DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980
DISTRICT II
P.O. Box Drawer DD, Artesia, NM 88211-0719
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

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

Form C-101
Revised February 10,1994
Instructions on back
Submit to Appropriate District Office
State Lease - 6 Copies
Fee Lease - 5 Copies

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1 Operator Name and Address	2 OGRID Number
TEXACO EXPLORATION & PRODUCTION INC. 205 E. Bender, HOBBS, NM 88240	022351
	3 API Number 3002523880

4 Property Code	5 Property Name	6 Well No.
011123	NORTH VACUUM ABO WEST UNIT	19

7 Surface Location

Ul or lot no.	Section	Township	Range	Lot.Idn	Feet From The	North/South Line	Feet From The	East/West Line	County
J	28	17S	34E		2104	SOUTH	1856	EAST	LEA

8 Proposed 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
H	28	17S	34E		1990	NORTH	699	EAST	LEA

9 Proposed Pool 1	10 Proposed Pool 2
VACUUM ABO NORTH	

11 Work Type Code	12 WellType Code	13 Rotary or C.T.	14 Lease Type Code	15 Ground Level Elevation
E	O	ROTARY	S	4062' RKB
16 Multiple	**17 Proposed Depth**	**18 Formation**	**19 Contractor**	**20 Spud Date**
No	10,391'	VACUUM ABO NORTH	DAWSON	6/1/98

21 Proposed Casing and Cement Program

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP

22 Describe the proposed program. If this application is to DEEPEN or PLUG BACK give the data on the present productive zoneand proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary.

SEE ATTACHED PROCEDURES

Permit Expires 1 Year From Approval Date Unless Drilling Underway

Horizontal

23 I hereby certify that the rules and regulations of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

Signature J Denise Leake

Printed Name J. Denise Leake

Title Engineering Assistant

Date 5/6/98 Telephone 397-0405

OIL CONSERVATION DIVISION

Approved By: ORIGINAL SIGNED BY GARY WINK FIELD REP. II

Title:

Approval Date: MAY 19 1998 Expiration Date:

Conditions of Approval:
Attached ☐

DeSoto/Nichols 3-94 ver 1.10

OVERVIEW

The North Vacuum Abo West Unit # 19 well was drilled by Aztec Oil & Gas Company in late 1971 as a conventional test of the Abo formation. The well was completed in the Abo formation and potentialed for 188 BOPD, 0 BWPD and 150 MCFD from perforations 8736'-8812'. Successful horizontal laterals have been drilled in the NVAWU #15, #20, # 26, #27, #28, # 30 and # 31 wells. It is proposed to employ this technology on the subject well and drill a +/- 1650 foot horizontal lateral (northeast) in the Abo formation. The basic well plan is as follows:

a) MIRUSU. TOOH with rods, pump and tubing.

b) TIH and set a CIBP at +/- 8599'. TIH with a 3 degree bottom set whipstock (top of window +/- 8589', bottom of window +/- 8596').

c) Drill a short radius curve using a 4-3/4" bit to a measured depth of +/- 8760' (TVD +/- 8721'). The final angle will be 71.8 degrees from vertical.

d) Drill +/- 1650' horizontal section (northeast).

e) Acid frac the horizontal lateral in the well. Place well on pump/injection.

LOST IN HOLE INSURANCE FOR THE DOWNHOLE MOTOR AND MWD IS INCLUDED WITH THE DAILY RATE FROM DIAMONDBACK DRILLING.

PROPOSED WORK

PRODUCTION HOLE:

1. TOOH with rods, pump and tubing. TIH with a CIBP and set at +/- 8599' (5-8' above a casing collar). TOOH. TIH with a 3" bottom set retrievable whipstock, starting mill, orientation sub, drill collars and drill pipe. Stop at a point 5-10' above the CIBP and rig up a wireline to run the gyro. Take a gyro reading and determine the direction of the whipstock face. Rotate the pipe as needed to achieve the required direction. Lower the pipe to within one foot of the CIBP and take another gyro reading. Rotate pipe again if needed to achieve the required direction (45 degrees). This step may need to be repeated several times until confidant the whipstock is oriented in the correct direction.

2. Lower the drill pipe to set the whipstock. The weight indicator will jump indicating the lower plunger shear pin is sheared and the whipstock is set. Continue setting down to shear the starting mill bolt. The weight indicator will jump again indicating the bolt is sheared. Milling operations may now commence.

