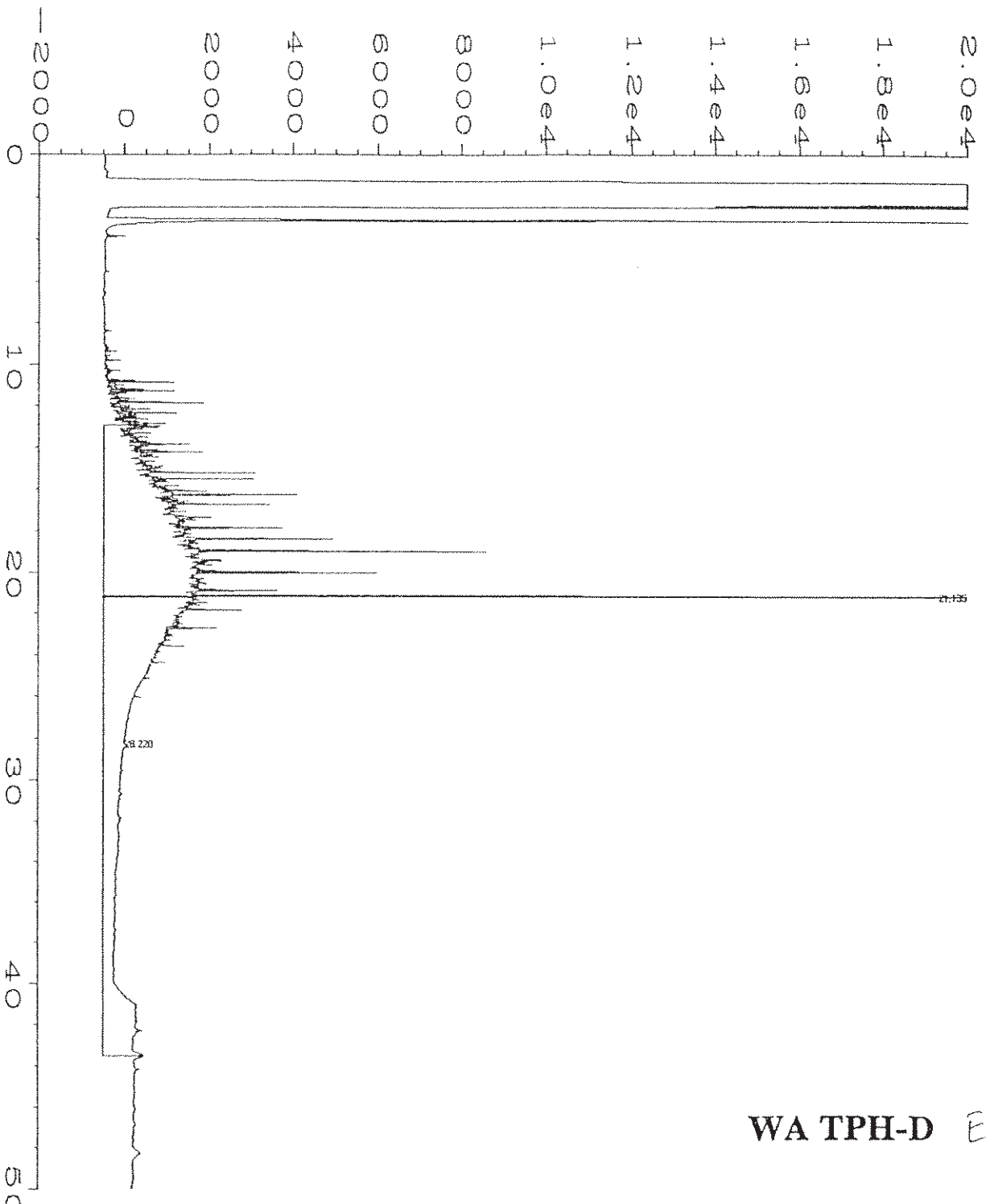
WA TPH-D Ext.

Data File Name	: F:\DATA\FUELS\GAUSS\D\940921\056R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 56
Sample Name	: 409600-14	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 21 Sep 94 10:41 PM	Instrument Method	: OHCID.MTH
Report Created on	: 22 Sep 94 09:37 AM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



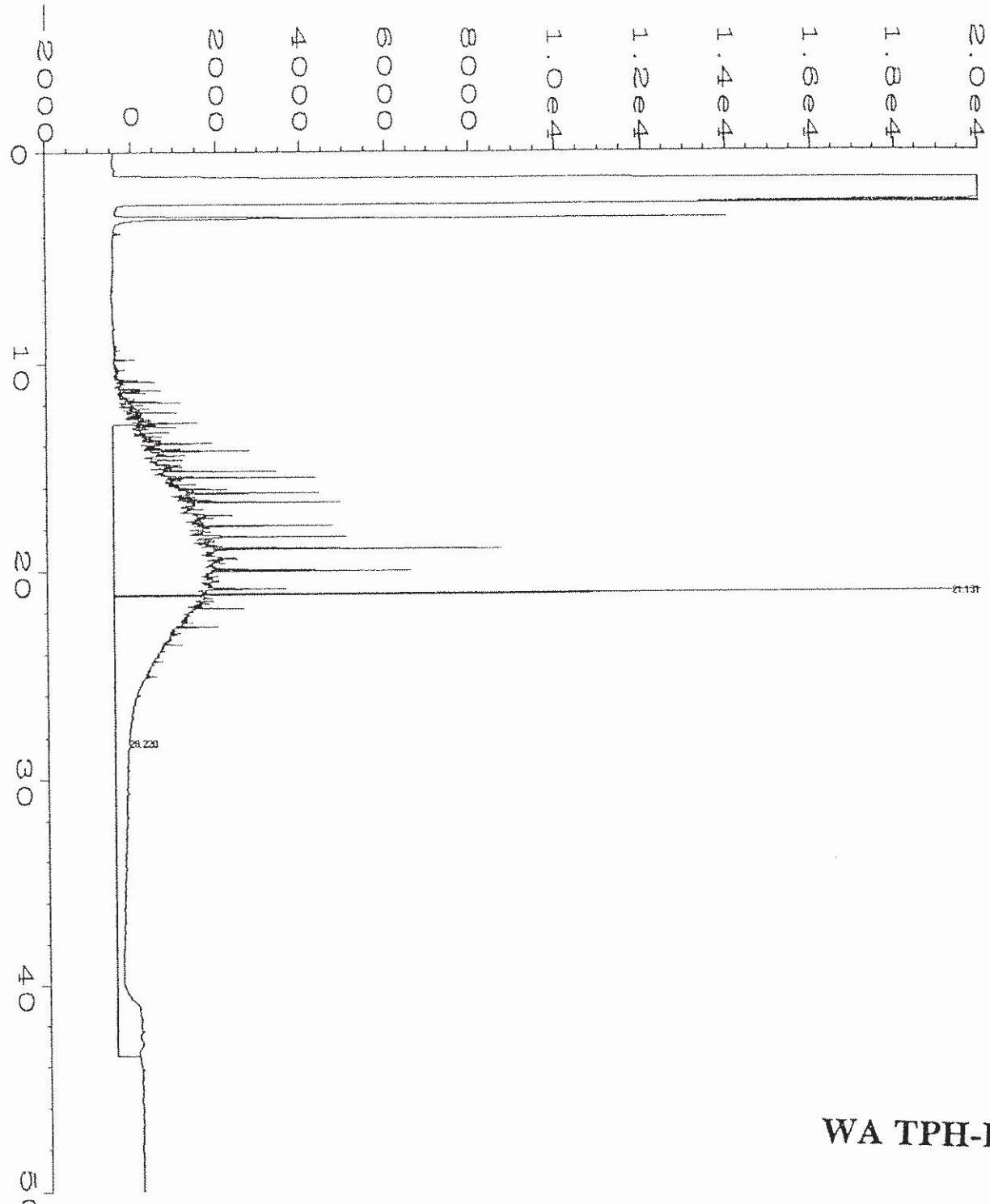
WA TPH-D Ext.

Data File Name	: F:\DATA\FUELS\GAUSS\D\940921\061R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 61
Sample Name	: 409600-16	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 03:41 AM	Instrument Method	: OHCID.MTH
Report Created on	: 22 Sep 94 09:44 AM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



WA TPH-D Ext.

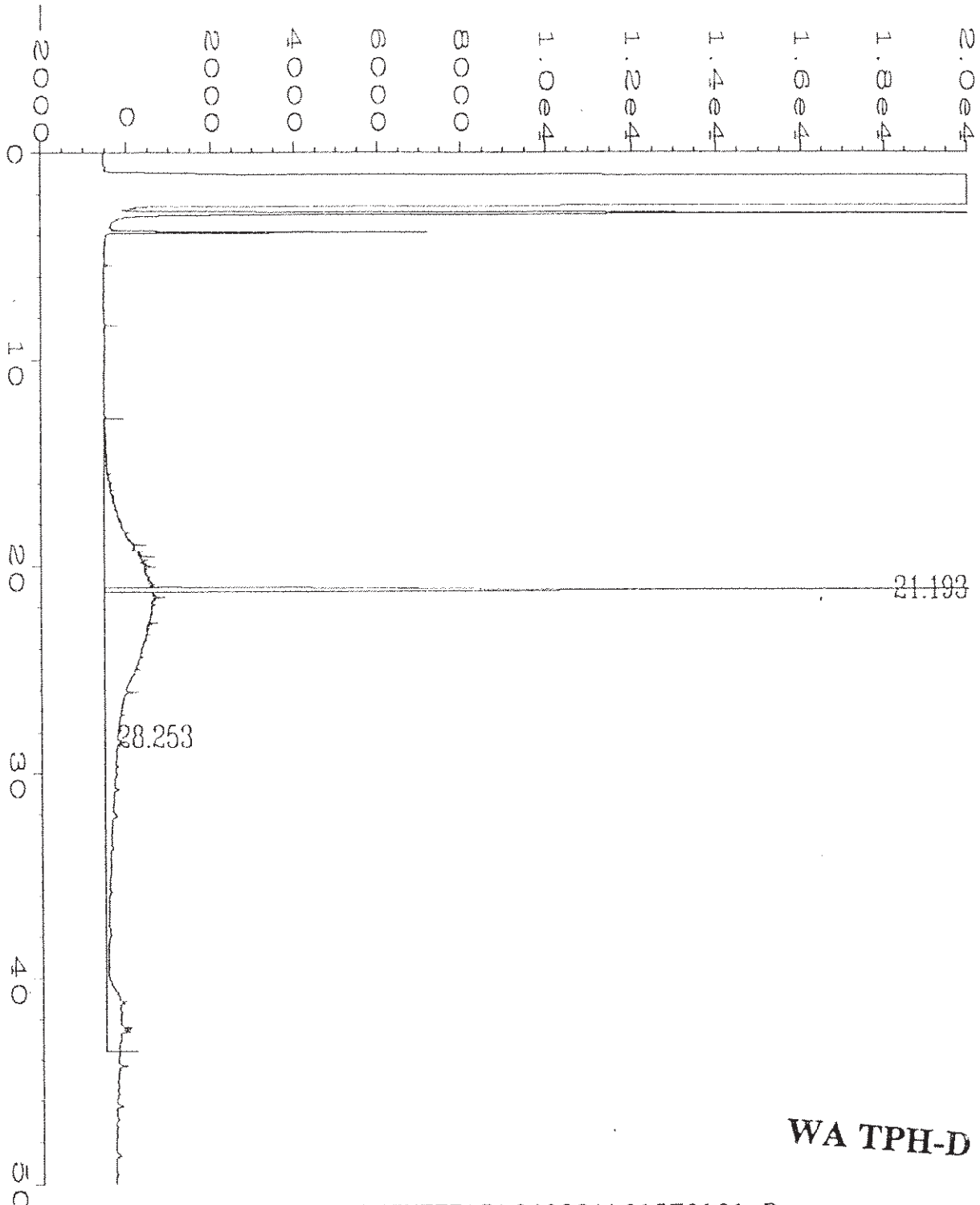
Data File Name	: F:\DATA\FUELS\GAUSS\D\940922\060R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 60
Sample Name	: 409600-17 1:4	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 23 Sep 94 01:20 AM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 11:01 AM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



WA TPH-D Ext.

