NM - 66

GENERAL CORRESPONDENCE

YEAR(S):

1999-1997

9/23/97 by Eddie Seay

9/23/97

By Eddie Seay

9/23/97 by Eddie Seay

Cooper - Hwy Pit

8/4/97

Cooper Pit

Photo by Eddie Seay

At time of sampling

8/4/97

Cooper Pit

Photo by Eddie Seay
At time of Sampling

8/4/97
Cooper Pit

Photo by
Eddie Seay
at Time of Sampling

8/4/97

Cooper Pit

Photo By
Eddie Seay
At time of Sampling

8-20-37

6-30-97

#1

TAKEN BY G. WINN

Report 94 D exhibit
7/23/97
Photo 1

8-20-37
6-30-97

#1

Report S+D order
Photo #2
7/23/97

#1

6/30/97

Jimmie Cooper

Land

NE, SE Sec 8, T 20; R 37E

Report S+D Order

7/23/97

Photos

#2

#2

#3

#4

#4

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Cooper Highway Pit
Closed 2-26-01

Cooper Highway P.F

Closed

2-26-01

Cooper Highway Pit

Closed

2-26-01

Cooper Highway Pit

Closed

2-26-01

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

November 2, 1999

CERTIFIED MAIL
RETURN RECEIPT NO. P-326-936-659

Mr. Jimmie T. Cooper
Cooper Cattle Co.
P.O. Box 55
Monument, NM 88265

RE: Pit Closure Approval
Located 30 feet west of the highway ride-of-way in the
NE/4 SE/4 of Section 8, Township 20 South, Range 37 East, NMPM
Lea County, New Mexico

Dear Mr. Cooper:

The New Mexico Oil Conservation Division (OCD) has received and reviewed the pit remediation and closure report dated October 28, 1999, regarding the pit closure at the above referenced location. The vertical profile of TPH and BTEX were below the regulatory levels at the 6 to 27 foot interval. The excavated pit material was disposed of at an OCD approved surface waste management facility. The highway pit will be approved for closure upon completion of the following:

1. Filling, compacting and contouring the excavated pit for positive drainage.

Please submit a written notification of the completion the remaining pit closure activities to the OCD Santa Fe office and a copy to the Hobbs District office **by December 1, 1999.**

If you require any further information please contact me at (505) 827-7153.

Sincerely,

Martyne J. Kieling
Environmental Geologist

xc: Hobbs OCD Office
Eddie Seay, Agent

February 26, 2001

Martyne J. Kieling
OCD Environmental Bureau
P.O. Box 6429
1220 S. St. Francis Drive
Santa Fe, NM 87504

RE: Cooper Hwy pit

Mrs. Kieling:

Find within photographs of the final closure for the Cooper Hwy pit, south of Monument, NM. It has taken some time but we have backfilled and leveled the area where the pit once was.

I thank you for your patience in this matter. If you have any questions, please call.

Sincerely,

Eddie W. Seay, Agent
601 W. Illinois
Hobbs, NM 88242
(505)392-2236

October 12, 1999

NMOCD Environmental Bureau
ATTN: Martyne J. Kieling
2040 South Pacheco St.
Santa Fe, NM 87505

RE: Final Closure, Cooper Highway Pit
Section 8 Lea Co., NM

Mrs. Kieling:

Find within information for the closing of the Cooper Highway Pit. We have been waiting for the contractor to return and finish contouring and mounding the pit area. All other closure activities have been done, the hauling of the fluids, excavating the contaminated soil and hauling to C & C Landfarm, and backfilling pit area.

We appreciate your patience in working with us on this project and thank you. If you need any other data or have any questions, please call.

Sincerely,

Eddie W. Seay

Eddie W. Seay, Agent
601 W. Illinois
Hobbs, NM 88242
(505)392-2236

Date Remediation Started: 8/10/99 Date Completed: 9/6/99

Remediation Method: (Check all appropriate sections) Excavation ✓ Approx. cubic yards 5860

Landfarmed ✓ Insitu Bioremediation ___

Other _____

Remediation Location: (ie. landfarmed onsite, name and location of offsite facility) Onsite ___ Offsite C+C Landfarm

General Description Of Remedial Action: Removed rain water and liquids disposed of at a approved facility. Excevated soil and oily material, mixed and hauled to C+C. Backfill with clean soil.

Ground Water Encountered: No ___ Yes ✓ Depth 27

Final Pit: Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)

Sample location Composite of side walls
Composite of Bottom

Sample depth _____

Sample date _____ Sample time _____

Analysis Attached

Sample Results

Benzene(ppm) _____

Total BTEX(ppm) _____

Field headspace(ppm) _____

TPH _____

Ground Water Sample: Yes X No ___ (If yes, attach sample results)

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

DATE 9/29/99

SIGNATURE Eddie W Seay PRINTED NAME AND TITLE Eddie W Seay Agent

District I
P.O. Box 1980, Hobbs, NM
District II
P.O. Drawer DD, Artesia, NM 88211
District III
1000 Rio Brazos Rd, Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

SUBMIT 1 COPY TO APPROPRIATE DISTRICT OFFICE AND 1 COPY TO SANTA FE OFFICE

(Revised 3/9/94)

PIT REMEDIATION AND CLOSURE REPORT

Operator: Cooper Cattle Co - Jimmie T. Cooper Telephone: 505-397-2045

Address: Box 55 Monument N.M. 88265

Facility or Well Name: Cooper - Hwy Pit

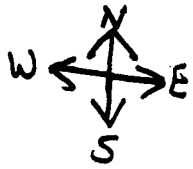
Location: Unit or Qtr/Qtr Sec NE¼ · SE¼ Sec 8 T 20 R 37 County Lea

Pit Type: Separator ___ Dehydrator ___ Other abandoned lined water pit w/ BS

Land Type: BLM ___, State ___, Fee X, Other ___

Pit Location: (Attach diagram)
Pit dimensions: length 75, width 50, depth Aug. 10ft
Reference: wellhead ___, other ___
Footage from reference: ___
Direction from reference: ___ Degrees ___ East North ___ of ___ West South ___

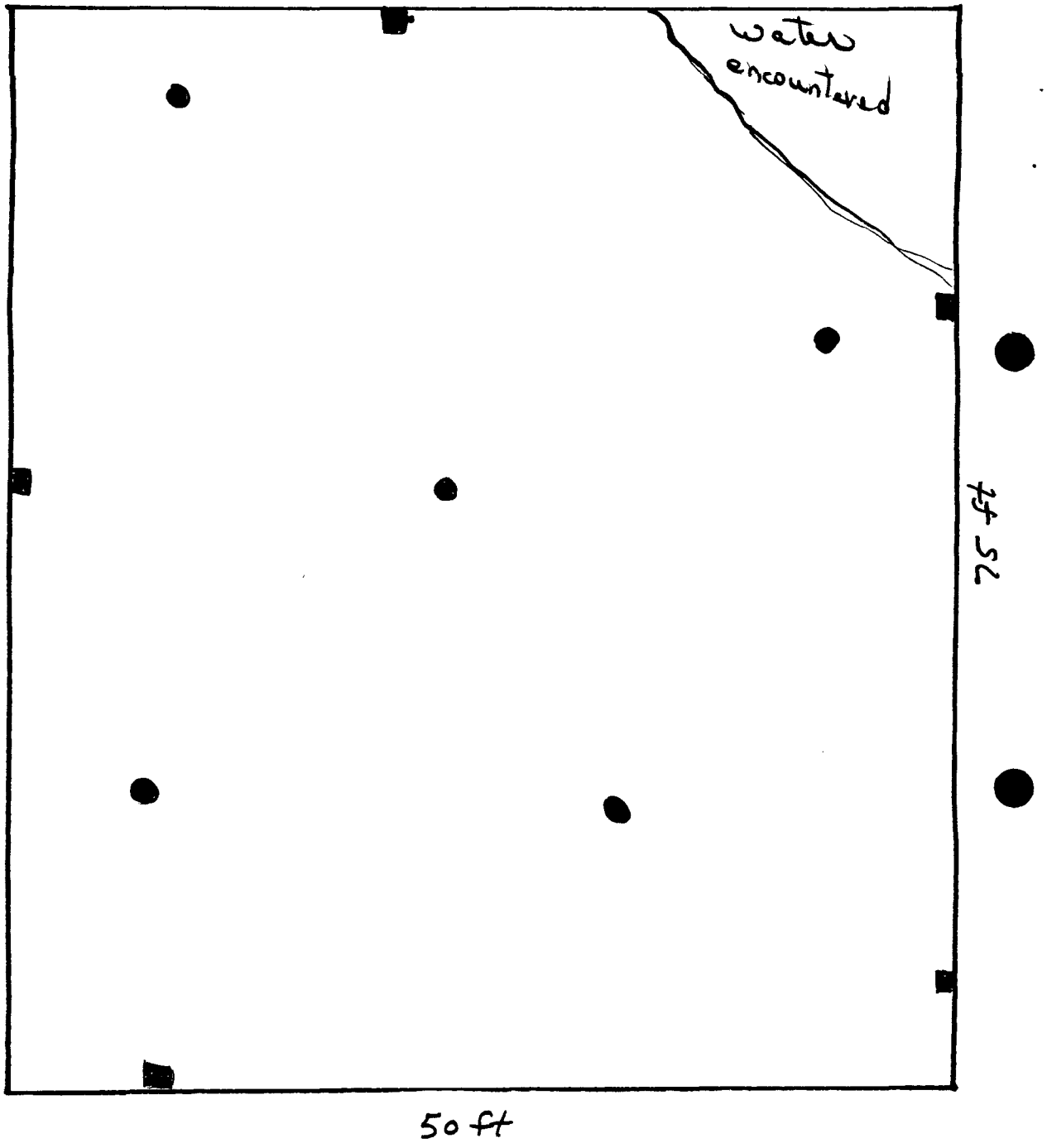
Depth To Ground Water: (Vertical distance from contaminants to seasonal high water elevation of ground water)	Less than 50 feet (20 points) 50 feet to 99 feet (10 points) Greater than 100 feet (0 Points)	20
Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources)	Yes (20 points) No (0 points)	20
Distance To Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet (20 points) 200 feet to 1000 feet (10 points) Greater than 1000 feet (0 points)	0
	RANKING SCORE (TOTAL POINTS):	40



● Composite sampling points of bottom

■ Composite sampling of sidewalls

Pit varied in depth from 6 ft to where water was encountered at 27 ft.



CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE SEAY
601 W. ILLINOIS
HOBBS, NM 88242
FAX TO:

Receiving Date: 08/30/99
Reporting Date: 08/31/99
Project Owner: COOPER-HWY
Project Name: COOPER-HWY PIT
Project Location: MONUMENT, NM SECT 8

Sampling Date: 08/30/99
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

LAB NUMBEI	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		08/31/99	08/31/99	08/30/99	08/30/99	08/30/99	08/30/99
H4310-1	#1 CPR.-HWY PIT	<50	<50	<0.002	<0.002	<0.002	<0.006
H4310-2	#2 CPR.-HWY PIT	<50	168	<0.002	<0.002	<0.002	<0.006
Quality Control		717	780	0.092	0.098	0.097	0.296
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		89.5	97.5	92.3	98.4	97.4	98.7
Relative Percent Difference		4.9	3.0	<0.1	2.6	6.4	6.1

METHODS: TPH(GRO & DRO) - EPA SW-846 8015 M; BTEX/MTBE-EPA SW-846 8260

Burgess J. A. Cooke. Ph. D.

8/31/99
Date

H4310A.XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE SEAY
601 W. ILLINOIS
HOBBS, NM 88242
FAX TO:

Receiving Date: 08/30/99
Reporting Date: 08/31/99
Project Owner: COOPER-HWY
Project Name: COOPER-HWY PIT
Project Location: MONUMENT, NM SECT 8

Sampling Date: 08/30/99
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC/AH

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/L)	DRO (>C_{10}-C_{28}) (mg/L)	Cl^- (mg/L)
ANALYSIS DATE		08/31/99	08/31/99	08/31/99
H4310-3	GROUNDWATER C-H	<5.0	5.86	3650
Quality Control		37.2	42.9	1014
True Value QC		40.0	40.0	1000
% Recovery		92.9	107	101
Relative Percent Difference		0.9	3.5	4.7

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl^-: Std. Methods 4500-Cl^-B

Chemist

8/31/99
Date

H4310B.XLS

CARDINAL LABORATORIES, INC.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

2111 Beechwood, Abilene, TX 79603 (915) 673-7001 Fax (915) 673-7020
101 East Marland, Hobbs, NM 88240 (505) 393-2326 Fax (505) 393-2476

Page ____ of ____

Company Name: Eddie Seay Consulting	BILL TO
Project Manager: Eddie Seay	P.O. #:
Address: 601 W Illinois	Company:
City: Hobbs State: NM Zip:	Attn:
Phone #: 2-2236 Fax #:	Address:
Project #: Cooper-Hwy Project Owner: Cooper-Hwy	City:
Project Name: Cooper - Hwy Pit	State: Zip:
Project Location: Monument N.M Sec 8	Phone #:
Sampler Name: Eddie Seay	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST												
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME	BTEX	TPH 8015	CL										
H4310-1	#1 Cooper - Hwy Pit	✓	1			✓					✓		8/30	2pm	✓	✓											
-2	#2 Cooper - Hwy Pit	✓	1			✓					✓		8/30	2pm	✓	✓											
-3	#3 Groundwater C-H		1	✓							✓		8/30	2:20		✓	✓										

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished: Eddie Seay	Date: 8/30 Time: 3:30	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: 8/30/99 Time: 3:30	Received By: (Lab Staff) Amy Hill	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No	CHECKED BY: (Initials)	REMARKS: 1 - Sidewall 2 - Bottom

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476.

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE SEAY
601 W. ILLINOIS
HOBBS, NM 88242
FAX TO:

Receiving Date: 09/01/99
Reporting Date: 09/01/99
Project Owner: COOPER-HWY.
Project Name: COOPER-HWY. PIT
Project Location: MONUMENT

Sampling Date: 09/01/99
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/L)	DRO (>C_{10}-C_{28}) (mg/L)
ANALYSIS DATE:		09/01/99	09/01/99
H4313-1	#1 COOPER-HWY. GROUNDWATER	<5.0	<5.0
Quality Control		37.2	42.9
True Value QC		40.0	40.0
% Recovery		92.9	107
Relative Percent Difference		0.9	3.5

METHOD: SW-846 8015 M

Chemist

9/1/99
Date

H4313.XLS

CARDINAL LABORATORIES, INC.

2111 Beechwood, Abilene, TX 79603 (915) 673-7001 Fax (915) 673-7020
101 East Marland, Hobbs, NM 88240 (505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

H4313-1 Page ____ of ____

Company Name:	Eddie Seay Consulting	BILL TO	PO #:
Project Manager:	Eddie Seay	Company:	
Address:	601 W Illinois	Attn:	Same
City:	Hobbs State: NM Zip: 88242	Address:	
Phone #:	2-2236	City:	
Fax #:		State:	Zip:
Project #:	Cooper-Hwy Project Owner: Cooper-Hwy	Phone #:	
Project Name:	Cooper-Hwy Pit	Fax #:	
Project Location:	Monument		

FOR LAB USE ONLY				MATRIX						PRES.			SAMPLING		ANALYSIS REQUEST
LAB I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID:	ICE / COOL	OTHER :	DATE	TIME	TPH (GRO)
H4313-1	#1 Cooper-Hwy Groundwater	C	1	✓							✓		8/31	6:50 pm	✓

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Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished: Eddie W Seay	Date: 9/1 Time: 9:30	Received By:	Phone Result ☐ Yes ☐ No Additional Fax #:
Relinquished By:	Date: 9/1/99 Time: 9:50	Received By: (Lab Staff) Jerry Hill	Fax Result: ☐ Yes ☐ No
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☐ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)	REMARKS: Sample of water in corner of pit.

† Cardinal cannot accept verbal changes. Please fax written changes to 915-673-7020.

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE SEAY
601 W. ILLINOIS
HOBBS, NM 88242
FAX TO: (505) 392-6949

Receiving Date: 08/17/99
Reporting Date: 08/19/99
Project Owner: STATE OF NM & COOPER
Project Name: COOPER-HWY PIT
Project Location: SECT 8, MONUMENT, NM

Sampling Date: 08/17/99
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC/AH

LAB NUMBER	SAMPLE ID	TPH (mg/L)	Cl (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE:		08/18/99	08/17/99	08/18/99	08/18/99	08/18/99	08/18/99
H4288-1	WATER WELL #1	<1.0	849	<0.002	<0.002	<0.002	<0.002
Quality Control		409	966	0.100	0.104	0.099	0.300
True Value QC		400	1000	0.100	0.100	0.100	0.300
% Recovery		102	97	100	104	99.1	100
Relative Percent Difference		0.8	5.2	1.3	3.7	0.3	0.5

METHODS: TRPHC-EPA 600/4-79-020 418.1;Cl-Std. Methods 4500-ClˉB; BTEX-EPA SW-846 8260

Burgess J. A. Cooke, Ph. D.

8/19/99
Date

H4288.XLS

CARDINAL LABORATORIES, INC.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

2111 Beechwood, Abilene, TX 79603 (915) 673-7001 Fax (915) 673-7020
101 East Marland, Hobbs, NM 88240 (505) 393-2326 Fax (505) 393-2476

Page____ of ____

Company Name:	Eddie Seay Consulting	BILL TO	PO #:
Project Manager:	Eddie Seay	Company:	
Address:	601 W Illinois	Attn:	
City:	Hobbs State: NM Zip: 88240	Address:	
Phone #:	2-2236	City:	
Fax #:	7-6969	State:	Zip:
Project #:	RT Project Owner: State of NM + Cooper	Phone #:	
Project Name:	Cooper - Hwy Pit	Fax #:	
Project Location:	Sect 8 Monument NM		

FOR LAB USE ONLY				MATRIX						PRES.			SAMPLING		ANALYSIS REQUEST										
LAB I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID:	ICE / COOL	OTHER :	DATE	TIME	BTEX	TPH	Cl								
114288-1	Water well #1	J	2	J							J		8/17	9:10	J	J	J								

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished: Eddie Seay	Date: 8/17 ~~8/20~~ Time: 10:20	Received By:	Phone Result ☐ Yes ☐ No Additional Fax #:
Relinquished By:	Date: Time:	Received By: (Lab Staff) Amy Hill	Fax Result: ☐ Yes ☐ No REMARKS: Water Sample 300yd west of Cooper - Hwy Pit.
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)

† Cardinal cannot accept verbal changes. Please fax written changes to 915-673-7020.

C & C LANDFARM, INC.

BOX 55
MONUMENT, NEW MEXICO 88265
PHONE: (505) 397-2045
(505) 397-2860
(505) 392-2236

001789

COMPANY NAME Hiway Pit (Cooper LAND)

COMPANY REPRESENTATIVE NAME _____

LEASE NAME Hiway Pit.

SEC. 8 TOWNSHIP RANGE

TRUCKING COMPANY NAME Alstate

DRIVERS SIGNATURE Randy Officer

TYPE OF MATERIAL BEING HAULED AND QUANTITY 5860 yds Cont. Soil.

COPY OF ANALYSIS ATTACHED, IF REQUIRED Non Hazz Non Free

TPHC _____

BENZENE _____

TOLUENE _____

ETHYL BENZENE _____

PARA XYLENE _____

ATTENDANT ON DUTY Jerri Cooper

DATE 9-9-99

02-97-5pt.-500-bk25-#1701

[redacted]

Dirt Works Services, Inc.

[redacted]
Mobile (505) 390-2187

P.O. Box 195
Hobbs, NM 88240

005236

W.O. No. _____

AUTHORIZATION FOR WORK

COMPANY COOPER

LEASE SWD WELL WELL

DESCRIPTION OF WORK REMOVE WATER FROM UNDER GROUND CATCH TANK, REMOVE RAIN WATER FROM OPEN PIT & HAUL TO SWD 2, 80 BBL LOADS.

Leave Yard | Arrive Job | Lunch Break | Leave Job | Arrive Yard

Complete ☐ Incomplete ☐

Foreman KEVIN — Hours: 3

	Hours	Price Per Hr.	Total
Air Compressor			
Spray Rig			
1 Ton			
Fresh Water			
Backhoe			
Dump Truck			
Tractor			
Vacuum Truck 80BBL	3	5000	15000
Hot Water Washer			

	Hours	Price Per Hr.	Total
Labor			
Labor			
Labor			

Mileage @

Sub Total 15000

Tax 787

TOTAL 15787

Date 8.6 / 8.7.99

Customer's Signature _____

12-98-500-5pt.-bk25-#4876

CKD TRUCKING
1530 E. Rancho Road Hobbs, NM 88240
Phone 505-392-6124 Mobil 505-390-7538

SOLD TO:

ALLSTATE SERVICES ENVIORNMENTAL
PO BOX 11322
MIDLAND, TX 79702

INVOICE NO. 2020
DATE August 31, 1999

Date	Truck	Hours	Rate	Amount
8/23	#1	5	40.00	200.00
	#2	5	40.00	200.00
8/31	#1	5	40.00	200.00
	#2	5	40.00	200.00
				800.00

CKD TRUCKING
1530 E. Rancho Road Hobbs, NM 88240
Phone 505-392-6124 Mobil 505-390-7538

SOLD TO:

ALLSTATE SERVICES ENVIORNMENTAL
PO BOX 11322
MIDLAND, TX 79702

INVOICE NO. 2019
DATE August 25, 1999

Date	Truck	Hours	Rate	Amount
8/17	#1	7	40.00	280.00
8/18	#1	8 1/2	40.00	340.00
	#2	8 1/2	40.00	340.00
8/19	#1	8 1/2	40.00	340.00
	#2	8 1/2	40.00	340.00
8/20	#1	8 1/2	40.00	340.00
	#2	8 1/2	40.00	340.00
				2320.00

ALLSTATE SERVICES
P.O. BOX 11322
MIDLAND, TEXAS 79702
OFFICE: (915) 682-3547
FAX: (915) 682-4182

Inv. #090999-CP
September 9, 1999

Jim Cooper
Cooper Ranches
P.O.Box 55
Monument, New Mexico 88265
505-397-2045

Re Inv. 090999-CP

8-10-99 thru 8-12-99:

Place call to the New Mexico One-Call office. Meet with field representatives from Rice Eng. and EOTT Pipeline and spot lines. ASE haul truck transported 624 John Deere Loader from Odessa to location. Airmaster Equipment transported 850 John Deere Dozer from Odessa to location. ASE roaded 310 SE Backhoe from NW Monument area to location.

Field Supervisor	1hrs X $45.00/hr = $ 45.00
Field Technician (2)	39hrs X $45.00/hr = $1,750.00
1 Ton Pickup	39hrs X $22.50/hr = $ 877.50
Mobilization	$ 930.00
	Total $3,602.50

8-13-99 & 8-16-99

Remedial project is an above ground plastic lined pit with free phase oil on the surface and oil saturated soil beneath. Begin pushing walls of pit in towards the center while mixing dry soil to absorb as much free phase oil as possible. Stockpile contaminated soil on location.

Field Technician (2)	44hrs X $45.00/hr = $1,980.00
850 Dozer	18hrs X $82.50/hr = $1,485.00
624 Loader	18hrs X $87.00/hr = $1,566.00
1 Ton Pickup	22hrs X $22.50/hr = $ 495.00
	Total $ 5,526.00

8-17-99

Filed a C-138 with the OCD and received approval to begin transporting contaminated soil to C & C Land Farm at 09:30cst. Continue pushing contaminated soil from bottom hole area of pit. 51 loads X 14yds/load = 714 yards contaminated soil.

Field Supervisor	11hrs X $45.00/hr = $495.00
Field Technician	11hrs X $22.50/hr = $247.50
850 Dozer	9hrs X $82.50/hr = $742.50
624 Loader	9hrs X $87.00/hr = $743.00
1 Ton Pickup	11hrs X $22.50/hr = $247.50
14yd Dump Trucks (3)	6.5hrs X $153.00/hr = $994.50
	Total $3,470.00

8-18-99

Use backhoe to dig evaluation hole to check vertical extent. Contamination continuing down. Continue pushing contaminated soil from bottom hole and stockpile on location. Haul contaminated soil to C & C Land Farm.
83 loads X 14 yds/load = 1162 yards contaminated soil.

Field Technician (2)	11hrs X $45.00/hr = $ 495.00
310SE Backhoe	4.5hrs X $43.00/hr = $ 193.50
850 Dozer	4.5hrs X $82.50/hr = $ 371.25
624 Loader	9hrs X $87.00/hr = $ 783.00
1 Ton Pickup	11.5hrs X $22.50/hr = $ 258.75
14 yd Dump Trucks (4)	9hrs X $204.00/hr = $1,836.00
	Total $3,937.50

8-19-99

Contamination continuing to the east and north. Use backhoe to widen side walls of hole. Push contaminated soil from bottom hole and load on trucks for transport to C & C Land Farm. 91loads X 14yds/load = 1274yards contaminated soil.

Field Technician (2)	11hrs X $45.00/hr = $ 495.00
310SE Backhoe	4.5hrs X $43.00/hr = $ 193.50
850 Dozer	4.5hrs X $82.50/hr = $ 371.25
624 Loader	9hrs X $87.00/hr = $ 783.00
1 Ton Pickup	11.5hrs X $22.50/hr = $ 258.75
14yd Dump Trucks (4)	9hrs X $204.00/hr = $1,836.00
	Total $3,937.50

8-20-99

Push contaminated soil from bottom hole and load on trucks for transport to C & C Land Farm. 88loads X 14yds/load = 1,232 yards contaminated soil.

Field Supervisor	.5hrs X $45.00/hr =	$ 22.50
Field Technician (2)	12.0hrs X $45.00/hr =	$ 540.00
310SE Backhoe	5.0hrs X $43.00/hr =	$ 215.00
850 Dozer	5.0hrs X $82.50/hr =	$ 412.50
624 Loader	10.0hrs X $87.00/hr =	$ 870.00
1 Ton Pickup	12.0hrs X $22.50/hr =	$ 270.00
14yd Dump Trucks (4)	10.0hrs X $204.00/hr=	$2,040.00
	Total $4,370.00	

8-23-99

Dig contaminated soil along north wall, push from bottom hole and load on trucks for transport to C & C Land Farm. 51loads X 14yds/load = 714 yards contaminated soil.

Field Supervisor	.5hrs X $45.00/hr =	$ 22.50
Field Technician (2)	8.0hrs X $45.00/hr =	$ 360.00
310SE Backhoe	3.0hrs X $43.00/hr =	$ 129.00
850 Dozer	3.0hrs X $82.50/hr =	$ 247.50
624 Loader	6.0hrs X $87.00/hr =	$ 522.00
1 Ton Pickup	8.0hrs X $22.50/hr =	$ 180.00
14yd Dump Trucks (4)	6.0hrs X $204.00/hr =	$1,224.00
	Total $2,685.00	

8-25-99

Due to heavy rains on 8-24-99 there was 10" – 15" of water in bottom hole. Place clean dry soil in bottom hole to absorb water, then dig out and stockpile on location. Stockpile will be sampled before using as backfill.

Field Supervisor	12.5hrs X $45.00/hr =	$ 562.50
Field Technician	12.0hrs X $22.50/hr =	$ 270.00
850 Dozer	10.0hrs X $82.50/hr =	$ 825.00
624 Loader	10.0hrs X $87.00/hr =	$ 870.00
1 Ton Pickup	12.0hrs X $22.50/hr =	$ 270.00
	Total $2,797.50	

8-26-99

Dig contaminated soil from the bottom along the north wall. There was one spot approximately 20' in diameter and 21' deep in the northwest area of the bottom hole.

Field Supervisor	12.5hrs X $45.00/hr = $ 562.50
Field Technician	12.0hrs X $22.50/hr = $ 270.00
310 SE Backhoe	5.0hrs X $43.00/hr = $ 215.00
850 Dozer	5.0hrs X $82.50/hr = $ 412.50
624 Loader	10.0hrs X $87.00/hr = $ 870.00
1 Ton Pickup	12.0hrs X $22.50/hr = $ 270.00
	Total $ 2,600.00

8-27-99

Dig contaminated soil from the bottom hole in the northwest section. We impacted ground water at approximately 27' and contacted Mr. Jim Cooper and Mr. Eddy Seay for instructions. Place dry soil over water and leave for the weekend. Mr. Seay said he would inform the OCD about the ground water.

Field Supervisor	12.5hrs X $45.00/hr = $ 562.50
Field Technician	12.0hrs X $22.50/hr = $ 270.00
310 SE Backhoe	7.0hrs X $43.00/hr = $ 301.00
850 Dozer	2.0hrs X $82.50/hr = $ 165.00
624 Loader	9.0hrs X $87.00/hr = $ 783.00
1 Ton Pickup (2)	12.0hrs X $45.00/hr = $ 540.00
	Total $2,621.50

8-30-99

Per Mr. Seay: Dig bottom hole at water depth to the northwest (up gradient) to determine the horizontal extent. After widening the bottom hole approximately 10', we felt the contamination had been eliminated and Mr. Seay began taking soil and water samples.

Field Technician (2)	12.0hrs X $45.00/hr = $ 540.00
310 SE Backhoe	6.0hrs X $43.00/hr = $ 258.00
850 Dozer	3.0hrs X $82.50/hr = $ 247.50
624 Loader	9.0hrs X $87.00/hr = $ 783.00
1 Ton Pickup	12.0hrs X $22.50/hr = $ 270.00
	Total $2,098.50

8-31-99

Waiting on lab results. Load contaminated soil on trucks for transport C & C Land Farm. 51loads X 14yds/load = 714 yards contaminated soil.

