



NEW MEXICO ENERGY, MINERALS  
& NATURAL RESOURCES DEPARTMENT

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

January 15, 1998

Texaco Exploration and Production, Inc.  
c/o William F. Carr  
P. O. Box 2208  
Santa Fe, New Mexico 87504-2208

*AMENDED Administrative Order DD-167(H)*  
High Angle/Horizontal

Dear Mr. Carr:

By Division Administrative Order DD-167(H), dated April 16, 1997, authorization was given Texaco Exploration and Production, Inc. ("Texaco") to initiate a high angle/horizontal directional drilling project within a non-standard 160-acre oil spacing and proration unit comprising the SE/4 of Section 28, Township 17 South, Range 34 East, NMPM, North Vacuum-Abo Pool, North Vacuum Abo West Unit, North Vacuum Abo West Unit Waterflood Project Area, Lea County, New Mexico, by drilling its North Vacuum Abo West Unit Well No. 28 (API No. 30-025-33926) at a standard North Vacuum-Abo Pool surface oil well location 1980 feet from the South line and 760 feet from the East line (Unit I) of said Section 28, drill vertically to an approximate depth of 8,600 feet, kick-off in a southwesterly direction with a short radius wellbore (57.3 degrees/100 feet), and drill horizontally a lateral distance of approximately 1,800 feet through the Abo formation. Said order further provided for an applicable drilling window or "producing area" for said horizontal wellbore such that no portion of the producing interval of said wellbore is to be no closer than 660 feet from the outer boundary of said 160-acre tract.

Reference is now made to your letter with attachments dated December 23, 1997, whereby an amendment should be issued in this order to change the size of the assigned producing area so that it accurately reflects the North Vacuum Abo Pool's setback requirements.

**The Division Director Finds That:**

- (1) This application was originally approved under the provisions of Rule 111.D of the General Rules and Regulations of the New Mexico Oil Conservation Division ("Division"), revised by Division Order No. R-10388, issued by the Oil Conservation Commission in Case 11274 on June 13, 1995 (being applicable at that time);
- (2) This amendment has been duly filed under the provisions of the Rule 111.A(9) of the General Rules and Regulations of the New Mexico Oil Conservation Division ("Division"), revised by Division Order No. R-10817, issued by the Oil Conservation Commission in Case 11762 on July 14, 1997 (currently in effect), and Rule 4 of the "Special Rules and Regulations for the North Vacuum-Abo (Oil) Pool," as promulgated by Division Order No. R-2421, as amended.

**IT IS THEREFORE ORDERED THAT:**

(1) Decretory Paragraph No. (4) on page 3 of Division Administrative Order DD-167(H), dated April 16, 1997, is hereby amended to read in its entirety as follows:

“(3) The "producing area" for said horizontal wellbore shall include that area within the SE/4 of said Section 28 that is no closer than 460 feet from the outer boundary of said quarter section.”

(2) All other provisions of said Order DD-167(H) not in conflict with this change shall remain in full force and effect until further notice.

(3) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION



KATHLEEN A. GARLAND  
Acting Director

SEAL

cc: New Mexico Oil Conservation Division - Hobbs  
New Mexico State Land Office - Santa Fe  
File: DD-167(H)

DD-167.AMD

Rec: 12-24-97  
Susp: 1-13-98  
Released: 1-15-98

January 15, 1998

**Texaco Exploration and Production, Inc.**  
c/o William F. Carr  
P. O. Box 2208  
Santa Fe, New Mexico 87504-2208

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Reference is now made to your letter with attachments dated December 23, 1997, whereby an amendment should be issued in this order to change the size of the assigned producing area so that it accurately reflects the North Vacuum Abo Pool's setback requirements.

**The Division Director Finds That:**

- (1) This application was originally approved under the provisions of Rule 111.D of the General Rules and Regulations of the New Mexico Oil Conservation Division ("Division"), revised by Division Order No. R-10388, issued by the Oil Conservation Commission in Case 11,274 on June 13, 1995 (being applicable at that time);
- (2) This amendment has been duly filed under the provisions of the Rule 111.A(9) of

the General Rules and Regulations of the New Mexico Oil Conservation Division ("Division"), revised by Division Order No. R-10817, issued by the Oil Conservation Commission in Case 11,762 on July 14, 1997 (currently in effect), and Rule 4 of the "*Special Rules and Regulations for the North Vacuum-Abo (Oil Pool)*", as promulgated by Division Order No. R-2421, as amended.

**IT IS THEREFORE ORDERED THAT:**

(1) Decretory Paragraph No. (4) on page 3 of Division Administrative Order DD-167(H), dated April 16, 1997, is hereby amended to read in its entirety as follows:

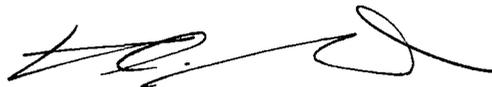
“ (3) The "producing area" for said horizontal wellbore shall include that area within the SE/4 of said Section 28 that is no closer than 460 feet from the outer boundary of said quarter section.”

(2) All other provisions of said Order DD-167(H) not in conflict with this change shall remain in full force and effect until further notice.

(3) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION



KATHLEEN A. GARLAND  
Acting Director

S E A L

cc: New Mexico Oil Conservation Division - Hobbs  
New Mexico State Land Office - Santa Fe  
File: DD-167(H)

CAMPBELL, CARR, BERGE  
& SHERIDAN, P.A.  
LAWYERS

MICHAEL B. CAMPBELL  
WILLIAM F. CARR  
BRADFORD C. BERGE  
MARK F. SHERIDAN  
MICHAEL H. FELDEWERT  
ANTHONY F. MEDEIROS  
PAUL R. OWEN

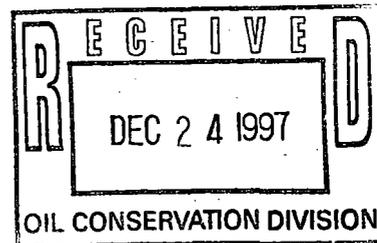
JACK M. CAMPBELL  
OF COUNSEL

JEFFERSON PLACE  
SUITE 1 - 110 NORTH GUADALUPE  
POST OFFICE BOX 2208  
SANTA FE, NEW MEXICO 87504-2208  
TELEPHONE: (505) 988-4421  
FACSIMILE: (505) 983-6043  
E-MAIL: ccbspa@ix.netcom.com

December 23, 1997

**HAND DELIVERED**

William J. LeMay, Director  
Oil Conservation Division  
New Mexico Department of Energy,  
Minerals and Natural Resources  
2040 South Pacheco Street  
Santa Fe, New Mexico 87505



Re: *Application for Amendment of Division Order No. DD-167(H) for Directional Drilling-Horizontal, Non-Standard Spacing or Proration Unit, North Vacuum Abo West Unit Well No. 28, North Vacuum-Abo Pool, Lea County, New Mexico*

Dear Mr. LeMay:

Enclosed in duplicate is the application of Texaco Exploration and Production Inc. for Amendment of Division Order No. DD-167(H) to increase the producing area for the North Vacuum Abo West Unit Well No. 28 to permit the horizontal portion of the wellbore to be no closer than 460 feet from the outer boundary of the project area for this well.

If you need any thing further from Texaco to proceed with your consideration of this application, please advise.

Very truly yours,

A handwritten signature in black ink, appearing to read "William F. Carr".

WILLIAM F. CARR  
Attorney for Texaco Exploration and Production Inc.  
cc: Michael E Stogner,  
Chief Engineer

Chris Williams, District Supervisor  
Oil Conservation Division District I

CAMPBELL, CARR, BERGE  
& SHERIDAN, P.A.  
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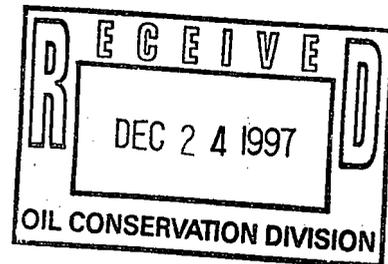
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Oil Conservation Division  
New Mexico Department of Energy,  
Minerals and Natural Resources  
2040 South Pacheco Street  
Santa Fe, New Mexico 87505



Re: *Application for Amendment of Division Order No. DD-167(H) for Directional Drilling-Horizontal, Non-Standard Spacing or Proration Unit, North Vacuum Abo West Unit Well No. 28, North Vacuum-Abo Pool, Lea County, New Mexico*

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Enclosed in duplicate is the application of Texaco Exploration and Production Inc. for Amendment of Division Order No. DD-167(H) to increase the producing area for the North Vacuum Abo West Unit Well No. 28 to permit the horizontal portion of the wellbore to be no closer than 460 feet from the outer boundary of the project area for this well.

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Attorney for Texaco Exploration and Production Inc.

cc: Michael E Stogner,  
Chief Engineer

Chris Williams, District Supervisor  
Oil Conservation Division District I

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& SHERIDAN, P.A.  
LAWYERS

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December 23, 1997

**VIA HAND-DELIVERY**

William J. LeMay, Director  
Oil Conservation Division  
New Mexico Department of Energy,  
Minerals and Natural Resources  
2040 Pacheco Street  
Santa Fe, New Mexico 87505

Attention: Michael E. Stogner

Re: *Application for Amendment of Division Administrative  
Order DD-167(H) for Directional Drilling-Horizontal  
Non-Standard Spacing or Proration Unit  
North Vacuum Abo West Unit Well No. 28  
North Vacuum-Abo Pool  
Lea County, New Mexico*

Gentlemen:

Texaco Exploration and Production Inc. hereby requests amendment of Division Administrative Order DD-167(H) which was entered on April 16, 1997. This Order authorized the initiation of a high angle/horizontal directional drilling project within a non-standard 160-acre oil spacing and proration unit comprising the SE/4 of Section 28, Township 17 South, Range 34 East, NMPM, North Vacuum-Abo Pool, North Vacuum Abo West Unit, of the North Vacuum Abo West Unit, North Vacuum Abo West Unit Waterflood Project Area, Lea County, New Mexico, by the drilling of the North Vacuum Abo West Unit Well No. 28 at a standard North Vacuum-Abo Pool surface oil well location 1980 feet from the South line and 760 feet from the East line (Unit I) of said Section 28, drill vertically to an approximate depth of 8,600 feet, kick-off in a southwesterly direction with a short radius wellbore (57.3 degree/100 feet), and drill in a somewhat horizontal fashion a lateral distance of approximately 1,800 feet through the Abo formation.

William J. LeMay, Director  
Oil Conservation Division  
December 23, 1997  
Page 2

Although the Special Pool Rules for the North Vacuum-Abo Pool provide for wells within 200 feet of the center of a governmental quarter-quarter section (460 foot set backs), Texaco requested and Order DD-167(H) provides for a "producing area" for this horizontal wellbore that shall include that area within the SE/4 of said Section 28 that is no closer than 660 feet from the outer boundary of said quarter section. (Order paragraph 4). While drilling the horizontal portion of this wellbore, the quality of the Abo reservoir improved as Texaco approached the 660 foot set back authorized by Order DD-167(H). Due to the improvement in the geologic characteristics of the reservoir which were discovered after the commencement of the project, Texaco continued drilling to a point 544 feet from the South line and 2,084 feet from the East line of said Section 28. Although this point is within the project area at a point where a vertical wellbore can be drilled and produced in conformity with the setback requirements from the outer boundary of a standard spacing and proration unit of the Special Pool Rules and Regulations for the North Vacuum-Abo Pool (Order No. R-2421), it extends beyond the boundary of the "producing area" approved by Order DD-167 (H).

Texaco therefore makes application for Amendment of Order Paragraph 4 of Order DD-167(H) to provide for a producing area that is no closer than 460 feet from the outer boundary of said quarter section.

In support of this application Texaco states:

- A. The surface location of the North Vacuum Abo West Unit Well No. 28 is within the boundaries of the project area which consists of two drilling units, substantially in the form of a square, being a legal subdivision of the U. S. Public Land Survey.
- B. The producing interval in this well will be totally confined to the amended producing area with the measured distance from the North, South, East and West boundaries of the project area inside of which a vertical wellbore can be drilled and produced in conformity with the setback requirements from the outer boundary of a standard spacing and proration unit for the North Vacuum-Abo Pool.

William J. LeMay, Director  
Oil Conservation Division  
December 23, 1997  
Page 3

- C. The project area includes multiple contiguous drilling units.
- D. The subject well includes a single lateral which will conform to the requirements of this order as amended.

The North Vacuum-Abo West Unit is a candidate for horizontal drilling due to the heterogeneous nature of the reservoir where vertical segregation is common and horizontal wells can drain laterally discontinuous lenses that would not otherwise be exploited without dense vertical well spacing. The Unit was designated a "Project Area" for horizontal drilling in 1996 [see Administrative Orders DD-153(H) and DD-154(H)] and the type log for the pool was presented at that time. Texaco has successfully completed other horizontal wells in this pool.

Attached hereto as Exhibit A is a plat indicating the Section, Township and Range in which this well is located which shows the well's project area (SE/4 of Section 28), the well's surface location, the horizontal plan view for the well, and the producing area for the project well (460 foot set back from the outer boundary of the project area).

Exhibit B to this administrative application is a plat showing existing wells in the North Vacuum-Abo Pool in the project area, all offset drilling units in the North Vacuum-Abo Pool, the Abo wells located on these offsetting units and the operators thereof. Exhibit C is a vertical plan view for the well (cross-sectional view) which shows all information required by Division Rule 111.D. (2) (c) and (d).

Attached as Exhibit D is a list of all offsetting operators of spacing units in the West Vacuum-Abo Pool. On or before the date this application was submitted to the Division, each of these operators was notified of this application to amend Order DD-167(H) by submitting a copy of this application to each of them by Certified Mail, Return Receipt Requested. Each was advised that if they have an objection to this application it must be filed with the Division's Santa Fe Office in writing within twenty days of the date of the Certified Letter.

William J. LeMay, Director  
Oil Conservation Division  
December 23, 1997  
Page 4

Your attention to this application is appreciated.

Very truly yours,

A handwritten signature in black ink, appearing to read "William F. Carr". The signature is written in a cursive style with a long, sweeping underline that extends to the right.

WILLIAM F. CARR

WFC:mlh  
Enclosures

DISTRICT I  
P. O. Box 1980, Hobbs, NM 88240

DISTRICT II  
P. O. Drawer 00, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
P. O. Box 2088, Santa Fe, NM 87504-2088

State of New Mexico  
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION  
PO Box 2088  
Santa Fe, NM 87504-2088

Form C-102  
Revised February 10, 1994

Instructions on back

Submit to Appropriate District Office

State Lease-4 copies  
Fee Lease-3 copies

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 30-025-33926		<sup>2</sup> Pool Code 61760		<sup>3</sup> Pool Name Vacuum Abo, North	
<sup>4</sup> Property Code 11123		<sup>5</sup> Property Name North Vacuum Abo West Unit			<sup>6</sup> Well Number 28
<sup>7</sup> OGRID No. 22351		<sup>8</sup> Operator Name TEXACO EXPLORATION & PRODUCTION, INC.			<sup>9</sup> Elevation 4033'

<sup>10</sup> Surface Location									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	<sup>7</sup> County
1	28	17-S	34-E		1980'	South	760'	East	Lea

<sup>11</sup> Bottom Hole Location if Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	<sup>7</sup> County
0	28	17-S	34-E		660'	South	1980'	East	Lea

<sup>12</sup> Dedicated Acres 160	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION.

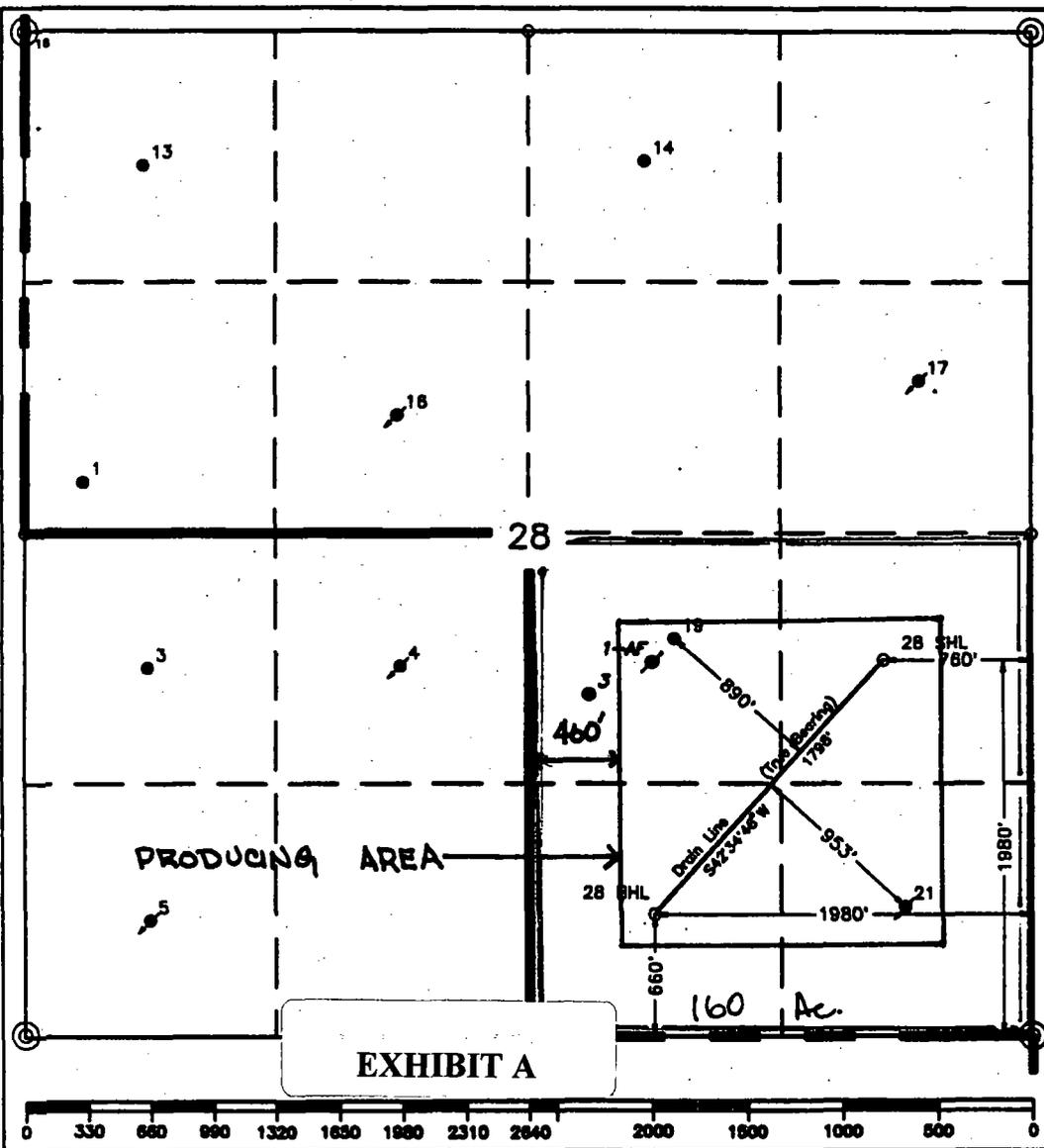


EXHIBIT A

**<sup>17</sup>OPERATOR CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Signature: *C. Wade Howard*

Printed Name: C. Wade Howard

Position: Engineer's Assistant

Company: Texaco Expl. & Prod. Inc.

