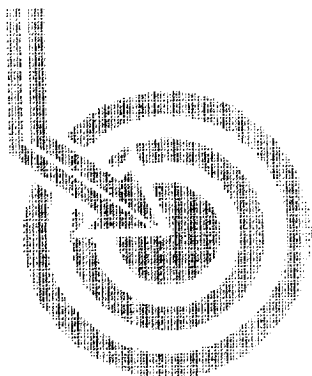




Scientific Drilling



TEXACO E & P INC.

Field: Vacuum Glorieta West

Site: Lea County, NM

Well: VGWU #72

Wellpath: HH - Job #32D0999256

Survey: 9/28/99-10/3-99

SUR: 2008/N & 990/W
E - 36-17s-34e

BHL: 2168/W & 2542/E
6-36-17s-34e

API #: 30-025-30779

Gyro Footage: 0'-5865'

MWD Footage: 5847'-7626'

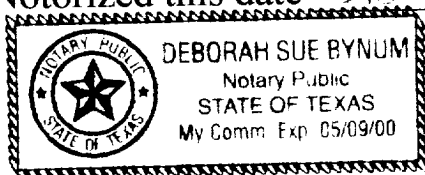
Survey: Sec. 36, T17S, R34E

K.O.P.: 5800'

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

Scott Moody Company Representative

Notorized this date 25th of March, 2000.



Deborah Sue Bynum
Midland Co, Tx

SCIENTIFIC DRILLING SURVEY REPORT

Company: TEXACO E & P INC.
Field: Vacuum Glorieta West
Site: Lea County, NM
Well: VGWU #72
Wellpath: VH - Job #32K0999255

Date: 3/23/2000 Time: 16:26:07 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: Slot (0.0E,0.0N,0.0Azi)
Survey Calculation Method: Minimum Curvature

Survey: 9/28/99
KSRG 0'-5865'