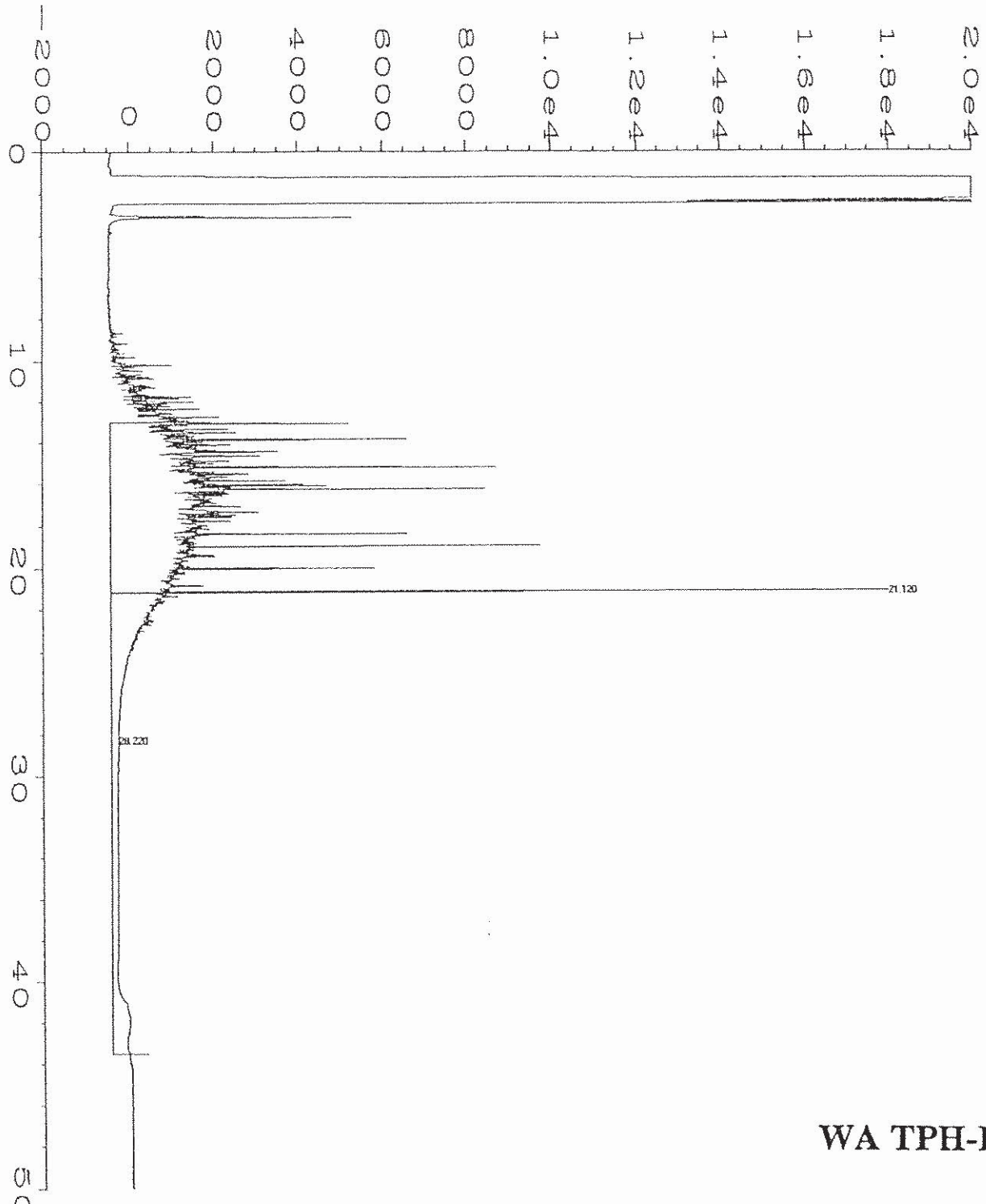
Data File Name : F:\DATA\FUELS\GAUSS\D\940922\061R0101.D
Operator : FUELS
Instrument : GAUSS
Sample Name : 409600-18 1:5
Run Time Bar Code:
Acquired on : 23 Sep 94 02:21 AM
Report Created on: 23 Sep 94 11:02 AM
Last Recalib on : 21 SEP 94 01:05 PM
Multiplier : 1

Page Number : 1
Vial Number : 61
Injection Number : 1
Sequence Line : 1
Instrument Method: OHCID.MTH
Analysis Method : WR-DEXT.MTH
Sample Amount : 0
ISTD Amount :



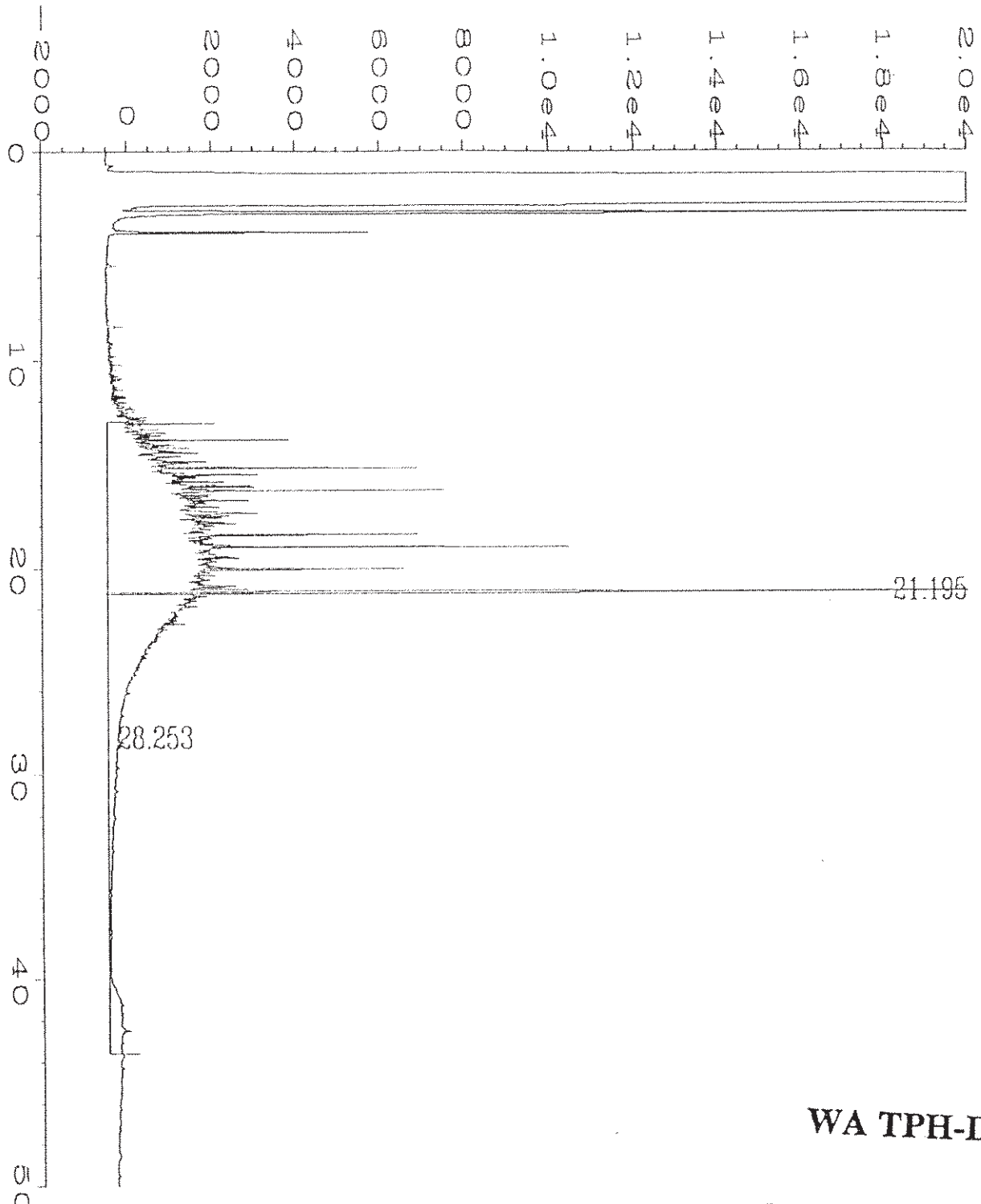
WA TPH-D Ex 1.

Data File Name	: F:\DATA\FUELS\DEEMTER\D\940921\015F0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: DEEMTER	Vial Number	: 15
Sample Name	: 409600-19	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 06:04 AM	Instrument Method	: OHCID.MTH
Report Created on	: 22 Sep 94 10:09 AM	Analysis Method	: WF-TPHDX.MTH
Last Recalib on	: 21 SEP 94 12:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



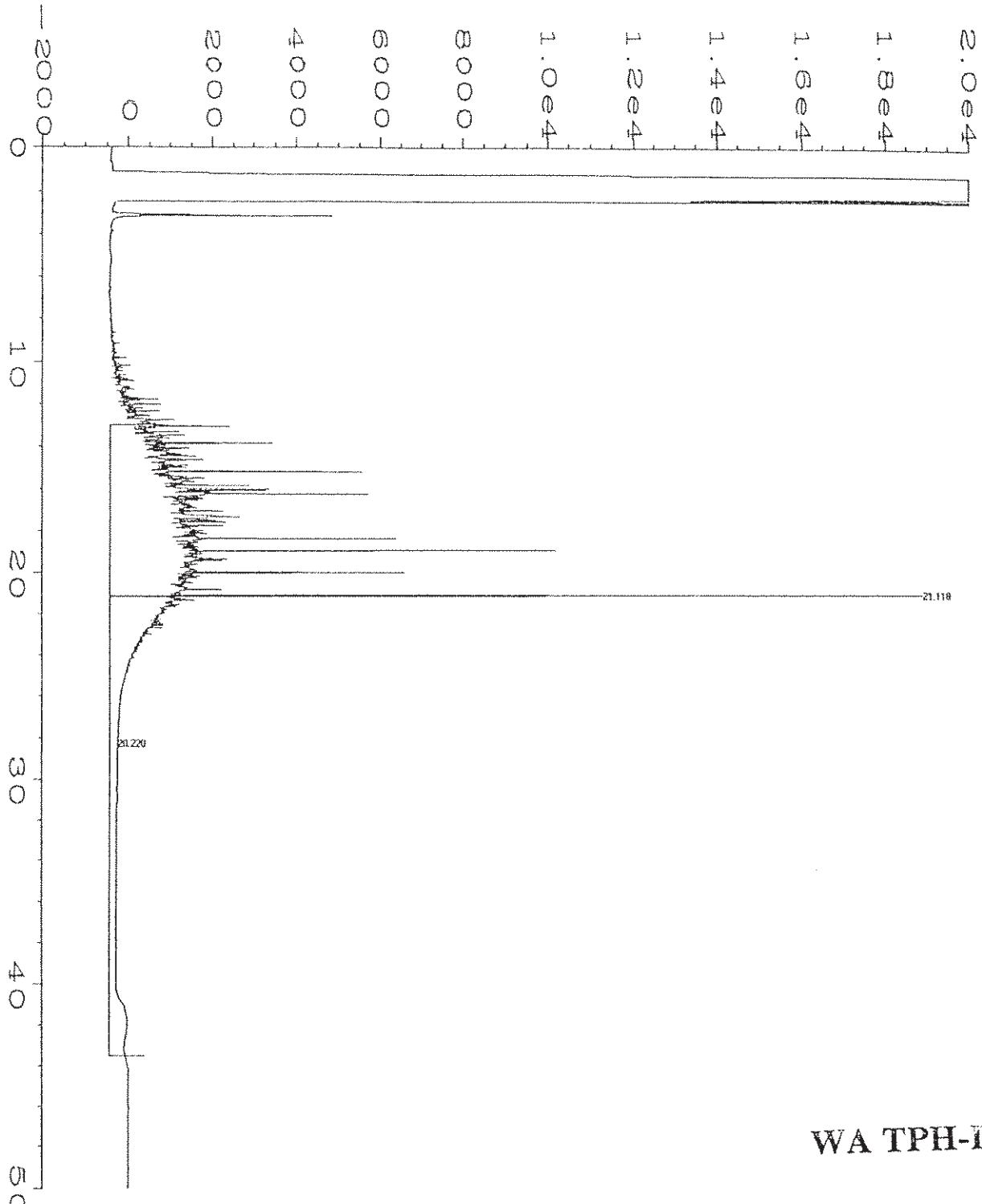
WA TPH-D Ext

Data File Name	: F:\DATA\FUELS\GAUSS\D\940922\063R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 63
Sample Name	: 409600-21 1:20	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 23 Sep 94 04:21 AM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 11:04 AM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



