RELEASE REPORT

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

January 9, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. Z-235-437-215

Ms. Lennah Frost
EOTT Energy Pipeline Limited Partnership
P.O. Box 1660
Midland, Texas 79702

RE: SKIPPY HORN SPILL INVESTIGATION/REMEDIATION

Dear Ms. Frost:

The New Mexico Oil Conservation Division (OCD) has reviewed EOTT Energy Pipeline Limited Partnership's (EOTT) September 26, 1997 "SKIPPY HORN GROUND WATER CONTAMINATION". This document contains the results of EOTT's investigation and remediation of contamination related to a crude oil pipeline leak northwest of Monument, New Mexico and requests closure of the remedial actions.

The OCD approves of the above referenced closure request.

Please be advised that OCD approval does not relieve EOTT of liability if remaining contaminants pose a future threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve EOTT of responsibility for compliance with other federal, state or local laws and regulations.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Wayne Price, OCD Hobbs District Office

Z 235 437 215

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, April 1995

EOTT ENERGY Operating Limited Partnership

P.O. BOX 1660
5805 E. BUSINESS 20
MIDLAND, TEXAS 79702
(915) 682-8251

September 26, 1997

State of New Mexico
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505
Attn: William C. Olson

RE: SKIPPY HORN GROUND WATER INVESTIGATION

Dear Mr. Olson:

Regarding your letter dated July 21, 1997, attached please find the following requested information:

1. EOTT Energy drilled a fourth monitor well at the source of the pipeline leak. As indicated in the attached report from Philip Services, there is no ground water contamination at the source of the pipeline leak.

2. A map showing direction and magnitude of the hydraulic gradient at the site is included in the Philip report.

3. Analytical results of the soil remedial actions related to the spill. All contaminated soil was disposed of at C&C Landfarm near Monument, NM with clean soil being used as a backfill. The attached analytical reports show that EOTT remediated to the area in accordance with NMOCD Guidelines for Leak and Spills. TPH levels are at or below the 100 ppm as required by the State.

Based on this additional information, EOTT Energy Pipeline requests closure of the site from the State of New Mexico. We believe that EOTT has met all state requirements for cleanup and remediation of crude oil leaks and that the site poses no threat to the environment or the public.

If you have any questions or need additional information please contact me at 915/687-2040 ext. 34.

Sincerely,

Lennah Frost

Lennah Frost
Environmental Engineer

/ld
attachments
cc: Wayne Price - NMOCD - Hobbs
Al Hugh - Environmental File
John Millar
Bobby Garduno

1.0 INTRODUCTION

Philip Services Corporation (Philip) has completed the installation of a fourth monitor well located in the center of the area of excavated soil from the former EOTT Energy (EOTT) pipeline release near Monument, New Mexico. The following report details the findings from the investigation.

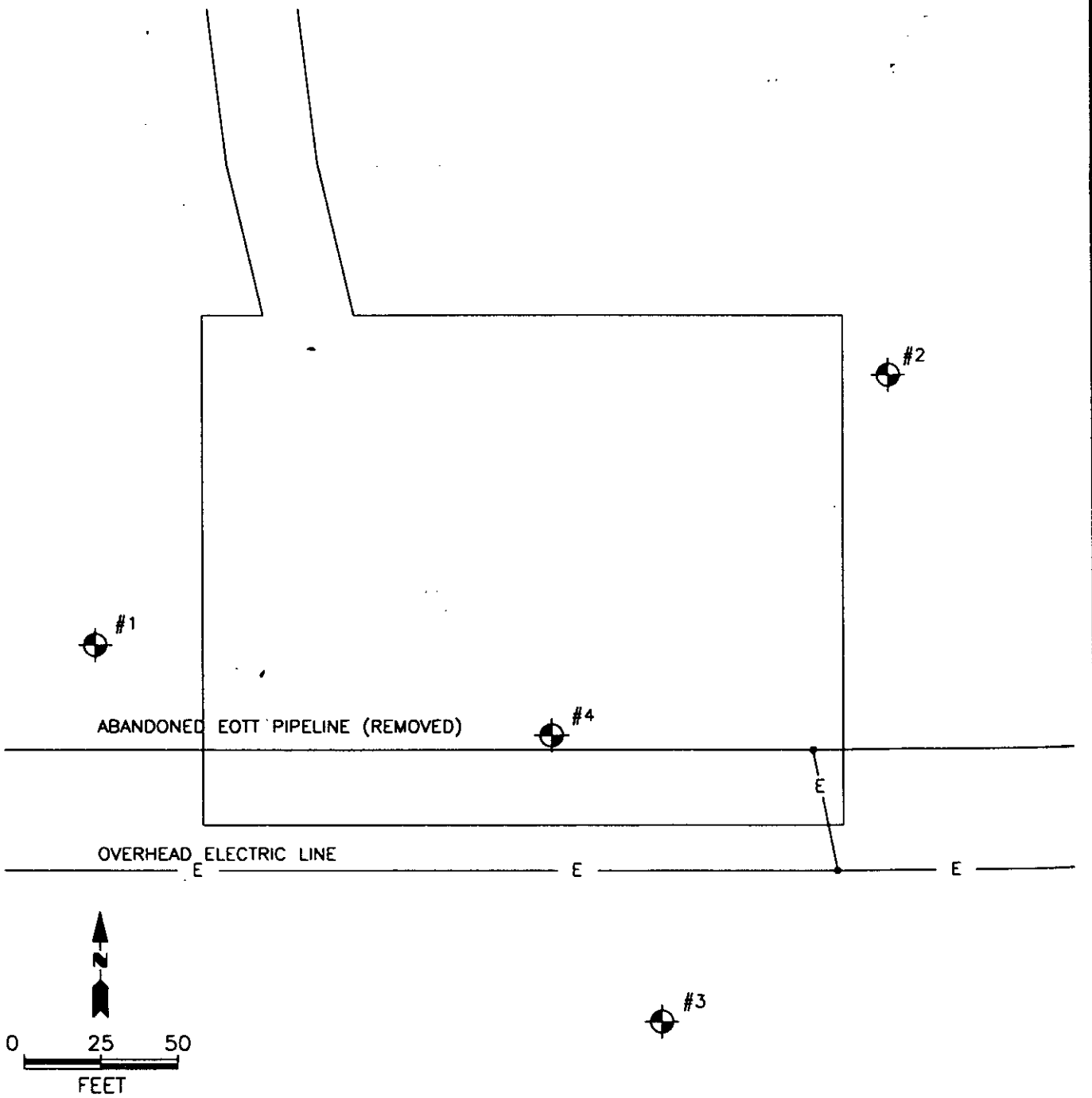
2.0 PROJECT BACKGROUND

The purpose of the site investigation is to identify if groundwater has been impacted in the vicinity of the release from the former EOTT pipeline. From November 1996 until February 1997, soil from the pipeline release (along with the pipeline itself), was excavated and the excavated soils transported to an approved landfill for disposal. At the time of the excavation, oil was noted on the groundwater surface. A bioremediation technology was applied to the groundwater to remove as much oil as possible from the groundwater surface. The excavated area was subsequently brought up to surface grade with clean backfill material. At the request of the New Mexico Oil Conservation District (OCD), three monitor wells were installed around the former excavation to determine if groundwater had been impacted by the release. An additional monitor well (MW-4), located in the center of the excavation, was requested by the OCD to complete the groundwater delineation at the site. Philip was retained to install and sample the fourth monitor well.

3.0 SUBSURFACE INVESTIGATION

Philip personnel were onsite September 2, 1997 to install and sample one (1) monitor well (MW-4) within the perimeter of the previously excavated area (**Figure 1**). The boring was extended 10 feet into the groundwater table to approximately 45 feet below ground level (bgl) (see **Appendix A: Site Photographs**). The soils were described by Philip personnel based on drill cuttings collected at five-foot intervals.

The soil lithology was similar to the previous soil borings installed at the site (See **Appendix B: Boring Logs**). The surface to approximately 30 feet bgl consists of tan fine-grain sand with limestone fragments. This material is actually backfill collected from pits in the area. From 30 to 40 feet bgl, the soils consist of beige sandy clay (moist) with sandstone fragments. From 40 feet to the termination of the boring at 45 feet bgl, the soils consist of light yellow to tan fine-grain sand with some clays intermixed.



PHILIP SERVICES CORP

TITLE: SITE MAP

DWN:	DES.:	PROJECT NO.: 17398
CDJ		
CHKD:	APPD:	
DATE: 9/22/97	REV.: 0	FIGURE 1

COL1 J:\17398\17398A-1

3.1 MONITOR WELL COMPLETION

Monitor well MW-4 was constructed of 4-inch diameter schedule 40 PVC casing with 0.020-inch factory slotted well screen (see **Appendix C: Monitor Well Installation Diagram**). Fifteen (15) feet of screen was placed at the bottom of the boring (approximately 45 feet bgl). A sand pack was then installed from the bottom of the boring to approximately 2 feet above the casing/screen junction. A clean silica sand with a grain size larger than the well screen (sieve size 8 to 16) was used as the sand pack in the annular space between the casing and borehole. Above the sand pack, a 2-foot bentonite plug was installed in the annulus. Above the bentonite plug, a non-shrinking grout with 3 to 5% bentonite was installed in the annulus to 2 feet bgl. The remaining 2 feet to the surface was completed with cement. The surface completion included an 8-inch diameter steel surface riser, a 4-foot by 4-foot by 4-inch thick concrete pad, and a locking cap on the outer protective casing.

4.0 ANALYTICAL RESULTS

Within 24 hours after installation, Philip personnel were onsite to gauge, develop, and sample the newly installed monitor well MW-4. The well was developed by removing three (3) well volumes (approximately 23 gallons) of water prior to sampling. A water sample was collected and submitted to Trace Analysis, Inc. (Trace) of Lubbock, Texas for analysis of total petroleum hydrocarbons (TPH) using EPA Method 418.1, benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8020, and methyl, tertial, butyl, ether (MTBE) using EPA Method 8020. Analytical results for monitor well MW-4 indicate that TPH, BTEX, and MTBE results are below detection limits (See **Appendix D: Analytical Results**). In addition, the analytical results are also below the Environmental Protection Agency's (EPA) Drinking Water Standards (**Table 1**). No soil samples were collected and analyzed for this report.

