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AGWMR

2001

SAN JUAN BASIN PIT CLOSURES
San Juan Basin, New Mexico

El Paso Field Services
Pit Project Groundwater Report
Annual Report
Volume IV (Sites on Navajo Owned Land)

March 2001



Prepared For

El Paso Field Services
Farmington, New Mexico

Project 62800398



VOLUME IV

Index

El Paso Field Services Annual Groundwater Report

Annual Groundwater Report:

TWN	RNG	SEC	UNIT	SITE NAME	METER	LAND TYPE
28	12	35	N	Gallegos Canyon 124 E	95608	Navajo
28	9	36	H	Jennapah #1	71816	Navajo
27	9	13	J	Ramenta Et Al #1	75155	Navajo

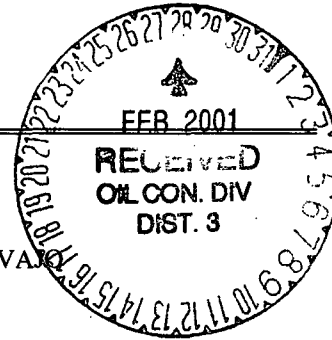
Sites Previously Submitted for Closure:

TWN	RNG	SEC	UNIT	SITE NAME	METER	LAND TYPE
27	9	12	K	Charley Pah #4	71531	Navajo
27	9	13	B	John Charles #8	93126	Navajo
27	9	12	B	Charley Pah #2	70804	Navajo

EPFS GROUNDWATER PITS 2000 ANNUAL GROUNDWATER REPORT

32407

GALLEGOS CANYON 124E
Meter/Line ID -95608



SITE DETAILS

Legals - Twn: 28N Rng: 12W Sec: 35 Unit: N
NMOCD Hazard Ranking: 20 Land Type: NAVAJO
Operator: AMOCO PRODUCTION COMPANY

PREVIOUS ACTIVITIES

Site Assessment: Jan-95	Excavation: Oct-95 (196 cy)	Soil Boring: Mar-98
Monitor Well: Jun-98	Quarterly Sampling Initiated: Jun-98	PSH Removal: Apr-99

2000 ACTIVITIES

Phase Separated Hydrocarbon (PSH) Removal - PSH removal from MW-1 was continued in 2000.

Drilling Activities – Offsite monitor wells, downgradient of MW-1, were attempted in November of 2000. Groundwater was not encountered in either borehole.

SUMMARY TABLES

Groundwater level data and PSH recovery data are presented in Table 1.

SITE MAP

A site map is presented as Figure 1.

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

Additional offsite monitor wells, downgradient of MW-1, were attempted in November of 2000 following approval from Navajo Agricultural Products Inc. (NAPI). Two boreholes were drilled, one to 45-feet and the other to 35-feet, both boreholes were dry. Geologic logs and laboratory analyses of soil samples are included as Attachment 1.

DISPOSITION OF GENERATED WASTES

All PSH has been disposed of at the EPFS Kutz Separator in Bloomfield, New Mexico.

ISOCONCENTRATION MAPS

Isoconcentration maps were not generated for this site.

CONCLUSIONS

A total of 16.95 gallons of PSH has been removed from MW-1 to date with approximately 3.4 gallons of the cumulative total removed in 2000. Installation of two downgradient monitor wells were attempted November 15, 2000. Boreholes SB-2 and SB-3 were drilled to 45-feet and 35-feet respectively. Both boreholes were dry which is suggestive of groundwater that is localized to the former pit area. Soil samples were collected and analyzed for total petroleum hydrocarbons and BTEX, which were not detected in either sample indicating that hydrocarbon migration is unlikely (Attachment 1).