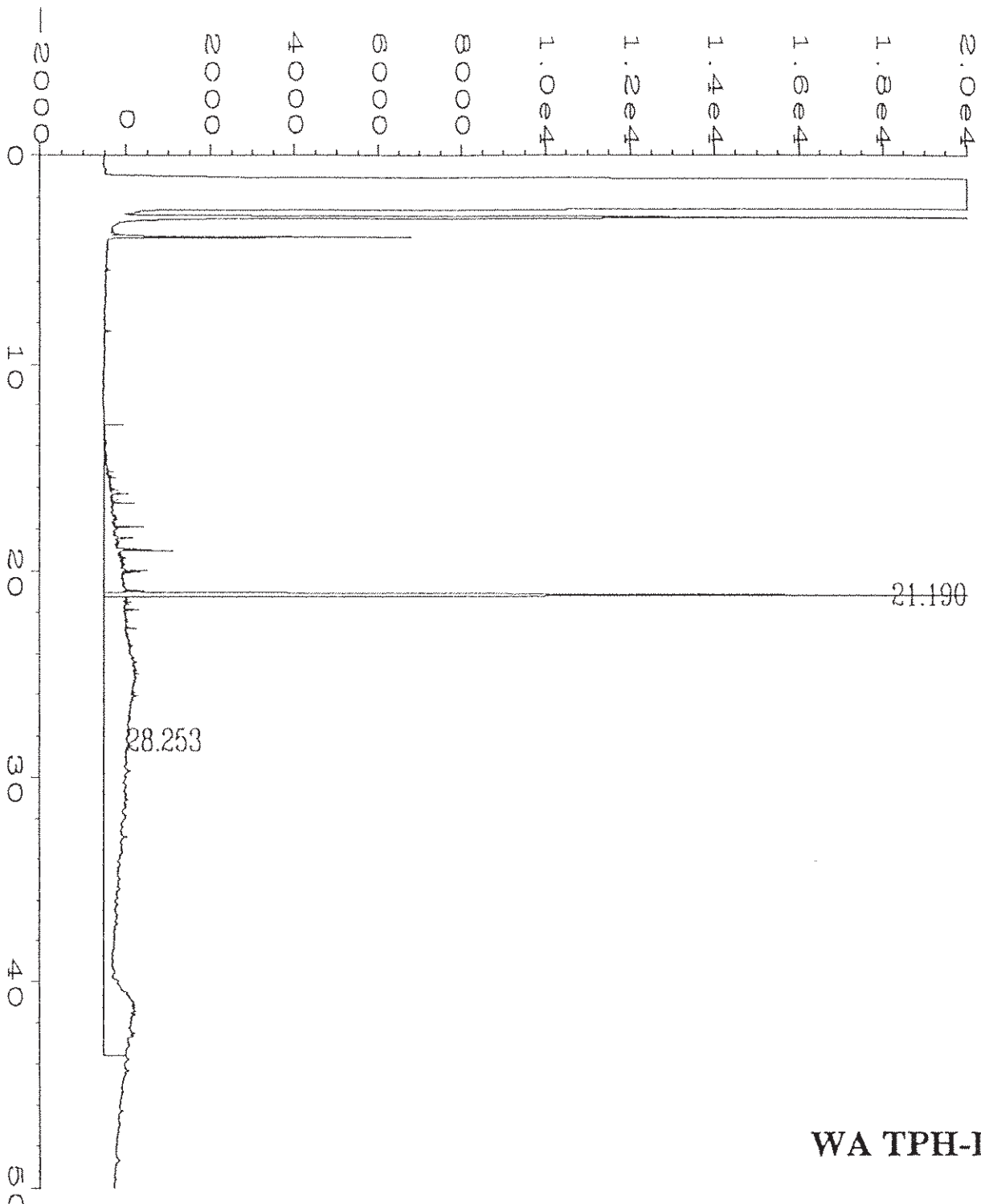
WA TPH-D Ext.

Data File Name	: F:\DATA\FUELS\DEEMTER\D\940921\016F0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: DEEMTER	Vial Number	: 16
Sample Name	: 409600-22	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 07:08 AM	Instrument Method	: OHCID.MTH
Report Created on	: 22 Sep 94 10:10 AM	Analysis Method	: WF-TPHDX.MTH
Last Recalib on	: 21 SEP 94 12:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



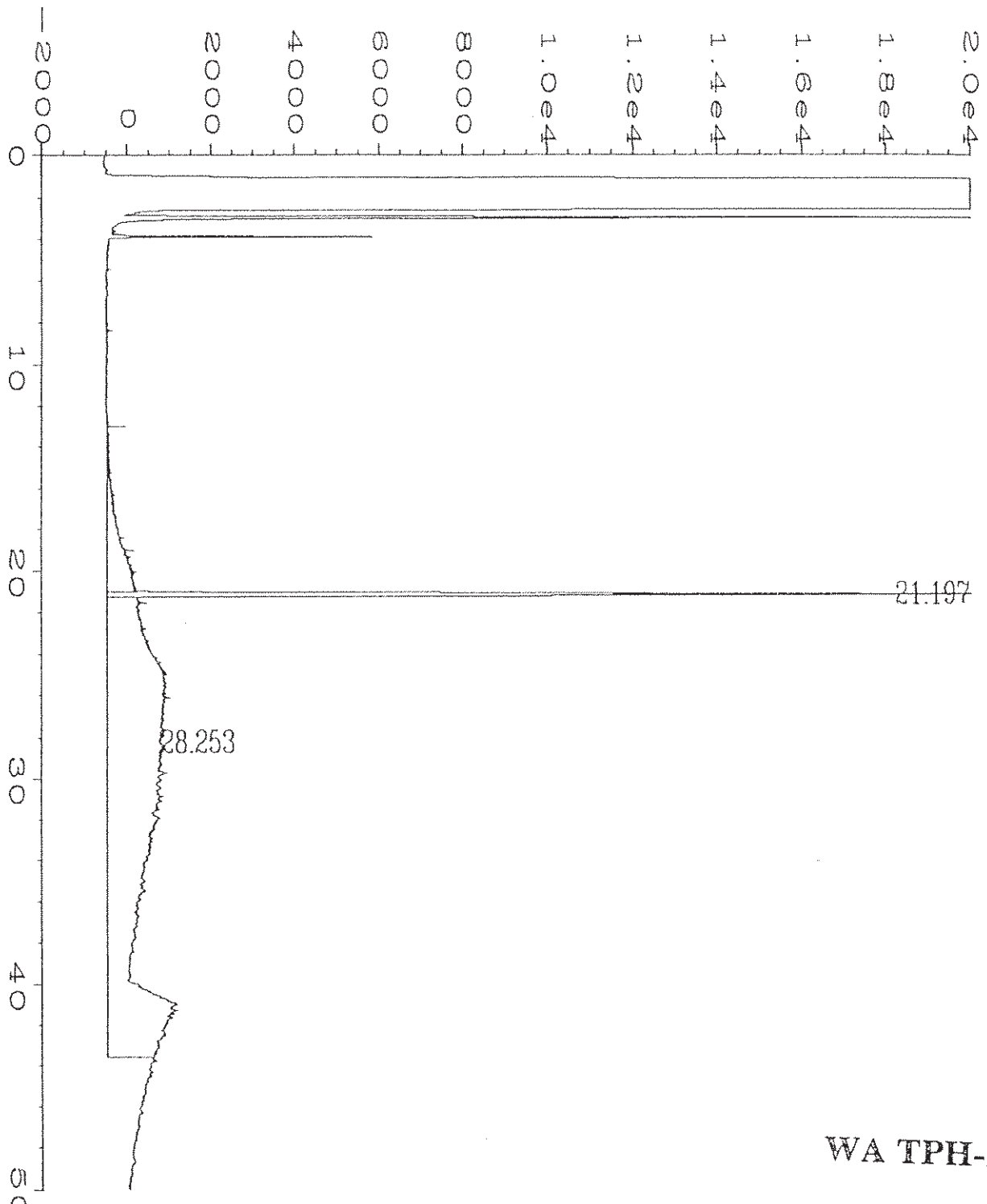
WA TPH-D Ext

Data File Name	: F:\DATA\FUELS\GAUSS\D\940922\064R0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: GAUSS	Vial Number	: 64
Sample Name	: 409600-23 1:20	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 23 Sep 94 05:21 AM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 12:56 PM	Analysis Method	: WR-DEXT.MTH
Last Recalib on	: 21 SEP 94 01:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