Date: February 24, 1997

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**<sup>18</sup>SURVEYOR CERTIFICATION**

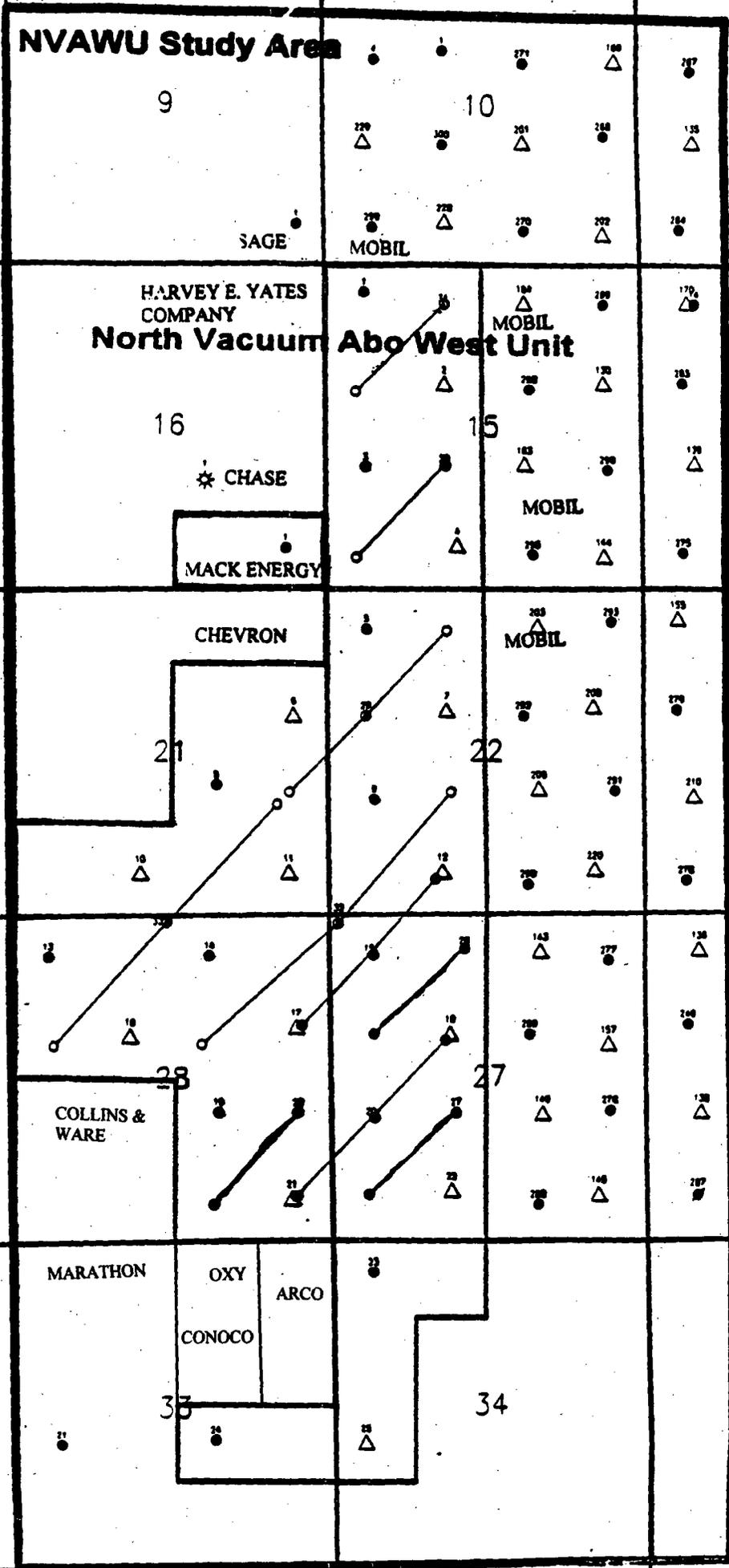
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: February 21, 1997

Signature & Seal of Professional Surveyor: *John S. Piper*

Certificate No.: 7254 John S. Piper

Sheet



32	
Texaco	
North Vacuum Abo West Unit	
Study Area, Wells = 6,000 TD	

Scale 1:30000

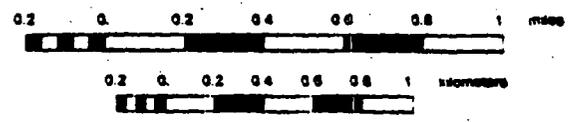


EXHIBIT B

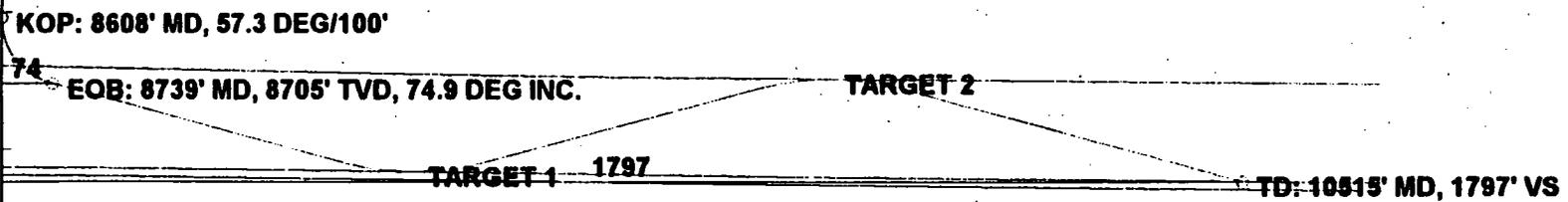
Company: TEXACO E & P, INC.  
 Lease/Well: NVAWU #28H  
 Location: LEA COUNTY, NEW MEXICO  
 Declination: 9.11 DEG EAST  
 File name: C:\WINSERVE\NVAWU28.SVY  
 Date/Time: Thursday, February 27, 1997

TRUE VERTICAL DEPTH (Ft)

7600  
7800  
8000  
8200  
8400  
8600  
8800  
9000

TARGETS			
#	TVD	N-S	E-W
1	8840.68	-441.81	-405.97
2	8705.50	-883.61	-811.93
3	8855.59	-1323.20	-1215.87

CRITICAL POINTS					
MD	INC	AEI	TVD	N-S	E-W
KOP: 8608' MD, 57.3 DEG/100'					
8608.00	.00	222.58	8608.00	.00	.00
EOB: 8739' MD, 8705' TVD, 74.9 DEG INC.					
8738.71	74.90	222.58	8704.54	-54.45	-50.03
*BUILD @ 15 DEG/100'					
9179.89	74.90	222.58	8819.47	-368.09	-338.23
TARGET 1					
9280.56	90.00	222.58	8832.66	-441.36	-405.56
*Hold @ 105.2					
9381.61	105.16	222.58	8819.37	-514.90	-473.13
*Drop @ 15.0 105.16°					
9796.92	105.16	222.58	8710.79	-810.07	-744.36
TARGET 2					
9897.96	90.00	222.58	8697.50	-883.61	-811.93
*HOLD 74.61 DEG INC.					
10000.53	74.61	222.58	8711.19	-958.23	-880.50
TD: 10515' MD, 1797' VS					
10514.61	74.61	222.58	8847.59	-1323.20	-1215.87



- PROPOSED WELL PATH

VERTICAL SECTION (Ft) @ 222.58°

EXHIBIT C

**OFFSET OPERATOR'S LIST**  
**North Vacuum Abo West Unit Well No. 28**  
**LEA COUNTY, NEW MEXICO**

**Oxy USA Inc.**  
**Post Office Box 50250**  
**Midland, TX 79710**

**Conoco Inc.**  
**10 Desta Drive West**  
**Midland, TX 79705**

**Atlantic Richfield Company**  
**Post Office Box 1610**  
**Midland, TX 79702**

**Collins & Ware, Inc.**  
**508 West Wall Avenue**  
**Suite 1200**  
**Midland, TX 79701**

**Marathon Oil Company**  
**Post Office Box 552**  
**Midland, TX 79702**

CAMPBELL, CARR, BERGE  
& SHERIDAN, P.A.  
LAWYERS

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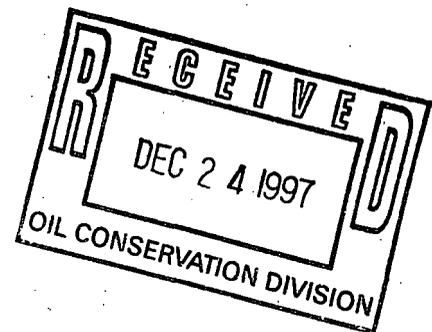
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William J. LeMay, Director  
Oil Conservation Division  
New Mexico Department of Energy,  
Minerals and Natural Resources  
2040 Pacheco Street  
Santa Fe, New Mexico 87505

Attention: Michael E. Stogner



Re: *Application for Amendment of Division Administrative Order DD-167(H) for Directional Drilling-Horizontal Non-Standard Spacing or Proration Unit North Vacuum Abo West Unit Well No. 28 North Vacuum-Abo Pool Lea County, New Mexico*

Gentlemen:

Texaco Exploration and Production Inc. hereby requests amendment of Division Administrative Order DD-167(H) which was entered on April 16, 1997. This Order authorized the initiation of a high angle/horizontal directional drilling project within a non-standard 160-acre oil spacing and proration unit comprising the SE/4 of Section 28, Township 17 South, Range 34 East, NMPM, North Vacuum-Abo Pool, North Vacuum Abo West Unit, of the North Vacuum Abo West Unit, North Vacuum Abo West Unit Waterflood Project Area, Lea County, New Mexico, by the drilling of the North Vacuum Abo West Unit Well No. 28 at a standard North Vacuum-Abo Pool surface oil well location 1980 feet from the South line and 760 feet from the East line (Unit I) of said Section 28, drill vertically to an approximate depth of 8,600 feet, kick-off in a southwesterly direction with a short radius wellbore (57.3 degree/100 feet), and drill in a somewhat horizontal fashion a lateral distance of approximately 1,800 feet through the Abo formation.

William J. LeMay, Director  
Oil Conservation Division  
December 23, 1997  
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Texaco therefore makes application for Amendment of Order Paragraph 4 of Order DD-167(H) to provide for a producing area that is no closer than 460 feet from the outer boundary of said quarter section.

In support of this application Texaco states:

- A. The surface location of the North Vacuum Abo West Unit Well No. 28 is within the boundaries of the project area which consists of two drilling units, substantially in the form of a square, being a legal subdivision of the U. S. Public Land Survey.
- B. The producing interval in this well will be totally confined to the amended producing area with the measured distance from the North, South, East and West boundaries of the project area inside of which a vertical wellbore can be drilled and produced in conformity with the setback requirements from the outer boundary of a standard spacing and proration unit for the North Vacuum-Abo Pool.

William J. LeMay, Director  
Oil Conservation Division  
December 23, 1997  
Page 3

- C. The project area includes multiple contiguous drilling units.
- D. The subject well includes a single lateral which will conform to the requirements of this order as amended.

The North Vacuum-Abo West Unit is a candidate for horizontal drilling due to the heterogeneous nature of the reservoir where vertical segregation is common and horizontal wells can drain laterally discontinuous lenses that would not otherwise be exploited without dense vertical well spacing. The Unit was designated a "Project Area" for horizontal drilling in 1996 [see Administrative Orders DD-153(H) and DD-154(H)] and the type log for the pool was presented at that time. Texaco has successfully completed other horizontal wells in this pool.

Attached hereto as Exhibit A is a plat indicating the Section, Township and Range in which this well is located which shows the well's project area (SE/4 of Section 28), the well's surface location, the horizontal plan view for the well, and the producing area for the project well (460 foot set back from the outer boundary of the project area).

Exhibit B to this administrative application is a plat showing existing wells in the North Vacuum-Abo Pool in the project area, all offset drilling units in the North Vacuum-Abo Pool, the Abo wells located on these offsetting units and the operators thereof. Exhibit C is a vertical plan view for the well (cross-sectional view) which shows all information required by Division Rule 111.D. (2) (c) and (d).

Attached as Exhibit D is a list of all offsetting operators of spacing units in the West Vacuum-Abo Pool. On or before the date this application was submitted to the Division, each of these operators was notified of this application to amend Order DD-167(H) by submitting a copy of this application to each of them by Certified Mail, Return Receipt Requested. Each was advised that if they have an objection to this application it must be filed with the Division's Santa Fe Office in writing within twenty days of the date of the Certified Letter.

William J. LeMay, Director  
Oil Conservation Division  
December 23, 1997  
Page 4

Your attention to this application is appreciated.

Very truly yours,

A handwritten signature in cursive script, appearing to read "William F. Carr", with a long horizontal flourish extending to the right.

WILLIAM F. CARR

WFC:mlh  
Enclosures

DISTRICT I  
P. O. Box 1980, Hobbs, NM 88240

DISTRICT II  
P. O. Drawer 00, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
P. O. Box 2068, Santa Fe, NM 87504-2068

State of New Mexico  
Energy, Minerals and Natural Resources Department

**OIL CONSERVATION DIVISION**  
PO Box 2088  
Santa Fe, NM 87504-2088

Form C-102  
Revised February 10, 1994

Instructions on back

Submit to Appropriate District Office

State Lease-4 copies  
Fee Lease-3 copies

AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

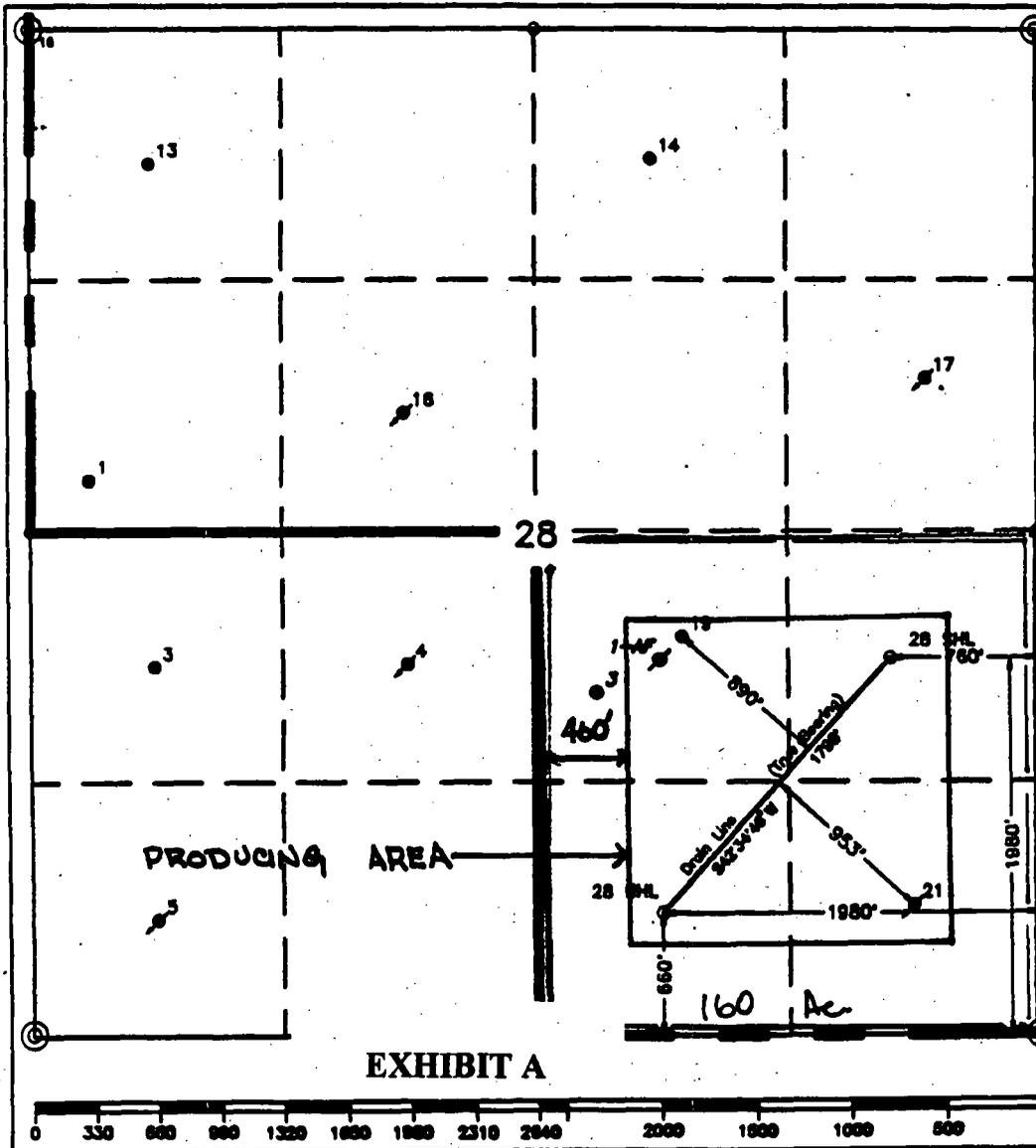
1 API Number <b>30-025-33926</b>		2 Pool Code <b>61760</b>		3 Pool Name <b>Vacuum Abo, North</b>	
Property Code <b>11123</b>		Property Name <b>North Vacuum Abo West Unit</b>			Well Number <b>28</b>
OGRID No. <b>22351</b>		Operator Name <b>TEXACO EXPLORATION &amp; PRODUCTION, INC.</b>			Elevation <b>4033'</b>

10 Surface Location									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>1</b>	<b>28</b>	<b>17-S</b>	<b>34-E</b>		<b>1980'</b>	<b>South</b>	<b>760'</b>	<b>East</b>	<b>Lea</b>

11 Bottom Hole Location If Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>0</b>	<b>28</b>	<b>17-S</b>	<b>34-E</b>		<b>660'</b>	<b>South</b>	<b>1980'</b>	<b>East</b>	<b>Lea</b>

12 Dedicated Acres <b>160</b>	13 Joint or Infill	14 Consolidation Code	15 Order No.
----------------------------------	--------------------	-----------------------	--------------

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION.



**OPERATOR CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Signature  
*C. Wade Howard*

Printed Name  
**C. Wade Howard**

Position  
**Engineer's Assistant**

Company  
**Texaco Expl. & Prod. Inc.**

Date  
**February 24, 1997**

**SURVEYOR CERTIFICATION**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

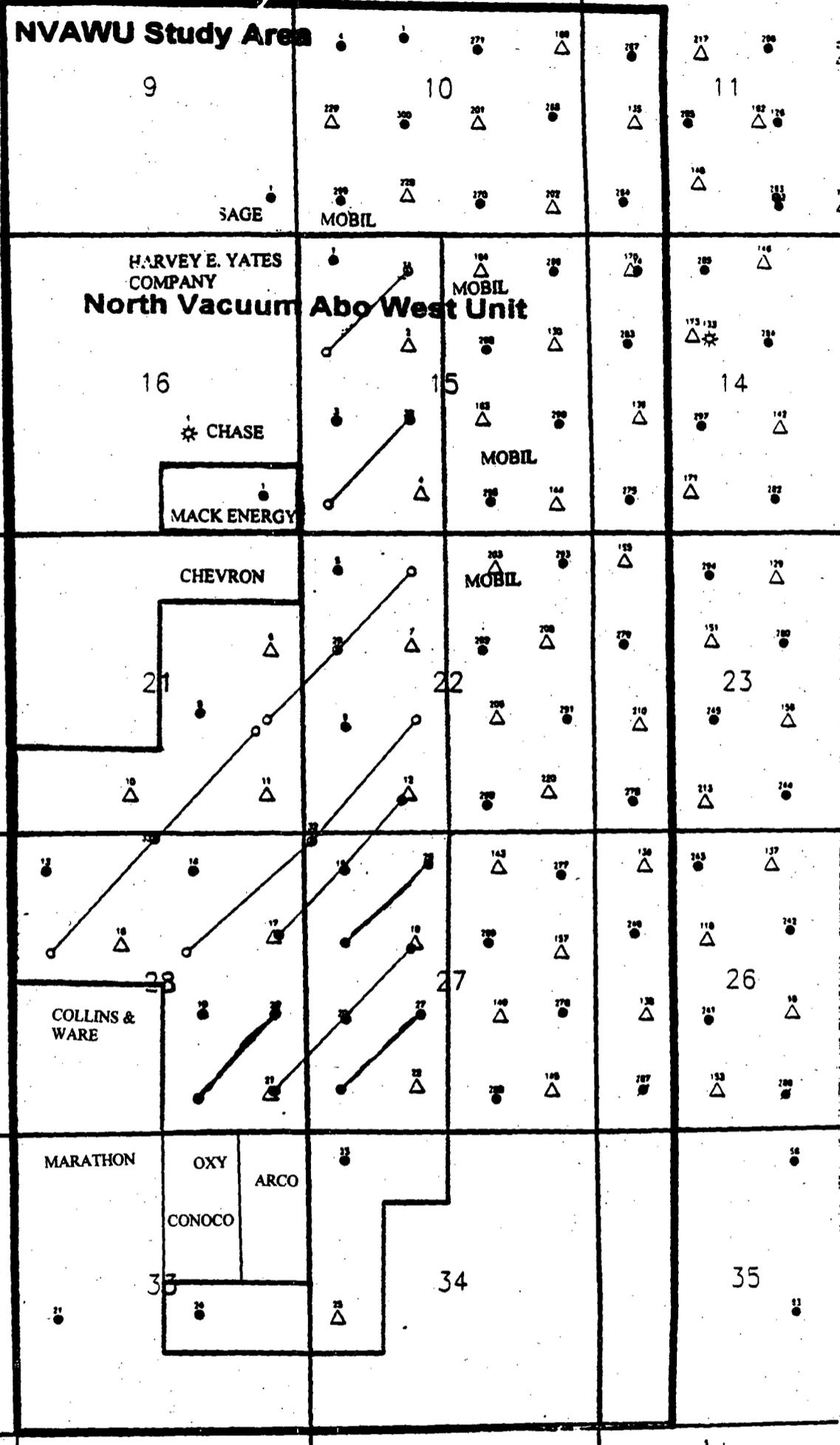
Date Surveyed  
**February 21, 1997**

Signature & Seal of Professional Surveyor  
*John S. Piper*

Certificate No.  
**7254 John S. Piper**

Sheet

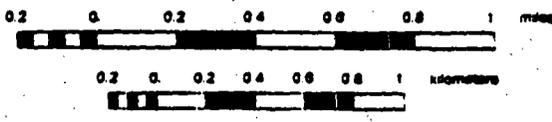
**NVAWU Study Area**



32

Texas		
North Vacuum Abo West Unit		
Study Area. Wells = 8,007 TD		
Form 5000		1997
July 1, 1998		