5.0 GROUNDWATER GRADIENT

A groundwater gradient map was developed for the site, based on collected gauging data at the property (**Table 2**). Based on the September 2, 1997 gauging data, the groundwater gradient at the site is to the southeast (**Figure 2**).

6.0 WASTE DISPOSAL AND DISPOSITION

Since no hydrocarbon impacts were present within the backfill material, the soils generated during the drilling of monitor well MW-4 were spread onsite adjacent to the monitor well head.

The development water generated from monitor well MW-4 was placed in one (1) 55-gallon Department of Transportation (DOT) approved steel drum. The drum is stored adjacent to monitor well MW-2.

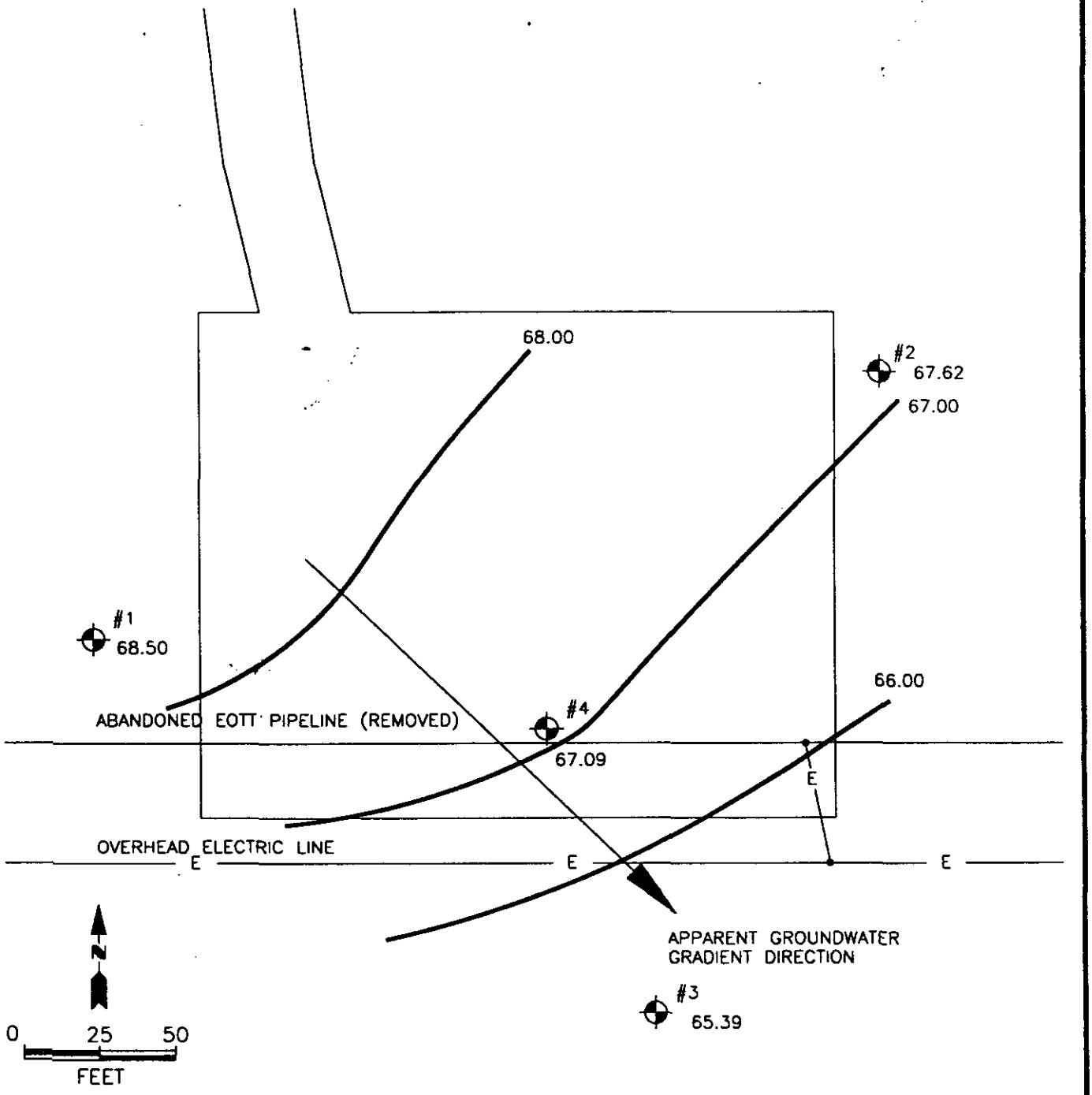
TABLE 1
GROUNDWATER ANALYTICAL RESULTS
EOTT ENERGY OPERATING LIMITED
MONUMENT, NEW MEXICO

Monitor Well	Date	TPH (in ppm)	MTBE (in ppm)	Benzene (in ppm)	Toluene (in ppm)	Ethylbenzene (in ppm)	Xylene (in ppm)	Total BTEX (in ppm)
MW-1	4/30/97	<0.500	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-2	4/30/97	<0.500	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-3	4/30/97	<0.500	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-4	9/2/97	<0.500	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
EPA Drinking Water Standards		NA	NA	0.005	1	0.7	10	NA

TABLE 2
GROUNDWATER GAUGING DATA
EOTT ENERGY OPERATING LIMITED
MONUMENT, NEW MEXICO

Monitor Well	Date	Survey Data (in feet)	Depth to Groundwater (in feet)	Depth to LNAPL (in feet)	LNAPL Thickness (in feet)	Corrected Groundwater (in feet)
MW-1	04/30/97	102.86	34.20	N.D.	N.D.	68.66
	09/02/97	102.86	34.36	N.D.	N.D.	68.50
MW-2	04/30/97	101.73	33.80	N.D.	N.D.	67.93
	09/02/97	101.73	34.11	N.D.	N.D.	67.62
MW-3	04/30/97	100.97	35.31	N.D.	N.D.	65.66
	09/02/97	100.97	35.58	N.D.	N.D.	65.39
MW-4	09/02/97	100.65	33.56	N.D.	N.D.	67.09

N.D. --- None detected



PHILIP SERVICES CORP.

TITLE:

GROUNDWATER GRADIENT MAP
FOR
SEPTEMBER 2, 1997

DWN: CDJ	DES.:	PROJECT NO.: 17398
CHKD:	APPD:	
DATE: 9/22/97	REV.: 0	FIGURE 2

COL:1 J:\17398\17398A-2

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings from this limited Phase II Groundwater Investigation, and the previous groundwater investigation at the site, Philip concludes that the groundwater at the site is not impacted with hydrocarbons associated with the former EOTT pipeline release. The four (4) installed monitor wells (MW-1, MW- 2, MW-3, and MW-4) have groundwater analytes of TPH, BTEX, and MTBE below detection limits. Since these analytes are below current EPA Drinking Water Standards, Philip recommends that EOTT pursue closure of the site with the State of New Mexico Oil Conservation District.

Sincerely,

PHILIP SERVICES CORPORATION

Jeffrey W. Kindley

Jeffrey W. Kindley, P.G.
Project Manager/Staff Geologist

PHILIP ENVIRONMENTAL

RECORD OF SUBSURFACE EXPLORATION

Borehole No. MW-4
Well No. MW-4

Project Name: EOTT Energy Corporation
Project No. 17398
Borehole Location: Lea Co., New Mexico
Logged By: Jeffrey Kindley
Drilled By: Scarborough Drilling
Drilling/Rig Methods: Air Rotary 8 1/4"
Date/Time Started: 09/02/97 @ 1120
Date/Time Completion(s): 09/02/97 @ 1330
Air Monitoring Type: Not Applicable
GWL Depth: 37 feet

Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	Depth Change (feet)	USCS Symbol	Comments
0-							
5				Tan fine-grain sand with limestone fragments (Backfill material)		SW	Dry
--10							
--15							
--20							
--25							
--30				Beige sandy clay (moist) with sandstone layers		SC	
--35							Water on rods at 37 feet--
--40							

Comments:

Geologist Signature

PHILIP ENVIRONMENTAL

RECORD OF SUBSURFACE EXPLORATION

Borehole No. MW-4
Well No. MW-4

Project Name: EOTT Energy Corporation — Project No. 17398
Borehole Location: Lea Co., New Mexico — Logged By: Jeffrey Kindley
Drilled By: Scarborough Drilling — Drilling/Rig Methods: Air Rotary 8 1/4"
Date/Time Started: 09/02/97 @ 1120 — Date/Time Completion(s): 09/02/97 @ 1330
Air Monitoring Type: Not Applicable — GWL Depth: 37 feet

