ATTACHMENT III

A. 1.

	Lease Name:	North Vacuum Abo Unit
	Well #:	136
	Ut/Sec./T/R:	Surface - D 26-17S-34E
		Bottom Hole Location (BHL) - N 23-17S-34E
	Location:	Surf. - 660' FNL, 860' FWL
		BHL - 443' FNL, 758' FEL
2.	Casing string:	8 5/8", 20 & 24lb/ft, J-55 set @ 1725'
		300 sxs Class A Cmt.
		12 1/4" hole size
		Circulated to surface
		5 1/2", 15.5 & 17bl/ft, J-55 & N-80 set @ 8700'
		2900 sxs TILW + 200 sxs Incor
		7 7/8" hole size
		Top of cement @ 2675' (temp survey)
3.	Tubing:	2 7/8" N80 EOT @ 8355'
4.	Packer:	5 1/2" Otis Model 'TB' (Permanent) @ 8440'

B.1. Injection formation: Abo
Pool Name: North Vacuum Abo Unit

2. Injection interval: 8402'-9376' OHZ

3. Well was drilled as oil well and converted to WIW 8/21/86

4. Vertical perfs: 8525-8680 O/A CIBP set @ 8411' & 8415'

5. Drinkard is 1000' above Abo
Wolfcamp is 800' below Abo

Well:	NVAU #136H
Location:	SECT. 26 –T17s-R34e
Date Drilled:	4/21/70
TD:	8,700 / 9376'
PBTD:	8,665' / 9376
Horizontal lateral:	Date Drilled:
	TVD: 8700
	MD: 9376
	VS:
	Azimuth:
Current status:	Abo Horizontal WIW
Completion history:	See attached
Well Construction:	See attached

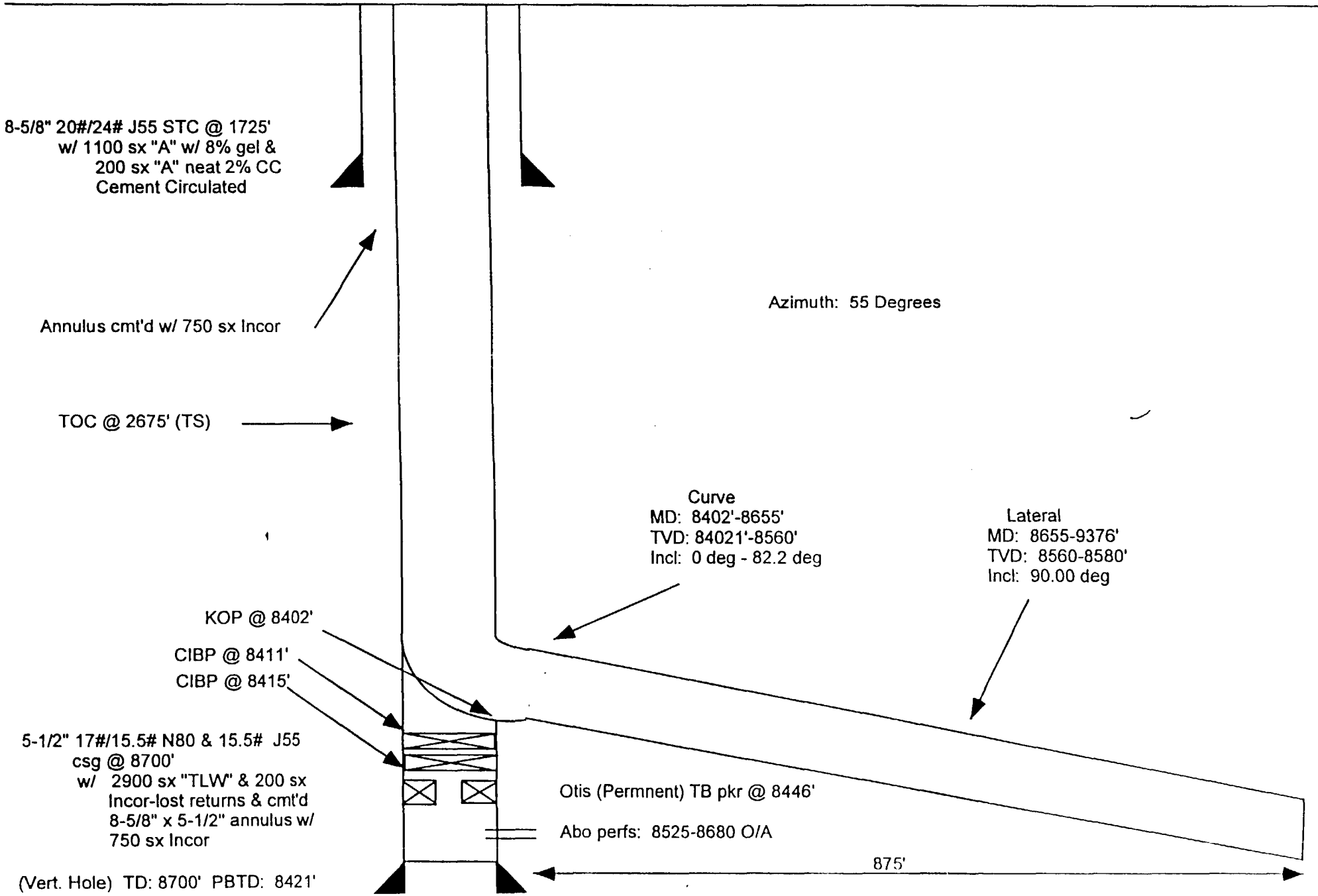
660' FNL
860' FWL
S-26
T17S
R34E
KB: 4048'
GL: 4033'

NVAU 136W
Vacuum Field
Lea County, New Mexico

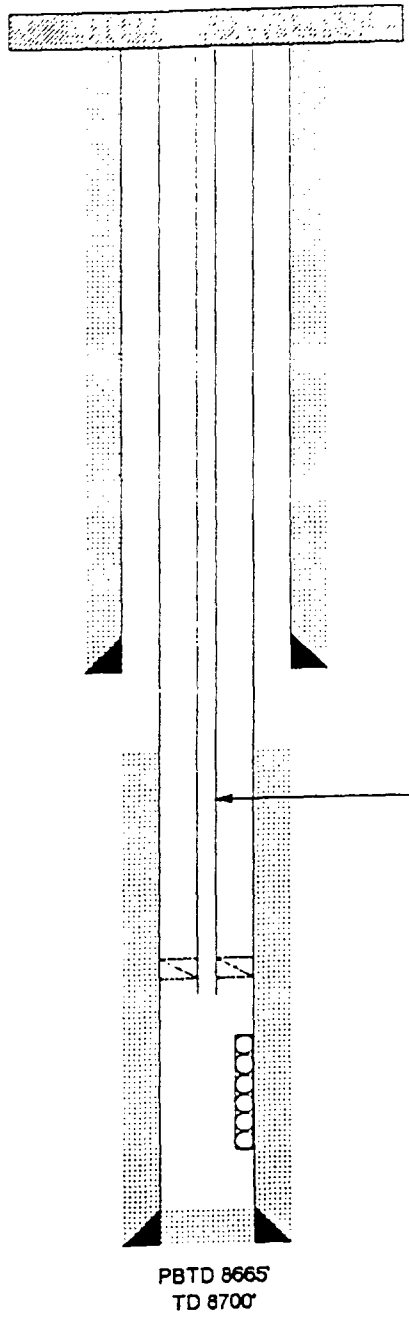
YPO: 10/20/97

Current Configuration

Spud: 04/20/70



G.L. 4034'
K.B. 4048'
Zero 14' AGL



Squeezed 8-5/8" X 5-1/2" annulus with 750 sxs. Incor Neat

8-5/8", 20 & 24 lb/ft, J-55 casing set at 1725'
Cemented with 1300 sxs. Class 'A'
Cement circulatated to surface
12-1/4" hole

Top of Cement at 2675' (Temp Survey)

270 jts. of 2-3/8" 4.7 lb/ft J-55 tubing with J Latch type Anchor Seal Assembly

5-1/2" Otis Model 'TB' Permament Packer set @ 8440'

Abo Perfs:
8545', 49', 51', 57',62',73 ',78', 81', 89', 93' with 2 JSPF (22 holes)
8525', 29', 30', 37', 38', 50', 52', 58', 61', 63', 64', 77', 79', 80', 86', 94', 8602',
5', 7', 19', 31'-33', 40', 41', 53', 78'-80' with 2 JSPF (58 holes)

5-1/2", 15.5 & 17 lb/ft, J-55 & N-80 casing set at 8700'
Cemented with 2900 sxs. TILW + 200 sxs. Incor
7-7/8" hole

PBTD 8665'
TD 8700'

Mobil Exploration & Producing U.S., Inc.
Current Completion

LEASE: North Vacuum Abo Unit			WELL NO: 136
COUNTY: Lea	STATE: N.M.	API #: 30-025-2346200	
LEGAL LOCATION: 660' FNL & 860' FWL Sect 26 T17S R34E			
DRAWN BY: C.M. Jones		DATE: 4 April 1995	

Well ID # 0008915

North Vacuum Abo Unit #136
Well History

04/21/70	Well Spudded
05/21/70	Perforate in the Abo formation at 8545', 49', 51', 57', 62', 73', 78', 81', 89', 93', and 95' with 2 JSPF (22 holes).
05/23/70	Acidized Abo perfs (8545'-8595') with 5,000 gallons 15% HCl + 25 RCNBS. TTP: 4600 psig - 5250 psig. AIR: 5.0 BPM. ISIP: 2750 psig. 14 min SIP: 600 psig. IP: 257 BOPD & 0 BWPD
08/30/85	Acidized Abo perfs (8545'-8595') with 5,000 gallons 15% HCl with 250 gallons Mu-Sol A using 33 RCNBS. TTP: 1850 psig - 3400 psig. AIR: 5.0 BPM @ 2990 psig. ISIP: 1300 psig. 2 min SIP: vacuum. Before: 71 BOPD & 9 BWPD After: 67 BOPD & 8 BWPD
08/16/86	Perforate in the Abo formation at 8525', 29', 30', 37', 38', 50', 52', 58', 61', 63', 64', 77', 79', 80', 86', 94', 8602', 05', 07', 19', 31'-33', 40', 41', 53', and 78'-80' with 2 JSPF (58 holes).
08/19/86	Acidized Abo perfs (8525'-8680') with 4,000 gallons 15% HCl with 200 gallons mutual solvent and 90 (7/8") RCNBS. TTP: 1200 psig - 3850 psig. AIR: 5 BPM @ 3600 psig. ISIP: 2100 psig. 5 min SIP: 1200 psig. 12 min SIP: vacuum.
08/21/86	Well converted to WIW.