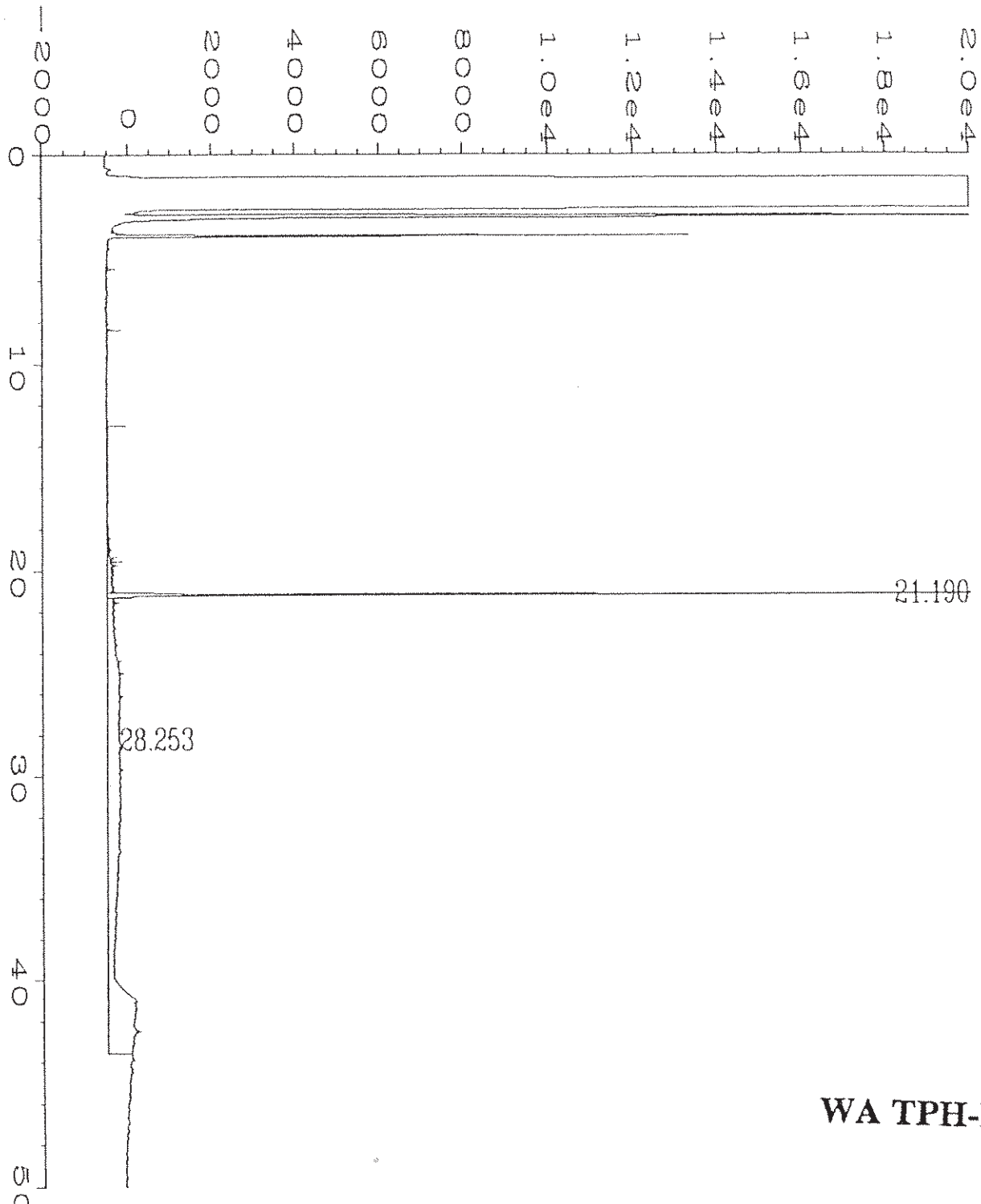
WA TPH-D Ext

Data File Name	: F:\DATA\FUELS\DEEMTER\D\940922\003F0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: DEEMTER	Vial Number	: 3
Sample Name	: 409600-26	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 06:34 PM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 11:17 AM	Analysis Method	: WF-TPHDX.MTI
Last Recalib on	: 21 SEP 94 12:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



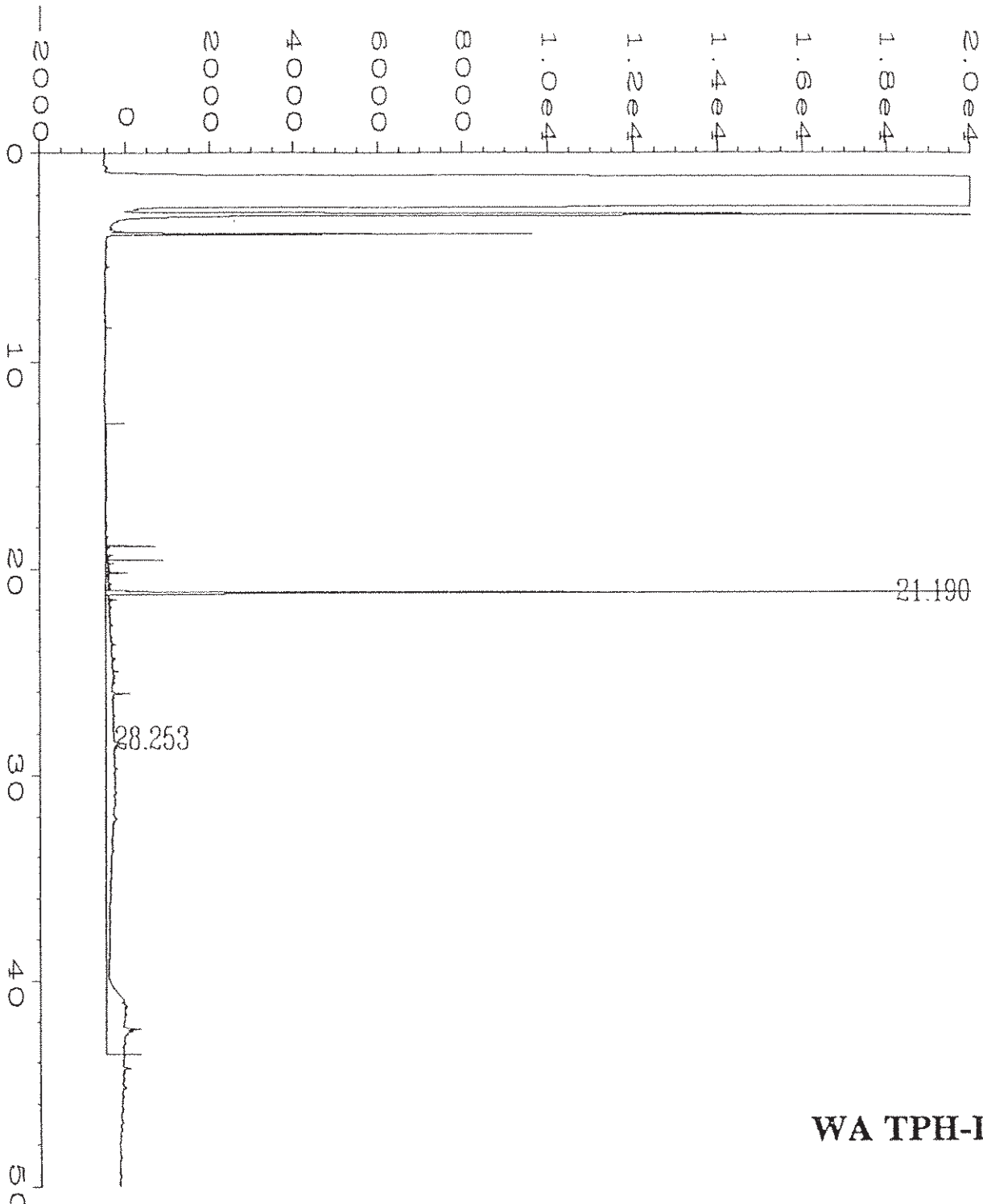
WA TPH-D Ext

Data File Name	: F:\DATA\FUELS\DEEMTER\D\940922\004F0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: DEEMTER	Vial Number	: 4
Sample Name	: 409600-29	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 07:36 PM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 11:21 AM	Analysis Method	: WF-TPHDX.MTI
Last Recalib on	: 21 SEP 94 12:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



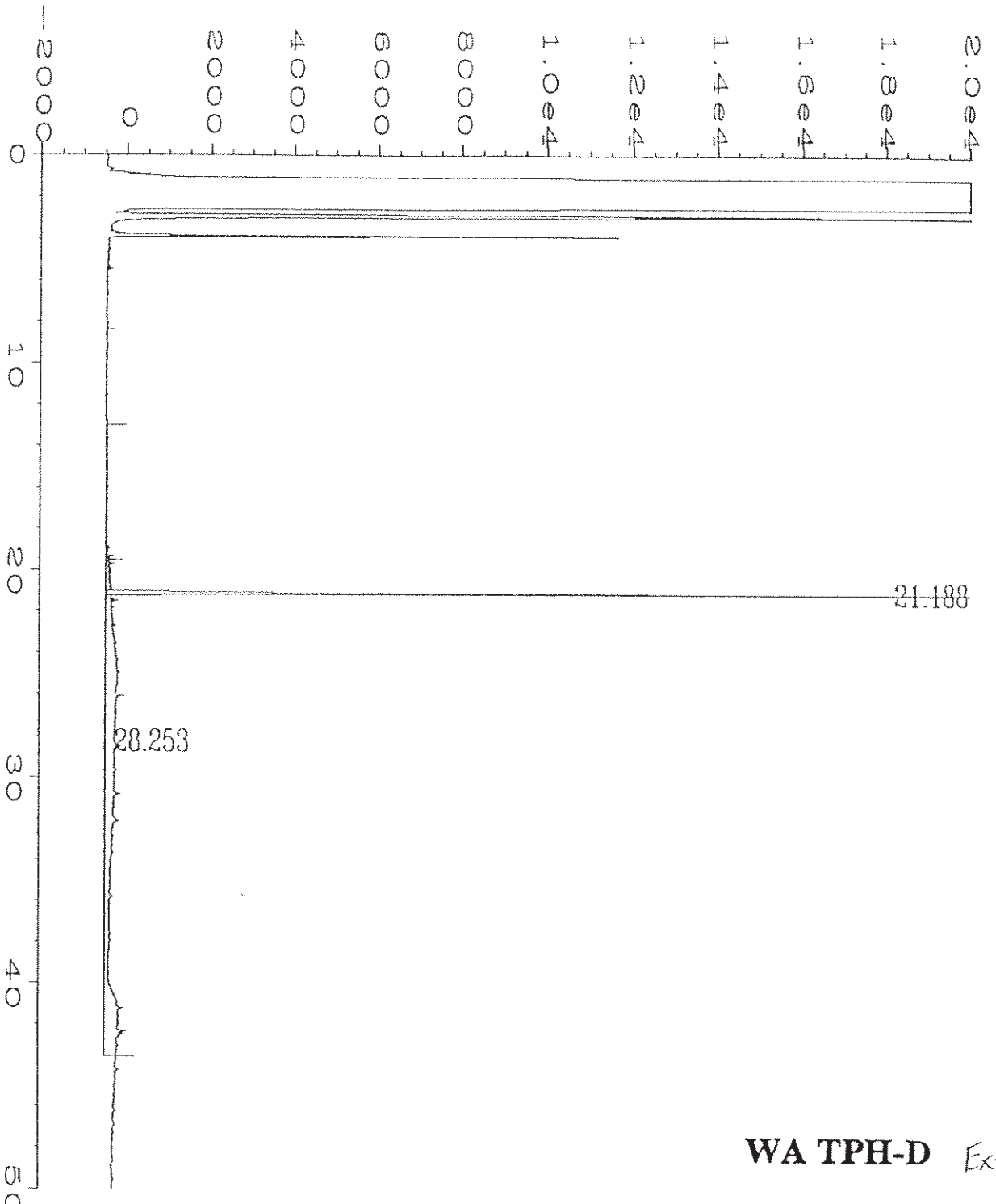
WA TPH-D Ext.

