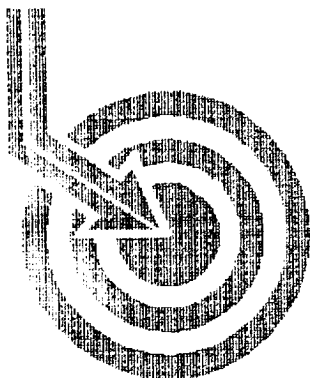




Scientific Drilling



TEXACO E & P INC.

Field: Vacuum Abo
Site: Lea County, NM
Well: State "BA" #15
Wellpath: HH - Job #32D0801476
Survey: 8/29/01-9/4/01

30-025-34945
Sur: C-36-175-34e
612N & 2135W

BHL: G-36-175-34e
1797N & 3055W

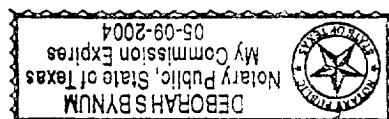
This survey is correct to the best of my knowledge
and is supported by actual field data.

Steve Mandy Company Representative

Notorized this date 8th of October, 2001.

Deborah Sue Dynum

Notary Signature
County of Midland
State of Texas



Scientific Drilling International

Survey Report

Company: TEXACO E & P INC. Field: Vacuum Abo Site: Lea County, NM Well: State #15 Wellpath: VH - Job #32K0801479	Date: 10/8/2001 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,142.2Azi) Survey Calculation Method: Minimum Curvature	Time: 10:08:55 Page: 1
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Survey: 8/29/01 KSRG 0'-9088'	Start Date: 10/8/2001
Company: Scientific Drilling International Tool: Keeper	Engineer: Jeff Cossey

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	0.23	105.57	100.0	0.2	-0.1	0.2	0.2	105.57
200.0	0.13	147.90	200.0	0.4	-0.2	0.4	0.5	114.52
300.0	0.19	179.79	300.0	0.7	-0.5	0.5	0.7	132.52
400.0	0.21	204.49	400.0	0.9	-0.8	0.4	0.9	151.55
500.0	0.33	181.65	500.0	1.2	-1.3	0.3	1.3	164.47
600.0	0.29	179.99	600.0	1.6	-1.8	0.3	1.8	169.27
700.0	0.27	204.46	700.0	1.9	-2.3	0.2	2.3	173.88
800.0	0.28	220.13	800.0	2.1	-2.7	0.0	2.7	180.27
900.0	0.43	270.73	900.0	1.9	-2.8	-0.5	2.9	190.85
1000.0	0.38	296.97	1000.0	1.4	-2.7	-1.2	3.0	204.33
1100.0	0.43	318.31	1100.0	0.7	-2.3	-1.8	2.9	217.94
1200.0	0.56	323.68	1200.0	-0.2	-1.6	-2.3	2.8	235.43
1300.0	0.54	346.71	1300.0	-1.1	-0.7	-2.7	2.8	254.81