Field Technician	8.0hrs X $22.50/hr =	$ 180.00
624 Loader	6.0hrs X $87.00/hr =	$ 435.00
1 Ton Pickup	8.0hrs X $22.50/hr =	$ 180.00
14yd Dump Trucks	6.0hrs X $204.00/hr =	$1,224.00
	Total $2,019.00	

TOTAL

8-10-99 thru 8-12-99	**$3,602.50**
8-13-99 & 8-16-99	**$5,526.00**
8-17-99	**$3,470.00**
8-18-99	**$3,937.50**
8-19-99	**$3,937.50**
8-20-99	**$4,370.00**
8-23-99	**$2,685.00**
8-25-99	**$2,797.50**
8-26-99	**$2,600.00**
8-27-99	**$2,621.50**
8-30-99	**$2,098.50**
8-31-99	**$2,019.00**
Total due	**$39,665.00**

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

2040 South Pacheco
P.O. Box 6429
Santa Fe, New Mexico 87505-5472

OCTOBER 12, 1999 LETTER
COOPER HIGHWAY PIT CLOSURE
NE/4 SE/4 SEC 8, T 20 S, R 37 E,
NMPM LEA COUNTY, NM

OCTOBER 12, 1999 LETTER

Cooper Highway Pit Closure

NE SE Sec 8, T 20 S; R 37 E NMPM

OCTOBER 12, 1999 LETTER
COOPER HIGHWAY PIT CLOSURE
NE/4 SE/4 SEC 8, T 20 S, R 37 E,
NMPM LEA COUNTY, NM

OCTOBER 12, 1999 LETTER
COOPER HIGHWAY PIT CLOSURE
NE/4 SE/4 SEC 8, T 20 S, R 37 E,
NMPM LEA COUNTY, NM

OCTOBER 12, 1999 LETTER
COOPER HIGHWAY PIT CLOSURE
NE/4 SE/4 SEC 8, T 20 S, R 37 E,
NMPM LEA COUNTY, NM


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OCTOBER 12, 1999 LETTER
COOPER HIGHWAY PIT CLOSURE
NE/4 SE/4 SEC 8, T 20 S, R 37 E,
NMPM LEA COUNTY, NM

OCTOBER 12, 1999 LETTER
COOPER HIGHWAY PIT CLOSURE
NE/4 SE/4 SEC 8, T 20 S, R 37 E,
NMPM LEA COUNTY, NM

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NE/4 SE/4 SEC 8, T 20 S, R 37 E,
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OCTOBER 12, 1999 LETTER
COOPER HIGHWAY PIT CLOSURE
NE/4 SE/4 SEC 8, T 20 S, R 37 E,
NMPM LEA COUNTY, NM

OCTOBER 12, 1999 LETTER

Cooper Highway Pit Closure

NE 14 SE/4 SEC 8, T20S, R37E NMPM

OCTOBER 12, 1999 LETTER
COOPER HIGHWAY PIT CLOSURE
NE/4 SE/4 SEC 8, T 20 S, R 37 E,
NMPM LEA COUNTY, NM


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OCTOBER 12, 1999 LETTER
COOPER HIGHWAY PIT CLOSURE
NE/4 SE/4 SEC 8, T 20 S, R 37 E,
NMPM LEA COUNTY, NM

OCTOBER 12, 1999 LETTER

Cooper Highway Pit Closure

NE SE Sec 8, T 20 S, R 37 E NMPM

OCTOBER 12, 1999 LETTER
COOPER HIGHWAY PIT CLOSURE
NE/4 SE/4 SEC 8, T 20 S, R 37 E,
NMPM LEA COUNTY, NM

OCTOBER 12, 1999 LETTER

Cooper Highway Pit Closure

NE SE SEC 8, T 20 S, R 37 E NMPM

OCTOBER 12, 1999 LETTER
COOPR HIGHWAY PIT CLOSURE
NE/4 SE/4 SEC 8, T 20 S, R 37 E,
NMPM LEA COUNTY, NM

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

July 27, 1999

CERTIFIED MAIL
RETURN RECEIPT NO. P-326-936-563

Mr. Jimmie T. Cooper
Cooper Cattle Co.
P.O. Box 55
Monument, NM 88265

RE: Waste Disposal Pit
Located 30 feet west of the highway ride-of-way in the
NE/4 SE/4 of Section 8, Township 20 South, Range 37 East, NMPM
Lea County, New Mexico

Dear Mr. Cooper:

The New Mexico Oil Conservation Division (OCD) is requesting the Pit Closure Report for the above refrenced pit. The pit closure plan submitted was approved with conditions by the OCD on November 24, 1997. Condition three (3) in the November 24, 1997 letter stated:

> Upon completion of all closure activities, Mr. Cooper will submit to the OCD for approval a completed OCD "Pit Remediation and Closure Report" form which will contain the final results of all pit closure and soil remediation activities including all laboratory or field analytical data sheets for all soil and water quality analysis and copies of all associated quality assurance/quality control data.

Please submit the report and requested material to the OCD Santa Fe Office by August 31, 1999.

If you require any further information please contact me at (505) 827-7153.

Sincerely,

Martyne J. Kieling
Environmental Geologist

xc: Hobbs OCD Office

ECD Environmental, Inc.

109 8th Street, SW - Suite A
Albuquerque, New Mexico 87102
Telephone 505 / 768-7686
Fax 505 / 768-7601

Mr. Eddie Seay
Eddie Seay Consulting
601 West Illinois
Hobbs, New Mexico 88240

11/12/97

Dear Mr. Seay,

After careful review of all data obtained through the fingerprint analysis of the oil samples submitted by you from Cooper Ranch in Southeastern New Mexico, I have concluded that the two unknown samples (sample ID ECD sample A and ECD sample B) are aged samples of the source sample (sample ID ECD sample C).

The two unknown samples were received on September 23, 1997. ECD sample A was a heavy oil sludge and ECD sample B was an aqueous sample with a heavy oil layer. ECD sample C was a fresh composite crude oil sample taken from Cooper Ranch. All three samples were received by the ECD Environmental laboratory in New Castle, Delaware and forwarded to Arthur D Little in Cambridge, MA following a strict chain of custody.

Arthur D. Little chromatographed the three samples and compared the Total Petroleum Hydrocarbon (TPH) fingerprints and compound makeup. In addition all three samples were compared for biomarker similarities (see attachment A).

The results of the Gas Chromatograph analysis and comparison indicated the absence of very light end hydrocarbons (i.e. less than C8) in ECD sample B and very low concentrations of light hydrocarbons (i.e. less than or equal to C15) in both ECD sample A and ECD sample B as compared to ECD sample C. This would be consistent with an aged crude oil sample since these compounds are the most volatile and would be the first to disappear in a hot, dry climate like that of southeastern New Mexico. Polynuclear Aromatic Hydrocarbons (PNA/PAH) comparison indicate very similar ratios between ECD sample A and ECD sample C.

The most compelling indication is the comparison of the biomarker fingerprint of all three samples. The biomarker analysis allows for comparison of hydrocarbon mixtures based on non-volatile biochemical compounds (attachement A). Comparison of the chromatographs are identical. The reference biomarker of North Slope Crude differs from all three of the samples from Cooper Ranch.

Sincerely,

Greg Bybee
ECD Environmental

Arthur D. Little
Environmental Monitoring and Analysis Unit

Project Title : ECD Environmental, Inc.
Sample Set: OILS1
Data : SHC - GC/FID - Main (surr corr)

Field ID	Oil Reference Standard	Procedural Blank	Blank Spike	ECD Sample A
Lab ID	BI53	BM-S-89PB	BM-S-90BS	97C2555
File	10139706.D	10139707.D	10139708.D	10139709.D
Matrix	Oil	NA	NA	Oil
Sample Size	5.08 mg	10 mg	10 mg	10.7 mg
Associated Blank	NA	NA	BM-S-89PB	BM-S-89PB
Field Date	NA	NA	NA	NA
Extract Date	NA	09/25/97	09/25/97	09/25/97
Analysis Date	10/14/97	10/14/97	10/14/97	10/14/97
Min Reporting Limit	0.2	0.2	0.2	0.19
Units	ug/mg	ug/mg	ug/mg	ug/mg
nC8	4.6	ND	ND	0.18 J
nC9	4.9	ND	ND	0.35
nC10	4	0.03 J	3.8	0.35
nC11	4	ND	ND	0.4
nC12	3.9	0.012 J	0.017 J	0.44
nC13	3.6	ND	ND	0.49
1380	1.1	ND	ND	0.27
nC14	4.2	ND	ND	0.58
1470	1.4	ND	0.1 J	0.33
nC15	3.5	ND	4.2	0.63
nC16	3.3	ND	ND	0.7
1650	1.6	ND	ND	0.45
nC17	3.1	ND	ND	0.82
pristane	2	ND	4.6	0.62
nC18	2.7	ND	ND	0.87
phytane	1.3	ND	0.022 J	0.64
nC19	2.2	ND	ND	0.84
nC20	2.6	ND	4.6	0.92
nC21	2.1	ND	ND	0.77
nC22	2.1	ND	ND	0.7
nC23	1.9	ND	0.014 J	0.58
nC24	1.8	ND	ND	0.54
nC25	1.6	ND	4.4	0.46
nC26	1.5	ND	0.0061 J	0.41
nC27	1.1	ND	0.024 J	0.34
nC28	0.88	ND	0.1 J	0.32
nC29	0.82	ND	0.0077 J	0.31
nC30	0.64	ND	4.4	0.27
nC31	0.59	ND	ND	0.28
nC32	0.45	ND	0.018 J	0.2
nC33	0.38	ND	0.0073 J	0.19
nC34	0.35	ND	4.3	0.2
nC35	0.39	ND	0.0083 J	0.25
nC36	0.25	ND	4.3	0.15 J
nC37	0.21	ND	ND	0.11 J
nC38	0.21	ND	ND	0.14 J
nC39	0.15	ND	ND	0.11 J
nC40	0.16	ND	ND	0.12 J
TOTRES	220	2.2	39	40
TPH	600	2.2	39	120
%OTP	NA	85	82	85
%6AA	104	83	81	87
%D50T	105	90	86	88

Arthur D. Little
Environmental Monitoring and Analysis Unit

Project Title : ECD Environmental, Inc.
Sample Set: OILS1
Data : SHC - GC/FID - Main (surr corr)

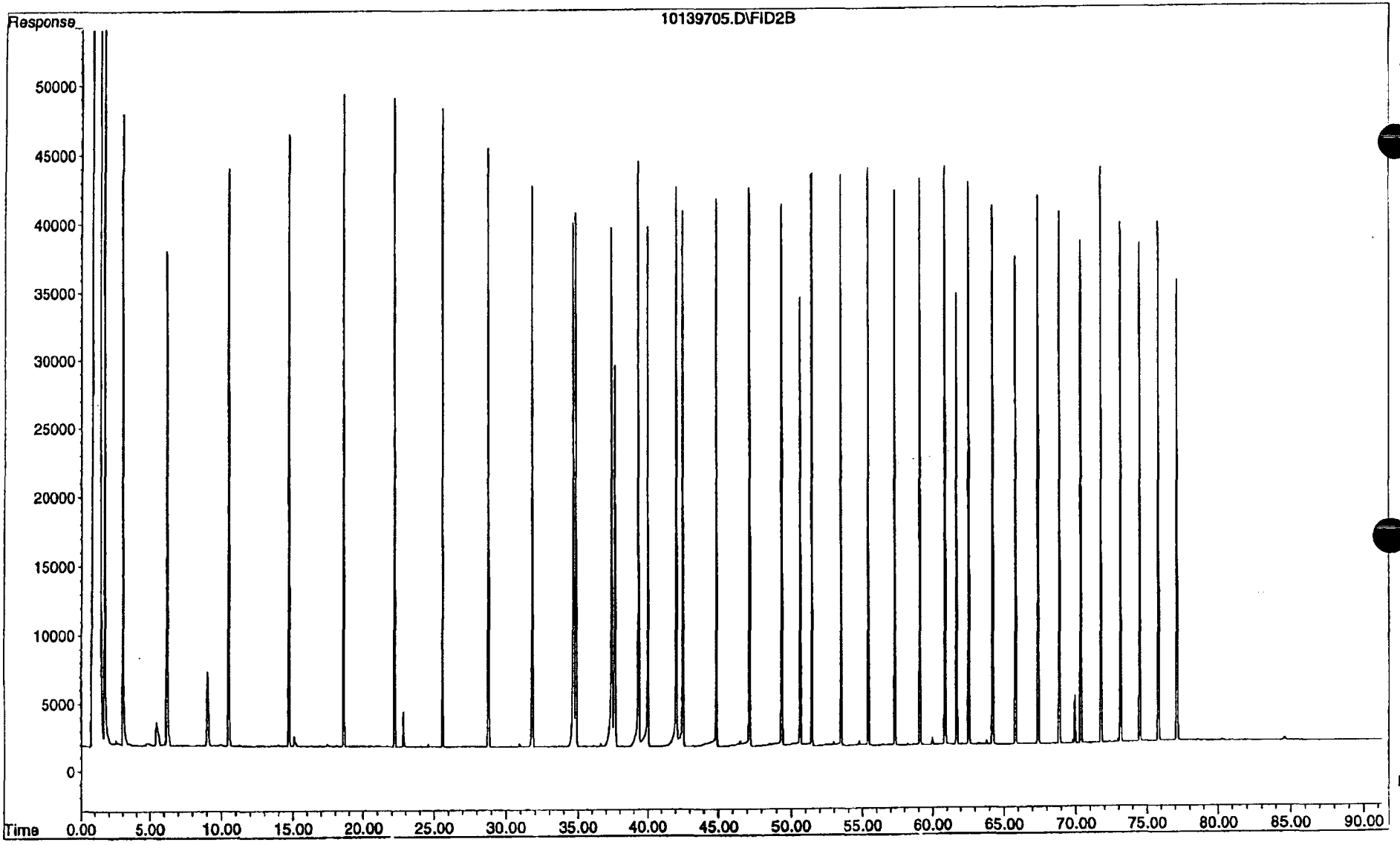
Field ID	ECD Sample B	ECD Sample C
Lab ID	97C2556	97C2557
File	10139710.D	10139711.D
Matrix	Oil	Oil
Sample Size	9.73 mg	9.8 mg
Associated Blank	BM-S-89PB	BM-S-89PB
Field Date	NA	NA
Extract Date	09/25/97	09/25/97
Analysis Date	10/14/97	10/14/97
Min Reporting Limit	0.2	0.2
Units	ug/mg	ug/mg
nC8	ND	3.6
nC9	0.019 J	5.8
nC10	0.04 J	5.4
nC11	0.03 J	5.8
nC12	0.064 J	5.5
nC13	0.098 J	5.2
1380	0.11 J	2.5
nC14	0.31	5.8
1470	0.25	2.7
nC15	0.68	5.2
nC16	1.5	4.6
1650	1.2	2.6
nC17	3	4
pristane	2.1	2.9
nC18	4.2	3.6
phytane	3.2	2.2
nC19	4.6	3
nC20	5	3.2
nC21	4.4	2.4
nC22	4.3	2.2
nC23	3.7	1.9
nC24	3.4	1.7
nC25	3.4	1.7
nC26	2.6	1.3
nC27	2.2	1.1
nC28	2	1
nC29	1.9	0.96
nC30	1.7	0.81
nC31	1.6	0.81
nC32	1.3	0.62
nC33	1.1	0.51
nC34	1.1	0.47
nC35	1.3	0.63
nC36	0.78	0.38
nC37	0.49	0.28
nC38	0.45	0.25
nC39	0.31	0.16 J
nC40	0.29	0.17 J
TOTRES	140	260
TPH	600	660
%OTP	88	91
%5AA	101	97
%D50T	93	93

Arthur D. Little
Environmental Monitoring and Analysis Unit

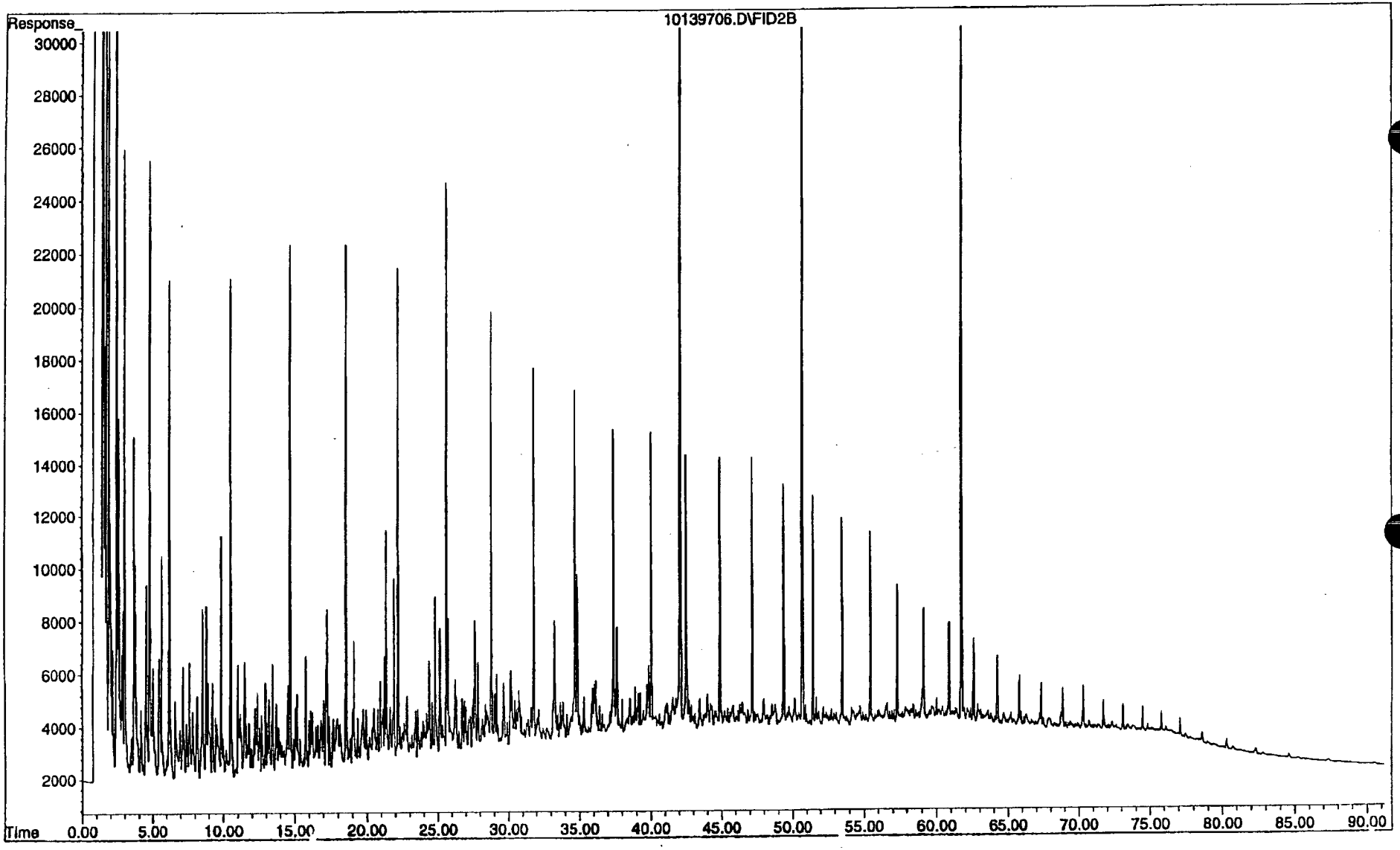
Project Title : ECD Environmental, Inc.
Sample Set: OILS1
Data : SHC - GC/FID - ORS

	Oil Reference Standard		
Field ID			
Lab ID	BI53		
File	10139706.D		
Matrix	Oil		
Sample Size	5.08 mg		
Associated Blank	NA		
Field Date	NA		
Extract Date	NA		
Analysis Date	10/14/97		
Min Reporting Limit	0.2		
Units	ug/mg	T	%D Q
nC8	4.6	4.7	-2.1
nC9	4.9	4.8	2.1
nC10	4	4.2	-4.8
nC11	4	4.3	-7
nC12	3.9	4	-2.5
nC13	3.6	4	-10
1380	1.1	1	10
nC14	4.2	4.2	
1470	1.4	1.4	
nC15	3.5	3.7	-5.4
nC16	3.3	3.2	3.1
1650	1.6	1.5	6.7
nC17	3.1	3.2	-3.1
pristane	2	2.2	-9.1
nC18	2.7	2.9	-6.9
phytane	1.3	1.6	-19
nC19	2.2	2.6	-15
nC20	2.6	2.7	-3.7
nC21	2.1	2.4	-12
nC22	2.1	2.2	-4.5
nC23	1.9	2	-5
nC24	1.8	2	-10
nC25	1.6	1.7	-5.9
nC26	1.5	1.5	
nC27	1.1	1.2	-8.3
nC28	0.88	0.88	
nC29	0.82	0.81	1.2
nC30	0.64	0.65	-1.5
nC31	0.59	0.58	1.7
nC32	0.45	0.44	2.3
nC33	0.38	0.4	-5
nC34	0.35	0.35	
nC35	0.39	0.35	11
nC36	0.25	0.23	8.7
nC37	0.21	0.23	-8.7
nC38	0.21	0.22	-4.5
nC39	0.15	0.18	-17
nC40	0.16	0.19	-16
TOTRES	220	220	
TPH	600	660	-9.1
%OTP	NA		
%5AA	104		
%D50T	105		

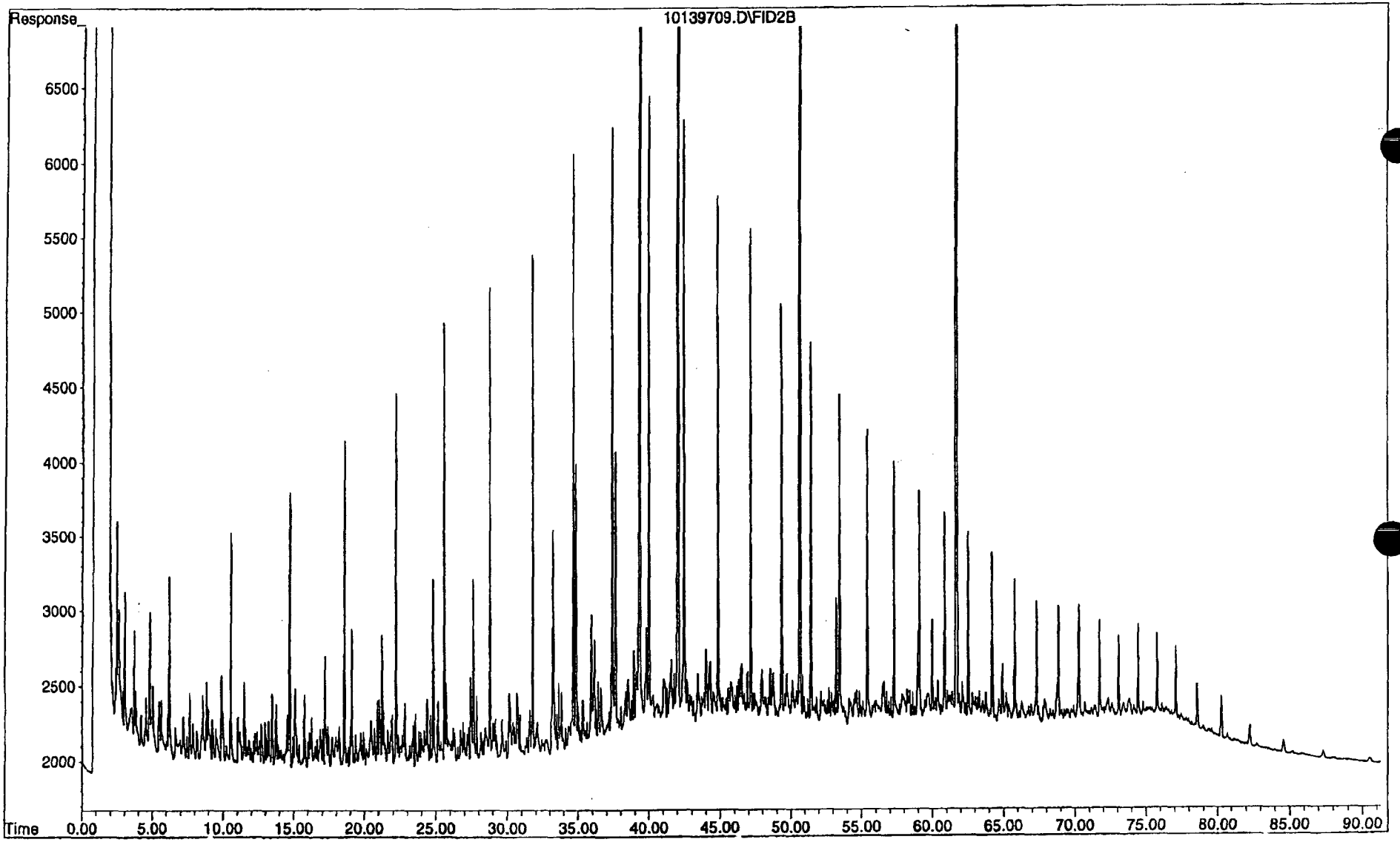
Arthur D. Little - Environmental Monitoring and Analysis
File : C:\HPCHEM\1\DATA\1013971\10139705.D
Operator : FQ
Acquired : 14 Oct 97 2:48 am using AcqMethod SHCTPHC.M
Instrument : GC FID #1
Sample Name: BJ63 50 UG/ML
Misc Info : MID
Vial Number: 3



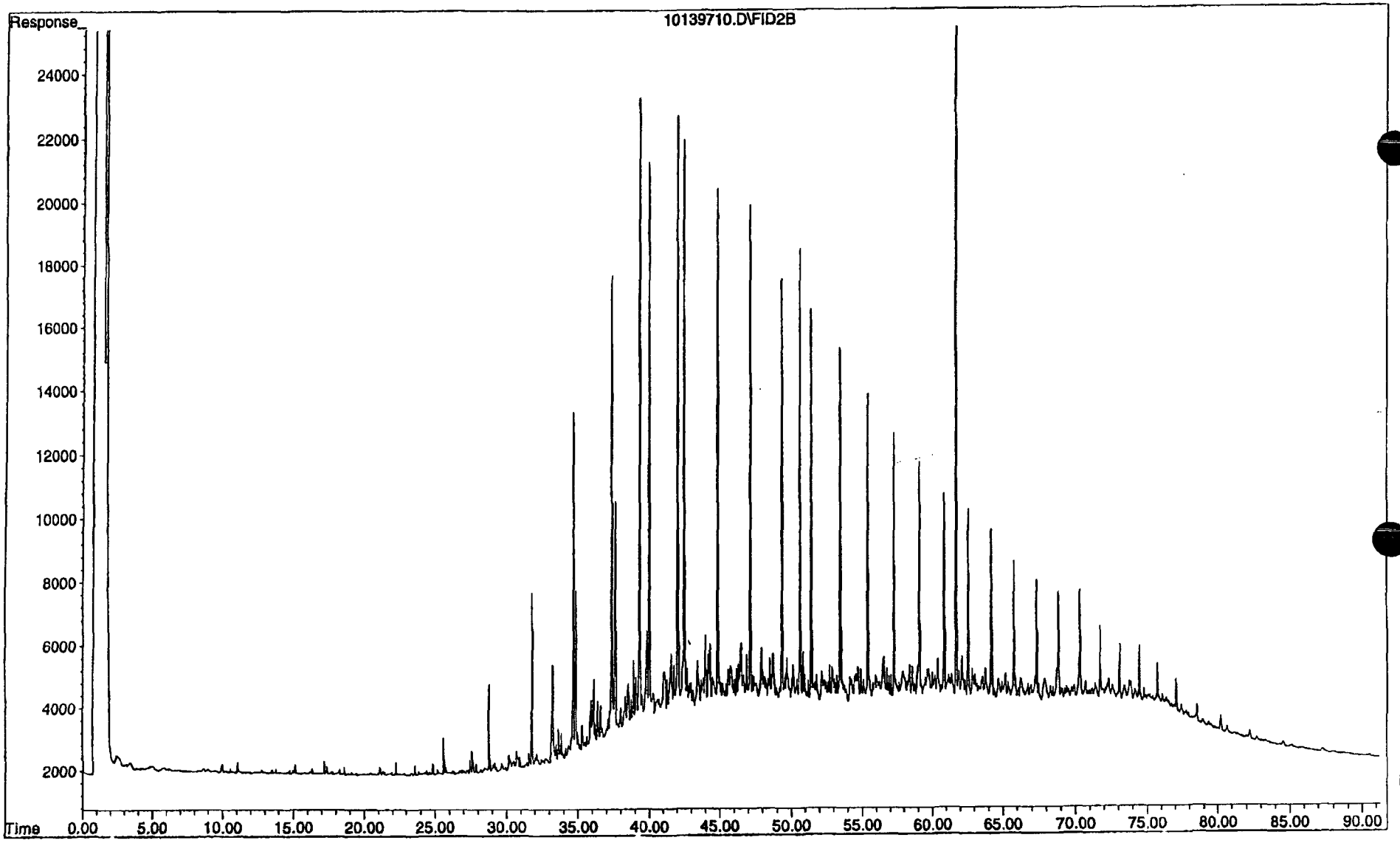
Arthur D. Little - Environmental Monitoring and Analysis
File : C:\HPCHEM\1\DATA\1013971\10139706.D
Operator : FQ
Acquired : 14 Oct 97 4:29 am using AcqMethod SHCTPHC.M
Instrument : GC FID #1
Sample Name: BI53
Misc Info : ORS
Vial Number: 4