EPFS GROUNDWATER PITS 2000 ANNUAL GROUNDWATER REPORT

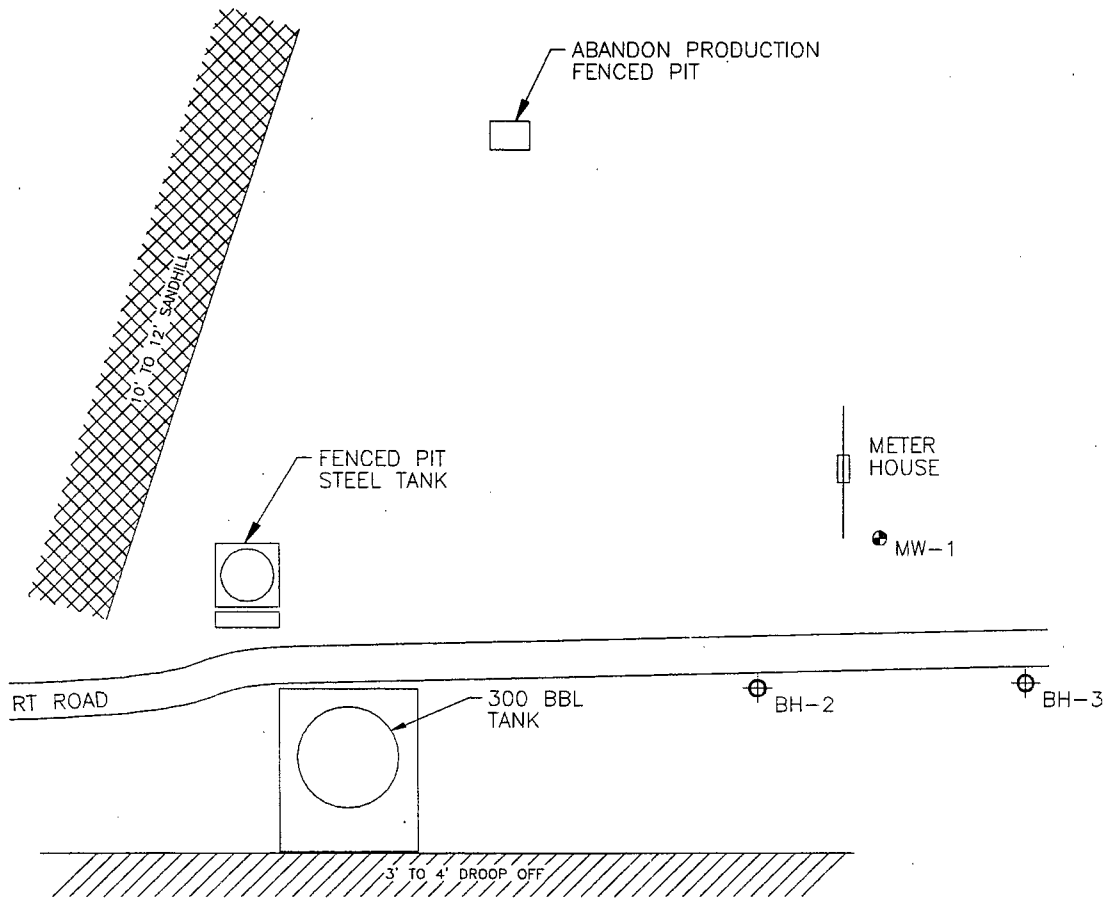
RECOMMENDATIONS

- Continue PSH removal.
- Following product removal, collect water samples annually until BTEX levels are below New Mexico groundwater standards, then sample quarterly for closure.
- Following OCD approval for closure, all monitor wells will be abandoned using OCD approved abandonment procedures.

Table 1

March 2001

Meter/Line #	Location/Line Name	Date	MW	Depth to Product	Depth to Water	Product Thickness	Volume Removed Gallons	Cumulative Gallons
95608	GALLEGOS CANYON UNIT #124E	1/25/00	1	29.88	29.8	0.01	0.25	13.18
95608	GALLEGOS CANYON UNIT #124E	2/15/00	1	29.09	29.1	0.01	0.25	13.43
95608	GALLEGOS CANYON UNIT #124E	10/5/00	1	29.04	29.46	0.42	1.25	14.68
95608	GALLEGOS CANYON UNIT #124E	11/15/00	1	28.93	28.93	0	1.5	16.8
95608	GALLEGOS CANYON UNIT #124E	12/20/00	1	28.98	28.98	0	0.15	16.95



LEGEND

- MW-1 APPROXIMATE MONITORING WELL LOCATION AND NUMBER
- ⊕ BH-2 APPROXIMATE BOREHOLE LOCATION AND NUMBER

0 60
FEET



COL 62800219G-002



TITLE:

GALLEGOS CANYON UNIT 124E
METER 95608
NOVEMBER 15, 2000

DWN:

TMM

DES.:

CI

PROJECT NO.:

62800219

CHKD:

CI

APPD:

DATE:

1/31/01

REV.:

0

EPFS GW PITS

FIGURE 1

ATTACHMENT 1

DRILLING RECORDS

RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp.

Monroe Road

ington, New Mexico 87401

326-2282 FAX (505) 326-2388

Borehole # SB-2

Well # MW-2

Page 1 of 2

Project Name

EPFS Drilling

Project Number

6280219

Phase

Project Location

Gallegos Canyon Unit 124E

Well Logged By

Don Fernald

Personnel On-Site

Danny Padilla, Ryan LaFaire

Contractors On-Site

NONE

Client Personnel On-Site

NONE

Drilling Method

HSA

Air Monitoring Method

PID

Elevation

Borehole Location

MW-2 SB-2

GWL Depth

NONE

Logged By

Don Fernald

Drilled By

Danny Padilla

Date/Time Started

11-15-00 8:30 AM.

Date/Time Completed

11-15-00 11:45 AM.

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	PID Air Monitoring Units: <u>NDU</u> EZ BH S	Drilling Conditions & Blow Counts
0			Initiate sampling @ 15' bgs				
5							
10							
15							
	X	10"	Medium brown fine silty sand. ~ 50% sand			4.9	50 blows
20							
	X	10"	Medium brown fine silty sand. ~ 60% sand			7.1	
25							
	X	16"	Light olive brown, very compact silty clay			2.5	
30							
	X	8"	Light olive brown, very compact silt clay ~ 10% very fine gtz sand			4.7	
35							
	X	17"	Light olive grey, very compact silty clay ~ 10% fine gtz sand			1.7	
40							

Comments:

SB-2 was approximately 65' S.W. of the existing on-site monitoring well.

Geologist Signature

Don Fernald

RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp.