Scale 1:30000



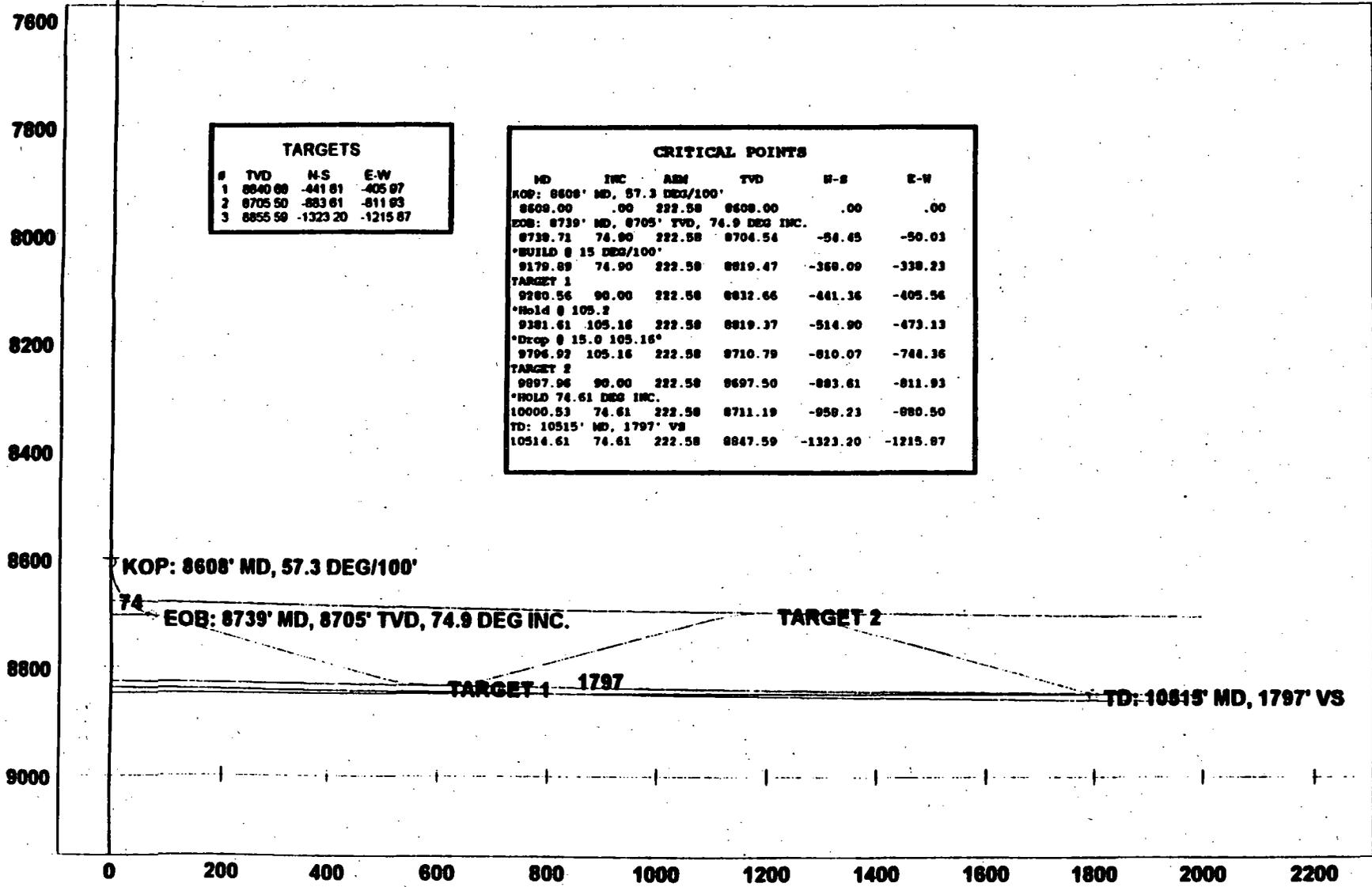
**EXHIBIT B**

Company: LEASCO E & F INC.  
 Lease/Well: NVAWU #28H  
 Location: LEA COUNTY, NEW MEXICO  
 Declination: 9.11 DEG EAST  
 File name: C:\WINSERVE\NVAWU28.SVY  
 Date/Time: Thursday, February 27, 1997

TARGETS			
#	TVD	N-S	E-W
1	8840.00	-441.81	-405.97
2	8705.50	-883.61	-811.93
3	8855.50	-1323.20	-1215.87

CRITICAL POINTS						
MD	INC	ARM	TVD	N-S	E-W	
KOP: 8608'	MD, 57.3 DEG/100'					
8608.00	.00	222.58	8608.00	.00	.00	
EOB: 8739'	MD, 8705' TVD, 74.9 DEG INC.					
8739.71	74.90	222.58	8704.54	-58.45	-50.03	
*BUILD @ 15 DEG/100'						
9179.89	74.90	222.58	8819.47	-368.09	-338.23	
TARGET 1						
9280.56	90.00	222.58	8832.66	-441.36	-405.56	
*Hold @ 105.2						
9381.61	105.16	222.58	8819.37	-514.90	-473.13	
*Drop @ 15.0 105.16°						
9796.92	105.16	222.58	8710.79	-810.07	-748.36	
TARGET 2						
9897.96	90.00	222.58	8697.50	-883.61	-811.93	
*HOLD 74.61 DEG INC.						
10000.53	74.61	222.58	8711.19	-950.23	-880.50	
TD: 10515' MD, 1797' VS						
10514.61	74.61	222.58	8847.59	-1323.20	-1215.87	

TRUE VERTICAL DEPTH (Ft)



- PROPOSED WELL PATH

VERTICAL SECTION (Ft) @ 222.58°

EXHIBIT C

**OFFSET OPERATOR'S LIST**  
**North Vacuum Abo West Unit Well No. 28**  
**LEA COUNTY, NEW MEXICO**

**Oxy USA Inc.**  
**Post Office Box 50250**  
**Midland, TX 79710**

**Conoco Inc.**  
**10 Desta Drive West**  
**Midland, TX 79705**

**Atlantic Richfield Company**  
**Post Office Box 1610**  
**Midland, TX 79702**

**Collins & Ware, Inc.**  
**508 West Wall Avenue**  
**Suite 1200**  
**Midland, TX 79701**

**Marathon Oil Company**  
**Post Office Box 552**  
**Midland, TX 79702**

CAMPBELL, CARR, BERGE  
& SHERIDAN, P.A.  
LAWYERS

MICHAEL B. CAMPBELL  
WILLIAM F. CARR  
BRADFORD C. BERGE  
MARK F. SHERIDAN  
MICHAEL H. FELDEWERT  
ANTHONY F. MEDEIROS  
PAUL R. OWEN

JACK M. CAMPBELL  
OF COUNSEL

JEFFERSON PLACE  
SUITE I - 110 NORTH GUADALUPE  
POST OFFICE BOX 2208  
SANTA FE, NEW MEXICO 87504-2208  
TELEPHONE: (505) 988-4421  
FACSIMILE: (505) 983-6043  
E-MAIL: ccbspa@ix.netcom.com

December 23, 1997

**VIA HAND-DELIVERY**

William J. LeMay, Director  
Oil Conservation Division  
New Mexico Department of Energy,  
Minerals and Natural Resources  
2040 Pacheco Street  
Santa Fe, New Mexico 87505

Attention: Michael E. Stogner

Re: ***Application for Amendment of Division Administrative  
Order DD-167(H) for Directional Drilling-Horizontal  
Non-Standard Spacing or Proration Unit  
North Vacuum Abo West Unit Well No. 28  
North Vacuum-Abo Pool  
Lea County, New Mexico***

Gentlemen:

Texaco Exploration and Production Inc. hereby requests amendment of Division Administrative Order DD-167(H) which was entered on April 16, 1997. This Order authorized the initiation of a high angle/horizontal directional drilling project within a non-standard 160-acre oil spacing and proration unit comprising the SE/4 of Section 28, Township 17 South, Range 34 East, NMPM, North Vacuum-Abo Pool, North Vacuum Abo West Unit, of the North Vacuum Abo West Unit, North Vacuum Abo West Unit Waterflood Project Area, Lea County, New Mexico, by the drilling of the North Vacuum Abo West Unit Well No. 28 at a standard North Vacuum-Abo Pool surface oil well location 1980 feet from the South line and 760 feet from the East line (Unit I) of said Section 28, drill vertically to an approximate depth of 8,600 feet, kick-off in a southwesterly direction with a short radius wellbore (57.3 degree/100 feet), and drill in a somewhat horizontal fashion a lateral distance of approximately 1,800 feet through the Abo formation.

William J. LeMay, Director  
Oil Conservation Division  
December 23, 1997  
Page 2

Although the Special Pool Rules for the North Vacuum-Abo Pool provide for wells within 200 feet of the center of a governmental quarter-quarter section (460 foot set backs), Texaco requested and Order DD-167(H) provides for a "producing area" for this horizontal wellbore that shall include that area within the SE/4 of said Section 28 that is no closer than 660 feet from the outer boundary of said quarter section. (Order paragraph 4). While drilling the horizontal portion of this wellbore, the quality of the Abo reservoir improved as Texaco approached the 660 foot set back authorized by Order DD-167(H). Due to the improvement in the geologic characteristics of the reservoir which were discovered after the commencement of the project, Texaco continued drilling to a point 544 feet from the South line and 2,084 feet from the East line of said Section 28. Although this point is within the project area at a point where a vertical wellbore can be drilled and produced in conformity with the setback requirements from the outer boundary of a standard spacing and proration unit of the Special Pool Rules and Regulations for the North Vacuum-Abo Pool (Order No. R-2421), it extends beyond the boundary of the "producing area" approved by Order DD-167 (H).

Texaco therefore makes application for Amendment of Order Paragraph 4 of Order DD-167(H) to provide for a producing area that is no closer than 460 feet from the outer boundary of said quarter section.

In support of this application Texaco states:

- A. The surface location of the North Vacuum Abo West Unit Well No. 28 is within the boundaries of the project area which consists of two drilling units, substantially in the form of a square, being a legal subdivision of the U. S. Public Land Survey.
- B. The producing interval in this well will be totally confined to the amended producing area with the measured distance from the North, South, East and West boundaries of the project area inside of which a vertical wellbore can be drilled and produced in conformity with the setback requirements from the outer boundary of a standard spacing and proration unit for the North Vacuum-Abo Pool.

William J. LeMay, Director  
Oil Conservation Division  
December 23, 1997  
Page 3

- C. The project area includes multiple contiguous drilling units.
- D. The subject well includes a single lateral which will conform to the requirements of this order as amended.

The North Vacuum-Abo West Unit is a candidate for horizontal drilling due to the heterogeneous nature of the reservoir where vertical segregation is common and horizontal wells can drain laterally discontinuous lenses that would not otherwise be exploited without dense vertical well spacing. The Unit was designated a "Project Area" for horizontal drilling in 1996 [see Administrative Orders DD-153(H) and DD-154(H)] and the type log for the pool was presented at that time. Texaco has successfully completed other horizontal wells in this pool.

Attached hereto as Exhibit A is a plat indicating the Section, Township and Range in which this well is located which shows the well's project area (SE/4 of Section 28), the well's surface location, the horizontal plan view for the well, and the producing area for the project well (460 foot set back from the outer boundary of the project area).

Exhibit B to this administrative application is a plat showing existing wells in the North Vacuum-Abo Pool in the project area, all offset drilling units in the North Vacuum-Abo Pool, the Abo wells located on these offsetting units and the operators thereof. Exhibit C is a vertical plan view for the well (cross-sectional view) which shows all information required by Division Rule 111.D. (2) (c) and (d).

Attached as Exhibit D is a list of all offsetting operators of spacing units in the West Vacuum-Abo Pool. On or before the date this application was submitted to the Division, each of these operators was notified of this application to amend Order DD-167(H) by submitting a copy of this application to each of them by Certified Mail, Return Receipt Requested. Each was advised that if they have an objection to this application it must be filed with the Division's Santa Fe Office in writing within twenty days of the date of the Certified Letter.

William J. LeMay, Director  
Oil Conservation Division  
December 23, 1997  
Page 4

Your attention to this application is appreciated.

Very truly yours,

A handwritten signature in black ink, appearing to read "William F. Carr", with a long horizontal line extending to the right from the end of the signature.

WILLIAM F. CARR

WFC:mlh  
Enclosures

DISTRICT I  
P. O. Box 1980, Hobbs, NM 88240

DISTRICT II  
P. O. Drawer 00, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
P. O. Box 2088, Santa Fe, NM 87504-2088

State of New Mexico  
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION  
PO Box 2088  
Santa Fe, NM 87504-2088

Form C-102  
Revised February 10, 1994

Instructions on back

Submit to Appropriate District Office

State Lease-4 copies  
Fee Lease-3 copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

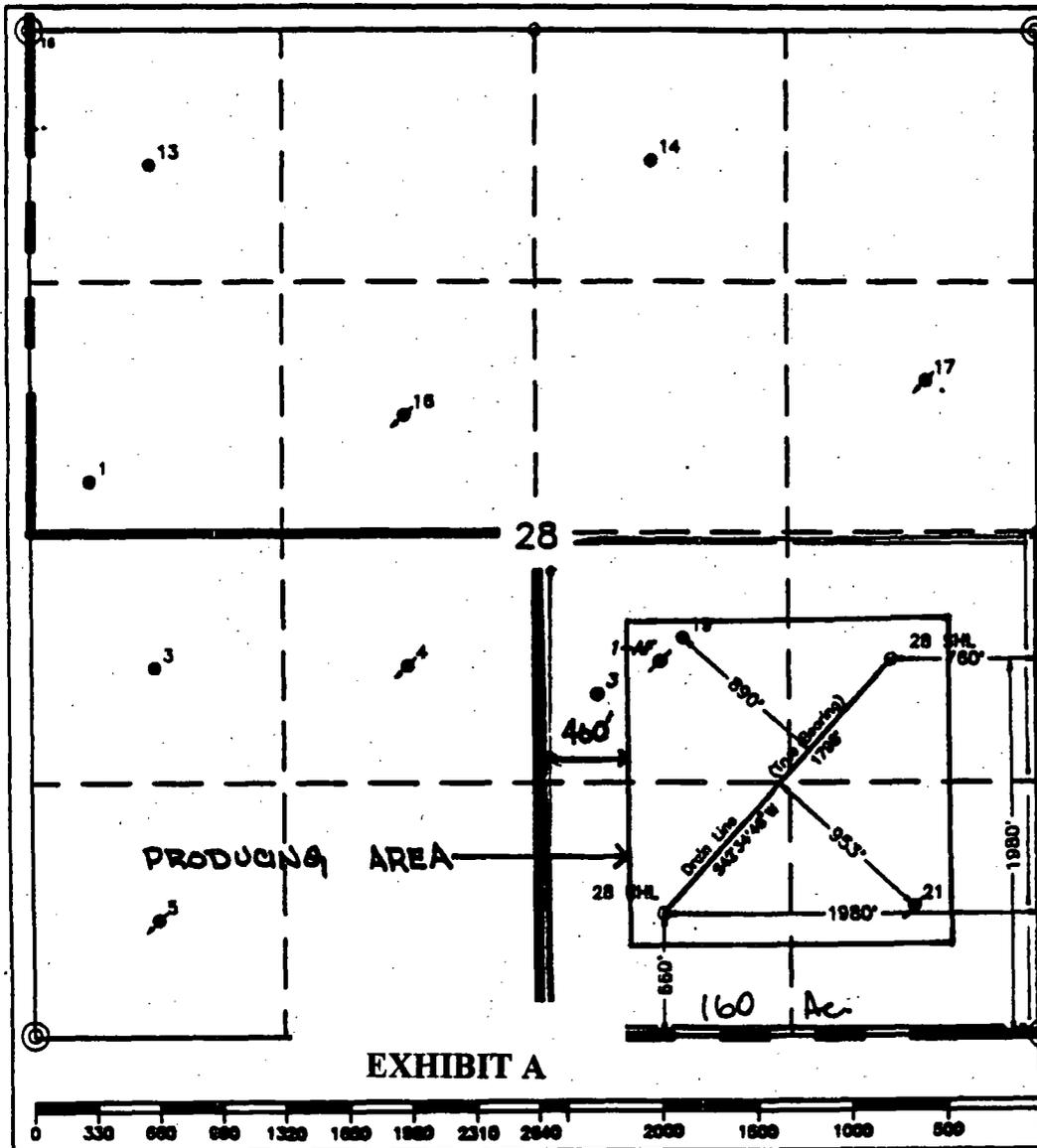
1 API Number <b>30-025-33926</b>		2 Pool Code <b>61760</b>		3 Pool Name <b>Vacuum Abo, North</b>	
Property Code <b>11123</b>		5 Property Name <b>North Vacuum Abo West Unit</b>			6 Well Number <b>28</b>
8 GRID No. <b>22351</b>		9 Operator Name <b>TEXACO EXPLORATION &amp; PRODUCTION, INC.</b>			7 Elevation <b>4033'</b>

10 Surface Location									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	28	17-S	34-E		1980'	South	780'	East	Lea

11 Bottom Hole Location if Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	28	17-S	34-E		660'	South	1980'	East	Lea

12 Dedicated Acres <b>160</b>	13 Joint or Infill	14 Consolidation Code	15 Order No.
----------------------------------	--------------------	-----------------------	--------------

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION.



