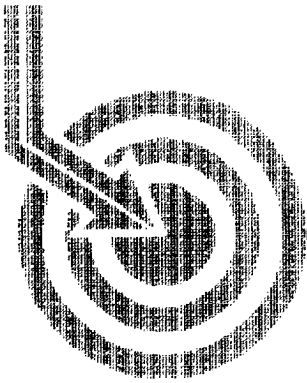




Scientific Drilling



TEXACO E & P INC.

Field: Vacuum Glorieta West

Site: Lea County, NM

Well: VGWU #93

Wellpath: VH/HH - Job #32K0399045 & 051

Survey: 3/1/99-3/6/99

SUR: 1723/s & 1575/w

API #: 30-025-31810

BHL: 1578/s & 648/w

Gyro Footage: 0'-5830'

MWD Footage: 5840'-6803'

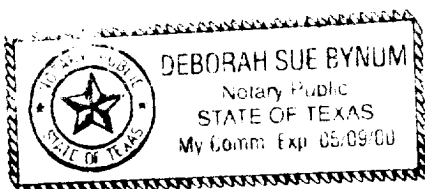
Survey: Sec. 36, T17S, R34E

K.O.P.: 5830'

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

Joseph Novak 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 Gorieta West
Site: Lea County, NM
Well: VGWU #93
Wellpath: VH/HH - Job #32K0399045 &

Date: 3/9/2000
Co-ordinate(NE) Reference:
Vertical (TVD) Reference:
Section (VS) Reference:
Survey Calculation Method:

Time: 13:11:05
Site: Lea County, NM, True North
SITE 0.0 above Mean Sea Level
Slot (0.0E,0.0N,0.0Azi)
Minimum Curvature

Page: 1

Survey: 3/1/99-3/6/99
KSRG 0'-5830'/MWD 5840'-6803'