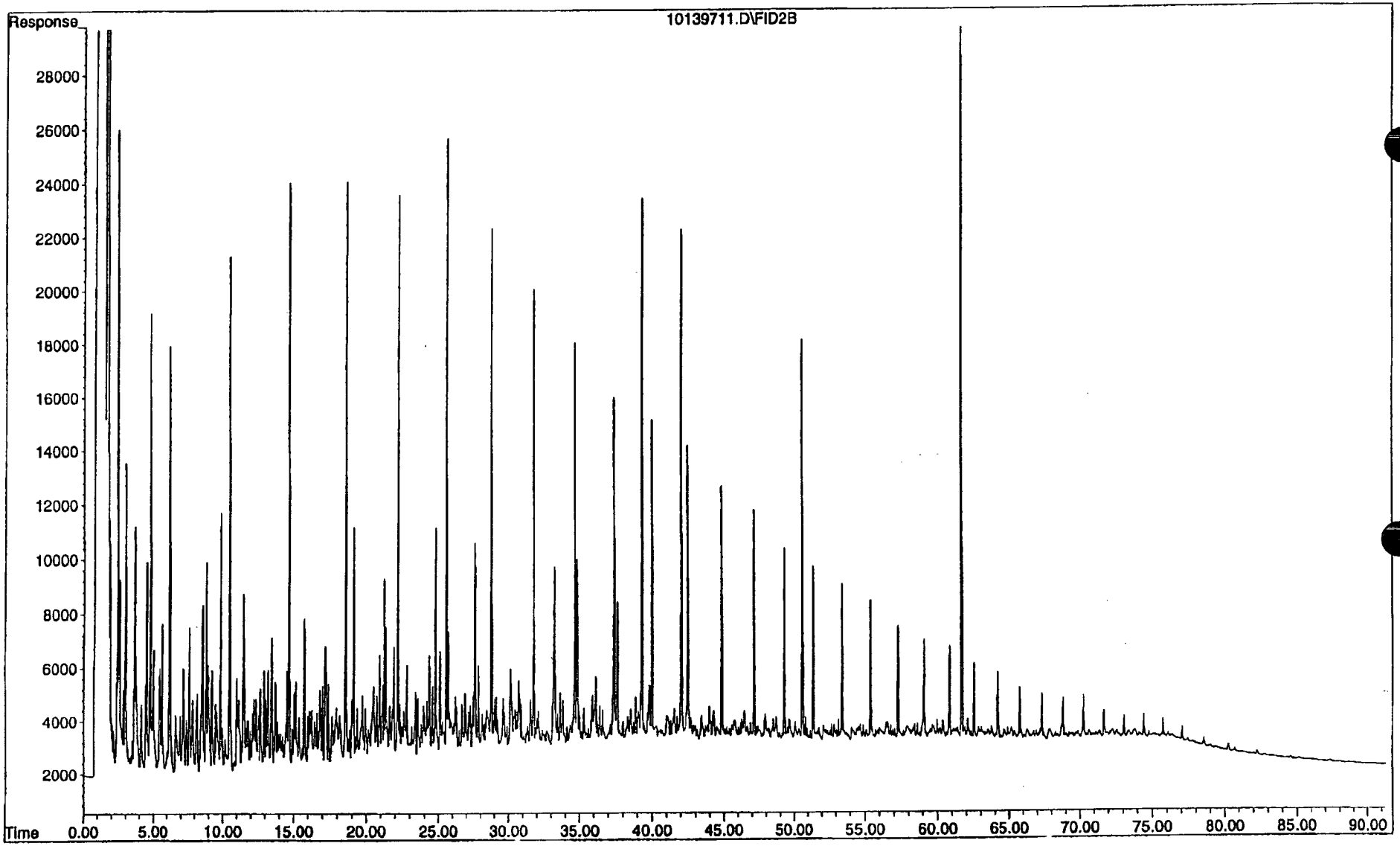
Arthur D. Little - Environmental Monitoring and Analysis
File : C:\HPCHEM\1\DATA\1013971\10139709.D
Operator : FQ
Acquired : 14 Oct 97 9:31 am using AcqMethod SHCTPHC.M
Instrument : GC FID #1
Sample Name: 97C2555
Misc Info : ECD Sample A
Vial Number: 7



Arthur D. Little - Environmental Monitoring and Analysis
File : C:\HPCHEM\1\DATA\1013971\10139710.D
Operator : FQ
Acquired : 14 Oct 97 1:58 pm using AcqMethod SHCTPHC.M
Instrument : GC FID #1
Sample Name: 97C2556
Misc Info : ECD Sample B
Vial Number: 8



Arthur D. Little - Environmental Monitoring and Analysis
File : C:\HPCHEM\1\DATA\1013971\10139711.D
Operator : FQ
Acquired : 14 Oct 97 3:39 pm using AcqMethod SHCTPHC.M
Instrument : GC FID #1
Sample Name: 97C2557
Misc Info : ECD Sample C
Vial Number: 9



Arthur D. Little
Environmental Monitoring and Analysis Unit

Project Title : ECD Environmental, Inc.
Sample Set: OIL1
Data : PAH - GC/MS/SIM - Main (surr corr)

Field ID	Instr Reference Material	Oil Reference Standard	Procedural Blank	Blank Spike
Lab ID	BI94	BI53	BM-S-89PB	BM-S-90BS
File	DX5417.D	DX5418.D	DX5443.D	DX5444.D
Matrix	NA	Oil	Oil	Oil
Sample Size	0.1 mL	5.08 mg	10 mg	10 mg
Associated Blank	NA	NA	NA	BM-S-89PB
Field Date	NA	NA	NA	NA
Extract Date	NA	NA	10/08/97	10/08/97
Analysis Date	10/12/97	10/12/97	10/13/97	10/13/97
Min Reporting Limit	250	4.9	5	5
Units	ug/L	mg/Kg	mg/Kg	mg/Kg
Naphthalene	6900	760	1.3 J	94
C1-Naphthalenes	11000	1600	0.79 J	0.77 J
C2-Naphthalenes	4600	2200	ND	ND
C3-Naphthalenes	5300	1800	ND	ND
C4-Naphthalenes	ND	1100	ND	ND
Acenaphthylene	6800	ND	ND	87
Acenaphthene	7100	ND	ND	91
Biphenyl	7100	220	ND	ND
Fluorene	7100	98	ND	94
C1-Fluorenes	ND	250	ND	ND
C2-Fluorenes	ND	370	ND	ND
C3-Fluorenes	ND	370	ND	ND
Anthracene	8900	ND	ND	88
Phenanthrene	7600	280	0.49 J	93
C1-Phenanthrenes/anthracenes	5600	660	ND	ND
C2-Phenanthrenes/anthracenes	ND	800	ND	ND
C3-Phenanthrenes/anthracenes	ND	590	ND	ND
C4-Phenanthrenes/anthracenes	ND	390	ND	ND
Dibenzothiophene	ND	230	ND	ND
C1-Dibenzothiophenes	ND	510	ND	ND
C2-Dibenzothiophenes	ND	730	ND	ND
C3-Dibenzothiophenes	ND	670	ND	ND
Fluoranthene	6300	ND	ND	96
Pyrene	6400	14	ND	91
C1-Fluoranthenes/pyrenes	ND	80	ND	ND
C2-Fluoranthenes/pyrenes	ND	150	ND	ND
C3-Fluoranthenes/pyrenes	ND	160	ND	ND
Benzo[a]anthracene	3600	ND	ND	90
Chrysene	7700	51	ND	90
C1-Chrysenes	ND	91	ND	ND
C2-Chrysenes	ND	120	ND	ND
C3-Chrysenes	ND	87	ND	ND
C4-Chrysenes	ND	77	ND	ND
Benzo[b]fluoranthene	4900	5	ND	90
Benzo[k]fluoranthene	5800	2.2 J	ND	110
Benzo[e]pyrene	5800	11	ND	ND
Benzo[a]pyrene	7100	1.3 J	ND	97
Perylene	7700	2.2 J	ND	ND
Indeno[1,2,3,-c,d]pyrene	5600	0.65 J	ND	81
Dibenzo[a,h]anthracene	5300	1.3 J	ND	84
Benzo[g,h,i]perylene	5200	2.8 J	ND	82
%d8-Naphthalene	98	92	93	103
%d10-Acenaphthene	95	97	91	105
%d10-Phenanthrene	90	94	93	105
%d12-Benzo[a]pyrene	95	109	76	91

Arthur D. Little
Environmental Monitoring and Analysis Unit

Project Title : ECD Environmental, Inc.
Sample Set: OIL1
Data : PAH - GC/MS/SIM - Main (surr corr)

Field ID	ECD SAMPLE A	ECD SAMPLE B	ECD SAMPLE C
Lab ID	97C2555	97C2556	97C2557
File	DX5445.D	DX5446.D	DX5447.D
Matrix	Oil	Oil	Oil
Sample Size	10.7 mg	9.73 mg	9.8 mg
Associated Blank	BM-S-89PB	BM-S-89PB	BM-S-89PB
Field Date	NA	NA	NA
Extract Date	10/08/97	10/08/97	10/08/97
Analysis Date	10/13/97	10/13/97	10/13/97
Min Reporting Limit	4.7	5.1	5.1
Units	mg/Kg	mg/Kg	mg/Kg
Naphthalene	18	4.1 J	380
C1-Naphthalenes	59	17	1000
C2-Naphthalenes	140	94	1700
C3-Naphthalenes	190	260	1500
C4-Naphthalenes	160	310	970
Acenaphthylene	ND	ND	ND
Acenaphthene	ND	ND	ND
Biphenyl	8.7	4.5 J	150
Fluorene	7.6	15	79
C1-Fluorenes	25	85	170
C2-Fluorenes	49	220	260
C3-Fluorenes	69	350	270
Anthracene	ND	ND	ND
Phenanthrene	17	58	150
C1-Phenanthrenes/anthracenes	52	280	410
C2-Phenanthrenes/anthracenes	85	500	520
C3-Phenanthrenes/anthracenes	66	380	390
C4-Phenanthrenes/anthracenes	38	250	260
Dibenzothiophene	26	100	180
C1-Dibenzothiophenes	87	440	400
C2-Dibenzothiophenes	130	830	550
C3-Dibenzothiophenes	120	740	470
Fluoranthene	ND	ND	ND
Pyrene	2.6 J	10	11
C1-Fluoranthenes/pyrenes	8.4	33	42
C2-Fluoranthenes/pyrenes	15	50	79
C3-Fluoranthenes/pyrenes	16	56	100
Benzo[a]anthracene	ND	ND	ND
Chrysene	4.4 J	23	17
C1-Chrysenes	7.8	35	39
C2-Chrysenes	11	47	62
C3-Chrysenes	9.4	32	52
C4-Chrysenes	7.8	24	43
Benzo[b]fluoranthene	0.66 J	3.5 J	2.5 J
Benzo[k]fluoranthene	0.89 J	4.6 J	2.6 J
Benzo[e]pyrene	1.1 J	4.8 J	4.2 J
Benzo[a]pyrene	ND	ND	ND
Perylene	0.14 J	1.6 J	1.6 J
Indeno[1,2,3,-c,d]pyrene	ND	ND	ND
Dibenzo[a,h]anthracene	ND	ND	ND
Benzo[g,h,i]perylene	ND	ND	ND
%d8-Naphthalene	83	85	96
%d10-Acenaphthene	96	96	99
%d10-Phenanthrene	102	102	98
%d12-Benzo[a]pyrene	99	107	108

Arthur D. Little
Environmental Monitoring and Analysis Unit

Project Title : ECD Environmental, Inc.
Sample Set: OIL1
Data : PAH - GC/MS/SIM - IRM

	Instr Reference			
Field ID	**Material**			
Lab ID	**BI94**			
File	**DX5417.D**			
Matrix	**Std**			
Sample Size	**0.1 mL**			
Associated Blank	**NA**			
Field Date	**NA**			
Extract Date	**NA**			
Analysis Date	**10/12/97**			
Min Reporting Limit	**250**			
Units	**ug/L**	**T**	**%D**	**Q**
Naphthalene	6900	6890	0.14	
C1-Naphthalenes	11000			
C2-Naphthalenes	4600			
C3-Naphthalenes	5300			
C4-Naphthalenes	ND			
Acenaphthylene	6800	6960	-2.3	
Acenaphthene	7100	7280	-2.5	
Biphenyl	7100	7000	1.4	
Fluorene	7100	7270	-2.3	
C1-Fluorenes	ND			
C2-Fluorenes	ND			
C3-Fluorenes	ND			
Anthracene	8900	7820	14	
Phenanthrene	7600	7010	8.4	
C1-Phenanthrenes/anthracenes	5600			
C2-Phenanthrenes/anthracenes	ND			
C3-Phenanthrenes/anthracenes	ND			
C4-Phenanthrenes/anthracenes	ND			
Dibenzothiophene	ND			
C1-Dibenzothiophenes	ND			
C2-Dibenzothiophenes	ND			
C3-Dibenzothiophenes	ND			
Fluoranthene	6300	5910	6.6	
Pyrene	6400	5890	8.6	
C1-Fluoranthenes/pyrenes	ND			
C2-Fluoranthenes/pyrenes	ND			
C3-Fluoranthenes/pyrenes	ND			
Benzo[a]anthracene	3600	3590	0.28	
Chrysene	7700	7030	9.5	
C1-Chrysenes	ND			
C2-Chrysenes	ND			
C3-Chrysenes	ND			
C4-Chrysenes	ND			
Benzo[b]fluoranthene	4900	5250	-6.7	
Benzo[k]fluoranthene	5800	5570	4.1	
Benzo[e]pyrene	5800	5620	3.2	
Benzo[a]pyrene	7100	6790	4.6	
Perylene	7700	7120	8.1	
Indeno[1,2,3,-c,d]pyrene	5600	6290	-11	
Dibenzo[a,h]anthracene	5300	5180	2.3	
Benzo[g,h,i]perylene	5200	5290	-1.7	
%d8-Naphthalene	98			
%d10-Acenaphthene	95			
%d10-Phenanthrene	90			
%d12-Benzo[a]pyrene	95			

Arthur D. Little
Environmental Monitoring and Analysis Unit

Project Title : ECD Environmental, Inc.
Sample Set: OIL1
Data : PAH - GC/MS/SIM - ORS

	Oil Reference Standard			
Field ID				
Lab ID	BI53			
File	DX5418.D			
Matrix	Oil			
Sample Size	5.08 mg			
Associated Blank	NA			
Field Date	NA			
Extract Date	NA			
Analysis Date	10/12/97			
Min Reporting Limit	4.9			
Units	mg/Kg	T	%D	Q
Naphthalene	760	750	1.3	
C1-Naphthalenes	1600	1700	-5.9	
C2-Naphthalenes	2200	2400	-8.3	
C3-Naphthalenes	1800	2000	-10	
C4-Naphthalenes	1100	1200	-8.3	
Acenaphthylene	ND			
Acenaphthene	ND			
Biphenyl	220	220		
Fluorene	98	94	4.2	
C1-Fluorenes	250	240	4.2	
C2-Fluorenes	370	350	5.7	
C3-Fluorenes	370	400	-7.5	
Anthracene	ND			
Phenanthrene	280	260	7.7	
C1-Phenanthrenes/anthracenes	660	600	10	
C2-Phenanthrenes/anthracenes	800	740	8.1	
C3-Phenanthrenes/anthracenes	590	540	9.2	
C4-Phenanthrenes/anthracenes	390	330	18	
Dibenzothiophene	230	240	-4.2	
C1-Dibenzothiophenes	510	500	2	
C2-Dibenzothiophenes	730	740	-1.4	
C3-Dibenzothiophenes	670	660	1.5	
Fluoranthene	ND			
Pyrene	14	14		
C1-Fluoranthenes/pyrenes	80	83	-3.6	
C2-Fluoranthenes/pyrenes	150	150		
C3-Fluoranthenes/pyrenes	160	170	-5.9	
Benzo[a]anthracene	ND			
Chrysene	51	49	4.1	
C1-Chrysenes	91	84	8.3	
C2-Chrysenes	120	110	9.1	
C3-Chrysenes	87	92	-5.4	
C4-Chrysenes	77	75	2.7	
Benzo[b]fluoranthene	5 J	6.6	-24	
Benzo[k]fluoranthene	2.2 J			
Benzo[e]pyrene	11	12	-8.3	
Benzo[a]pyrene	1.3 J			
Perylene	2.2 J			
Indeno[1,2,3,-c,d]pyrene	0.65 J			
Dibenzo[a,h]anthracene	1.3 J			
Benzo[g,h,i]perylene	2.8 J			
%d8-Naphthalene	92			
%d10-Acenaphthene	97			
%d10-Phenanthrene	94			
%d12-Benzo[a]pyrene	109			

Arthur D. Little
Environmental Monitoring and Analysis Unit

Project Title : ECD Environmental, Inc.
Sample Set: OIL1
Data : PAH - GC/MS/SIM - PB (surr corr)

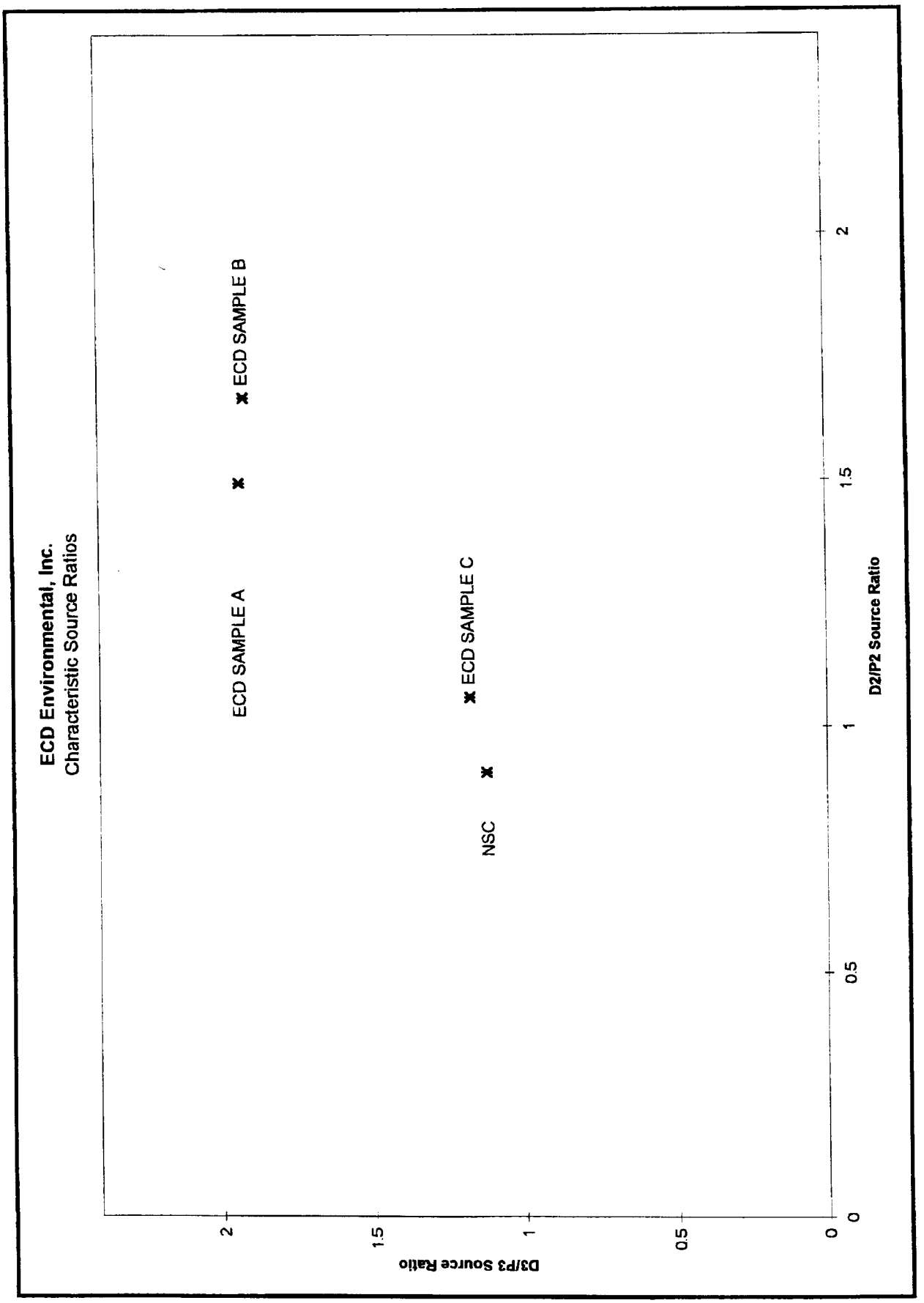
Field ID	Procedural Blank	
Lab ID	BM-S-89PB	
File	DX5443.D	
Matrix	Oil	
Sample Size	10	mg
Associated Blank	NA	
Field Date	NA	
Extract Date	10/08/97	
Analysis Date	10/13/97	
Min Reporting Limit	5	
Units	mg/Kg	
Naphthalene	1.3	J
C1-Naphthalenes	0.79	J
C2-Naphthalenes	ND	
C3-Naphthalenes	ND	
C4-Naphthalenes	ND	
Acenaphthylene	ND	
Acenaphthene	ND	
Biphenyl	ND	
Fluorene	ND	
C1-Fluorenes	ND	
C2-Fluorenes	ND	
C3-Fluorenes	ND	
Anthracene	ND	
Phenanthrene	0.49	J
C1-Phenanthrenes/anthracenes	ND	
C2-Phenanthrenes/anthracenes	ND	
C3-Phenanthrenes/anthracenes	ND	
C4-Phenanthrenes/anthracenes	ND	
Dibenzothiophene	ND	
C1-Dibenzothiophenes	ND	
C2-Dibenzothiophenes	ND	
C3-Dibenzothiophenes	ND	
Fluoranthene	ND	
Pyrene	ND	
C1-Fluoranthenes/pyrenes	ND	
C2-Fluoranthenes/pyrenes	ND	
C3-Fluoranthenes/pyrenes	ND	
Benzo[a]anthracene	ND	
Chrysene	ND	
C1-Chrysenes	ND	
C2-Chrysenes	ND	
C3-Chrysenes	ND	
C4-Chrysenes	ND	
Benzo[b]fluoranthene	ND	
Benzo[k]fluoranthene	ND	
Benzo[e]pyrene	ND	
Benzo[a]pyrene	ND	
Perylene	ND	
Indeno[1,2,3,-c,d]pyrene	ND	
Dibenzo[a,h]anthracene	ND	
Benzo[g,h,i]perylene	ND	
%d8-Naphthalene	93	
%d10-Acenaphthene	91	
%d10-Phenanthrene	93	
%d12-Benzo[a]pyrene	76	

Arthur D. Little
Environmental Monitoring and Analysis Unit

Project Title : ECD Environmental, Inc.
Sample Set: OIL1
Data : PAH - GC/MS/SIM - BS-BSD (surr corr)

Field ID	Procedural Blank	Blank Spike	T	%R	Q
Lab ID	BM-S-89PB	BM-S-90BS			
File	DX5443.D	DX5444.D			
Matrix	Oil	Oil			
Sample Size	10 mg	10 mg			
Associated Blank	NA	BM-S-89PB			
Field Date	NA	NA			
Extract Date	10/08/97	10/08/97			
Analysis Date	10/13/97	10/13/97			
Min Reporting Limit	5	5			
Units	mg/Kg	mg/Kg			
Naphthalene	1.3 J	94	100	93	
C1-Naphthalenes	0.79 J	0.77 J			
C2-Naphthalenes	ND	ND			
C3-Naphthalenes	ND	ND			
C4-Naphthalenes	ND	ND			
Acenaphthylene	ND	87	100	87	
Acenaphthene	ND	91	100	91	
Biphenyl	ND	ND			
Fluorene	ND	94	100	94	
C1-Fluorenes	ND	ND			
C2-Fluorenes	ND	ND			
C3-Fluorenes	ND	ND			
Anthracene	ND	88	100	88	
Phenanthrene	0.49 J	93	100	93	
C1-Phenanthrenes/anthracenes	ND	ND			
C2-Phenanthrenes/anthracenes	ND	ND			
C3-Phenanthrenes/anthracenes	ND	ND			
C4-Phenanthrenes/anthracenes	ND	ND			
Dibenzothiophene	ND	ND			
C1-Dibenzothiophenes	ND	ND			
C2-Dibenzothiophenes	ND	ND			
C3-Dibenzothiophenes	ND	ND			
Fluoranthene	ND	96	100	96	
Pyrene	ND	91	100	91	
C1-Fluoranthenes/pyrenes	ND	ND			
C2-Fluoranthenes/pyrenes	ND	ND			
C3-Fluoranthenes/pyrenes	ND	ND			
Benzo[a]anthracene	ND	90	100	90	
Chrysene	ND	90	100	90	
C1-Chrysenes	ND	ND			
C2-Chrysenes	ND	ND			
C3-Chrysenes	ND	ND			
C4-Chrysenes	ND	ND			
Benzo[b]fluoranthene	ND	90	100	90	
Benzo[k]fluoranthene	ND	110	100	110	
Benzo[e]pyrene	ND	ND			
Benzo[a]pyrene	ND	97	100	97	
Perylene	ND	ND			
Indeno[1,2,3,-c,d]pyrene	ND	81	100	81	
Dibenzo[a,h]anthracene	ND	84	100	84	
Benzo[g,h,i]perylene	ND	82	100	82	
%d8-Naphthalene	93	103			
%d10-Acenaphthene	91	105			
%d10-Phenanthrene	93	105			
%d12-Benzo[a]pyrene	76	91			

Environmental Monitoring and Analysis



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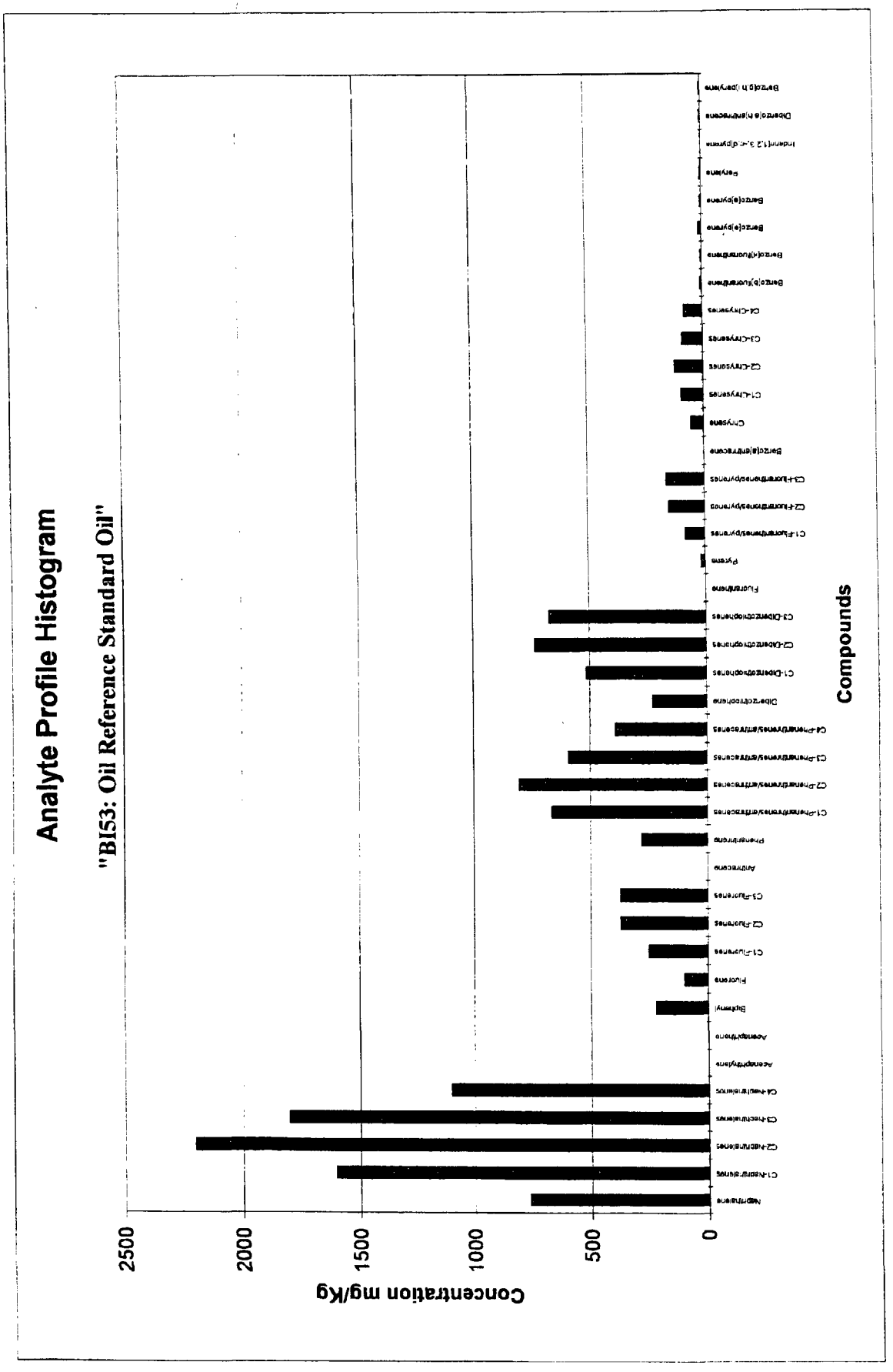