7 Monroe Road

Albuquerque, New Mexico 87401

(505) 326-2282 FAX (505) 326-2388

Borehole # SB-2
Well # M-12
Page 1 of 2

Project Name EPFS Drilling
Project Number 62800219 Phase
Project Location Gallegos Canyon Unit #124E
Well Logged By Don Fernald
Personnel On-Site Danny Padilla, Ryan LaFlore
Contractors On-Site NONE
Client Personnel On-Site NONE
Drilling Method HSA
Air Monitoring Method PID

Elevation
Borehole Location SB-2
GWL Depth
Logged By Don Fernald
Drilled By Danny Padilla
Date/Time Started 11-15-00 9:30 AM
Date/Time Completed 11-15-00 11:45 AM

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU			Drilling Conditions & Blow Counts
						BZ	BH	S	
40	X	12"	Light gray fine silty sand ~40% fine sand (moist)			6.8			Obtained a 402 soil sample for laboratory testing
45									
10			Terminated boring @ 45' bgs. Water was not present in the borehole after leaving open for >1 hour. Backfilled borehole with cuttings.						
15									
20									
25									
30									
35									
40									

Comments:

Geologist Signature

Don Fernald

RECORD OF SUBSURFACE EXPLORATION

Environmental Services Corp.

Monroe Road

ington, New Mexico 87401

(505) 326-2262 FAX (505) 326-2388

Borehole # SB-3

Well # NEW-3

Page 1 of 1

Project Name

EPFS Drilling

Project Number

2800219

Phase

Project Location

Gallegos Canyon Unit #124

Well Logged By

Don Fernald

Personnel On-Site

Danny Padilla, Ryan LaFaire

Contractors On-Site

NONE

Client Personnel On-Site

NONE

Drilling Method

HSA

Air Monitoring Method

PID

Elevation

Borehole Location

SB-3

GWL Depth

NONE

Logged By

Don Fernald

Drilled By

Danny Padilla

Date/Time Started

11-15-00 12:15 P.M.

Date/Time Completed

11-15-00 2:00 P.M.

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU			Drilling Conditions & Blow Counts
						BZ	BH	S	
0									
5									
10									
15									
	X	14"	Light brown-grey silty sand ~65% sand			1.8			
20									
	X	18"	Light brown-grey silty sand grading to a medium yellow- orange silty sand, ~50% sand <5% gravel.			5.6			
25									
	X	15"	Pale olive, silty clay with <5% fine grained sand.			3.6			
30									
	X	20"	Pale olive silty clay with ~5% fine sand moist			1.9			
35									
	X	14"	Moderate olive brown silty clay with ~5% fine sand.			6.1			
40									

Comments:

SB-3 was approximately 65' SE of the existing monitoring well. SB-3 was terminated @ 35' bgs & backfilled with cuttings.

Geologist Signature

Don Fernald

Chain of Custody Record

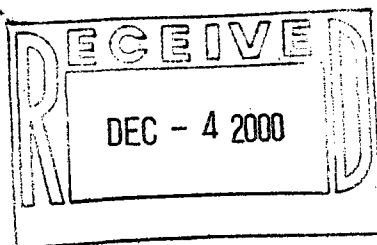
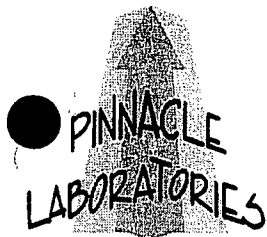
(505) 326-2262 Phone
(505) 326-2388 FAX

COC Serial No. C 2690

[illegible]

Samples Iced:	☒ Yes	☐ No
Preservatives (ONLY for Water Samples)		
☐ Cyanide	Sodium hydroxide (NaOH)	
☐ Volatile Organic Analysis	Hydrochloric acid (HCl)	
☐ Metals	Nitric acid (HNO ₃)	
☐ TPH (418.1)	Sulfuric acid (H ₂ SO ₄)	
☐ Other (Specify) _____		
☐ Other (Specify) _____		

Airbill No.	G.L.I. 606919996
Carrier:	
Shipping and Lab Notes:	



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number
November 30, 2000

011076

PHILIP ENVIRONMENTAL
4000 MONROE ROAD
FARMINGTON, NM 87401

EL PASO FIELDS SERVICES
614 RIELLY STREET
FARMINGTON, NM 87401

Project Name EPFS DRILLING/GALLEGOS CANYON UNIT #124E
Project Number 62800219

Attention: ROBERT THOMPSON/SCOTT POPE

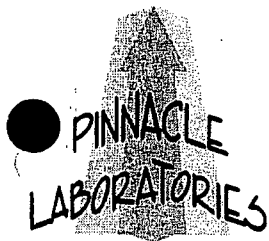
On 11/21/00 Pinnacle Laboratories, Inc., (ADHS License No. AZ0592 pending), received a request to analyze **non-aq** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

H. Mitchell Rubenstein, Ph. D.
General Manager

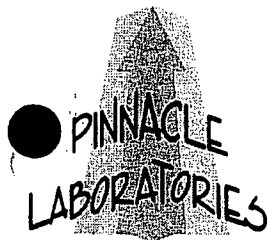
MR: ft

Enclosure



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: PHILIP ENVIRONMENTAL	PINNACLE ID	: 011076
PROJECT #	: 62800219	DATE RECEIVED	: 11/21/00
PROJECT NAME	: EPFS DRILLING/GALLEGOS CANYON UNIT #12	REPORT DATE	: 11/30/00
WIN			
D. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	GAL-0011-SB2	NON-AQ	11/15/00
02	GAL-0011-SB3	NON-AQ	11/15/00