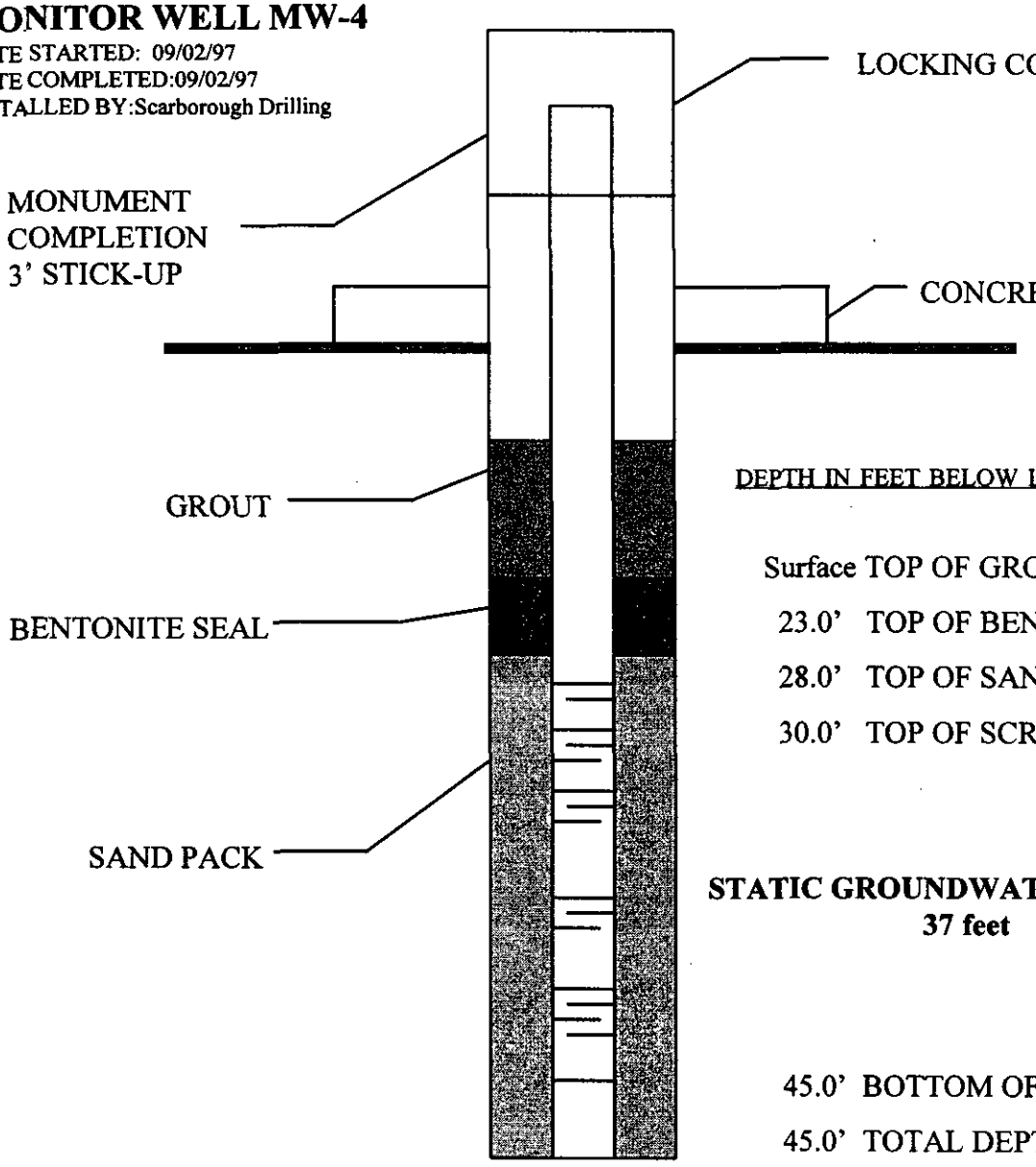
Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	Depth Change (feet)	USCS Symbol	Comments
-40-				Light yellow/tan fine-grain sand with some clay		SC	Wet-
-45				Boring terminated at 45 feet			
-50							
-55							
-60							
-65							
-70							
-75							
-80							

Comments: Boring termintated at 45 feet and converted into a monitor well

Geologist Signature _____

MONITOR WELL MW-4

DATE STARTED: 09/02/97
DATE COMPLETED:09/02/97
INSTALLED BY:Scarborough Drilling



DEPTH IN FEET BELOW LAND SURFACE

Surface TOP OF GROUT
23.0' TOP OF BENTONITE SEAL
28.0' TOP OF SAND PACK
30.0' TOP OF SCREEN

STATIC GROUNDWATER DEPTH:
37 feet

45.0' BOTTOM OF SCREEN
45.0' TOTAL DEPTH

CASING TYPE: 4" SCH. 40 PVC
SCREEN TYPE: SCH. 40 PVC 0.020 SLOT
GRAVEL PACK: 08/16 VOLUME SILICA SAND

PHILIP ENVIRONMENTAL SERVICES CORPORATION

Monitor Well Installation Diagram

EOTT ENERGY Operating Limited Partnership
LEA CO., NEW MEXICO
17398

TRACE ANALYSIS, INC.
6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR
Philip Environmental
Attention Jeff Kindley
7904 I-20 West
Midland TX 79706

Date: Sep 09, 1997
Date Rec: 9/5/97
Project: 17398
Proj Name: Eott, Monument
Proj Loc: Monument, New Mexico

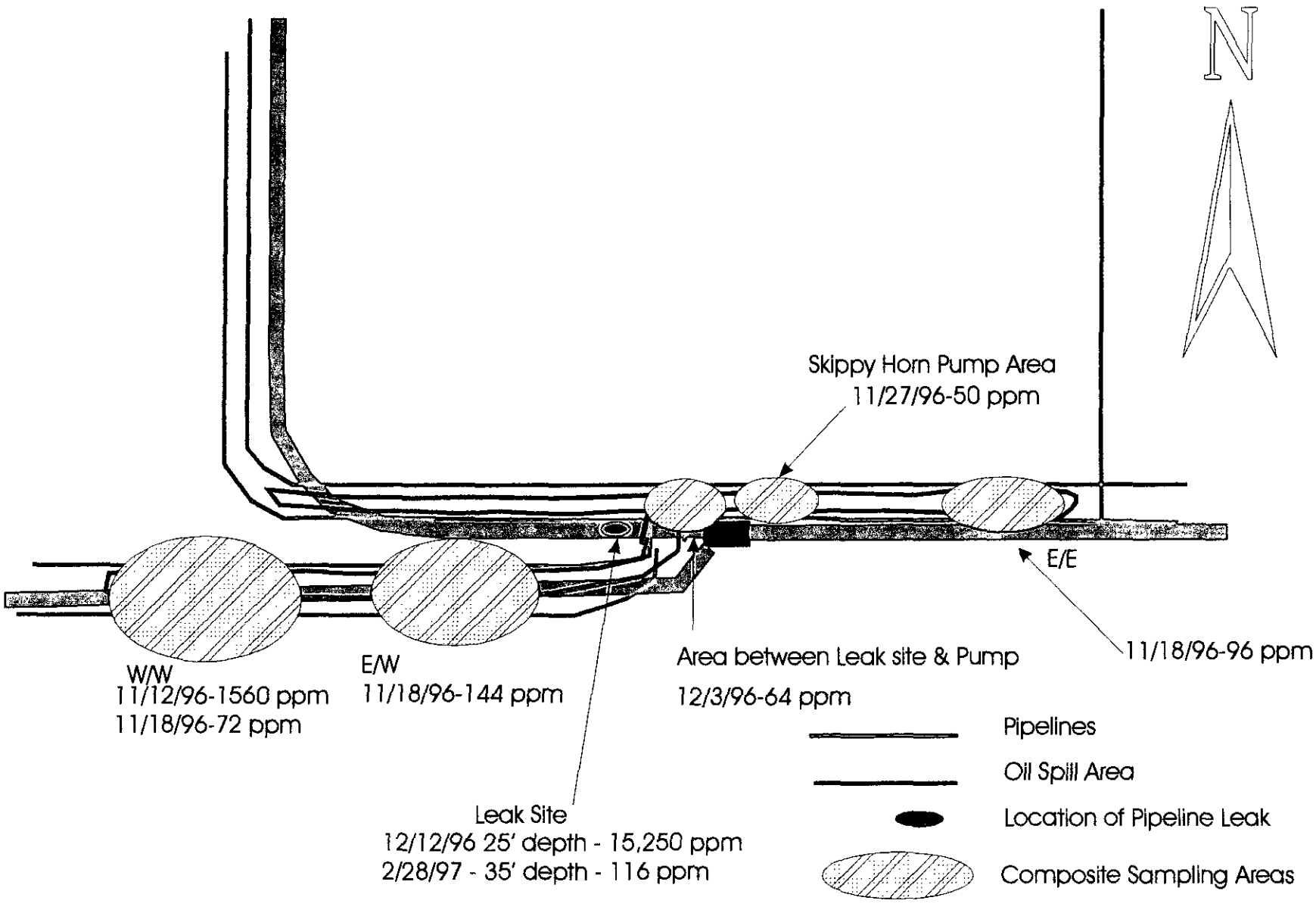
Lab Receiving # : 9709000081
Sampling Date: 9/2/97
Sample Condition: Intact and Cool
Sample Received By: JH

TA#	Field Code	MATRIX	TRPHC (mg/L)	MTBE (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	M,P,O XYLENE (mg/L)	TOTAL BTEX (mg/L)
T80952	MW-4	Water	<0.500	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Method Blank			<0.500	<0.001	<0.001	<0.001	<0.001	<0.001	
Reporting Limit			0.5	0.001	0.001	0.001	0.001	0.001	
QC			102	0.097	0.097	0.096	0.095	0.296	
RPD			1	2	2	2	0	1	
% Extraction Accuracy			91	102	98	97	96	100	
% Instrument Accuracy			102	97	97	96	95	99	

TEST	PREP METHOD	PREP DATE	ANALYSIS METHOD	ANALYSIS COMPLETED	CHEMIST	QC: (mg/L)	SPIKE: (mg/L)
BTEX	EPA 5030	9/5/97	EPA 8020	9/5/97	AG	0.100 ea	0.1 ea
TRPHC	N/A	9/8/97	EPA 418.1	9/9/97	RP/HW	100	8.5

Director, Dr. Blair Leftwich

9-9-97
Date



Skippy Horn Remediation Activities Area

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

EOTT ENERGY
MRS. LENNAH FROST
P.O. BOX 1660
MIDLAND, TEXAS 79703
FAX: 915-687-2713

Receiving Date: 11/18/96
Sample Type: SOIL
Project Location: SKIPPY HORN

Analysis Date: 11/18/96
Sampling Date: 11/18/96
Sample Condition: Intact

ELT#	FIELD CODE	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYLBENZENE (mg/Kg)	m,p-XYLENE (mg/Kg)	o-XYLENE (mg/Kg)	TPH (mg/kg)
9592	E/W	<0.100	<0.100	<0.100	<0.100	<0.100	144
9593	W/W	<0.100	<0.100	<0.100	<0.100	<0.100	72
9594	E/E	<0.100	<0.100	<0.100	<0.100	<0.100	96
% IA		90	91	92	92	93	97
% EA		109	97	94	94	93	106
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030 , EPA 418.1

Michael R. Fowler

11-19-96
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

EOTT ENERGY
MRS. LENNAH FROST
P.O. BOX 1660
MIDLAND, TEXAS 79703
FAX: 915-687-2713

Receiving Date: 12/03/96
Sample Type: SOIL
Project : # SKIPPY HORN
Project Location: SKIPPY HORN

Analysis Date: TPH 12/03/96
Analysis Date: BTEX 12/04/96
Sampling Date: 12/03/96
Sample Condition: Intact

ELT#	FIELD CODE	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYLBENZENE (mg/kg)	m,p-XYLENE (mg/kg)	o-XYLENE (mg/kg)	TPH (mg/kg)
9720	Leak area 20'-25' between actual leaksite & pump	<0.100	<0.100	<0.100	<0.100	<0.100	64
	% IA	98	90	88	86	86	100
	% EA	95	93	89	94	88	90
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030 , EPA 418.1

Michael R. Fowler

Michael R. Fowler

12-5-96

Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

EOTT ENERGY
MR. LENNAH FROST
P.O. BOX 1660
MIDLAND, TEXAS 79703
FAX: 915-687-2713

Receiving Date: 11/27/96
Sample Type: SOIL
Project : # SKIPPY HORN
Project Location: SKIPPY HORN

Analysis Date: TPH 11/27/96
Analysis Date: BTEX 12/02/96
Sampling Date: 11/27/96
Sample Condition: Intact

ELT#	FIELD CODE	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYLBENZENE (mg/kg)	m,p-XYLENE (mg/kg)	o-XYLENE (mg/kg)	TPH (mg/kg)
9671	PUMP AREA	<0.100	0.194	<0.100	0.200	<0.100	50
	% IA	110	100	96	95	96	100
	% EA	109	100	97	97	97	100
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030 , EPA 418.1

Michael R. Fowler

12-3-96
Date

ENVIRONMENTAL LAB OF TEXAS, INC.