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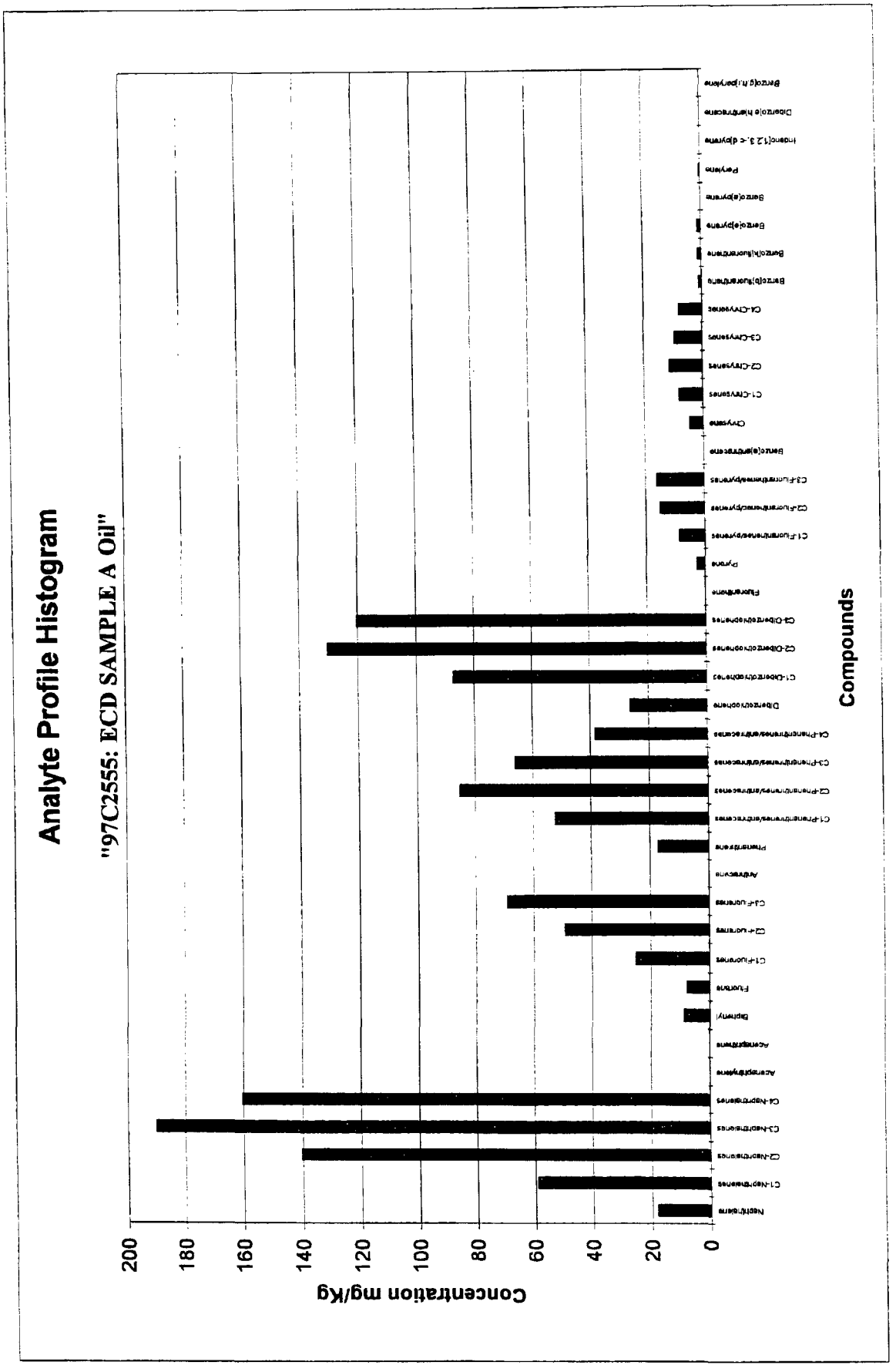

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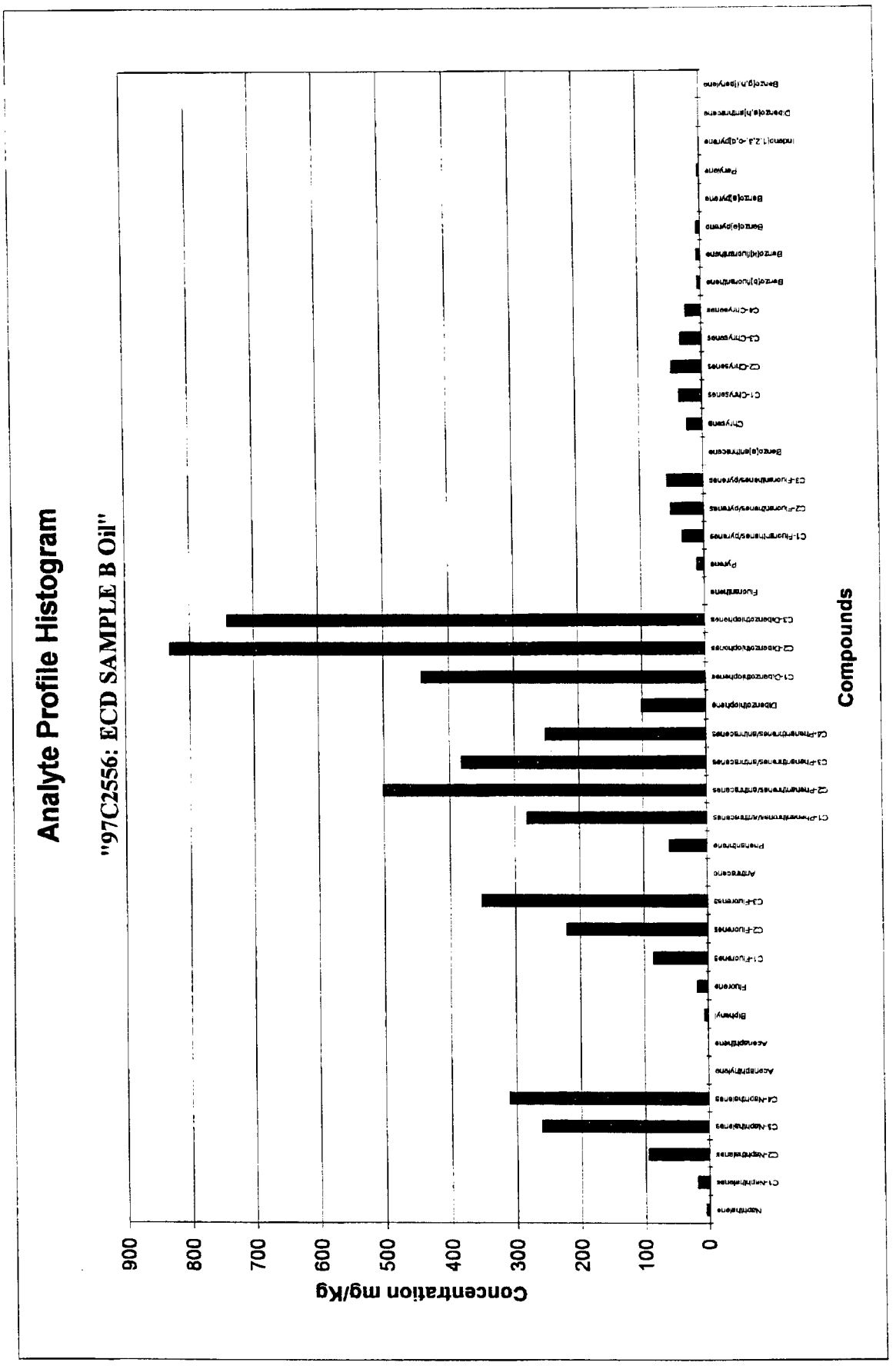

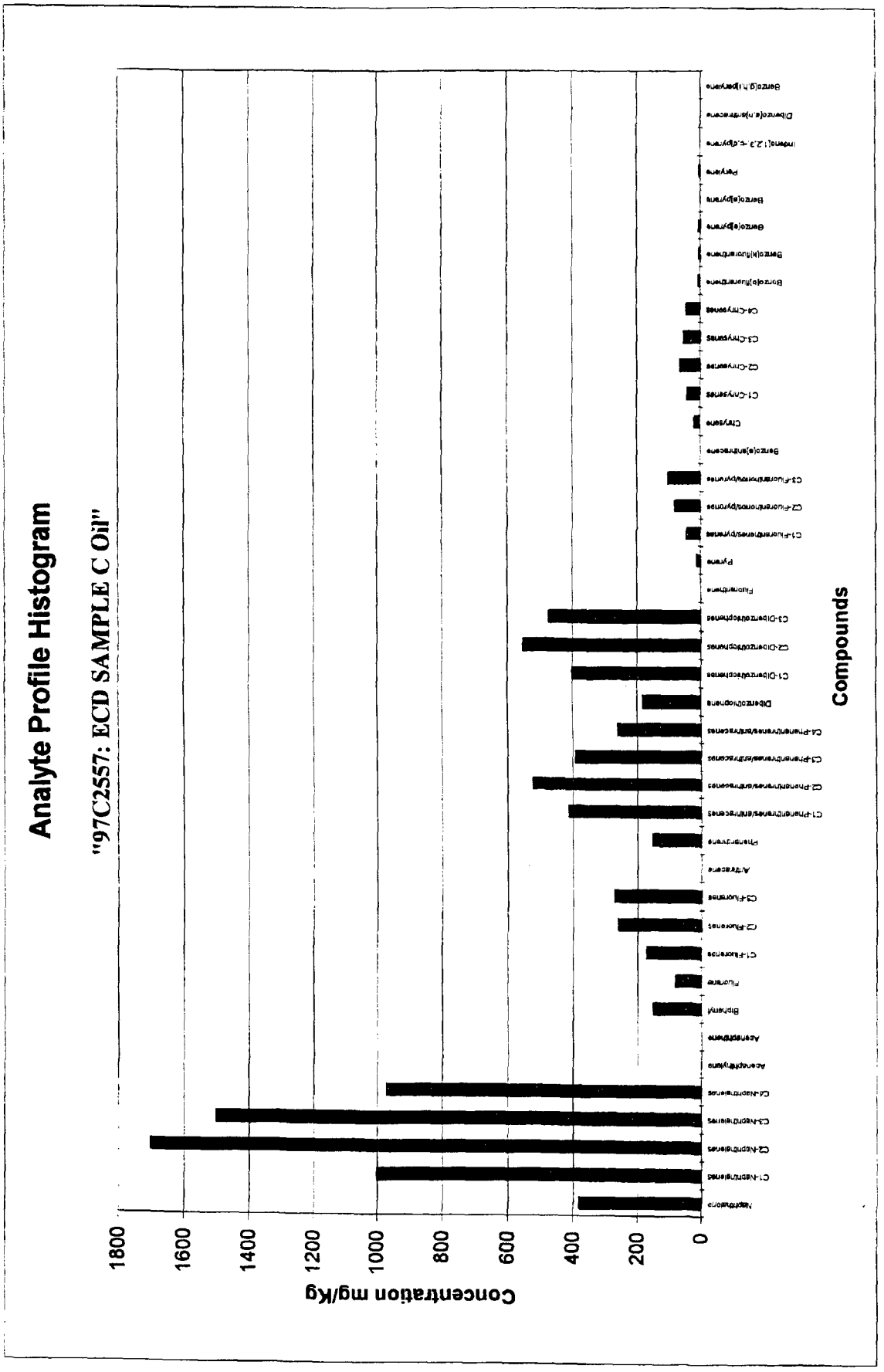

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Arthur D. Little
Environmental Monitoring and Analysis Unit

Project Title : ECD Environmental, Inc.
Sample Set: OIL1
Data : S/T - GC/MS/SIM - Main (surr corr)

Field ID	Oil Reference Standard	Procedural Blank	Blank Spike	ECD SAMPLE A
Lab ID	BH62	BM-S-89PB	BM-S-90BS	97C2555
File	DZ3022.D	DZ3023.D	DZ3024.D	DZ3025.D
Matrix	Oil	NA	NA	Oil
Sample Size	5.12 mg	10 mg	10 mg	10.7 mg
Associated Blank	NA	NA	BM-S-89PB	BM-S-89PB
Field Date	NA	NA	NA	NA
Extract Date	NA	10/08/97	10/08/97	10/08/97
Analysis Date	10/30/97	10/30/97	10/30/97	10/30/97
Min Reporting Limit	4.9	5	5	4.7
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg
T4-C23Diterpane	59	ND	ND	9
S4-Diacholestane	54	ND	ND	10
S5-Diacholestane	34	ND	ND	6.5
T9-C29Tricyclictriterpane	18	ND	ND	2.7 J
T10-C29Tricyclictriterpane	21	ND	ND	2.6 J
T11-Trisnorhopane(TS)	27	ND	ND	6.8
T12-Trisnorhopane(TM)	31	ND	ND	4.4 J
S24-Methylcholestane	35	ND	ND	5.8
S25-Ethylcholestane	67	ND	ND	8.5
S28-Ethylcholestane	47	ND	ND	9.5
T15-Norhopane	100	ND	ND	18
T18-Oleanane	ND	ND	ND	ND
T19-Hopane	150	ND	ND	20
T21-Homohopane	60	ND	ND	8.7
T22-Homohopane	41	ND	ND	6.5
%5B(H)-Cholane	124	78	98	91
%D66-Dotriacontane	112	90	91	87

Arthur D. Little
Environmental Monitoring and Analysis Unit

Project Title : ECD Environmental, Inc.
Sample Set: OIL1
Data : S/T - GC/MS/SIM - Main (surr corr)

Field ID	ECD SAMPLE B	ECD SAMPLE C
Lab ID	97C2556	97C2557
File	*DZ3028.D*	*DZ3027.D*
Matrix	Oil	Oil
Sample Size	9.73 mg	9.8 mg
Associated Blank	BM-S-89PB	BM-S-89PB
Field Date	NA	NA
Extract Date	10/08/97	10/08/97
Analysis Date	10/30/97	10/30/97
Min Reporting Limit	5.1	5.1
Units	mg/Kg	mg/Kg
T4-C23Diterpane	54	24
S4-Diacholestane	76	36
S5-Diacholestane	48	23
T9-C29Tricyclictriterpane	18	7.7
T10-C29Tricyclictriterpane	20	8.6
T11-Trisnorhopane(TS)	40	16
T12-Trisnorhopane(TM)	31	12
S24-Methylcholestane	38	14
S25-Ethylcholestane	63	28
S28-Ethylcholestane	66	27
T15-Norhopane	130	51
T18-Oleanane	ND	ND
T19-Hopane	*160*	*64*
T21-Homohopane	63	24
T22-Homohopane	44	17
%5B(H)-Cholane	98	90
%D66-Dotriacontane	93	93

Arthur D. Little
Environmental Monitoring and Analysis Unit

Project Title : ECD Environmental, Inc.
Sample Set: OIL1
Data : S/T - GC/MS/SIM - ORS

	Oil Reference Standard			
Field ID				
Lab ID	BH62			
File	DZ3022.D			
Matrix	NA			
Sample Size	5.12 mg			
Associated Blank	NA			
Field Date	NA			
Extract Date	NA			
Analysis Date	10/30/97			
Min Reporting Limit	4.9			
Units	mg/Kg	T	%D	Q
T4-C23Diterpane	59	46	28	
S4-Diacholestane	54	50	8	
S5-Diacholestane	34	29	17	
T9-C29Tricyclictriterpane	18	16	12	
T10-C29Tricyclictriterpane	21	18	17	
T11-Trisnorhopane(TS)	27	26	3.8	
T12-Trisnorhopane(TM)	31	32	-3.1	
S24-Methylcholestane	35			
S25-Ethylcholestane	67	53	26	
S28-Ethylcholestane	47	40	18	
T15-Norhopane	100	96	4.2	
T18-Oleanane	ND			
T19-Hopane	150	128	17	
T21-Homohopane	60	53	13	
T22-Homohopane	41	38	7.9	
%5B(H)-Cholane	124			
%D66-Dotriacontane	112			

Arthur D. Little
Environmental Monitoring and Analysis Unit

Project Title : ECD Environmental, Inc.
Sample Set: OIL1
Data : S/T - GC/MS/SIM - PB

Field ID	Procedural Blank
Lab ID	BM-S-89PB
File	DZ3023.D
Matrix	NA
Sample Size	10 mg
Associated Blank	NA
Field Date	NA
Extract Date	10/08/97
Analysis Date	10/30/97
Min Reporting Limit	5
Units	mg/Kg
T4-C23Diterpane	ND
S4-Diacholestane	ND
S5-Diacholestane	ND
T9-C29Tricyclictriterpane	ND
T10-C29Tricyclictriterpane	ND
T11-Trisnorhopane(TS)	ND
T12-Trisnorhopane(TM)	ND
S24-Methylcholestane	ND
S25-Ethylcholestane	ND
S28-Ethylcholestane	ND
T15-Norhopane	ND
T18-Oleanane	ND
T19-Hopane	ND
T21-Homohopane	ND
T22-Homohopane	ND
%5B(H)-Cholane	78
%D66-Dotriacontane	90

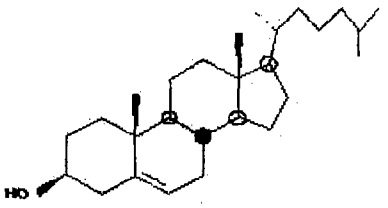
WHAT ARE BIOMARKERS

In simple terms, a biological marker (or biomarker) is a compound with a relationship or link to a biochemical. An oil consists of a complex mixture of chemical compounds with a wide range of structures, molecular weights and functionality. In this mixture are compounds with chemical structures related to the natural products from which they were created.

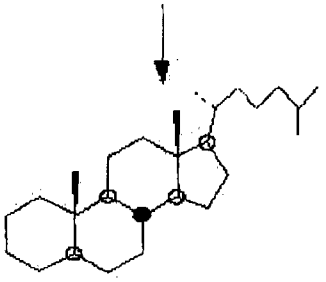
Biomarkers can be found in most petroleum and petroleum products. The organic material of the petroleum source, under the effects of time and temperature, generates hydrocarbons containing a biological marker signature of the material from which it was formed. In petroleum, the primary biomarkers are hydrocarbons that fall into two main classes: steranes and triterpanes.

Because the biomarker signature remains, these compounds can be used for chemical characterization (or fingerprinting) of oils and other petroleum products. The chemical nature of sterane and triterpane biomarkers makes them relatively resistant to degradation. Biomarkers thus have a variety of applications in environmental chemistry:

- Product Identification
- Source Linkages
- Bioremediation Evaluation



Cholesterol



5 alpha(H)-Cholestane

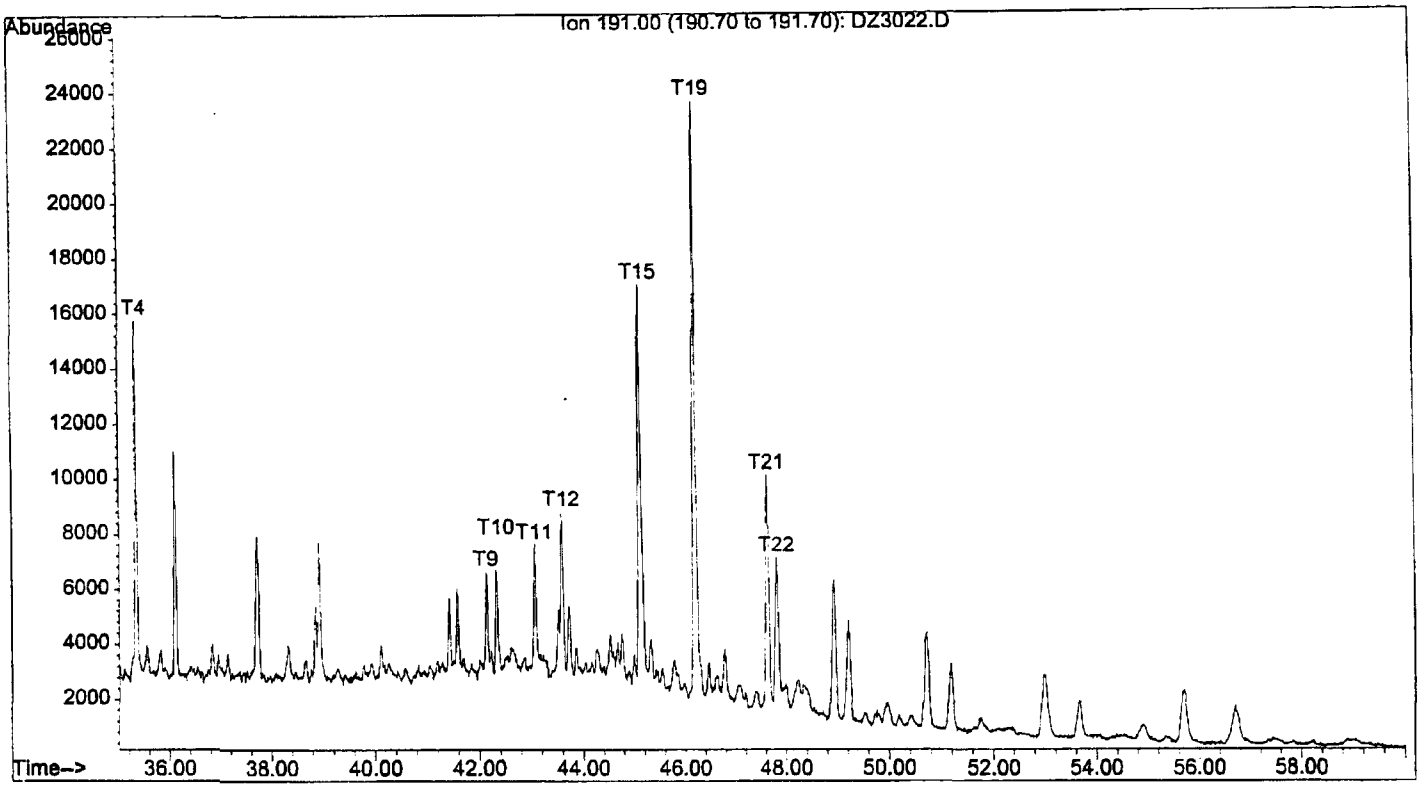
Sterane and Triterpane Target Analyte List (Standard List)

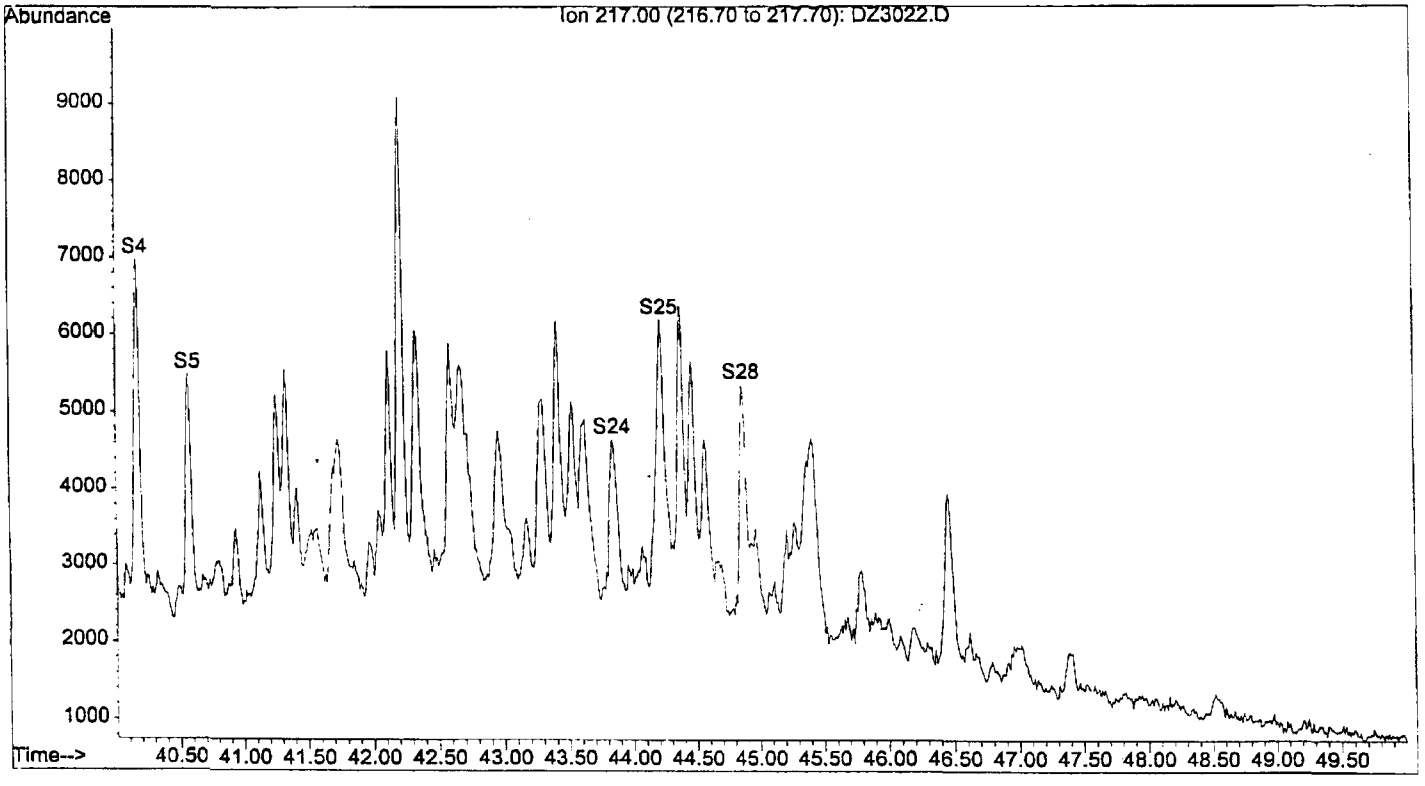
Compound	Reporting Code
C_{23}-Diterpane	T4
13β,17α-diacholestane(20S)	S4
13β,17α-diacholestane(20R)	S5
C_{29}-Tricyclictriterpane	T9
C_{29}-Tricyclictriterpane	T10
## 5α,14α,17α-cholestane(20R)	S17
18α(H)-22,29,30-trisnorhopane(TS)	T11
17α(H)-22,29,30-trisnorhopane(TM)	T12
5α,14α,17α,24-methylcholestane(20R)	S24
5α,14α,17α,24-ethylcholestane(20S)	S25
5α,14α,17α,24-ethylcholestane(20R)	S28
17α(H),21β(H)-30-norhopane	T15
18α(H)-oleanane	T18
17α(H),21β(H)-hopane	T19
22S-17α(H),21β(H)-30-homohopane	T21
22R-17α(H),21β(H)-30-homohopane	T22
## 17β(H),21β(H)-hopane	T23
Surrogate Compounds	
n-Dotriacontane-d_{66}	D66
5β(H)-Cholane	5B

All compounds are quantitated

Minimum reporting limit for oil samples: 0.01 ug/mg (50 mg sample in 10 mL solvent, 2X sample split, low calibration at .025 ug/mL)

File : C:\HPCHEM\1\SQZ388\DZ3022.D
Operator : KERYLYNN SUPER GR
Acquired : 30 Oct 97 12:40 am using AcqMethod RTE method: STER3
Instrument : MS #3
Sample Name: BH62
Misc Info : North Slope Crude
Vial Number: 4294934535





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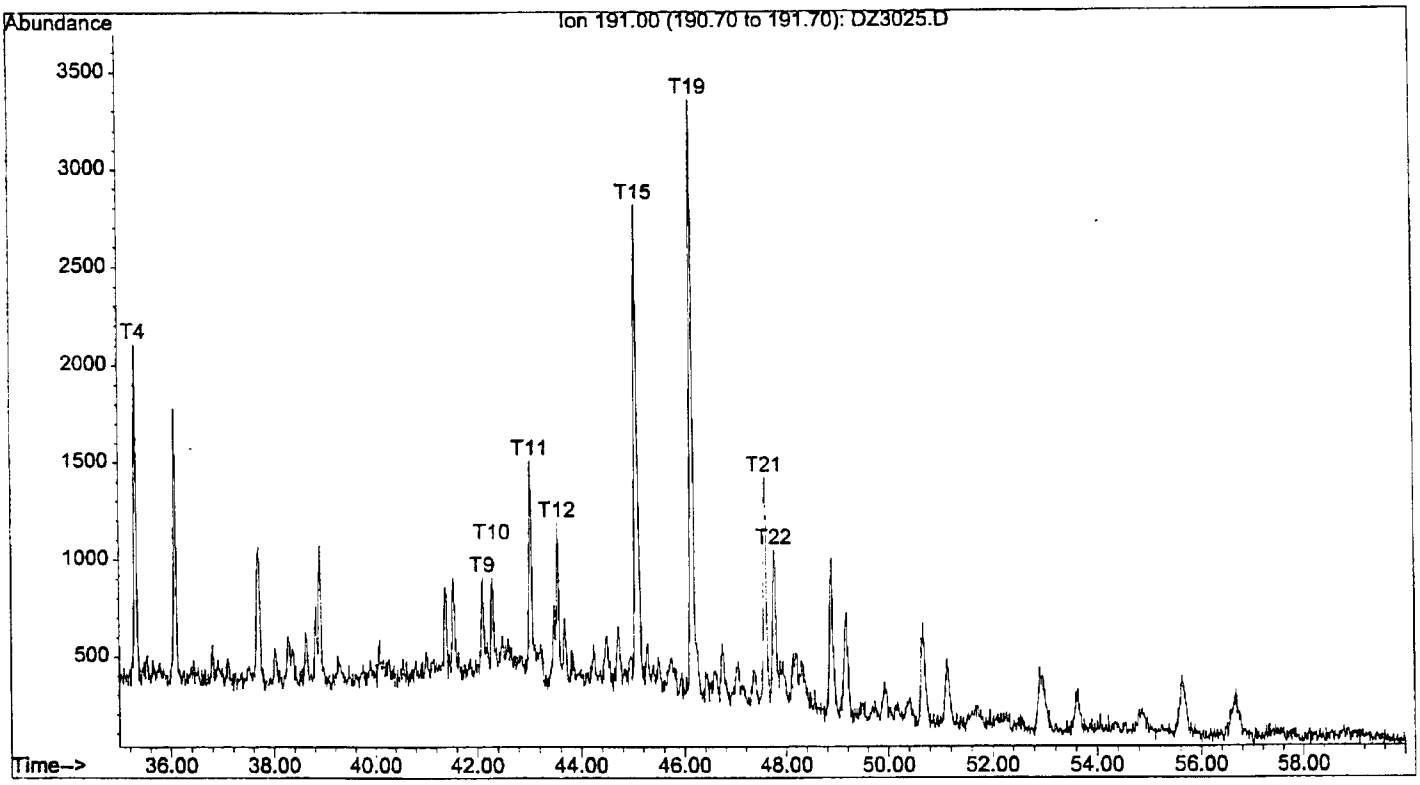
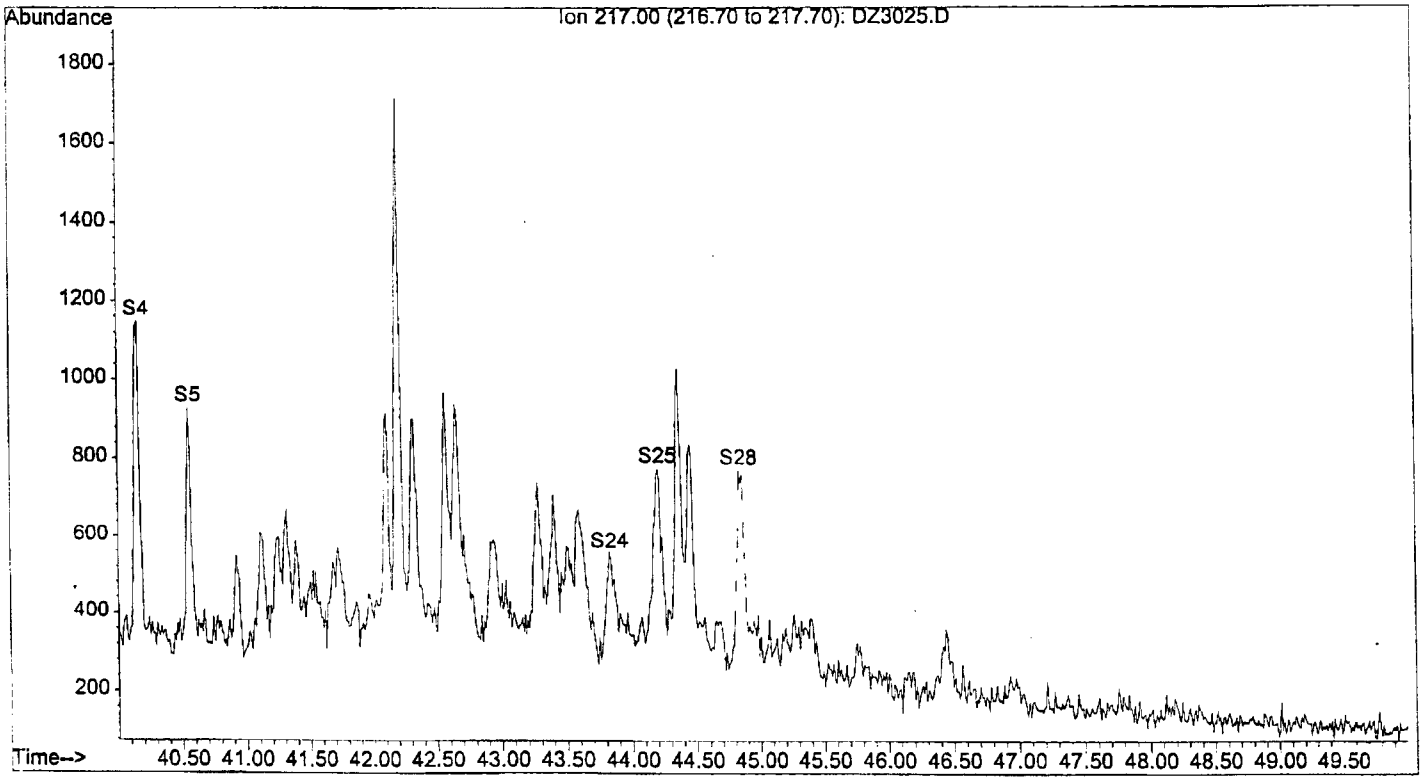
Instrument : MS #3
Sample Name: 97C2555
Misc Info : ECD SAMPLE A
Vial Number: 4294934538