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Phone (505) 344-3777
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GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8015 MODIFIED (DIRECT INJECT)
CLIENT : PHILIP ENVIRONMENTAL
PROJECT # : 62800219
PROJECT NAME : EPFS DRILLING/GALLEGOS CANYON UNIT #124E
PINNACLE I.D.: 011076

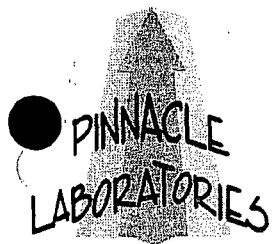
SAMPLE		DATE		DATE	DATE	DIL.
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	GAL-0011-SB2	NON-AQ	11/15/00	11/22/00	11/22/00	1
02	GAL-0011-SB3	NON-AQ	11/15/00	11/22/00	11/22/00	1

PARAMETER	DET. LIMIT	UNITS	GAL-0011-SB2	GAL-0011-SB3
FUEL HYDROCARBONS, C6-C10	10	MG/KG	< 10	< 10
FUEL HYDROCARBONS, C10-C22	10	MG/KG	< 10	< 10
FUEL HYDROCARBONS, C22-C36	10	MG/KG	< 10	< 10

CALCULATED SUM:

SURROGATE:
O-TETRAHYDROPHENYL (%) 88 85
SURROGATE LIMITS (66 - 151)

CHEMIST NOTES:
N/A



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GAS CHROMATOGRAPHY RESULTS

REAGENT BLANK

TEST : EPA 8015 MODIFIED (DIRECT INJECT)
BLANK I.D. : 112200 PINNACLE I.D. : 011076
CLIENT : PHILIP ENVIRONMENTAL DATE EXTRACTED : 11/22/00
PROJECT # : 62800219 DATE ANALYZED : 11/22/00
PROJECT NAME : EPFS DRILLING/GALLEGOS CANYON (SAMPLE MATRIX : NON-AQ

PARAMETER	UNITS	
UEL HYDROCARBONS, C6-C10	MG/KG	< 10
UEL HYDROCARBONS, C10-C22	MG/KG	< 10
UEL HYDROCARBONS, C22-C36	MG/KG	< 10

URROGATE:

INTERPHENYL (%)

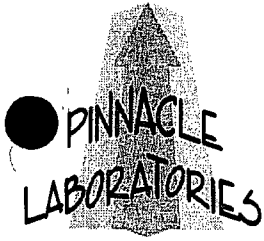
84

URROGATE LIMITS

(80 - 151)

HEMIST NOTES:

/A



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GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST : EPA 8015 MODIFIED (DIRECT INJECT)
MSMSD # : 011076-01 PINNACLE I.D. : 011076
CLIENT : PHILIP ENVIRONMENTAL DATE EXTRACTED : 11/22/00
PROJECT # : 62800219 DATE ANALYZED : 11/22/00
PROJECT NAME : EPFS DRILLING/GALLEGOS CANYON UNIT #124E SAMPLE MATRIX : NON-AQ
UNITS : MG/KG

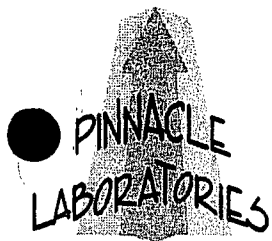
PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
FUEL HYDROCARBONS	<10	200	193	97	193	97	0	(56 - 148)	20

CHEMIST NOTES:

N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



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Albuquerque, New Mexico 87107
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GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : PHILIP ENVIRONMENTAL
PROJECT # : 62800219
PROJECT NAME : EPFS DRILLING/GALLEGOS CANYON UNIT #124E

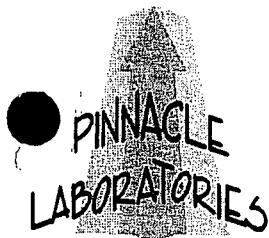
PINNACLE I.D.: 011076

SAMPLE			DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	GAL-0011-SB2	NON-AQ	11/15/00	11/22/00	11/22/00	1
02	GAL-0011-SB3	NON-AQ	11/15/00	11/22/00	11/22/00	1

PARAMETER	DET. LIMIT	UNITS	GAL-0011-SB2	GAL-0011-SB3
BENZENE	0.025	MG/KG	< 0.025	< 0.025
TOLUENE	0.025	MG/KG	< 0.025	< 0.025
ETHYLBENZENE	0.025	MG/KG	< 0.025	< 0.025
TOTAL XYLENES	0.025	MG/KG	< 0.025	< 0.025

SURROGATE: BROMOFLUOROBENZENE (%) 80 76
SURROGATE LIMITS (65 - 120)

