

Scientific Drilling



TEXACO E & P INC.

Field: Monument Abo
Site: Lea County, NM
Well: Van Etten #19H
Wellpath: HH - Job #32D0901510
Survey: 9/19/01-9/25/01

SUR: 0-9-20s-37e 467/s + 1650/E
30-025-34528
BHL: P-9-20s-37e 324/s + 668/E

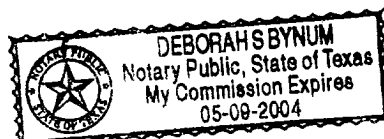
This survey is correct to the best of my knowledge
and is supported by actual field data.

Bob Moody Company Representative

Notorized this date 7th of November, 2001.

Deborah Sue Bynum

Notary Signature
County of Midland
State of Texas



Scientific Drilling International

Survey Report

Company: TEXACO E & P INC.
 Field: Monument Abo
 Site: Lea County, NM
 Well: Van Etten #19H
 Wellpath: VH - Job #32K0901494

Date: 11/6/2001 Time: 12:26:18 Page: 1
 Co-ordinate(N/E) Reference: Site: Lea County, NM, True North
 Vertical (TVD) Reference: SITE 0.0 above Mean Sea Level
 Section (VS) Reference: Well (0.0E,0.0N,97.9Azi)
 Survey Calculation Method: Minimum Curvature

Survey: 9/18/01
 KSRG 0'-6975'

Start Date: 11/6/2001

Company: Scientific Drilling International
 Tool: Keeper

Engineer: Gary DeSpain

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	ClsD ft	ClsA deg
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.00
100.0	0.28	113.64	100.0	0.2	-0.1	0.2	0.2	113.64
200.0	0.33	94.36	200.0	0.8	-0.2	0.7	0.8	106.51
300.0	0.15	78.86	300.0	1.2	-0.2	1.2	1.2	100.56
400.0	0.22	44.76	400.0	1.4	-0.1	1.4	1.4	92.14
500.0	0.15	315.64	500.0	1.4	0.2	1.5	1.5	83.07
600.0	0.29	340.44	600.0	1.2	0.5	1.3	1.4	68.33
700.0	0.26	312.79	700.0	0.9	0.9	1.0	1.4	48.80
800.0	0.25	261.54	800.0	0.5	1.0	0.6	1.2	32.33
900.0	0.35	220.86	900.0	0.1	0.8	0.2	0.8	16.98
1000.0	0.39	206.21	1000.0	-0.1	0.2	-0.1	0.3	132.29
1100.0	0.38	211.26	1100.0	-0.4	-0.4	-0.4	0.6	130.38
1200.0	0.45	219.17	1200.0	-0.7	-1.0	-0.9	1.3	122.09
1300.0	0.64	226.49	1300.0	-1.3	-1.6	-1.5	2.2	122.68
1400.0	0.56	229.15	1400.0	-1.9	-2.3	-2.3	3.3	124.29
1500.0	0.64	225.96	1500.0	-2.6	-3.1	-3.1	4.3	125.05
1600.0	0.70	230.54	1600.0	-3.4	-3.8	-3.9	5.5	125.76
1700.0	0.61	226.52	1700.0	-4.1	-4.6	-4.8	6.6	126.26
1800.0	0.59	228.15	1800.0	-4.8	-5.3	-5.6	7.7	126.40
1900.0	0.11	128.16	1899.9	-5.0	-5.7	-5.9	8.2	125.85
2000.0	0.10	129.28	1999.9	-4.9	-5.8	-5.7	8.2	124.57
2100.0	0.48	61.62	2099.9	-4.5	-5.7	-5.3	7.8	123.02
2200.0	0.56	60.25	2199.9	-3.7	-5.2	-4.5	6.9	120.71
2300.0	0.57	60.63	2299.9	-3.0	-4.7	-3.6	6.0	117.51
2400.0	0.39	62.18	2399.9	-2.3	-4.3	-2.9	5.2	113.81
2500.0	0.32	56.93	2499.9	-1.8	-4.0	-2.4	4.7	110.47
2600.0	0.05	8.04	2599.9	-1.6	-3.8	-2.1	4.4	109.07
2700.0	0.27	228.60	2699.9	-1.7	-3.9	-2.3	4.6	110.25
2800.0	0.58	226.87	2799.9	-2.2	-4.4	-2.8	5.3	112.63
2900.0	0.63	220.35	2899.9	-2.8	-5.2	-3.6	6.3	114.43
3000.0	0.71	227.09	2999.9	-3.5	-6.1	-4.4	7.5	115.91
3100.0	0.93	228.64	3099.9	-4.4	-7.0	-5.4	8.9	117.84
3200.0	1.06	226.28	3199.9	-5.5	-8.2	-6.7	10.6	119.39
3300.0	1.08	225.37	3299.9	-6.7	-9.5	-8.1	12.4	120.36
3400.0	1.12	223.46	3399.9	-7.8	-10.9	-9.4	14.4	120.90
3500.0	1.16	221.30	3499.8	-9.0	-12.3	-10.7	16.4	121.07
3600.0	1.32	219.19	3599.8	-10.1	-14.0	-12.1	18.5	120.97
3700.0	1.40	218.37	3699.8	-11.3	-15.8	-13.6	20.9	120.72
3800.0	1.57	212.16	3799.7	-12.5	-17.9	-15.1	23.5	120.10
3900.0	1.90	207.31	3899.7	-13.6	-20.6	-16.6	26.4	118.89
4000.0	2.18	209.04	3999.6	-14.9	-23.7	-18.3	29.9	117.63
4100.0	2.31	209.22	4099.6	-16.3	-27.1	-20.2	33.8	116.65
4200.0	2.38	210.83	4199.5	-17.8	-30.7	-22.2	37.9	115.94
4300.0	2.58	213.24	4299.4	-19.6	-34.3	-24.5	42.2	115.55
4400.0	2.56	212.67	4399.3	-21.5	-38.1	-27.0	46.7	115.30
4500.0	2.58	211.72	4499.2	-23.3	-41.9	-29.4	51.2	115.03
4600.0	2.34	212.30	4599.1	-25.1	-45.5	-31.6	55.5	114.79
4700.0	1.89	213.68	4699.0	-26.7	-48.6	-33.6	59.1	114.67