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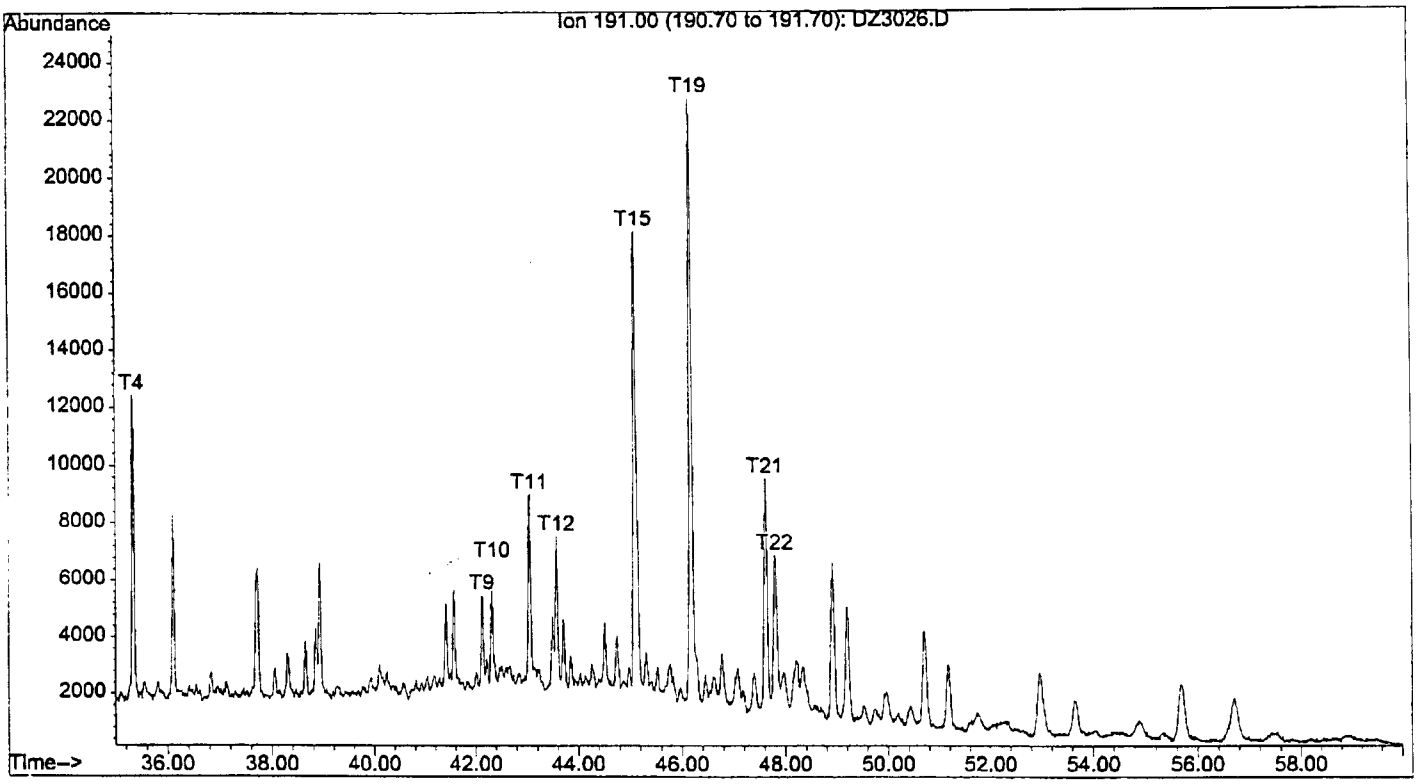
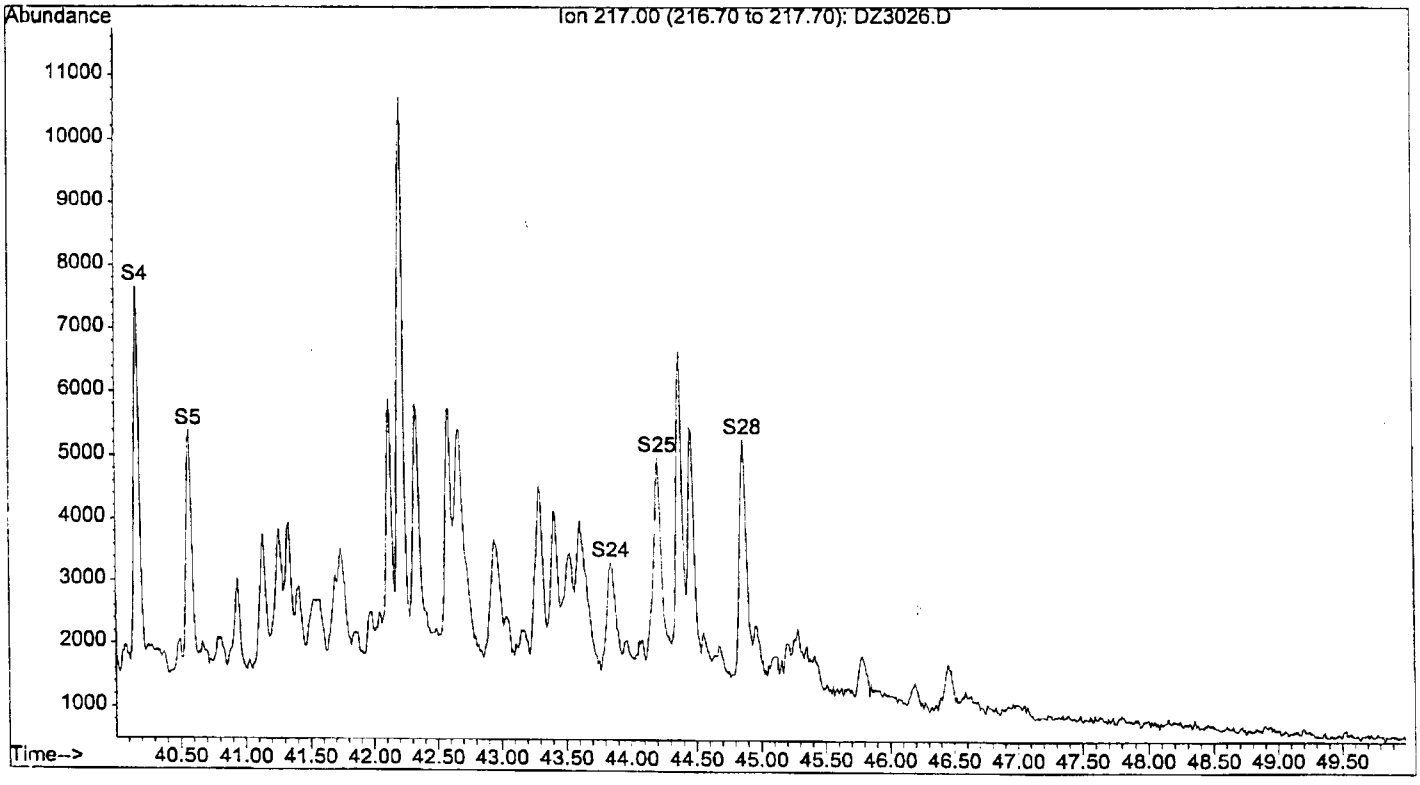
Sample Name: 97C2556
Misc Info : ECD SAMPLE B
Vial Number: 4294934539





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Operator : KERYLYNN SUPER GR
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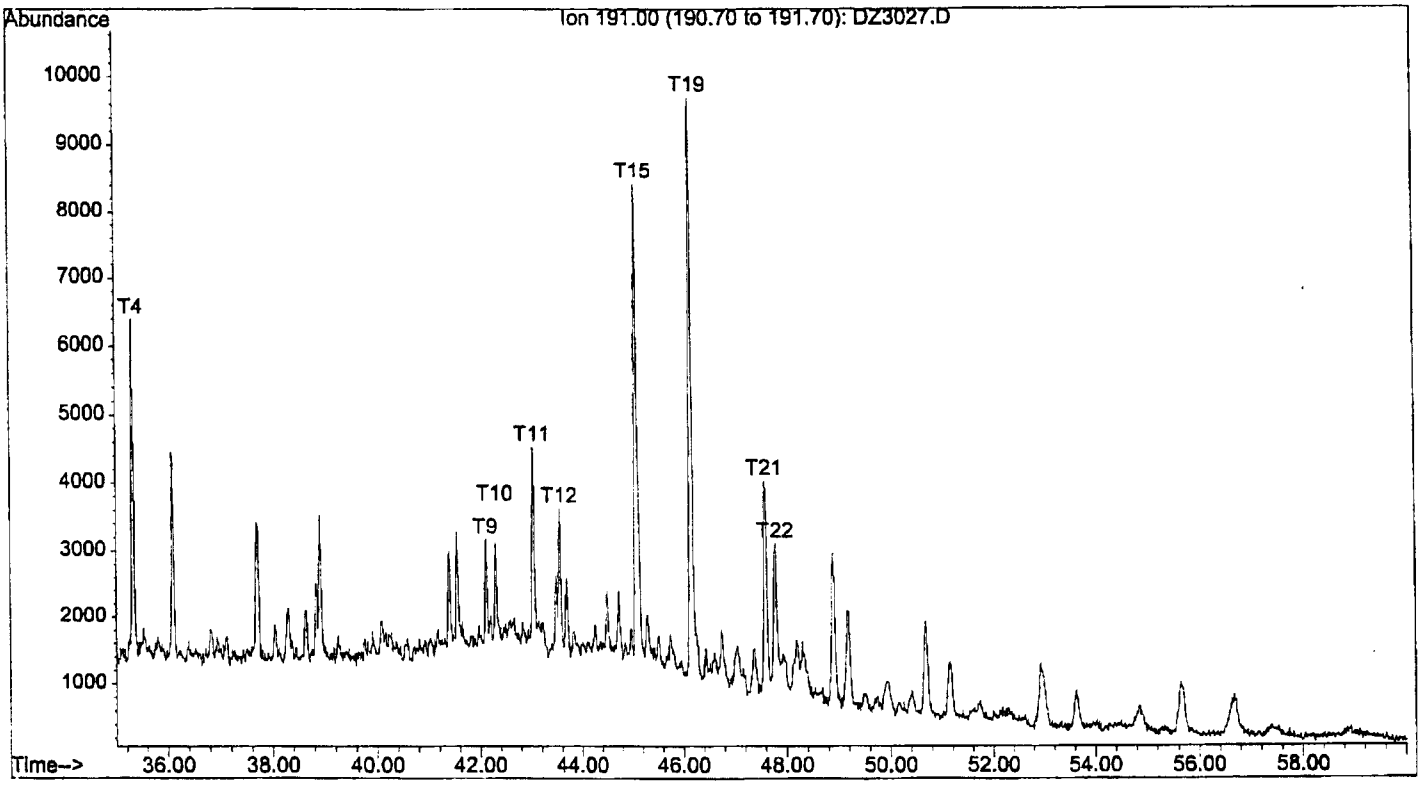
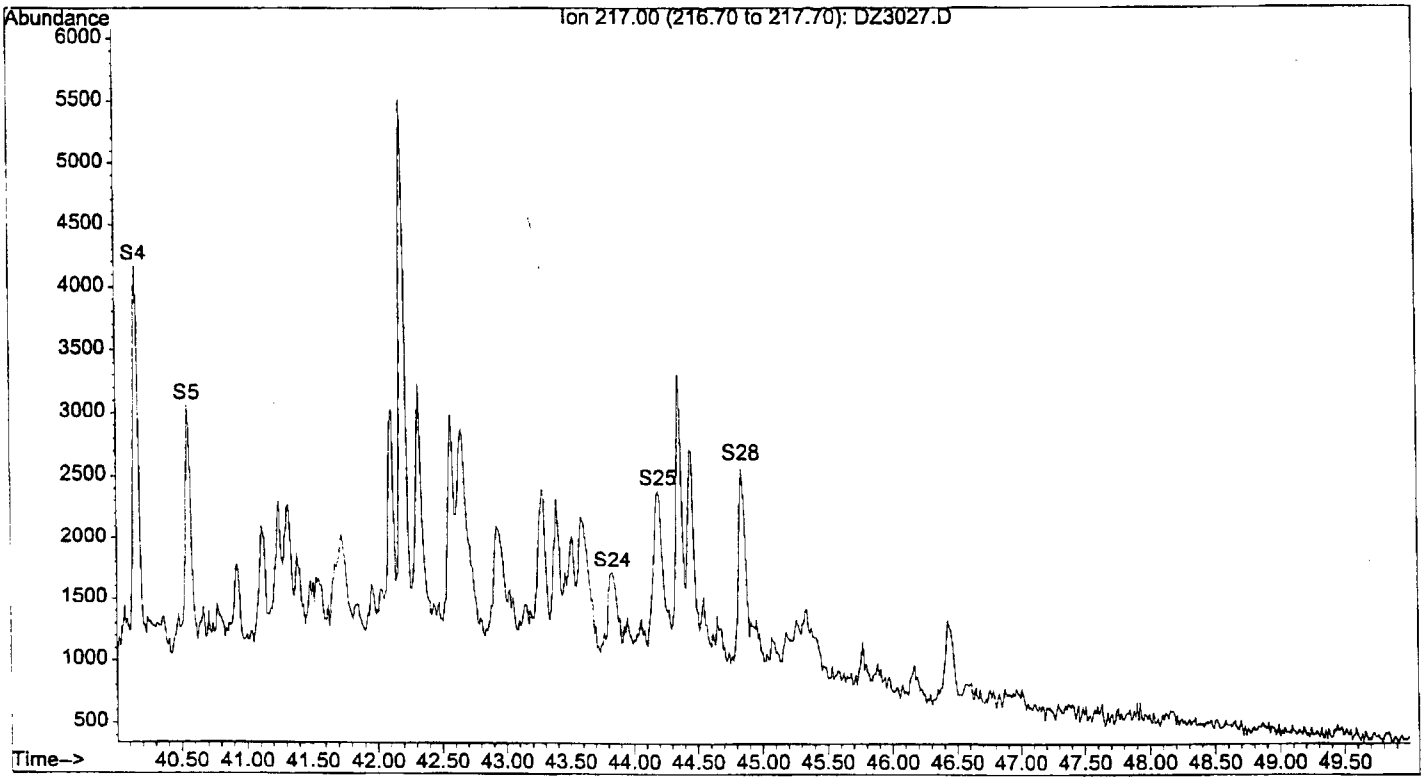
Instrument : MS #3
Sample Name: 97C2557
Misc Info : ECD SAMPLE C
Vial Number: 4294934540





Arthur D. Little, Inc.
Acorn Park
Cambridge, Massachusetts
02140-2390 U.S.A.

Telephone (1) 617.498.5000
Fax (1) 617.498.7200

November 19, 1997

Greg Bybee
ECD Environmental, Inc.
109 8th Street, SW - Suite A
Albuquerque, New Mexico
87102

Subject: Chemical Characterization - Cooper Ranch
Re: ADL Case No. 35191

Dear Greg:

At your request, Arthur D. Little performed advanced chemical fingerprinting analyses on three samples collected at the Cooper Ranch in Southeastern New Mexico. The chemical fingerprinting data were evaluated with the following objectives:

- provide qualitative identification of the contaminant(s)
- describe the chemical nature of contaminant(s)
- identify chemical linkages within the sample set
- provide assessment of the relative weathering of the samples

This letter describes the analyses performed and summarizes our findings.

Project Information

The study samples were received intact and in good condition by Arthur D. Little on September 23, 1997 from ECD Environmental, Inc. A copy of the chain-of-custody form is attached. The study samples are listed in Table 1.

Table 1. Sample Listing

Field ID	Lab ID	Matrix	Date Rec'd	Description
ECD Sample A	97C2555	OIL	9/23/97	Pit sludge
ECD Sample B	97C2556	OIL	9/23/97	Liquid above sludge
ECD Sample C	97C2557	OIL	9/23/97	Composite oil

The study samples are described as follows. Sample A is a sample of sludge from the study area. Sample B is a liquid sample taken from liquid remaining in the sludge pit. Sample C is a sample created by compositing oils from production areas on the site.

Greg Bybee
ECD Environmental, Inc.

To evaluate the study samples, the following analyses were performed:

- Total petroleum hydrocarbon (TPH) including normal alkanes and selected isoprenoid by gas chromatography/flame ionization detection (GC/FID)
- Polynuclear aromatic hydrocarbons (PAHs) by gas chromatography/mass spectrometry in the selected ion monitoring mode (GC/MS/SIM)
- Sterane and triterpane (S/T) biomarkers by GC/MS/SIM

Sample Preparation

The study samples were prepared by extraction/dilution in methylene chloride to a level of about 10 mg/mL (e.g., 100 mg in 10 mL solvent). A 1 mL aliquot of the extract was spiked with TPH, PAH, and S/T surrogates. Quality control samples prepared with the study samples included a procedural blank and a blank spike.

The sample extracts were cleaned by passing the extract through a column of neutral alumina to remove non-hydrocarbon compounds. The cleaned sample extracts were concentrated to an appropriate final volume, spiked with TPH, PAH, and S/T internal standards and submitted for instrumental analysis.

Instrumental Analysis

All instruments were calibrated with analytical standards prior to the analysis of the sample extracts. The target analyte concentrations were quantified using average response factors (RF) generated from the calibration curve. Instrument QC samples also included a control oil. Target analyte concentrations were calculated versus the recovery internal standards added to the extracts prior to instrumental analysis and corrected for surrogate compound recoveries.

The analytical results were calculated and reported for each of the methods. The draft laboratory data were subjected to an internal check and the final analytical results were released by the laboratory. The final analytical results for the study samples and the associated QC samples are included in tabular format in Appendix A. Graphical data is included in Appendix B.

Greg Bybee
ECD Environmental, Inc.

Interpretation of Results

Hydrocarbons by GC/FID

A review of the GC/FID chromatograms provides an initial characterization of the study samples (Figures 1 through 3). The study sample chromatograms reveal the presence of hydrocarbons across the range of the analysis approximately n-C8 to n-C40, predominated by a pattern of normal alkanes which is characteristics of crude oil.

The sample differ slightly in the distribution of hydrocarbons, especially Sample B (Figure 2). In this sample, compounds eluting prior to approximately n-C14 (the first 25 minutes of the analysis) have been depleted. This difference can be explained based on the relative locations of the study samples. Sample B, located at the surface, would have been subject to greater evaporative influence resulting in a loss of lighter (and earlier eluting) components. The loss of compounds through n-C14 is characteristic of physical evaporative weathering in the enviroment. Compare this to Sample A, which being more protected, has undergone less evaporative loss and Sample C which represents fresh crude oil.

Polynuclear Aromatic Hydrocarbons by GC/MS/SIM

The study samples are characterized by a full suite of 2-, 3-, and 4-ring polynuclear aromatic compounds, including naphthalenes, phenanthrenes, and chrysenes. The distribution of the PAHs reveals a general dominance of the alkylated homologues versus the parent PAH compound. This distribution is indicative of a petroleum-based product. The relative abundance of alkylated phenanthrenes, dibenzothiophenes and chrysenes is also an indicator of a crude oil petroleum source.

The PAH distibutions of the three samples are compared in Figure 4. Note that there are differences in PAH distributions between the study samples. Most prominant of these is the depletion of the naphthalenes relative to other PAHs, particularly Sample B (blue bars in figure). This can also be explained based on the relative location of the samples in the environment and the exposure of each to evaporative effects which would cause a depletion in the more volatile naphthalenes.

Greg Bybee
ECD Environmental, Inc.

Figure 1: GC/FID Chromatogram of Study Sample A

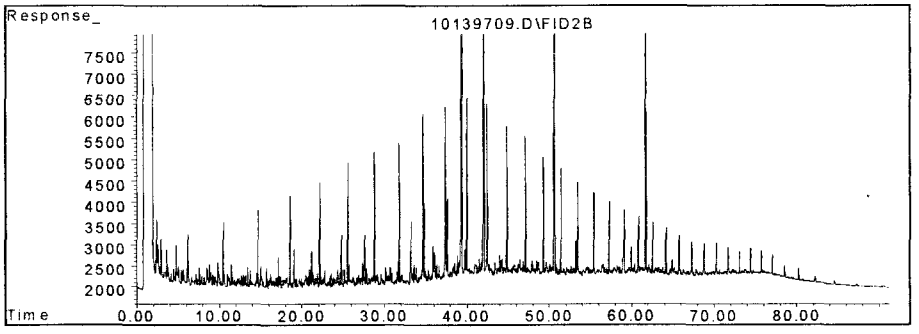


Figure 2: GC/FID Chromatogram of Study Sample B

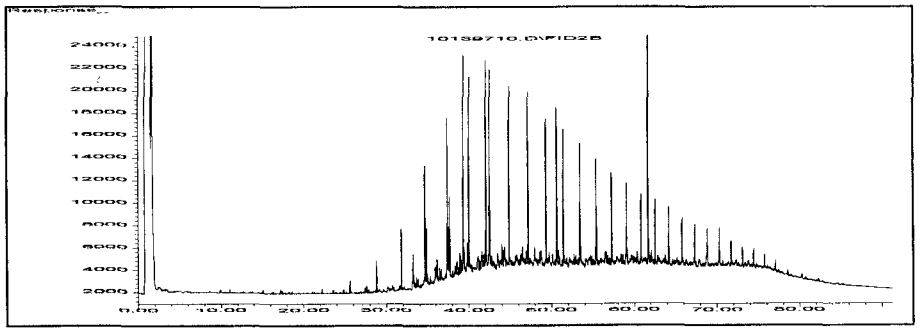
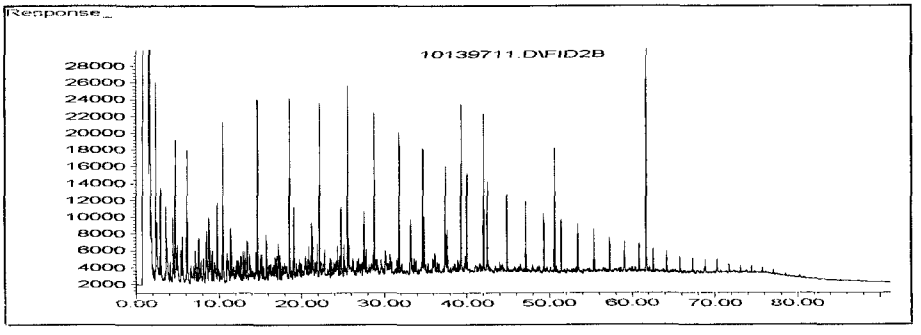
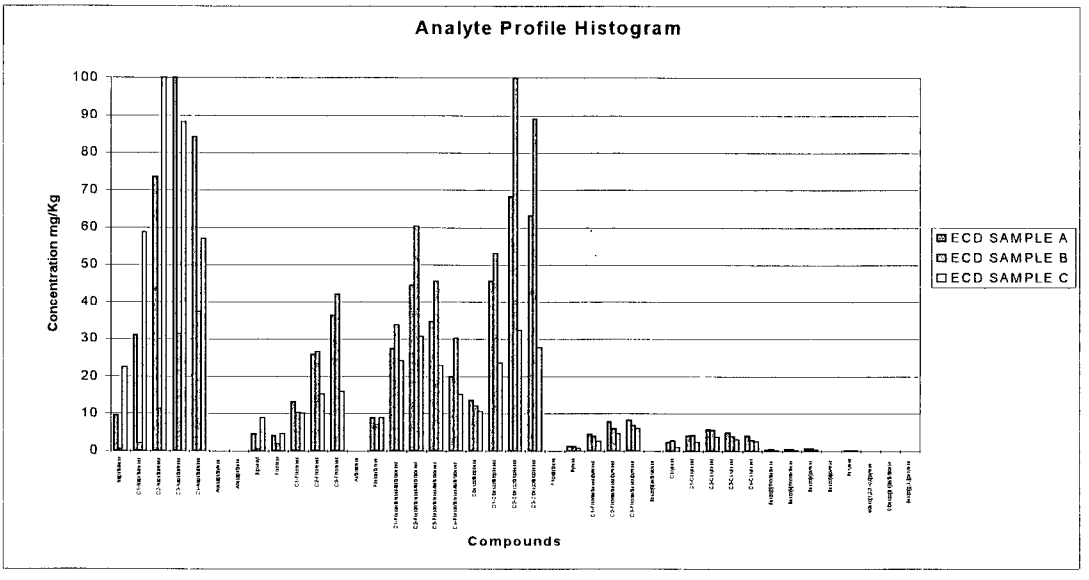


Figure 3: GC/FID Chromatogram of Study Sample C



Greg Bybee
ECD Environmental, Inc.

Figure 2: PAH Distribution Plot of Study Sample



Steranes and Triterpanes by GC/MS/SIM

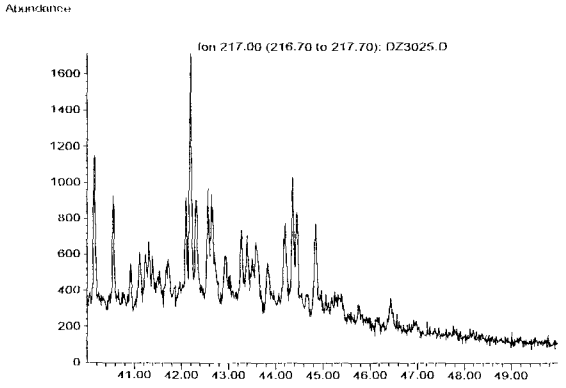
Sterane and triterpane biomarkers occur widely in crude oils and mid- to heavy-petroleum distillates. Organic remains in petroleum source rocks, under the effects of time and temperature, generate liquid hydrocarbons containing a biological marker signature characteristic of the material preserved. Because of their very specific origin, biomarkers are useful for "fingerprinting" oils. Further, due to the chemical structure of the compounds, they are resistant to biodegradation and weathering and thus retain their source fingerprint.

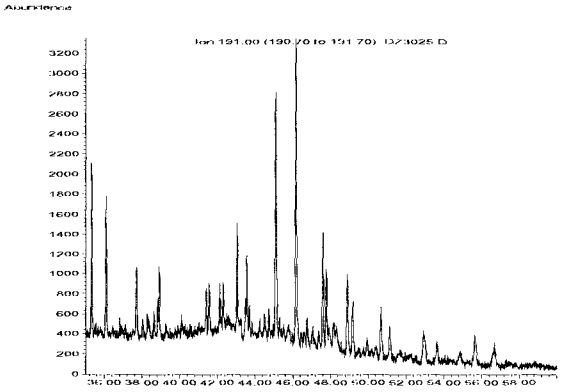
The full target list of biomarker compounds was detected in the study samples, with the exception of T18-oleanane. Extracted ion chromatogram plots are detailed in Figure 5. The triterpane plots are dominated by T19-hopane, but also include distinguishing patterns of triterpanes in doublet and triplet groupings. The fact that biomarkers were detected, indicates the presence of a mid- to heavy- petroleum product or crude oil in the study samples. More importantly, the results of all of the study samples reveal the biomarker patterns to be virtually identical, indicating a common source for the petroleum product in each sample.

Greg Bybee
ECD Environmental, Inc.