CHEMIST NOTES:
N/A



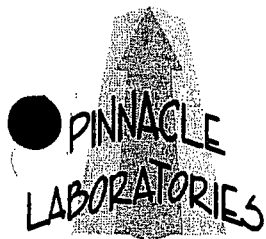
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Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 011076
BLANK I. D.	: 112200	DATE EXTRACTED	: 11/22/00
CLIENT	: PHILIP ENVIRONMENTAL	DATE ANALYZED	: 11/22/00
PROJECT #	: 62800219	SAMPLE MATRIX	: NON-AQ
PROJECT NAME	: EPFS DRILLING/GALLEGOS CANYON UNIT #124E		

PARAMETER	UNITS	
BENZENE	MG/KG	<0.025
TOLUENE	MG/KG	<0.025
ETHYLBENZENE	MG/KG	<0.025
TOTAL XYLENES	MG/KG	<0.025

SURROGATE:
BROMOFLUOROBENZENE (%) 80
SURROGATE LIMITS: (80 - 120)
CHEMIST NOTES:
N/A



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GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST : EPA 8021 MODIFIED
MSMSD # : 011076-01
CLIENT : PHILIP ENVIRONMENTAL
PROJECT # : 62800219
PROJECT NAME : EPFS DRILLING/GALLEGOS CANYON UNIT #124E
PINNACLE I.D. : 011076
DATE EXTRACTED : 11/22/00
DATE ANALYZED : 11/22/00
SAMPLE MATRIX : NON-AQ
UNITS : MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.025	1.00	0.94	94	0.94	94	0	(68 - 120)	20
TOLUENE	<0.025	1.00	0.90	90	0.89	89	1	(64 - 120)	20
ETHYLBENZENE	<0.025	1.00	0.95	95	0.94	94	1	(49 - 127)	20
TOTAL XYLENES	<0.025	3.00	2.75	92	2.73	91	1	(58 - 120)	20

CHEMICAL NOTES:
N/A

% Recovery = $\frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$

RPD (Relative Percent Difference) = $\frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$