Scientific Drilling International

Survey Report

Company: TEXACO E & P INC.
 Field: Monument Abo
 Site: Lea County, NM
 Well: Van Etten #19H
 Wellpath: VH - Job #32K0901494

Date: 11/6/2001 Time: 12:26:18 Page: 2
 Co-ordinate(NE) Reference: Site: Lea County, NM, True North
 Vertical (TVD) Reference: SITE 0.0 above Mean Sea Level
 Section (VS) Reference: Well (0.0E,0.0N,97.9Azi)
 Survey Calculation Method: Minimum Curvature

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	ClsD ft	ClsA deg
4800.0	1.66	211.79	4799.0	-28.0	-51.2	-35.3	62.2	214.58
4900.0	1.69	210.07	4898.9	-29.1	-53.8	-36.8	65.2	214.42
5000.0	1.40	213.19	4998.9	-30.2	-56.0	-38.2	67.8	214.30
5100.0	0.57	218.55	5098.9	-31.0	-57.5	-39.2	69.6	214.31
5200.0	0.33	229.81	5198.9	-31.4	-58.0	-39.7	70.3	214.40
5300.0	0.44	266.99	5298.9	-32.0	-58.2	-40.3	70.9	214.71
5400.0	0.51	283.66	5398.9	-32.8	-58.2	-41.2	71.2	215.29
5500.0	0.41	283.97	5498.9	-33.6	-58.0	-41.9	71.5	215.89
5600.0	0.35	279.20	5598.9	-34.3	-57.8	-42.6	71.8	216.37
5700.0	0.25	261.34	5698.9	-34.8	-57.8	-43.1	72.1	216.71
5800.0	0.22	274.94	5798.9	-35.2	-57.8	-43.5	72.4	216.96
5900.0	0.14	323.01	5898.9	-35.5	-57.7	-43.8	72.4	217.18
6000.0	0.16	338.57	5998.9	-35.6	-57.5	-43.9	72.3	217.37
6100.0	0.57	348.44	6098.9	-35.8	-56.9	-44.1	71.9	217.76
6200.0	0.60	351.01	6198.9	-36.2	-55.9	-44.2	71.3	218.37
6300.0	0.61	351.76	6298.9	-36.5	-54.8	-44.4	70.5	219.00
6400.0	0.37	5.58	6398.8	-36.6	-54.0	-44.4	69.9	219.47
6500.0	0.45	5.75	6498.8	-36.6	-53.3	-44.4	69.3	219.79
6600.0	0.24	345.18	6598.8	-36.7	-52.7	-44.4	68.9	220.12
6700.0	0.24	317.47	6698.8	-37.0	-52.3	-44.6	68.7	220.44
6800.0	0.24	296.87	6798.8	-37.3	-52.1	-44.9	68.8	220.78
6900.0	0.18	274.13	6898.8	-37.7	-52.0	-45.2	68.9	221.05
6975.0	0.43	221.89	6973.8	-38.0	-52.2	-45.6	69.3	221.13