Start Date: 11/9/1999

Company: S.D.I.
Tool: KEEPER

Engineer: Kyle Shoup

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS d/100ft	ClsA deg	ClsD ft
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.0
100.0	0.12	296.06	100.0	0.0	-0.1	0.0	0.12	296.06	0.1
200.7	0.15	328.75	200.7	0.2	-0.3	0.2	0.08	308.56	0.3
301.2	0.23	0.01	301.2	0.5	-0.3	0.5	0.13	327.92	0.6
400.9	0.30	348.09	400.9	1.0	-0.4	1.0	0.09	338.74	1.0
500.0	0.29	342.98	500.0	1.5	-0.5	1.5	0.03	340.98	1.6
601.1	0.31	338.91	601.1	2.0	-0.7	2.0	0.03	340.95	2.1
700.2	0.30	331.76	700.2	2.4	-0.9	2.4	0.04	339.83	2.6
801.2	0.26	288.77	801.2	2.8	-1.2	2.8	0.21	335.74	3.0
900.5	0.16	278.14	900.5	2.8	-1.6	2.8	0.11	330.79	3.3
1000.6	0.11	319.40	1000.6	2.9	-1.8	2.9	0.11	328.62	3.4
1101.4	0.10	308.36	1101.4	3.1	-1.9	3.1	0.02	327.89	3.6
1201.0	0.16	334.47	1201.0	3.2	-2.1	3.2	0.08	327.70	3.8
1301.0	0.18	330.59	1301.0	3.5	-2.2	3.5	0.02	328.03	4.1
1400.4	0.16	298.63	1400.4	3.7	-2.4	3.7	0.10	327.24	4.4
1500.3	0.23	318.53	1500.3	3.9	-2.6	3.9	0.10	326.06	4.7
1600.0	0.19	325.84	1600.0	4.2	-2.9	4.2	0.05	325.76	5.1
1700.3	0.31	353.06	1700.3	4.6	-3.0	4.6	0.17	327.06	5.5
1800.2	0.30	358.79	1800.2	5.2	-3.0	5.2	0.03	329.51	6.0
1900.7	0.32	359.54	1900.7	5.7	-3.0	5.7	0.02	331.90	6.5
2000.2	0.32	12.62	2000.2	6.2	-3.0	6.2	0.07	334.47	6.9
2100.5	0.29	21.64	2100.5	6.8	-2.8	6.8	0.06	337.28	7.3
2200.3	0.25	36.05	2200.3	7.2	-2.6	7.2	0.08	340.01	7.6
2301.0	0.35	44.82	2301.0	7.6	-2.3	7.6	0.11	343.36	7.9
2400.7	0.33	51.55	2400.7	8.0	-1.8	8.0	0.04	347.11	8.2
2500.9	0.61	63.30	2500.9	8.4	-1.1	8.4	0.29	352.39	8.4
2600.4	0.71	62.84	2600.4	8.9	-0.1	8.9	0.10	359.38	8.9
2700.7	0.66	66.92	2700.7	9.4	1.0	9.4	0.07	6.00	9.5
2800.5	0.76	68.38	2800.5	9.9	2.1	9.9	0.10	12.19	10.1
2900.8	0.71	69.49	2900.7	10.3	3.3	10.3	0.05	17.87	10.9
3001.0	0.79	67.21	3000.9	10.8	4.6	10.8	0.09	22.81	11.7
3100.9	0.81	65.62	3100.8	11.4	5.8	11.4	0.03	27.12	12.8
3200.6	0.85	67.13	3200.5	12.0	7.2	12.0	0.05	30.89	13.9
3300.9	0.80	60.34	3300.8	12.6	8.4	12.6	0.11	33.85	15.2
3401.2	0.78	64.28	3401.1	13.2	9.7	13.2	0.06	36.15	16.4
3500.0	0.80	61.57	3499.9	13.9	10.9	13.9	0.04	38.15	17.6
3600.3	0.82	59.41	3600.2	14.6	12.1	14.6	0.04	39.78	18.9
3700.4	0.87	60.67	3700.3	15.3	13.4	15.3	0.05	41.22	20.3
3800.6	0.88	57.98	3800.5	16.1	14.7	16.1	0.04	42.47	21.8
3900.8	0.91	59.87	3900.6	16.9	16.1	16.9	0.04	43.56	23.3
4000.2	0.89	57.61	4000.0	17.7	17.4	17.7	0.04	44.50	24.8
4101.1	0.84	54.40	4100.9	18.5	18.6	18.5	0.07	45.17	26.3
4201.2	0.87	53.54	4201.0	19.4	19.9	19.4	0.03	45.64	27.8
4301.6	0.91	48.57	4301.4	20.4	21.1	20.4	0.09	45.92	29.3
4400.7	0.94	47.84	4400.5	21.5	22.3	21.5	0.03	46.04	30.9
4501.2	0.93	47.58	4501.0	22.6	23.5	22.6	0.01	46.13	32.6
4600.2	0.81	55.30	4600.0	23.5	24.6	23.5	0.17	46.35	34.1
4700.9	0.89	53.08	4700.6	24.4	25.9	24.4	0.09	46.67	35.5

SCIENTIFIC DRILLING SURVEY REPORT

Company: TEXACO E & P INC.
Field: Vacuum Gorieta West
Site: Lea County, NM
Well: VGWU #72
Wellpath: VH - Job #32K0999255

Date: 3/23/2000

Time: 16:26:07

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:

Slot (0.0E,0.0N,0.0Azi)

Survey Calculation Method:

Minimum Curvature

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS d/100ft	ClsA deg	ClsD ft
4800.9	1.11	47.46	4800.6	25.5	27.2	25.5	0.24	46.83	37.3
4901.1	1.13	52.83	4900.8	26.8	28.7	26.8	0.11	46.99	39.2
5000.4	0.94	46.47	5000.1	27.9	30.1	27.9	0.22	47.12	41.0
5100.3	1.00	38.71	5100.0	29.2	31.2	29.2	0.14	46.94	42.7
5201.1	0.84	31.63	5200.8	30.5	32.1	30.5	0.19	46.52	44.3
5301.2	0.82	35.99	5300.9	31.7	32.9	31.7	0.07	46.12	45.7
5400.4	0.76	41.58	5400.0	32.7	33.8	32.7	0.10	45.91	47.1
5500.4	0.67	42.27	5500.0	33.7	34.6	33.7	0.09	45.80	48.3
5600.0	0.63	59.64	5599.6	34.4	35.5	34.4	0.20	45.91	49.4
5700.1	0.57	45.58	5699.7	35.0	36.3	35.0	0.16	46.06	50.4
5800.8	0.66	48.69	5800.4	35.7	37.1	35.7	0.10	46.08	51.5
5865.5	0.72	61.31	5865.1	36.2	37.8	36.2	0.25	46.22	52.3