"Don't Treat Your Soil Like Dirt!"

EOTT ENERGY
ATTN: LENNAH FROST
P.O. BOX 1660
MIDLAND, TEXAS 79703
FAX: 915-687-2713

Receiving Date: 02/28/97
Sample Type: SOIL
Project : SKIPPY HORN
Project Location: SKIPPY HORN

Analysis Date : 02/28/97
Sampling Date: 02/28/97
Sample Condition: Intact

ELT#	FIELD CODE	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYLBENZENE (mg/Kg)	m,p-XYLENE (mg/Kg)	o-XYLENE (mg/Kg)	TPH (C10-C25) (mg/kg)
10316	SKIPPY HORN 35'	<.100	0.107	<.100	0.234	<.100	116
	% IA	98	98	92	115	94	94
	% EA	102	100	99	99	98	***
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,8015M DRO

Michael R. Fowler

Michael R. Fowler

3-3-97

Date

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

July 21, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-410-431-196

Ms. Lennah Frost
EOTT Energy Pipeline Limited Partnership
P.O. Box 1660
Midland, Texas 79702

RE: SKIPPY HORN GROUND WATER INVESTIGATION

Dear Ms. Frost:

The New Mexico Oil Conservation Division (OCD) has reviewed EOTT Energy Pipeline Limited Partnership's (EOTT) "SEC 18, T-20-S, R-37-E, LEA COUNTY, NM, SKIPPY HORN GROUND WATER CONTAMINATION". This document contains the results of EOTT's investigation of the extent of contamination related to a crude oil pipeline leak northwest of Monument, New Mexico.

The OCD has the following comments and requests for information on the above referenced report:

1. The report does not contain a summary nor the analytical results of the soil remedial actions related to the spill. Please provide the OCD with this information.

2. The report did not include a map showing the direction and magnitude of the hydraulic gradient at the site. Please provide the OCD with this information.

3. The OCD, during a field inspection of the soil excavation activities, observed phase separated hydrocarbons on the surface of the ground water in the excavation. The ground water investigation work conducted did not include a monitor well at the source of the pipeline leak. Therefore, the OCD requires that EOTT install a ground water monitor well at the source of the leak and sample and analyze the ground water for concentrations of benzene, toluene, ethylbenzene and xylenes using EPA approved methods and quality assurance/quality control. A report on the additional investigations will be submitted to the OCD by September 19, 1997.

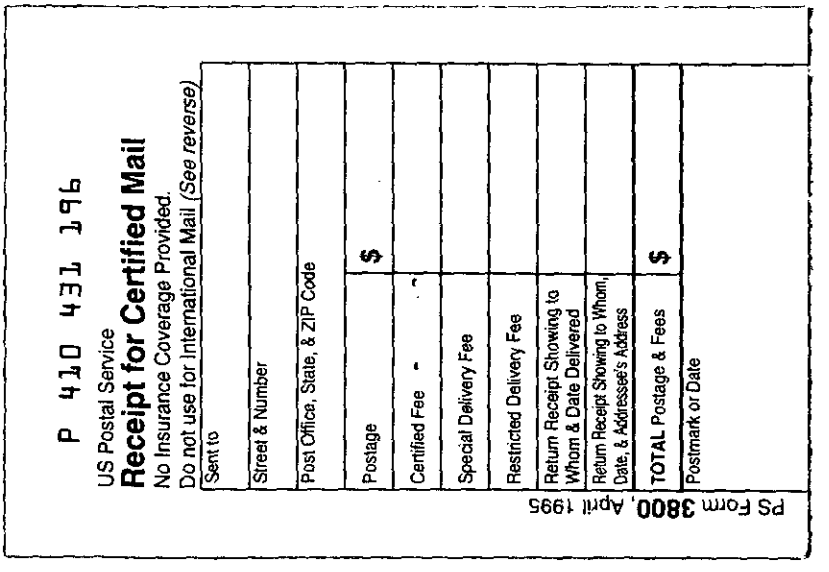
Submission of the above information will allow the OCD to complete a review of the site investigation and remedial actions.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Supervisor
Wayne Price, OCD Hobbs District Office



EOTT ENERGY OPERATIN G LIMITED

MONUMENT, NEW MEXICO

GROUNDWATER DELINEATION

REPORT

RECEIVED
MAY 2 7 1997
Environmental Bureau
Oil Conservation Division

MAY 20, 1997

PREPARED FOR

EOTT Energy Operating Limited
Midland, Texas

PROJECT 17398

PREPARED BY

PHILIP ENVIRONMENTAL SERVICES CORPORATION
7904 Interstate 20 West
Midland, Texas 79706
(915) 563-0118

TABLE OF CONTENTS

1.0 INTRODUCTION

Philip Environmental Services Corporation (Philip) has completed the Phase II Groundwater Site Assessment in the vicinity of a release from a former EOTT Energy Operating Limited (EOTT) pipeline located on Mr. Jimmy Cooper's property approximately 6 miles southwest of Monument, Lea County, New Mexico (**Figure 1**). This report details the installation and sampling of three (3) monitor wells around the perimeter of the former oil pipeline release.

2.0 PROJECT BACKGROUND

The purpose of the site investigation is to identify if groundwater has been impacted by the release from the former EOTT pipeline. From November 1996 until February 1997, soil from the pipeline release was excavated and transported to an approved landfill. Afterwards, the excavated area was brought up to surface grade with clean backfill material. At the time of the excavation activities, oil was noted on the groundwater surface. A bioremediation technology was utilized, by a previous consulting firm, to remove as much oil as possible from the groundwater surface prior to backfilling. Following the completion of the site activities described above, Philip was retained to install and sample three (3) monitor wells.

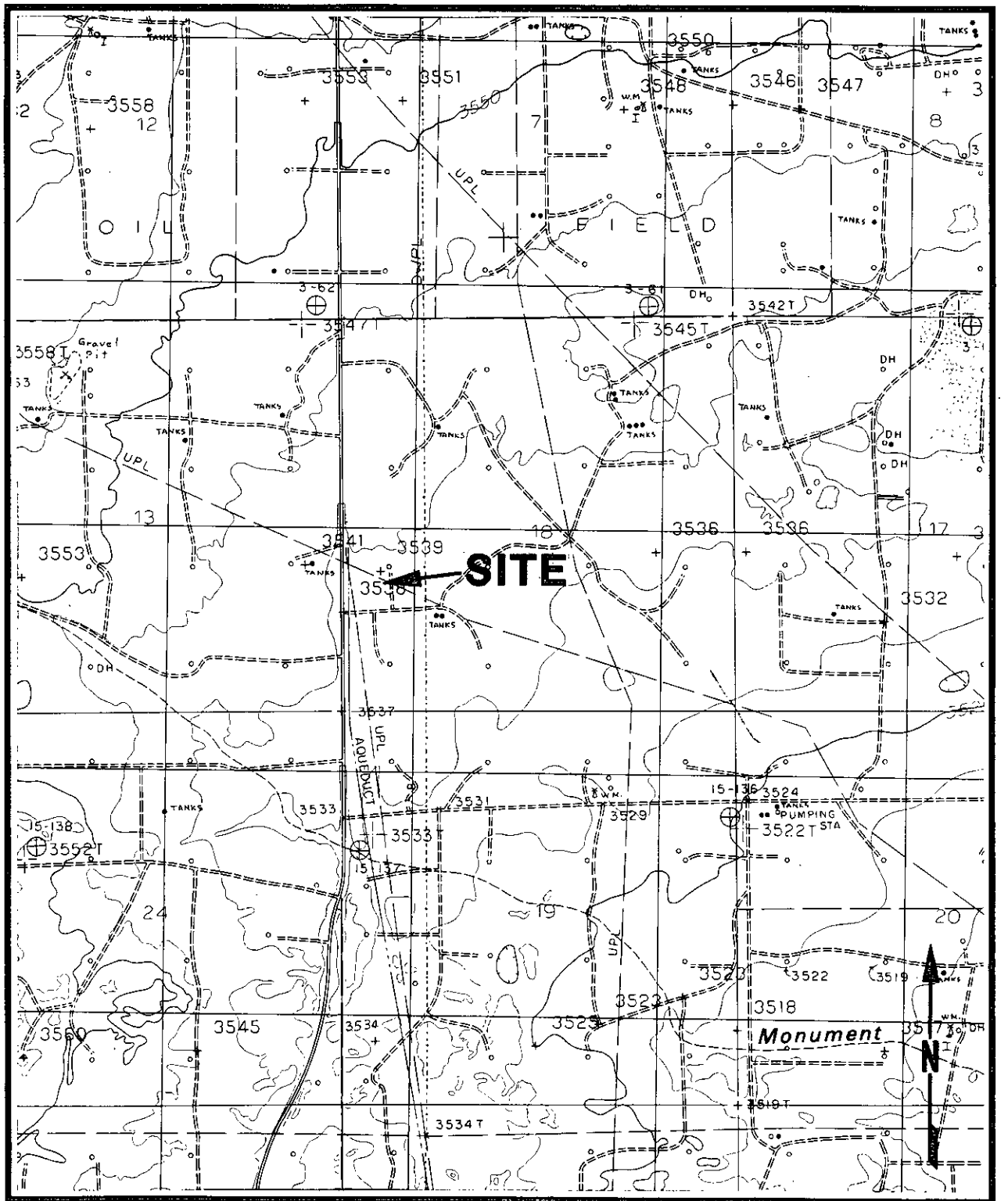
3.0 SUBSURFACE INVESTIGATION

Philip personnel were onsite April 30, 1997 to install and sample three (3) monitor wells (MW-1, MW-2, and MW-3) outside the perimeter of the previously excavated area (**Figure 2**). The borings were extended 10 feet into the groundwater table to approximately 42 feet below ground level (bgl).