Data File Name	: F:\DATA\FUELS\DEEMTER\D\940922\006F0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: DEEMTER	Vial Number	: 6
Sample Name	: 409600-30	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 09:39 PM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 11:34 AM	Analysis Method	: WF-TPHDX.MT
Last Recalib on	: 21 SEP 94 12:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



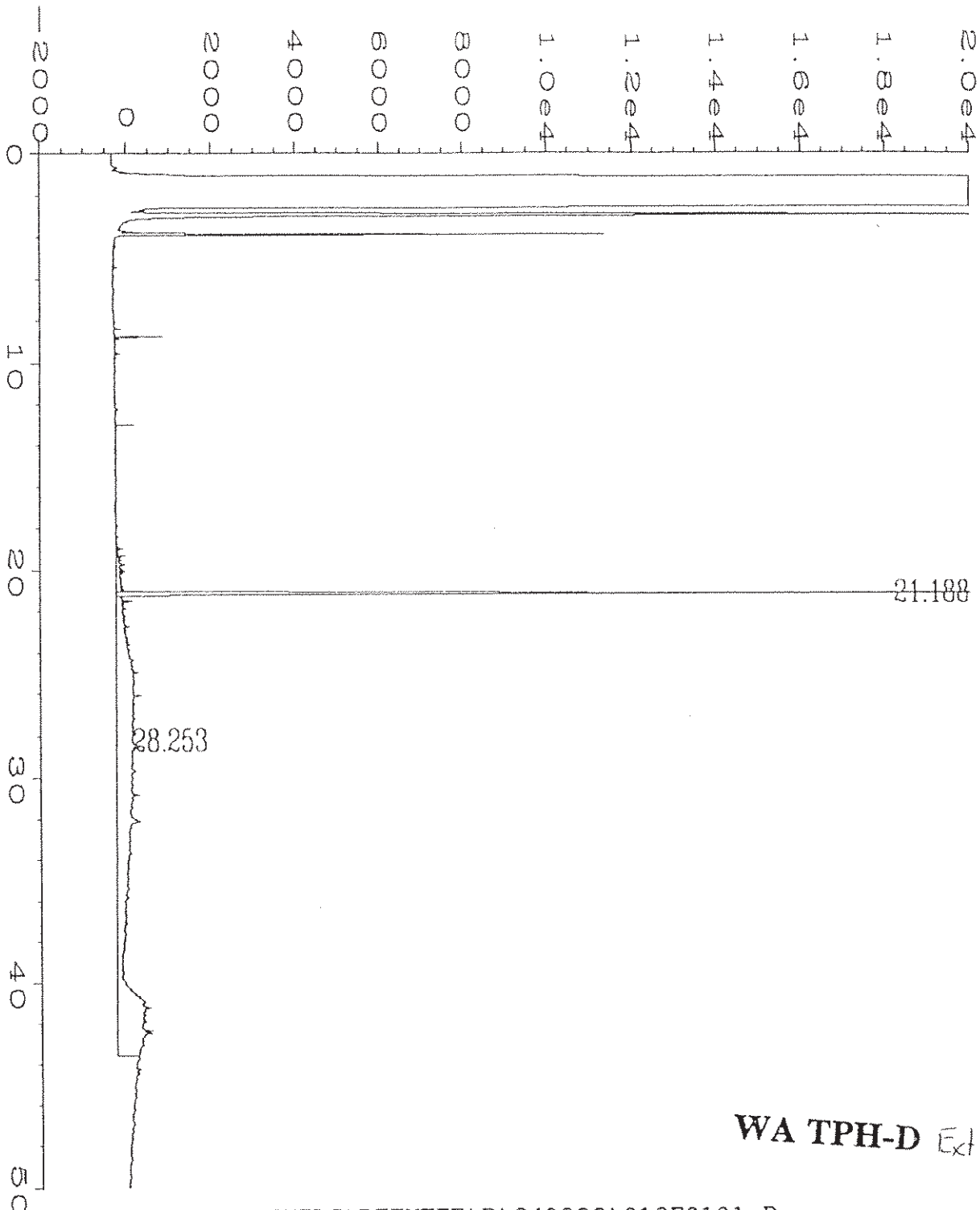
WA TPH-D Ext.

Data File Name	: F:\DATA\FUELS\DEEMTER\D\940922\007F0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: DEEMTER	Vial Number	: 7
Sample Name	: 409600-31	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Sep 94 10:42 PM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 12:03 PM	Analysis Method	: WF-TPHDX.MT
Last Recalib on	: 21 SEP 94 12:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



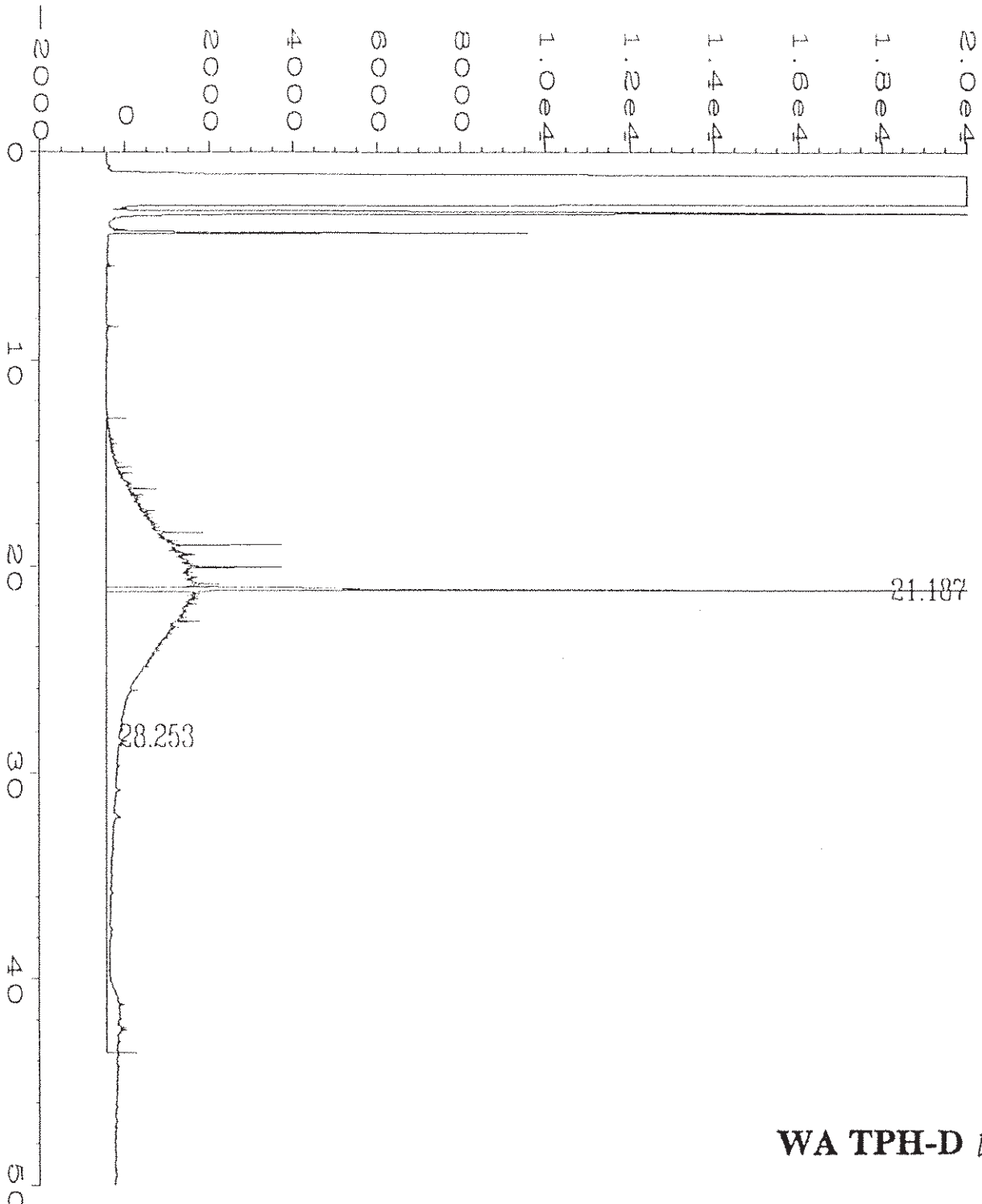
WA TPH-D Ex1.

Data File Name	: F:\DATA\FUELS\DEEMTER\D\940924\003F0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: DEEMTER	Vial Number	: 3
Sample Name	: 409600-32	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 24 Sep 94 09:15 PM	Instrument Method	: OHCID.MTH
Report Created on	: 26 Sep 94 10:24 AM	Analysis Method	: WF-TPHDX.MTH
Last Recalib on	: 21 SEP 94 12:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



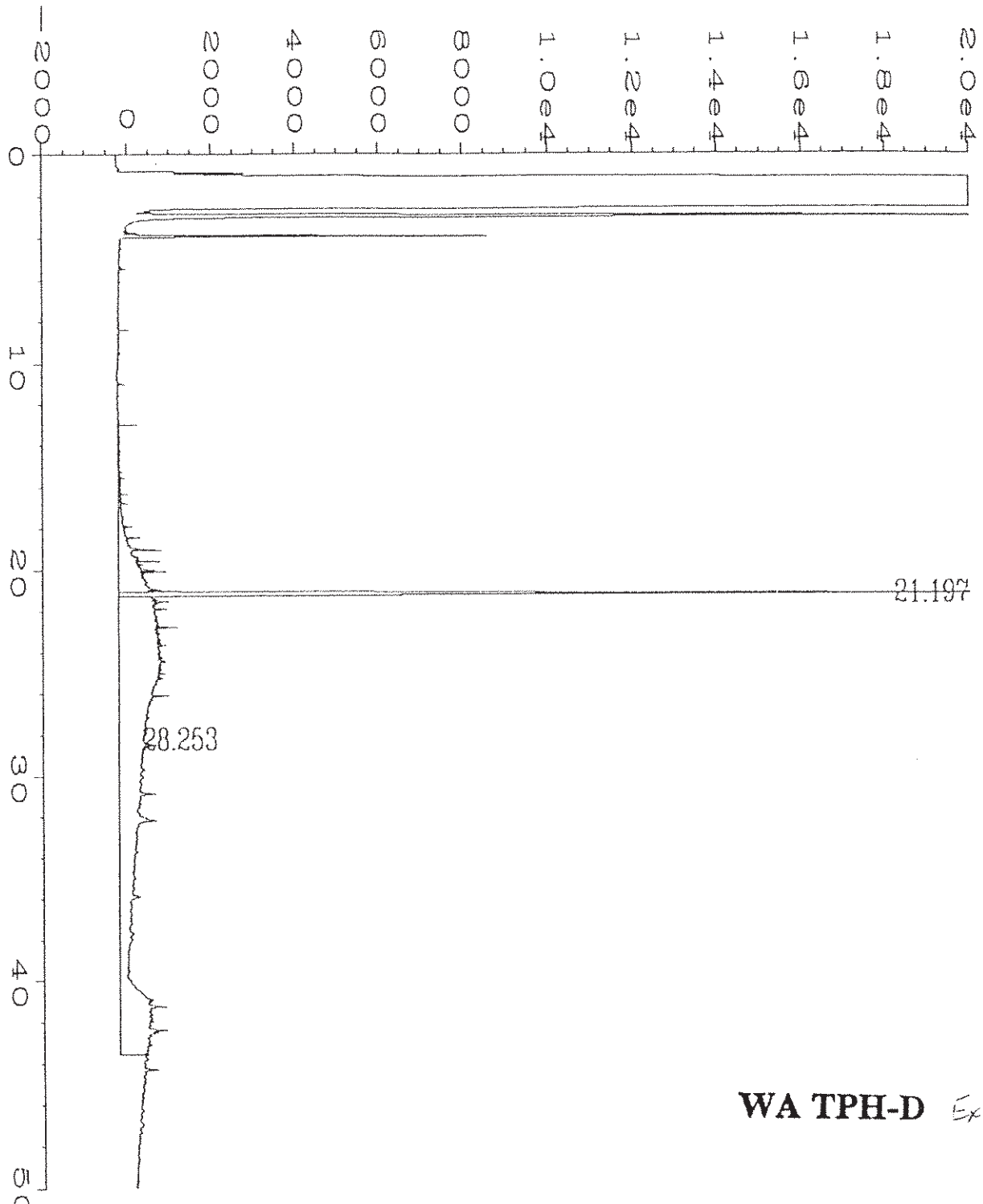
WA TPH-D Ext.

Data File Name	: F:\DATA\FUELS\DEEMTER\D\940922\013F0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: DEEMTER	Vial Number	: 13
Sample Name	: 409600-33	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 23 Sep 94 05:02 AM	Instrument Method	: OHCID.MTH
Report Created on	: 23 Sep 94 12:13 PM	Analysis Method	: WF-TPHDX.MT
Last Recalib on	: 21 SEP 94 12:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



WA TPH-D Ext.