1400.0	0.84	24.19	1400.0	-1.8	0.4	-2.5	2.5	278.95
1500.0	1.07	31.81	1500.0	-2.5	1.9	-1.7	2.5	317.30
1600.0	1.06	28.39	1599.9	-3.2	3.5	-0.8	3.6	347.29
1700.0	0.89	17.66	1699.9	-4.0	5.0	-0.1	5.0	358.79
1800.0	0.87	14.48	1799.9	-4.9	6.5	0.3	6.5	2.82
1900.0	0.80	8.36	1899.9	-5.9	7.9	0.6	7.9	4.41
2000.0	0.77	7.42	1999.9	-6.8	9.3	0.8	9.3	4.92
2100.0	0.76	15.58	2099.9	-7.7	10.6	1.1	10.6	5.74
2200.0	0.62	29.76	2199.9	-8.3	11.7	1.5	11.8	7.36
2300.0	0.59	28.51	2299.9	-8.7	12.6	2.0	12.8	9.12
2400.0	0.63	31.77	2399.9	-9.1	13.5	2.6	13.8	10.71
2500.0	1.06	36.18	2499.9	-9.6	14.7	3.4	15.1	12.97
2600.0	1.44	38.77	2599.8	-10.1	16.5	4.7	17.1	16.02
2700.0	1.42	44.83	2699.8	-10.6	18.3	6.4	19.4	19.22
2800.0	1.16	54.37	2799.8	-10.7	19.8	8.1	21.4	22.21
2900.0	1.02	64.54	2899.8	-10.5	20.8	9.7	22.9	25.06
3000.0	0.29	108.82	2999.7	-10.1	21.1	10.8	23.7	27.04
3100.0	0.86	97.12	3099.7	-9.3	20.9	11.7	24.0	29.33
3200.0	0.82	97.22	3199.7	-8.3	20.7	13.2	24.6	32.49
3300.0	0.89	98.63	3299.7	-7.2	20.5	14.7	25.2	35.58
3400.0	0.67	113.88	3399.7	-6.1	20.2	16.0	25.7	38.40
3500.0	0.64	123.38	3499.7	-5.1	19.6	17.0	25.9	40.88
3600.0	0.70	125.81	3599.7	-4.0	18.9	17.9	26.1	43.43
3700.0	0.80	135.08	3699.7	-2.7	18.1	18.9	26.2	46.29
3800.0	0.79	135.65	3799.7	-1.3	17.1	19.9	26.2	49.32
3900.0	0.89	133.59	3899.7	0.1	16.1	20.9	26.4	52.49
4000.0	0.95	137.39	3999.7	1.7	14.9	22.1	26.6	55.92
4100.0	1.14	136.73	4099.6	3.5	13.6	23.3	27.0	59.74
4200.0	1.22	134.78	4199.6	5.6	12.1	24.7	27.6	63.90
4300.0	1.23	134.43	4299.6	7.7	10.6	26.3	28.3	67.98
4400.0	1.33	134.22	4399.6	9.9	9.1	27.9	29.3	71.99
4500.0	1.52	138.22	4499.5	12.4	7.3	29.6	30.5	76.21
4600.0	1.86	143.40	4599.5	15.3	5.0	31.4	31.8	81.01
4700.0	1.98	146.51	4699.4	18.7	2.2	33.4	33.4	86.18