11/2/97 Spud Horizontal lateral
Kickoff @ 8402'

11/23/97 TD horizontal lateral
MD: 9376' TVD: 8580' VS: 875'
AZ: 54° INCL: 90°

12/5/97 Acidize
Jet wash lateral w/ 5800 gal - 20% HCl

Sperry-Sun Drilling Services

Survey Report for NV ABO # 136

Mobil Exploration
Vacuum Field (PA/WC)

Lea County
Sec. 26-T17S-R34E

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
8000.00	0.750	121.540	7999.22	64.28 S	18.17 E	-21.99	0.107
8200.00	1.610	124.610	8199.17	66.56 S	21.60 E	-20.49	0.431
8390.00	1.880	124.080	8389.09	69.82 S	26.37 E	-18.44	0.142
MWD Sidetrack							
8395.00	1.880	124.080	8394.08	69.91 S	26.51 E	-18.38	0.000
8402.00	5.700	55.000	8401.07	69.78 S	26.89 E	-18.00	76.079
8410.00	9.000	58.050	8409.00	69.22 S	27.75 E	-16.97	41.523
8420.00	13.500	59.870	8418.81	68.22 S	29.42 E	-15.03	45.134
8430.00	17.800	60.880	8428.43	66.89 S	31.77 E	-12.34	43.085
8440.00	22.400	61.520	8437.82	65.23 S	34.78 E	-8.93	46.052
8450.00	25.500	61.960	8446.96	63.31 S	38.35 E	-4.90	31.051
8460.00	27.600	62.290	8455.91	61.22 S	42.31 E	-0.46	21.052
8470.00	30.300	62.550	8464.66	58.98 S	46.60 E	4.34	27.029
8480.00	34.100	62.750	8473.12	56.54 S	51.33 E	9.62	38.015
8490.00	38.100	62.930	8481.19	53.85 S	56.57 E	15.45	40.014
8500.00	40.700	63.070	8488.92	50.97 S	62.22 E	21.74	26.015
8510.00	43.900	63.200	8496.32	47.93 S	68.23 E	28.40	32.012
8520.00	46.500	59.600	8503.36	44.53 S	74.45 E	35.45	36.441
8530.00	48.400	55.300	8510.13	40.56 S	80.66 E	42.81	38.931
8540.00	50.500	51.200	8516.63	36.01 S	86.74 E	50.40	37.563
8550.00	53.900	50.300	8522.76	31.01 S	92.86 E	58.27	34.735
8560.00	57.600	50.900	8528.38	25.77 S	99.24 E	66.51	37.331
8570.00	61.300	52.400	8533.47	20.43 S	106.00 E	75.11	39.189
8580.00	63.500	52.400	8538.10	15.02 S	113.02 E	83.96	22.000
8590.00	65.900	50.500	8542.37	9.39 S	120.09 E	92.98	29.513
8600.00	67.500	52.800	8546.33	3.69 S	127.29 E	102.15	26.499
8610.00	69.600	51.300	8549.99	2.03 N	134.63 E	111.45	25.217
8620.00	71.400	52.900	8553.32	7.82 N	142.07 E	120.86	23.483
8630.00	74.600	54.900	8556.25	13.46 N	149.79 E	130.42	37.278
8640.00	78.500	55.200	8558.57	19.03 N	157.76 E	140.14	39.109
8650.00	82.200	55.900	8560.25	24.60 N	165.89 E	150.00	37.638
8680.00	85.900	53.500	8563.36	41.84 N	190.24 E	179.83	14.677
8710.00	86.700	52.000	8565.29	59.96 N	214.06 E	209.74	5.657
8740.00	87.300	53.000	8566.86	78.20 N	237.83 E	239.67	3.883
8771.00	87.900	54.300	8568.16	96.56 N	262.78 E	270.64	4.615
8802.00	90.600	53.900	8568.57	114.73 N	287.88 E	301.63	8.805
8833.00	90.000	55.200	8568.41	132.71 N	313.14 E	332.63	4.619
8864.00	91.200	57.300	8568.08	149.93 N	338.91 E	363.61	7.802
8896.00	89.200	57.800	8567.97	167.10 N	365.91 E	395.58	6.442
8927.00	90.100	57.400	8568.16	183.71 N	392.08 E	426.55	3.177
8957.00	88.700	57.300	8568.47	199.89 N	417.34 E	456.52	4.679
8988.00	89.600	57.600	8568.93	216.57 N	443.47 E	487.49	3.060
9019.00	90.000	57.400	8569.04	233.23 N	469.61 E	518.46	1.443
9050.00	90.100	56.400	8569.01	250.16 N	495.58 E	549.44	3.242

Continued...

Sperry-Sun Drilling Services

Survey Report for NV ABO # 136

Mobil Exploration
Vacuum Field (PA/WC)

Lea County
Sec. 26-T17S-R34E

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
9081.00	87.700	53.900	8569.61	267.86 N	521.01 E	580.43	11.178
9112.00	87.800	53.700	8570.83	286.16 N	546.01 E	611.40	0.721
9143.00	87.000	53.700	8572.23	304.49 N	570.97 E	642.36	2.581
9174.00	86.200	52.700	8574.07	323.03 N	595.75 E	673.29	4.127
9205.00	85.500	52.900	8576.32	341.72 N	620.37 E	704.18	2.348
9236.00	86.800	52.700	8578.40	360.42 N	645.01 E	735.09	4.243
9265.00	88.900	53.600	8579.48	377.80 N	668.20 E	764.05	7.877
9295.00	89.900	54.800	8579.80	395.35 N	692.53 E	794.05	5.207
9326.00	89.500	53.900	8579.96	413.41 N	717.72 E	825.05	3.177
9341.00	89.400	54.000	8580.10	422.24 N	729.85 E	840.04	0.943
9376.00	90.000	54.000	8580.29	442.81 N	758.16 E	875.04	1.714

All data is in feet unless otherwise stated. Directions and coordinates are relative to True North.
Vertical depths are relative to RKB. Northings and Eastings are relative to Wellhead.

The Dogleg Severity is in Degrees per 100ft.
Vertical Section is from Wellhead and calculated along an Azimuth of 55.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 9376.00ft.,
The Bottom Hole Displacement is 878.00ft., in the Direction of 59.712° (True).

ATTACHMENT III

A. 1.

Lease Name:	North Vacuum Abo Unit
Well #:	156
Ut/Sec./T/R:	Surface - J 23-17S-34E
	Bottom Hole Location (BHL) - I 23-17S-34E
Location:	Surf. - 1893' FSL, 1800' FEL
	BHL - 656' FSL, 696' FEL

2. Casing string: 8 5/8", 23lb/ft,Foster set @ 1630'
1000 sxs Class H Cmt.
12 1/4" hole size
Circulated to surface

5 1/2", 15.5 & 17bl/ft, N-80 set @ 8750'
2900 sxs TILW + 200 sxs Class C cmt.
7 7/8" hole size
Top of cement @ 2610' (temp survey)

3. Tubing: 2 7/8" L-80 EOT @ 8278'

4. Packer: 5 1/2" Otis Model 'TB' (Permanent) @ 8401'

B.1. Injection formation: Abo
Pool Name: North Vacuum Abo Unit

2. Injection interval: 8752'-9423' OHZ

3. Well was drilled as oil well and converted to WIW 6/22/86

4. Vertical perfs: 8472-8650 O/A CIBP set @ 8364' & 8370'

5. Drinkard is 1000' above Abo
Wolfcamp is 800' below Abo

Well:	NVAU #156H
Location:	SECT. 23 – T17s-R34e
Date Drilled:	4/4/71
TD:	8,750' / 9413
PBTD:	8,725' / 9413
Horizontal lateral:	Date Drilled:
	TVD: 8750
	MD: 9413
	VS:
	Azimuth:
Current status:	Abo Horizontal WIW
Completion history:	See attached
Well Construction:	See attached