SCIENTIFIC DRILLING SURVEY REPORT

Company: TEXACO E & P INC.
Field: Vacuum Glorieta West
Site: Lea County, NM
Well: VGWU #72
Wellpath: HH - Job #32D0999256

Date: 3/23/2000 Time: 16:32:53 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: Slot (0.0E,0.0N,0.0Azi)
Survey Calculation Method: Minimum Curvature

Survey: 9/28/99-10/3-99
KSRG 0'-5865'/MWD 5890'-7626'

Start Date: 12/10/1999

Company: SDI/Ryan
Tool: KEEPER

Engineer: Shoup/Bergeron

SURVEY

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS d/100ft	ClsA deg	ClsD ft
5847.0	0.07	58.00	5846.6	36.1	37.6	36.1	0.00	46.17	52.1
5890.0	26.80	88.80	5888.0	36.3	47.5	36.4	62.19	52.59	59.8
5900.0	32.70	91.30	5896.7	36.3	52.5	36.4	60.28	55.31	63.8
5910.0	38.20	91.30	5904.9	36.2	58.2	36.3	55.00	58.16	68.6
5920.0	43.60	92.70	5912.4	35.9	64.8	36.0	54.77	60.98	74.1
5935.0	52.10	95.20	5922.5	35.2	75.9	35.3	57.99	65.14	83.6
5965.0	67.30	96.60	5937.6	32.5	101.6	32.6	50.82	72.26	106.6
5997.0	74.90	96.60	5947.9	29.0	131.6	29.1	23.75	77.57	134.8
6029.0	81.50	96.20	5954.5	25.5	162.7	25.6	20.66	81.09	164.7
6061.0	86.80	95.90	5957.7	22.2	194.4	22.3	16.59	83.49	195.6
6093.0	90.40	96.20	5958.5	18.8	226.2	18.9	11.29	85.25	227.0
6124.0	91.40	95.90	5958.0	15.5	257.0	15.6	3.37	86.54	257.5
6156.0	90.00	95.90	5957.6	12.2	288.8	12.3	4.37	87.57	289.1
6186.0	88.90	95.50	5957.9	9.3	318.7	9.3	3.90	88.34	318.8
6218.0	89.00	95.20	5958.5	6.3	350.5	6.4	0.99	88.97	350.6
6250.0	89.20	94.80	5959.0	3.5	382.4	3.6	1.40	89.48	382.4
6282.0	89.00	96.20	5959.5	0.4	414.2	0.5	4.42	89.94	414.3
6314.0	89.30	95.90	5960.0	-3.0	446.1	-2.9	1.33	90.38	446.1
6345.0	89.50	95.50	5960.3	-6.0	476.9	-5.9	1.44	90.72	477.0
6377.0	90.30	96.20	5960.4	-9.3	508.7	-9.2	3.32	91.05	508.8
6408.0	88.70	98.00	5960.6	-13.1	539.5	-13.0	7.77	91.39	539.7
6439.0	89.30	98.00	5961.2	-17.4	570.2	-17.3	1.94	91.75	570.5
6471.0	89.30	97.60	5961.6	-21.8	601.9	-21.7	1.25	92.07	602.3
6503.0	89.00	97.30	5962.0	-25.9	633.6	-25.8	1.33	92.34	634.2
6535.0	88.30	96.60	5962.8	-29.8	665.4	-29.7	3.09	92.56	666.0
6661.0	88.70	98.30	5966.1	-46.1	790.3	-46.0	1.39	93.34	791.6
6693.0	90.00	99.10	5966.5	-51.0	821.9	-50.9	4.77	93.55	823.5
6725.0	91.50	99.40	5966.0	-56.1	853.5	-56.0	4.78	93.76	855.3
6756.0	90.60	99.40	5965.5	-61.2	884.1	-61.1	2.90	93.96	886.2
6787.0	89.10	96.90	5965.6	-65.6	914.7	-65.5	9.40	94.10	917.1
6820.0	88.80	96.20	5966.2	-69.3	947.5	-69.2	2.31	94.19	950.1
6852.0	88.40	96.60	5966.9	-72.9	979.3	-72.8	1.77	94.26	982.0
6883.0	88.40	96.90	5967.8	-76.5	1010.1	-76.5	0.97	94.33	1013.0
6915.0	87.60	96.90	5968.9	-80.4	1041.8	-80.3	2.50	94.41	1044.9
6947.0	86.30	95.90	5970.6	-83.9	1073.6	-83.9	5.12	94.47	1076.9
6979.0	85.90	95.50	5972.8	-87.1	1105.4	-87.0	1.77	94.51	1108.8
7011.0	90.40	95.20	5973.8	-90.1	1137.2	-90.0	14.09	94.53	1140.8
7042.0	91.40	94.80	5973.4	-92.8	1168.1	-92.7	3.47	94.54	1171.7
7073.0	94.30	95.20	5971.8	-95.5	1198.9	-95.4	9.44	94.55	1202.7
7105.0	91.60	96.20	5970.2	-98.7	1230.7	-98.6	9.00	94.58	1234.7
7135.0	90.50	95.90	5969.6	-101.8	1260.5	-101.7	3.80	94.62	1264.6
7168.0	89.30	95.20	5969.7	-105.0	1293.4	-104.9	4.21	94.64	1297.6
7199.0	87.90	94.80	5970.4	-107.7	1324.2	-107.6	4.70	94.65	1328.6
7232.0	87.90	96.20	5971.6	-110.9	1357.1	-110.8	4.24	94.67	1361.6
7264.0	89.60	96.60	5972.3	-114.5	1388.9	-114.4	5.46	94.71	1393.6
7296.0	88.40	96.60	5972.9	-118.1	1420.6	-118.0	3.75	94.75	1425.6
7327.0	90.00	97.30	5973.3	-121.9	1451.4	-121.8	5.63	94.80	1456.5
7359.0	90.80	98.70	5973.1	-126.3	1483.1	-126.2	5.04	94.87	1488.5