Scientific Drilling International

Survey Report

Company: TEXACO E & P INC.
 Field: Vacuum Abo
 Site: Lea County, NM
 Well: State #15
 Wellpath: VH - Job #32K0801479

Date: 10/8/2001 Time: 10:08:55 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,142.2Azi)
 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	2.03	148.71	4799.4	22.2	-0.7	35.2	35.2	91.18
4900.0	2.09	150.34	4899.3	25.7	-3.8	37.1	37.2	95.89
5000.0	1.97	150.86	4999.3	29.2	-6.9	38.8	39.4	100.10
5100.0	1.71	153.91	5099.2	32.4	-9.8	40.3	41.4	103.61
5200.0	1.76	154.23	5199.2	35.4	-12.5	41.6	43.4	106.69
5300.0	1.65	155.93	5299.1	38.3	-15.2	42.9	45.5	109.49
5400.0	1.42	157.68	5399.1	40.9	-17.6	43.9	47.3	111.87
5500.0	1.30	156.53	5499.0	43.1	-19.8	44.8	49.0	113.84
5600.0	1.14	161.76	5599.0	45.2	-21.8	45.6	50.6	115.55
5700.0	0.88	162.92	5699.0	46.8	-23.5	46.1	51.8	116.97
5800.0	0.71	170.01	5799.0	48.1	-24.8	46.5	52.7	118.11
5900.0	0.57	175.19	5899.0	49.1	-25.9	46.6	53.4	119.08
6000.0	0.65	185.16	5999.0	49.9	-27.0	46.6	53.9	120.07
6100.0	0.81	189.35	6099.0	50.8	-28.3	46.4	54.4	121.31
6200.0	0.85	184.21	6199.0	51.8	-29.7	46.3	55.0	122.68
6300.0	0.92	180.17	6299.0	53.0	-31.2	46.2	55.8	124.05
6400.0	0.94	178.72	6398.9	54.3	-32.9	46.2	56.7	125.40
6500.0	1.05	179.08	6498.9	55.7	-34.6	46.3	57.8	126.78
6600.0	1.04	176.58	6598.9	57.2	-36.4	46.3	58.9	128.16
6700.0	0.89	178.13	6698.9	58.6	-38.1	46.4	60.1	129.38
6800.0	0.91	181.41	6798.9	59.8	-39.7	46.4	61.1	130.51
6900.0	0.91	184.52	6898.9	61.0	-41.3	46.3	62.0	131.67
7000.0	0.82	184.92	6998.9	62.1	-42.8	46.2	63.0	132.77
7100.0	0.76	188.99	7098.9	63.1	-44.1	46.1	63.8	133.78
7200.0	0.75	189.91	7198.8	64.0	-45.4	45.8	64.5	134.74
7300.0	0.85	199.41	7298.8	64.8	-46.8	45.5	65.2	135.80
7400.0	1.00	201.99	7398.8	65.7	-48.3	44.9	65.9	137.07
7500.0	1.21	203.41	7498.8	66.6	-50.1	44.2	66.8	138.58
7600.0	1.27	203.56	7598.8	67.7	-52.0	43.3	67.7	140.24
7700.0	1.33	203.18	7698.8	68.8	-54.1	42.4	68.8	141.93
7800.0	1.36	207.71	7798.7	69.8	-56.2	41.4	69.8	143.65
7900.0	1.23	210.65	7898.7	70.7	-58.2	40.3	70.8	145.31
8000.0	1.11	212.29	7998.7	71.4	-60.0	39.2	71.7	146.81
8100.0	0.71	213.78	8098.7	71.9	-61.3	38.4	72.3	147.96
8200.0	0.63	218.14	8198.7	72.3	-62.2	37.7	72.8	148.81
8300.0	0.42	223.28	8298.7	72.5	-62.9	37.1	73.1	149.49
8400.0	0.36	217.63	8398.7	72.6	-63.5	36.6	73.3	149.99
8500.0	0.33	212.98	8498.6	72.8	-63.9	36.3	73.5	150.42
8600.0	0.27	203.05	8598.6	73.0	-64.4	36.0	73.8	150.76
8700.0	0.25	210.66	8698.6	73.2	-64.8	35.8	74.1	151.05
8800.0	0.28	206.72	8798.6	73.4	-65.2	35.6	74.3	151.35
8900.0	0.43	229.30	8898.6	73.5	-65.7	35.2	74.5	151.79
9000.0	0.27	222.55	8998.6	73.5	-66.1	34.8	74.7	152.24
9088.0	0.40	234.13	9086.6	73.6	-66.4	34.4	74.8	152.62

Scientific Drilling International

Survey Report

Company: TEXACO E & P INC.
 Field: Vacuum Abo
 Site: Lea County, NM
 Well: State #15
 Wellpath: HH - Job #32D0801476

Date: 10/8/2001
 Co-ordinate(NE) Reference:
 Vertical (TVD) Reference:
 Section (VS) Reference:
 Survey Calculation Method:

Time: 10:14:48
 Site: Lea County, NM, True North
 SITE 0.0 above Mean Sea Level
 Well (0.0E,0.0N,142.2Azi)
 Minimum Curvature

Page: 1

Survey: 8/29/01-9/4/01
 MWD 9180'-10592'