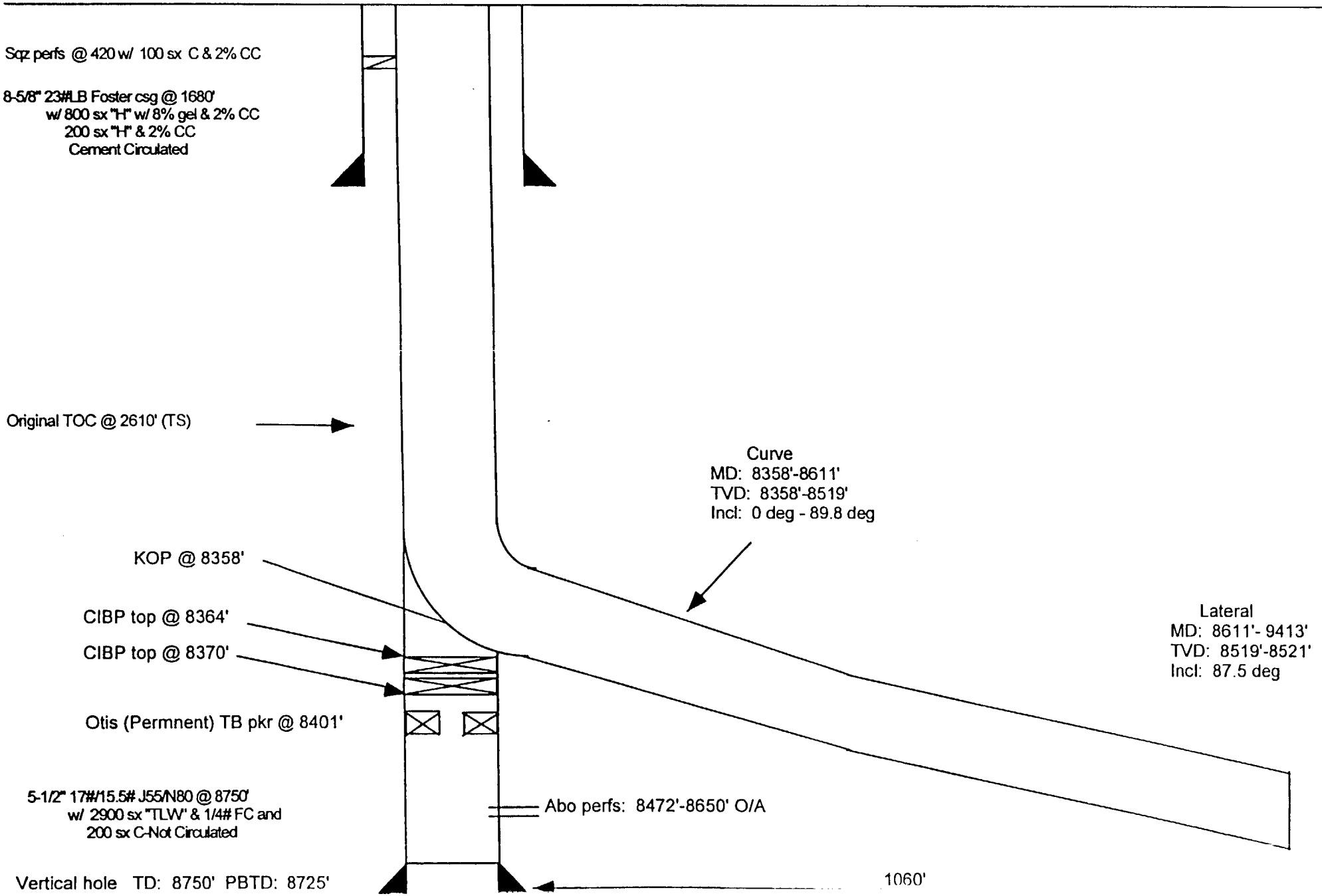
1893' FSL
1800' FEL
S-23
T17S
R34E
KB: 4037.5'
GL: 4025.0'

NVAU 156W
Vacuum Field
Lea County, New Mexico

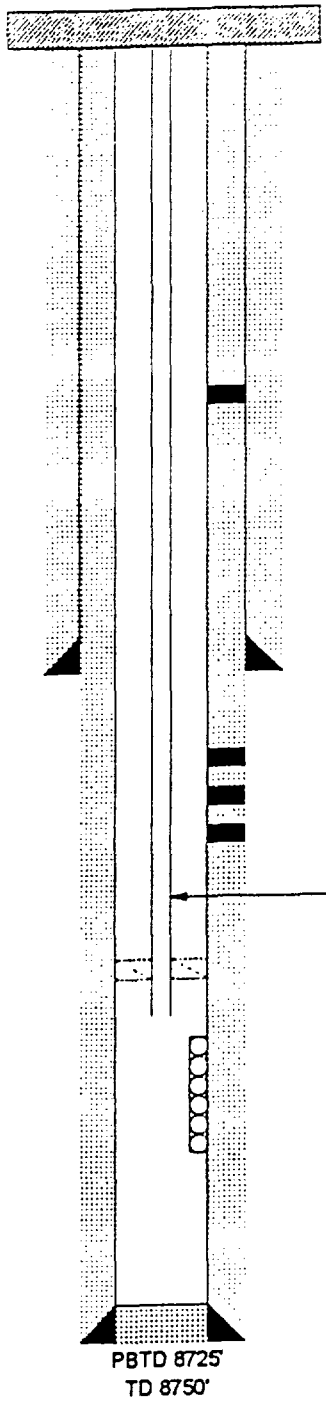
ypo: 08/12/97

Current Configuration

Spud: 04/03/71



G.L. 4025'
K.B. 4038'
Zero 13' AGL



Perforate casing with 3 holes @ 420'. Squeezed with 1100 sxs.

8-5/8" casing set @ 1630'
Cemented with 1000 sxs. Class 'H'
Cement circulated to surface
12-1/4" hole

Perforate casing with 2 holes @ 1775'. Squeezed with 300 sxs.

Perforate casing with 2 holes @ 2240'. Squeezed with 2500 sxs.

Perforate casing with 2 holes @ 2603'. Squeezed with 800 sxs. + 1300 sxs.

271 jts. of 2-7/8", 7.90 lb/ft, N-80 Atlas-Bradford IJ-3SS tubing

5-1/2" Ctis 'TB' permanent packer @ 8401'

Abo Perforations:
8487', 88', 95', 98', 99', 8500', 01', 02', 07', 09', 22', 24', 26', 27', 35', 44', 48' with 1 JSPF (17 holes)

8472', 76', 80', 87', 88', 95', 98', 99', 8500'-02', 08', 25', 34', 36', 47', 57', 77'-80', 92', 8604'-06', 28'-30', 46', 50' with 2 JSPF (60 holes)

5-1/2", 17 & 15.5 lb/ft, N-80 & J-55 casing set @ 8750'
Cemented with 2900 sxs. TILW + 200 sxs. Class 'C'
TOC @ 2610' (Temp survey)
7-7/8" hole

PBTD 8725'
TD 8750'

Mobil Exploration & Producing U.S., Inc.
Current Completion

LEASE: North Vacuum Abo Unit		WELL NO: 156
COUNTY: Lea	STATE: NM	API #: 30-025-2369600
LEGAL LOCATION: 1893' FSL & 1800' FEL Sect 23 T-17-S R-34-E		
DRAWN BY: C.M. Jones	DATE: 06 April 1995	

Well ID # 0006933

North Vacuum Abo Unit #156
Well History

04/04/71	Well spudded as Bridges State #156
05/01/71	Perforate in the Abo formation at 8487', 88', 95', 98', 99', 8500', 01', 02', 07', 09', 22', 24', 26', 27', 35', 44', and 48' with 1 JSPF (17 holes). Acidized Abo perfs (8487'-8548') with 10,000 gallons 15% HCl containing 5#/1000 gallons friction reducer and 17 RCNBS. TTP: 4400 psig - 5000 psig. AIR: 5.4 BPM. ISIP: 3100 psig. 10 min SIP: 700 psig. IP: 283 BOPD & 1 BWPD
12/06/77	Acidized Abo perfs (8487'-8548') with 10,000 gallons 15% HCl containing 1% retarder and 3 gallons/ 1000 gallons of acid friction reducer using 25 RCNBS. Flushed with 93 bbls 2% KCl water. TTP: 0 psig - 2650 psig. AIR: 4.3 BPM. Some ball action, but did not ball out. Before: 85 BOPD & 0 BWPD After: 124 BOPD & 13 BWPD
03/15/80	Perforate 5-1/2" casing with 2 holes @ 2603'.
03/16/80	Squeezed 800 sxs class 'C' thru perfs @ 2603'.
03/22/80	Re-squeezed 1500 sxs class 'C' thru perfs @ 2603'. Temp survey shows TOC behind 5-1/2" casing to be 2255'.
03/25/80	Perforated 5-1/2" casing @ 2240' with 2 holes
03/26/80	Squeezed 2500 sxs class 'C' thru perfs @ 2240'. Temp survey shows TOC behind 5-1/2" casing to be 1785'.
03/28/80	Re-squeezed perfs @ 2240' with 2000 gallons of Flocheck and 178 sxs Thickset.
03/31/80	Re-squeezed perfs @ 2240' with 300 sxs class 'C' thickset.
04/01/80	Perforate 5-1/2" casing @ 1775' with 2 holes.
04/02/80	Squeezed perfs @ 1775' with 300 sxs class 'C'. Cement circulated.
04/07/80	Re-squeeze perfs @ 1775' with 300 sxs Thix-set.
04/09/80	Perforate 5-1/2" casing @ 420' with 3 holes. Squeezed holes @ 420' with 100 sxs class 'C'.
04/12/80	Re-squeeze holes @ 420' with 85 sxs Calseal.
12/18/81	Acidized Abo perfs (8487'-8548') with 2,000 gallons HCl down casing @ 4.0 BPM. Flush with 20 bbls lease oil. Before: 121 BOPD & 3 BWPD After: 115 BOPD & 15 BWPD
05/14/86	Perforate in the Abo formation at 8472', 76', 80', 87', 88', 95', 8498'-8502', 08', 25', 34', 36', 47', 57', 8577'-80', 92', 8604'-06', 8628'-30', 46', and 50' with 2 JSPF (60 holes).

05/15/86 Acidized Abo perfs(8472'-8650') with 5,000 gallons 15% HCl (first 1000 gallons with 110 gallons Mu-Sol A) and 125 (1.3 SG) RCNBS. TTP: 0 psig. AIR: 3.0 BPM. No ball action.