3. Pick up the power swivel and begin circulating. Pick up the drill pipe until the starting mill has cleared the whipstock and start rotation. Lower the drill pipe slowly until the torque gauge suggest the starting mill is contacting the casing. Adjust weight and speed until satisfied with the penetration rate. Mill to a predetermined depth that will assure the setting lug is completely removed and a cutout in the casing has been initiated. TOOH.

4. TIH with the metal muncher window mill, string mill and the watermellon mill. Resume milling operations and mill until the complete assembly has cleared the casing. Pick up and lower the string several times without rotation to assure a good clean window has been obtained. Circulate the hole clean. TOOH.

5. Inspect the mill on the surface. If extreme wear is evident, consideration should be given to repeating the above step.

HORIZONTAL PRODUCTION HOLE:

1. Rig up Diamondback Drilling Company. Adjust plan to target as necessary. Trip in the hole with Diamondback Drilling's curve building assembly. This will be a 4-3/4" insert, 3-3/4" PDM, float sub/orientation combo, 2-flexable monel collars, 2-7/8" 8.7 #/ft P-110 (PH-6) tubing in the horizontal hole and 2-7/8" AOH drill pipe in the vertical hole).

2. Build curve to estimated target depths and angles as follows:

True Vertical Depth	8721'
Measured Depth	8760'
Final Angle	71.8 degrees
Target Azimuth	44.51 degrees
Build Rate	45 degrees/100'

   Drill the curve sliding as necessary to stay on target. It is recommended that after each slide, the bit be pulled back and washed through the slide. Once the curve is built, rotate through the curve section noting tight spots and fill. Make at least one short trip prior to tripping out of the hole.

3. Trip in the hole with Diamondback Drilling's lateral assembly. This will be a 4-3/4" insert or PDC bit, 3-3/4" articulated motor, float sub/orientation combo, 2 - flexible monel collars, 2-7/8" 8.7 #/ft P-110 (PH-6) tubing in the horizontal hole and 2-7/8" AOH drill pipe in the vertical hole.

4. Drill +/- 1650' of horizontal hole per the attached Diamondback well plan. **It is highly recommended that a Texaco engineer (Mark Wakefield) be present on location during the drilling of the horizontal section.**

5. Continue drilling the horizontal section per the Texaco Engineer recommendations.

6. Trip out of the hole with the drilling assembly. Set a wireline set, tubing retrievable bridge plug for 5-1/2", 17 #/ft casing at +/- 8000'. Test plug to 1000 psi.

7. Lay down the drill pipe.

8. Nipple down the BOP stack. Install a manual 3000 psig BOP equipped with blind rams and 2-7/8" pipe rams. Release the rig. Rig down and move out rotary tools.

COMPLETION PROCEDURE:

1. Back drag the location and set pulling unit anchors.

2. Move in and rig up a pulling unit.

3. Trip in the hole with a retrieving head on 2-7/8" tubing. Retrieve the plug. Trip out of the hole and lay down the plug. TIH with tubing and ported subs to within 400 foot of the end of the lateral. Use a bent joint to orient into the laterals.

4. Rig up Dowell. Acid frac the horizontal lateral with 100,000 gallons of 15% HCL and gelled water spacers. The acid frac will be done down tubing using ported subs.

5. Flow back immediately. Flow/swab test.

6. Place on pump/injection.

DIAMONDBACK DIRECTIONAL
A BWWC Company

Job Number:
Company: TEXACO E&P
Lease/Well: NVAWU #19
Location: LEA COUNTY
Rig Name: ?????
RKB: 4062
G.L. or M.S.L.:

State/Country: NEW MEXICO
Declination:
Grid:
File name: D:\DATA\TEXACO~1\NVAWU\NVAWU19\NVAWU19.SVY
Date/Time: 01-Apr-98 / 09:25
Curve Name: PROPOSL (REV.0)

DIAMONDBACK DIRECTIONAL
A BWWC COMPANY

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 44.51
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