Start Date: 3/9/2000

Company: SDI & DMI
Tool: KEEPER

Engineer: DeSpain/Holland

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	0.36	190.36	100.0	-0.3	-0.1	-0.3	0.36	190.36	0.3
200.0	0.51	177.16	200.0	-1.1	-0.1	-1.1	0.18	184.89	1.1
300.0	0.83	161.95	300.0	-2.2	0.2	-2.2	0.36	175.95	2.2
400.0	0.92	147.67	400.0	-3.6	0.8	-3.6	0.24	167.20	3.7
500.0	0.98	147.14	500.0	-5.0	1.7	-5.0	0.06	161.05	5.2
600.0	1.01	156.35	599.9	-6.5	2.5	-6.5	0.16	158.76	7.0
700.0	1.03	158.15	699.9	-8.1	3.2	-8.1	0.04	158.46	8.7
800.0	0.95	157.09	799.9	-9.7	3.9	-9.7	0.08	158.32	10.5
900.0	0.82	151.39	899.9	-11.1	4.5	-11.1	0.16	157.82	12.0
1000.0	0.59	167.17	999.9	-12.2	5.0	-12.2	0.30	157.84	13.2
1100.0	0.46	154.23	1099.9	-13.1	5.3	-13.1	0.18	158.08	14.1
1200.0	0.53	153.15	1199.9	-13.9	5.7	-13.9	0.07	157.82	15.0
1300.0	0.85	135.30	1299.9	-14.8	6.4	-14.8	0.38	156.68	16.1
1400.0	0.83	131.46	1399.9	-15.8	7.5	-15.8	0.06	154.78	17.5
1500.0	0.82	133.08	1499.9	-16.8	8.5	-16.8	0.03	153.11	18.8
1600.0	0.66	130.91	1599.9	-17.7	9.5	-17.7	0.16	151.78	20.0
1700.0	0.60	135.47	1699.8	-18.4	10.3	-18.4	0.08	150.83	21.1
1800.0	0.54	110.54	1799.8	-19.0	11.1	-19.0	0.25	149.67	22.0
1900.0	0.91	87.75	1899.8	-19.1	12.3	-19.1	0.46	147.15	22.7
2000.0	0.87	107.85	1999.8	-19.3	13.8	-19.3	0.31	144.34	23.7
2100.0	0.67	108.59	2099.8	-19.7	15.1	-19.7	0.20	142.51	24.8
2200.0	0.65	74.43	2199.8	-19.7	16.2	-19.7	0.39	140.60	25.5
2300.0	1.06	75.00	2299.8	-19.4	17.7	-19.4	0.41	137.62	26.2
2400.0	1.04	96.20	2399.8	-19.2	19.5	-19.2	0.39	134.64	27.3
2500.0	0.74	88.83	2499.8	-19.3	21.0	-19.3	0.32	132.58	28.5
2600.0	1.00	71.70	2599.8	-19.0	22.5	-19.0	0.37	130.22	29.4
2700.0	1.18	91.04	2699.7	-18.8	24.3	-18.8	0.41	127.62	30.7
2800.0	0.87	103.19	2799.7	-18.9	26.1	-18.9	0.38	125.97	32.3
2900.0	0.91	81.42	2899.7	-19.0	27.6	-19.0	0.34	124.52	33.5
3000.0	0.71	119.20	2999.7	-19.2	29.0	-19.2	0.56	123.53	34.7
3100.0	0.38	90.59	3099.7	-19.5	29.8	-19.5	0.42	123.16	35.6
3200.0	0.58	115.62	3199.7	-19.7	30.6	-19.7	0.29	122.78	36.4
3300.0	0.45	168.99	3299.7	-20.3	31.1	-20.3	0.48	123.12	37.2
3400.0	0.03	350.75	3399.7	-20.7	31.2	-20.7	0.48	123.52	37.4
3500.0	0.40	199.64	3499.7	-21.0	31.1	-21.0	0.43	124.01	37.5
3600.0	0.43	269.70	3599.7	-21.3	30.6	-21.3	0.48	124.85	37.3
3700.0	0.21	283.08	3699.7	-21.3	30.0	-21.3	0.23	125.29	36.8
3800.0	0.18	264.27	3799.7	-21.2	29.7	-21.2	0.07	125.56	36.5
3900.0	0.51	236.16	3899.7	-21.5	29.2	-21.5	0.36	126.39	36.3
4000.0	0.69	256.20	3999.7	-21.9	28.2	-21.9	0.27	127.80	35.7
4100.0	0.63	276.40	4099.7	-22.0	27.1	-22.0	0.24	129.04	34.9
4200.0	0.37	267.66	4199.7	-21.9	26.2	-21.9	0.27	129.90	34.2
4300.0	0.70	230.91	4299.7	-22.3	25.4	-22.3	0.46	131.28	33.8
4400.0	1.03	236.10	4399.7	-23.2	24.2	-23.2	0.34	133.79	33.5
4500.0	0.99	247.58	4499.6	-24.0	22.7	-24.0	0.21	136.69	33.0
4600.0	1.05	235.85	4599.6	-24.9	21.1	-24.9	0.22	139.69	32.6
4700.0	1.91	229.50	4699.6	-26.5	19.1	-26.5	0.87	144.22	32.6

SCIENTIFIC DRILLING

SURVEY REPORT

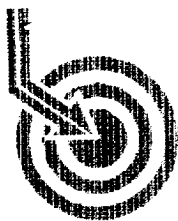
Company: TEXACO E & P INC.
Field: Vacuum Glorieta West
Site: Lea County, NM
Well: VGWU #93
Wellpath: VH/HH - Job #32K0399045 &