06/22/86 Well converted to WIW.
IJ: 306 BWIPD @ 1700 psig TP

11/14/97 SPUD HORIZONTAL LATERAL
KICKOFF @ 8358'

11/30/97 TD HORIZONTAL LATERAL
MD = 9413' TVD = 8521' VS = 1060'
AZ = 126° INCL = 87.5°

12/15/97 Acid Frac

10,000 gal nitrogen foamed 20% HCl - 55 to 60 Quality

sperry-sun
DRILLING SERVICES

Survey and Drilling Parameters

Customer : Mobil Exploration
Well Number : #156 Intermediate Radius
Rig : #169

Field : Vacuum Field
Lease : North Vacuum Abo Unit
Job # : MO-MJ-80005

North Ref : True Declination : 9.10° VS Dir : 132.50° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS								
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (ft)	Orientation To (ft)	Tool Face (deg)	BHA No. (#)	Comment
0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00									
100.00	0.36	2.46	100.0	-0.2	0.3	0.0	0.36	0.36	0.00									Tieon
200.00	0.17	345.41	200.0	-0.5	0.8	0.0	0.20	-0.19	0.00									
300.00	0.36	11.88	300.0	-0.8	1.2	0.0	0.22	0.19	0.00									
400.00	0.34	4.71	400.0	-1.2	1.8	0.1	0.05	-0.02	0.00									
500.00	0.55	9.04	500.0	-1.6	2.6	0.2	0.21	0.21	0.00									
600.00	0.31	359.21	600.0	-2.1	3.3	0.3	0.25	-0.24	0.00									
700.00	0.22	64.28	700.0	-2.2	3.7	0.4	0.29	-0.09	0.00									
800.00	0.22	35.26	800.0	-2.1	3.9	0.7	0.11	0.00	0.00									
900.00	0.30	124.01	900.0	-1.9	3.9	1.1	0.37	0.08	0.00									
1000.00	0.58	182.28	1000.0	-1.3	3.3	1.3	0.49	0.28	0.00									
1100.00	1.07	196.71	1100.0	-0.6	1.9	1.0	0.53	0.49	0.00									
1200.00	1.09	199.51	1200.0	0.2	0.1	0.4	0.06	0.02	2.80									
1300.00	1.18	203.23	1299.9	0.9	-1.7	-0.3	0.12	0.09	3.72									
1400.00	0.78	212.07	1399.9	1.4	-3.3	-1.1	0.43	-0.40	0.00									
1500.00	0.82	219.89	1499.9	1.5	-4.4	-1.9	0.12	0.04	0.00									
1600.00	0.81	226.63	1599.9	1.5	-5.4	-2.9	0.10	-0.01	0.00									
1700.00	0.63	219.79	1699.9	1.5	-6.3	-3.8	0.20	-0.18	0.00									
1800.00	0.80	217.09	1799.9	1.6	-7.3	-4.5	0.17	0.17	0.00									
1900.00	0.57	213.23	1899.9	1.7	-8.3	-5.2	0.23	-0.23	0.00									
2000.00	0.74	221.29	1999.9	1.8	-9.2	-5.9	0.19	0.17	0.00									
2100.00	0.70	209.77	2099.9	2.0	-10.2	-6.7	0.15	-0.04	0.00									
2200.00	0.45	200.32	2199.9	2.3	-11.1	-7.1	0.27	-0.25	0.00									
2300.00	0.19	231.75	2299.9	2.4	-11.6	-7.4	0.30	-0.26	0.00									
2400.00	0.25	220.71	2399.9	2.4	-11.8	-7.6	0.07	0.06	0.00									
2500.00	0.24	217.70	2499.9	2.4	-12.2	-7.9	0.00	-0.01	0.00									
2600.00	0.44	75.17	2599.9	2.6	-12.2	-7.7	0.65	0.20	0.00									
2700.00	0.48	71.43	2699.9	3.0	-12.0	-6.9	0.05	0.04	0.00									
2800.00	0.40	60.24	2799.8	3.3	-11.7	-6.2	0.12	-0.08	0.00									

sperry-sun
DRILLING SERVICES
Survey and Drilling Parameters

Customer : Mobil Exploration
Well Number : #156 Intermediate Radius
Rig : #169

Field : Vacuum Field
Lease : North Vacuum Abo Unit
Job # : MO-MJ-80005

North Ref : True Declination : 9.10° VS Dir : 132.50° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS								
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (ft)	Orientation To (ft)	Tool Face (deg)	BHA No. (#)	Comment
2900.00	0.40	59.00	2899.8	3.5	-11.3	-5.6	0.00	0.00	0.00									
3000.00	0.27	85.75	2999.8	3.8	-11.1	-5.1	0.20	-0.13	0.00									
3100.00	0.24	60.93	3099.8	4.0	-11.0	-4.6	0.11	-0.03	0.00									
3200.00	0.17	324.40	3199.8	3.9	-10.8	-4.6	0.31	-0.07	0.00									
3300.00	0.23	357.25	3299.8	3.7	-10.5	-4.6	0.13	0.06	0.00									
3400.00	0.21	282.35	3399.8	3.4	-10.2	-4.8	0.27	-0.02	0.00									
3500.00	0.23	295.05	3499.8	3.0	-10.1	-5.2	0.05	0.02	0.00									
3600.00	0.39	309.41	3599.8	2.5	-9.8	-5.6	0.18	0.16	0.00									
3700.00	0.55	293.10	3699.8	1.7	-9.4	-6.3	0.21	0.16	0.00									
3800.00	0.53	300.77	3799.8	0.8	-9.0	-7.2	0.07	-0.02	0.00									
3900.00	0.67	291.36	3899.8	-0.2	-8.5	-8.1	0.17	0.14	0.00									
4000.00	0.55	301.43	3999.8	-1.2	-8.1	-9.1	0.16	-0.12	0.00									
4100.00	0.35	310.09	4099.8	-2.0	-7.6	-9.7	0.21	-0.20	0.00									
4200.00	0.53	298.64	4199.8	-2.8	-7.2	-10.4	0.20	0.18	0.00									
4300.00	0.32	286.61	4299.8	-3.5	-6.9	-11.0	0.23	-0.21	0.00									
4400.00	0.39	283.44	4399.8	-4.0	-6.8	-11.6	0.07	0.07	0.00									
4500.00	0.39	303.91	4499.8	-4.6	-6.5	-12.2	0.14	0.00	0.00									
4600.00	0.53	288.00	4599.8	-5.4	-6.2	-13.0	0.19	0.14	0.00									
4700.00	0.37	307.35	4699.8	-6.1	-5.8	-13.7	0.22	-0.16	0.00									
4800.00	0.51	313.76	4799.8	-6.9	-5.3	-14.2	0.15	0.14	0.00									
4900.00	0.60	331.38	4899.8	-7.9	-4.5	-14.8	0.19	0.09	0.00									
5000.00	0.90	292.14	4999.8	-9.1	-3.8	-15.8	0.58	0.30	0.00									
5100.00	1.16	284.26	5099.8	-10.7	-3.2	-17.5	0.30	0.26	0.00									
5200.00	1.35	299.37	5199.7	-12.8	-2.4	-19.5	0.38	0.19	15.11									
5300.00	1.37	313.23	5299.7	-15.1	-1.0	-21.4	0.33	0.02	13.86									
5400.00	1.49	315.57	5399.7	-17.6	0.7	-23.2	0.13	0.12	2.34									
5500.00	1.48	306.17	5499.7	-20.2	2.4	-25.1	0.24	-0.01	-9.40									
5600.00	1.29	301.74	5599.6	-22.6	3.8	-27.1	0.22	-0.19	-4.43									
5700.00	1.07	294.38	5699.6	-24.6	4.8	-29.0	0.27	-0.22	-7.36									

sperry-sun
DRILLING SERVICES

Survey and Drilling Parameters

Customer : Mobil Exploration
Well Number : #156 Intermediate Radius
Rig : #169

Field : Vacuum Field
Lease : North Vacuum Abo Unit
Job # : MO-MJ-80005

North Ref : True Declination : 9.10° VS Dir : 132.50° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS								
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (ft)	Orientation To (ft)	Tool Face (deg)	BHA No. (#)	Comment
5800.00	0.94	305.96	5799.6	-26.3	5.6	-30.5	0.24	-0.13	0.00									
5900.00	0.91	295.64	5899.6	-27.8	6.4	-31.8	0.17	-0.03	0.00									
6000.00	0.92	291.27	5999.6	-29.3	7.1	-33.3	0.07	0.01	0.00									
6100.00	0.68	288.59	6099.6	-30.6	7.6	-34.6	0.24	-0.24	0.00									
6200.00	0.38	306.34	6199.5	-31.5	7.9	-35.4	0.34	-0.30	0.00									
6300.00	0.06	39.98	6299.5	-31.8	8.2	-35.7	0.39	-0.32	0.00									
6400.00	0.36	216.41	6399.5	-31.8	8.0	-35.8	0.42	0.30	0.00									
6500.00	0.21	201.29	6499.5	-31.7	7.5	-36.1	0.17	-0.15	0.00									
6600.00	0.48	193.50	6599.5	-31.4	7.0	-36.3	0.27	0.27	0.00									
6700.00	0.48	176.76	6699.5	-30.9	6.1	-36.3	0.14	0.00	0.00									
6800.00	0.71	171.49	6799.5	-30.2	5.1	-36.2	0.24	0.23	0.00									
6900.00	0.95	152.79	6899.5	-28.9	3.8	-35.7	0.36	0.24	0.00									
7000.00	1.14	152.58	6999.5	-27.2	2.1	-34.9	0.19	0.19	0.00									
7100.00	0.80	146.80	7099.5	-25.6	0.7	-34.1	0.35	-0.34	0.00									
7200.00	0.80	149.99	7199.5	-24.2	-0.5	-33.3	0.04	0.00	0.00									
7300.00	0.90	134.15	7299.5	-22.8	-1.7	-32.4	0.25	0.10	0.00									
7400.00	0.91	144.53	7399.5	-21.2	-2.9	-31.4	0.16	0.01	0.00									
7500.00	0.91	137.36	7499.4	-19.6	-4.1	-30.4	0.11	0.00	0.00									
7600.00	1.02	138.08	7599.4	-18.0	-5.3	-29.3	0.11	0.11	0.00									
7700.00	0.81	141.34	7699.4	-16.4	-6.6	-28.2	0.22	-0.21	0.00									
7800.00	0.64	160.09	7799.4	-15.2	-7.6	-27.6	0.29	-0.17	0.00									
7900.00	0.82	148.12	7899.4	-14.0	-8.8	-27.0	0.23	0.18	0.00									
8000.00	0.67	146.37	7999.4	-12.8	-9.9	-26.3	0.15	-0.15	0.00									
8100.00	0.64	136.36	8099.4	-11.6	-10.7	-25.6	0.12	-0.03	0.00									
8200.00	0.86	164.38	8199.4	-10.4	-11.9	-25.0	0.42	0.22	0.00									
8300.00	0.92	145.37	8299.4	-9.0	-13.3	-24.4	0.30	0.06	0.00									
8347.00	0.92	145.37	8346.4	-8.3	-13.9	-23.9	0.00	0.00	0.00									
8353.00	2.80	135.74	8352.4	-8.1	-14.0	-23.8	31.65	31.33	0.00									
8365.00	4.90	135.16	8364.3	-7.3	-14.6	-23.2	17.50	17.50	-4.83	2000		130	1800	8360.0	8361.0	144R	1	