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	CLOSURE Direction Deg	Dogleg Severity Deg/100
KOP @ 8600' MD, BEGIN 45°/100' BR										
8600.00	.00	44.51	8600.00	-4538.00	.00	.00	.00	.00	.00	.00
8610.00	4.50	44.51	8609.99	-4547.99	.28	.28	.39	.39	44.51	45.00
8620.00	9.00	44.51	8619.92	-4557.92	1.12	1.10	1.57	1.57	44.51	45.00
8630.00	13.50	44.51	8629.72	-4567.72	2.51	2.47	3.52	3.52	44.51	45.00
8640.00	18.00	44.51	8639.35	-4577.35	4.44	4.37	6.23	6.23	44.51	45.00
8650.00	22.50	44.51	8648.72	-4586.72	6.91	6.79	9.69	9.69	44.51	45.00
8660.00	27.00	44.51	8657.80	-4595.80	9.90	9.73	13.88	13.88	44.51	45.00
8670.00	31.50	44.51	8666.53	-4604.53	13.38	13.15	18.76	18.76	44.51	45.00
8680.00	36.00	44.51	8674.84	-4612.84	17.34	17.05	24.32	24.32	44.51	45.00

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 Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
8690.00	40.50	44.51	8682.69	-4620.69	21.75	21.39	30.51	30.51	44.51	45.00
8700.00	45.00	44.51	8690.03	-4628.03	26.59	26.14	37.29	37.29	44.51	45.00
8710.00	49.50	44.51	8696.82	-4634.82	31.83	31.29	44.63	44.63	44.51	45.00
8720.00	54.00	44.51	8703.01	-4641.01	37.43	36.79	52.48	52.48	44.51	45.00
8730.00	58.50	44.51	8708.56	-4646.56	43.36	42.62	60.80	60.80	44.51	45.00
8740.00	63.00	44.51	8713.45	-4651.45	49.58	48.74	69.52	69.52	44.51	45.00
8750.00	67.50	44.51	8717.63	-4655.63	56.05	55.10	78.60	78.60	44.51	45.00
EOC @ 8760' MD, 8721' TVD, 71.8° INC, 88' VS										
8759.52	71.78	44.51	8720.94	-4658.94	62.41	61.35	87.52	87.52	44.51	45.00
8859.52	71.78	44.51	8752.20	-4690.20	130.15	127.94	182.51	182.51	44.51	.00
8959.52	71.78	44.51	8783.47	-4721.47	197.89	194.53	277.49	277.49	44.51	.00
9059.52	71.78	44.51	8814.73	-4752.73	265.63	261.12	372.48	372.48	44.51	.00
9120.69	71.78	44.51	8833.85	-4771.85	307.06	301.85	430.58	430.58	44.51	.00
9130.69	73.28	44.51	8836.86	-4774.86	313.86	308.54	440.12	440.12	44.51	15.00
9140.69	74.78	44.51	8839.61	-4777.61	320.72	315.28	449.74	449.74	44.51	15.00
9150.69	76.28	44.51	8842.10	-4780.10	327.63	322.07	459.42	459.42	44.51	15.00
9160.69	77.78	44.51	8844.35	-4782.35	334.57	328.90	469.16	469.16	44.51	15.00
9170.69	79.28	44.51	8846.34	-4784.34	341.56	335.77	478.96	478.96	44.51	15.00
9180.69	80.78	44.51	8848.07	-4786.07	348.59	342.67	488.81	488.81	44.51	15.00
9190.69	82.28	44.51	8849.54	-4787.54	355.64	349.61	498.70	498.70	44.51	15.00
9200.69	83.78	44.51	8850.75	-4788.75	362.72	356.57	508.63	508.63	44.51	15.00
9210.69	85.28	44.51	8851.71	-4789.71	369.82	363.54	518.58	518.58	44.51	15.00
9220.69	86.78	44.51	8852.40	-4790.40	376.93	370.54	528.56	528.56	44.51	15.00
9230.69	88.28	44.51	8852.83	-4790.83	384.06	377.54	538.55	538.55	44.51	15.00
9240.69	89.78	44.51	8853.00	-4791.00	391.19	384.55	548.55	548.55	44.51	15.00
INTERCEPT 1ST TARGET @ 8853' TVD, 90° INC, 550' VS										
9242.14	90.00	44.51	8853.00	-4791.00	392.22	385.57	550.00	550.00	44.51	15.00
9272.14	94.50	44.51	8851.82	-4789.82	413.59	406.58	579.97	579.97	44.51	15.00
9302.14	99.00	44.51	8848.30	-4786.30	434.83	427.46	609.75	609.75	44.51	15.00
9332.14	103.50	44.51	8842.45	-4780.45	455.81	448.08	639.17	639.17	44.51	15.00
9362.14	108.00	44.51	8834.30	-4772.30	476.40	468.32	668.04	668.04	44.51	15.00