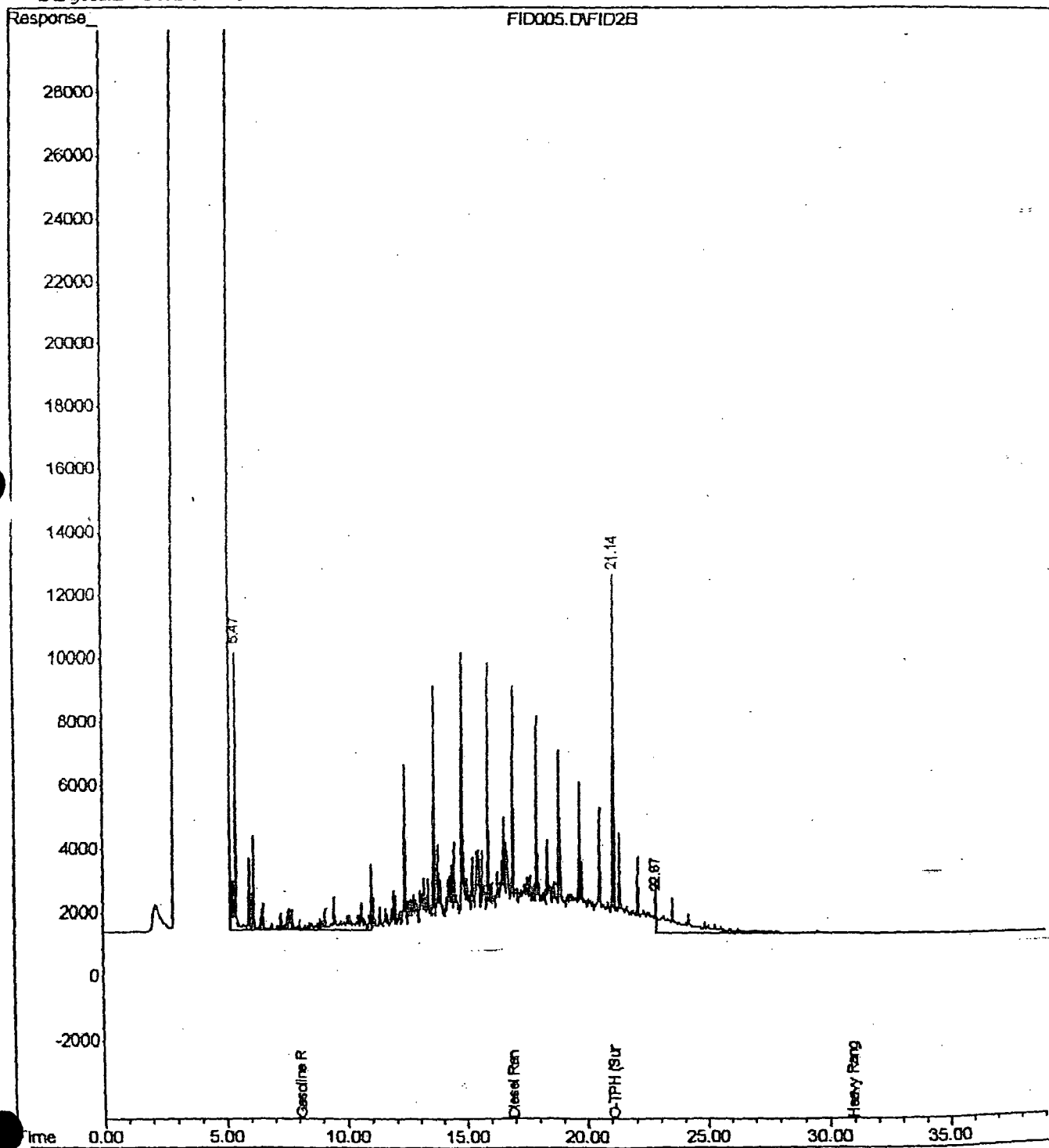
Misc :
IntFile : EVENTS.E

Inst : FID-1
Multiplr: 1.00

Quant Time: Mar 28 13:16 2000 Quant Results File: NM032100.RES

Quant Method : C:\HPCHEM\2\METHODS\NM032100.M (Chemstation Integrator)
Title : NM 8015
Last Update : Thu Mar 23 08:47:45 2000
Response via : Multiple Level Calibration
DataAcq Meth : NM03200D.M

Volume Inj. : 2ul
Signal Phase :
Signal Info :



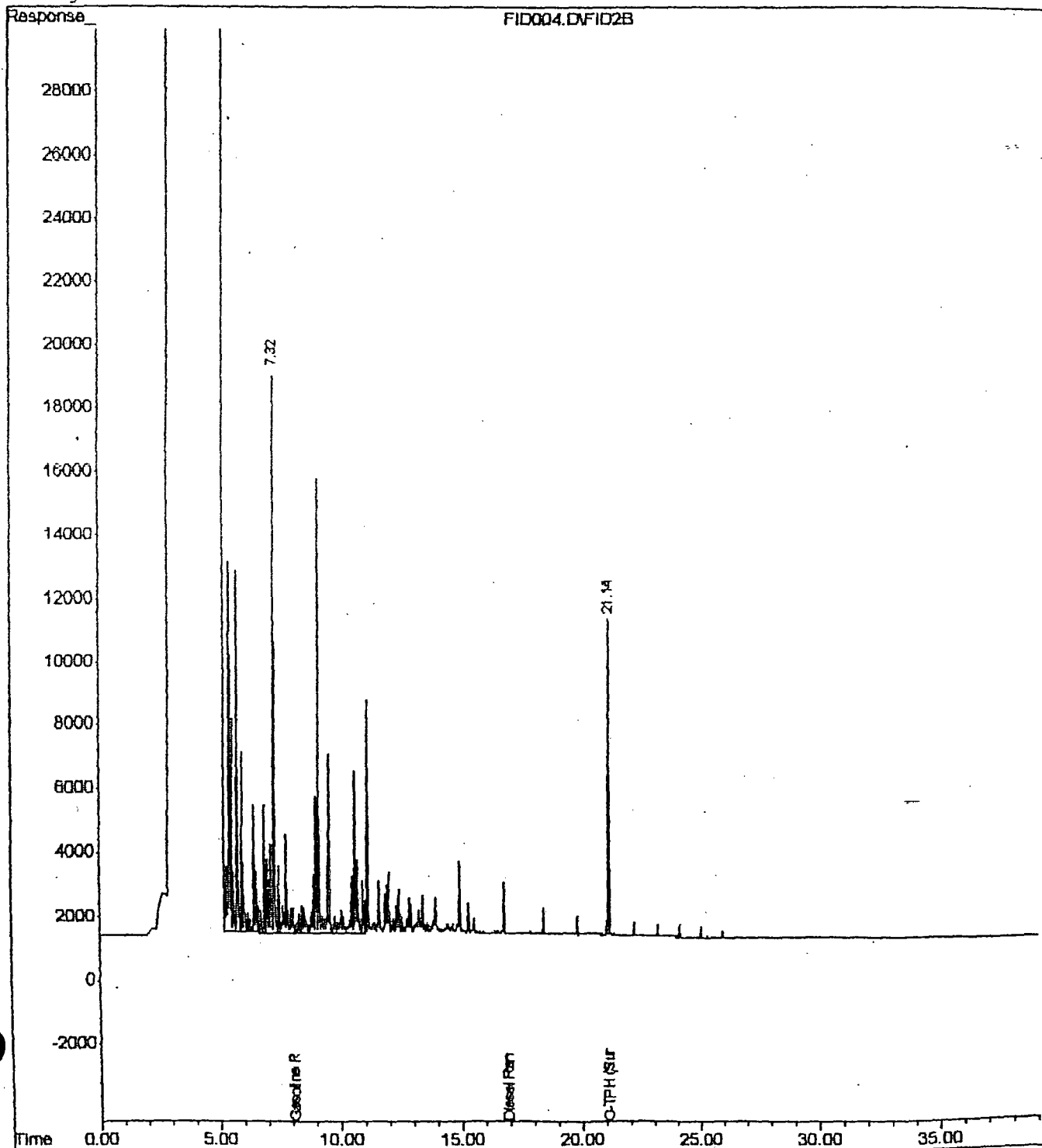
Data File : C:\HPCHEM\2\DATA\032800\FID004.D
Acq On : 28 Mar 2000 11:05
Sample : GAS CCV
Misc :
IntFile : EVENTS.E