16 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Signature  
*C. Wade Howard*

Printed Name  
**C. Wade Howard**

Position  
**Engineer's Assistant**

Company  
**Texaco Expl. & Prod. Inc.**

Date  
**February 24, 1997**

17 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

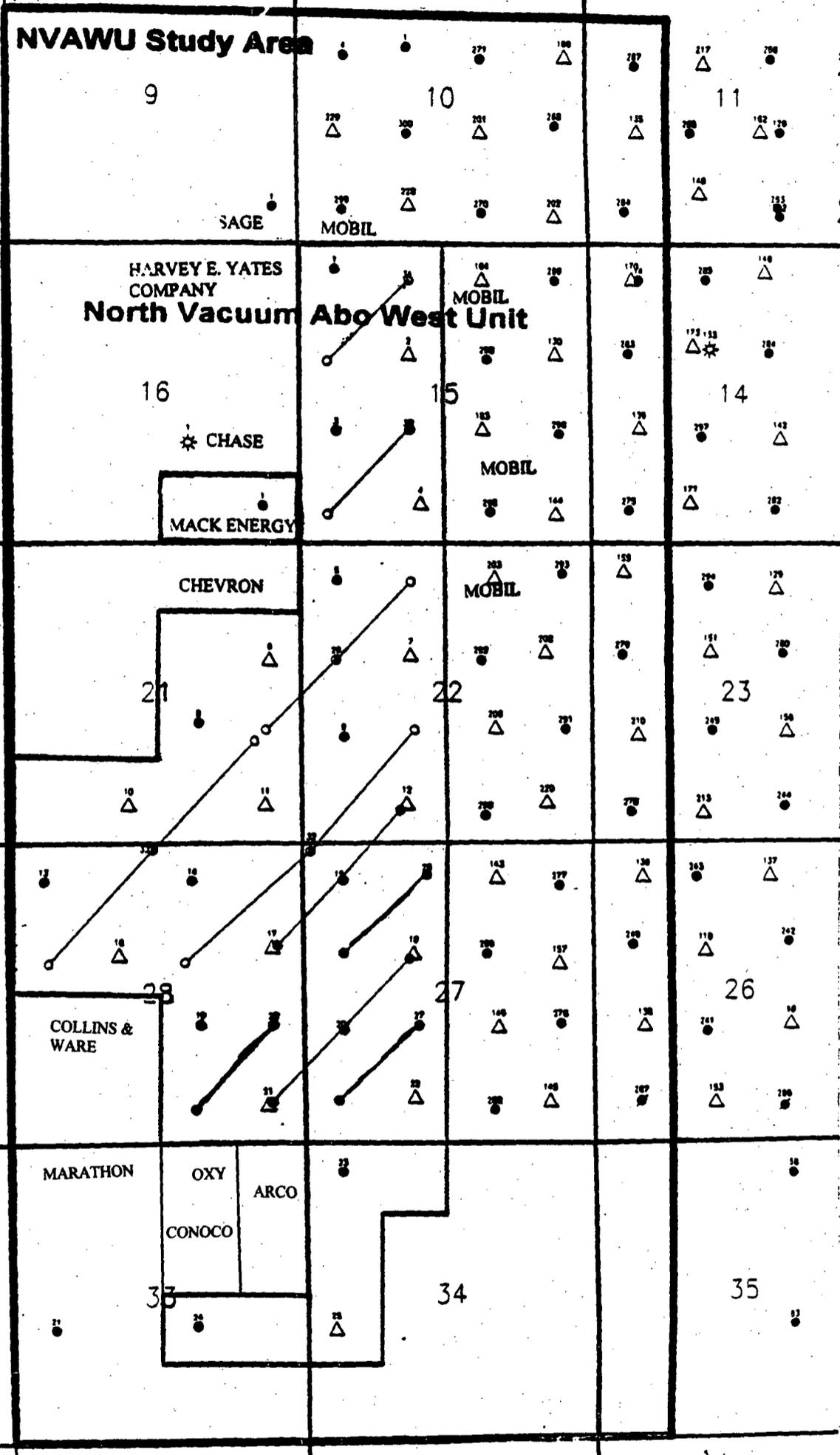
Date Surveyed  
**February 21, 1997**

Signature & Seal of Professional Surveyor  
*John S. Piper*

Certificate No.  
**7254 John S. Piper**

Sheet

# NVAWU Study Area



32  
Texas  
North Vacuum Abo West Unit  
Study Area, Wells = 8,000 TD  
Scale 1:30000

Scale 1:30000.

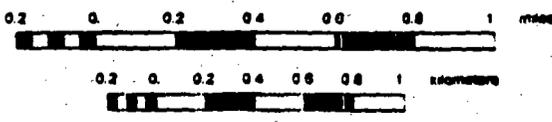
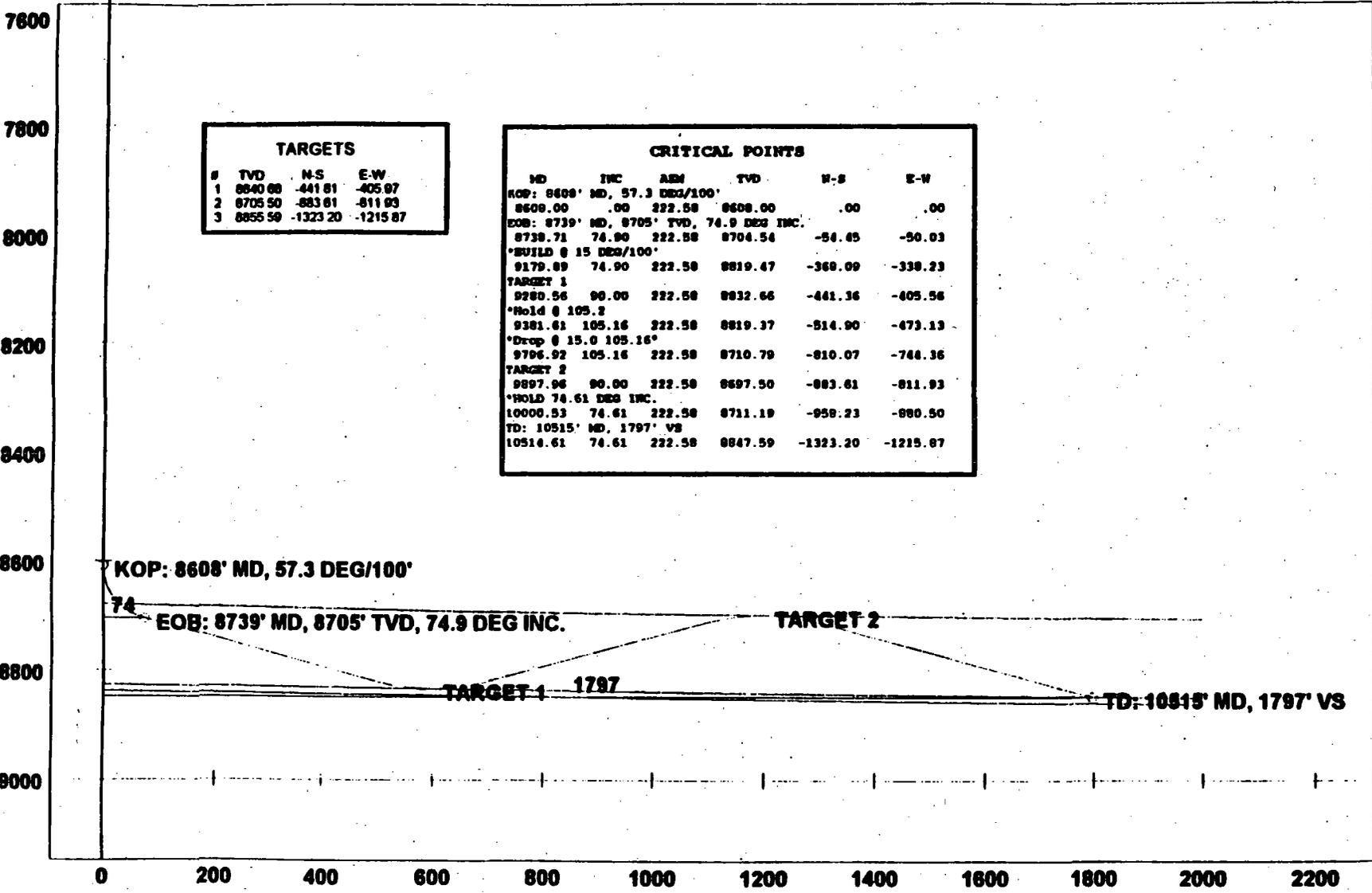


EXHIBIT B

Company: LEASCO L.P. INC.  
 Lease/Well: NVAWU #28H  
 Location: LEA COUNTY, NEW MEXICO  
 Declination: 9.11 DEG EAST  
 File name: C:\WINSERVE\NVAWU28.SVY  
 Date/Time: Thursday, February 27, 1997

TRUE VERTICAL DEPTH (Ft)



TARGETS			
#	TVD	N-S	E-W
1	8840.00	-441.81	-405.97
2	8705.50	-883.61	-811.93
3	8855.59	-1323.20	-1215.87

CRITICAL POINTS						
MD	INC	ASN	TVD	N-S	E-W	
KOP: 8608'	MD, 57.3	DEG/100'				
8608.00	.00	222.58	8608.00	.00	.00	
EOB: 8739'	MD, 8705'	TVD, 74.9	DEG INC.			
8739.71	74.90	222.58	8704.54	-54.45	-50.03	
*BUILD @ 15 DEG/100'						
8179.89	74.90	222.58	8819.47	-368.09	-338.23	
TARGET 1						
9280.56	90.00	222.58	8832.66	-441.36	-405.56	
*Hold @ 105.2						
9381.61	105.16	222.58	8819.37	-514.90	-473.13	
*Drop @ 15.0 105.16°						
9796.92	105.16	222.58	8710.79	-810.07	-744.36	
TARGET 2						
9897.96	90.00	222.58	8697.50	-883.61	-811.93	
*HOLD 74.61 DEG INC.						
10000.53	74.61	222.58	8711.19	-958.23	-880.50	
TD: 10515' MD, 1797' VS						
10514.61	74.61	222.58	8847.59	-1323.20	-1215.87	

- PROPOSED WELL PATH

VERTICAL SECTION (Ft) @ 222.58°

EXHIBIT C

**OFFSET OPERATOR'S LIST**  
**North Vacuum Abo West Unit Well No. 28**  
**LEA COUNTY, NEW MEXICO**

**Oxy USA Inc.**  
**Post Office Box 50250**  
**Midland, TX 79710**

**Conoco Inc.**  
**10 Desta Drive West**  
**Midland, TX 79705**

**Atlantic Richfield Company**  
**Post Office Box 1610**  
**Midland, TX 79702**

**Collins & Ware, Inc.**  
**508 West Wall Avenue**  
**Suite 1200**  
**Midland, TX 79701**

**Marathon Oil Company**  
**Post Office Box 552**  
**Midland, TX 79702**



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
2040 S. PACHECO  
SANTA FE, NEW MEXICO 87505  
(505) 827-7131

April 16, 1997

**Texaco Exploration and Production, Inc.**  
**P. O. Box 3109**  
**Midland, Texas 79702**  
**Attention: C. Wade Howard**

*Administrative Order DD-167(H)*  
**High Angle/Horizontal**

Dear Mr. Howard:

Reference is made to your application dated February 27, 1997 for authorization to initiate a high angle/horizontal directionally drilling project within the SE/4 of Section 28, Township 17 South, Range 34 East, NMPM, North Vacuum-Abo Pool, North Vacuum Abo West Unit, Lea County, New Mexico.

**The Division Director Finds That:**

- (1) The application of Texaco Exploration and Production, Inc. ("Texaco") as operator of the North Vacuum Abo West Unit (approved by Division Order No. R-6822, dated November 18, 1981) has been duly filed under the provisions of Rule 111.D and E of the General Rules and Regulations of the New Mexico Oil Conservation Division ("Division"), revised by Division Order No. R-10388, issued by the Oil Conservation Commission in Case 11,274 on June 13, 1995;
- (2) The proposed high angle/horizontal directionally drilling project is within the applicant's North Vacuum Abo West Unit Waterflood Project Area (established by Division Order No. R-6857, as amended) and as such Division General Rule 701.G(4) applies, which states that wells within waterflood project areas are not subject to an oil allowable;
- (3) The N/2 and SE/4 of said Section 28 is within the horizontal limits of the North Vacuum-Abo Pool, said pool is subject to the "*Special Rules and Regulations for the North Vacuum-Abo (Oil) Pool*", as promulgated by Division Order No. R-2421, as amended, which provides for 80-acre oil spacing and proration units, or

drilling units, and requires that wells be located within a 200 foot radius of the center of a governmental quarter-quarter section or lot, provided that the first well on the 80-acre unit is located in either the NW/4 or SE/4 of a governmental quarter section;

- (4) Texaco is seeking to initiate a high angle/horizontal directional drilling project within this portion of the North Vacuum-Abo Pool, which is a heterogeneous reservoir where vertical segregation is common, in an attempt to drain laterally discontinuous lenses that would not otherwise be exploited without dense vertical well spacing [see files for Division Administrative Orders DD-153(H) and DD-154(H)];
- (5) Texaco is currently developing the North Vacuum-Abo Pool within the SE/4 of said Section 28 with water injection into its North Vacuum Abo West Unit Well No. 21 (API No. 30-025-23917), located at a standard Abo well location 660 feet from the South and East lines (Unit P) of said Section 28 and producing from its North Vacuum Abo West Unit Well No. 19 (API No. 30-025-23880), located within a standard 80-acre oil spacing and proration unit comprising the N/2 SE/4 of said Section 28 at a standard oil well location 2104 feet from the South line and 1856 feet from the East line (Unit J) of said Section 28;
- (6) The "project area" proposed by Texaco would consist of an over-sized spacing unit comprising 160 acres (two standard lay-down 80-acre units) underlying the SE/4 of said Section 28;
- (7) It is Texaco's intent to place its North Vacuum Abo West Unit Well No. 28 at a standard North Vacuum-Abo Pool oil well location 1980 feet from the South line and 760 feet from the East line (Unit I) of said Section 28, drill vertically to an approximate depth of 8,600 feet, kick-off in a southwesterly direction with a short radius wellbore (57.3 degrees/100 feet), and drill in a somewhat horizontal fashion a lateral distance of approximately 1,800 feet through the Abo formation;
- (8) The applicable drilling window or "producing area" for said wellbore should include that area within the SE/4 of said Section 28 that is no closer than 660 feet to the outer boundary of the subject 160-acre non-standard oil spacing and proration unit that is the SE/4 of said Section 28; and,
- (9) It appears the applicant has satisfied all of the appropriate requirements prescribed in Rule 111.D and E, the subject application should be approved and the well should be governed by the provisions contained within this order and all other

applicable provisions of Division General Rule 111.

**IT IS THEREFORE ORDERED THAT:**

(1) Texaco Exploration and Production, Inc. ("Texaco") is hereby authorized to initiate a high angle/horizontal directional drilling project within a non-standard 160-acre oil spacing and proration unit comprising the SE/4 of Section 28, Township 17 South, Range 34 East, NMPM, North Vacuum-Abo Pool, North Vacuum Abo West Unit, North Vacuum Abo West Unit Waterflood Project Area, Lea County, New Mexico, by drilling its North Vacuum Abo West Unit Well No. 28 at a standard North Vacuum-Abo Pool surface oil well location 1980 feet from the South line and 760 feet from the East line (Unit I) of said Section 28, drill vertically to an approximate depth of 8,600 feet, kick-off in a southwesterly direction with a short radius wellbore (57.3 degrees/100 feet), and drill in a somewhat horizontal fashion a lateral distance of approximately 1,800 feet through the Abo formation;

**PROVIDED HOWEVER THAT** prior to commencing directional drilling operations in said wellbore, the applicant shall establish the location of the kick-off point by means of a directional survey acceptable to the Division.

**PROVIDED FURTHER THAT** during or upon completion of said directional drilling operations, the applicant shall conduct an accurate wellbore survey from the kick-off point to total depth in order that the subsurface bottomhole location, as well as the wellbore's true depth and course, may be determined.

(2) The applicant shall notify the supervisor of the Hobbs District office of the Division of the date and time said wellbore surveys are to be conducted so that they may be witnessed. The applicant shall further provide a copy of said wellbore surveys to the Santa Fe and Hobbs offices of the Division upon completion.

(3) The "project area" for said horizontal well shall consist of an oversized 160-acre non-standard oil spacing and proration unit for said pool comprising the SE/4 of said Section 28.

(4) The "producing area" for said horizontal wellbore shall include that area within the SE/4 of said Section 28 that is no closer than 660 feet from the outer boundary of said quarter section.

(5) The operator shall comply with all requirements and conditions set forth in Division General Rule 111.E(2) and any applicable requirements in 111.D and F.

(6) Form C-105 shall be filed in accordance with Division Rule 1105 and the operator

Administrative Order DD-167(H)  
Texaco Exploration & Production, Inc.  
April 16, 1997  
Page 4

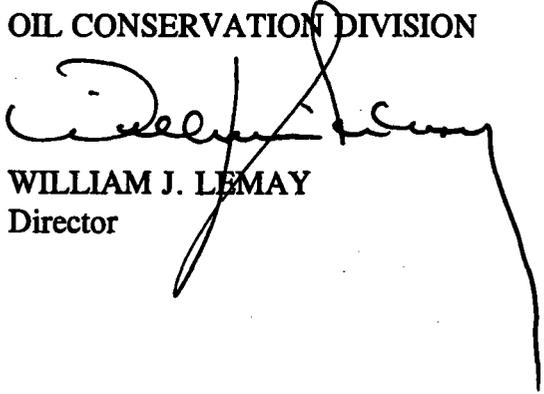
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shall indicate thereon true vertical depth (TVD) in addition to measured depths (MVD).

(7) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

  
WILLIAM J. LEMAY  
Director

SEAL

cc: Oil Conservation Division - Hobbs  
New Mexico State Land Office - Santa Fe

Rec: 3-6-97  
Susp: 3-26-97  
Released: 4-16-97

DD-TEX. 144

April 15, 1997

**Texaco Exploration and Production, Inc.**  
**P. O. Box 3109**  
**Midland, Texas 79702**

**Attention: C. Wade Howard**

167  
*Administrative Order DD-4\*(H)*  
High Angle/Horizontal

Dear Mr. Howard:

Reference is made to your application dated February 27, 1997 for authorization to initiate a high angle/horizontal directionally drilling project within the SE/4 of Section 28, Township 17 South, Range 34 East, NMPM, North Vacuum-Abo Pool, North Vacuum Abo West Unit, Lea County, New Mexico.

**The Division Director Finds That:**

- (1) The application of Texaco Exploration and Production, Inc. ("Texaco") as operator of the North Vacuum Abo West Unit (approved by Division Order No. R-6822, dated November 18, 1981) has been duly filed under the provisions of Rule 111.D and E of the General Rules and Regulations of the New Mexico Oil Conservation Division ("Division"), revised by Division Order No. R-10388, issued by the Oil Conservation Commission in Case 11,274 on June 13, 1995;
- (2) The proposed high angle/horizontal directionally drilling project is within the applicant's North Vacuum Abo West Unit Waterflood Project Area (established by Division Order No. R-6857, as amended) and as such Division General Rule 701.G(4) applies, which states that wells within waterflood project areas are not subject to an oil allowable;
- (3) The N/2 and SE/4 of said Section 28 is within the horizontal limits of the North Vacuum-Abo Pool, said pool is subject to the "*Special Rules and Regulations for the North Vacuum-Abo (Oil) Pool*", as promulgated by Division Order No. R-2421, as amended, which provides for 80-acre oil spacing and proration units, or drilling units, and requires that wells be located within a 200 foot radius of the center of a governmental quarter-quarter section or lot, provided that the first well on the 80-acre unit is located in either the NW/4 or SE/4 of a governmental

quarter section;

- (4) Texaco is seeking to initiate a high angle/horizontal directional drilling project within this portion of the North Vacuum-Abo Pool, which is a heterogeneous reservoir where vertical segregation is common, in an attempt to drain laterally discontinuous lenses that would not otherwise be exploited without dense vertical well spacing [see files for Division Administrative Orders DD-153(H) and DD-154(H)];
- (5) Texaco is currently developing the North Vacuum-Abo Pool within the SE/4 of said Section 28 with water injection into its North Vacuum Abo West Unit Well No. 21 (API No. 30-025-23917), located at a standard Abo well location 660 feet from the South and East lines (Unit P) of said Section 28 and producing from its North Vacuum Abo West Unit Well No. 19 (API No. 30-025-23880), located within a standard 80-acre oil spacing and proration unit comprising the N/2 SE/4 of said Section 28 at a standard oil well location 2104 feet from the South line and 1856 feet from the East line (Unit J) of said Section 28;
- (6) The "project area" proposed by Texaco would consist of an over-sized spacing unit comprising 160 acres (two standard lay-down 80-acre units) underlying the SE/4 of said Section 28;
- (7) It is Texaco's intent to place its North Vacuum Abo West Unit Well No. 28 at a standard North Vacuum-Abo Pool oil well location 1980 feet from the South line and 760 feet from the East line (Unit I) of said Section 28, drill vertically to an approximate depth of 8,600 feet, kick-off in a southwesterly direction with a short radius wellbore (57.3 degrees/100 feet), and drill in a somewhat horizontal fashion a lateral distance of approximately 1,800 feet through the Abo formation;
- (8) The applicable drilling window or "producing area" for said wellbore should include that area within the SE/4 of said Section 28 that is no closer than 660 feet to the outer boundary of the subject 160-acre non-standard oil spacing and proration unit that is the SE/4 of said Section 28; and,
- (9) It appears the applicant has satisfied all of the appropriate requirements prescribed in said Rule 111.D and E, the subject application should be approved and the well should be governed by the provisions contained within this order and all other applicable provisions of Division General Rule 111.