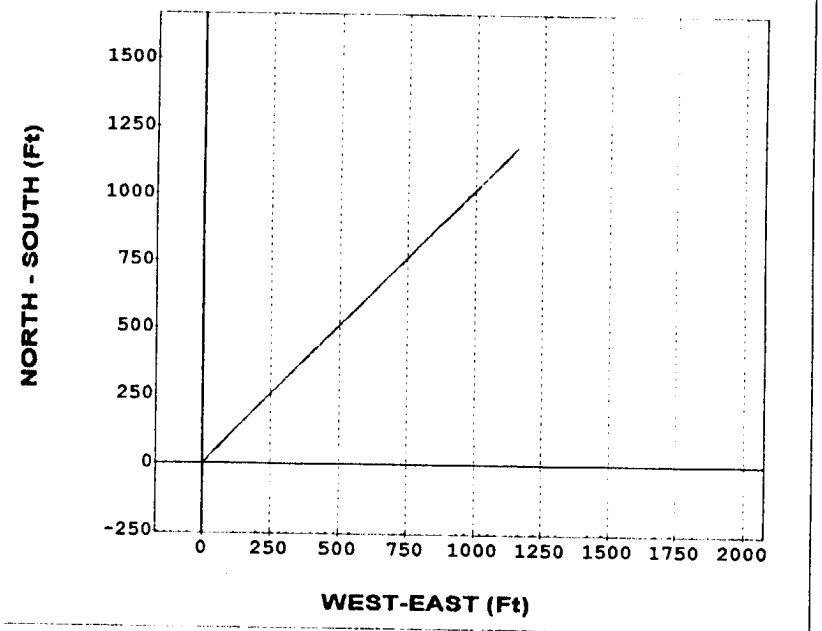
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	Subsea TVD FT	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
9389.78	112.15	44.51	8824.82	-4762.82	494.90	486.51	693.99	693.99	44.51	15.00
9489.78	112.15	44.51	8787.12	-4725.12	560.96	551.44	786.61	786.61	44.51	.00
9589.78	112.15	44.51	8749.43	-4687.43	627.01	616.37	879.24	879.24	44.51	.00
9672.66	112.15	44.51	8718.18	-4656.18	681.76	670.19	956.01	956.01	44.51	.00
9673.89	111.96	44.51	8717.72	-4655.72	682.57	670.99	957.15	957.15	44.51	15.00
9700.30	108.00	44.51	8708.70	-4646.70	700.27	688.39	981.96	981.96	44.51	15.00
9730.30	103.50	44.51	8700.56	-4638.56	720.85	708.63	1010.83	1010.83	44.51	15.00
9760.30	99.00	44.51	8694.70	-4632.70	741.83	729.25	1040.25	1040.25	44.51	15.00
9790.30	94.50	44.51	8691.18	-4629.18	763.07	750.13	1070.03	1070.03	44.51	15.00
INTERCEPT 2ND TARGET @ 8690' TVD, 90° INC, 1100' VS										
9820.30	90.00	44.51	8690.00	-4628.00	784.44	771.14	1100.00	1100.00	44.51	15.00
9850.30	85.50	44.51	8691.18	-4629.18	805.81	792.15	1129.97	1129.97	44.51	15.00
9880.30	81.00	44.51	8694.70	-4632.70	827.05	813.03	1159.75	1159.75	44.51	15.00
9910.30	76.50	44.51	8700.56	-4638.56	848.03	833.65	1189.17	1189.17	44.51	15.00
9932.28	73.20	44.51	8706.30	-4644.30	863.16	848.52	1210.38	1210.38	44.51	15.00
10032.28	73.20	44.51	8735.20	-4673.20	931.43	915.63	1306.12	1306.12	44.51	.00
10132.28	73.20	44.51	8764.09	-4702.09	999.70	982.74	1401.85	1401.85	44.51	.00
10232.28	73.20	44.51	8792.99	-4730.99	1067.97	1049.86	1497.58	1497.58	44.51	.00
10332.28	73.20	44.51	8821.89	-4759.89	1136.24	1116.97	1593.32	1593.32	44.51	.00
TD @ 10391' MD, 8839' TVD, 73.2° INC, 1650' VS										
10391.49	73.20	44.51	8839.00	-4777.00	1176.66	1156.71	1650.00	1650.00	44.51	.00