Vial: 4
Operator: cff
Inst : FID-1
Multiplr: 1.00

Quant Time: Mar 28 12:32 2000 Quant Results File: NM032100.RES

Quant Method : C:\HPCHEM\2\METHODS\NM032100.M (Chemstation Integrator)
Title : NM 8015
Last Update : Thu Mar 23 08:47:45 2000
Response via : Multiple Level Calibration
DataAcq Meth : NM03200D.M

Volume Inj. : 2ul
Signal Phase :
Signal Info :



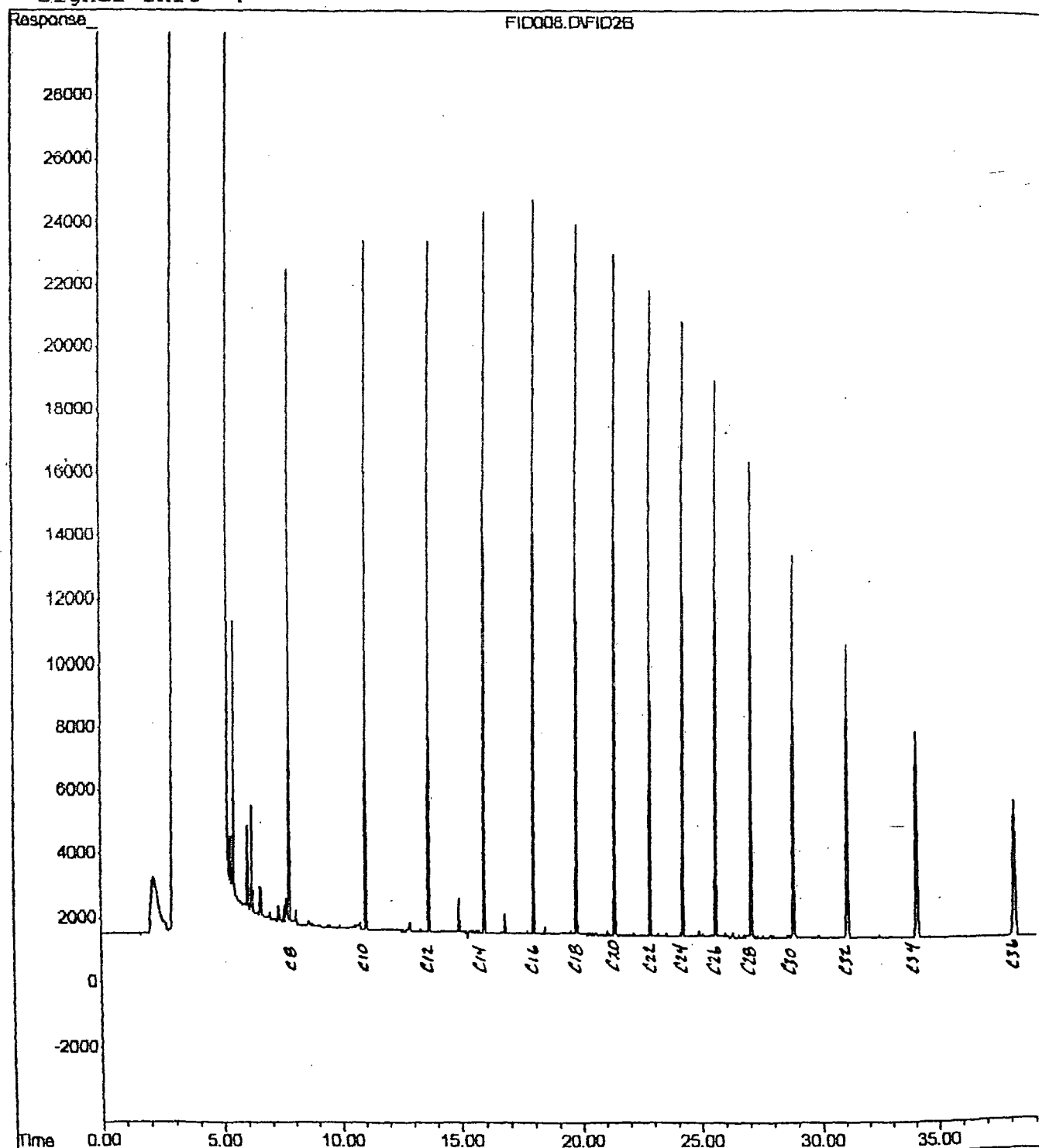
Data File : C:\HPCHEM\2\DATA\032000\FID008.D
Acq On : 20 Mar 2000 16:33
Sample : rt std c8 to c40
Misc :
IntFile : EVENTS.E

Vial: 8
Operator: cff
Inst : FID-1
Multiplr: 1.00

Quant Time: Mar 22 10:00 2000 Quant Results File: NM03200D.RES

Quant Method : C:\HPCHEM\2\METHODS\NM03200D.M (Chemstation Integrator)
Title : NM 8015
Last Update : Mon Mar 20 16:31:55 2000
Response via : Multiple Level Calibration
DataAcq Meth : NM03200D.M

Volume Inj. : 2ul
Signal Phase :
Signal Info :