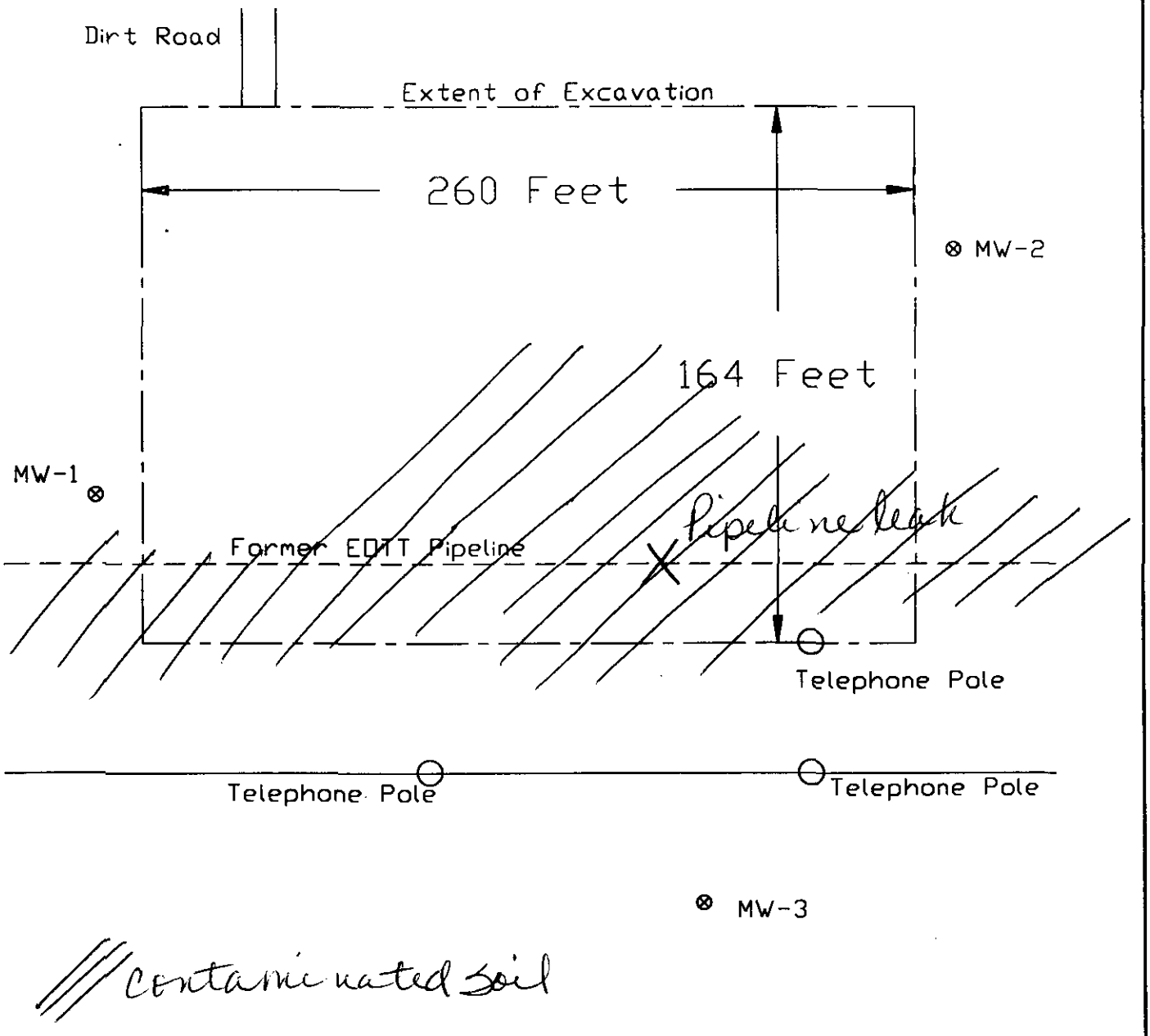
As directed by Ms. Lennah Frost of EOTT, Philip personnel did not collect soil samples for analysis during this investigation, since the monitor wells were installed outside the perimeter of the release area. However, the soil lithology was logged by Philip personnel from drill cuttings collected at 5 foot intervals.

Subsurface conditions were similar in the three (3) installed monitor wells (see **Appendix A Boring logs**). The surface to an approximate depth of 10 feet bgl is a tan fine-grain sand with limestone fragments. From 10 feet to approximately 30 feet bgl is a tan fine-grain sand with sandstone chips intermixed. From 30 feet to the termination of the monitor wells is a beige sandy clay.

The monitor wells (MW-1, MW-2, and MW-3) were constructed of 4-inch diameter schedule 40 PVC casing with 0.020-inch factory slotted well screen (see **Appendix B Monitor Well Completion**). Fifteen (15) feet of screen was placed at the bottom of each boring. A sand pack was then installed from the bottom of the boring to approximately 2 feet above the casing/screen junction. A clean silica sand with a grain size larger than the well screen (sieve size 8 to 16) was used as the sand pack in the annular space between the casing and borehole. Above the sand pack, a 2 foot



PHILIP ENVIRONMENTAL	EOTT Energy Corporation USGS 7.5"Quad Monument South, New Mexico Provisional Edition 1985	Figure 1 Project No. 17398 Scale 1:24,000



PHILIP ENVIRONMENTAL

NOTES:

Approximate Graphic Scale: 1" = 50'

TITLE:

EOTT ENERGY OPERATING LIMITED
Monument, New Mexico

Filename: EOTT-MON.DWG

REV:

DATE: April 30, 1997

CHKD:

PROJECT NO. 17398

FIGURE NO. 2

bentonite plug was installed in the annulus. Above the bentonite plug, a non-shrinking grout with 3 to 5% bentonite was installed in the annulus to 2 feet bgl. The remaining 2 feet to the surface was completed with cement. The surface completion included an 8 inch diameter steel surface riser, a 4 foot by 4 foot by 4 inch thick concrete pad, and a locking cap on the outer protective casing.

4.0 GROUNDWATER RESULTS

Within 24 hours after installation, Philip personnel were onsite to gauge, develop, and sample the three (3) monitor wells (MW-1, MW-2, and MW-3). The wells were developed by removing three (3) well volumes from each well, with approximately 15 gallons being removed from MW-1, 16 gallons from MW-2, and 14 gallons from MW-3. No groundwater gradient was established, since the three monitor wells were not surveyed as part of this investigation (see **Appendix C Site Photographs**). However, based on surface topography at the site, the groundwater gradient is presumed to be to the south towards monitor well MW-2.

A water sample from each monitor well was collected and submitted to Trace Analysis, Inc. (Trace) of Lubbock, Texas for analysis of total petroleum hydrocarbons (TPH) using EPA Method 418.1, benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8020, and methyl tertial butyl ether (MTBE) using EPA Method 8020. Analytical results indicate that TPH, BTEX, and MTBE results are below detection limits for all three monitor wells (see **Appendix D Laboratory Analytical)**. In addition, all analytical results are below the Environmental Protection Agency's Drinking Water Standards (**Table 1**).

5.0 WASTE DISPOSAL AND DISPOSITION

The soils generated during drilling activities were spread out adjacent to the monitor/recovery wells since no hydrocarbon impacts were found in the vicinity of the installed wells during this or previous investigations at the site.

The development water generated from the monitor/recovery wells was placed in (1) one 55-gallon drum and stored adjacent to monitor well MW-1.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of the Phase II Groundwater Investigation, Philip concludes that the groundwater is not impacted with hydrocarbons from the former EOTT pipeline release. Since the groundwater results are below detection limit for TPH, BTEX, MTBE, and since they are below the EPA Drinking Water Standards, Philip recommends that EOTT pursue closure of the site with the State of New Mexico Oil Conservation District (NMOCD).

TABLE 1
GROUNDWATER ANALYTICAL RESULTS
EOTT ENERGY OPERATING LIMITED
MONUMENT, NEW MEXICO

Monitor Well	Date	TPH (in ppm)	MTBE (in ppm)	Benzene (in ppm)	Toluene (in ppm)	Ethylbenzene (in ppm)	Xylene (in ppm)	Total BTEX (in ppm)
MW-1	4/30/97	<0.500	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-2	4/30/97	<0.500	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-3	4/30/97	<0.500	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
EPA Drinking Water Standards		NA	NA	0.005	1	0.7	10	NA

APPENDIX A

BORING LOGS

PHILIP ENVIRONMENTAL

RECORD OF SUBSURFACE EXPLORATION

Borehole No. MW-1
Well No. MW-1

Project Name: EOTT Energy Corporation Project No. 17398
Borehole Location: Lea Co., Texas Logged By: Jeffrey Kindley
Drilled By: Scarborough Drilling Drilling/Rig Methods: Air Rotary 8 1/4"
Date/Time Started: 04/30/97 @ 0930 Date/Time Completion(s): 04/30/97 @ 1100
Air Monitoring Type: Not Applicable GWL Depth: 35 feet

Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	Depth Change (feet)	USCS Symbol	Comments
0-							Moist
5				Tan fine-grain sand with limestone fragments		SW	
--10				Tan fine grain sand			
--15				Yellow colored		SW	
--20				with sandstone chips			
--25							
--30				Beige sandy clay (moist)		SC	
--35							Water on rods at 35 feet
--40				Boring terminated at 40 feet			

Comments: Boring terminated at 40 feet and converted into a monitor well.