Company: TEXACO E&P
Lease/Well: NVAWU #19
Location: LEA COUNTY
Rig Name: ?????
Declination:
File name: D:\DATA\TEXACO~1\NVAWU\NVAWU19\NVAWU19.SVY

Date/Time: 01-Apr-98 / 09:25

CRITICAL POINTS

MD	INC	AZM	TVD	N-S	E-W
KOP @ 8600' MD, BEGIN 45°/100' BR					
8600.00	.00	44.51	8600.00	.00	.00
EOC @ 8760' MD, 8721' TVD, 71.8° INC, 88' VS					
8759.52	71.78	44.51	8720.94	62.41	61.35
INTERCEPT 1ST TARGET @ 8853' TVD, 90° INC, 550' VS					
9242.14	90.00	44.51	8853.00	392.22	385.57
INTERCEPT 2ND TARGET @ 8690' TVD, 90° INC, 1100' VS					
9820.30	90.00	44.51	8690.00	784.44	771.14
TD @ 10391' MD, 8839' TVD, 73.2° INC, 1650' VS					
10391.49	73.20	44.51	8839.00	1176.66	1156.71



TRUE VERTICAL DEPTH (Ft)

7650
7900
8150
8400
8650
8900

KOP @ 8600' MD, BEGIN 45°/100' BR
88
EOC @ 8760' MD, 8721' TVD, 71.8° INC, 88' VS
INTERCEPT 2ND TARGET @ 8690' TVD, 90° INC, 1100' VS
1650
INTERCEPT 1ST TARGET @ 8853' TVD, 90° INC, 550' VS
TD @ 10391' MD, 8839' TVD, 73.2°

0 250 500 750 1000 1250 1500 1750 2000

-- PROPOSL (REV.0)

VERTICAL SECTION (Ft) @ 44.51°

DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980
DISTRICT II
P.O. Box Drawer DD, Artesia, NM 88211-0719
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

P.O. Box 2088
Santa Fe, New Mexico 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	2 Pool Code	3 Pool Name
3002523880	61760	VACUUM ABO, NORTH