Start Date: 10/8/2001

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
9086.0	0.40	233.95	9084.6	73.6	-66.4	34.4	74.8	152.61
9180.0	43.30	126.40	9170.0	106.2	-86.7	61.4	106.3	144.70
9243.0	70.10	130.00	9204.2	156.8	-119.2	102.2	157.0	139.38
9263.0	78.10	133.40	9209.7	175.7	-132.0	116.6	176.1	138.55
9305.0	88.90	143.30	9214.5	217.2	-163.1	144.2	217.7	138.52
9336.0	89.70	145.30	9214.9	248.2	-188.3	162.3	248.6	139.24
9368.0	91.00	145.60	9214.7	280.2	-214.6	180.4	280.4	139.95
9400.0	91.30	145.40	9214.0	312.1	-241.0	198.6	312.2	140.51
9431.0	90.30	145.30	9213.6	343.1	-266.5	216.2	343.1	140.95
9462.0	83.80	146.70	9215.2	373.9	-292.1	233.5	374.0	141.37
9493.0	81.50	147.80	9219.2	404.6	-318.0	250.1	404.6	141.81
9525.0	81.60	147.30	9223.9	436.1	-344.7	267.1	436.1	142.23
9556.0	80.30	144.10	9228.7	466.6	-370.0	284.3	466.6	142.46
9588.0	79.80	142.60	9234.3	498.1	-395.3	303.2	498.1	142.51
9620.0	81.60	142.30	9239.4	529.7	-420.3	322.4	529.7	142.51
9653.0	84.20	142.90	9243.5	562.5	-446.3	342.3	562.5	142.52
9683.0	84.70	142.60	9246.4	592.3	-470.1	360.4	592.3	142.53
9716.0	85.30	143.40	9249.3	625.2	-496.3	380.1	625.2	142.55
9744.0	85.70	143.40	9251.5	653.1	-518.8	396.8	653.1	142.59
9779.0	86.60	141.50	9253.8	688.0	-546.4	418.1	688.0	142.58
9810.0	87.80	137.90	9255.4	718.9	-570.1	438.1	718.9	142.46
9840.0	88.30	138.50	9256.4	748.8	-592.4	458.1	748.8	142.29
9871.0	91.20	139.90	9256.5	779.8	-615.9	478.3	779.8	142.16
9903.0	91.20	140.20	9255.8	811.8	-640.4	498.9	811.8	142.08
9933.0	91.60	141.90	9255.1	841.8	-663.7	517.7	841.8	142.04
9964.0	92.30	142.20	9254.0	872.7	-688.1	536.8	872.7	142.04
9996.0	94.10	143.90	9252.3	904.7	-713.7	556.0	904.7	142.08
10027.0	94.30	144.80	9250.0	935.6	-738.8	574.0	935.6	142.15
10058.0	93.80	144.70	9247.8	966.5	-764.1	591.8	966.5	142.24
10090.0	90.80	142.90	9246.5	998.4	-789.8	610.7	998.4	142.29
10121.0	89.90	142.50	9246.3	1029.4	-814.5	629.5	1029.4	142.30
10153.0	90.10	142.00	9246.3	1061.4	-839.8	649.1	1061.4	142.30
10185.0	88.60	141.00	9246.7	1093.4	-864.9	669.0	1093.4	142.28
10216.0	88.80	140.70	9247.4	1124.4	-888.9	688.6	1124.4	142.24
10280.0	89.20	141.50	9248.5	1188.4	-938.7	728.8	1188.4	142.17
10312.0	89.00	143.60	9249.0	1220.4	-964.1	748.2	1220.4	142.18
10344.0	89.70	143.40	9249.4	1252.4	-989.8	767.3	1252.4	142.22
10375.0	89.50	143.40	9249.6	1283.4	-1014.7	785.7	1283.4	142.25
10407.0	89.50	142.80	9249.9	1315.3	-1040.3	805.0	1315.3	142.27
10437.0	90.10	143.50	9250.0	1345.3	-1064.3	822.9	1345.3	142.29
10468.0	88.50	142.50	9250.4	1376.3	-1089.0	841.6	1376.3	142.30
10500.0	87.40	140.80	9251.5	1408.3	-1114.1	861.4	1408.3	142.29
10531.0	85.50	140.00	9253.4	1439.2	-1138.0	881.2	1439.2	142.25
10560.0	86.70	140.10	9255.4	1468.1	-1160.1	899.7	1468.1	142.20
10592.0	86.70	140.10	9257.2	1500.1	-1184.6	920.2	1500.1	142.16