Data File Name	: F:\DATA\FUELS\DEEMTER\D\940924\004F0101.D		
Operator	: FUELS	Page Number	: 1
Instrument	: DEEMTER	Vial Number	: 4
Sample Name	: 409600-34	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 24 Sep 94 10:19 PM	Instrument Method	: OHCID.MTH
Report Created on	: 26 Sep 94 10:25 AM	Analysis Method	: WF-TPHDX.MTI
Last Recalib on	: 21 SEP 94 12:05 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



WA TPH-D Ext.

Data File Name : F:\DATA\FUELS\DEEMTER\D\940922\015F0101.D
Operator : FUELS
Instrument : DEEMTER
Sample Name : 409600-35
Run Time Bar Code:
Acquired on : 23 Sep 94 07:09 AM
Report Created on: 23 Sep 94 12:15 PM
Last Recalib on : 21 SEP 94 12:05 PM
Multiplier : 1

Page Number : 1
Vial Number : 15
Injection Number : 1
Sequence Line : 1
Instrument Method: OHCID.MTH
Analysis Method : WF-TPHDX.MT
Sample Amount : 0
ISTD Amount :

Analytical Technologies, Inc.

CASE NARRATIVE
ATI Accession #409600
EPA 8240

Ten grams of sample was extracted with methanol. One hundred microliters of the extract was analyzed using a gas chromatograph equipped with a mass selective detector (MSD). Five or more point calibration curves were used for quantitation.

The surrogate, toluene-d8, in ATI Accession #409600-25 gave a recovery of 34%, below the established control limits of 46% - 141%. The result was "F" flagged, indicating out of limits due to matrix interference. The other two surrogates (1,2-dichloroethane-d4 and bromofluorobenzene) were within established limits. The sample was reported without correction for moisture content due to sample matrix.

Laura Dutt

Analytical Technologies, Inc.

GCMS - RESULTS

TEST:	EPA 8240	ATI I.D.:	409600-0
CLIENT I.D.:	Method Blank	DATE SAMPLED:	N/A
CLIENT:	Hart Crowser	DATE RECEIVED:	N/A
PROJECT #:	J-5407	DATE EXTRACTED:	09/14/94
PROJECT NAME:	Chevron 61001840	DATE ANALYZED:	09/15/94
SAMPLE MATRIX:	SOIL	DILUTION FACTOR:	1
		UNITS:	mg/kg

PARAMETER	MRL	RESULTS
ACETONE	1.0	ND
BENZENE	0.050	ND
BROMODICHLOROMETHANE	0.050	ND
BROMOFORM	0.25	ND
BROMOMETHANE	0.50	ND
2-BUTANONE (MEK)	0.50	ND
CARBON DISULFIDE	0.050	ND
CARBON TETRACHLORIDE	0.050	ND
CHLOROBENZENE	0.050	ND
CHLOROETHANE	0.050	ND
CHLOROFORM	0.050	ND
CHLOROMETHANE	0.50	ND
DIBROMOCHLOROMETHANE	0.050	ND
1,2-DIBROMOETHANE (EDB)	0.050	ND
1,2-DICHLOROBENZENE	0.050	ND
1,3-DICHLOROBENZENE	0.050	ND
1,4-DICHLOROBENZENE	0.050	ND
DICHLORODIFLUOROMETHANE	0.050	ND
1,1-DICHLOROETHANE	0.050	ND
1,2-DICHLOROETHANE (EDC)	0.050	ND
1,1-DICHLOROETHENE	0.050	ND
cis-1,2-DICHLOROETHENE	0.050	ND
trans-1,2-DICHLOROETHENE	0.050	ND
1,2-DICHLOROPROPANE	0.050	ND
cis-1,3-DICHLOROPROPENE	0.050	ND
trans-1,3-DICHLOROPROPENE	0.050	ND
ETHYLBENZENE	0.050	ND
2-HEXANONE (MBK)	0.50	ND
4-METHYL-2-PENTANONE (MIBK)	0.50	ND
METHYLENE CHLORIDE	0.50	ND
STYRENE	0.050	ND
1,1,2,2-TETRACHLOROETHANE	0.050	ND
TETRACHLOROETHENE	0.050	ND
TOLUENE	0.050	ND
1,1,1-TRICHLOROETHANE	0.050	ND
1,1,2-TRICHLOROETHANE	0.050	ND
TRICHLOROETHENE	0.050	ND
TRICHLOROFLUOROMETHANE	0.050	ND
VINYL ACETATE	0.50	ND
VINYL CHLORIDE	0.050	ND
TOTAL XYLENES	0.050	ND

SURROGATES:		CONTROL LIMITS
1,2-DICHLOROETHANE-D4	102%	53% - 140%
TOLUENE-D8	110%	46% - 141%
BROMOFLUOROBENZENE	112%	41% - 145%

Analyst: LO 9-16-94

Reviewer: [illegible] 9/16/94

Analytical Technologies, Inc.

GCMS - RESULTS

TEST:	EPA 8240	ATI I.D.:	409600-25
CLIENT I.D.:	Sump	DATE SAMPLED:	09/09/94
CLIENT:	Hart Crowser	DATE RECEIVED:	09/12/94
PROJECT #:	J-5407	DATE EXTRACTED:	09/14/94
PROJECT NAME:	Chevron 61001840	DATE ANALYZED:	09/16/94
SAMPLE MATRIX:	OIL/WATER	DILUTION FACTOR:	1
		UNITS:	mg/kg

PARAMETER	MRL	RESULTS
ACETONE	1.0	ND
BENZENE	0.050	ND
BROMODICHLOROMETHANE	0.050	ND
BROMOFORM	0.25	ND
BROMOMETHANE	0.50	ND
2-BUTANONE (MEK)	0.50	ND
CARBON DISULFIDE	0.050	ND
CARBON TETRACHLORIDE	0.050	ND
CHLOROBENZENE	0.050	ND
CHLOROETHANE	0.050	ND
CHLOROFORM	0.050	ND
CHLOROMETHANE	0.50	ND
DIBROMOCHLOROMETHANE	0.050	ND
1,2-DIBROMOETHANE (EDB)	0.050	ND
1,2-DICHLOROBENZENE	0.050	ND
1,3-DICHLOROBENZENE	0.050	ND
1,4-DICHLOROBENZENE	0.050	ND
DICHLORODIFLUOROMETHANE	0.050	ND
1,1-DICHLOROETHANE	0.050	ND
1,2-DICHLOROETHANE (EDC)	0.050	ND
1,1-DICHLOROETHENE	0.050	ND
cis-1,2-DICHLOROETHENE	0.050	ND
trans-1,2-DICHLOROETHENE	0.050	ND
1,2-DICHLOROPROPANE	0.050	ND
cis-1,3-DICHLOROPROPENE	0.050	ND
trans-1,3-DICHLOROPROPENE	0.050	ND
ETHYLBENZENE	0.050	ND
2-HEXANONE (MBK)	0.50	ND
4-METHYL-2-PENTANONE (MIBK)	0.50	ND
METHYLENE CHLORIDE	0.50	ND
STYRENE	0.050	ND
1,1,2,2-TETRACHLOROETHANE	0.050	ND
TETRACHLOROETHENE	0.050	ND
TOLUENE	0.050	ND
1,1,1-TRICHLOROETHANE	0.050	ND
1,1,2-TRICHLOROETHANE	0.050	ND
TRICHLOROETHENE	0.050	ND
TRICHLOROFLUOROMETHANE	0.050	ND
VINYL ACETATE	0.50	ND
VINYL CHLORIDE	0.050	ND
TOTAL XYLENES	0.050	ND

SURROGATES:			CONTROL LIMITS
1,2-DICHLOROETHANE-D4	53%		53% - 140%
TOLUENE-D8	34%	F	46% - 141%
BROMOFLUOROBENZENE	104%		41% - 145%

F - Out of limits due to matrix interference.

Analyst: 9-19-94

Reviewer: 9/21/94

Analytical Technologies, Inc.

GCMS - SPIKE RESULTS

		ATI I.D.:	409600
TEST:	EPA 8240	QC SAMPLE:	409552-2
CLIENT:	Hart Crowser	DATE EXTRACTED:	09/14/94
PROJECT #:	J-5407	DATE ANALYZED:	09/15/94
PROJECT NAME:	Chevron 61001840	DILUTION FACTOR:	1
SAMPLE MATRIX:	SOIL	UNITS:	mg/kg

RESULTS CORRECTED FOR MOISTURE CONTENT

PARAMETER		SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE	<	0.053	2.63	2.55	97	2.66	101	4
CHLOROBENZENE	<	0.053	2.63	2.57	98	2.71	103	5
1,1-DICHLOROETHENE	<	0.053	2.63	2.08	79	2.16	82	4
TOLUENE	<	0.053	2.63	2.59	98	2.66	101	3
TRICHLOROETHENE	<	0.053	2.63	2.45	93	2.56	97	4

SURROGATES:		
1,2-DICHLOROETHANE-d4 (53% - 140%)	90%	90%
TOLUENE-D8 (46% - 141%)	99%	98%
BROMOFLUOROBENZENE (41% - 145%)	102%	103%

	CONTROL LIMITS	
BENZENE	75% - 129%	20
CHLOROBENZENE	68% - 138%	20
1,1-DICHLOROETHENE	50% - 138%	20
TOLUENE	65% - 137%	20
TRICHLOROETHENE	58% - 134%	20

Analyst: LD - 9-16-94

Reviewer: [illegible] 9/16/94

Analytical Technologies, Inc.

CASE NARRATIVE FOR EPA METHOD 8310

POLYNUCLEAR AROMATIC HYDROCARBONS

ATI ACCESSION NUMBER 409600

A 30 gram aliquot of each aqueous sample was extracted with methylene chloride by horn sonication method (EPA method 3550). The methylene chloride was reduced and exchanged to acetonitrile. Final volume was 5.0 ml.

The extracts were analyzed by HPLC with UV (254 nm) and fluorescence detectors in series. A gradient mobile phase of water and acetonitrile was utilized for the analysis. Five and six point calibration curves were generated and utilized for the analysis.

The matrix spike produced high recovery values for phenanthrene due to high levels of target analytes in sample used for the matrix spike. Blank spikes produced acceptable results and are reported.

Sample TP-18/S-3 contained a high concentration of non-target compounds, possibly hydrocarbons that interfered with the anaysis. The extract had to be diluted 5 fold. No 8310 compounds were detected.

Sarah Sharp

Analytical Technologies, Inc.