**IT IS THEREFORE ORDERED THAT:**

(1) Texaco Exploration and Production, Inc. ("Texaco") is hereby authorized to initiate a high angle/horizontal directional drilling project within a non-standard 160-acre oil spacing and proration unit comprising the SE/4 of Section 28, Township 17 South, Range 34

East, NMPM, North Vacuum-Abo Pool, North Vacuum Abo West Unit, North Vacuum Abo West Unit Waterflood Project Area, Lea County, New Mexico, by drilling its North Vacuum Abo West Unit Well No. 28 at a standard North Vacuum-Abo Pool surface oil well location 1980 feet from the South line and 760 feet from the East line (Unit I) of said Section 28, drill vertically to an approximate depth of 8,600 feet, kick-off in a southwesterly direction with a short radius wellbore (57.3 degrees/100 feet), and drill in a somewhat horizontal fashion a lateral distance of approximately 1,800 feet through the Abo formation;

PROVIDED HOWEVER THAT prior to commencing directional drilling operations in said wellbore, the applicant shall establish the location of the kick-off point by means of a directional survey acceptable to the Division.

PROVIDED FURTHER THAT during or upon completion of said directional drilling operations, the applicant shall conduct an accurate wellbore survey from the kick-off point to total depth in order that the subsurface bottomhole location, as well as the wellbore's true depth and course, may be determined.

(2) The applicant shall notify the supervisor of the Hobbs District office of the Division of the date and time said wellbore surveys are to be conducted so that they may be witnessed. The applicant shall further provide a copy of said wellbore surveys to the Santa Fe and Hobbs offices of the Division upon completion.

(3) The "project area" for said horizontal well shall consist of an oversized 160-acre non-standard oil spacing and proration unit for said pool comprising the SE/4 of said Section 28.

(4) The "producing area" for said horizontal wellbore shall include that area within the SE/4 of said Section 28 that is no closer than 660 feet from the outer boundary of said quarter section.

(5) The operator shall comply with all requirements and conditions set forth in Division General Rule 111.E(2) and any applicable requirements in 111.D and F.

(6) Form C-105 shall be filed in accordance with Division Rule 1105 and the operator shall indicate thereon true vertical depth (TVD) in addition to measured depths (MVD).

(7) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY

Director

SEAL

cc: Oil Conservation Division - Hobbs  
New Mexico State Land Office - Santa Fe

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION - Engineering Bureau -

ADMINISTRATIVE APPLICATION COVERSHEET

THIS COVERSHEET IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS

Application Acronyms:

- [NSP-Non-Standard Proration Unit] [NSL-Non-Standard Location] [DD-Directional Drilling] [SD-Simultaneous Dedication] [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling] [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement] [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion] [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase] [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

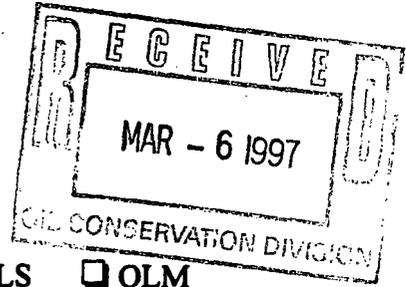
[1] TYPE OF APPLICATION - Check Those Which Apply for [A]

- [A] Location - Spacing Unit - Directional Drilling [ ] NSL [x] NSP [x] DD [ ] SD

Check One Only for [B] or [C]

- [B] Commingling - Storage - Measurement [ ] DHC [ ] CTB [ ] PLC [ ] PC [ ] OLS [ ] OLM

- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery [ ] WFX [ ] PMX [ ] SWD [ ] IPI [ ] EOR [ ] PPR



[2] NOTIFICATION REQUIRED TO: - Check Those Which Apply, or [ ] Does Not Apply

- [A] [ ] Working, Royalty or Overriding Royalty Interest Owners [B] [x] Offset Operators, Leaseholders or Surface Owner [C] [ ] Application is One Which Requires Published Legal Notice [D] [ ] Notification and/or Concurrent Approval by BLM or SLO U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office [E] [x] For all of the above, Proof of Notification or Publication is Attached, and/or, [F] [ ] Waivers are Attached

PP-TEX.HY

[3] INFORMATION / DATA SUBMITTED IS COMPLETE - Statement of Understanding

I hereby certify that I, or personnel under my supervision, have read and complied with all applicable Rules and Regulations of the Oil Conservation Division. Further, I assert that the attached application for administrative approval is accurate and complete to the best of my knowledge and where applicable, verify that all interest (WI, RI, ORRI) is common. I further verify that all applicable API Numbers are included. I understand that any omission of data, information or notification is cause to have the application package returned with no action taken.

Note: Statement must be completed by an individual with supervisory capacity.

C. WADE HOWARD Print or Type Name

C. Wade Howard Signature

ENGINEER ASSISTANT Title

3/4/97 Date



Texaco Exploration  
and Production Inc

500 North Loraine  
Midland TX 79701

P O Box 3109  
Midland TX 79702

February 27, 1997

GOV - STATE AND LOCAL GOVERNMENTS  
Directional Drilling - Horizontal  
Non-Standard Proration Unit  
North Vacuum Abo West Unit Well No. 28  
Vacuum Abo, North Field  
Lea County, New Mexico

State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
2040 South Pacheco  
Santa Fe, New Mexico 87505

Attention: Mr. Michael E. Stogner

Gentlemen:

Administrative approval, Rule 104.D, and Rule 111.D, is requested to directionally drill a horizontal well in a non-standard proration unit in the Abo formation.

The North Vacuum Abo West Unit is a candidate for horizontal wells due to the heterogeneous nature of the reservoir. This Unit was designated a "Project Area" for horizontal drilling in 1996 (see Administrative Orders DD-153H and DD-154H). We have completed one successful horizontal well in this Unit (Well No. 26) and are currently drilling a second horizontal well (No. 27).

Attached for your information is a copy of our directional plans, a type log section, and Form C-102.

The "affected" offset operator to this well has been notified of this request. (See attached offset operator's list and certified mail receipts.)

Any questions concerning this request should be directed to me at (915) 688-4606.

Yours very truly,

C. W. Howard  
Engineer's Assistant

CWH:  
CC: NMOCD, P. O. Box 1980, Hobbs, NM 88240  
Attachments

DISTRICT I  
P. O. Box 1980, Hobbs, NM 88240

DISTRICT II  
P. O. Drawer DD, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
P. O. Box 2088, Santa Fe, NM 87504-2088

State of New Mexico  
Energy, Minerals and Natural Resources Department

**OIL CONSERVATION DIVISION**  
PO Box 2088  
Santa Fe, NM 87504-2088

Form C-102  
Revised February 10, 1994

Instructions on back

Submit to Appropriate District Office

State Lease-4 copies  
Fee Lease-3 copies

AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

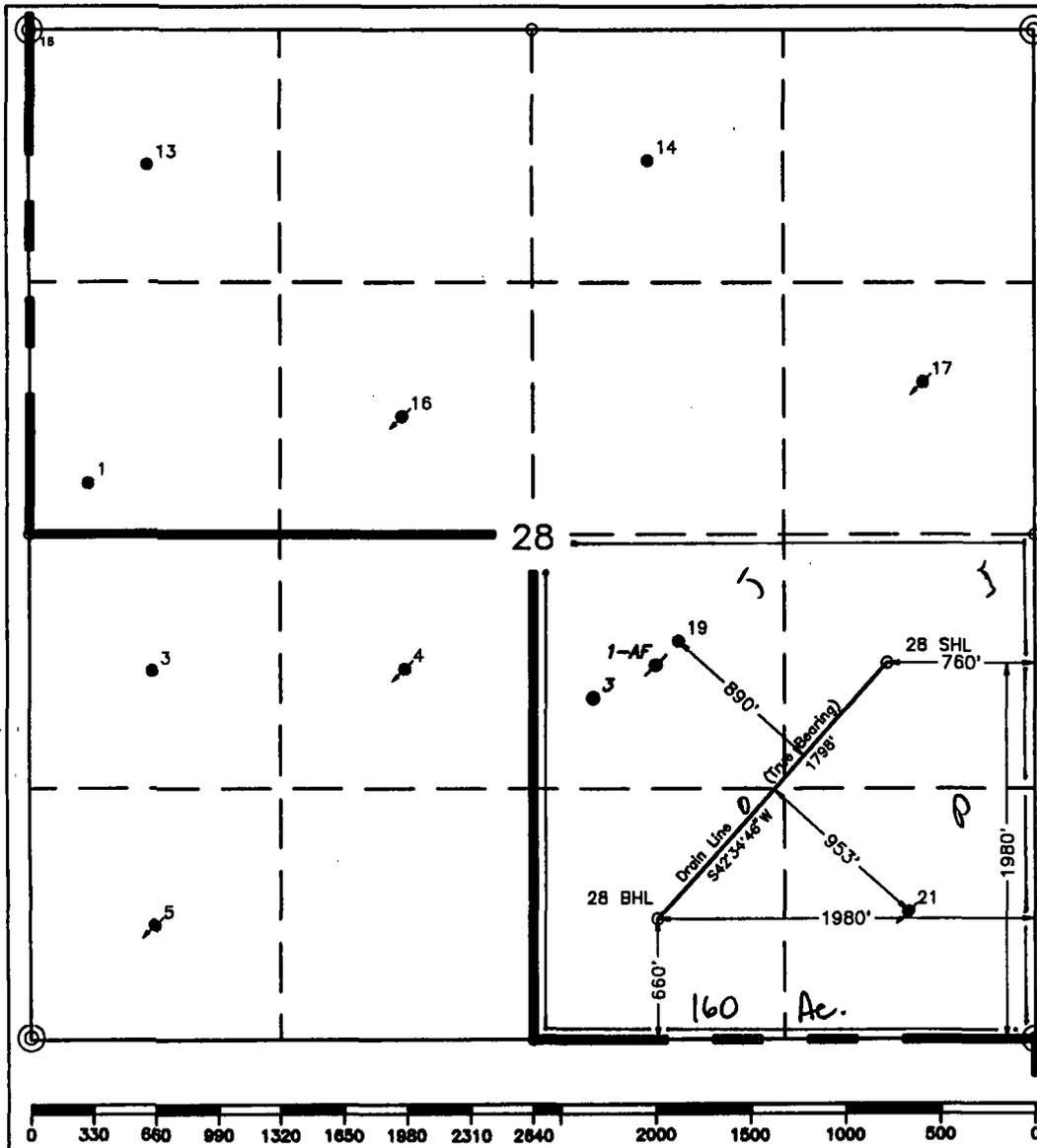
<sup>1</sup> API Number		<sup>2</sup> Pool Code 61760		<sup>3</sup> Pool Name Vacuum Abo, North		
<sup>4</sup> Property Code 11123		<sup>5</sup> Property Name North Vacuum Abo West Unit			<sup>6</sup> Well Number 28	
<sup>7</sup> OGRID No. 22351		<sup>8</sup> Operator Name TEXACO EXPLORATION & PRODUCTION, INC.			<sup>9</sup> Elevation 4033'	

<sup>10</sup> Surface Location									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	<sup>7</sup> County
1	28	17-S	34-E		1980'	South	760'	East	Lea

<sup>11</sup> Bottom Hole Location If Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	<sup>7</sup> County
0	28	17-S	34-E		660'	South	1980'	East	Lea

<sup>12</sup> Dedicated Acres 160	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
--------------------------------------	-------------------------------	----------------------------------	-------------------------

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION.



**<sup>16</sup> OPERATOR CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Signature: *C. Wade Howard*

Printed Name: **C. Wade Howard**

Position: **Engineer's Assistant**

Company: **Texaco Expl. & Prod. Inc.**

Date: **February 24, 1997**

---

**<sup>17</sup> SURVEYOR CERTIFICATION**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: **February 21, 1997**

Signature & Seal of Professional Surveyor: *John S. Piper*

Certificate No.: **7254 John S. Piper**

Sheet

○ = Staked Location ● = Producing Well = Injection Well ◊ = Water Supply Well ◆ = Plugged & Abandon Well



Texaco Exploration  
and Production Inc

500 North Loraine  
Midland TX 79701

P O Box 3109  
Midland TX 79702

February 27, 1997

GOV - STATE AND LOCAL GOVERNMENTS  
Directional Drilling - Horizontal  
Non-Standard Location  
North Vacuum Abo West Unit Well No. 28  
Sec. 28, T-17-S, R-34-E  
Lea County, New Mexico

TO THE OFFSET OPERATORS:

Gentlemen:

As an offset operator to the captioned unit, you are being furnished with a copy of our Application to directionally drill a horizontal well. If you have no objection, please sign the waiver at the bottom of this letter and return in the enclosed envelope.

Any questions concerning this request should be directed to me at (915) 688-4606.

Yours very truly,

*C. Wade Howard*

C. W. Howard  
Engineer's Assistant

CWH:cwh

File

**WAIVER APPROVED:**

**COMPANY:** \_\_\_\_\_

**BY:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**OFFSET OPERATOR'S LIST**  
**North Vacuum Abo West Unit Well No. 28**  
**LEA COUNTY, NEW MEXICO**

**Oxy USA Inc.**  
**P. O. Box 50250**  
**Midland, Texas 79710**

**Conoco Inc.**  
**10 Desta Dr. West**  
**Midland, Texas 79705**

**Atlantic Richfield Company**  
**P. O. Box 1610**  
**Midland, Texas 79702**

**Collins & Ware, Inc.**  
**508 W. Wall Ave., Suite 1200**  
**Midland, Texas 79701**

**Marathon Oil Company**  
**P. O. Box 552**  
**Midland, Texas 79702**

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Collins & Ware, Inc.  
508 W. Wall Avenue, Suite 1200  
Midland, TX 79701

4a. Article Number  
P 497 362 868

4b. Service Type

Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
3-3-97

5. Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)

*[Signature]*

PS Form 3811, December 1994 Domestic Return Receipt

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
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- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Marathon Oil Company  
P. O. Box 552  
Midland, TX 79702

4a. Article Number  
P 497 362 867

4b. Service Type

Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
MAR 03 1997

5. Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)

*[Signature]*

PS Form 3811, December 1994 Domestic Return Receipt

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
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- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Oxy USA Inc.  
P. O. Box 50250  
Midland, TX 79710

4a. Article Number  
P 497 362 866

4b. Service Type

Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
MAR 3 1997

5. Received By: (Print Name)

ROBERT MITCHELL

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)

*[Signature]*

PS Form 3811, December 1994 Domestic Return Receipt

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
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- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1.  Addressee's Address
- 2.  Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Atlantic Richfield Co.  
P. O. Box 1610  
Midland, TX 79702

4a. Article Number

P 497 362 869

4b. Service Type

- Registered  Certified
- Express Mail  Insured
- Return Receipt for Merchandise  COD

7. Date of Delivery

FEB 28 1997

5. Received By: (Print Name)

*[Handwritten Signature]*

6. Signature: (Addressee or Agent)

X

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1.  Addressee's Address
- 2.  Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Conoco Inc.  
10 Desta Drive West  
Midland, Tx 79705

4a. Article Number

P 497 362 870

4b. Service Type

- Registered  Certified
- Express Mail  Insured
- Return Receipt for Merchandise  COD

7. Date of Delivery

2-28-97

5. Received By: (Print Name)

*[Handwritten Signature: Anita Gonzalez]*

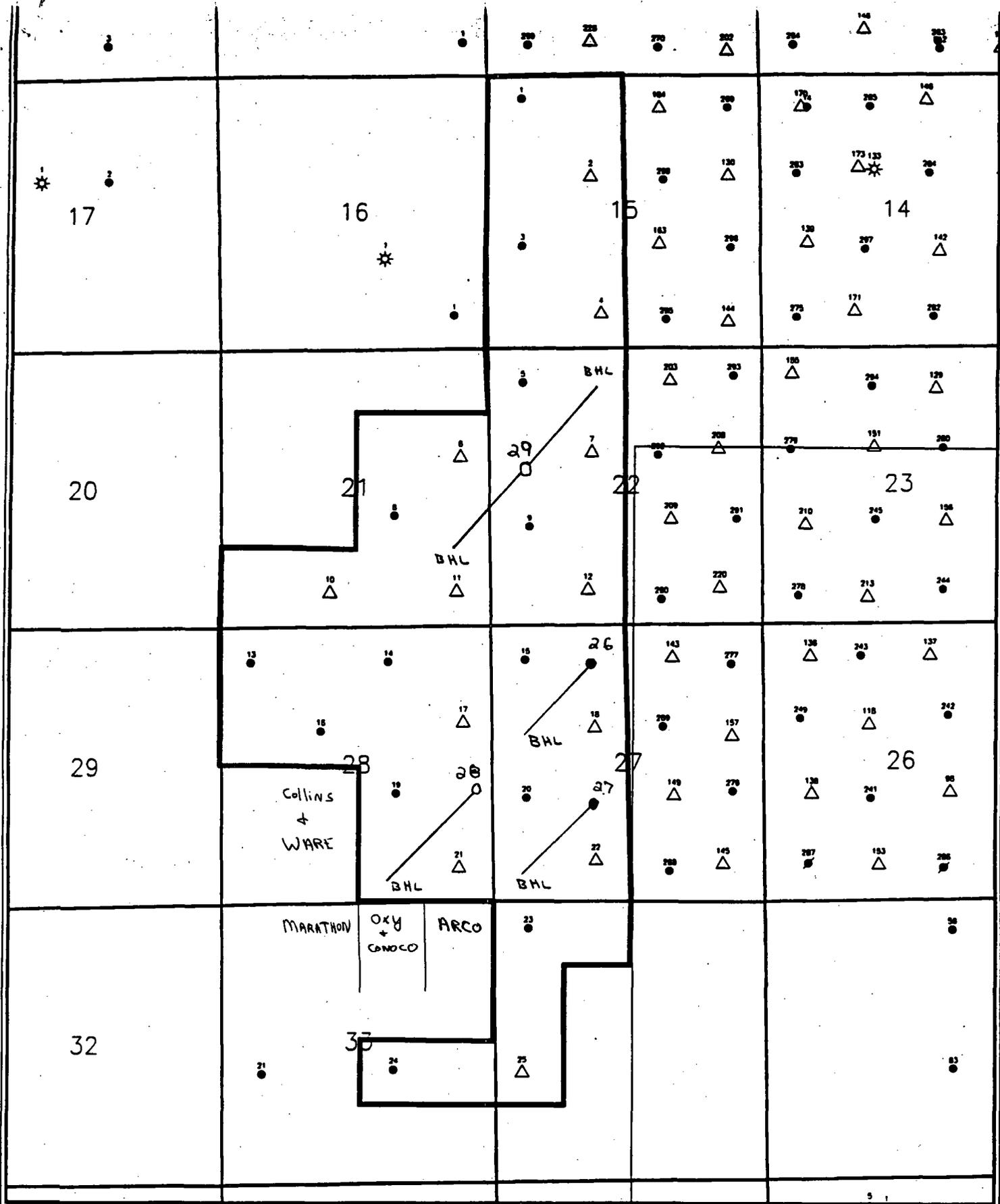
6. Signature: Addressee

8. Addressee's Address (Only if requested and fee is paid)

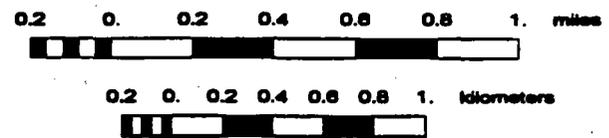
PS Form 3811, December 1994

Domestic Return Receipt

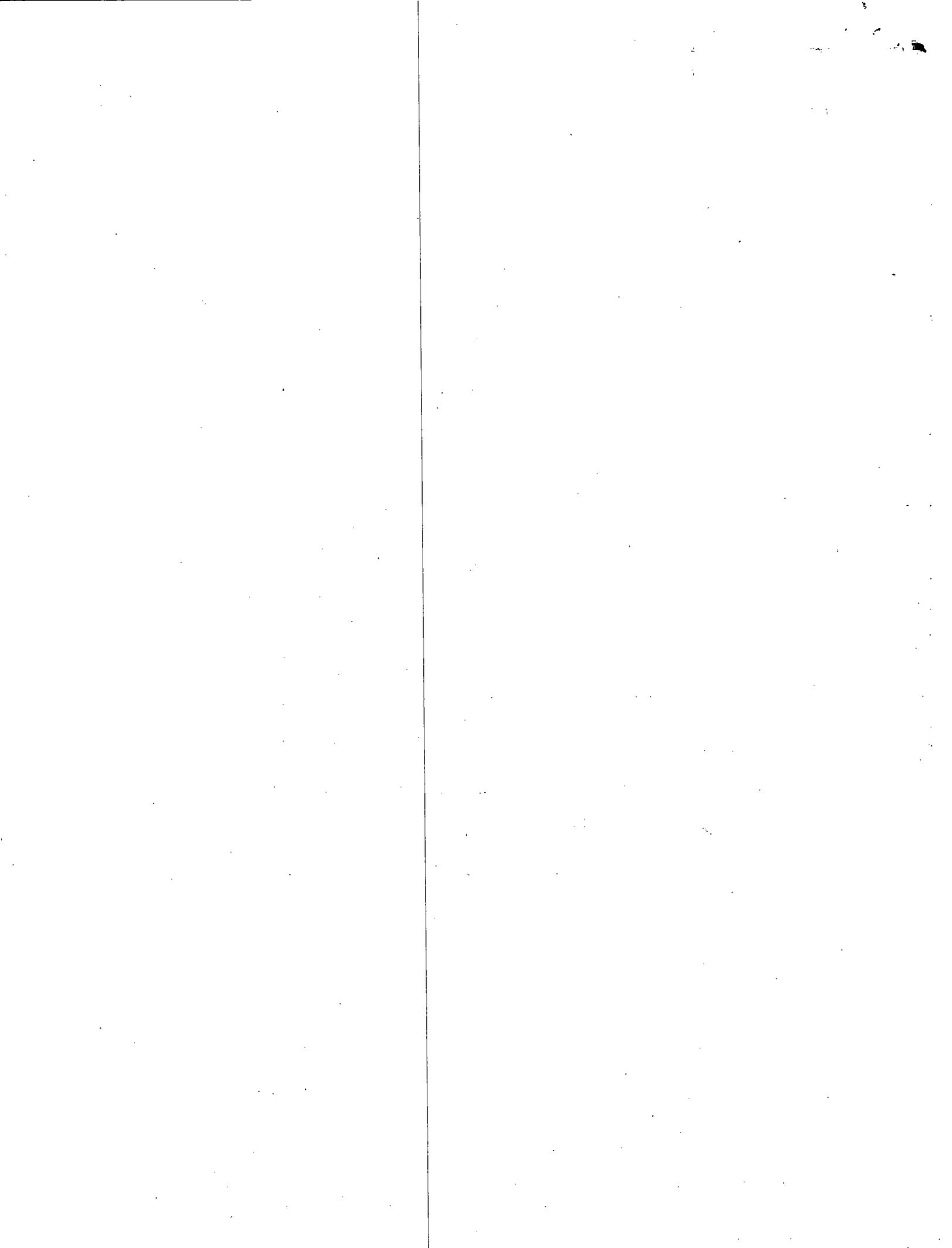
Thank you for using Return Receipt Service.