Quantitation Report

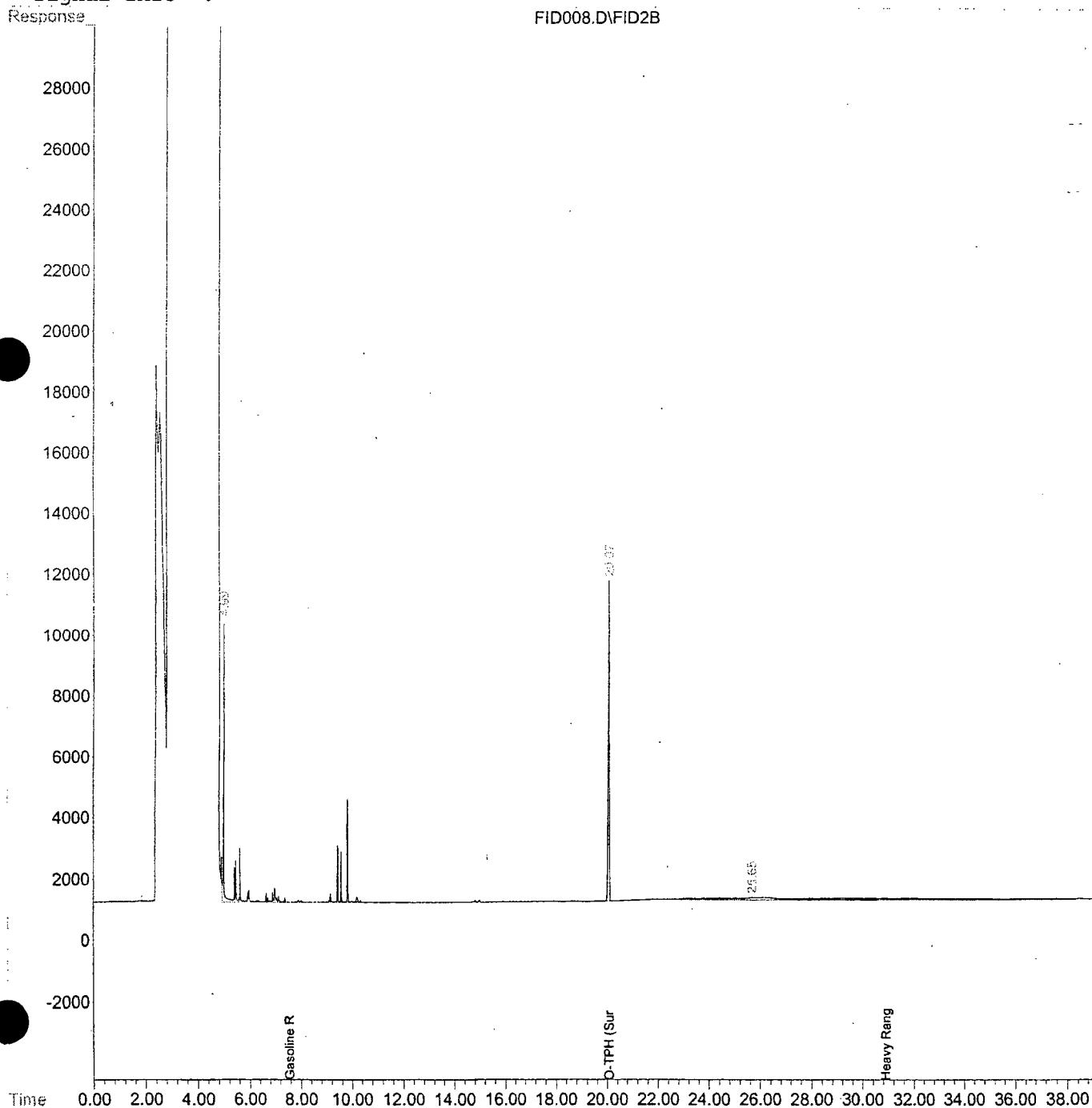
Data File : C:\HPCHEM\2\DATA\112200\FID008.D
 Acq On : 22 Nov 2000 15:45
 Sample : 011076-01
 Misc :
 IntFile : EVENTS.E

Vial: 8
 Operator:
 Inst : FID-1
 Multiplr: 1.00

Quant Time: Nov 27 8:58 2000 Quant Results File: NM1108FR.RES

Quant Method : C:\HPCHEM\2\METHODS\NM1108FR.M (Chemstation Integrator)
 Title : NM 8015
 Last Update : Wed Nov 15 15:46:29 2000
 Response via : Multiple Level Calibration
 DataAcq Meth : NM1108FR.M

Volume Inj. : 2ul
 Signal Phase :
 Signal Info :



Quantitation Report

Data File : C:\HPCHEM\2\DATA\112200\FID011.D
Acq On : 22 Nov 2000 18:31
Sample : 011076-02
Misc :
IntFile : EVENTS.E

Vial: 11
Operator:
Inst : FID-1
Multiplr: 1.00

Quant Time: Nov 27 8:59 2000 Quant Results File: NM1108FR.RES

Quant Method : C:\HPCHEM\2\METHODS\NM1108FR.M (Chemstation Integrator)
Title : NM 8015
Last Update : Wed Nov 15 15:46:29 2000
Response via : Multiple Level Calibration
DataAcq Meth : NM1108FR.M

Volume Inj. : 2ul
Signal Phase :
Signal Info :