Geologist Signature Jeffrey Kindley

PHILIP ENVIRONMENTAL

RECORD OF SUBSURFACE EXPLORATION

Borehole No. MW-2
Well No. MW-2

Project Name: EOTT Energy Corporation Project No. 17398
Borehole Location: Lea Co., Texas Logged By: Jeffrey Kindley
Drilled By: Scarborough Drilling Drilling/Rig Methods: Air Rotary 8 1/4"
Date/Time Started: 04/30/97 @ 1210 Date/Time Completion(s): 04/30/97 @ 1300
Air Monitoring Type: Not Applicable GWL Depth: 35 feet

Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	Depth Change (feet)	USCS Symbol	Comments
0-							
5				Tan finie-grain sand with limestone fragments		SW	Moist--
--10				Tan fine grain sand		SW	Dry
--15				Yellow colored			
--20				with sandstone chips			
--25							
--30				Beige sandy clay (moist) with sandstone fragments		SC	Dry-
--35				no sandstone fragments			Water on rods at 35 feet--
--40				Boring terminated at 40 feet			

Comments: Boring terminated at 40 feet and converted into a monitor well.

Geologist Signature Jeffrey Kindley

PHILIP ENVIRONMENTAL

RECORD OF SUBSURFACE EXPLORATION

Borehole No. MW-3
Well No. MW-3

Project Name: EOTT Energy Corporation Project No. 17398
Borehole Location: Lea Co., Texas Logged By: Jeffrey Kindley
Drilled By: Scarborough Drilling Drilling/Rig Methods: Air Rotary 8 1/4"
Date/Time Started: 04/30/97 @ 1310 Date/Time Completion(s): 04/30/97 @ 1410
Air Monitoring Type: Not Applicable GWL Depth: 35 feet

Depth (feet)	Sample Number	Sample Interval	Sample Type	Sample Description	Depth Change (feet)	USCS Symbol	Comments
0-							
5				Tan finie-grain sand with limestone fragments		SW	Moist--
--10				Tan fine grain sand		SW	Dry
--15				Yellow colored			
--20				with sandstone chips			
--25							
--30				Beige sandy clay (moist) with sandstone fragments		SC	Dry-
--35				no sandstone fragments			Water on rods at 35 feet--
--40				Boring terminated at 40 feet			

Comments: Boring terminated at 40 feet and converted into a monitor well.