Date: 3/9/2000
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

Page: 2

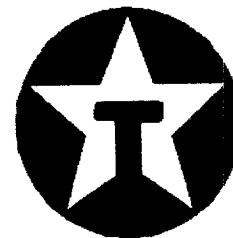
SURVEY

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS d/100ft	ClsA deg	ClsD ft
4800.0	2.43	233.41	4799.5	-28.8	16.1	-28.8	0.54	150.79	33.0
4900.0	2.40	223.75	4899.4	-31.6	13.0	-31.6	0.41	157.69	34.2
5000.0	1.98	226.43	4999.4	-34.3	10.3	-34.3	0.43	163.34	35.8
5100.0	1.72	219.33	5099.3	-36.7	8.1	-36.7	0.35	167.59	37.5
5200.0	2.16	210.83	5199.2	-39.4	6.1	-39.4	0.52	171.14	39.9
5300.0	2.02	209.63	5299.2	-42.6	4.3	-42.6	0.15	174.22	42.8
5400.0	1.78	196.16	5399.1	-45.6	3.0	-45.6	0.51	176.23	45.7
5500.0	2.03	193.84	5499.1	-48.8	2.2	-48.8	0.26	177.48	48.9
5600.0	1.81	209.18	5599.0	-51.9	1.0	-51.9	0.56	178.94	51.9
5700.0	1.24	202.18	5699.0	-54.3	-0.2	-54.3	0.60	180.23	54.3
5800.0	1.24	221.72	5799.0	-56.1	-1.3	-56.1	0.42	181.38	56.1
5830.0	3.30	265.00	5828.9	-56.4	-2.4	-56.4	8.48	182.46	56.5
5840.0	8.80	265.00	5838.9	-56.5	-3.5	-56.5	55.00	183.52	56.6
5850.0	15.60	265.00	5848.6	-56.7	-5.6	-56.7	68.00	185.62	57.0
5860.0	23.30	269.30	5858.1	-56.9	-8.9	-56.9	78.27	188.90	57.5
5870.0	31.10	269.60	5866.9	-56.9	-13.5	-56.9	78.01	193.32	58.5
5880.0	38.80	270.10	5875.1	-56.9	-19.2	-56.9	77.05	198.64	60.1
5890.0	46.50	270.10	5882.5	-56.9	-26.0	-56.9	77.00	204.53	62.5
5900.0	54.00	269.50	5888.9	-56.9	-33.6	-56.9	75.14	210.58	66.1
5910.0	60.90	267.80	5894.3	-57.1	-42.1	-57.1	70.47	216.37	70.9
5930.0	73.30	266.50	5902.0	-58.1	-60.4	-58.1	62.29	226.15	83.8
5942.0	75.30	267.20	5905.3	-58.7	-72.0	-58.7	17.59	230.80	92.9
5973.0	79.70	267.70	5912.0	-60.0	-102.2	-60.0	14.28	239.57	118.5
6005.0	84.90	268.20	5916.3	-61.2	-133.9	-61.2	16.32	245.44	147.2
6037.0	90.20	268.40	5917.6	-62.1	-165.8	-62.1	16.57	249.46	177.1
6068.0	92.30	268.10	5917.0	-63.1	-196.8	-63.1	6.84	252.23	206.7
6100.0	93.80	265.40	5915.3	-64.9	-228.7	-64.9	9.64	254.16	237.7
6164.0	90.60	266.10	5912.8	-69.6	-292.5	-69.6	5.12	256.61	300.6
6196.0	87.40	265.60	5913.4	-71.9	-324.4	-71.9	10.12	257.50	332.2
6227.0	87.30	264.60	5914.8	-74.6	-355.2	-74.6	3.24	258.14	363.0
6259.0	90.30	264.80	5915.5	-77.5	-387.1	-77.5	9.40	258.67	394.8
6291.0	89.80	264.50	5915.4	-80.5	-418.9	-80.5	1.82	259.12	426.6
6323.0	90.00	263.20	5915.5	-83.9	-450.7	-83.9	4.11	259.45	458.5
6354.0	91.10	262.90	5915.2	-87.7	-481.5	-87.7	3.68	259.68	489.4
6386.0	91.40	261.70	5914.5	-92.0	-513.2	-92.0	3.86	259.84	521.4
6390.0	91.40	261.70	5914.4	-92.6	-517.2	-92.6	0.00	259.85	525.4
6418.0	86.90	262.60	5914.8	-96.4	-544.9	-96.4	16.39	259.97	553.4
6450.0	85.80	261.40	5916.8	-100.8	-576.5	-100.8	5.08	260.08	585.3
6482.0	86.40	261.10	5919.0	-105.7	-608.1	-105.7	2.10	260.14	617.2
6513.0	88.20	262.80	5920.5	-110.0	-638.7	-110.0	7.98	260.23	648.1
6545.0	89.60	262.50	5921.1	-114.1	-670.5	-114.1	4.47	260.34	680.1
6577.0	90.00	262.40	5921.2	-118.3	-702.2	-118.3	1.29	260.44	712.1
6608.0	89.10	263.70	5921.4	-122.1	-733.0	-122.1	5.10	260.55	743.1
6640.0	88.30	263.90	5922.2	-125.5	-764.8	-125.5	2.58	260.68	775.0
6672.0	89.20	263.30	5922.9	-129.1	-796.6	-129.1	3.38	260.80	807.0
6703.0	89.90	262.80	5923.1	-132.8	-827.3	-132.8	2.77	260.88	837.9
6735.0	88.80	263.60	5923.5	-136.6	-859.1	-136.6	4.25	260.96	869.9
6767.0	89.30	262.90	5924.0	-140.4	-890.9	-140.4	2.69	261.05	901.9
6803.0	89.30	262.90	5924.4	-144.8	-926.6	-144.8	0.00	261.12	937.9