4 Property Code	5 Property Name	6 Well No.
011123	NORTH VACUUM ABO WEST UNIT	19

7 OGRID Number	8 Operator Name	9 Elevation
022351	TEXACO EXPLORATION & PRODUCTION INC.	4062' RKB

10 Surface Location

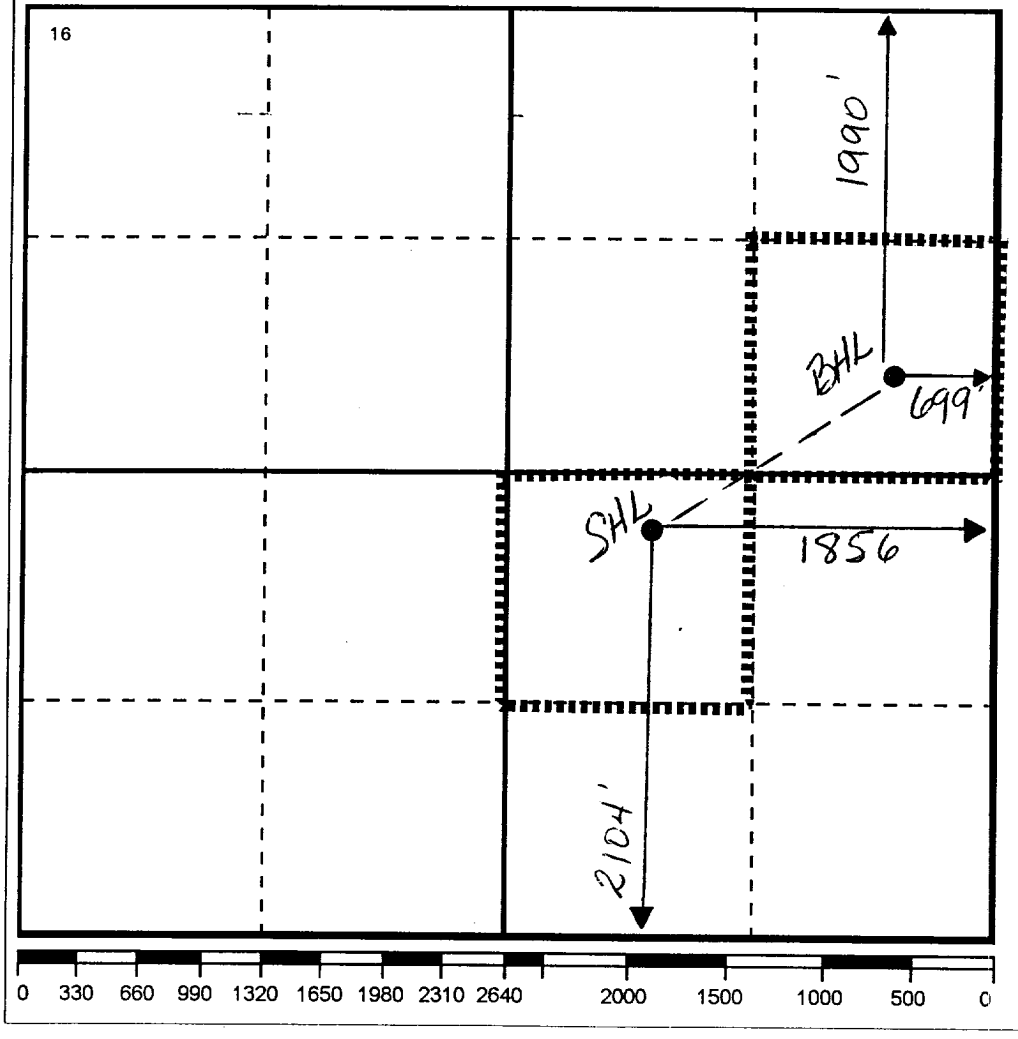
Ul or lot no.	Section	Township	Range	Lot.Idn	Feet From The	North/South Line	Feet From The	East/West Line	County
J	28	17S	34E		2104	SOUTH	1856	EAST	LEA

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
H	28	17S	34E		1990	NORTH	699	EAST	LEA

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
40	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