LIQUID CHROMATOGRAPHY RESULTS

METHOD:	8310	ATI I.D.:	409600
CLIENT:	Hart Crowser	DATE SAMPLED:	09/08/94
PROJECT #:	J-5407	DATE RECEIVED:	09/12/94
PROJECT NAME:	Chevron 61001840	DATE EXTRACTED:	09/28/94
SAMPLE MATRIX:	Soil	UNITS:	mg/kg

	DILUTION FACTOR:		1		1		1		1		5		5
	DATE ANALYZED:		09/28/94		09/30/94		09/29/94		09/29/94		09/30/94		09/29/94
	CLIENT ID:		METHOD BLANK		TP-5/S-1		TP-5/S-2		TP-9/S-1		TP-18/S-1		TP-18/S-3
PARAMETER	ATI ID:	MRL	409600-0	MRL*	409600-5	MRL*	409600-6	MRL*	409600-10	MRL*	409600-21	MRL*	409600-23
NAPHTHALENE		0.083	ND	0.10	ND	0.10	ND	0.090	ND	0.48	3.6	0.50	1.0
ACENAPHTHYLENE		0.17	ND	0.21	ND	0.21	ND	0.18	ND	0.99	ND	1.0	ND
ACENAPHTHENE		0.17	ND	0.21	ND	0.21	ND	0.18	ND	0.99	ND	1.0	ND
FLUORENE		0.017	ND	0.021	1.2	0.021	0.12	0.018	ND	0.099	1.8	0.10	3.1
PHENANTHRENE		0.0083	ND	0.010	2.1	0.010	0.23	0.0090	0.042	0.048	4.8	0.050	4.5
ANTHRACENE		0.0083	ND	0.010	0.053	0.010	0.029	0.0090	ND	0.048	ND	0.050	0.11
FLUORANTHENE		0.017	ND	0.021	1.6	0.021	1.0	0.018	ND	0.099	2.6	0.10	3.4
PYRENE		0.017	ND	0.021	0.12	0.021	0.22	0.018	ND	0.099	ND	0.10	ND
BENZO(a)ANTHRACENE		0.017	ND	0.021	ND	0.021	0.050	0.018	ND	0.099	ND	0.10	ND
CHRYSENE		0.017	ND	0.021	0.055	0.021	0.40	0.018	ND	0.099	ND	0.10	ND
BENZO(b)FLUORANTHENE		0.017	ND	0.021	ND	0.021	0.059	0.018	ND	0.099	ND	0.10	ND
BENZO(k)FLUORANTHENE		0.017	ND	0.021	ND	0.021	0.042	0.018	ND	0.099	ND	0.10	ND
BENZO(a)PYRENE		0.017	ND	0.021	ND	0.021	0.024	0.018	ND	0.099	ND	0.10	ND
DIBENZO(a,h)ANTHRACENE		0.034	ND	0.042	ND	0.042	0.12	0.037	ND	0.20	ND	0.20	ND
BENZO(g,h,i)PERYLENE		0.017	ND	0.021	ND	0.021	0.33	0.018	ND	0.099	ND	0.10	ND
INDENO(1,2,3-cd)PYRENE		0.017	ND	0.021	ND	0.021	0.13	0.018	ND	0.099	ND	0.10	ND
SURROGATE:													
BIPHENYL (21% - 149%)			70%		70%		43%		105%		77%		112%

* CORRECTED FOR MOISTURE CONTENT

Analyst: 10/4/94

Reviewer: 10/4/94

Analytical Technologies, Inc.

LIQUID CHROMATOGRAPHY SPIKE RESULTS

		ATI I.D.:	409600
METHOD:	8310	**QC SAMPLE:**	409600-21
CLIENT:	Hart Crowser	**DATE EXTRACTED:**	09/28/94
PROJECT #:	J-5407	**DATE ANALYZED:**	09/30/94
PROJECT NAME:	Chevron 61001840	**DILUTION FACTOR:**	5
SAMPLE MATRIX:	SOIL	**UNITS:**	mg/kg

RESULTS CORRECTED FOR MOISTURE CONTENT

PARAMETER		SAMPLE RESULT	SPIKE CONC.	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
ACENAPHTHYLENE	<	1.0	1.94	2.70	139	2.77	143	3
PHENANTHRENE		4.8	0.194	6.9	1082G	6.0	619G	14
PYRENE	<	0.10	0.194	0.243	125	0.243	125	0
BENZO(k)FLUORANTHENE	<	0.10	0.194	0.183	94	0.188	97	3
DIBENZO(a,h)ANTHRACENE	<	0.20	0.194	0.173	89	0.178	92	3
SURROGATE:								
BIPHENYL (21% - 149%)				104%		62%		

CONTROL LIMITS

	% REC	RPD
ACENAPHTHYLENE	20-144	50
PHENANTHRENE	36-171	36
PYRENE	20-164	40
BENZO(k)FLUORANTHENE	32-148	36
DIBENZO(a,h)ANTHRACENE	36-168	40

G = OUT OF LIMITS DUE TO HIGH LEVELS OF TARGET ANALYTES

Analyst: BH 10/4/94

Reviewer: 10/4/94

Analytical Technologies, Inc.

LIQUID CHROMATOGRAPHY BLANK SPIKE RESULTS

		ATI I.D.:	409600
METHOD:	8310	QC SAMPLE:	METHOD BLANK
CLIENT:	Hart Crowser	DATE EXTRACTED:	09/28/94
PROJECT #:	J-5407	DATE ANALYZED:	09/28/94
PROJECT NAME:	Chevron 61001840	DILUTION FACTOR:	1
SAMPLE MATRIX:	SOIL	UNITS:	mg/kg

RESULTS CORRECTED FOR MOISTURE CONTENT

PARAMETER		SAMPLE RESULT	SPIKE CONC.	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
ACENAPHTHYLENE	<	0.17	1.67	1.13	68	1.00	60	12
PHENANTHRENE	<	0.0083	0.167	0.159	95	0.154	92	3
PYRENE	<	0.017	0.167	0.176	105	0.166	99	6
BENZO(k)FLUORANTHENE	<	0.017	0.167	0.165	99	0.160	96	3
DIBENZO(a,h)ANTHRACENE	<	0.034	0.167	0.176	105	0.167	100	5
SURROGATE:								
BIPHENYL (21% - 149%)				61%		55%		

CONTROL LIMITS

	% REC	RPD
ACENAPHTHYLENE	36-114	60
PHENANTHRENE	43-130	39
PYRENE	71-149	31
BENZO(k)FLUORANTHENE	68-132	48
DIBENZO(a,h)ANTHRACENE	69-171	46

Analyst: 10/4/94

Reviewer: 10/4/94

Analytical Technologies, Inc.

METALS RESULTS

METHOD:	6010 - Lead	**ATI I.D.:**	409600
CLIENT:	Hart Crowser	**DATE SAMPLED:**	09/08,09/94
PROJECT #:	J-5407	**DATE RECEIVED:**	09/12/94
PROJECT NAME:	Chevron 61001840	**DATE DIGESTED:**	09/19/94
SAMPLE MATRIX:	SOIL	**DATE ANALYZED:**	09/22/94
		UNITS:	mg/kg

RESULTS ARE CORRECTED FOR MOISTURE CONTENT.

ATI I.D.	CLIENT I.D.	MRL	RESULT
409600-0	Method Blank	5	ND
409600-5	TP-5/S-1	6	74
409600-6	TP-5/S-2	6	54
409600-14	TP-13/S-1	6	26
409600-21	TP-18/S-1	6	1670
409600-23	TP-18/S-3	6	37

ND - None detected at or above the method reporting limit.
MRL - Method reporting limit.

Analyst: 9/23/94
Reviewer: 9/23/94

Analytical Technologies, Inc.

METALS DUPLICATE RESULTS

METHOD:	6010	**ATI I.D.:**	409600
CLIENT:	Hart Crowser	**QC SAMPLE:**	409669-9
PROJECT #:	J-5407	**DATE DIGESTED:**	09/19/94
PROJECT NAME:	Chevron 61001840	**DATE ANALYZED:**	09/22/94
SAMPLE MATRIX:	SOIL	**DILUTION FACTOR:**	1
		UNITS:	mg/kg

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

PARAMETER	SAMPLE RESULT	DUPLICATE RESULT	RPD	RPD CONTROL LIMIT
LEAD	15	15	0	20

Analyst: D.T. 9/23/94

Reviewer: [illegible] 9/23/94

Analytical Technologies, Inc.

METALS SPIKE RESULTS

METHOD:	6010	ATI I.D.:	409600
CLIENT:	Hart Crowser	QC SAMPLE:	409669-9
PROJECT #:	J-5407	DATE DIGESTED:	09/19/94
PROJECT NAME:	Chevron 61001840	DATE ANALYZED:	09/22/94
SAMPLE MATRIX:	SOIL	DILUTION FACTOR:	1
		UNITS:	mg/kg

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

PARAMETER	SAMPLE RESULT	SPIKE CONC	SPIKE RESULT	% RECOV	CONTROL LIMIT
LEAD	15	235	219	87	75-125%

Analyst: D.T.9/22/94

Reviewer: JLL 9/23/94

Analytical Technologies, Inc.

TCLP METALS RESULTS

METHOD:	1311	**ATI I.D.:**	409600
CLIENT:	Hart Crowser	**DATE SAMPLED:**	09/09/94
PROJECT #:	J-5407	**DATE RECEIVED:**	09/12/94
PROJECT NAME:	Chevron 61001840	**DATE EXTRACTED:**	10/03/94
SAMPLE MATRIX:	SOIL	**DATE DIGESTED:**	10/04/94
		DATE ANALYZED:	10/05/94
		UNITS:	mg/L in Extract

ATI I.D.:	409600-0	409600-21	
Client I.D.:	Method Blank	TP-18/S-1	

PARAMETER	MRL	METHOD		
LEAD	0.05	6010	ND	ND

ND - None detected at or above the method reporting limit.
MRL - Method reporting limit.

Analyst: D. 10/6/94

Reviewer: 10/6/94

Analytical Technologies, Inc.

TCLP METALS DUPLICATE RESULTS

METHOD:	1311	ATI I.D.:	409600
CLIENT:	Hart Crowser	QC SAMPLE:	409711-1
PROJECT #:	J-5407	DATE EXTRACTED:	10/03/94
PROJECT NAME:	Chevron 61001840	DATE DIGESTED:	10/04/94
SAMPLE MATRIX:	SOIL	DATE ANALYZED:	10/05/94
		DILUTION FACTOR:	1
		UNITS:	mg/L in Extract

PARAMETER	SAMPLE RESULT	DUPLICATE RESULT	RPD	RPD CONTROL LIMIT
LEAD	< 0.05	< 0.05	NA	20

Analyst: [illegible] 10/6/94

Reviewer: [illegible] 10/6/94

Analytical Technologies, Inc.

TCLP METALS SPIKE RESULTS

METHOD:	1311	ATI I.D.:	409600
CLIENT:	Hart Crowser	QC SAMPLE:	409711-1
PROJECT #:	J-5407	DATE EXTRACTED:	10/03/94
PROJECT NAME:	Chevron 61001840	DATE DIGESTED:	10/04/94
SAMPLE MATRIX:	SOIL	DATE ANALYZED:	10/05/94
		DILUTION FACTOR:	1
		UNITS:	mg/L in Extract

PARAMETER	SAMPLE RESULT	SPIKE CONC	SPIKE RESULT	% RECOV	CONTROL LIMIT
LEAD	< 0.05	2.00	1.79	90	75-125%

Analyst: D.A. 10/6/94

Reviewer: LLH. 10/6/94

Analytical Technologies, Inc.

CASE NARRATIVE
Accession # 409600
TCLP Metals Analysis

The samples were extracted using EPA SW-846 method 1311. The samples were digested using EPA SW-846 method 3005. The digestions were analyzed on the Inductively Coupled Plasma Spectrophotometer by EPA SW-846 method 6010. The mercury was analyzed on the atomic absorption spectrophotometer.

Due to matrix interferences the mercury spike on 409600-25 was out of limits. The blank spike was within limits. Both the spike and blank spike are reported.

Analytical Technologies, Inc.

TCLP METALS RESULTS

METHOD:	1311	ATI I.D.:	409600
CLIENT:	Hart Crowser	DATE SAMPLED:	09/09/94
PROJECT #:	J-5407	DATE RECEIVED:	09/12/94
PROJECT NAME:	Chevron 61001840	DATE EXTRACTED:	09/14/94
SAMPLE MATRIX:	OIL/WATER	DATE DIGESTED:	09/15/94
		DATE ANALYZED:	09/15/94
		UNITS:	mg/L in Extract

		ATI I.D.:	409600-0	409600-25
PARAMETER	MRL	METHOD	Client I.D.: Method Blank	Sump
ARSENIC	0.1	6010	ND	ND
BARIUM	0.4	6010	ND	1.2
CADMIUM	0.01	6010	ND	ND
CHROMIUM	0.01	6010	ND	ND
LEAD	0.05	6010	ND	0.26
MERCURY	0.0005	6010	ND	ND
SELENIUM	0.1	6010	ND	ND
SILVER	0.01	6010	ND	ND

ND - None detected at or above the method reporting limit.
MRL - Method reporting limit.