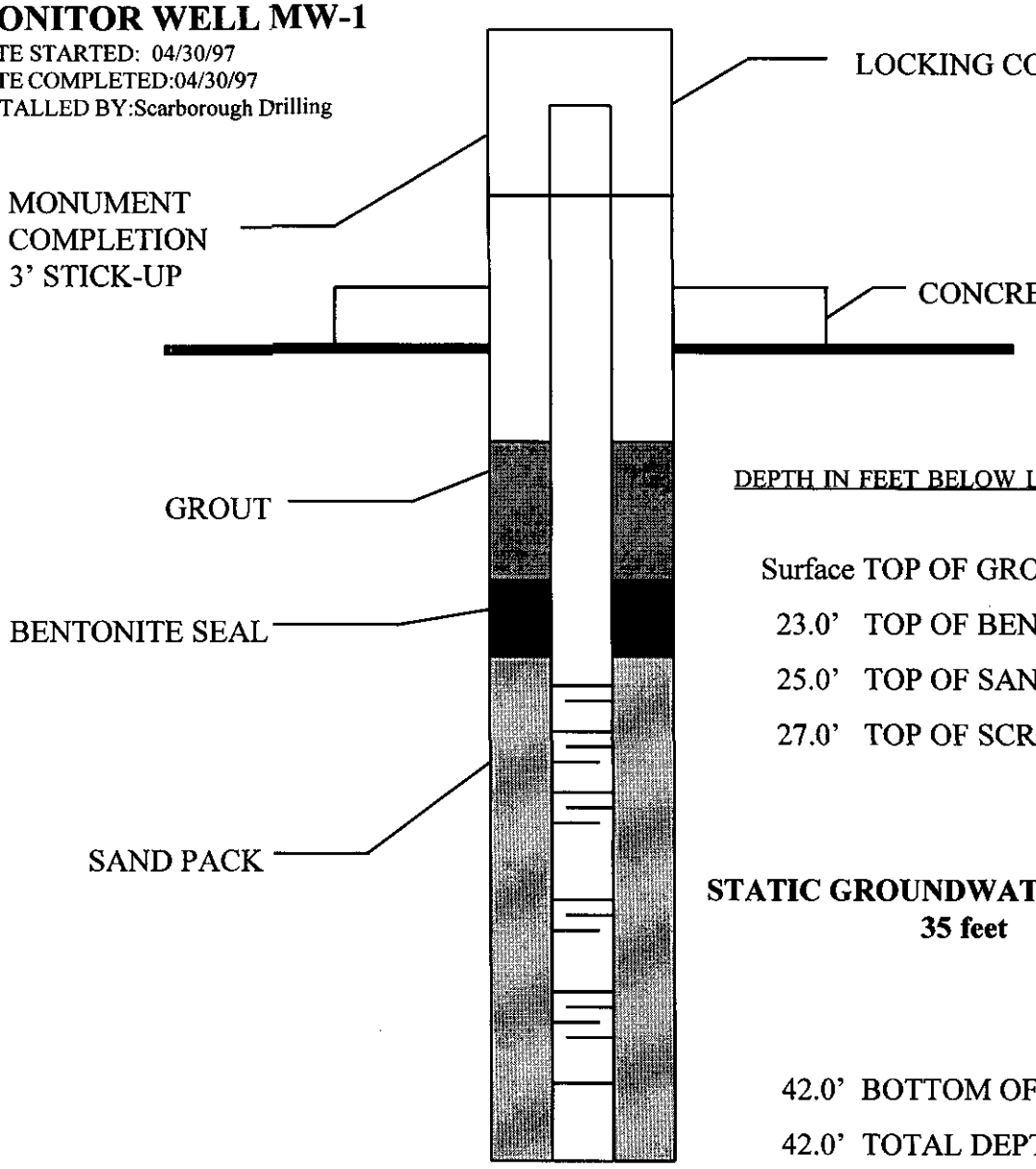
Geologist Signature Jeffrey Kindley

APPENDIX B

MONITOR WELL COMPLETION

MONITOR WELL MW-1

DATE STARTED: 04/30/97
DATE COMPLETED:04/30/97
INSTALLED BY:Scarborough Drilling



DEPTH IN FEET BELOW LAND SURFACE

Surface TOP OF GROUT
23.0' TOP OF BENTONITE SEAL
25.0' TOP OF SAND PACK
27.0' TOP OF SCREEN

STATIC GROUNDWATER DEPTH:
35 feet

42.0' BOTTOM OF SCREEN
42.0' TOTAL DEPTH

CASING TYPE: 4" SCH. 40 PVC
SCREEN TYPE: SCH. 40 PVC 0.020 SLOT
GRAVEL PACK: 08/16 VOLUME SILICA SAND

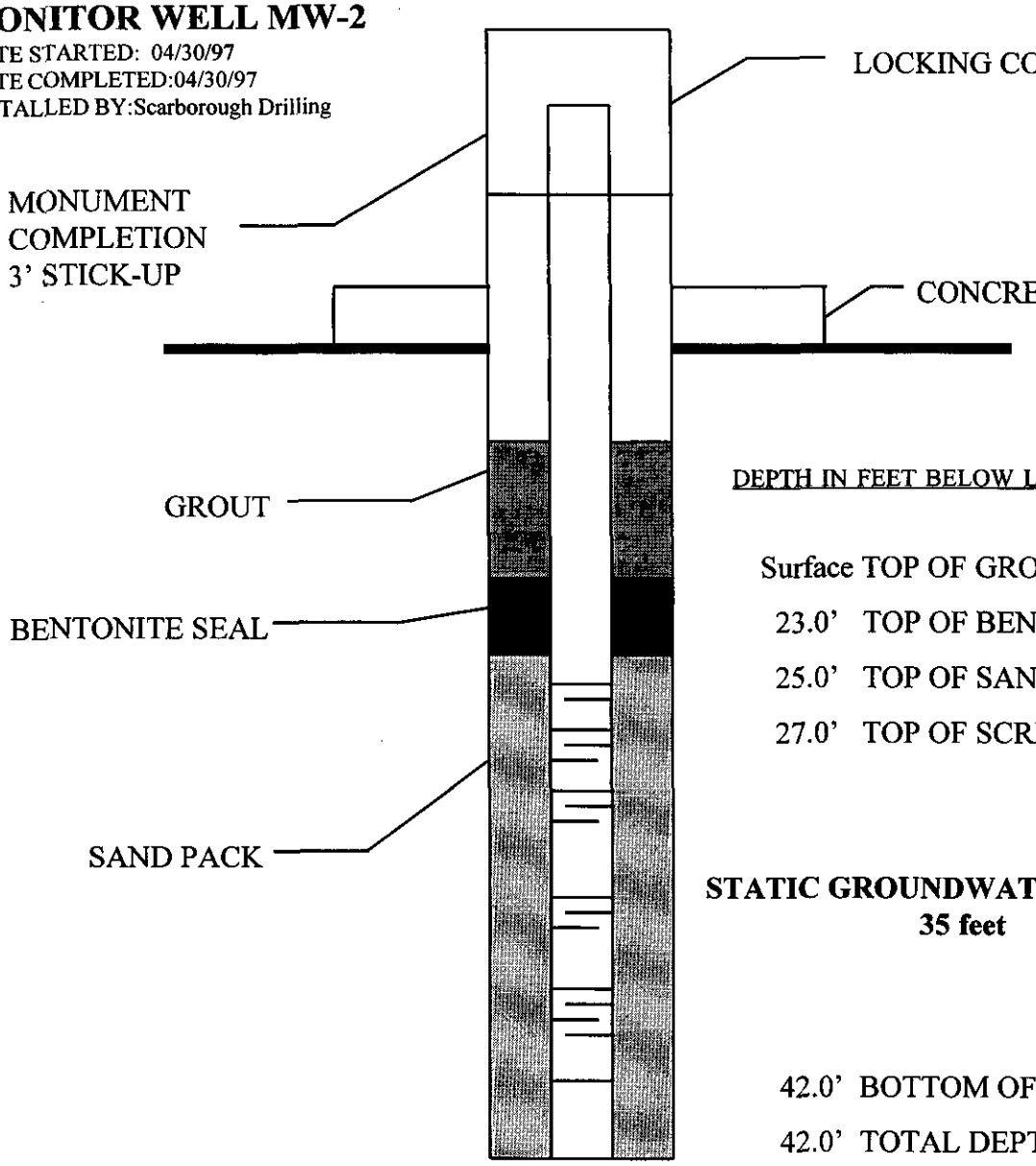
PHILIP ENVIRONMENTAL SERVICES CORPORATION

Monitor Well Installation Diagram

EOTT ENERGY Operating Limited Partnership
LEA CO. TEXAS
17398

MONITOR WELL MW-2

DATE STARTED: 04/30/97
DATE COMPLETED:04/30/97
INSTALLED BY:Scarborough Drilling



DEPTH IN FEET BELOW LAND SURFACE

Surface TOP OF GROUT
23.0' TOP OF BENTONITE SEAL
25.0' TOP OF SAND PACK
27.0' TOP OF SCREEN

STATIC GROUNDWATER DEPTH:
35 feet

42.0' BOTTOM OF SCREEN
42.0' TOTAL DEPTH

CASING TYPE: 4" SCH. 40 PVC
SCREEN TYPE: SCH. 40 PVC 0.020 SLOT
GRAVEL PACK: 08/16 VOLUME SILICA SAND

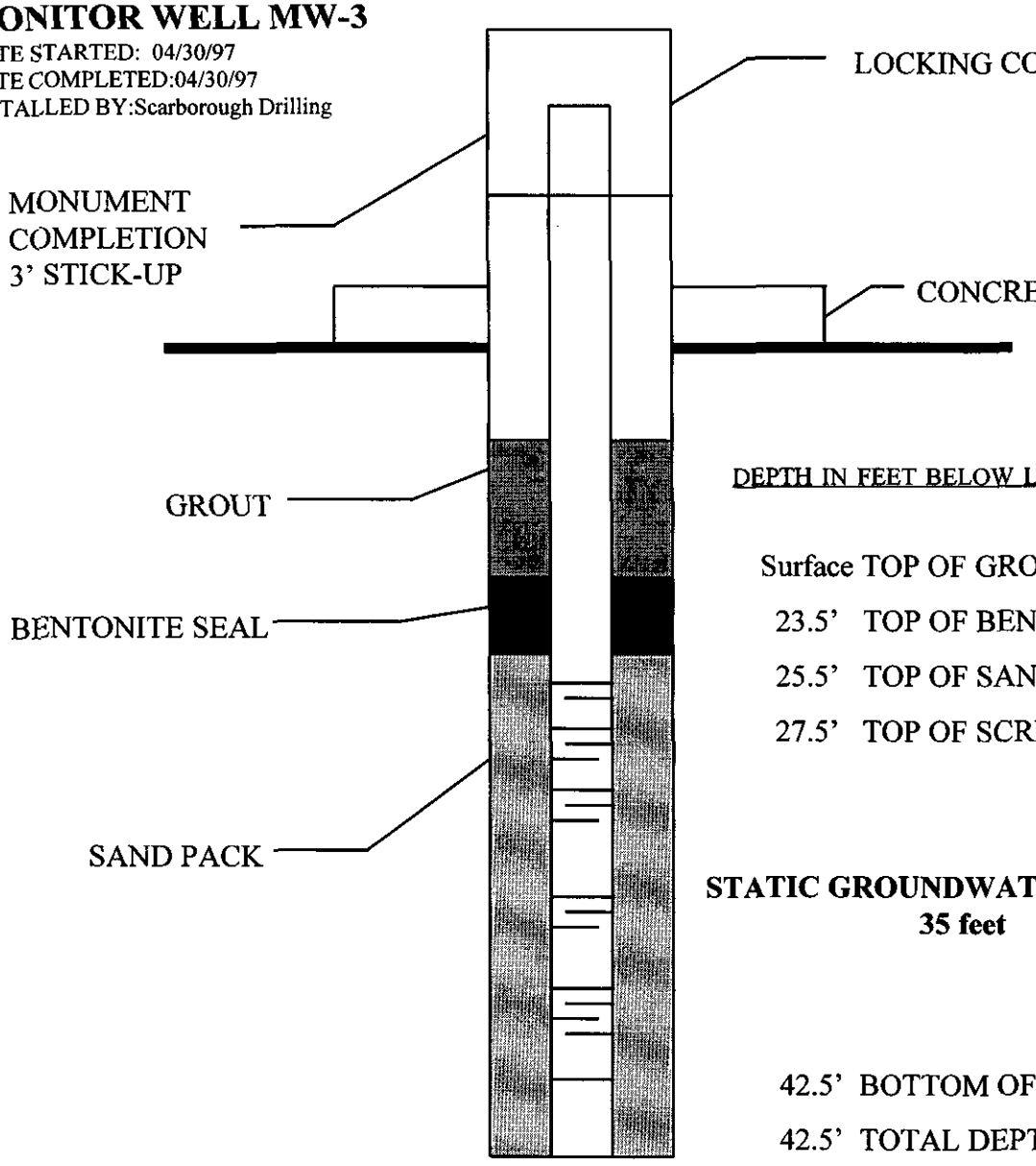
PHILIP ENVIRONMENTAL SERVICES CORPORATION

Monitor Well Installation Diagram

EOTT ENERGY Operating Limited Partnership
LEA CO. TEXAS
17398

MONITOR WELL MW-3

DATE STARTED: 04/30/97
DATE COMPLETED:04/30/97
INSTALLED BY:Scarborough Drilling



DEPTH IN FEET BELOW LAND SURFACE

Surface TOP OF GROUT
23.5' TOP OF BENTONITE SEAL
25.5' TOP OF SAND PACK
27.5' TOP OF SCREEN

STATIC GROUNDWATER DEPTH:
35 feet

42.5' BOTTOM OF SCREEN
42.5' TOTAL DEPTH

CASING TYPE: 4" SCH. 40 PVC
SCREEN TYPE: SCH. 40 PVC 0.020 SLOT
GRAVEL PACK: 08/16 VOLUME SILICA SAND

PHILIP ENVIRONMENTAL SERVICES CORPORATION

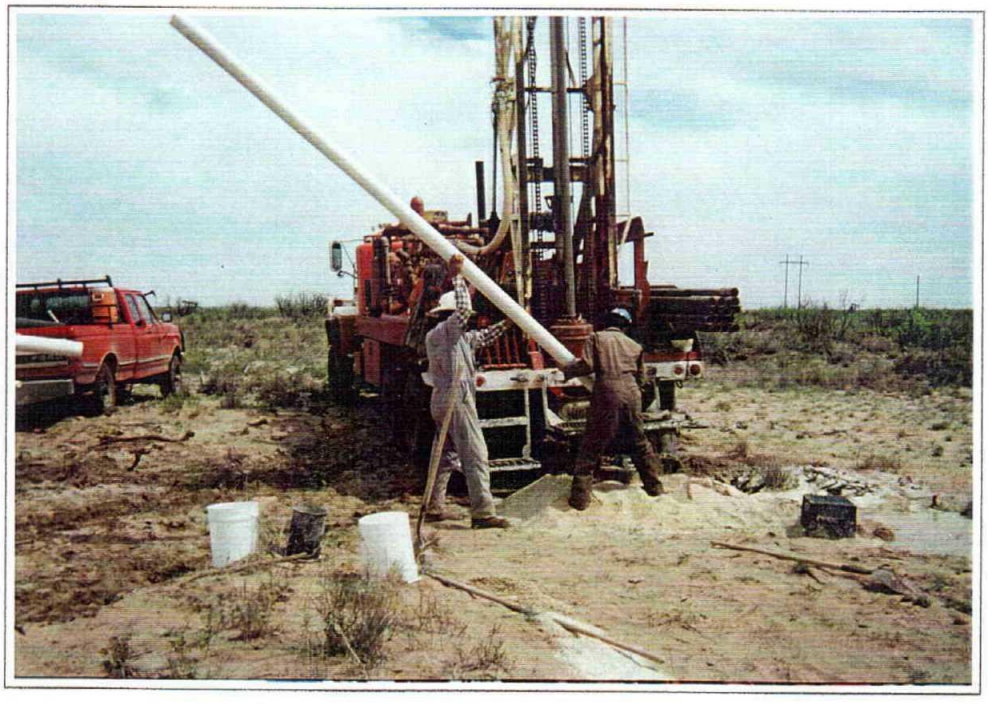
Monitor Well Installation Diagram

EOTT ENERGY Operating Limited Partnership
LEA CO. TEXAS
17398

APPENDIX C

SITE PHOTOGRAPHS

Installation of MW-1.



Installation of MW-1.

Completed MW-1.

Installation of MW-2.

Installation of MW-2.

Completed MW-2.

Installation of MW-3.

Completed MW-3.