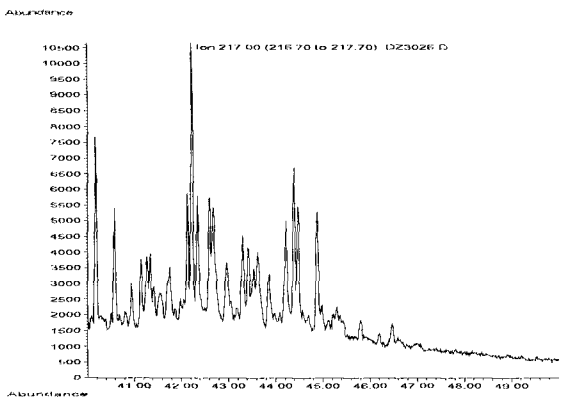
Figure X: Extracted Ion Profiles of Sample A, Sample B, and Sample C

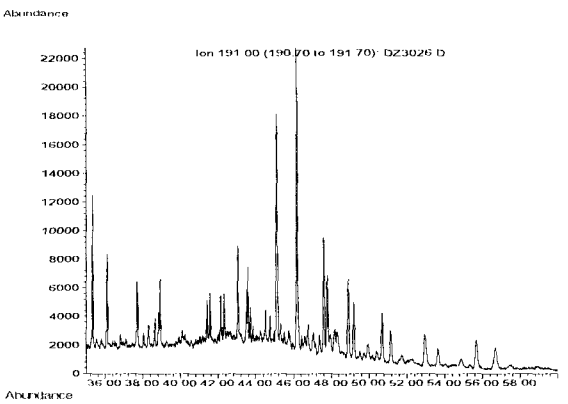
Sample A



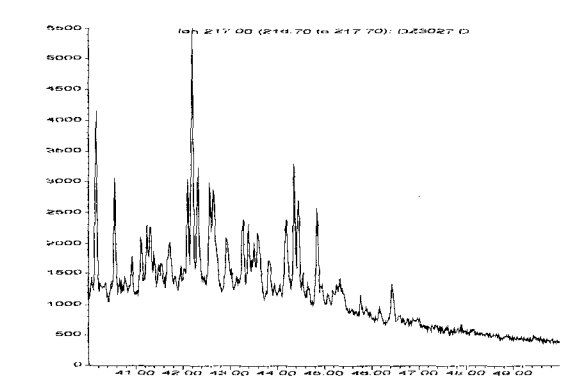


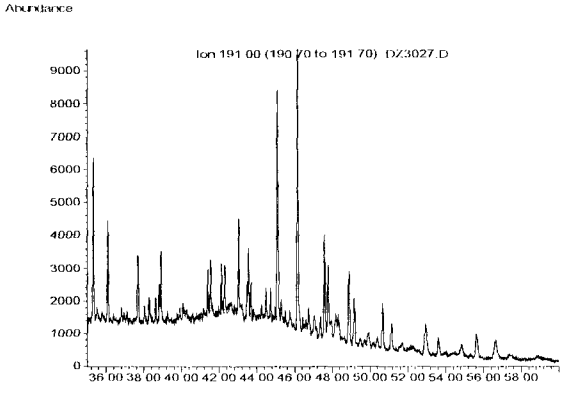
Sample B





Sample C





Greg Bybee
ECD Environmental, Inc.

Conclusions

Based on the interpretation of the results, it is possible to make several conclusions regarding the hydrocarbon material identified in the study samples and their relationship:

- Based on GC characterisitics, the primary petroleum product in each of the samples is a crude oil
- The samples differ in weathering states: Sample B > Sample A > Sample C
- The weathering of Sample B is primarily due to evaporative loss, based on knowledge of the location of the sample in the environment
- Biomarkers present in the study samples are similar indicating a common crude oil source in all three samples

Please do not hesitate to contact me regarding this report or should you require anything further. We look forward to working with you again.

Sincerely,

W. Henry Camp
Laboratory Manager
Environmental Monitoring and Analysis

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

November 24, 1997

P 326 936 369

US Postal Service
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Return Receipt Showing to Whom, Date, & Addressee's Address	
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PS Form **3800**, April 1995

CERTIFIED MAIL
RETURN RECEIPT NO. P-326-936-369

Mr. Jimmie T. Cooper
Cooper Cattle Co.
P.O. Box 55
Monument, NM 88265

RE: Waste Disposal Pit
Located 30 feet west of the highway ride-of-way in the NE/4 SE/4 of Section 8, Township 20 South, Range 37 E
Lea County, New Mexico

Dear Mr. Cooper:

The New Mexico Oil Conservation Division (OCD) has reviewed the Eddie Seay Consulting Services's November 3, 1997 Pit Closure Plan which was submitted on behalf of Mr. Jimmie T. Cooper by his agent, Mr. Eddie W. Seay. This document contains Mr Cooper's plan for closure of an unlined pit pursuant to New Mexico Oil Conservation Commission Order R7940-C

The above referenced pit closure plan is approved with the following conditions:

1. All soil samples for verification of completion of remedial activities including the vertical extent of contamination and completion of soil remedial actions will be sampled and analyzed for benzene, toluene, ethylbenzene, xylene and total petroleum hydrocarbons in accordance with the OCD's "Surface Impoundment Closure Guidelines"(attached).

2. The OCD Santa Fe Office's Environmental Bureau Chief and the OCD Hobbs District office will be notified within 24 hours of the discovery of ground waster contamination related to the pit closure.

3. Upon completion of all closure activities, Mr. Cooper will submit to the OCD for approval a completed OCD "Pit Remediation and Closure Report" form (attached) which will contain the final results of all pit closure and soil remediation activities including all laboratory or field analytical data sheets for all soil and water quality analysis and copies of all associated quality assurance/quality control data.

4. All waste removed from the site will be disposed of at an OCD approved facility.

5. All documents submitted for approval will be submitted to the OCD Santa Fe Offices with copies provided to the OCD Hobbs Office.

To simplify the approval process for both Mr. Cooper and OCD, the OCD requests that a final pit closure report be submitted only upon completion of all closure activities.

Please be advised that OCD approval does not relieve Mr. Jimmie T. Cooper of liability should closure activities determine that contamination exists which is beyond the scope of the work plan or if the closure activities fail to adequately investigate or remediate contamination related to the activities at the above referenced pit. In addition, OCD approval does not relieve Mr. Jimmie T. Cooper of responsibility for compliance with any other federal, state, or local laws or regulations.

If you require any further information please contact me at (505) 827-7153.

Sincerely,

Martyne J. Kieling
Environmental Geologist

Attachment

xc without attachment:
Hobbs OCD Office
Eddie W. Seay, 601 W. Illinois, Hobbs, NM 88240

November 3. 1997

NMOCD Environmental Bureau
ATTN: Martyne J. Kieling
2040 South Pacheco Street
Santa Fe, NM 87505

RE: Pit Closure, abandoned waste pit, Monument, NM

Dear Martyne:

It is Mr. Cooper's intent to close this pit as economically as possible. Listed is the procedure he wishes to use in efforts to close this pit to the OCD's satisfaction.

1) Vacuum up all liquid and dispose of at an OCD approved disposal facility.
2) Pick up and haul solid material to an OCD approved disposal.
3) Mix ambient soil with the remainder of the contaminated material, excavate and haul to C & C Landfarm for remediation, hauling off all material until a 100 ppm TPH is reached at the pit site.
4) Backfill the pit site with clean soil, mounding over to prevent ponding or runoff.

Groundwater at this site is at approximately 30 ft. from surface. If the excavated area reaches near this depth, the groundwater will be addressed by constructing a monitor well to evaluate the quality of the water. There is a water well located approximately 40 yds. west of this pit. We will take samples and test this water to determine if it has been affected, since the groundwater flows in a westerly direction.

Cooper Ranch is willing to work with the OCD to eliminate this potential problem site. After approval to close this pit is obtained from the OCD, we will be in contact with the State Highway Department to seek reimbursement for expenses incurred or get assistance in the closure work plan.

If you have any questions or need additional information, please call.

Sincerely,

Eddie W. Seay

Eddie W. Seay, Agent

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

October 23, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-326-936-354

Mr. Jimmie T. Cooper
Cooper Cattle Co.
P.O. Box 55
Monument, NM 88265

RE: Waste Disposal Pit
Located 30 feet west of the highway ride-of-way in the
NE/4 SE/4 of Section 8, Township 20 South, Range 37 East, NMPM
Lea County, New Mexico

Dear Mr. Cooper:

The New Mexico Oil Conservation Division (OCD), has received your letter dated September 25, 1997 and the analytical results from oil comparison analysis concerning the unauthorized waste disposal pit located on Mr Cooper's land. The pit is located approximately 30 feet west of the Monument highway ride-of-way in the NE/4 SE/4 of Section 8, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico.

Primary analytical results (Lab Number H3105) show that the material in the pit was flammable. Subsequent analysis that compare the waste in the pit with a sample of oil from a Rice Disposal facility shows similar spike analysis and less volatile organics in the pit than in the comparison oil from Rice Disposal. With these findings the OCD has enough evidence to classify the waste oil within the above referenced pit to be exempt oilfield waste. Disposal of this exempt waste shall be at a facility approved by the OCD.

Prior to remediation of the pit, the land owner, Mr. Jimmie T. Cooper, must submit a Pit Closure Plan to the Santa Fe OCD office and a copy to the Hobbs District office. Included in the closure plan must be a plan for determining the nature and extent of contamination that has left the pits and how far the contamination has migrated. **The Pit Closure Plan must be submitted to the OCD by November 10, 1997.**

If you require any further information concerning closure procedures please contact me at (505) 827-7153.

Sincerely,

Martyne J. Kieling
Environmental Geologist

xc: Hobbs OCD Office
Eddie W. Seay, 601 W. Illinois, Hobbs, NM 88240

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 08/04/97
Reporting Date: 09/17/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Lab Number: H3105-1
Sample ID: LIQUID SAMPLE FROM ABANDON PIT

Analysis Date: 09/09/97
Sampling Date: 08/04/97
Sample Type: LIQUID
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

	SEMIVOLATILES - 8270 (ppm)	Sample Result H3105-1	Method Blank	QC	% IA.	True Value QC
1	n-Nitrosodimethylamine	<100	<100	0.050	100	0.050
2	2-Picoline	<100	<100	0.051	102	0.050
3	Methylmethanesulfonate	<100	<100	0.048	96	0.050
4	Ethylmethanesulfonate	<100	<100	0.047	94	0.050
5	Phenol	<100	<100	0.047	94	0.050
6	Aniline	<100	<100	0.045	90	0.050
7	bis (2-Chloroethyl) ether	<100	<100	0.047	94	0.050
8	2-Chlorophenol	<100	<100	0.049	98	0.050
9	1,4-Dichlorobenzene	<100	<100	0.049	98	0.050
10	1,3-Dichlorobenzene	<100	<100	0.048	96	0.050
11	Benzyl Alcohol	<100	<100	0.047	94	0.050
12	1,2-Dichlorobenzene	<100	<100	0.050	100	0.050
13	2-Methylphenol	<100	<100	0.050	100	0.050
14	bis (2-Chloroisopropyl) ether	<100	<100	0.052	104	0.050
15	Acetophenone	<100	<100	0.059	118	0.050
16	4-Methylphenol	<100	<100	0.053	106	0.050
17	n-Nitroso-di-n-propylamine	<100	<100	0.052	104	0.050
18	Hexachloroethane	<100	<100	0.056	112	0.050
19	Nitrobenzene	<100	<100	0.050	100	0.050
20	n-Nitrosopiperidine	<100	<100	0.048	96	0.050
21	Isophorone	<100	<100	0.049	98	0.050
22	2-Nitrophenol	<100	<100	0.047	94	0.050
23	2,4-Dimethylphenol	<100	<100	0.048	96	0.050
24	Benzoic acid	<100	<100	0.049	98	0.050
25	bis (2-Chloroethoxy) methane	<100	<100	0.047	94	0.050
26	2,4-Dichlorophenol	<100	<100	0.048	96	0.050
27	1,2,4-Trichlorobenzene	<100	<100	0.049	98	0.050
28	Naphthalene	<100	<100	0.051	102	0.050
29	4-Chloroaniline	<100	<100	0.047	94	0.050
30	2,6-Dichlorophenol	<100	<100	0.046	92	0.050
31	Hexachlorobutadiene	<100	<100	0.050	100	0.050
32	n-Nitroso-di-n-butylamine	<100	<100	0.048	96	0.050
33	4-Chloro-3-methylphenol	<100	<100	0.046	92	0.050
34	2-Methylnaphthalene	<100	<100	0.053	106	0.050
35	1,2,4,5-Tetrachlorobenzene	<100	<100	0.048	96	0.050
36	Hexachlorocyclopentadiene	<100	<100	0.035	70	0.050
37	2,4,6-Trichlorophenol	<100	<100	0.049	98	0.050

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 08/04/97
Reporting Date: 09/17/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Lab Number: H3105-1
Sample ID: LIQUID SAMPLE FROM ABANDON PIT

Analysis Date: 09/09/97
Sampling Date: 08/04/97
Sample Type: LIQUID
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

SEMIVOLATILES - 8270 (ppm)	Sample Result H3105-1	Method Blank	QC	% IA.	True Value QC
38 2,4,5-Trichlorophenol	<100	<100	0.040	80	0.050
39 2-Chloronaphthalene	<100	<100	0.051	102	0.050
40 2-Nitroaniline	<100	<100	0.047	94	0.050
41 Acenaphthylene	<100	<100	0.051	102	0.050
42 Dimethylphthalate	<100	<100	0.048	96	0.050
43 2,6-Dinitrotoluene	<100	<100	0.048	96	0.050
44 3-Nitroaniline	<100	<100	0.044	88	0.050
45 Acenaphthene	<100	<100	0.051	102	0.050
46 2,4-Dinitrophenol	<100	<100	0.046	92	0.050
47 Dibenzofuran	<100	<100	0.050	100	0.050
48 Pentachlorobenzene	<100	<100	0.049	98	0.050
49 4-Nitrophenol	<100	<100	0.054	108	0.050
50 1-Naphthylamine	<100	<100	0.046	92	0.050
51 2,4-Dinitrotoluene	<100	<100	0.046	92	0.050
52 2-Naphthylamine	<100	<100	0.047	94	0.050
53 2,3,4,6-Tetrachlorophenol	<100	<100	0.046	92	0.050
54 Fluorene	<100	<100	0.050	100	0.050
55 4-Chlorophenyl-phenylether	<100	<100	0.048	96	0.050
56 Diethylphthalate	<100	<100	0.049	98	0.050
57 4-Nitroaniline	<100	<100	0.045	90	0.050
58 4,6-Dinitro-2-methylphenol	<100	<100	0.043	86	0.050
59 Diphenylamine	<100	<100	0.047	94	0.050
60 n-Nitrosodiphenylamine	<100	<100	0.047	94	0.050
61 4-Bromophenyl-phenylether	<100	<100	0.048	96	0.050
62 Phenacetin	<100	<100	0.049	98	0.050
63 Hexachlorobenzene	<100	<100	0.048	96	0.050
64 4-Aminobiphenyl	<100	<100	0.054	108	0.050
65 Pentachlorophenol	<100	<100	0.046	92	0.050
66 Pentachloronitrobenzene	<100	<100	0.048	96	0.050
67 Pronamide	<100	<100	0.046	92	0.050
68 Phenanthrene	<100	<100	0.048	96	0.050
69 Anthracene	<100	<100	0.051	102	0.050
70 Di-n-butylphthalate	130	<100	0.044	88	0.050
71 Fluoranthene	<100	<100	0.045	90	0.050
72 Benzidine	<100	<100	0.036	72	0.050
73 Pyrene	<100	<100	0.056	112	0.050
74 p-(Dimethylamino)azobenzene	<100	<100	0.054	108	0.050

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 08/04/97
Reporting Date: 09/17/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Lab Number: H3105-1
Sample ID: LIQUID SAMPLE FROM ABANDON PIT

Analysis Date: 09/09/97
Sampling Date: 08/04/97
Sample Type: LIQUID
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

SEMIVOLATILES - 8270 (ppm)	Sample Result H3105-1	Method Blank	QC	True Value % IA.	True Value QC
75 Butylbenzylphthalate	<100	<100	0.057	114	0.050
76 Benzo[a]anthracene	<100	<100	0.049	98	0.050
77 3,3'-Dichlorobenzidine	<100	<100	0.034	68	0.050
78 Chrysene	<100	<100	0.052	104	0.050
79 bis (2-Ethylhexyl) phthalate	<100	806	0.056	112	0.050
80 Di-n-octylphthalate	<100	<100	0.056	112	0.050
81 Benzo [b] fluoranthene	<100	<100	0.048	96	0.050
82 Benzo [k] fluoranthene	<100	<100	0.051	102	0.050
83 7,12-Dimethylbenz (a) anthracene	<100	<100	0.054	108	0.050
84 Benzo [a] pyrene	<100	<100	0.049	98	0.050
85 3- Methylcholanthrene	<100	<100	0.043	86	0.050
86 Indeno [1,2,3-cd] pyrene	<100	<100	0.047	94	0.050
87 Dibenz [a,h] anthracene	<100	<100	0.042	84	0.050
88 Benzo [g,h,i] perylene	<100	<100	0.045	90	0.050

	% Recovery
89 2-Fluorophenol	103
90 Phenol-d5	106
91 Nitrobenzene-d5	87
92 2-Fluorobiphenyl	102
93 2,4,6-Tribromophenol	48
94 Terphenyl-d14	112

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Oil Conservation Division

METHODS: EPA SW 846-8270, 3580

Other Compounds Detected: VARIOUS ALKANES, SEE 8015 REPORT.

Burgess J. A. Cooke, Ph. D.

9/17/97
Date

CARDINAL LABORATORIES

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ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 09/07/97
Reporting Date: 09/17/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Lab Number: H3105-3
Sample ID: REFERENCE OIL SAMPLE

Analysis Date: 09/09/97
Sampling Date: 09/07/97
Sample Type: LIQUID
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

SEMIVOLATILES - 8270 (ppm)		Sample Result H3105-3	Method Blank	QC	% IA.	True Value QC
1	n-Nitrosodimethylamine	<100	<100	0.050	100	0.050
2	2-Picoline	<100	<100	0.051	102	0.050
3	Methylmethanesulfonate	<100	<100	0.048	96	0.050
4	Ethylmethanesulfonate	<100	<100	0.047	94	0.050
5	Phenol	<100	<100	0.047	94	0.050
6	Aniline	<100	<100	0.045	90	0.050
7	bis (2-Chloroethyl) ether	<100	<100	0.047	94	0.050
8	2-Chlorophenol	<100	<100	0.049	98	0.050
9	1,4-Dichlorobenzene	<100	<100	0.049	98	0.050
10	1,3-Dichlorobenzene	<100	<100	0.048	96	0.050
11	Benzyl Alcohol	<100	<100	0.047	94	0.050
12	1,2-Dichlorobenzene	<100	<100	0.050	100	0.050
13	2-Methylphenol	<100	<100	0.050	100	0.050
14	bis (2-Chloroisopropyl) ether	<100	<100	0.052	104	0.050
15	Acetophenone	<100	<100	0.059	118	0.050
16	4-Methylphenol	<100	<100	0.053	106	0.050
17	n-Nitroso-di-n-propylamine	<100	<100	0.052	104	0.050
18	Hexachloroethane	<100	<100	0.056	112	0.050
19	Nitrobenzene	<100	<100	0.050	100	0.050
20	n-Nitrosopiperidine	<100	<100	0.048	96	0.050
21	Isophorone	<100	<100	0.049	98	0.050
22	2-Nitrophenol	<100	<100	0.047	94	0.050
23	2,4-Dimethylphenol	<100	<100	0.048	96	0.050
24	Benzoic acid	<100	<100	0.049	98	0.050
25	bis (2-Chloroethoxy) methane	<100	<100	0.047	94	0.050
26	2,4-Dichlorophenol	<100	<100	0.048	96	0.050
27	1,2,4-Trichlorobenzene	<100	<100	0.049	98	0.050
28	Naphthalene	419	<100	0.051	102	0.050
29	4-Chloroaniline	<100	<100	0.047	94	0.050
30	2,6-Dichlorophenol	<100	<100	0.046	92	0.050
31	Hexachlorobutadiene	<100	<100	0.050	100	0.050
32	n-Nitroso-di-n-butylamine	<100	<100	0.048	96	0.050
33	4-Chloro-3-methylphenol	<100	<100	0.046	92	0.050
34	2-Methylnaphthalene	771	<100	0.053	106	0.050
35	1,2,4,5-Tetrachlorobenzene	<100	<100	0.048	96	0.050
36	Hexachlorocyclopentadiene	<100	<100	0.035	70	0.050
37	2,4,6-Trichlorophenol	<100	<100	0.049	98	0.050

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Conservation Division

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 09/07/97
Reporting Date: 09/17/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Lab Number: H3105-3
Sample ID: REFERENCE OIL SAMPLE

Analysis Date: 09/09/97
Sampling Date: 09/07/97
Sample Type: LIQUID
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

SEMIVOLATILES - 8270 (ppm)	Sample Result H3105-3	Method Blank	QC	% IA.	True Value QC
38 2,4,5-Trichlorophenol	<100	<100	0.040	80	0.050
39 2-Chloronaphthalene	<100	<100	0.051	102	0.050
40 2-Nitroaniline	<100	<100	0.047	94	0.050
41 Acenaphthylene	<100	<100	0.051	102	0.050
42 Dimethylphthalate	<100	<100	0.048	96	0.050
43 2,6-Dinitrotoluene	<100	<100	0.048	96	0.050
44 3-Nitroaniline	<100	<100	0.044	88	0.050
45 Acenaphthene	<100	<100	0.051	102	0.050
46 2,4-Dinitrophenol	<100	<100	0.046	92	0.050
47 Dibenzofuran	<100	<100	0.050	100	0.050
48 Pentachlorobenzene	<100	<100	0.049	98	0.050
49 4-Nitrophenol	<100	<100	0.054	108	0.050
50 1-Naphthylamine	<100	<100	0.046	92	0.050
51 2,4-Dinitrotoluene	<100	<100	0.046	92	0.050
52 2-Naphthylamine	<100	<100	0.047	94	0.050
53 2,3,4,6-Tetrachlorophenol	<100	<100	0.046	92	0.050
54 Fluorene	<100	<100	0.050	100	0.050
55 4-Chlorophenyl-phenylether	<100	<100	0.048	96	0.050
56 Diethylphthalate	<100	<100	0.049	98	0.050
57 4-Nitroaniline	<100	<100	0.045	90	0.050
58 4,6-Dinitro-2-methylphenol	<100	<100	0.043	86	0.050
59 Diphenylamine	<100	<100	0.047	94	0.050
60 n-Nitrosodiphenylamine	<100	<100	0.047	94	0.050
61 4-Bromophenyl-phenylether	<100	<100	0.048	96	0.050
62 Phenacetin	<100	<100	0.049	98	0.050
63 Hexachlorobenzene	<100	<100	0.048	96	0.050
64 4-Aminobiphenyl	<100	<100	0.054	108	0.050
65 Pentachlorophenol	<100	<100	0.046	92	0.050
66 Pentachloronitrobenzene	<100	<100	0.048	96	0.050
67 Pronamide	<100	<100	0.046	92	0.050
68 Phenanthrene	162	<100	0.048	96	0.050
69 Anthracene	<100	<100	0.051	102	0.050
70 Di-n-butylphthalate	<100	<100	0.044	88	0.050
71 Fluoranthene	<100	<100	0.045	90	0.050
72 Benzidine	<100	<100	0.036	72	0.050
73 Pyrene	<100	<100	0.056	112	0.050
74 p-(Dimethylamino)azobenzene	<100	<100	0.054	108	0.050

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ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 09/07/97
Reporting Date: 09/17/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Lab Number: H3105-3
Sample ID: REFERENCE OIL SAMPLE

Analysis Date: 09/09/97
Sampling Date: 09/07/97
Sample Type: LIQUID
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

SEMIVOLATILES - 8270 (ppm)	Sample Result H3105-3	Method Blank	QC	% IA.	True Value QC
75 Butylbenzylphthalate	<100	<100	0.057	114	0.050
76 Benzo[a]anthracene	<100	<100	0.049	98	0.050
77 3,3'-Dichlorobenzidine	<100	<100	0.034	68	0.050
78 Chrysene	<100	<100	0.052	104	0.050
79 bis (2-Ethylhexyl) phthalate	<100	806	0.056	112	0.050
80 Di-n-octylphthalate	<100	<100	0.056	112	0.050
81 Benzo [b] fluoranthene	<100	<100	0.048	96	0.050
82 Benzo [k] fluoranthene	<100	<100	0.051	102	0.050
83 7,12-Dimethylbenz (a) anthracene	<100	<100	0.054	108	0.050
84 Benzo [a] pyrene	<100	<100	0.049	98	0.050
85 3- Methylcholanthrene	<100	<100	0.043	86	0.050
86 Indeno [1,2,3-cd] pyrene	<100	<100	0.047	94	0.050
87 Dibenz [a,h] anthracene	<100	<100	0.042	84	0.050
88 Benzo [g,h,i] perylene	<100	<100	0.045	90	0.050

	% Recovery
89 2-Fluorophenol	83
90 Phenol-d5	112
91 Nitrobenzene-d5	86
92 2-Fluorobiphenyl	105
93 2,4,6-Tribromophenol	96
94 Terphenyl-d14	120

METHODS: EPA SW 846-8270, 3580

Other Compounds Detected: VARIOUS ALKANES, SEE 8015 REPORT; TOLUENE, XYLENE ISOMERS, TRIMETHYLBENZENE ISOMERS, 1-METHYLNAPHTHALENE

Conclusions: SAMPLE 1 CONTAINS ALL OF THE HIGH MOLECULAR WT. ALKANES FOUND IN REF. SAMPLE 3, BUT LITTLE OF THE LOW MOLECULAR WT. ALKANES AND AROMATICS. THIS IS CONSISTENT WITH EXTENSIVE WEATHERING OF SAMPLE 1 IN THE OPEN PIT (SEE ATTACHED CHROMATOGRAMS).

Burgess J. A. Cooke, Ph. D.

9/17/97
Date

CARDINAL LABORATORIES

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ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 08/04 &09/07/97
Reporting Date: 09/17/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Sample ID: 1: LIQUID SAMPLE; 3: REFERENCE
Lab Number: H3105-1 & H3105-3

Analysis Date: 09/09/97
Sampling Date: 1: 08/04/97
3: 09/07/97
Sample Type: SLUDGE (OIL)
Sample Condition: INTACT
Sample Received By: AH
Analyzed By: BC

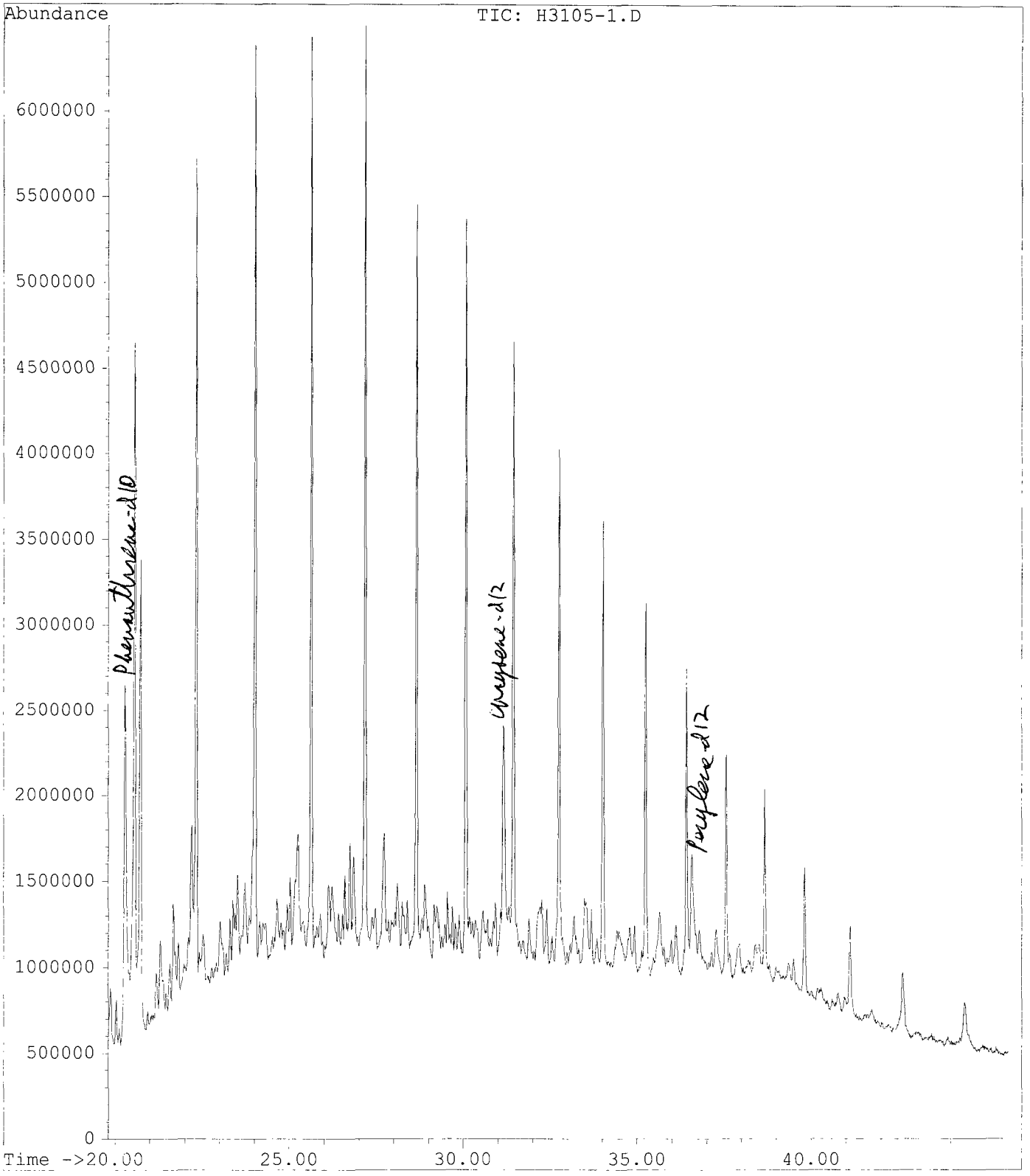
EPA 8015M - (mg/Kg)	Sample Results H3105-1	H3105-3	Method Blank	QC	%IA	True Value QC
C-8 n-Octane	<100	<100	<100	102	102	100
C-9 n-Nonane	<100	6770	<100	97	97	100
C-10 n-Decane	169	7140	<100	94	94	100
C-11 n-Undecane	125	6590	<100	96	96	100
C-12 n-Dodecane	345	6300	<100	94	94	100
C-13 n-Tridecane	491	6290	<100	84	84	100
C-14 n-Tetradecane	738	7620	<100	87	87	100
C-15 n-Pentadecane	1020	6720	<100	89	89	100
C-16 n-Hexadecane	2270	6190	<100	88	88	100
C-17 n-Heptadecane	4920	4480	<100	91	91	100
C-18 n-Octadecane	6450	3860	<100	96	96	100
C-19 n-Nonadecane	9770	3910	<100	93	93	100
C-20 n-Eicosane	10100	3840	<100	94	94	100
C-21 n-Heneicosane	10500	4320	<100	96	96	100
C-22 n-Docosane	8320	3100	<100	96	96	100
C-23 n-Tricosane	6340	3210	<100	98	98	100
C-24 n-Tetracosane	5800	2680	<100	95	95	100
C-25 n-Pentacosane	7000	2480	<100	98	98	100
C-26 n-Hexacosane	4540	1730	<100	98	98	100
C-27 n-Heptacosane	3320	1690	<100	99	99	100
C-28 n-Octacosane	4620	1790	<100	110	110	100
Total n-Alkanes	86838	90710	<100	1995	95	2100
Diesel Range Organics	**318356**	**359297**	**<1000**			

METHOD: EPA SW 846-8015 M (gc/ms)
Other Compounds in Both Samples: NONACOSANE, TRIACONTANE, UNKNOWN CYCLIC HYDRO-CARBONS, 2,6,10,14-PENTADECANE, 2,6,10,15-TETRAMETHYLHEPTADECANE.