17 OPERATOR CERTIFICATION

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

Signature: J Denise Leake

Printed Name: J. Denise Leake

Position: Engineering Assistant

Date: 5/6/98

18 SURVEYOR CERTIFICATION

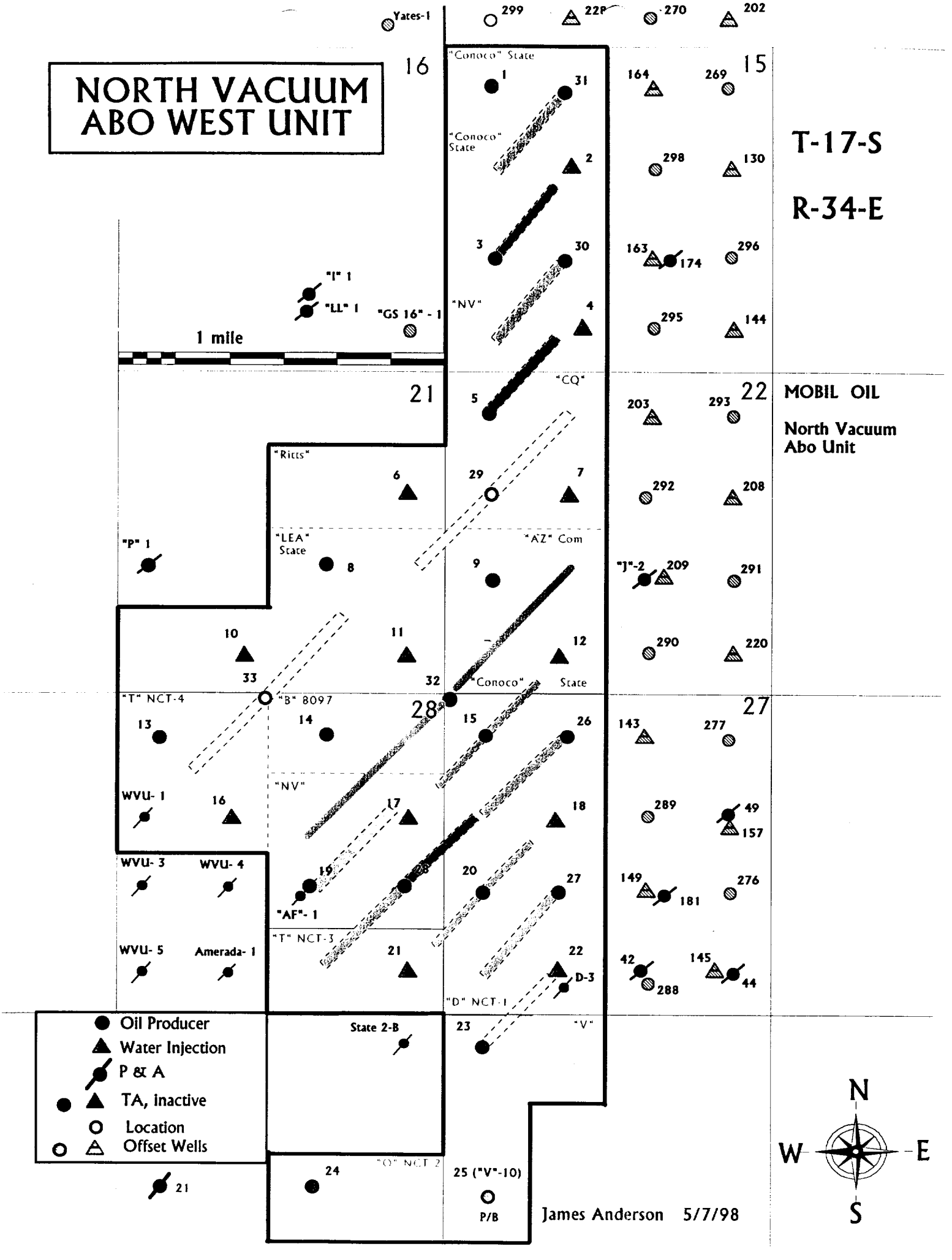
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