Scale 1:30000.

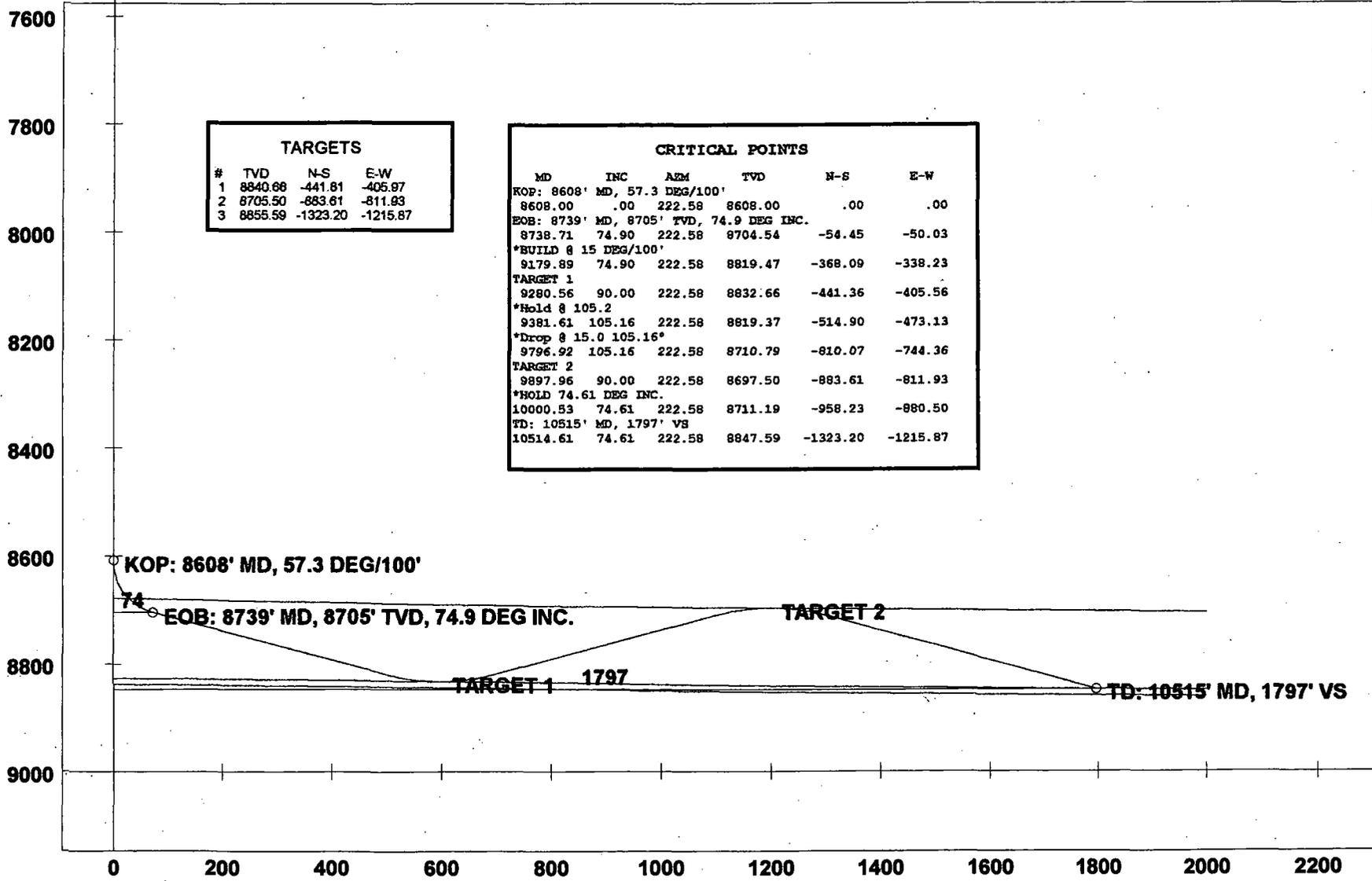


Texaco Exploration & Production, Inc		
WELL No. 28		
North Vacuum Abo West Unit		
Base Map, Wells > 8,000' TD		
		01000
	Scale 1:30000.	



Company: TEXACO E & P, INC.  
 Lease/Well: NVAWU #28H  
 Location: LEA COUNTY, NEW MEXICO  
 Declination: 9.11 DEG EAST  
 File name: C:\WINSERVE\NVAWU28.SVY  
 Date/Time: Thursday, February 27, 1997

TRUE VERTICAL DEPTH (Ft)



○ - PROPOSED WELL PATH

VERTICAL SECTION (Ft) @ 222.58°

CONFIDENTIAL

SECRET

SECRET

CONFIDENTIAL AND PROPRIETARY



**Job Number:** P97-101  
**Company:** TEXACO E & P, INC.  
**Lease/Well:** NVAWU #28H  
**Location:** LEA COUNTY, NEW MEXICO  
**Rig Name:**

**State/Country:**  
**Declination:** 9.11 DEG EAST  
**Grid:**  
**File name:** C:\WINSERVE\NVAWU28.SVY  
**Date/Time:** 27-Feb-97 / 15:49  
**Curve Name:** PROPOSED WELL PATH

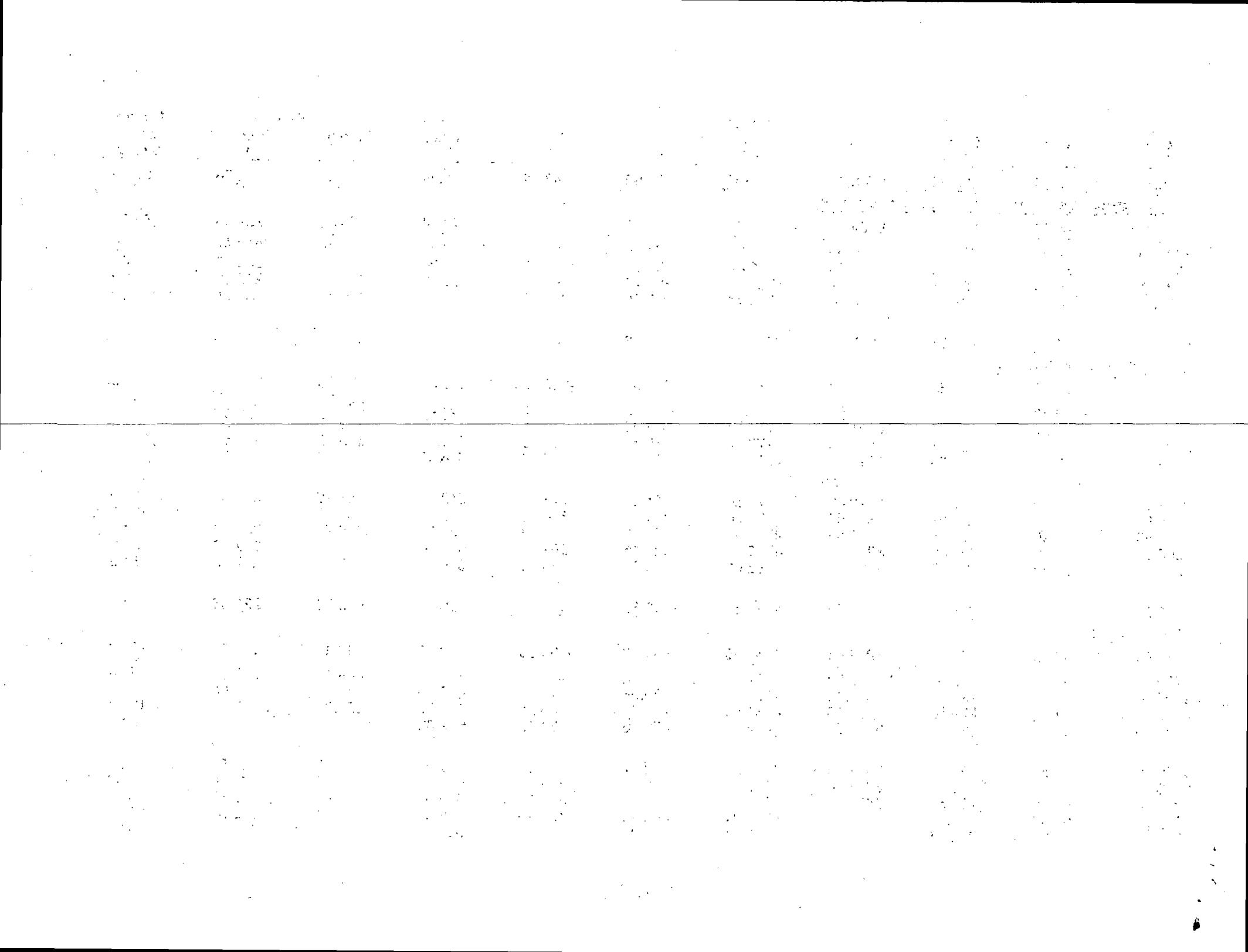
Phoenix Drilling Services, Inc.

**WINSERVE SURVEY CALCULATIONS**  
*Minimum Curvature Method*  
*Vertical Section Plane 222.58*

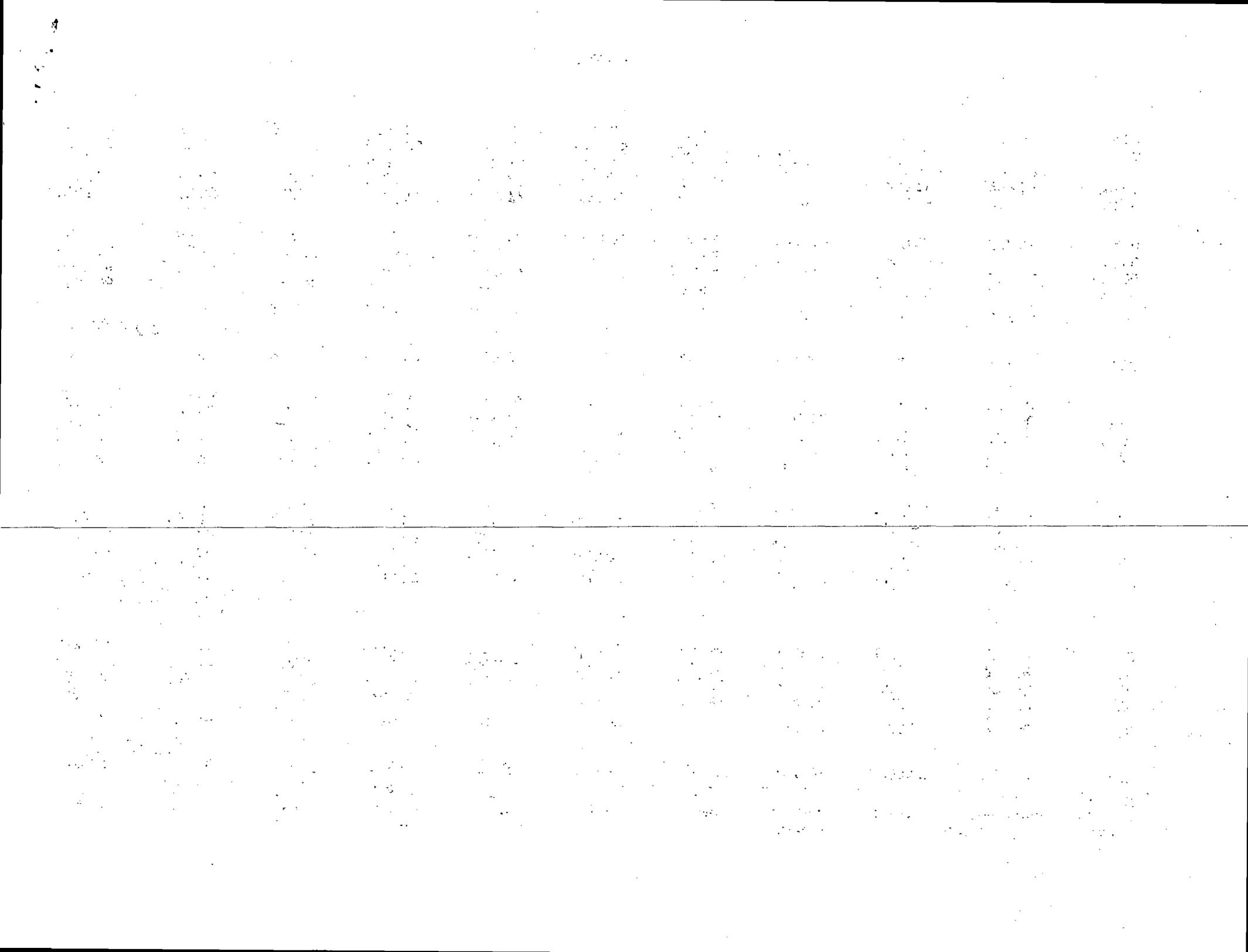
<i>Measured Depth FT</i>	<i>Incl Angle Deg</i>	<i>Drift Direction Deg</i>	<i>True Vertical Depth</i>	<i>Subsea TVD FT</i>	<i>N-S FT</i>	<i>E-W FT</i>	<i>Vertical Section FT</i>	<i>CLOSURE</i>		<i>Dogleg Severity Deg/100</i>
								<i>Distance FT</i>	<i>Direction Deg</i>	
<b>KOP: 8608' MD, 57.3 DEG/100'</b>										
8608.00	.00	222.58	8608.00	4558.00	.00	.00	.00	.00	.00	.00
8618.00	5.73	222.58	8617.98	4567.98	-.37	-.34	.50	.50	222.58	57.30
8628.00	11.46	222.58	8627.87	4577.87	-1.47	-1.35	1.99	1.99	222.58	57.30
8638.00	17.19	222.58	8637.55	4587.55	-3.29	-3.02	4.47	4.47	222.58	57.30
8648.00	22.92	222.58	8646.94	4596.94	-5.81	-5.34	7.89	7.89	222.58	57.30
8658.00	28.65	222.58	8655.94	4605.94	-9.01	-8.28	12.24	12.24	222.58	57.30
8668.00	34.38	222.58	8664.46	4614.46	-12.86	-11.82	17.47	17.47	222.58	57.30
8678.00	40.11	222.58	8672.42	4622.42	-17.32	-15.91	23.52	23.52	222.58	57.30
8686.53	45.00	222.58	8678.70	4628.70	-21.56	-19.82	29.29	29.29	222.58	57.30
8696.53	50.73	222.58	8685.41	4635.41	-27.02	-24.83	36.70	36.70	222.58	57.30
8706.53	56.46	222.58	8691.34	4641.34	-32.95	-30.27	44.74	44.74	222.58	57.30
8716.53	62.19	222.58	8696.44	4646.44	-39.28	-36.09	53.34	53.34	222.58	57.30
8726.53	67.92	222.58	8700.66	4650.66	-45.95	-42.22	62.40	62.40	222.58	57.30