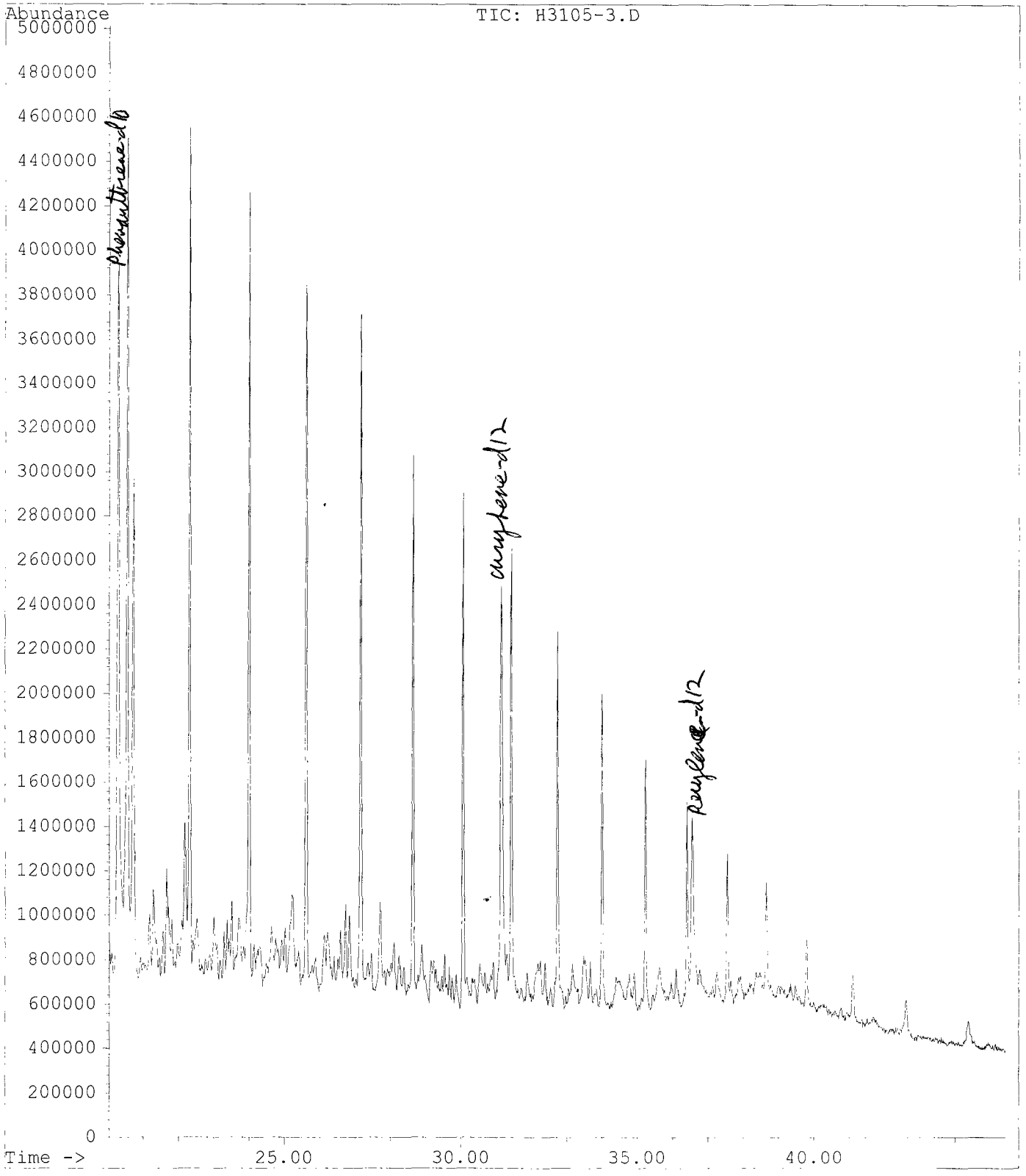
Chemist

9/17/97
Date

File: C:\CHEMPC\DATA\09SEP97\H3105-1.D
Operator: BC
Date Acquired: 9 Sep 97 9:19 pm
Method File: bna386.M
Sample Name:
Misc Info: 1/100 3580 xtn, 0.1g/1mL,1/10 dil
ALS vial: 1



File: C:\CHEMPC\DATA\09SEP97\H3105-3.D
Operator: BC
Date Acquired: 9 Sep 97 7:56 pm
Method File: bna386.M
Sample Name:
Misc Info: 1/100 3580 xtn, 0.1mL/1mL,1/10 dil
ALS vial: 1



Martyne J. Kiding

Here is the custody sheet for the oil sample used in fingerprinting. The pit oil was used from the original sample taken on 8/4 for which the custody was sent to you with the analysis. If you have any questions please call

Sincerely
Eddie Sam

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page ___ of ___

Company Name: Eddie Seay Consulting
Project Manager:
Address: 601 W Illinois
City: Hobbs State: NM Zip: 88240
Phone #: 392-2236
Fax #:
Project #: Abandon Pit Project
Project Name:
Project Location: Monument N.M.

BILL TO
PO #:
Company:
Attn: Same
Address:
City:
State: Zip:
Phone #:
Fax #:

ANALYSIS REQUEST

Engage Print

LAB I.D. #	Sample I.D.	COMP(C) OR GRAB(G)	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERVATION: ACID:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	
H3105-3	Oil, Skim oil from Rig SWD Monument. N.M.						X								X

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Sampler Relinquished: Eddie W Seay
Date: 9/7/97
Time: 8 am
Relinquished By:
Date:
Time:
Received By:
Received By: (Lab Staff) Amy Hill
Delivered By: (Circle One)
UPS - Fed Ex - Bus - Other:
Sample Condition: Cool ☐ Yes ☐ No; Intact ☒ Yes ☐ No
CHECKED BY: (Initials)
Phone Result ☐ Yes ☐ No Additional Fax #:
Fax Results: ☐ Yes ☐ No
REMARKS:

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time ~ 9:29	Date 10-23-97

Originating Party	Other Parties
Martyne Kieling	Eddie Seay

Subject

Discussion

COC And Comparison Oil Rice Disposal →

Pit closure Plan must be submitted and approved

Conclusions or Agreements

Distribution

Signed Martyne J Kieling

September 25, 1997

NMOCD Environmental Bureau
ATTN: Roger Anderson
2040 S. Pacheco
Santa Fe, NM 87505

RE: Abandoned Pit Cooper Ranch

Dear Roger:

It appears that all the material in the abandoned pit on Mr. Cooper's land is exempt and non-hazardous waste. Analysis was run on the fluid and soils and no hazardous constituents were found. Also, additional tests were run to finger print the oil to a known petroleum source. Although you cannot trace it back to the exact source, it does have all the makeup of crude petroleum. Because the pit oil is weathered and the volatiles are gone, it is difficult to be exact. It is my opinion that the source of the material in the pit is crude oil and tank bottoms.

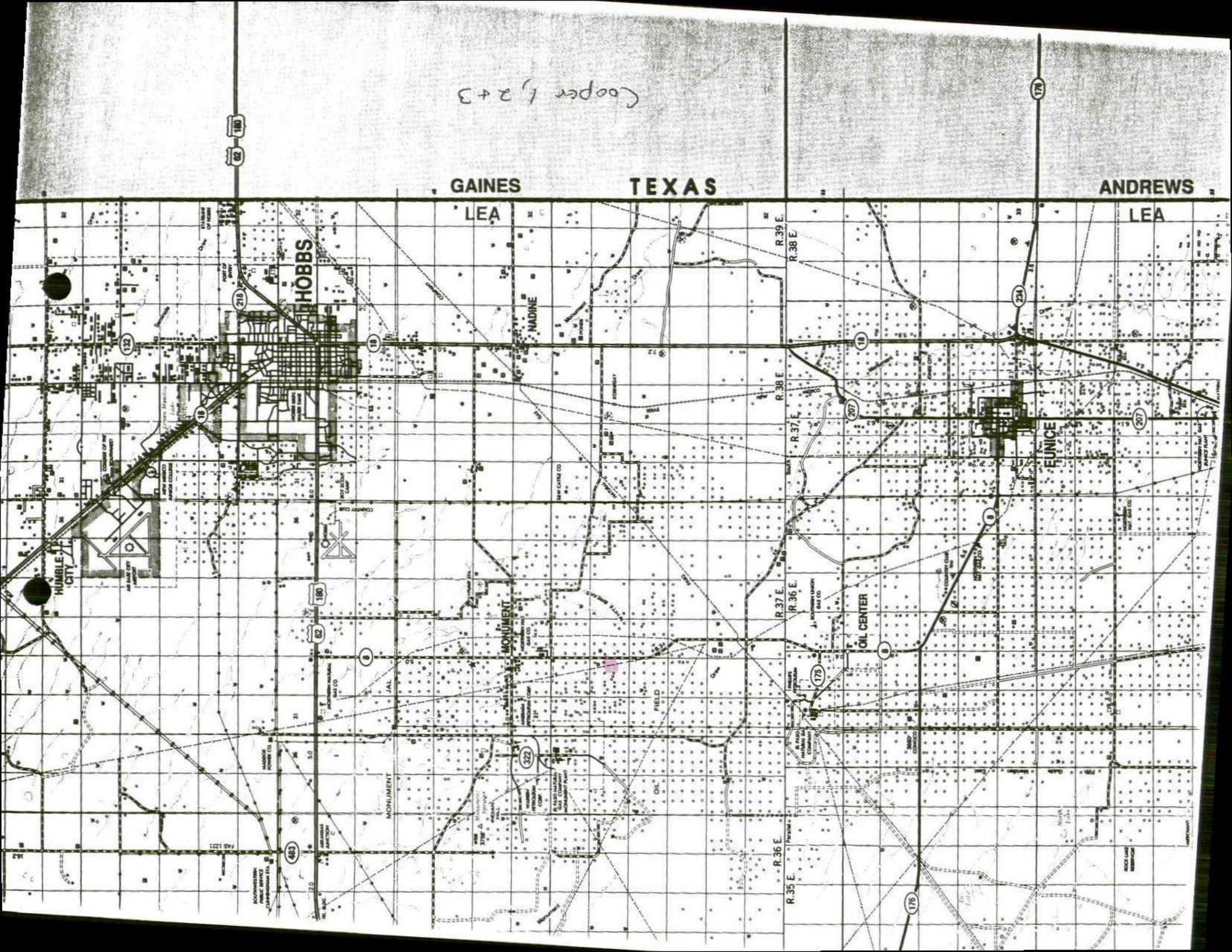
I am requesting permission to close this pit. We would like to haul off the material in the pit to an OCD approved disposal site, Sundance or CRI, haul any oily dirt to C & C Landfarm, run tests at the bottom after we have hauled soil, backfill pit with clean soil mounding the top to keep fluid from standing and remove fencing. If you have any questions or would like anything additional done, please call.

We would like to perform this closure as soon as possible so as to prevent any problems with the EPA and Wildlife Dept. Looking forward to your reply.

Sincerely,

Eddie W Seay

Eddie W. Seay, Agent
Cooper Cattle Co.
601 W. Illinois
Hobbs, NM 88240
(505)392-2236


Cooper 1, 2 + 3
GAINES
TEXAS
ANDREWS
LEA
LEA
HOBBS
NADINE
HUMBLE CITY
MONUMENT
JAL
FIELD
OIL
MONUMENT
OIL CENTER
EUNICE
R.39 E.
R.38 E.
R.38 E.
R.37 E.
R.37 E.
R.36 E.
R.36 E.
R.35 E.

PROBLEM OIL PIT INSPECTION CHECKLIST

Site Number (State-Year-Waypoint):

Cooper Pit site 1

Checklists Completed (circle those that apply):

(A) B C

Prepared by the US Environmental Protection Agency Region VIII and US Fish and Wildlife Service Region VI

6/12/97 ---Reproduced by US EPA Region VI with permission 9/19/97

PROBLEM OIL PIT INSPECTION CHECKLIST

SECTION ONE: Site Information

Site Name and Waypoint: Cooper Pit

Lease # and Operator: _____

Site Location Section/Township/Range: NE¼ SE¼ sec. 8 T5 20 R37E

GPS Coordinates Obtained During Aerial Survey: _____

GPS Coordinates Obtained During Site Inspection: _____

Site Address: 3 mi S. Monument

City/County/State/Zip: _____

USFWS Case ID #: _____

EPA Facility ID # and/or NMOCD ID #'s: _____

Contact Name/Affiliation/Phone: Jimmy T. Cooper 505 397-2045

Contact Address (if different from site address): P.O. Box Monument, NM

Site Type (production, commercial disposal, other): Illegal waste oil Pit.

SECTION TWO: Inspection Information

Inspection date and time: 9/23/97 10:45 a.m.

Describe weather conditions (including estimated temperature): Cloudy windy

If known, list federal, state, or tribal programs that this site is subject to regulation under via a permit and list all permit number(s):

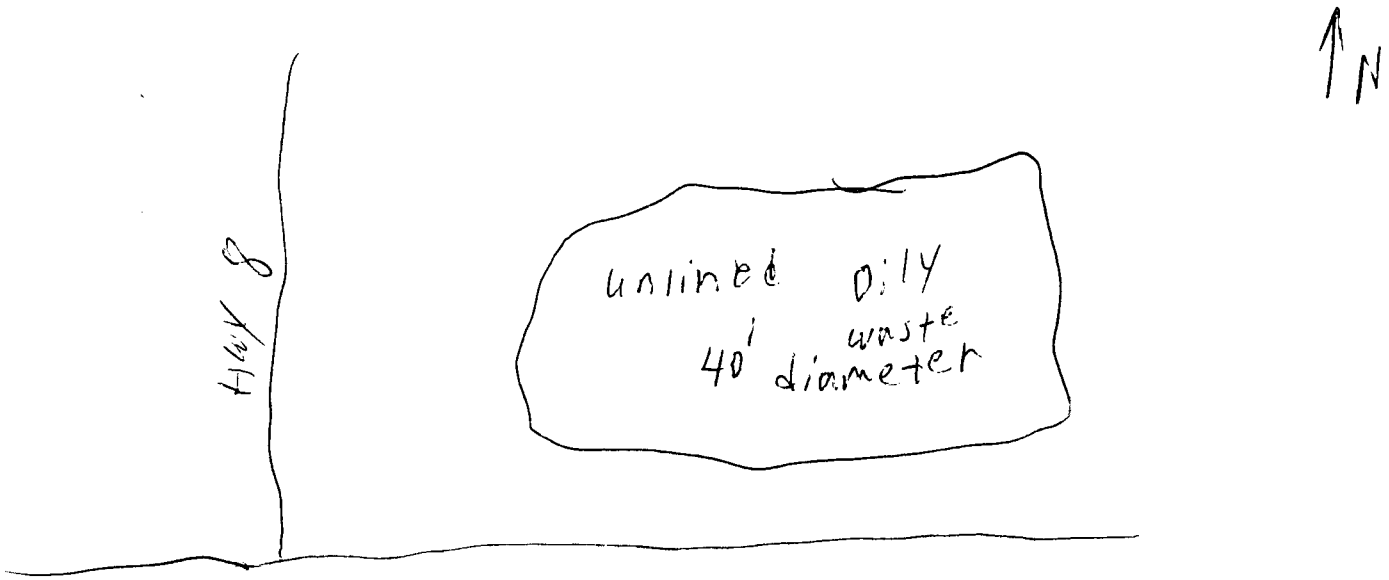
Inspection Team:

Inspector 1	Greg Pashia	Agency/Program:	EPA	Phone:	
Inspector 2	Wayne Price	Agency/Program:	OCD	Phone:	
Inspector 3	Nick Chavez	Agency/Program:	FWS	Phone:	
Inspector 4		Agency/Program:		Phone:	
Inspector 5		Agency/Program:		Phone:	
Inspector 6		Agency/Program:		Phone:	

SECTION THREE: Sketch of Site/Layout

Site Number and Name : _____

Include the estimated size (including depth) of any pits and describe site operations on site sketch. Include description of pertinent features such as waters of the US (location of, distance to, description of conduits to, etc.) or electrical equipment areas, for example. Include a north arrow on site sketch.



SECTION FOUR: General Observations

A. *PITS (complete checklist A if any of the following conditions exist)*

1. Does accumulated oil exist on the surface of any pits, ponds, sumps, or other open-topped storage devices ? Yes X No___

2. Are pits, ponds, tanks, sumps, or other devices which may accumulate oil covered with netting or are there any other wildlife exclusionary or deterrent devices in use (covers, flagging, etc.) ? Yes___ No X

3. Are there any dead or oiled birds or other wildlife on or near the site or any indication of oiled birds/wildlife previously at or near the site (oily tracks, etc.) ? Yes___ No X

B. *DISCHARGES (complete checklist B if any of the following conditions exist)*

1. Is there a discharge (either ongoing or one-time) from a pit, pond, tank, or other device at the site ? Yes___ No X

2. Is there indication of any past or potential future discharge from a pit, pond, tank, or other device at the site (soil staining, fresh dirt or gravel used as cover, 2 ft or less freeboard maintained, eroded berms, etc.) ? Yes___ No X

C. *TANKS AND CONTAINERS (complete checklist C if any of the following conditions exist)*

1. Are there any tanks or containers on site ? Yes___ No___

None

Pit was dug to construct adjacent Highway. Illegal dumping of oil Field waste about 6 months ago.

CHECKLIST "A" - PITS

1. If accumulated oil exists on the surface of any pits, ponds, sumps, or other open-topped storage devices, describe observed conditions including size of each pit, pond, sump, or device, percentage of area covered, and thickness of oil. Describe any other observations (visual, odor) of the material in each pit, pond, sump, or other device:

liquid oily waste. some solid material.

2. Describe any netting or other wildlife exclusionary or deterrent devices in use at the site. Include description of condition, coverage, netting mesh size, etc.:

none

3. Describe any oiled or dead birds or other wildlife found at or near the site. Indicate the number of mortalities and the seizure tag numbers for any birds collected:

None

4. Describe the construction and operation of any pits or ponds located at the site. Include a description of the pond liner system, if possible. Estimate the freeboard observed at the time of the inspection:

abandoned fresh water pit

5. Indicate how long any pits or ponds at the site have been in operation:

6 months.

6. If a pit, pond, sump, or other device is used as a loading/unloading area at a non-production site, describe any secondary containment used:

CHECKLIST "B" - DISCHARGES AND SPILLS

1. Indicate whether or not the site has a NPDES permit and, if so, indicate the permit number and whether or not the number is posted on site:

2. Describe any **ongoing discharges or one-time spills** from pits, ponds, or other devices at the site. For each discharge, include a description of the source, duration, and rate (gal/min or cfs) of material discharged. For each spill, describe the amount and area of the spilled material. Also describe any observations (oil sheen, odor) regarding the type of material discharged or spilled:

3. Describe any indications (e.g. soil / vegetation staining on ground or in drainages) of **past discharges or spills** from pits, ponds, tanks, or other devices at the site. Include any indication of the type of material discharged or spilled (e.g. oil stain, salt brine, etc.) and when and for how long the discharge or spill occurred:

4. Identify and describe the **drainage pathway** (dry arroyo, ditch, stream, etc.) of any current or suspected past discharges or spills from the site. Trace the drainage pathway to a flowing waterway, if possible, and describe the extent of any oil staining. Include a description of whether the drainage is dry at the time of the inspection, contains standing water that doesn't appear to be flowing or, if flowing, the estimated flowrate (gal/min or cfs) of water and/or discharged material:

5. Identify and describe any pits, ponds, or other devices in which less than 2 ft of freeboard exists at the time of the inspection. Also describe any indications that less than 2 ft of freeboard has been maintained in the past, such as staining of pond banks or overtopping of berms, etc.:

6. If possible, estimate the receipt rate or production rate (gal/day) of oil and/or produced water at the site:

7. If possible, determine whether or not any discharges or spills from the site have been reported and, if so, describe how (letter, phone, etc.), when, and to whom (EPA, BLM, DEQ, OGCC, BIA, etc.) it was reported:

8. Describe the general housekeeping and maintenance of the facility and any conditions which could result in a discharge or spill (valves which could be opened, poorly supported pipelines, etc.):

CHECKLIST "C" - TANKS AND CONTAINERS

1. Identify whether or not the site has a Spill Prevention, Control, and Countermeasure (SPCC) Plan. If so, verify by personally viewing the plan, if possible. Has it been certified by a registered Professional Engineer?:

2. Describe the type, use, condition, maximum capacity (gal or bbl), contents, markings, and actual quantity at the time of the inspection for each tank and container on the site. Also describe any secondary containment for each tank and container, including its condition, estimated capacity, and method of precipitation removal:

Tank / Container Type and Use	Maximum Capacity	Actual Quantity	Secondary Containment	Markings	Comments (including condition)

CONTINUATION SHEET (identify Section and/or Checklist continued)

PHOTO LOG

Site Number: Cooper Pit

Film Type/ASA/Size: Kodak/200 ASA/135

Photographer: Wallace D'Rear

Photo Number	Subject
R3 E05	View of pit looking south west

601 W. ILLINOIS
HOBBS, NEW MEXICO 88240
(505) 392-2236
FAX (505) 392-6949

EDDIE SEAY CONSULTING

ENVIRONMENTAL,
GEOLOGICAL & REGULATORY
SPECIALISTS

PEAK
CONSULTING SERVICES

AUG 19 1997

August 18, 1997

NMOCD Environmental Bureau
2040 South Pacheco Street
Santa Fe, NM 87505

RE: Pit - Cooper Ranch

Martyne J. Kieling:

In response to your July 13, 1997, letter pertaining to an unauthorized unlined pit. The pit in question was constructed by the State of New Mexico Highway Department and it's contractor, Hamilton Construction, for fresh water. Mr. Cooper has never used this pit nor authorized anyone to put anything in it. The liner around the top of the pit is severely deteriorated, but the liner in the bottom appears to be intact. Mr. Cooper wishes to cooperate with the OCD and obtain a closure for this potential problem. Additional photos are enclosed. The material in the pit appears to be highly oil saturated, possibly tank bottoms. The samples have been tested for hazardous materials as requested and results are enclosed. After the OCD has reviewed the analysis, please let us know so Mr. Cooper can prepare a closure plan for your approval.

Please let us know if additional information is needed.

Sincerely,

Eddie W Seay

Eddie W. Seay, Agent

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page ___ of ___

Company Name: Eddie Seay Consulting	BILL TO: PO #:
Project Manager: Eddie W Seay	Company:
Address: 601 W Illinois	Attn: Same
City: Hobbs State: NM Zip: 88240	Address:
Phone #: 392-2236	City:
Fax #:	State: Zip:
Project #: Cooper Ranch	Phone #:
Project Name: Abandon Pit	Fax #:
Project Location: Monument N.M.	

LAB I.D. #	Sample I.D.	COMP(C) OR GRAB(G)	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERVATION: ACID:	ICE/COOL	OTHER:	SAMPLING: DATE	TIME	ANALYSIS REQUEST: Chloride TCLP	Complete TCLP	TPH
H3105-1	Liquid Sample		1					✓					8/4	1:15		✓	✓
H3105-2	Soil Sample		1			✓							"	"		✓	✓
	from abandon pit.																

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.

Sampler Relinquished: Eddie W Seay	Date: 8/4/97 Time: 2:10	Received By:	Phone Result: ☐ Yes ☐ No Additional Fax #: Fax Results: ☐ Yes ☐ No
Relinquished By:	Date: Time:	Received By: (Lab Staff) Amy Hill	REMARKS: Samples taken from abandon pit. State Hwy Dept. Soil + liquid
Delivered By: (Circle One) UPS - Fed Ex - Bus - Other:		Sample Condition: Cool ☒ Yes ☐ No; Intact ☒ Yes ☐ No	CHECKED BY: (Initials)

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ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 08/04/97
Reporting Date: 08/07/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Lab Number: H3105-1
Sample ID: LIQUID SAMPLE FROM ABANDON PIT

Analysis Date: 08/07/97
Sampling Date: 08/04/97
Sample Type: LIQUID
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

TCLP PESTICIDES & HERBICIDES (mg/L)	EPA Limit		Sample Result H3105-1	Method Blank	QC Observed	QC %IA	QC True Value
Endrin	0.020		<0.002	<0.002	0.132	110	0.120
Lindane (gamma-BHC)	0.400		<0.002	<0.002	0.129	108	0.120
Heptachlor	0.008		<0.002	<0.002	0.140	118	0.120
Heptachlor epoxide	0.008		<0.002	<0.002	0.110	92	0.120
Methoxychlor	10		<0.002	<0.002	0.140	118	0.120
Chlordane	0.03		<0.002	<0.002	0.127	106	0.120
Toxaphene	0.5		<0.020	<0.020	0.475	99	0.480
2,4-D	10		<0.002	<0.002	0.141	118	0.120
2,4,5-T-P (Silvex)	1		<0.002	<0.002	0.106	88	0.120

	% Recovery
Nitrobenzene-d5	88
2-Fluorobiphenyl	78
Terphenyl-d14	92

METHODS: EPA SW846-1311, 3510, 8270

Chemist

8/7/97
Date

CARDINAL LABORATORIES

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ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
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Receiving Date: 08/04/97
Reporting Date: 08/07/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Lab Number: H3105-1
Sample ID: LIQUID SAMPLE FROM ABANDON PIT

Analysis Date: 08/07/97
Sampling Date: 08/04/97
Sample Type: LIQUID
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

TCLP SEMIVOLATILES (ppm)	EPA LIMIT	Sample Result H3105-1	Method Blank	QC	% Recov.	True Value QC
Pyridine	5.00	<0.002	<0.002	0.047	47	0.100
1,4-Dichlorobenzene	7.50	<0.002	<0.002	0.051	51	0.100
o-Cresol	200	<0.002	<0.002	0.085	85	0.100
m, p-Cresol	200	0.005	<0.002	0.158	79	0.200
Hexachloroethane	3.00	<0.002	<0.002	0.052	52	0.100
Nitrobenzene	2.00	<0.002	<0.002	0.088	88	0.100
Hexachloro-1,3-butadiene	0.500	<0.002	<0.002	0.058	58	0.100
2,4,6-Trichlorophenol	2.00	<0.002	<0.002	0.098	98	0.100
2,4,5-Trichlorophenol	400	<0.002	<0.002	0.102	102	0.100
2,4-Dinitrotoluene	0.130	<0.002	<0.002	0.104	104	0.100
Hexachlorobenzene	0.130	<0.002	<0.002	0.102	102	0.100
Pentachlorophenol	100	<0.002	<0.002	0.104	104	0.100

	% RECOVERY
Fluorophenol	32
Phenol-d5	28
Nitrobenzene-d5	88
2-Fluorobiphenyl	78
2,4,6-Tribromophenol	62
Terphenyl-d14	92

METHODS: EPA SW 846-8270

Burgess J. A. Cooke, Ph. D.

8/7/97
Date

CARDINAL LABORATORIES

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ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 08/04/97
Reporting Date: 08/05/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Lab Number: H3105-1
Sample ID: LIQUID SAMPLE FROM ABANDON PIT

Analysis Date: 08/05/97
Sampling Date: 08/04/97
Sample Type: LIQUID
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

TCLP VOLATILES (ppm)	EPA LIMIT	Sample Result H3105-1	Method Blank	QC	%Recov.	True Value QC
Vinyl Chloride	0.20	<0.004	<0.004	0.119	119	0.100
1,1-Dichloroethylene	0.7	<0.004	<0.004	0.084	84	0.100
Methyl Ethyl Ketone	200	<0.050	<0.050	0.091	91	0.100
Chloroform	6.0	<0.004	<0.004	0.081	81	0.100
1,2-Dichloroethane	0.5	<0.004	<0.004	0.081	81	0.100
Benzene	0.5	0.068	<0.004	0.083	83	0.100
Carbon Tetrachloride	0.5	<0.004	<0.004	0.089	89	0.100
Trichloroethylene	0.5	<0.004	<0.004	0.084	84	0.100
Tetrachloroethylene	0.7	<0.004	<0.004	0.081	81	0.100
Chlorobenzene	100	<0.004	<0.004	0.095	95	0.100
1,4-Dichlorobenzene	7.5	<0.004	<0.004	0.107	107	0.100

	% RECOVERY
Dibromofluoromethane	117
Toluene-d8	112
Bromofluorobenzene	102

METHODS: EPA SW 846-8260, 1311

Burgess J. A. Cooke, Ph. D.