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Survey Report

Company: TEXACO E & P INC.
Field: Monument Abo
Site: Lea County, NM
Well: Van Etten #19H
Wellpath: HH - Job #32D0901510

Date: 11/6/2001 **Time:** 12:30:08 **Page:** 1
Co-ordinate(NE) Reference: Site: Lea County, NM, True North
Vertical (TVD) Reference: SITE 0.0 above Mean Sea Level
Section (VS) Reference: Well (0.0E,0.0N,97.9Azi)
Survey Calculation Method: Minimum Curvature

Survey: 9/19/01-9/25/01
 MWD 7010'-8141'

Start Date: 11/6/2001

Company: SDI w/Unidril
Tool: MWD

Engineer: Lamb/McGhee

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	ClsD ft	ClsA deg
6975.0	0.43	221.89	6973.8	-38.0	-52.2	-45.6	69.3	221.13
7010.0	0.43	221.89	7008.8	-38.1	-52.4	-45.7	69.5	221.14
7068.0	25.40	97.90	7065.0	-25.6	-54.3	-33.3	63.7	211.58
7100.0	38.70	98.80	7092.0	-8.7	-56.7	-16.6	59.1	96.30
7132.0	51.40	100.80	7114.6	13.9	-60.6	5.7	60.9	74.65
7164.0	64.60	100.10	7131.5	41.0	-65.5	32.3	73.1	53.76
7193.0	76.50	99.10	7141.2	68.3	-70.1	59.2	91.7	39.80
7225.0	83.20	95.40	7146.8	99.7	-74.0	90.4	116.9	29.30
7256.0	83.60	93.70	7150.4	130.5	-76.5	121.1	143.3	22.27
7287.0	83.60	94.20	7153.8	161.2	-78.6	151.9	171.0	17.36
7319.0	84.10	94.90	7157.2	193.0	-81.1	183.6	200.7	13.84
7350.0	81.10	95.50	7161.2	223.7	-83.9	214.2	230.0	11.39
7382.0	81.00	95.70	7166.2	255.3	-87.0	245.7	260.6	09.50
7413.0	77.30	94.50	7172.0	285.7	-89.7	276.0	290.2	08.01
7444.0	77.70	94.60	7178.8	315.9	-92.1	306.1	319.7	06.74
7475.0	77.80	95.00	7185.3	346.1	-94.6	336.3	349.4	05.72
7507.0	80.10	93.90	7191.5	377.5	-97.1	367.6	380.2	04.79
7538.0	80.90	94.10	7196.6	408.0	-99.2	398.1	410.3	03.99
7568.0	82.00	94.80	7201.0	437.6	-101.5	427.7	439.6	03.35
7600.0	82.60	94.60	7205.3	469.3	-104.1	459.3	471.0	02.77
7632.0	80.90	93.90	7209.9	500.9	-106.5	490.9	502.3	02.24
7663.0	81.20	94.40	7214.7	531.4	-108.7	521.4	532.7	01.77
7695.0	79.20	92.00	7220.2	562.8	-110.4	552.9	563.8	01.29
7727.0	79.70	93.00	7226.1	594.2	-111.8	584.4	595.0	00.83
7759.0	79.00	92.00	7232.0	625.5	-113.2	615.8	626.1	00.41
7789.0	78.50	92.00	7237.8	654.7	-114.2	645.2	655.2	00.04
7821.0	78.50	90.30	7244.2	685.9	-114.8	676.5	686.2	99.63
7853.0	78.70	91.70	7250.5	717.0	-115.4	707.9	717.2	99.26
7884.0	78.90	94.60	7256.5	747.3	-117.1	738.3	747.5	99.01
7915.0	78.20	96.50	7262.7	777.7	-120.0	768.5	777.8	98.87
7947.0	77.50	97.30	7269.4	809.0	-123.7	799.6	809.1	98.80
7979.0	77.60	97.10	7276.3	840.2	-127.7	830.6	840.3	98.74
8010.0	77.80	96.70	7282.9	870.5	-131.3	860.6	870.6	98.67
8041.0	80.00	95.90	7288.9	900.9	-134.6	890.9	901.0	98.59
8072.0	80.20	95.70	7294.2	931.4	-137.7	921.2	931.5	98.50
8109.0	81.40	94.30	7300.2	967.9	-140.9	957.6	967.9	98.37
8141.0	81.40	94.30	7304.9	999.5	-143.3	989.2	999.5	98.24