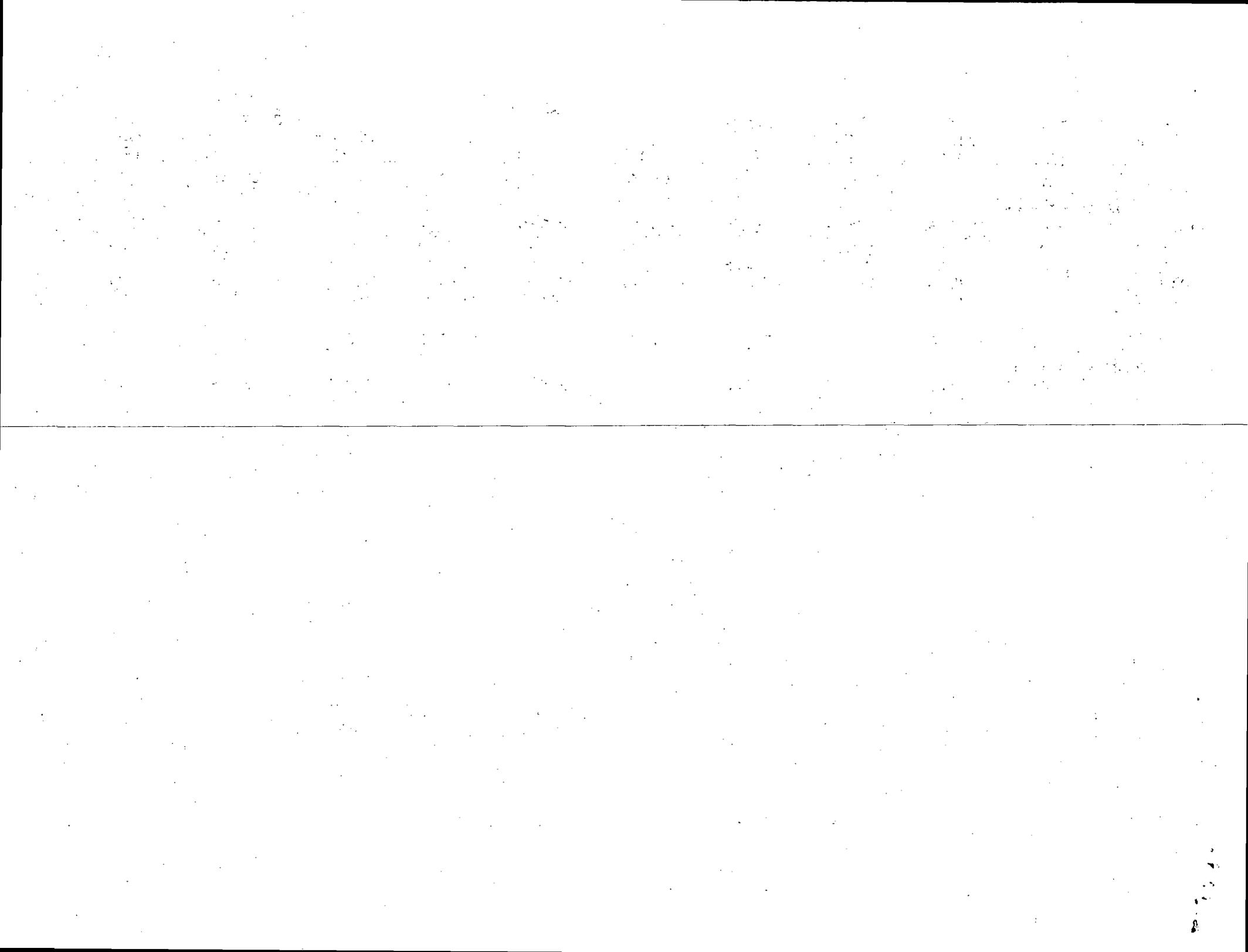
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth FT	Subsea TVD FT	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
								Distance FT	Direction Deg	
8736.53	73.65	222.58	8703.95	4653.95	-52.90	-48.61	71.84	71.84	222.58	57.30
<b>EOB: 8739' MD, 8705' TVD, 74.9 DEG INC.</b>										
8738.71	74.90	222.58	8704.54	4654.54	-54.45	-50.03	73.94	73.94	222.58	57.30
8838.71	74.90	222.58	8730.59	4680.59	-125.54	-115.36	170.49	170.49	222.58	.00
8938.71	74.90	222.58	8756.64	4706.64	-196.63	-180.68	267.04	267.04	222.58	.00
9038.71	74.90	222.58	8782.69	4732.69	-267.72	-246.01	363.58	363.58	222.58	.00
9138.71	74.90	222.58	8808.74	4758.74	-338.81	-311.33	460.13	460.13	222.58	.00
9172.00	74.90	222.58	8817.42	4767.42	-362.48	-333.08	492.27	492.27	222.58	.00
<b>BUILD @ 15 DEG/100'</b>										
9179.89	74.90	222.58	8819.47	4769.47	-368.09	-338.23	499.89	499.89	222.58	.00
9189.89	76.40	222.58	8821.95	4771.95	-375.22	-344.79	509.58	509.58	222.58	15.00
9199.89	77.90	222.58	8824.17	4774.17	-382.40	-351.38	519.33	519.33	222.58	15.00
9209.89	79.40	222.58	8826.14	4776.14	-389.62	-358.02	529.13	529.13	222.58	15.00
9219.89	80.90	222.58	8827.85	4777.85	-396.87	-364.68	538.98	538.98	222.58	15.00
9229.89	82.40	222.58	8829.30	4779.30	-404.16	-371.38	548.88	548.88	222.58	15.00
9239.89	83.90	222.58	8830.50	4780.50	-411.47	-378.09	558.81	558.81	222.58	15.00
9249.89	85.40	222.58	8831.43	4781.43	-418.80	-384.83	568.76	568.76	222.58	15.00
9259.89	86.90	222.58	8832.10	4782.10	-426.15	-391.58	578.74	578.74	222.58	15.00
9269.89	88.40	222.58	8832.51	4782.51	-433.51	-398.34	588.73	588.73	222.58	15.00
9279.89	89.90	222.58	8832.66	4782.66	-440.87	-405.11	598.73	598.73	222.58	15.00
<b>TARGET 1</b>										
9280.56	90.00	222.58	8832.66	4782.66	-441.36	-405.56	599.40	599.40	222.58	15.00
9290.56	91.50	222.58	8832.53	4782.53	-448.72	-412.32	609.40	609.40	222.58	15.00
9300.56	93.00	222.58	8832.14	4782.14	-456.08	-419.09	619.39	619.39	222.58	15.00
9310.56	94.50	222.58	8831.48	4781.48	-463.43	-425.84	629.37	629.37	222.58	15.00
9320.56	96.00	222.58	8830.57	4780.57	-470.76	-432.57	639.32	639.32	222.58	15.00
9330.56	97.50	222.58	8829.39	4779.39	-478.07	-439.29	649.25	649.25	222.58	15.00
9340.56	99.00	222.58	8827.96	4777.96	-485.36	-445.99	659.15	659.15	222.58	15.00
9350.56	100.50	222.58	8826.26	4776.26	-492.62	-452.66	669.01	669.01	222.58	15.00
9360.56	102.00	222.58	8824.31	4774.31	-499.84	-459.29	678.81	678.81	222.58	15.00
9370.56	103.50	222.58	8822.11	4772.11	-507.02	-465.89	688.57	688.57	222.58	15.00



Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Subsea TVD FT	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
								Distance FT	Direction Deg	
9380.56	105.00	222.58	8819.64	4769.64	-514.16	-472.45	698.26	698.26	222.58	15.00
<b>Hold @ 105.2</b>										
9381.61	105.16	222.58	8819.37	4769.37	-514.90	-473.13	699.27	699.27	222.58	15.00
9481.61	105.16	222.58	8793.23	4743.23	-585.97	-538.44	795.79	795.79	222.58	.00
9581.61	105.16	222.58	8767.08	4717.08	-657.04	-603.75	892.31	892.31	222.58	.00
9681.61	105.16	222.58	8740.94	4690.94	-728.12	-669.05	988.83	988.83	222.58	.00
9781.61	105.16	222.58	8714.79	4664.79	-799.19	-734.36	1085.35	1085.35	222.58	.00
<b>Drop @ 15.0 105.16°</b>										
9796.92	105.16	222.58	8710.79	4660.79	-810.07	-744.36	1100.13	1100.13	222.58	.00
9797.96	105.00	222.58	8710.52	4660.52	-810.81	-745.04	1101.14	1101.14	222.58	15.00
9807.96	103.50	222.58	8708.05	4658.05	-817.95	-751.60	1110.83	1110.83	222.58	15.00
9817.96	102.00	222.58	8705.85	4655.85	-825.13	-758.20	1120.58	1120.58	222.58	15.00
9827.96	100.50	222.58	8703.90	4653.90	-832.35	-764.83	1130.39	1130.39	222.58	15.00
9837.96	99.00	222.58	8702.20	4652.20	-839.61	-771.50	1140.24	1140.24	222.58	15.00
9847.96	97.50	222.58	8700.77	4650.77	-846.89	-778.20	1150.14	1150.14	222.58	15.00
9857.96	96.00	222.58	8699.59	4649.59	-854.21	-784.92	1160.07	1160.07	222.58	15.00
9867.96	94.50	222.58	8698.68	4648.68	-861.54	-791.66	1170.03	1170.03	222.58	15.00
9877.96	93.00	222.58	8698.02	4648.02	-868.89	-798.41	1180.01	1180.01	222.58	15.00
9887.96	91.50	222.58	8697.63	4647.63	-876.24	-805.17	1190.00	1190.00	222.58	15.00
<b>TARGET 2</b>										
9897.96	90.00	222.58	8697.50	4647.50	-883.61	-811.93	1200.00	1200.00	222.58	15.00
9907.96	88.50	222.58	8697.63	4647.63	-890.97	-818.70	1210.00	1210.00	222.58	15.00
9917.96	87.00	222.58	8698.02	4648.02	-898.33	-825.46	1219.99	1219.99	222.58	15.00
9927.96	85.50	222.58	8698.68	4648.68	-905.67	-832.21	1229.97	1229.97	222.58	15.00
9937.96	84.00	222.58	8699.59	4649.59	-913.01	-838.95	1239.92	1239.92	222.58	15.00
9947.96	82.50	222.58	8700.77	4650.77	-920.32	-845.67	1249.86	1249.86	222.58	15.00
9957.96	81.00	222.58	8702.20	4652.20	-927.61	-852.36	1259.75	1259.75	222.58	15.00
9967.96	79.50	222.58	8703.90	4653.90	-934.86	-859.03	1269.61	1269.61	222.58	15.00
9977.96	78.00	222.58	8705.85	4655.85	-942.08	-865.67	1279.41	1279.41	222.58	15.00
9987.96	76.50	222.58	8708.05	4658.05	-949.27	-872.27	1289.17	1289.17	222.58	15.00



Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Subsea TVD FT	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
								Distance FT	Direction Deg	
9997.96	75.00	222.58	8710.52	4660.52	-956.40	-878.82	1298.86	1298.86	222.58	15.00
<b>HOLD 74.61 DEG INC.</b>										
10000.53	74.61	222.58	8711.19	4661.19	-958.23	-880.50	1301.34	1301.34	222.58	15.00
10100.53	74.61	222.58	8737.72	4687.72	-1029.23	-945.74	1397.76	1397.76	222.58	.00
10200.53	74.61	222.58	8764.25	4714.25	-1100.22	-1010.98	1494.18	1494.18	222.58	.00
10300.53	74.61	222.58	8790.79	4740.79	-1171.22	-1076.21	1590.59	1590.59	222.58	.00
10400.53	74.61	222.58	8817.32	4767.32	-1242.21	-1141.45	1687.01	1687.01	222.58	.00
10500.53	74.61	222.58	8843.85	4793.85	-1313.21	-1206.69	1783.42	1783.42	222.58	.00
<b>TD: 10515' MD, 1797' VS</b>										
10514.61	74.61	222.58	8847.59	4797.59	-1323.20	-1215.87	1797.00	1797.00	222.58	.03



**NEW MEXICO OIL CONSERVATION DIVISION**

- Engineering Bureau -

**ADMINISTRATIVE APPLICATION COVERSHEET**

THIS COVERSHEET IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS

Application Acronyms:

- [NSP-Non-Standard Proration Unit] [NSL-Non-Standard Location]
- [DD-Directional Drilling] [SD-Simultaneous Dedication]
- [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
- [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
- [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
- [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
- [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION - Check Those Which Apply for [A]**

- [A] Location - Spacing Unit - Directional Drilling  
 NSL  NSP  DD  SD

Check One Only for [B] or [C]

- [B] Commingling - Storage - Measurement  
 DHC  CTB  PLC  PC  OLS  OLM

- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery  
 WFX  PMX  SWD  IPI  EOR  PPR

[2] **NOTIFICATION REQUIRED TO: - Check Those Which Apply, or  Does Not Apply**

- [A]  Working, Royalty or Overriding Royalty Interest Owners
- [B]  Offset Operators, Leaseholders or Surface Owner
- [C]  Application is One Which Requires Published Legal Notice
- [D]  Notification and/or Concurrent Approval by BLM or SLO  
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
- [E]  For all of the above, Proof of Notification or Publication is Attached, and/or,
- [F]  Waivers are Attached

[3] **INFORMATION / DATA SUBMITTED IS COMPLETE - Statement of Understanding**

I hereby certify that I, or personnel under my supervision, have read and complied with all applicable Rules and Regulations of the Oil Conservation Division. Further, I assert that the attached application for administrative approval is accurate and complete to the best of my knowledge and where applicable, verify that all interest (WI, RI, ORRI) is common. I further verify that all applicable API Numbers are included. I understand that any omission of data, information or notification is cause to have the application package returned with no action taken.

Note: Statement must be completed by an individual with supervisory capacity.

C. WADE HOWARD  
 Print or Type Name

C. Wade Howard  
 Signature

ENGINEER ASSISTANT  
 Title

3/4/97  
 Date



Texaco Exploration  
and Production Inc

500 North Loraine  
Midland TX 79701

P O Box 3109  
Midland TX 79702

February 27, 1997

GOV - STATE AND LOCAL GOVERNMENTS  
Directional Drilling - Horizontal  
Non-Standard Proration Unit  
North Vacuum Abo West Unit Well No. 28  
Vacuum Abo, North Field  
Lea County, New Mexico

State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
2040 South Pacheco  
Santa Fe, New Mexico 87505

Attention: Mr. Michael E. Stogner

Gentlemen:

Administrative approval, Rule 104.D, and Rule 111.D, is requested to directionally drill a horizontal well in a non-standard proration unit in the Abo formation.

The North Vacuum Abo West Unit is a candidate for horizontal wells due to the heterogeneous nature of the reservoir. This Unit was designated a "Project Area" for horizontal drilling in 1996 (see Administrative Orders DD-153H and DD-154H). We have completed one successful horizontal well in this Unit (Well No. 26) and are currently drilling a second horizontal well (No. 27).

Attached for your information is a copy of our directional plans, a type log section, and Form C-102.

The "affected" offset operator to this well has been notified of this request. (See attached offset operator's list and certified mail receipts.)

Any questions concerning this request should be directed to me at (915) 688-4606.

Yours very truly,

C. W. Howard  
Engineer's Assistant

CWH:  
CC: NMOCD, P. O. Box 1980, Hobbs, NM 88240  
Attachments

DISTRICT 1  
P. O. Box 1980, Hobbs, NM 88240

DISTRICT II  
P. O. Drawer DD, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
P. O. Box 2088, Santa Fe, NM 87504-2088

State of New Mexico  
Energy, Minerals and Natural Resources Department

**OIL CONSERVATION DIVISION**  
PO Box 2088  
Santa Fe, NM 87504-2088

Form C-102  
Revised February 10, 1994

Instructions on back

Submit to Appropriate District Office

State Lease-4 copies  
Fee Lease-3 copies

AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

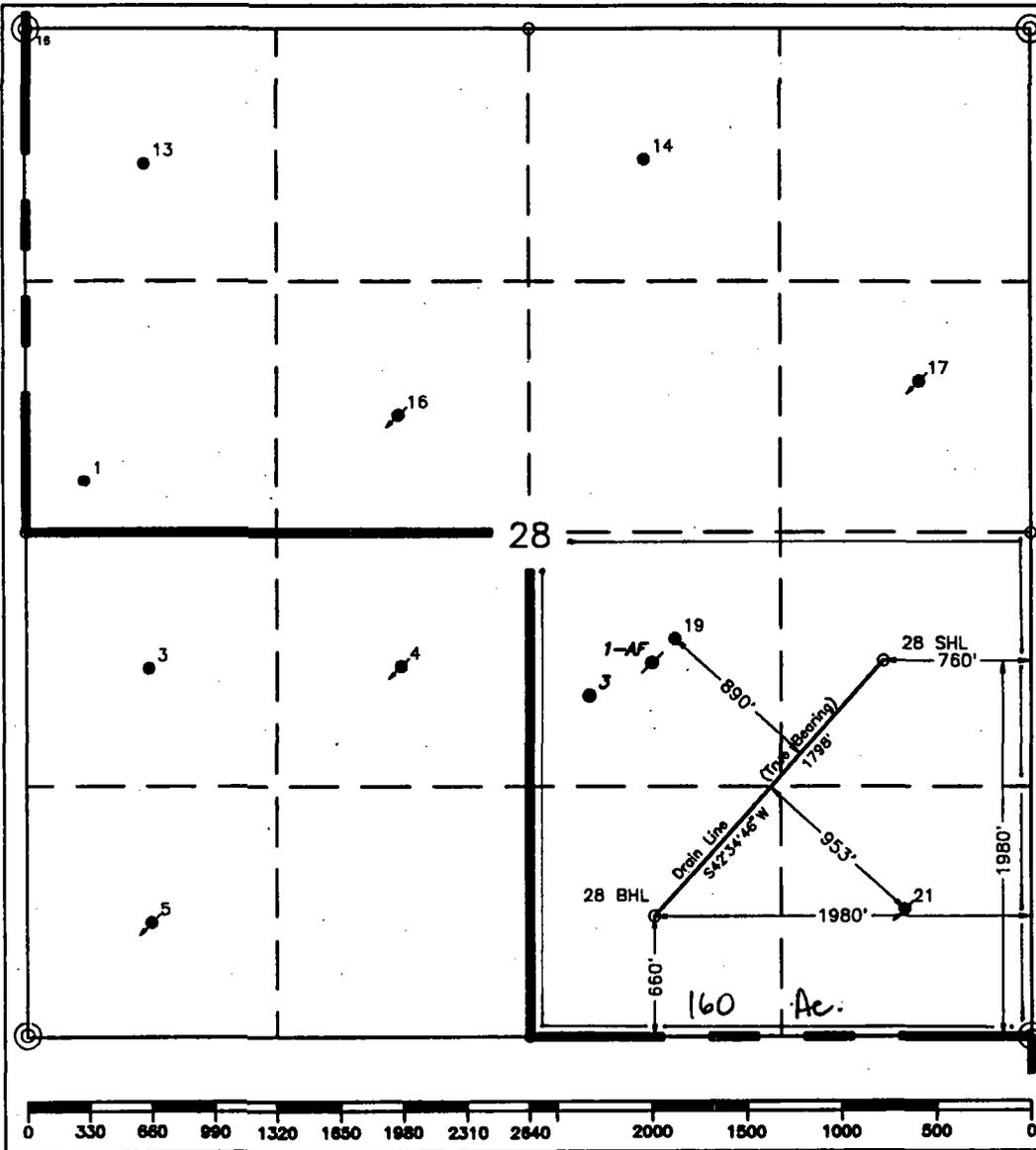
<sup>1</sup> API Number		<sup>2</sup> Pool Code 61760		<sup>3</sup> Pool Name Vacuum Abo, North	
<sup>4</sup> Property Code 11123		<sup>5</sup> Property Name North Vacuum Abo West Unit			<sup>6</sup> Well Number 28
<sup>7</sup> OGRID No. 22351		<sup>8</sup> Operator Name TEXACO EXPLORATION & PRODUCTION, INC.			<sup>9</sup> Elevation 4033'

<sup>10</sup> Surface Location									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	28	17-S	34-E		1980'	South	760'	East	Lea

<sup>11</sup> Bottom Hole Location If Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	28	17-S	34-E		660'	South	1980'	East	Lea

<sup>12</sup> Dedicated Acres .160	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
---------------------------------------	-------------------------------	----------------------------------	-------------------------

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION.



**<sup>17</sup> OPERATOR CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Signature: *C. Wade Howard*

Printed Name: **C. Wade Howard**

Position: **Engineer's Assistant**

Company: **Texaco Expl. & Prod. Inc.**

Date: **February 24, 1997**

---

**<sup>18</sup> SURVEYOR CERTIFICATION**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: **February 21, 1997**

Signature & Seal of Professional Surveyor: *John S. Piper*

Certificate No.: **7254 John S. Piper**

Sheet

○ = Staked Location ● = Producing Well = Injection Well ⊕ = Water Supply Well ⊖ = Plugged & Abandon Well



Texaco Exploration  
and Production Inc

500 North Loraine  
Midland TX 79701

P O Box 3109  
Midland TX 79702

February 27, 1997

GOV - STATE AND LOCAL GOVERNMENTS  
Directional Drilling - Horizontal  
Non-Standard Location  
North Vacuum Abo West Unit Well No. 28  
Sec. 28, T-17-S, R-34-E  
Lea County, New Mexico

TO THE OFFSET OPERATORS:

Gentlemen:

As an offset operator to the captioned unit, you are being furnished with a copy of our Application to directionally drill a horizontal well. If you have no objection, please sign the waiver at the bottom of this letter and return in the enclosed envelope.

Any questions concerning this request should be directed to me at (915) 688-4606.