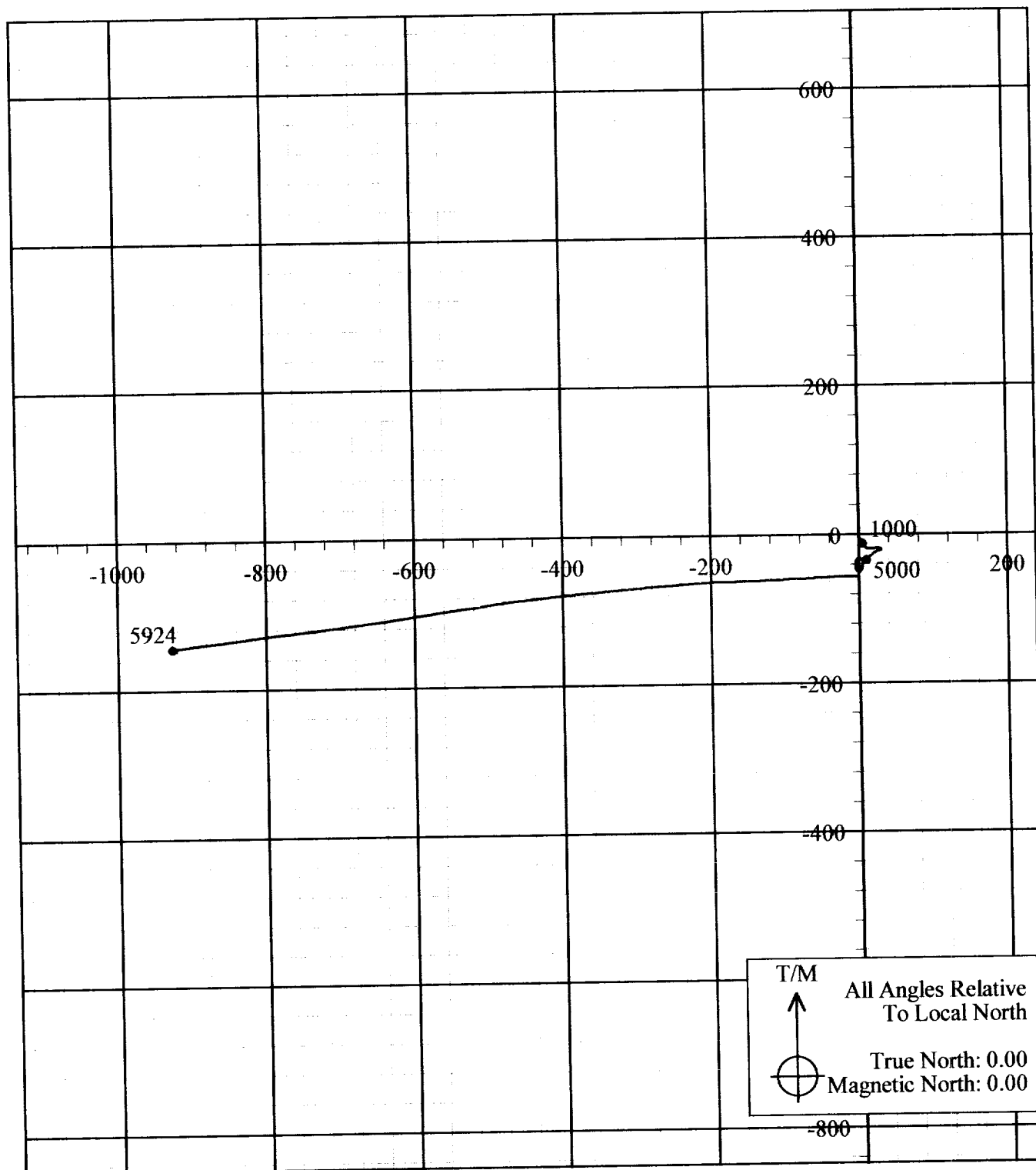


**Scientific
Drilling**

TEXACO E & P INC
Field: Vacuum Glorieta West
Site: Lea County, NM
Well: VGWU #93
Wellpath: VH/HH - Job #32K0399045 & 051
Survey: 3/1/99-3/6/99



South(-)/North(+) [200ft/in]



West(-)/East(+) [200ft/in]