APPENDIX D

LABORATORY ANALYTICAL

TraceAnalysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Jeffrey Kindley
Phone #: (915) 563-0118
FAX #: (915) 563-9526

Company Name & Address: Philip Environmental Services Corporation

Project #: 17398
Project Name: EOTT, Monument

Project Location: Monument, New Mexico
Sampler Signature: Jeffrey Kindley

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME	BTEX, MTBE	TPH	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	8240 / 8260	8270
72780	MW-1	1	1Ltr	✓				✓		✓		04/30/97	1510		✓							
1	MW-1	2	40 ml VOA	✓				✓		✓		04/30/97	1510	✓	✓							
81	MW-2	2	40 ml VOA	✓				✓		✓		04/30/97	1530	✓								
1	MW-2	1	1Liter	✓				✓		✓		04/30/97	1530		✓							
82	MW-3	1	1Ltr	✓				✓		✓		04/30/97	1600		✓							
1	MW-3	2	40 ml VOA	✓				✓		✓		04/30/97	1600	✓								

ANALYSIS REQUEST

SPECIAL HANDLING: Turn around # of days; Fax ASAP; Hold

Relinquished by: Jeffrey Kindley	**Date:** 05/01/97	**Time:** 1520	**Received by:** Helen Shelton	**Date:** 5/01/97	**Time:** 3:20
Relinquished by: Helen Shelton	**Date:** 5/1/97	**Time:** 5:45PM	**Received by:**	**Date:**	**Time:**
Relinquished by:	**Date:**	**Time:**	**Received at Laboratory by:** J. Harrell	**Date:** 5/2/97	**Time:** 9:30A

REMARKS: 4°/4°/5°C
Standard turnaround.
6-6

B

Shipped Greyhound 126-689-872-1 CL 9 samples - HS 122AC

TRACE ANALYSIS, INC.
6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR
Philip Environmental
Attention Jeff Kindley
7904 I-20 West
Midland TX 79706

Date: May 06, 1997
Date Rec: 5/2/97
Project: 17398
Proj Name: Eott, Monument
Proj Loc: Monument, New Mexico

Lab Receiving # : 9705000033
Sampling Date: 4/30/97
Sample Condition: Intact and Cool
Sample Received By: JH

TA#	Field Code	MATRIX	TRPHC (mg/L)	MTBE (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	M,P,O XYLENE (mg/L)	TOTAL BTEX (mg/L)
T 72780	MW-1	Water	<0.500	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
T 72781	MW-2	Water	<0.500	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
T 72782	MW-3	Water	<0.500	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
QC			99	0.095	0.092	0.093	0.094	0.289	
RPD			1	9	9	9	10	8	
% Extraction Accuracy			101	95	95	99	99	103	
% Instrument Accuracy			99	95	92	93	94	96	
Reporting Limit:			0.5	0.001	0.001	0.001	0.001	0.001	

TEST	PREP METHOD	PREP DATE	ANALYSIS METHOD	ANALYSIS COMPLETED	CHEMIST	QC: (mg/L)	SPIKE: (mg/L)
MTBE/BTEX	EPA 5030	5/4/97	EPA 8020	5/4/97	DH	0.100 ea	0.1 ea
TRPHC	N/A	5/2/97	EPA 418.1	5/2/97	AG	100	8.5

Director, Dr. Blair Leftwich

5-6-97
Date

EOTT ENERGY Pipeline Limited Partnership

P.O. BOX 1660
5805 E. BUSINESS 20
MIDLAND, TEXAS 79702
(915) 687-2040

May 22, 1997

State of New Mexico
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505
Attn: William Olson

RE: Sec. 18, T-20-S, R-37-E, Lea County, NM
SKIPPY HORN GROUND WATER CONTAMINATION

Dear Mr. Olson:

EOTT Energy Pipeline has completed the investigation of groundwater contamination at the above captioned site. EOTT contracted with Philip Environmental to install and sample (3) three monitor wells around the leaksite.

As per your letter dated May 7, 1997 and our telephone conversation on May 14, 1997, attached please find a copy of the report from Philip Environmental outlining their investigation, procedures, analytical results, and recommendations on the project.

As a result of Philip's investigation, EOTT proposes closure of the site from the State of New Mexico. We believe that EOTT has met all state requirements for cleanup and remediation of crude oil leaks and that the site poses no threat to the environment or the public.

If you have any questions or need additional information please contact me at 915/687-2040 ext. 34.

Sincerely,

Lennah Frost

Lennah Frost
Environmental Engineer

/ld
attachments
cc: Wayne Price - OCD - Hobbs
Al Hugh - Environmental File
Jim Davis
Bobby Garduno

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

P 410 431 170

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

May 7, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-410-431-170

Ms. Lennah Frost
EOTT Energy Corp.
P.O. Box 1660
Midland, Texas 79702

RE: SKIPPY HORN GROUND WATER CONTAMINATION

Dear Ms. Frost:

The New Mexico Oil Conservation Division (OCD) has reviewed EOTT Energy Corp.'s (EOTT) March 3, 1997 "CRUDE OIL CONTAMINATED SOIL REMEDIATION, SEC 18, T-20-S, R-37-E, LEA COUNTY, NEW MEXICO". This document contains EOTT's notification of encountering ground water during the excavation of contaminated soils from a crude oil pipeline leak at the Skippy Horn spill site located in Sec. 18, T20S, R37E, Lea County New Mexico.

Based upon the above notification, the OCD requires that EOTT submit a ground water investigation work plan to the OCD by July 11, 1997.

If you have questions please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Jerry Sexton, OCD Hobbs District Supervisor
Wayne Price, OCD Hobbs District Office

EOTT ENERGY Pipeline Limited Partnership

P.O. BOX 1660
5805 E. BUSINESS 20
MIDLAND, TEXAS 79702
(915) 687-2040

March 3, 1997

State of New Mexico
Oil Conservation Division
2040 Pacheco
Santa Fe, New Mexico 87505
Attn: Bill Olson

RE: Crude Oil Contaminated Soil Remediation
Sec. 18, T-20-S, R-37-E
Lea County, New Mexico

Dear Bill:

EOTT Energy Pipeline Limited Partnership (EOTT) has been excavating crude oil contaminated soil at the above captioned site as a result of a pipeline leak that occurred in November, 1996. On February 26, 1997 at approximately 12:00 pm, during excavation, EOTT encountered groundwater at approximately 35'-37'.

As per NMOCD guidelines the site must be cleaned to 100 ppm TPH. Our last bottom hole sample revealed a TPH of <10 ppm based on EPA 8015M method. We have removed all contaminated soil, which we believe to be the possible source of water contamination. Excavation was completed February 28, 1997. Attached are the analytical results of bottomhole samples taken after we completed excavation last week.

Our next step will be to spray the excavation with a solution of nutrients and fertilizer, (see attached letter from Nickell Environmental) which will speed up the natural attenuation of bacteria in the soil and water. After spraying the excavation, we plan to backfill the hole with clean soil.

The spraying and backfill should be complete by March 7, 1997. At that time we will also submit plans for the next phase of remediation.

If you have any questions or need additional information please don't hesitate to call me at 915/68702040 ext. 34.

Sincerely,

Lennah Frost

Lennah Frost
Environmental Engineer

/ld
attachments

cc: Wayne Price - NMOCD - Hobbs

NICKELL ENVIRONMENTAL CORPORATION

ENVIRONMENTAL CONSULTING & REMEDIATION SERVICES

February 28, 1997

Ms. Lennah H. Frost
EOTT Energy Corporation
5805 East Highway 80
Midland, TX 79702

Dear Lennah:

Nickell Environmental uses a naturally occurring bacteria based solution, already existing in the soil and groundwater, for the remediation of hydrocarbons. We integrate this solution with a phosphate 46-0-0 and nitrate 0-35-0 fertilizer that is purchased from the Farmer's Co-op. The mixture is then combined with a percentage of water that is measured according to the size of the area to be treated.

For the remediation of hydrocarbons, our surface and subsurface application system offers an efficient way to disperse solutions efficiently into the soil and groundwater. This offers a wider range of product application.

Sincerely,

Ronnie Nickell
Field Supervisor

RN/clg

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

EOTT ENERGY
ATTN: LENNAH FROST
P.O. BOX 1660
MIDLAND, TEXAS 79703
FAX: 915-687-2713

Receiving Date: 02/28/97
Sample Type: SOIL
Project: SKIPPY HORN
Project Location: SKIPPY HORN

Analysis Date : 02/28/97
Sampling Date: 02/28/97
Sample Condition: Intact

ELT#	FIELD CODE	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYLBENZENE (mg/Kg)	m,p-XYLENE (mg/Kg)	o-XYLENE (mg/Kg)
10316	SKIPPY HORN	<.100	0.107	<.100	0.234	<.100
	% IA	96	96	92	115	94
	% EA	102	100	99	99	96
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030

Michael R. Fowler

3-3-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

EOTT ENERGY
ATTN: MS. LENNAH FROST
P.O. BOX 1660
MIDLAND, TEXAS 79703
FAX: 915-687-2713

RECEIVING DATE: 02/26/97
SAMPLE TYPE: SOIL
PROJECT #: SKIPPY HORN
PROJECT NAME: SKIPPY HORN
PROJECT LOCATION: SKIPPY HORN

ANALYSIS DATE: 02/26/97
SAMPLING DATE: 02/26/97
SAMPLE CONDITION: INTACT

ELT#	FIELD CODE	TPH C10-C25 mg/kg
10906	SOIL	<10

QUALITY CONTROL	3113
TRUE VALUE	3200
% PRECISION	97

Methods: EPA SW 846-8015M DRO

Michael R. Fowler

Michael R. Fowler

2-28-97

Date

JUL-21-97 09:15 From:8152219 15053939758 T-063 P.02/02 Job-068

c: [illegible]
c: Fett

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

2/11 AM

Name WAYNE PRICE Date 2/26/97 Miles ______ District ___

Time of Departure 7 AM Time of Return 4 PM Car No. G 0

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature [signature]

INSPECTION	CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS

REQUEST FROM EOTT TO MEET AT SITE

LENNA FROST — EOTT, A+H TRACKHOE ON SITE

18-20-37 COOPER RANCH

TRACK HOE DUG INTO ~~GROUNDWATER~~, VISABLE FLOATING OIL ~~ON WATER~~

ADVISED EOTT TO NOTIFY NMOCD - ROGER ANDERSON & CC DISTRICT.

EOTT TOOK PICTURES & SOIL SAMPLES

Mileage		Per Diem		Hours	
UIC		UIC		UIC	
RFA		RFA		RFA	
Other		Other		Other	

TYPE INSPECTION PERFORMED

H = Housekeeping
P = Plugging
C = Plugging Cleanup
T = Well Test
R = Repair/Workover
F = Waterflow
M = Mishap or Spill
W = Water Contamination
O = Other

INSPECTION CLASSIFICATION

U = Underground Injection Control - Any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, 2ndry injection and production wells, water flows or pressure tests, surface injection equipment, plugging, etc.)

R = Inspections relating to Reclamation Fund Activity

O = Other - Inspections not related to injection or The Reclamation Fund

X = Indicates some form of enforcement action taken in the field (show immediately below the letter U, R or O)

NATURE OF SPECIFIC [illegible] ON FACILITY INSPEC[illegible]

D = Drilling
P = Production
I = Injection
C = Combined prod. [illegible] operations
S = SWD
U = Underground Sto[illegible]
G = General Operati[illegible]
F = Facility or Loc[illegible]
M = Monitoring
O = Other