Yours very truly,

*C. Wade Howard*

C. W. Howard  
Engineer's Assistant

CWH:cwh

File

**WAIVER APPROVED:**

**COMPANY:** \_\_\_\_\_

**BY:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**OFFSET OPERATOR'S LIST**  
**North Vacuum Abo West Unit Well No. 28**  
**LEA COUNTY, NEW MEXICO**

**Oxy USA Inc.**  
**P. O. Box 50250**  
**Midland, Texas 79710**

**Conoco Inc.**  
**10 Desta Dr. West**  
**Midland, Texas 79705**

**Atlantic Richfield Company**  
**P. O. Box 1610**  
**Midland, Texas 79702**

**Collins & Ware, Inc.**  
**508 W. Wall Ave., Suite 1200**  
**Midland, Texas 79701**

**Marathon Oil Company**  
**P. O. Box 552**  
**Midland, Texas 79702**

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Collins & Ware, Inc.  
508 W. Wall Avenue, Suite 1200  
Midland, TX 79701

4a. Article Number  
P 497 362 868

4b. Service Type

Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
3-3-97

5. Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)

*[Signature]*

PS Form 3811, December 1994 Domestic Return Receipt

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
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- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Marathon Oil Company  
P. O. Box 552  
Midland, TX 79702

4a. Article Number  
P 497 362 867

4b. Service Type

Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
MAR 03 1997

5. Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)

*[Signature]*

PS Form 3811, December 1994 Domestic Return Receipt

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
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- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Oxy USA Inc.  
P. O. Box 50250  
Midland, TX 79710

4a. Article Number  
P 497 362 866

4b. Service Type

Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
MAR 3 1997

5. Received By: (Print Name)

Robert M. Mitchel

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)

*[Signature]*

PS Form 3811, December 1994 Domestic Return Receipt

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Atlantic Richfield Co.  
P. O. Box 1610  
Midland, TX 79702

4a. Article Number  
P 497 362 869

4b. Service Type

Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
FEB 28 1997

5. Received By: (Print Name)

*[Signature]*

6. Signature: (Addressee or Agent)  
X

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Conoco Inc.  
10 Desta Drive West  
Midland, Tx 79705

4a. Article Number  
P 497 362 870

4b. Service Type

Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
2-28-97

5. Received By: (Print Name)

*[Signature]*

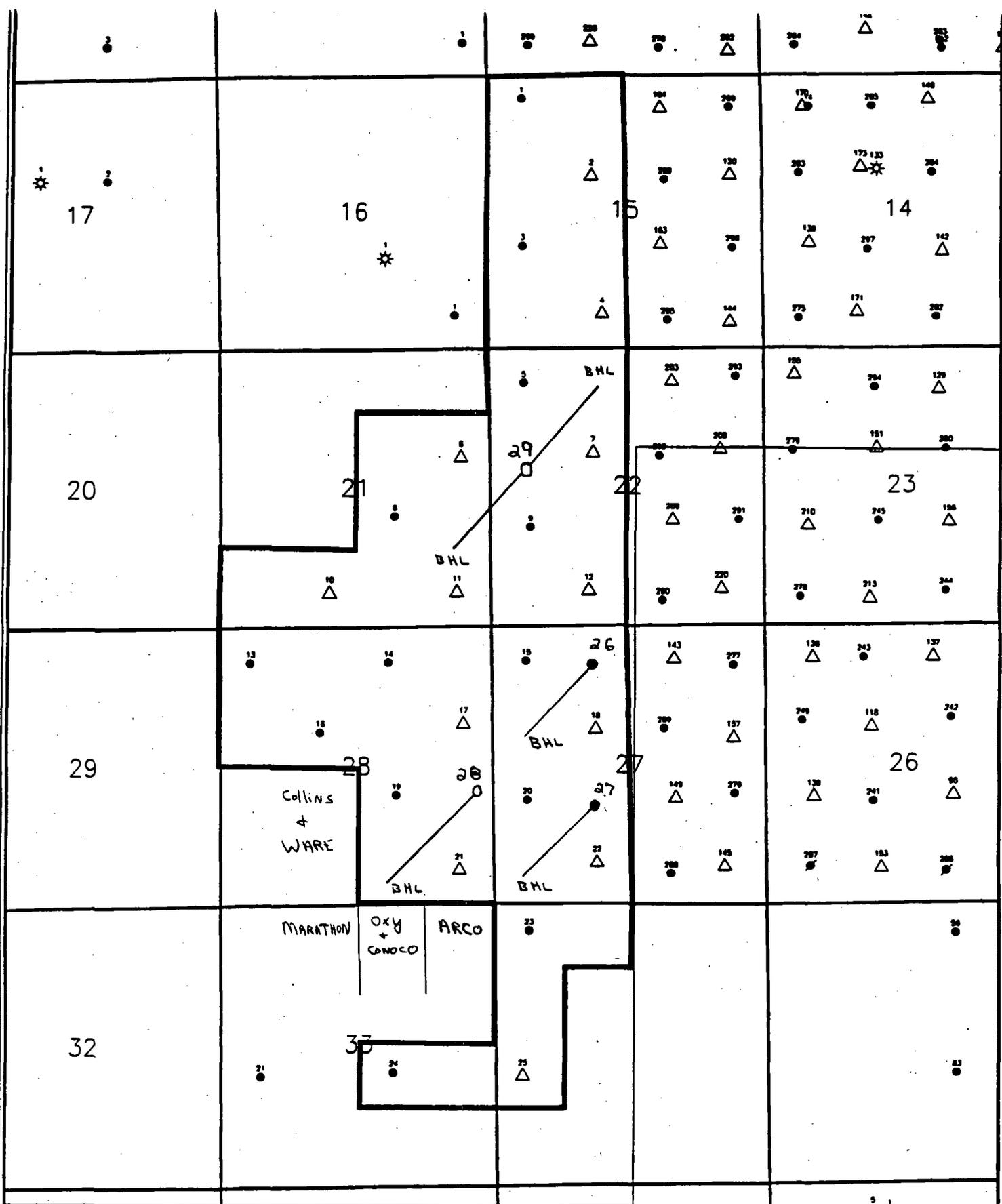
6. Signature: (Addressee or Agent)  
X

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

Domestic Return Receipt

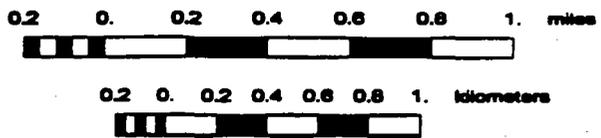
Thank you for using Return Receipt Service.



Scale 1:30000.

Texaco Exploration & Production, Inc

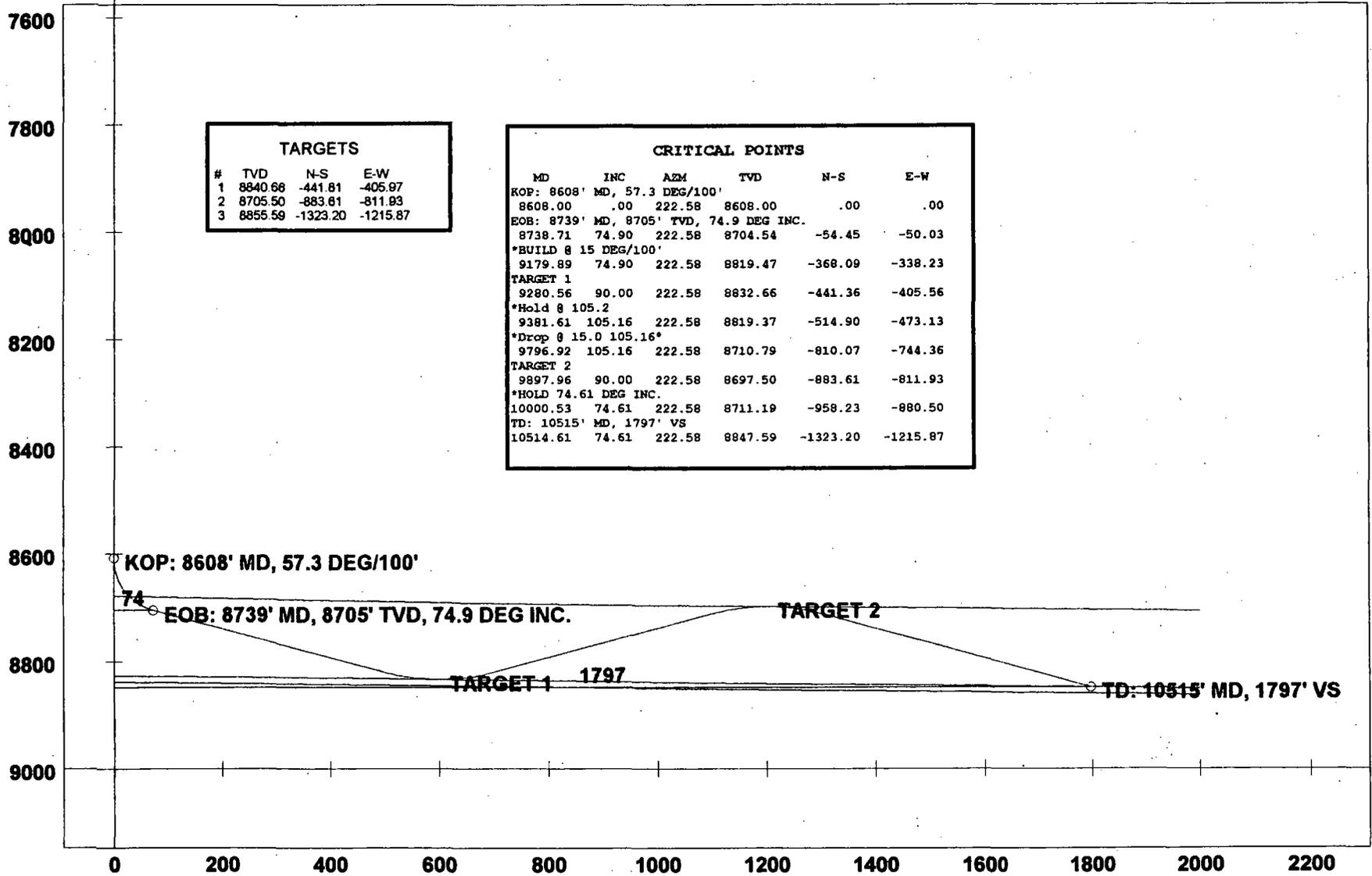
WELL No. 28  
 North Vacuum Abo West Unit  
 Base Map, Wells > 8,000' TD



		07000
		07000

Company: TEXACO E & P, INC.  
 Lease/Well: NVAWU #28H  
 Location: LEA COUNTY, NEW MEXICO  
 Declination: 9.11 DEG EAST  
 File name: C:\WINSERVE\NVAWU28.SVY  
 Date/Time: Thursday, February 27, 1997

TRUE VERTICAL DEPTH (Ft)



○ - PROPOSED WELL PATH

VERTICAL SECTION (Ft) @ 222.58°



**Job Number:** P97-101  
**Company:** TEXACO E & P, INC.  
**Lease/Well:** NVAWU #28H  
**Location:** LEA COUNTY, NEW MEXICO  
**Rlg Name:**

**State/Country:**  
**Declination:** 9.11 DEG EAST  
**Grid:**  
**File name:** C:\WINSERVE\NVAWU28.SVY  
**Date/Time:** 27-Feb-97 / 15:49  
**Curve Name:** PROPOSED WELL PATH

Phoenix Drilling Services, Inc.

**WINSERVE SURVEY CALCULATIONS**  
*Minimum Curvature Method*  
*Vertical Section Plane 222.58*

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Subsea TVD FT	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	Direction Deg	Dogleg Severity Deg/100
<b>KOP: 8608' MD, 57.3 DEG/100'</b>										
8608.00	.00	222.58	8608.00	4558.00	.00	.00	.00	.00	.00	.00
8618.00	5.73	222.58	8617.98	4567.98	-.37	-.34	.50	.50	222.58	57.30
8628.00	11.46	222.58	8627.87	4577.87	-1.47	-1.35	1.99	1.99	222.58	57.30
8638.00	17.19	222.58	8637.55	4587.55	-3.29	-3.02	4.47	4.47	222.58	57.30
8648.00	22.92	222.58	8646.94	4596.94	-5.81	-5.34	7.89	7.89	222.58	57.30
8658.00	28.65	222.58	8655.94	4605.94	-9.01	-8.28	12.24	12.24	222.58	57.30
8668.00	34.38	222.58	8664.46	4614.46	-12.86	-11.82	17.47	17.47	222.58	57.30
8678.00	40.11	222.58	8672.42	4622.42	-17.32	-15.91	23.52	23.52	222.58	57.30
8686.53	45.00	222.58	8678.70	4628.70	-21.56	-19.82	29.29	29.29	222.58	57.30
8696.53	50.73	222.58	8685.41	4635.41	-27.02	-24.83	36.70	36.70	222.58	57.30
8706.53	56.46	222.58	8691.34	4641.34	-32.95	-30.27	44.74	44.74	222.58	57.30
8716.53	62.19	222.58	8696.44	4646.44	-39.28	-36.09	53.34	53.34	222.58	57.30
8726.53	67.92	222.58	8700.66	4650.66	-45.95	-42.22	62.40	62.40	222.58	57.30

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Subsea TVD FT	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
								Distance FT	Direction Deg	
8736.53	73.65	222.58	8703.95	4653.95	-52.90	-48.61	71.84	71.84	222.58	57.30
<b>EOB: 8739' MD, 8705' TVD, 74.9 DEG INC.</b>										
8738.71	74.90	222.58	8704.54	4654.54	-54.45	-50.03	73.94	73.94	222.58	57.30
8838.71	74.90	222.58	8730.59	4680.59	-125.54	-115.36	170.49	170.49	222.58	.00
8938.71	74.90	222.58	8756.64	4706.64	-196.63	-180.68	267.04	267.04	222.58	.00
9038.71	74.90	222.58	8782.69	4732.69	-267.72	-246.01	363.58	363.58	222.58	.00
9138.71	74.90	222.58	8808.74	4758.74	-338.81	-311.33	460.13	460.13	222.58	.00
9172.00	74.90	222.58	8817.42	4767.42	-362.48	-333.08	492.27	492.27	222.58	.00
<b>BUILD @ 15 DEG/100'</b>										
9179.89	74.90	222.58	8819.47	4769.47	-368.09	-338.23	499.89	499.89	222.58	.00
9189.89	76.40	222.58	8821.95	4771.95	-375.22	-344.79	509.58	509.58	222.58	15.00
9199.89	77.90	222.58	8824.17	4774.17	-382.40	-351.38	519.33	519.33	222.58	15.00
9209.89	79.40	222.58	8826.14	4776.14	-389.62	-358.02	529.13	529.13	222.58	15.00
9219.89	80.90	222.58	8827.85	4777.85	-396.87	-364.68	538.98	538.98	222.58	15.00
9229.89	82.40	222.58	8829.30	4779.30	-404.16	-371.38	548.88	548.88	222.58	15.00
9239.89	83.90	222.58	8830.50	4780.50	-411.47	-378.09	558.81	558.81	222.58	15.00
9249.89	85.40	222.58	8831.43	4781.43	-418.80	-384.83	568.76	568.76	222.58	15.00
9259.89	86.90	222.58	8832.10	4782.10	-426.15	-391.58	578.74	578.74	222.58	15.00
9269.89	88.40	222.58	8832.51	4782.51	-433.51	-398.34	588.73	588.73	222.58	15.00
9279.89	89.90	222.58	8832.66	4782.66	-440.87	-405.11	598.73	598.73	222.58	15.00
<b>TARGET 1</b>										
9280.56	90.00	222.58	8832.66	4782.66	-441.36	-405.56	599.40	599.40	222.58	15.00
9290.56	91.50	222.58	8832.53	4782.53	-448.72	-412.32	609.40	609.40	222.58	15.00
9300.56	93.00	222.58	8832.14	4782.14	-456.08	-419.09	619.39	619.39	222.58	15.00
9310.56	94.50	222.58	8831.48	4781.48	-463.43	-425.84	629.37	629.37	222.58	15.00
9320.56	96.00	222.58	8830.57	4780.57	-470.76	-432.57	639.32	639.32	222.58	15.00
9330.56	97.50	222.58	8829.39	4779.39	-478.07	-439.29	649.25	649.25	222.58	15.00
9340.56	99.00	222.58	8827.96	4777.96	-485.36	-445.99	659.15	659.15	222.58	15.00
9350.56	100.50	222.58	8826.26	4776.26	-492.62	-452.66	669.01	669.01	222.58	15.00
9360.56	102.00	222.58	8824.31	4774.31	-499.84	-459.29	678.81	678.81	222.58	15.00
9370.56	103.50	222.58	8822.11	4772.11	-507.02	-465.89	688.57	688.57	222.58	15.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Subsea TVD FT	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
								Distance FT	Direction Deg	
9380.56	105.00	222.58	8819.64	4769.64	-514.16	-472.45	698.26	698.26	222.58	15.00
<b>Hold @ 105.2</b>										
9381.61	105.16	222.58	8819.37	4769.37	-514.90	-473.13	699.27	699.27	222.58	15.00
9481.61	105.16	222.58	8793.23	4743.23	-585.97	-538.44	795.79	795.79	222.58	.00
9581.61	105.16	222.58	8767.08	4717.08	-657.04	-603.75	892.31	892.31	222.58	.00
9681.61	105.16	222.58	8740.94	4690.94	-728.12	-669.05	988.83	988.83	222.58	.00
9781.61	105.16	222.58	8714.79	4664.79	-799.19	-734.36	1085.35	1085.35	222.58	.00
<b>Drop @ 15.0 105.16°</b>										
9796.92	105.16	222.58	8710.79	4660.79	-810.07	-744.36	1100.13	1100.13	222.58	.00
9797.96	105.00	222.58	8710.52	4660.52	-810.81	-745.04	1101.14	1101.14	222.58	15.00
9807.96	103.50	222.58	8708.05	4658.05	-817.95	-751.60	1110.83	1110.83	222.58	15.00
9817.96	102.00	222.58	8705.85	4655.85	-825.13	-758.20	1120.58	1120.58	222.58	15.00
9827.96	100.50	222.58	8703.90	4653.90	-832.35	-764.83	1130.39	1130.39	222.58	15.00
9837.96	99.00	222.58	8702.20	4652.20	-839.61	-771.50	1140.24	1140.24	222.58	15.00
9847.96	97.50	222.58	8700.77	4650.77	-846.89	-778.20	1150.14	1150.14	222.58	15.00
9857.96	96.00	222.58	8699.59	4649.59	-854.21	-784.92	1160.07	1160.07	222.58	15.00
9867.96	94.50	222.58	8698.68	4648.68	-861.54	-791.66	1170.03	1170.03	222.58	15.00
9877.96	93.00	222.58	8698.02	4648.02	-868.89	-798.41	1180.01	1180.01	222.58	15.00
9887.96	91.50	222.58	8697.63	4647.63	-876.24	-805.17	1190.00	1190.00	222.58	15.00
<b>TARGET 2</b>										
9897.96	90.00	222.58	8697.50	4647.50	-883.61	-811.93	1200.00	1200.00	222.58	15.00
9907.96	88.50	222.58	8697.63	4647.63	-890.97	-818.70	1210.00	1210.00	222.58	15.00
9917.96	87.00	222.58	8698.02	4648.02	-898.33	-825.46	1219.99	1219.99	222.58	15.00
9927.96	85.50	222.58	8698.68	4648.68	-905.67	-832.21	1229.97	1229.97	222.58	15.00
9937.96	84.00	222.58	8699.59	4649.59	-913.01	-838.95	1239.92	1239.92	222.58	15.00
9947.96	82.50	222.58	8700.77	4650.77	-920.32	-845.67	1249.86	1249.86	222.58	15.00
9957.96	81.00	222.58	8702.20	4652.20	-927.61	-852.36	1259.75	1259.75	222.58	15.00
9967.96	79.50	222.58	8703.90	4653.90	-934.86	-859.03	1269.61	1269.61	222.58	15.00
9977.96	78.00	222.58	8705.85	4655.85	-942.08	-865.67	1279.41	1279.41	222.58	15.00
9987.96	76.50	222.58	8708.05	4658.05	-949.27	-872.27	1289.17	1289.17	222.58	15.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Subsea TVD FT	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
								Distance FT	Direction Deg	
9997.96	75.00	222.58	8710.52	4660.52	-956.40	-878.82	1298.86	1298.86	222.58	15.00
<b>HOLD 74.61 DEG INC.</b>										
10000.53	74.61	222.58	8711.19	4661.19	-958.23	-880.50	1301.34	1301.34	222.58	15.00
10100.53	74.61	222.58	8737.72	4687.72	-1029.23	-945.74	1397.76	1397.76	222.58	.00
10200.53	74.61	222.58	8764.25	4714.25	-1100.22	-1010.98	1494.18	1494.18	222.58	.00
10300.53	74.61	222.58	8790.79	4740.79	-1171.22	-1076.21	1590.59	1590.59	222.58	.00
10400.53	74.61	222.58	8817.32	4767.32	-1242.21	-1141.45	1687.01	1687.01	222.58	.00
10500.53	74.61	222.58	8843.85	4793.85	-1313.21	-1206.69	1783.42	1783.42	222.58	.00
<b>TD: 10515' MD, 1797' VS</b>										
10514.61	74.61	222.58	8847.59	4797.59	-1323.20	-1215.87	1797.00	1797.00	222.58	.03