SCIENTIFIC DRILLING SURVEY REPORT

Company: TEXACO E & P INC.
Field: Vacuum Gorieta West
Site: Lea County, NM
Well: VGWU #72
Wellpath: HH - Job #32D0999256

Date: 3/23/2000

Time: 16:32:53

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:

Slot (0.0E,0.0N,0.0Azi)

Survey Calculation Method:

Minimum Curvature

SURVEY

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS d/100ft	ClsA deg	ClsD ft
7391.0	90.10	98.30	5972.9	-131.1	1514.8	-131.0	2.52	94.95	1520.4
7422.0	90.60	98.70	5972.7	-135.6	1545.4	-135.6	2.07	95.02	1551.4
7454.0	89.30	98.30	5972.7	-140.4	1577.1	-140.3	4.25	95.09	1583.3
7485.0	90.70	98.30	5972.7	-144.9	1607.7	-144.8	4.52	95.15	1614.2
7516.0	90.40	97.30	5972.4	-149.1	1638.4	-149.0	3.37	95.20	1645.2
7548.0	85.60	95.50	5973.5	-152.6	1670.2	-152.5	16.02	95.22	1677.2
7579.0	85.00	95.20	5976.0	-155.5	1701.0	-155.4	2.16	95.22	1708.1
7587.0	85.00	95.20	5976.7	-156.2	1708.9	-156.1	0.00	95.22	1716.0
7626.0	85.00	95.20	5980.1	-159.7	1747.6	-159.7	0.00	95.22	1754.9