sperry-sun
DRILLING SERVICES

Survey and Drilling Parameters

Customer : Mobil Exploration
Well Number : #156 Intermediate Radius
Rig : #169

Field : Vacuum Field
Lease : North Vacuum Abo Unit
Job # : MO-MJ-80005

North Ref : True Declination : 9.10° VS Dir : 132.50° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS								
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (ft)	Orientation To (ft)	Tool Face (deg)	BHA No. (#)	Comment
														8361.0	8362.0	40R	1	
														8362.0	8365.0	118R	1	
8375.00	8.20	136.39	8374.3	-6.1	-15.4	-22.5	33.03	33.00	12.30	4000		130	1825	8365.0	8366.0	118R	1	
														8366.0	8371.0	155R	1	
														8371.0	8375.0	163R	1	
8385.00	11.60	136.92	8384.1	-4.4	-16.7	-21.3	34.01	34.00	5.30	6000		130	1875	8375.0	8380.0	163R	1	
														8380.0	8385.0	157R	1	
8395.00	15.20	137.23	8393.8	-2.1	-18.4	-19.7	36.01	36.00	3.10	6000		130	1875	8385.0	8390.0	157R	1	
														8390.0	8395.0	153R	1	
8405.00	18.70	137.50	8403.4	0.8	-20.5	-17.7	35.01	35.00	2.70	6000		130	1875	8395.0	8405.0	153R	1	
8415.00	23.60	138.50	8412.7	4.4	-23.2	-15.3	49.13	49.00	10.00	8000		130	1900	8405.0	8410.0	153R	1	
														8410.0	8415.0	HS	1	
8425.00	27.30	135.50	8421.8	8.7	-26.3	-12.4	39.17	37.00	-30.00	8000		130	1900	8415.0	8420.0	HS	1	
														8420.0	8425.0	10R	1	
8435.00	30.50	133.70	8430.5	13.5	-29.7	-8.9	33.16	32.00	-18.00	9000		130	1925	8425.0	8430.0	10R	1	
														8430.0	8435.0	20L	1	
8445.00	33.40	136.90	8439.0	18.8	-33.5	-5.2	33.57	29.00	32.00	10000		130	1950	8435.0	8440.0	20L	1	
														8440.0	8445.0	30L	1	
8455.00	36.50	139.50	8447.2	24.5	-37.8	-1.4	34.39	31.00	26.00	10000		130	1950	8445.0	8450.0	30L	1	
														8450.0	8455.0	45R	1	
8465.00	39.70	138.40	8455.1	30.6	-42.4	2.6	32.71	32.00	-11.00	10000		130	1925	8455.0	8460.0	45R	1	
														8460.0	8465.0	30R	1	
8475.00	43.20	136.30	8462.6	37.2	-47.3	7.1	37.66	35.00	-21.00	10000		130	1925	8465.0	8475.0	30R	1	
8485.00	47.00	133.70	8469.6	44.3	-52.3	12.1	42.22	38.00	-26.00	10000		130	1925	8475.0	8485.0	30R	1	
8495.00	50.90	132.10	8476.2	51.8	-57.4	17.7	40.82	39.00	-16.00	10000		130	1925	8485.0	8495.0	30R	1	
8505.00	54.20	128.50	8482.3	59.7	-62.5	23.7	43.65	33.00	-36.00	10000		130	1900	8495.0	8500.0	30R	1	
														8500.0	8505.0	30L	1	
8515.00	55.60	126.30	8488.0	67.9	-67.5	30.2	22.80	14.00	-22.00	12000		130	1900	8505.0	8510.0	30L	1	
														8510.0	8515.0	40L	1	

sperry-sun
DRILLING SERVICES

Survey and Drilling Parameters

Customer : Mobil Exploration
Well Number : #156 Intermediate Radius
Rig : #169

Field : Vacuum Field
Lease : North Vacuum Abo Unit
Job # : MO-MJ-80005

North Ref : True Declination : 9.10° VS Dir : 132.50° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS								
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (ft)	Orientation To (ft)	Tool Face (deg)	BHA No. (#)	Comment
8525.00	56.10	130.50	8493.6	78.1	-72.6	36.7	35.11	5.00	42.00	11000		130	1900	8515.0	8520.0	100L	1	
														8520.0	8525.0	40R	1	
8535.00	59.10	132.20	8499.0	84.6	-78.2	43.0	33.26	30.00	17.00	10000		130	1900	8525.0	8530.0	110R	1	
														8530.0	8535.0	50R	1	
8545.00	63.10	133.50	8503.8	93.3	-84.2	49.5	41.59	40.00	13.00	11000		130	1925	8535.0	8540.0	50R	1	
														8540.0	8545.0	30R	1	
8555.00	67.10	134.30	8508.0	102.4	-90.5	56.0	40.65	40.00	8.00	11000		130	1925	8545.0	8555.0	30R	1	
8565.00	71.30	134.30	8511.6	111.7	-97.0	62.7	42.00	42.00	0.00	11000		130	1925	8555.0	8565.0	30R	1	
8575.00	75.40	134.10	8514.4	121.3	-103.7	69.6	41.04	41.00	-2.00	11000		130	1900	8565.0	8570.0	30R	1	
														8570.0	8575.0	HS	1	
8585.00	79.40	133.50	8516.6	131.1	-110.4	76.6	40.43	40.00	-6.00	11000		130	1875	8575.0	8580.0	HS	1	
														8580.0	8585.0	10L	1	
8609.00	86.60	131.30	8519.5	154.9	-126.5	94.2	31.35	30.00	-9.17	11000		130	1850	8585.0	8590.0	10L	1	
														8590.0	8600.0	25L	1	
														8600.0	8609.0	20L	1	
8640.00	89.40	127.00	8520.6	185.8	-146.0	118.2	16.54	9.03	-13.87	12000		130	1850	8609.0	8611.0	20L	2	
														8611.0	8630.0	HS	2	
														8630.0	8640.0	30R	2	
8671.00	91.50	126.90	8520.4	216.6	-164.7	143.0	6.78	6.77	-0.32	12000		130	1850	8640.0	8645.0	30R	2	
														8655.0	8671.0		2	
8702.00	91.00	127.00	8519.7	247.5	-183.3	167.7	1.64	-1.61	0.32	10000	25	130	1850	8671.0	8701.0		2	
8733.00	90.70	127.60	8519.2	278.4	-202.1	192.4	2.16	-0.97	1.94	12000	25	130	1925	8711.0	8732.0	145R	2	
8765.00	92.10	131.40	8518.5	310.3	-222.4	217.1	12.65	4.37	11.88	15000		130	1900	8763.0	8765.0	90R	2	
8796.00	91.00	135.10	8517.6	341.3	-243.6	239.6	12.45	-3.55	11.94	15000		130	1900	8765.0	8796.0	90R	2	
8827.00	89.90	137.90	8517.4	372.2	-266.1	261.0	9.70	-3.55	9.03	12000	20	130	1900	8796.0	8810.0	90R	2	
8857.00	90.30	139.40	8517.3	402.0	-288.6	280.8	5.17	1.33	5.00	12000	20	130	1925	8832.0	8857.0	170R	2	
8888.00	88.80	139.50	8517.6	432.8	-312.2	300.9	4.85	-4.84	0.32	12000	20	130	1925	8862.0	8887.0	150L	2	
8919.00	87.50	138.50	8518.6	463.6	-335.6	321.3	5.29	-4.19	-3.23	12000	20	130	1925	8898.0	8918.0	150L	2	
8949.00	86.70	137.10	8520.1	493.4	-357.8	341.4	5.37	-2.67	-4.67	12000	22	130	1950	8928.0	8949.0	120L	2	