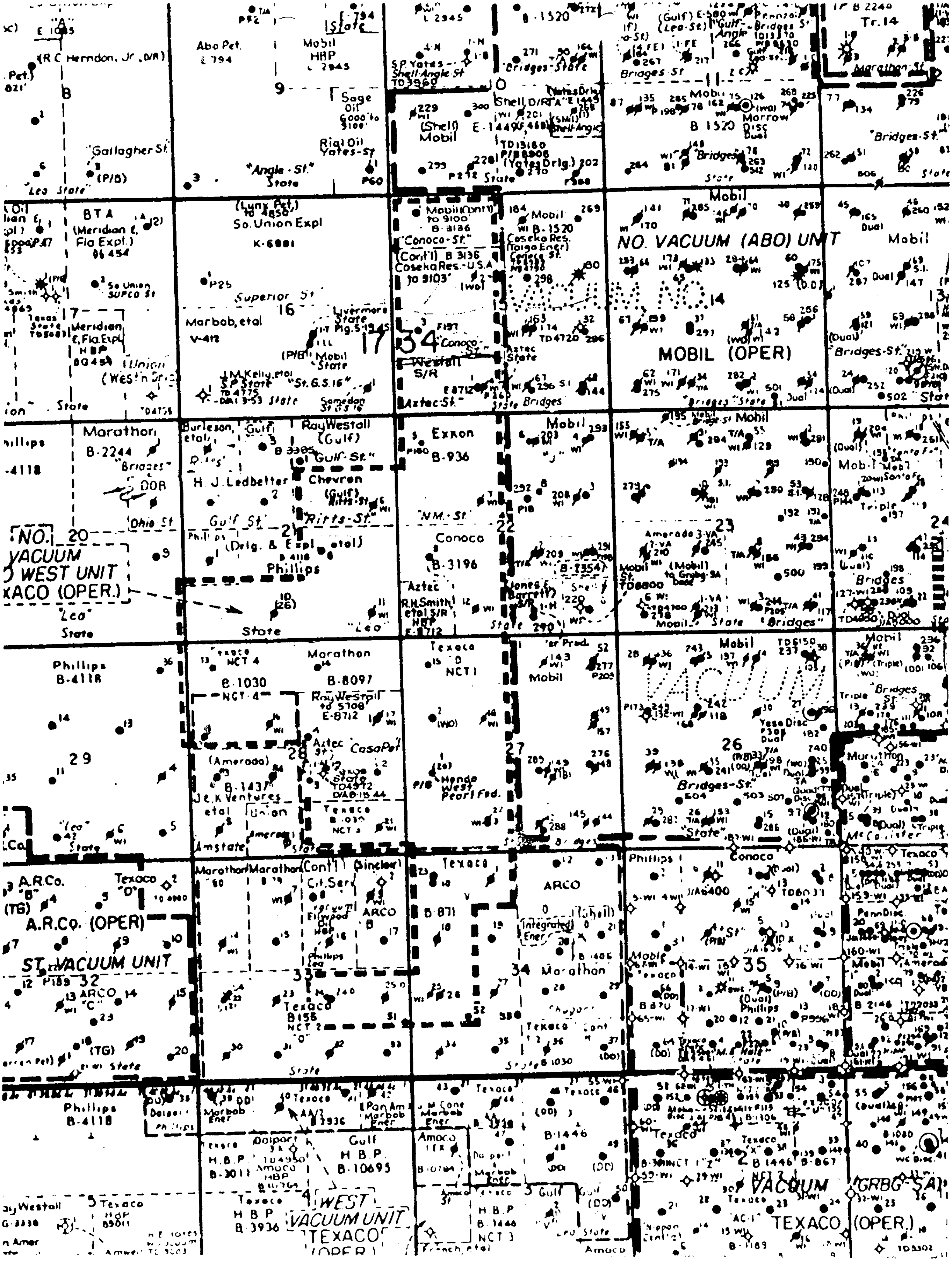
Date Surveyed

Signature & Seal of Professional Surveyor

Certificate No.

DeSoto/Nichols 3/94 ver 1.10


NORTH VACUUM
ABO WEST UNIT
T-17-S
R-34-E
MOBIL OIL
North Vacuum
Abo Unit
Yates-1
299
270
202
16
15
"Conoco" State
1
31
164
269
"Conoco"
State
2
298
130
3
30
163
174
296
"I" 1
"LL" 1
"GS 16" - 1
"NV"
4
295
144
1 mile
21
22
"CQ"
5
203
293
"Ritts"
6
29
7
292
208
"P" 1
"LEA"
State
8
"AZ" Com
9
"J"-2
209
291
10
11
12
290
220
33
32
"Conoco"
State
"T" NCT-4
"B" 8097
28
27
13
14
15
26
143
277
"NV"
WVU- 1
16
17
18
289
49
157
WVU- 3
WVU- 4
19
20
27
149
181
276
"AF"- 1
"T" NCT-3
WVU- 5
Amerada- 1
21
22
42
288
145
44
D-3
"D" NCT-1
State 2-B
23
"V"
"O" NCT-2
24
25 ("V"-10)
P/B
Oil Producer
Water Injection
P & A
TA, inactive
Location
Offset Wells
21
James Anderson 5/7/98
N
W
E
S



NO. VACUUM (ABO) UNIT
MOBIL (OPER)
Mobil
Bridges State
Bridges-St.
"Angle-St." State
Gallagher St.
Leo State
Abo Pet.
B-1520
E-1449
B-3136
"Conoco-St."
Cosekares.-U.S.A.
BTA
(Meridian E. Fla Expl.)
So. Union Expl
K-6881
Superior St
Marbob, etal
V-412
Aztec-St.
Marathon
B-2244
H.J. Ledbetter
Chevron
Exxon
B-936
Conoco
B-3196
Phillips
B-4118
NO. VACUUM WEST UNIT
TEXACO (OPER.)
"Leo" State
Gulf St.
Ritts-St.
N.M.-St.
Texaco
NCT 4
B-1030
B-8097
NCT 1
Amerada
VACUUM
Bridges-St.
Aztec
CasoPet
A.R.Co. (OPER)
ST. VACUUM UNIT
ARCO
Marathon
B-871
Phillips
Conoco
Texaco
B 155
NCT 2
B-1446
B-3936
Gulf
H.B.P.
B-10695
WEST VACUUM UNIT
TEXACO (OPER.)
VACUUM (GRBG-SA)
TEXACO (OPER.)
Amoco
Marbob Ener
Dalport