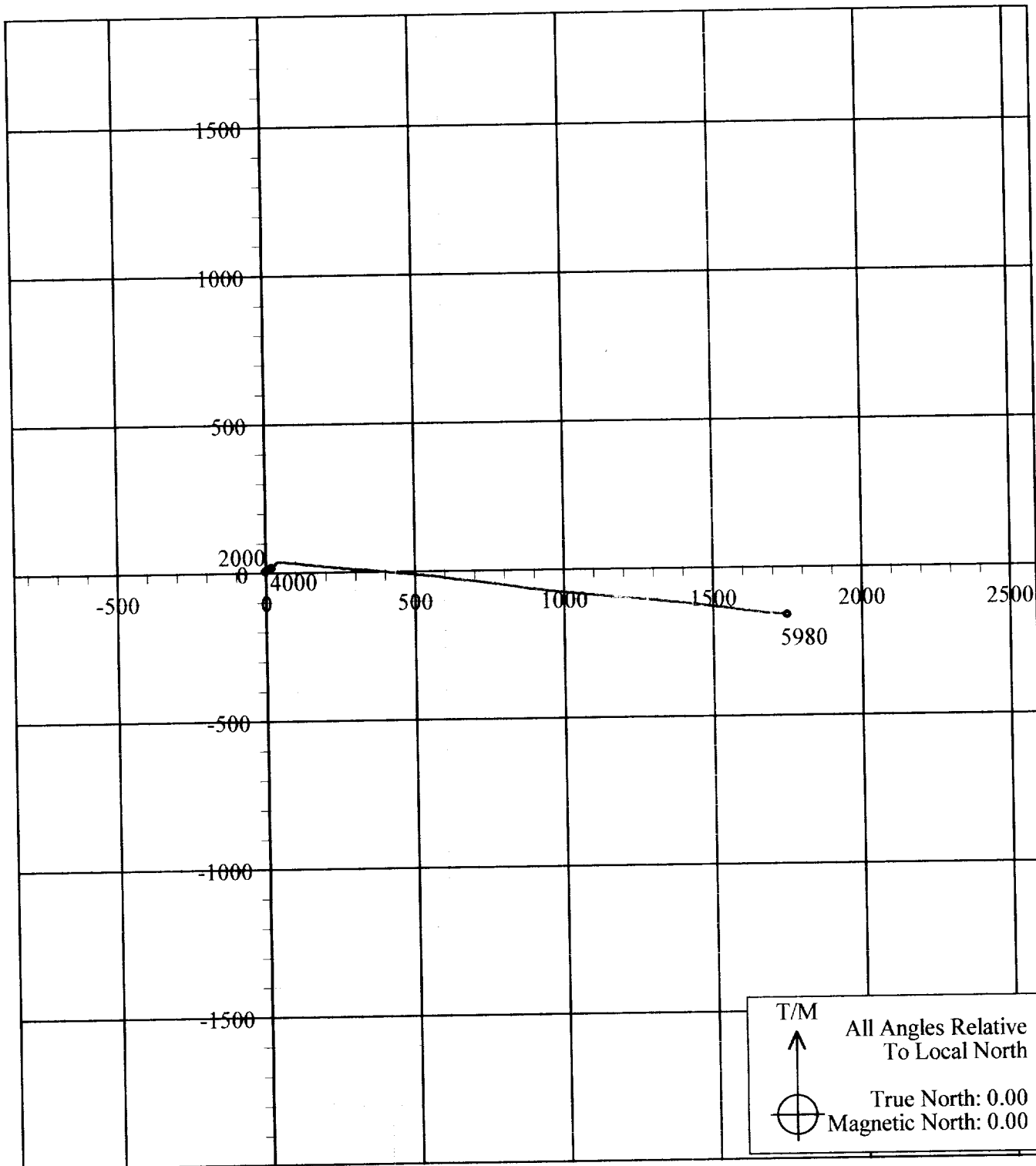


**Scientific
Drilling**

TEXACO E & P INC
Field: Vacuum Glorieta West
Site: Lea County, NM
Well: VGWU #72
Wellpath: HH - Job #32D0999256
Survey: 9/28/99-10/3-99



South(-)/North(+) [500ft/in]

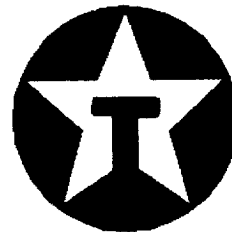


West(-)/East(+) [500ft/in]