sperry-sun
DRILLING SERVICES

Survey and Drilling Parameters

Customer : Mobil Exploration
Well Number : #156 Intermediate Radius
Rig : #169

Field : Vacuum Field
Lease : North Vacuum Abo Unit
Job # : MO-MJ-80005

North Ref : True Declination : 9.10° VS Dir : 132.50° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS								
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (ft)	Orientation To (ft)	Tool Face (deg)	BHA No. (#)	Comment
8979.00	86.60	135.70	8521.8	523.3	-379.5	362.0	4.67	-0.33	-4.67	12000	25	130	1950	8959.0	8979.0	90L	2	
9010.00	87.90	134.60	8523.3	554.2	-401.4	383.9	5.49	4.19	-3.55	18000		130	1950	8994.0	9010.0	30L	2	
9041.00	89.10	132.80	8524.1	585.2	-422.8	406.3	6.98	3.87	-5.81	13000	20	130	1950	9010.0	9024.0	30L	2	
														9034.0	9040.0	50L	2	
9072.00	92.00	132.80	8523.8	616.2	-443.9	429.0	9.35	9.35	0.00	20000		130	1950	9050.0	9072.0	90L	2	
9103.00	92.10	132.30	8522.7	647.2	-464.8	451.9	1.64	0.32	-1.61	13000	20	130	1950	9072.0	9102.0	90L	2	
9135.00	89.40	130.60	8522.3	679.2	-486.0	475.8	9.97	-8.44	-5.31	13000	20	130	1950	9117.0	9133.0	90L	2	
9165.00	91.10	130.20	8522.2	709.1	-505.5	498.7	5.82	5.67	-1.33	20000		130	1950	9143.0	9165.0	130L	2	
9197.00	90.30	129.20	8521.8	741.1	-525.9	523.3	4.00	-2.50	-3.12	13000	20	130	1950	9165.0	9195.0	130L	2	
9228.00	91.30	128.30	8521.4	772.0	-545.3	547.5	4.34	3.23	-2.90	13000	20	130	1950	9210.0	9227.0	90L	2	
9259.00	90.80	127.20	8520.8	802.9	-564.3	572.0	3.90	-1.61	-3.55	13000	20	130	1950	9235.0	9258.0	90L	2	
9290.00	91.60	126.90	8520.1	833.8	-582.9	596.7	2.76	2.58	-0.97	13000	20	130	1950	9266.0	9289.0	140L	2	
9321.00	90.90	126.70	8519.5	864.6	-601.5	621.5	2.35	-2.26	-0.65	13000	20	130	1950	9297.0	9320.0	160L	2	
9352.00	89.40	126.30	8519.4	895.4	-619.9	646.4	5.01	-4.84	-1.29	13000	20	130	1950	9330.0	9351.0	170L	2	
9383.00	87.50	126.00	8520.2	926.2	-638.2	671.5	6.20	-6.13	-0.97	20000		130	1950	9356.0	9383.0	LS	2	
9413.00	87.50	126.00	8521.5	956.0	-655.8	695.7	0.00	0.00	0.00	13000	20	130	1950	9383.0	9413.0	LS		

ATTACHMENT III

A. 1.

Lease Name:	North Vacuum Abo Unit
Well #:	213
Ut/Sec./T/R:	Surface - N 23-17S-34E
	Bottom Hole Location (BHL) - B 26-17S-34E
Location:	Surf. - 460' FSL, 800' FEL
	BHL - 688' FSL, 800' FEL

2. Casing string: 8 5/8", 28 lb/ft, set @ 3035'
1200 sxs TILW + 200 sxs Class C Cmt.
11" hole size
Circulated to surface

5 1/2", 15.5 & 17bl/ft, J-55 & N-80 set @ 8700'
2100 sxs TILW + 200 sxs Class C
7 7/8" hole size
Circulated cement

3. Tubing: 2 7/8" L-80 EOT @ 8209'

4. Packer: Baker model "NB' packer @ 8329'

B.1. Injection formation: Abo
Pool Name: North Vacuum Abo Unit

2. Injection interval: 8752'-9423' OHZ

3. Well was drilled as oil well and converted to WIW 07/24/73

4. Vertical perfs: 8515-8565 O/A CIBP set @ 8300'

5. Drinkard is 1000' above Abo
Wolfcamp is 800' below Abo

Well:	NVAU #213H
Location:	SECT 23 – T17S-R34e
Date Drilled:	12/20/71
TD:	8,800'/9423'
PBTD:	8,752'/9423'
Horizontal lateral:	Date Drilled:
	TVD: 8800
	MD: 9423
	VS:
	Azimuth:
Current status:	Abo Horizontal WIW
Completion history:	See attached
Well Construction:	See attached

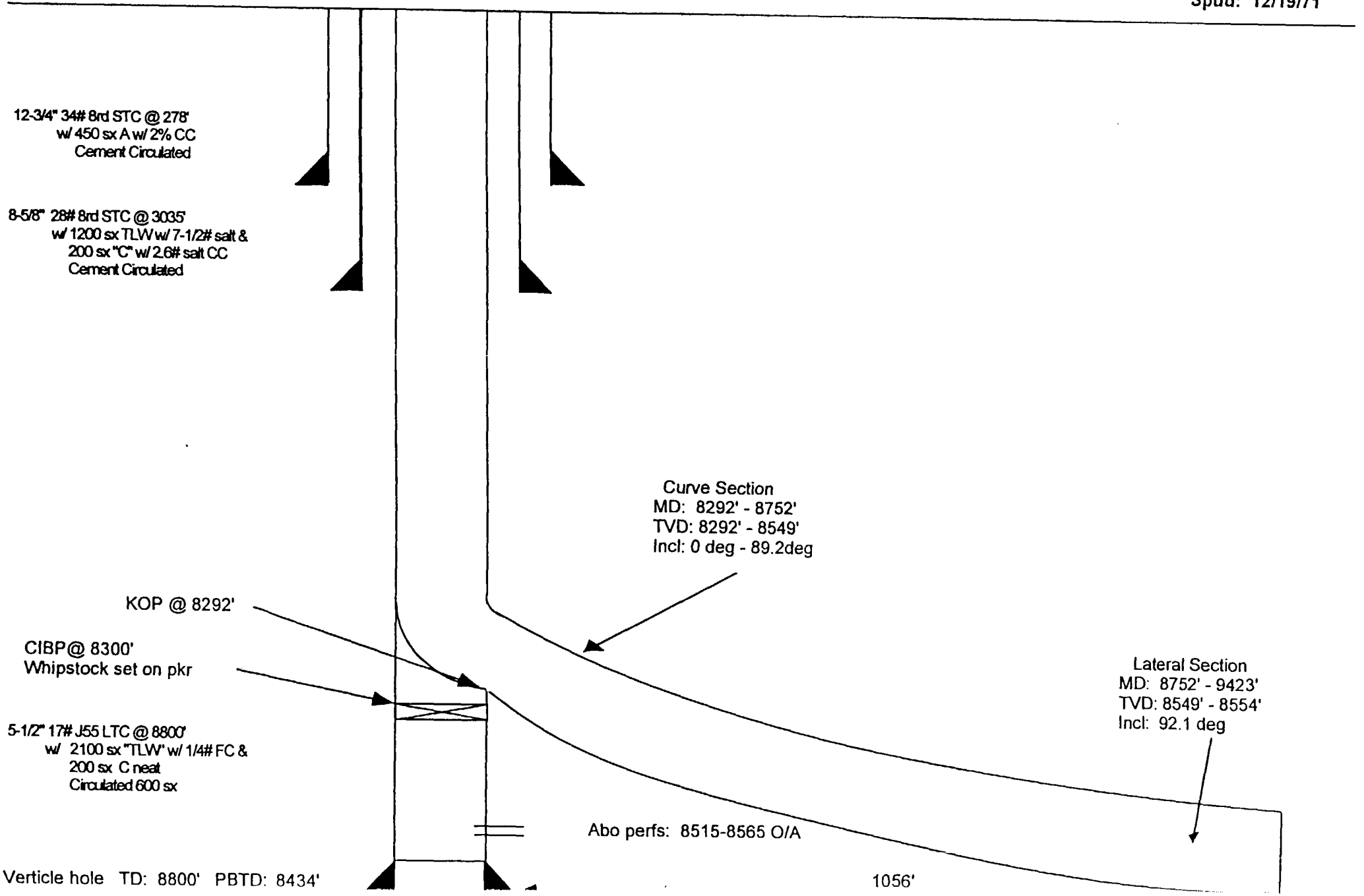
460' FSL
1980' FWL
S-23
T17S
R34E
KB: 4044'
GL: 4028'

NVAU 213W
Vacuum Field
Lea County, New Mexico

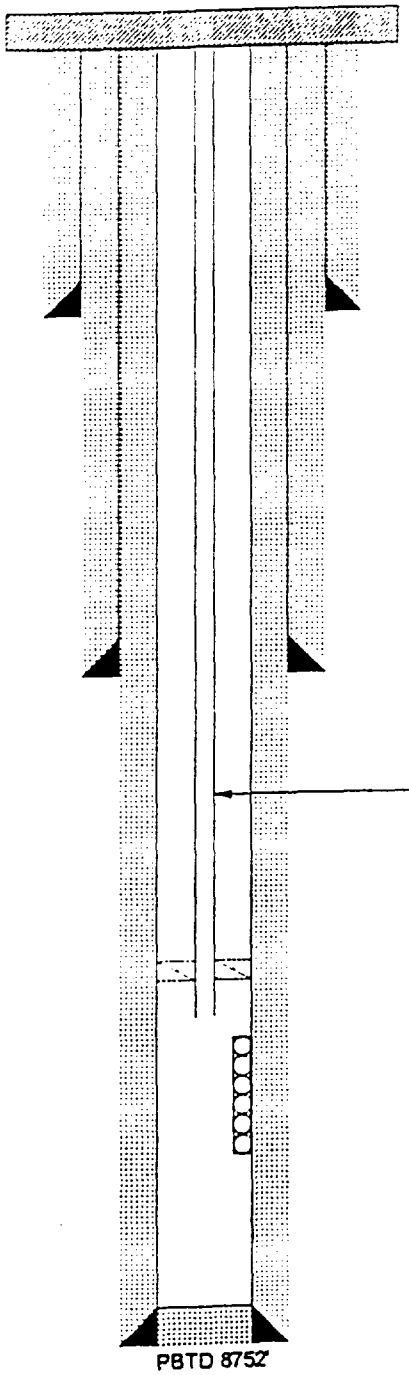
YPO: 11/14/97

Current Configuration

Spud: 12/19/71



G.L. 4028'
K.B. 4044'
Zero 16' AGL



12-3/4", 34 lb/ft casing set @ 278'
Cemented with 450 sxs. Class 'A'
Cement circulated to surface
17-1/2" hole

8-5/8", 28 lb/ft casing set @ 3035'
Cemented with 1200 sxs. TILW + 200 sxs. Class 'C'
Cement circulated to surface
11" hole

266 jts. of 2-3/8" N-80 Buttress tubing

Baker Model 'NB' packer @ 8329'. Model 'F' SN (1.81" ID) @ 8341'. EOT @ 8248'.