8/5/97
Date

CARDINAL LABORATORIES

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ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 08/04/97
Reporting Date: 08/07/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Lab Number: H3105-2
Sample ID: SOLID SAMPLE FROM ABANDON PIT

Analysis Date: 08/07/97
Sampling Date: 08/04/97
Sample Type: SOLID
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

TCLP PESTICIDES & HERBICIDES (mg/L)	EPA Limit		Sample Result H3105-2	Method Blank	QC Observed	QC %IA	QC True Value
Endrin	0.020		<0.002	<0.002	0.132	110	0.120
Lindane (gamma-BHC)	0.400		<0.002	<0.002	0.129	108	0.120
Heptachlor	0.008		<0.002	<0.002	0.140	118	0.120
Heptachlor epoxide	0.008		<0.002	<0.002	0.110	92	0.120
Methoxychlor	10		<0.002	<0.002	0.140	118	0.120
Chlordane	0.03		<0.002	<0.002	0.127	106	0.120
Toxaphene	0.5		<0.020	<0.020	0.475	99	0.480
2,4-D	10		<0.002	<0.002	0.141	118	0.120
2,4,5-T-P (Silvex)	1		<0.002	<0.002	0.106	88	0.120

	% Recovery
Nitrobenzene-d5	84
2-Fluorobiphenyl	73
Terphenyl-d14	81

METHODS: EPA SW846-1311, 3510, 8270

Chemist

8/7/97
Date

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FAX TO:

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Reporting Date: 08/07/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Lab Number: H3105-2
Sample ID: SOLID SAMPLE FROM ABANDON PIT

Analysis Date: 08/07/97
Sampling Date: 08/04/97
Sample Type: SOLID
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

TCLP SEMIVOLATILES (ppm)	EPA LIMIT	Sample Result H3105-2	Method Blank	QC	% Recov.	True Value QC
Pyridine	5.00	<0.002	<0.002	0.047	47	0.100
1,4-Dichlorobenzene	7.50	<0.002	<0.002	0.051	51	0.100
o-Cresol	200	<0.002	<0.002	0.085	85	0.100
m, p-Cresol	200	0.012	<0.002	0.158	79	0.200
Hexachloroethane	3.00	<0.002	<0.002	0.052	52	0.100
Nitrobenzene	2.00	<0.002	<0.002	0.088	88	0.100
Hexachloro-1,3-butadiene	0.500	<0.002	<0.002	0.058	58	0.100
2,4,6-Trichlorophenol	2.00	<0.002	<0.002	0.098	98	0.100
2,4,5-Trichlorophenol	400	<0.002	<0.002	0.102	102	0.100
2,4-Dinitrotoluene	0.130	<0.002	<0.002	0.104	104	0.100
Hexachlorobenzene	0.130	<0.002	<0.002	0.102	102	0.100
Pentachlorophenol	100	<0.002	<0.002	0.104	104	0.100

	% RECOVERY
Fluorophenol	29
Phenol-d5	26
Nitrobenzene-d5	84
2-Fluorobiphenyl	73
2,4,6-Tribromophenol	45
Terphenyl-d14	81

METHODS: EPA SW 846-8270

Burgess J.A. Cooke, Ph. D.

8/7/97
Date

CARDINAL LABORATORIES

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ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 08/04/97
Reporting Date: 08/05/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM
Lab Number: H3105-2
Sample ID: SOLID SAMPLE FROM ABANDON PIT

Analysis Date: 08/05/97
Sampling Date: 08/04/97
Sample Type: SOLID
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

TCLP VOLATILES (ppm)	EPA LIMIT	Sample Result H3105-2	Method Blank	QC	%Recov.	True Value QC
Vinyl Chloride	0.20	<0.004	<0.004	0.119	119	0.100
1,1-Dichloroethylene	0.7	<0.004	<0.004	0.084	84	0.100
Methyl Ethyl Ketone	200	<0.050	<0.050	0.091	91	0.100
Chloroform	6.0	<0.004	<0.004	0.081	81	0.100
1,2-Dichloroethane	0.5	<0.004	<0.004	0.081	81	0.100
Benzene	0.5	0.054	<0.004	0.083	83	0.100
Carbon Tetrachloride	0.5	<0.004	<0.004	0.089	89	0.100
Trichloroethylene	0.5	<0.004	<0.004	0.084	84	0.100
Tetrachloroethylene	0.7	<0.004	<0.004	0.081	81	0.100
Chlorobenzene	100	<0.004	<0.004	0.095	95	0.100
1,4-Dichlorobenzene	7.5	<0.004	<0.004	0.107	107	0.100

	% RECOVERY
Dibromofluoromethane	97
Toluene-d8	98
Bromofluorobenzene	86

METHODS: EPA SW 846-8260, 1311

Burgess J. A. Cooke, Ph. D.

8/5/97
Date

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 08/04/97
Reporting Date: 08/09/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM

Sampling Date: 08/04/97
Sample Type: SEE BELOW
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: GP

TCLP METALS

LAB NUMBEF	SAMPLE ID	As ppm	Ag ppm	Ba ppm	Cd ppm	Cr ppm	Pb ppm	Hg ppm	Se ppm
ANALYSIS DATE:		08/09/97	08/09/97	08/09/97	08/09/97	08/09/97	08/09/97	08/08/97	08/09/97
EPA LIMITS:		5	5	100	1	5	5	0.2	1
H3105-1	LIQUID SAMPLE,	<1	<1	<5	<0.1	<1	<1	<0.02	<0.1
	ABANDON PIT								
H3105-2	SOLID SAMPLE,	<1	<1	<5	<0.1	<1	<1	<0.02	<0.1
	ABANDON PIT								
Quality Control		0.093	1.04	19.70	1.001	0.99	2.05	0.0091	0.092
True Value QC		0.100	1.00	20.00	1.000	1.00	2.00	0.0100	0.100
% Recovery		93	104	98	99	99	103	91	92
Relative Standard Deviation		1.4	0.7	11.5	1.2	0.8	1.1	6.1	2.4
METHODS: EPA 1311, 600/4-91/		206.2	272.1	208.1	213.1	218.1	239.1	245.1	270.2

Gayle A. Potter, Chemist

08/09/97
Date

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 08/04/97
Reporting Date: 08/09/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM

Sampling Date: 08/04/97
Sample Type: SEE BELOW
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC/AH

LAB NUMBER	SAMPLE ID	REACTIVITY Sulfide (ppm)	REACTIVITY Cyanide (ppm)	CORROSIVITY (pH)	IGNITABILITY (°F)
ANALYSIS DATE:		08/09/97	08/09/97	08/04/97	08/04/97
H3105-1	LIQUID SAMPLE, ABANDON PIT	<50	<50	6.86	95
H3105-2	SOLID SAMPLE, ABANDON PIT	<50	<50	7.54	Nonflammable
Quality Control		NR	0.105	7.00	NR
True Value QC		NR	0.100	7.00	NR
% Accuracy		NR	105	100	NR
Relative Percent Difference		NR	4.8	0	NR

METHOD: EPA SW 846-7.3, 7.2, 1010, 1030 (proposed), 1311, *40 CFR 261*

Chemist

08/09/97
Date

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE W. SEAY
601 W. ILLINOIS
HOBBS, NM 88240
FAX TO:

Receiving Date: 08/04/97
Reporting Date: 08/06/97
Project Number: COOPER RANCH
Project Name: ABANDON PIT
Project Location: MONUMENT, NM

Analysis Date: 08/05/97
Sampling Date: 08/04/97
Sample Type: SEE BELOW
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

LAB NUMBER	SAMPLE ID	TPH (ppm)	TPH (%)
H3105-1	LIQUID SAMPLE, ABANDON PIT	822000	82.2
H3105-2	SOLID SAMPLE, ABANDON PIT	227000	22.7
Quality Control		196	NA
True Value QC		200	NA
% Accuracy		98	NA
Relative Percent Difference		1.4	NA

METHOD: EPA 418.1, 3510, 3540, or 3550; Infared Spectroscopy

Burgess J. A. Cooke, Ph. D.

8/12/97
Date

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 10:00 Am	Date 8-18-97
Originating Party		Other Parties
Eddie Seay		Martyne Kidley

Subject

Burn Waste oil in Pit Jimmie Coopers Pit
For Fire Dept exercise.

Discussion

Will Review Analytical Results on Sludge and Liquid.
Then Respond.
If Burning is What Jimmie wants to Do OCD Recommends
Getting in touch with the Air Quality Bureau For A permit
or Approval.

Conclusions or Agreements

Distribution

Signed Martyne J Kidley

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time	Date
	11:00 - 2:00	8-4-97

Originating Party	Other Parties
Martyne Kieling	Eddie Seay

Subject

Jimmy Coopers Pit (Land)

Discussion

Has the water/waste Been Moved (Not Sure. will Findout)
we dont know if it is exempt or Hazardous Must Be tested
Then a determination as to where it can be disposed of will
be addressed. If it Has been Disposed of Fines May be assessed to Jimmie
& to Disposer..

Eddie called Back: Has Sampled water & soil will Run it For TCLP Haz
constituants[39] & Characteristic ~~Ignit.~~ Corrosivity ~~etc.~~. Reactivity
Took Pictures: will Respond to My letter & Submit Analytical & photos.

Conclusions or Agreements

Distribution

Signed
Martyne J. Kieling

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 10:40	Date 8-4-97
Originating Party		Other Parties
Eddy Seay		Martyne Kieling.

Subject: Jimmie Cooper land unpermitted Pit

Discussion: Pit was constructed 2 or 3 years ago By Hamelton Construction - The ~~was~~ Pit was Built for the State Highway Department - ... Un Known Dumpers Have put waste oil into the pit. They Have Pumped the Pit out and sent water to Rice Disposal (Did not Test the water in pit) The Pit Has a liner which Seems to be intact Under the Pond. Piped up on Sum exposed edges.

Conclusions or Agreements: Eddie will Submit a Closure Plan For the Pit Probably send Soil to Land Farm..

Distribution

Signed Martyne J Kieling.

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

July 23, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-326-936-316

Mr. Jimmie T. Cooper
P.O. Box 55
Monument, NM 88265

RE: Waste Disposal Pit
Located 30 feet west of the highway ride-of-way in the
NE/4 SE/4 of Section 8, Township 20 South, Range 37 East, NMPM
Lea County, New Mexico

Dear Mr. Cooper:

On June 30, 1997 The New Mexico Oil Conservation Division (OCD), identified an unauthorized, unlined waste disposal pit located approximately 30 feet west of the Monument highway ride-of-way in the NE/4 SE/4 of Section 8, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico. A location map is attached.

OCD personnel performed an onsite inspection of the facility and noted the following: 1) An unauthorized, unlined pit is being utilized on land that according to county records is owned by Jimmie T. Cooper; 2) The unauthorized, unlined pit is accepting oilfield waste; 3) The pit was observed to have trash, debris, and crude oil contained within the berms (see photos 1, 2, and 3); 4) The pit was not screened or netted; and 5) The perimeter was not fenced.

Pursuant to OCD rules and regulations, facilities that manage waste in unlined pits must be permitted pursuant to 19 NMAC 15.I.711 (as amended 1-1-96). **Therefor all discharges into the unauthorized pit must cease until such time the OCD can ascertain the pit status.**

The OCD is requiring the landowner, Jimmie T. Cooper, to submit the following information: 1) The names and addresses of who is utilizing the pit; 2)The names and addresses of all waste generators; 3) The names and addresses of all waste transporters; 4) The location of all waste generation (exact well locations); and 5) The total volume of waste from each location that has gone into the unauthorized pit. A response is required by Jimmie T. Cooper to these deficiencies by August 25, 1997.

Upon OCD pit status determination the owner/operator of the pit must either permit or close the pit.

For your use please find enclosed a copy of the Order amending Rule 711, a form C-137 and OCD's pit closure guidelines with closure form.

If you require any further information concerning permitting/closure procedures please contact me at (505) 827-7153.

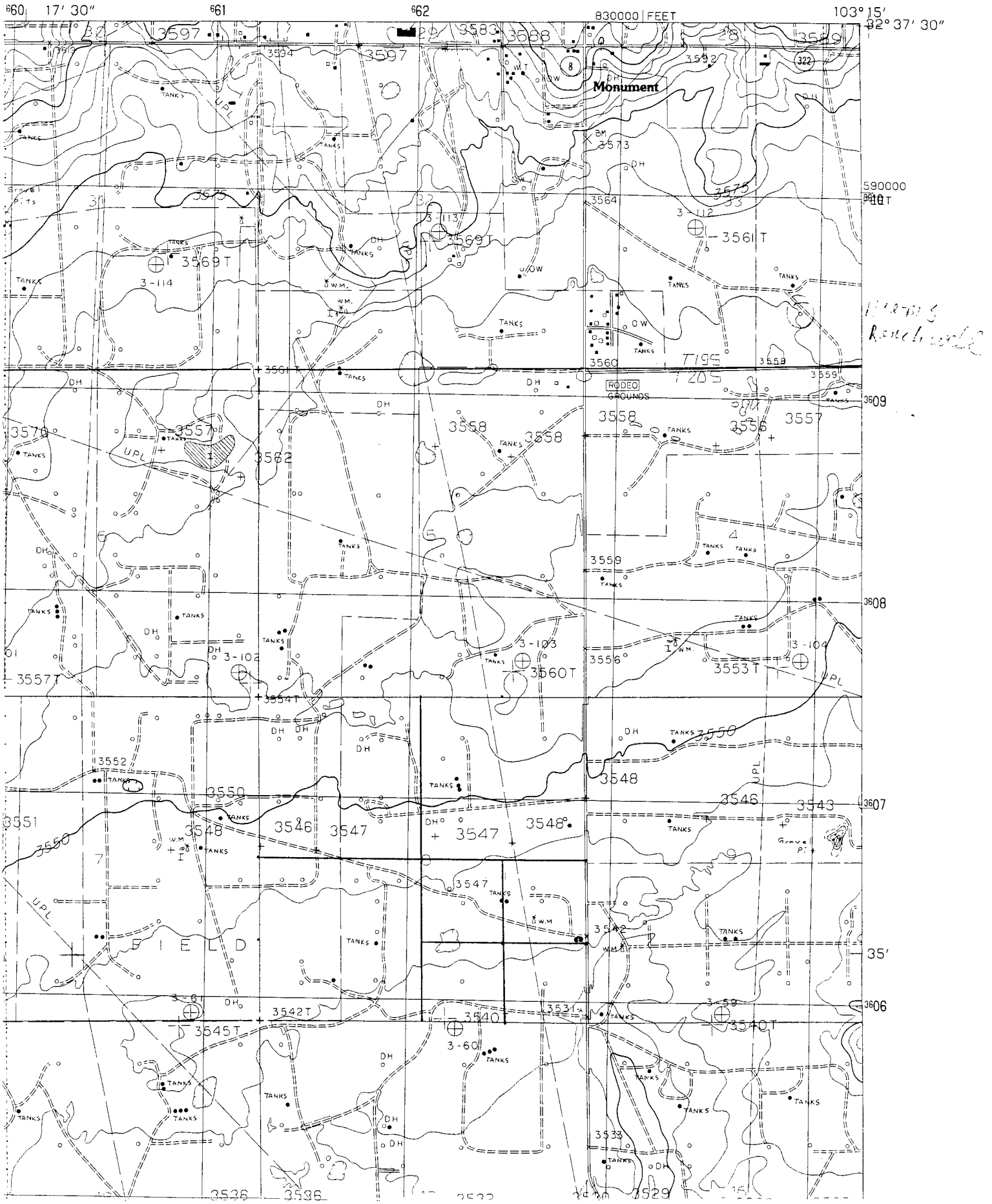
Sincerely,

Martyne J. Kieling
Environmental Geologist

attachments- map, pictures, pit closure guidelines and form, Order R-10411-B, and C-137 form

xc: Hobbs OCD Office

MONUMENT SOUTH QUADRANGLE
NEW MEXICO–LEA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



PIT INSPECTION ON JIMMIE COOPER'S LAND (PHOTOS BY OCD)

PHOTO NO. 1 DATE: 06/30/97
UNLINED PIT CONTAINING PLASTIC TRASH
FENCE IS DOWN

PHOTO NO. 2 DATE: 06/30/97
OIL ON PIT SURFACE, CONTAMINATED SOILS

PIT INSPECTION ON JIMMIE COOPER'S LAND (PHOTOS BY OCD)

PHOTO NO. 3 DATE: 06/30/97
UNLINED PIT, DOWN FENCE, METAL AND PLASTIC TRASH

Wayne Price

From: Wayne Price
Sent: Friday, July 11, 1997 11:08 AM
To: Martyne Kieling; Roger Anderson
Cc: Chris Williams; Gary Wink
Subject: Re: Old Treating Plant Area-Sec 8-Ts 20s-R 37e
Importance: High

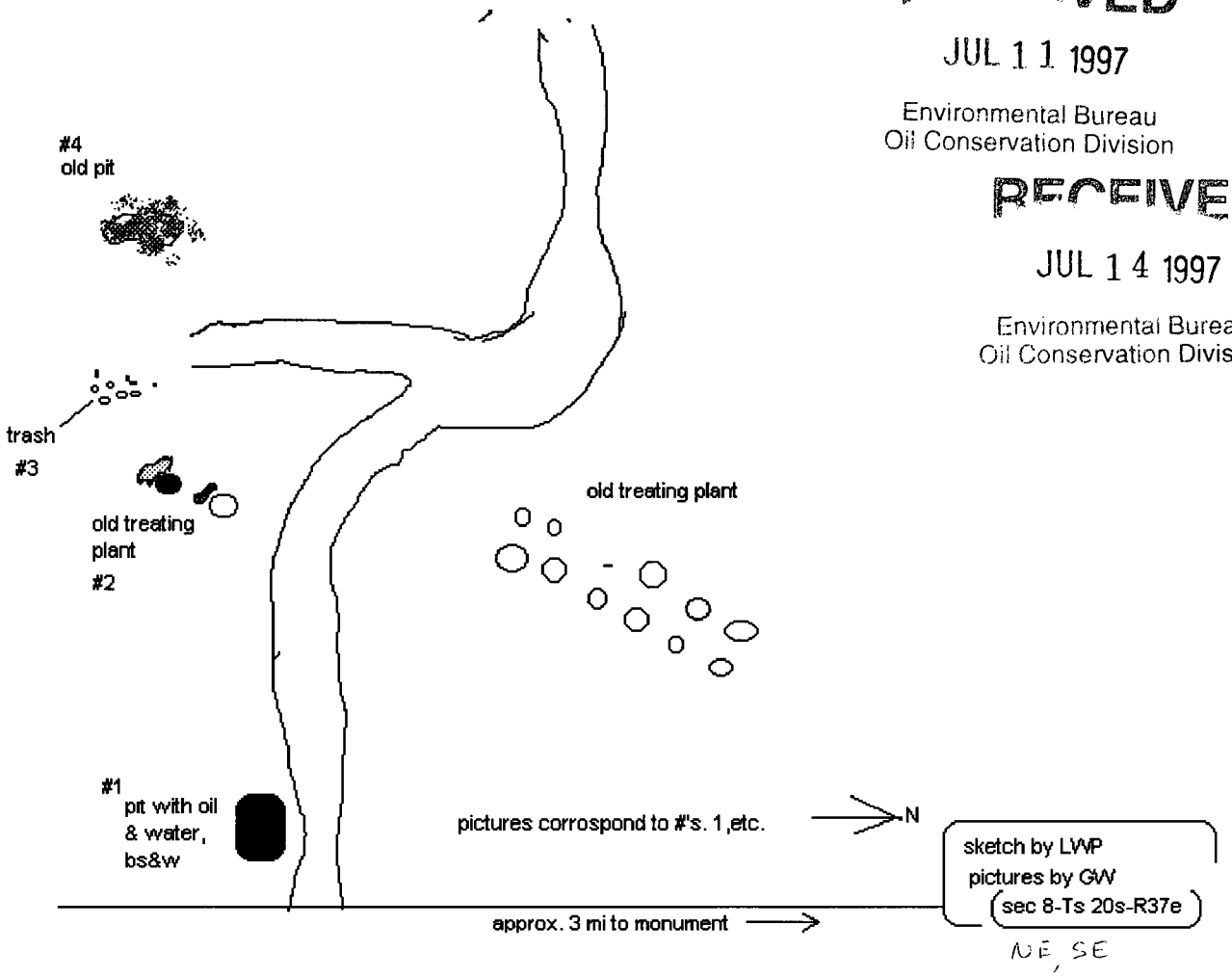
JUL 14 1997

Re: Old Treating Plant Area
Sec 8-Ts 20s-R 37e

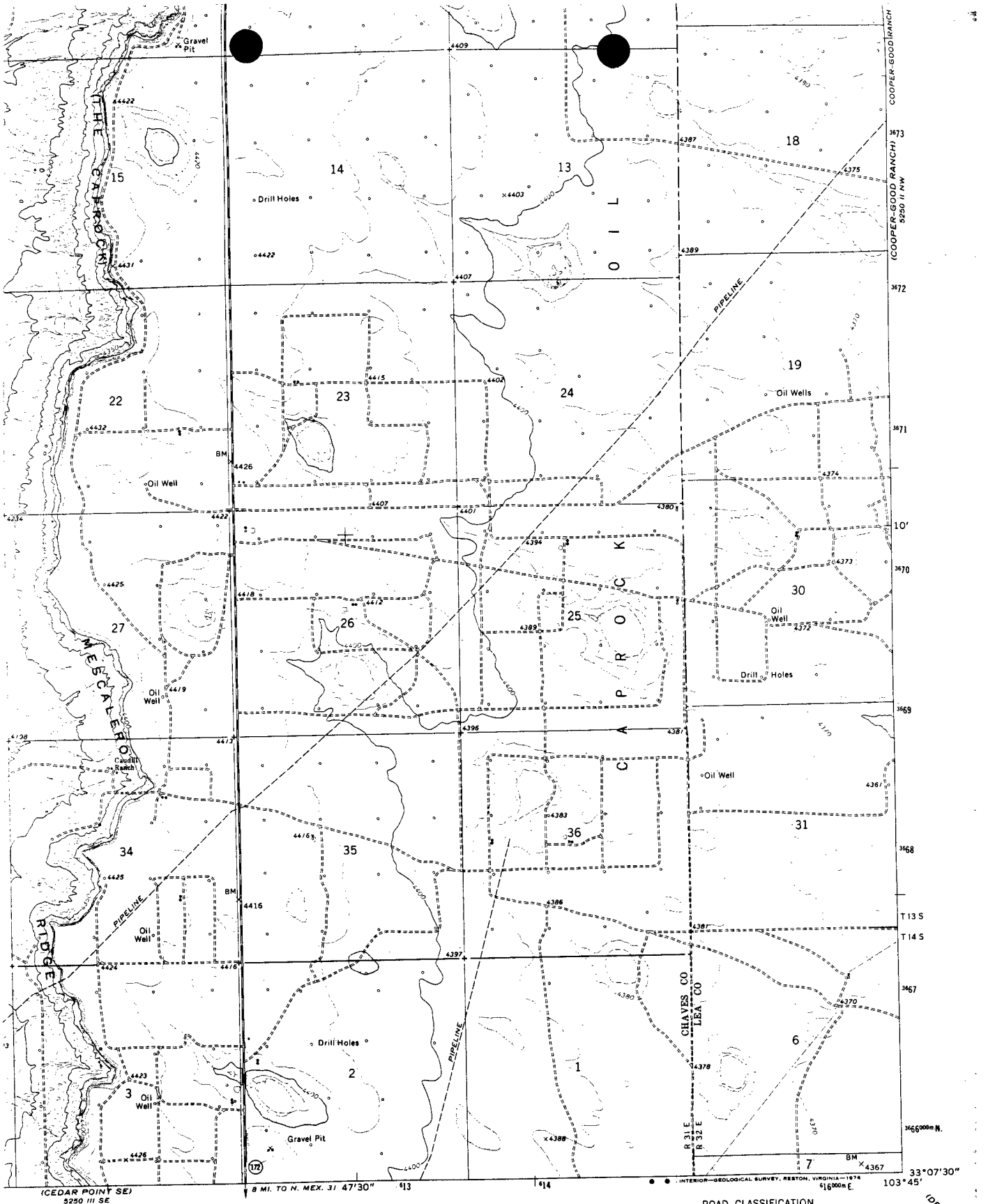
Per our recent telephone conversation District I is sending up a sketch and pictures of this area.

Please note it appears that pictures 2-4 are of in-active sites. However picture #1 shows what appears to be an active pit with oil in it.

At this monent we are not sure if all these sites are related to the treating plants.



East edge of pit
30ft From
Ridge of way -



SCALE 1:24 000

0 1 MILE

0 2000 3000 4000 5000 6000 7000 FEET

.5 0 1 KILOMETRE

CONTOUR INTERVAL 10 FEET

NAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION

Primary highway, hard surface

Secondary highway, hard surface

Light-duty road, hard or improved surface

Unimproved road

Interstate Route U. S. Route State Route

NEW MEXICO

QUADRANGLE LOCATION

CAUDILL RANCH, N. MEX.

N3307.5—W10345/7.5

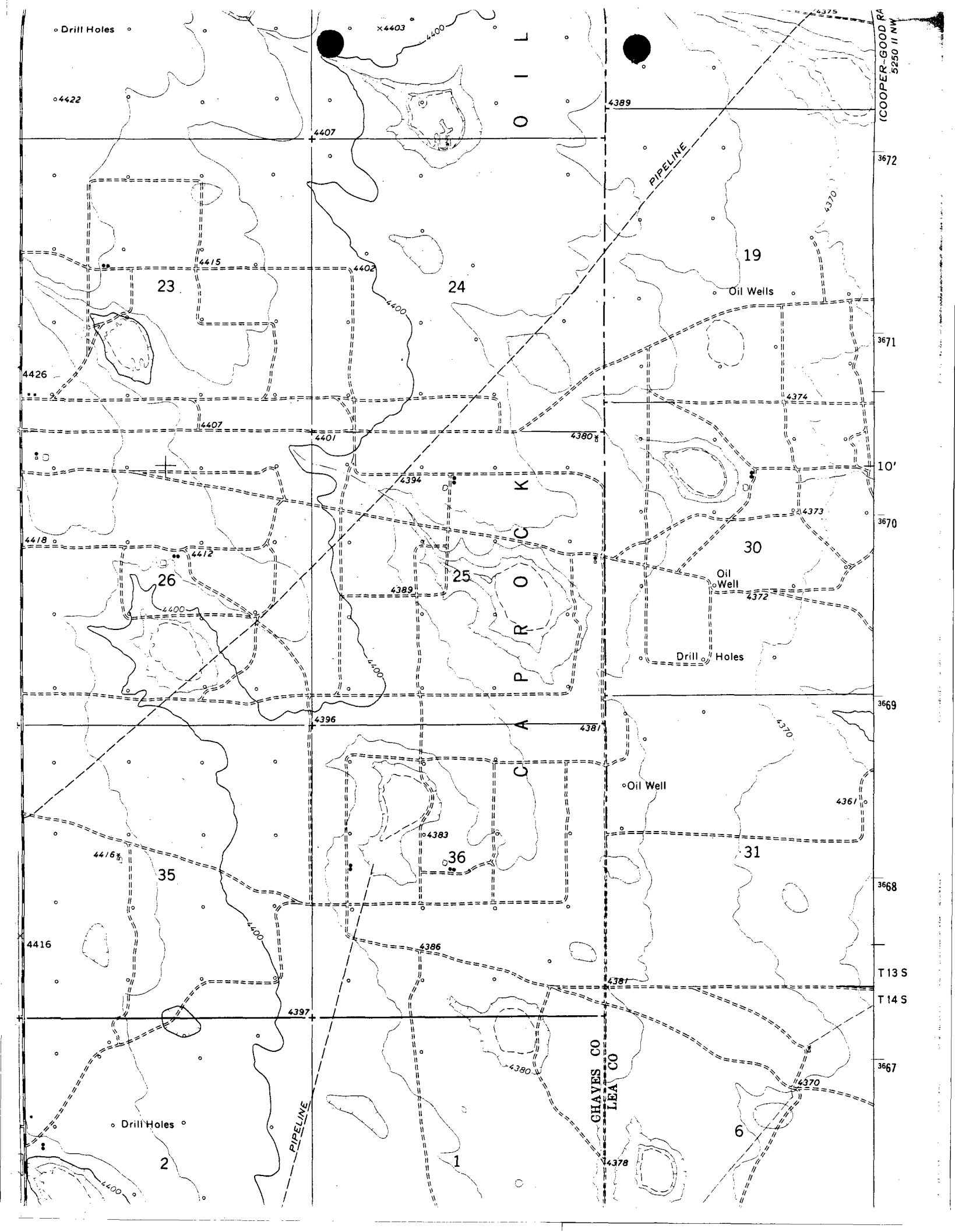
1973

AMS 5250 III NE—SERIES V881

PLIES WITH NATIONAL MAP ACCURACY STANDARDS
L SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1974

m98


Drill Holes
4422
4403
4400
4407
4389
O I L
PIPELINE
4375
(COOPER-GOOD RA
5250 II NW
3672
4370
19
Oil Wells
4415
4402
23
24
4400
3671
4426
4374
4407
4401
4380
10'
4394
4373
3670
4418
4412
30
26
25
P O C K
4389
Oil
Well
4372
4400
Drill Holes
4396
4381
3669
4370
C A
Oil Well
4361
4383
31
4416
35
36
3668
4400
4416
4386
T 13 S
4381
T 14 S
4397
4380
CHAVES CO
LEA CO
3667
4370
Drill Holes
PIPELINE
6
2
1
4378
4400