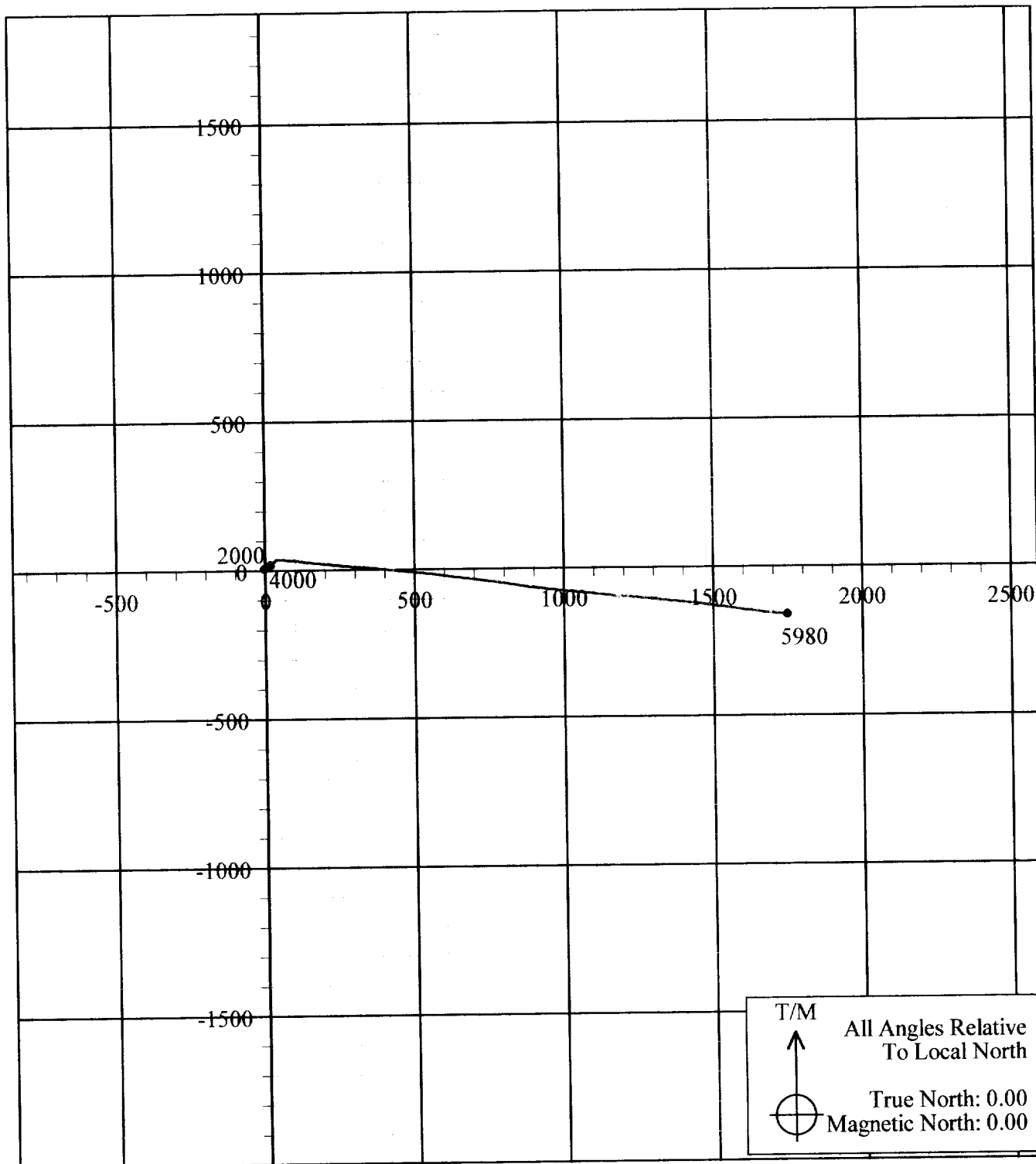


**Scientific
Drilling**

TEXACO E & P INC
Field: Vacuum Glorieta West
Site: Lea County, NM
Well: VGWU #72
Wellpath: HH - Job #32D0999256
Survey: 9/28/99-10/3-99



South(-)/North(+) [500ft/in]



West(-)/East(+) [500ft/in]