Abo Perforations:
8509', 15'-16', 19', 24', 29'-30', 34'., 42', 44', 49', 54', 59', 62', 64' with 2 JSPF (30 holes)
8514', 17', 23', 25', 31', 35', 50', 53', 55', 60'-61', 63', 65' with 1 JSPF (13 holes). Total 43 holes. Squeezed with 200 sxs. cement (2/20/75).

Abo Reperfs:
8515'-18', 23', 29'-31', 34'-35', 43'-45', 49', 53'-55', 59'-65' with 1 JSPF (24 holes)

5-1/2" 15.5 &17 lb/ft casing set @ 8800'
Cemented with 2100 sxs. TILW + 200 sxs. Class 'C'
Cement circulated
7-7/8" hole

PBTD 8752'
TD 8800'

Mobil Exploration & Producing U.S., Inc.
Current Completion

LEASE: North Vacuum Abo Unit			WELL NO: 213
COUNTY: Lea	STATE: NM	API #: 30-025-2396200	
LEGAL LOCATION: 460' FSL & 1980' FWL Sect 23 T-17-S R-34-E			
DRAWN BY: C.M. Jones		DATE: 06 April 1995	

Well ID # 0008962

North Vacuum Abo Unit #213
Well History

12/20/71	Well spudded as State 'KK' #1
01/14/72	Perforate in the Abo formation at 8509', 15', 16', 19', 24', 29', 30', 34', 42', 44', 49', 54', 59', 62', and 64' with 2 JSPF (30 holes).
01/15/72	Acidized Abo perfs (8509'-8564') with 10,000 gallons 15% HCl containing 5#/1000 gallons friction reducer using 30 RCNBS. TTP: 5000 psig- 5300 psig. AIR: 5.5 BPM. ISIP: 3400 psig. 10 min SIP: 1700 psig. IP: 100 BOPD & 0 BWPD
05/25/73	Peforated in the Abo formation at 8514', 17', 23', 25', 31', 35', 50', 53', 55', 60', 61', 63', and 65' with 1 JSPF (13 holes).
05/26/73	Treated Abo perfs (8509'-8569') with 800 gallons Xylene +200 gallons 15% HCl + 2 gallons Adafoam. TTP: 0 psig - 1050 psig. AIR: 3.8 BPM. ISIP: Vac.
05/27/73	Acidized Abo perfs (8509'-8565') with 5,000 gallons 15% HCl. Flushed and overflushed with 15,000 gallons fresh water with 2 gallons Adafoam/1000 gallons, used 65 RCNBS. TTP: 500 psig - 3500 psig. AIR: 4.3 BPM. ISIP: 2200 psig. Vac. 7 min.
07/24/73	Well converted to WIW IJ: 400 BWPD @ 200 psig TP
02/20/75	Squeezed Abo perfs (8500'-8569') with 100 sxs class 'H' to eliminate channeling of injection water behind casing to lower intervals. Max. pressure: 3300 psig. PI perfs 2BPM @ 4300 psig. Resqueeze perfs with 100 sxs class 'H'. Max pressure: 5000 psig.
02/22/75	Perforated in the Abo formation at 8515'-18', 23', 29'-31', 34'-35', 43'-45', 49', 53'-55', and 59'-65' with 1 JSPF (24 holes).
02/25/75	Acidized Abo perfs (8515'-8565') with 3,000 gallons 15% HCl + 20 RCNBS. BDTP: 6000 psig. TTP: 5500 psig - 5800 psig. AIR: 4.8 BPM. ISIP: 3800 psig. 15 min SIP: 330 psig. Before: After: 190 BWPD @ 3675 psig TP
09/13/83	Acidized Abo perfs (8515'-8565') with 5000 gallons 15% HCl. Flushed acid with 40 bbls fresh water. TTP: 4700 psig - 5400 psig. AIR: 1.6 BPM. ISIP: 5300 psig. 5 min SIP: 5100 psig. 10 min SIP: 5000 psig. 15 min SIP: 5000 psig. Flowed back 120 bbls of water. Returned to injection. Before: 127 BWPD @ 4400 psig TP After: 170 BWPD @ 4200 psig TP
11/24/97	Spud horizontal lateral Kickoff @ 8292'
12/7/97	TD horizontal lateral MD = 9423' TVD = 8554' VS = 1056' AZ = 137.4° INCL = 92.1°

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DRILLING SERVICES
Survey and Drilling Parameters

Customer : Mobil Exploration
Well Number : NV Abo #213 Horizontal
Rig : #169

Field : Vacuum Field
Lease : North Vacuum Abo Unit
Job # : MO-MJ-80010

Surveys for BHA 1 | North Ref : True | Declination : 9.10° | VS Dir : 132.50° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS								
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (ft)	Orientation To (ft)	Tool Face (deg)	BHA No. (#)	Comment
8290.00	4.30	153.87	8289.1	62.4	-18.4	67.9	48.73	48.33	-144.83	0		0	0				1	
8300.00	5.70	148.91	8299.1	63.3	-19.1	68.3	14.64	14.00	-49.60	6000		130	1950	8292.0	8294.0	138R	1	
														8294.0	8297.0	138R	1	
														8297.0	8300.0	146R	1	
8310.00	7.20	146.85	8309.0	64.3	-20.1	68.9	15.18	15.00	-20.60	8000		130	1950	8300.0	8301.0	146R	1	
														8301.0	8310.0	148R	1	
8320.00	8.70	145.73	8318.9	65.7	-21.2	69.7	15.08	15.00	-11.20	8000		130	1950	8310.0	8320.0	135R	1	
8330.00	10.20	145.03	8328.8	67.3	-22.6	70.6	15.04	15.00	-7.00	8000		130	1950	8320.0	8325.0	135R	1	
														8325.0	8330.0	135R	1	
8340.00	11.90	144.54	8338.6	69.2	-24.1	71.7	17.03	17.00	-4.90	10000		130	1950	8330.0	8335.0	135R	1	
														8335.0	8340.0	10L	1	
8350.00	13.40	144.18	8348.3	71.3	-25.9	73.0	15.02	15.00	-3.60	10000		130	1950	8340.0	8350.0	10L	1	
8360.00	14.50	143.91	8358.0	73.7	-27.9	74.4	11.02	11.00	-2.70	14000		130	1950	8350.0	8355.0	10L	1	
														8355.0	8360.0	10L	1	
8370.00	16.00	143.70	8367.7	76.2	-30.0	75.9	15.01	15.00	-2.10	14000		130	1950	8360.0	8365.0	10L	1	
														8365.0	8370.0	10L	1	
8375.00														8370.0	8375.0	10L	1	Trip Out

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DRILLING SERVICES

Survey and Drilling Parameters

Customer : Mobil Exploration
Well Number : NV Abo #213 Horizontal
Rig : #169

Field : Vacuum Field
Lease : North Vacuum Abo Unit
Job # : MO-MJ-80010

Surveys for BHA 2 | North Ref : True | Declination : 9.10° | VS Dir : 132.50° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS								
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (ft)	Orientation To (ft)	Tool Face (deg)	BHA No. (#)	Comment
8380.00	18.90	143.30	8377.2	79.2	-32.4	77.7	29.02	29.00	-4.00	12000		130	1950	8370.0	8376.0	10L	2	
														8376.0	8380.0	20L	2	
8390.00	22.50	141.30	8386.6	82.7	-35.2	79.9	36.68	36.00	-20.00	12000		130	1950	8380.0	8390.0	20L	2	
8400.00	26.00	138.30	8395.7	86.7	-38.3	82.6	37.10	35.00	-30.00	12000		130	1950	8390.0	8400.0	20L	2	
8410.00	28.90	133.70	8404.6	91.3	-41.6	85.8	35.91	29.00	-46.00	14000		130	1950	8400.0	8406.0	20L	2	
														8406.0	8410.0	40L	2	
8420.00	32.00	129.70	8413.2	96.4	-45.0	89.5	37.02	31.00	-40.00	14000		130	1950	8410.0	8420.0	40L	2	
8430.00	35.60	127.70	8421.5	102.0	-48.5	93.9	37.68	36.00	-20.00	14000		130	1950	8420.0	8426.0	40L	2	
														8426.0	8430.0	20L	2	
8440.00	39.00	129.20	8429.5	108.0	-52.2	98.6	35.19	34.00	15.00	14000		130	1950	8430.0	8436.0	20L	2	
														8436.0	8440.0	30R	2	
8450.00	42.40	132.00	8437.0	114.5	-56.5	103.6	38.59	34.00	28.00	14000		130	1950	8440.0	8446.0	30R	2	
														8446.0	8450.0	40R	2	
8460.00	44.50	134.60	8444.3	121.4	-61.2	108.6	27.58	21.00	26.00	14000		130	1950	8450.0	8456.0	40R	2	
														8456.0	8460.0	25R	2	
8470.00	47.20	133.30	8451.3	128.6	-66.2	113.7	28.56	27.00	-13.00	14000		130	1950	8460.0	8466.0	25R	2	
														8466.0	8470.0	55R	2	
8476.00														8470.0	8476.0	55R	2	Trip Out