Analyst: 9/19/94

Reviewer: 9/19/94

Analytical Technologies, Inc.

TCLP METALS DUPLICATE RESULTS

METHOD:	1311	ATI I.D.:	409600
CLIENT:	Hart Crowser	QC SAMPLE:	409600-25
PROJECT #:	J-5407	DATE EXTRACTED:	09/14/94
PROJECT NAME:	Chevron 61001840	DATE DIGESTED:	09/15/94
SAMPLE MATRIX:	OIL/WATER	DATE ANALYZED:	09/15/94
		DILUTION FACTOR:	1
		UNITS:	mg/L in Extract

PARAMETER	SAMPLE RESULT	DUPLICATE RESULT	RPD	RPD CONTROL LIMIT
ARSENIC	< 0.1	< 0.1	NA	20
BARIUM	1.2	1.2	0	20
CADMIUM	< 0.01	< 0.01	NA	20
CHROMIUM	< 0.01	< 0.01	NA	20
LEAD	0.26	0.25	4	20
MERCURY	< 0.0005	< 0.0005	NA	20
SELENIUM	< 0.1	< 0.1	NA	20
SILVER	< 0.01	< 0.01	NA	20

Analyst: [signature] 9/19/94

Reviewer: [signature] 9/19/94

Analytical Technologies, Inc.

TCLP METALS SPIKE RESULTS

METHOD:	1311	ATI I.D.:	409600
CLIENT:	Hart Crowser	QC SAMPLE:	409600-25
PROJECT #:	J-5407	DATE EXTRACTED:	09/14/94
PROJECT NAME:	Chevron 61001840	DATE DIGESTED:	09/15/94
SAMPLE MATRIX:	OIL/WATER	DATE ANALYZED:	09/15/94
		DILUTION FACTOR:	1
		UNITS:	mg/L in Extract

PARAMETER	SAMPLE RESULT	SPIKE CONC	SPIKE RESULT	% RECOV		CONTROL LIMIT
ARSENIC	< 0.1	1.0	1.1	110		75-125%
BARIUM	1.2	2.0	3.1	95		75-125%
CADMIUM	< 0.01	1.00	0.89	89		75-125%
CHROMIUM	< 0.01	1.00	0.92	92		75-125%
LEAD	0.26	2.00	2.09	92		75-125%
MERCURY	< 0.0005	0.0020	0.0013	65	F	75-125%
SELENIUM	< 0.1	1.0	1.0	100		75-125%
SILVER	< 0.01	1.00	0.90	90		75-125%

F - Out of limits due to matrix interference. Please see case narrative.

Analyst: 9/19/94

Reviewer: 9/21/1994

Analytical Technologies, Inc.

TCLP METALS BLANK SPIKE RESULTS

METHOD:	1311	ATI I.D.:	409600
CLIENT:	Hart Crowser	QC SAMPLE:	Method Blank
PROJECT #:	J-5407	DATE EXTRACTED:	09/14/94
PROJECT NAME:	Chevron 61001840	DATE DIGESTED:	09/15/94
SAMPLE MATRIX:	OIL/WATER	DATE ANALYZED:	09/15/94
		DILUTION FACTOR:	1
		UNITS:	mg/L in Extract

PARAMETER	SPIKE CONC	SPIKE RESULT	% RECOV	CONTROL LIMIT
ARSENIC	1.0	1.0	100	80-120%
BARIUM	2.0	1.9	95	80-120%
CADMIUM	1.00	0.89	89	80-120%
CHROMIUM	1.00	0.90	90	80-120%
LEAD	2.00	1.81	91	80-120%
MERCURY	0.0020	0.0024	120	80-120%
SELENIUM	1.0	1.0	100	80-120%
SILVER	1.00	0.90	90	80-120%

Analyst: 9/19/94

Reviewer: 9/19/94

ES 6) 5[redacted]53

Fax copy of Lab Report and COC to Chevron Contact: ☐ NO

Chain-of-Custody-Record

Chevron U.S.A., Inc.
under contract
with
ATI
Portland FAX:
(503) 620-0393
Renton FAX:
(206) 363-1742

Chevron Facility Number: 61001840
Facility Address: SE 6th Ave. + SE Union Ave., Camas, WA
Consultant Project Number: J-5407
Consultant Name: Hart Crowser, Inc.
Address: 5 Centerpointe Dr., Ste 240, Lk Oswego, OR 97035
Project Contact (Name): Rick Ernst
(Phone): (503) 620-7284 (FAX): (503) 620-6918

Chevron Contact (Name): Stephen Pratt
(Phone): (510) 842-9181
Laboratory Name: Analytical Technologies, Inc.
Laboratory Release Number: 838950
Samples Collected by (Name): John Stewart
Collection Date: 9/8/94 - 9/9/94
Signature: John C. Stewart

Analyses To Be Performed

Sample Number	Lab Sample Number	Number of Container	Matrix (S - Soil, A - Air, W - Water, C - Charcoal)	Type (G - Grab, C - Composite, D - Discrete)	Time	Sample Preservation	Iced (Yes or No)	TPH-G/BETX (8015 MOD./8020)	BETX (8020)	TPH-HCID State: WA	TPH-G State:	TPH-D State: Extended	TPH Special Instructions	TPH-IR (418.1)	Purgable Halocarbons (8010)	Purgeable Aromatics (8020)	PCBs Only (8080M)	PCB / Pesticides (8080)	HPLC PAHs (8310)	Total and/or Dissolved LEAD State:	Purgeable Organics (8240) GC/MS	Extractable Organics (8270) GC/MS	Remarks
TP-1/S-1	1	1	S	D			Y			X		X											Follwups of HCID added 9/19 as per chat RV 609600
TP-2/S-1	2	1								X		X											9/8/94
TP-3/S-1	3	2								X		X											
TP-4/S-1	4	2								X													Call w/ HCID results
TP-5/S-1	5	2						X		X		X											
TP-5/S-2	6	2						X		X		X							X	X			
TP-6/S-1	7	2								X									X	X			
TP-7/S-1	8	2						X		X		X											
TP-8/S-1	9	2								X		X											
TP-9/S-1	10	2						X		X		X											
TP-10/S-1	11	2								X		X							X				9/9/94
TP-11/S-1	12	2								X													
TP-12/S-1	13	2								X													
TP-13/S-1	14	2						X		X		X								X			

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
John C. Stewart	Hart Crowser	9/12/94 1140	[signature]	ATI	9/12/94 1140
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received for Laboratory By (Signature)		Date/Time

Turnaround Time
(Circle Choice)
24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted

:S 6) 5 531

Fax copy of Lab Report and COC to Chevron Contact: ☐ NO

Chain-of-Custody-Record

Chevron U.S.A., Inc. under contract with ATI Portland FAX: (503) 620-0393 Renton FAX: (206) 363-1742	Chevron Facility Number: 6100 1840 Facility Address: SE 6th Ave & SE Union Ave, Camas, WA Consultant Project Number: J-5407 Consultant Name: Hart Crowser, Inc. Address: 5 Centerpointe Dr. Ste 240 LK. Osw OR 97035 Project Contact (Name): Rich Ernst (Phone) (503) 620-7284 (FAX) (503) 620-6918	Chevron Contact (Name): Stephen Pratt (Phone): (510) 842-9181 Laboratory Name: Analytical Technologies, Inc. Laboratory Release Number: Samples Collected by (Name): John Stewart Collection Date: 9/8 & 9/94 Signature:

Analyses To Be Performed

Sample Number	Lab Sample Number	Number of Container	Matrix (S - Soil, A - Air, W - Water, C - Charcoal)	Type (G - Grab, C - Composite, D - Discrete)	Time	Sample Preservation	Iced (Yes or No)	TPH-G/BETX (8015 MOD./8020)	BETX (8020)	TPH-HCID State: WA	TPH-G State:	TPH-D State: Extended	TPH Special Instructions	TPH-IR (418.1)	Purgable Halocarbons (8010)	Purgeable Aromatics (8020)	PCBs Only (8080M)	PCB / Pesticides (8080)	HPLC PAHs (8310)	Total and/or Dissolved LEAD State:	Purgeable Organics (8240) GC/MS	Extractable Organics (8270) GC/MS	TCLP 8	TCLP Pb 9/13/94	Remarks
TP-13/S-2	15	2	S	D			Y	X		X															
TP-14/S-1	16	2	↓	↓			↓			X		X													9/8/94
TP-15/S-1	17	2						X		X		X													
TP-15/S-2	18	2						X		X		X													
TP-16/S-1	19	2								X		X													
TP-17/S-1	20	2								X															
TP-18/S-1	21	2						X		X		X							X	X				X	
TP-18/S-2	22	2						X		X		X													
TP-18/S-3	23	2						X		X		X							X	X					
TP-5/S-1	24	2								X															
Sump	25	2	OW	G			↓														X		X		9/9/94

Remarks: Followups to HCID added 9/19 as per fax
409600
Call w/ HCID results

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turnaround Time (Circle Choice)
John Stewart	Hart Crowser	9/12/94 1140	[signature]	ATI	9/12/94 1140	24 Hrs. 48 Hrs. 5 Days 10 Days (As Contracted)
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	
Relinquished By (Signature)	Organization	Date/Time	Received for Laboratory By (Signature)		Date/Time	

ES 6) 5[redacted]531

Fax copy of Lab Report and COC to Chevron Contact: ☐ NO

Chain-of-Custody-Record

Chevron U.S.A., Inc. under contract with ATI Portland FAX: (503) 620-0393 Renton FAX: (206) 363-1742	Chevron Facility Number: 6100840 Facility Address: SE 6th + SE Union Aves, Camas, WA Consultant Project Number: J-5407 Consultant Name: Hart Crowser Inc. Address: 5 Centerpointe Dr, Ste 240 Lk. Osw, OR 97035 Project Contact (Name): Rick Ernst (Phone): (503) 620-7284 (FAX) (503) 620-6918	Chevron Contact (Name): Stephen Pratt (Phone): (510) 842-9181 Laboratory Name: Analytical Technologies, Inc. Laboratory Release Number: 838930 Samples Collected by (Name): John Stewart Collection Date: 9/8-9/94 Signature:

409600

Sample Number	Lab Sample Number	Number of Container	Matrix (S - Soil, A - Air, W - Water, C - Charcoal)	Type (G - Grab, C - Composite, D - Discrete)	Time	Sample Preservation	Iced (Yes or No)	TPH-G/BETX (8015 MOD./8020)	BETX (8020)	TPH-HCID State: WA	TPH-G State:	TPH-D State: WA Ext	TPH Special Instructions	TPH-IR (418.1)	Purgable Halocarbons (8010)	Purgeable Aromatics (8020)	PCBs Only (8080M)	PCB / Pesticides (8080)	HPLC PAHs (8310)	Total and/or Dissolved LEAD State:	Purgeable Organics (8240) GC/MS	Extractable Organics (8270) GC/MS	Remarks
TP-1/S-2	26	1	S	D			Y			X		X											
TP-3/S-2	27	1								X													9/8/94
TP-4/S-2	28	1								X													
TP-7/S-2	29	1								X		X											
TP-8/S-2	30	1								X		X											
TP-10/S-2	31	1								X		X											
TP-11/S-2	32	1								X		X											9/9/94
TP-14/S-2	33	1								X		X											
TP-16/S-2	34	1								X		X											
TP-17/S-2	35	1								X		X											

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Richard D. Ernst	Hart Crowser	9/12/94 5:05 pm	[signature]	ATI	9/12/94 1705
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received for Laboratory By (Signature)		Date/Time

Turnaround Time (Circle Choice)

24 Hrs.
48 Hrs.
5 Days
10 Days
As Contracted