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DRILLING SERVICES

Survey and Drilling Parameters

Customer : Mobil Exploration
Well Number : NV Abo #213 Horizontal
Rig : #169

Field : Vacuum Field
Lease : North Vacuum Abo Unit
Job # : MO-MJ-80010

Surveys for BHA 3 | North Ref : True | Declination : 9.10° | VS Dir : 132.50° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS								
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (ft)	Orientation To (ft)	Tool Face (deg)	BHA No. (#)	Comment
8480.00	48.90	132.40	8458.0	136.0	-71.2	119.2	18.27	17.00	-9.00	14000		130	1950	8470.0	8476.0	55R	3	
														8476.0	8480.0	40L	3	
8490.00	50.60	132.10	8464.4	143.6	-76.4	124.8	17.15	17.00	-3.00	14000		130	1950	8480.0	8490.0	40L	3	
8500.00	52.40	132.10	8470.6	151.5	-81.6	130.7	18.00	18.00	0.00	14000		130	1950	8490.0	8492.0	40L	3	
														8492.0	8500.0	HS	3	
8510.00	54.20	131.80	8476.6	159.5	-87.0	136.6	18.16	18.00	-3.00	14000		130	1950	8500.0	8510.0	HS	3	
8520.00	55.90	131.90	8482.3	167.7	-92.4	142.7	17.02	17.00	1.00	14000		130	1950	8510.0	8520.0	HS	3	
8530.00	58.00	131.60	8487.8	176.1	-98.0	149.0	21.15	21.00	-3.00	14000		130	1950	8520.0	8530.0	HS	3	
8540.00	59.60	131.20	8493.0	184.6	-103.7	155.4	16.36	16.00	-4.00	14000		130	1950	8530.0	8540.0	HS	3	
8550.00	61.60	131.10	8497.9	193.3	-109.4	161.9	20.02	20.00	-1.00	14000		130	1950	8540.0	8550.0	HS	3	
8560.00	63.40	131.40	8502.5	202.2	-115.3	168.6	18.20	18.00	3.00	14000		130	1950	8550.0	8552.0	HS	3	
														8552.0	8560.0	10R	3	
8570.00	63.80	132.30	8506.9	211.1	-121.2	175.3	9.00	4.00	9.00	8000	15	130	1950	8560.0	8569.0	10R	3	
8580.00	64.30	132.80	8511.3	220.1	-127.3	181.9	6.72	5.00	5.00	8000	15	130	1950				3	
8590.00	65.70	132.50	8515.5	229.2	-133.5	188.6	14.26	14.00	-3.00	14000		130	1950	8581.0	8590.0	10R	3	
8600.00	67.00	131.70	8519.6	238.4	-139.6	195.4	14.92	13.00	-8.00	8000	15	130	1950	8590.0	8600.0	10R	3	
8610.00	68.80	133.00	8523.3	247.6	-145.8	202.2	21.66	18.00	13.00	14000		130	1950	8601.0	8610.0	HS	3	
8620.00	70.30	133.20	8526.8	257.0	-152.2	209.1	15.12	15.00	2.00	8000	15	130	1950	8610.0	8620.0	HS	3	
8630.00	71.80	132.20	8530.1	266.4	-158.6	216.0	17.73	15.00	-10.00	8000	15	130	1950	8621.0	8629.0	10R	3	
8640.00	73.40	132.40	8533.1	276.0	-165.1	223.1	16.11	16.00	2.00	14000		130	1950	8631.0	8640.0	10L	3	
8650.00	74.90	132.20	8535.8	285.6	-171.5	230.2	15.12	15.00	-2.00	8000	15	130	1950	8640.0	8649.0	10L	3	
8660.00	75.80	132.70	8538.3	295.3	-178.1	237.3	10.22	9.00	5.00	8000	15	130	1950	8651.0	8658.0	10L	3	
8670.00	77.40	132.20	8540.6	305.0	-184.6	244.5	16.72	16.00	-5.00	8000	15	130	1950	8661.0	8669.0	10L	3	
8680.00	78.60	132.40	8542.7	314.8	-191.2	251.7	12.16	12.00	2.00	10000	15	130	1950	8671.0	8679.0	10L	3	
8690.00	80.40	132.40	8544.5	324.6	-197.9	259.0	18.00	18.00	0.00	10000	15	130	1950	8682.0	8690.0	10L	3	
8700.00	82.00	132.20	8546.1	334.5	-204.5	266.3	16.12	16.00	-2.00	14000		130	1950	8692.0	8700.0	10L	3	
8710.00	83.50	132.20	8547.3	344.4	-211.2	273.7	15.00	15.00	0.00	14000		130	1950	8700.0	8710.0	10L	3	
8720.00	85.10	132.00	8548.3	354.4	-217.8	281.0	16.12	16.00	-2.00	14000		130	1950	8710.0	8720.0	10L	3	
8752.00	89.20	132.60	8549.9	386.3	-239.3	304.7	12.95	12.81	1.87	10000	15	130	1950	8720.0	8752.0	10L	3	

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DRILLING SERVICES
Survey and Drilling Parameters

Customer : Mobil Exploration
Well Number : NV Abo #213 Horizontal
Rig : #169

Field : Vacuum Field
Lease : North Vacuum Abo Unit
Job # : MO-MJ-80010

Surveys for BHA 3 | North Ref : True | Declination : 9.10° | VS Dir : 132.50° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS								
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (ft)	Orientation To (ft)	Tool Face (deg)	BHA No. (#)	Comment
8773.00	90.10	132.50	8550.0	407.3	-253.5	320.1	4.31	4.29	-0.48	10000	15	130	1950				3	
8805.00	88.40	132.00	8550.5	439.3	-275.1	343.8	5.54	-5.31	-1.56	14000		130	1950	8803.0	8805.0	18L	3	
8836.00	87.30	131.30	8551.6	470.3	-295.6	367.0	4.21	-3.55	-2.26	10000	15	130	1950	8805.0	8809.0	18L	3	
8867.00	86.50	130.70	8553.3	501.2	-316.0	390.3	3.22	-2.58	-1.94	10000	15	130	1950				3	
8899.00	88.20	132.20	8554.8	533.2	-337.1	414.3	7.08	5.31	4.69	10000	15	130	1950	8882.0	8897.0	50R	3	
8929.00	89.30	132.70	8555.4	563.2	-357.4	436.4	4.03	3.67	1.67	10000	15	130	1950				3	
8961.00	88.40	132.50	8556.1	595.2	-379.0	460.0	2.88	-2.81	-0.63	14000		130	1950	8959.0	8961.0	170R	3	
8992.00	88.60	130.20	8556.9	626.2	-399.5	483.2	7.44	0.65	-7.42	10000	15	130	1950	8961.0	8962.0	170R	3	
9022.00	89.60	129.40	8557.4	656.1	-418.7	506.3	4.27	3.33	-2.67	10000	15	130	1950				3	
9053.00	90.60	129.10	8557.3	687.1	-438.3	530.3	3.37	3.23	-0.97	10000	15	130	1950				3	
9085.00	91.10	128.70	8556.8	719.0	-458.4	555.2	2.00	1.56	-1.25	14000		130	1950	9083.0	9085.0	130R	3	
9116.00	90.70	129.80	8556.3	750.0	-478.0	579.2	3.78	-1.29	3.55	14000		130	1950	9085.0	9090.0	130R	3	
														9115.0	9116.0	100R	3	
9146.00	91.80	130.50	8555.7	779.9	-497.3	602.1	4.35	3.67	2.33	10000	15	130	1950	9116.0	9125.0	100R	3	
9177.00	90.70	131.00	8555.0	810.9	-517.6	625.6	3.90	-3.55	1.61	10000	15	130	1950	9161.0	9176.0	120R	3	
9208.00	91.60	132.70	8554.4	841.9	-538.2	648.7	6.20	2.90	5.48	14000		130	1950	9207.0	9208.0	120R	3	
9239.00	91.80	134.50	8553.5	872.9	-559.6	671.1	5.84	0.65	5.81	14000		130	1950	9208.0	9222.0	120R	3	
														9238.0	9239.0	120R	3	
9245.00														9239.0	9245.0	120R	3	Trip Out

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DRILLING SERVICES
Survey and Drilling Parameters

Customer : Mobil Exploration
Well Number : NV Abo #213 Horizontal
Rig : #169

Field : Vacuum Field
Lease : North Vacuum Abo Unit
Job # : MO-MJ-80010

Surveys for BHA 4 **North Ref :** True **Declination :** 9.10° **VS Dir :** 132.50° (from Wellhead)

WELLBORE SURVEY										DRILLING PARAMETERS								
Measured Depth (ft)	Incl Angle (deg)	Azi Dir (deg)	Vertical Depth (ft)	Vertical Section (ft)	Coordinates N/S (ft)	Coordinates E/W (ft)	DLS (°/100')	Build Rate (°/100')	Turn Rate (°/100')	WOB (lbs)	RPM	Flow Rate (gpm)	Stand Pipe (psi)	Orientation From (ft)	Orientation To (ft)	Tool Face (deg)	BHA No. (#)	Comment
9270.00	90.60	135.20	8552.8	903.8	-581.5	693.1	4.48	-3.87	2.26	14000		130	1950	9239.0	9250.0	120R	4	
														9269.0	9270.0	170R	4	
9301.00	89.10	135.90	8552.9	934.8	-603.6	714.8	5.34	-4.84	2.26	14000		130	1950	9270.0	9279.0	170R	4	
														9300.0	9301.0	150R	4	
9332.00	86.90	135.70	8554.0	965.7	-625.8	736.4	7.13	-7.10	-0.65	14000		130	1950	9301.0	9310.0	150R	4	
														9331.0	9332.0	150R	4	
9363.00	88.90	135.90	8555.1	996.6	-648.0	758.0	6.48	6.45	0.65	14000		130	1950	9332.0	9335.0	150R	4	
														9362.0	9363.0	HS	4	
9393.00	92.10	137.40	8554.9	1026.6	-669.8	778.6	11.78	10.67	5.00	10000	15	130	1950	9363.0	9382.0	HS	4	
9423.00	92.10	137.40	8553.8	1056.4	-691.9	798.9	0.00	0.00	0.00								4	