

Scientific Drilling



TEXACO E & P INC.

Field: Vacuum Glorieta West

Site: Lea County, NM

Well: VGWU #126

Wellpath: VH/HH - Job #32D1099278/269

Survey: 10/15-10/26/99

Sur: E-6-18-35
1660/N & 380/W

BHL: F-6-18-35

1472/N & 1573/W

30-025-21031

API #: 30-025-21031

Gyro Footage: 0'-5889'

MWD Footage: 5868'-7209'

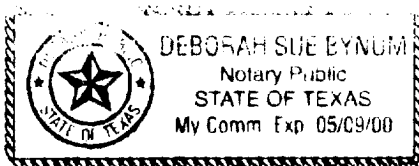
Survey: Sec. 6, T18S, R35E

K.O.P.: 5800'

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

Scott Needy 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 Gloria West Site: Lea County, NM Well: VGWU #126 Wellpath: VH - Job #32K1099269	Date: 3/24/2000 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 12:21:42 Site: Lea County, NM - True North SITE: 0.0 above Mean Sea Level Slot (0.0E,0.0N,0.0Az): Minimum Curvature	Page: 1
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Survey: 10/10/99
KSRG 0'-5889'

Start Date: 10/14/1999

Company: S.D.I.
Tool: KEEPER

Engineer: Gary DeSpain

Survey

MD ft	Incl deg	Azimuth deg	TVD ft	NS ft	E/W ft	VS ft	DLS d/100ft	ClA deg	ClD ft
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.0
100.0	0.72	218.14	100.0	-0.5	-0.4	-0.5	0.72	218.14	0.6
200.0	0.63	232.92	200.0	-1.3	-1.2	-1.3	0.20	222.62	1.8
300.0	0.54	236.64	300.0	-1.9	-2.0	-1.9	0.10	226.97	2.8
400.0	0.46	238.14	400.0	-2.4	-2.8	-2.4	0.08	229.43	3.7
500.0	0.14	206.25	500.0	-2.7	-3.2	-2.7	0.35	229.60	4.2
600.0	0.29	107.71	600.0	-2.9	-3.0	-2.9	0.34	225.97	4.2
700.0	0.32	106.34	700.0	-3.0	-2.5	-3.0	0.03	219.16	3.9
800.0	0.28	106.25	800.0	-3.2	-2.0	-3.2	0.04	211.78	3.8
900.0	0.29	96.78	900.0	-3.3	-1.5	-3.3	0.05	204.39	3.6
1000.0	0.18	110.54	1000.0	-3.4	-1.1	-3.4	0.12	197.95	3.5
1100.0	0.14	129.42	1100.0	-3.5	-0.9	-3.5	0.07	193.65	3.6
1200.0	0.26	173.52	1200.0	-3.8	-0.7	-3.8	0.19	190.87	3.9
1300.0	0.34	154.09	1300.0	-4.3	-0.6	-4.3	0.13	187.63	4.3
1400.0	0.26	151.81	1400.0	-4.8	-0.3	-4.8	0.08	184.08	4.8
1500.0	0.30	139.40	1500.0	-5.2	-0.1	-5.2	0.07	180.69	5.2
1600.0	0.46	132.16	1600.0	-5.6	0.4	-5.6	0.17	175.88	5.7
1700.0	0.59	119.76	1700.0	-6.2	1.2	-6.2	0.17	169.43	6.3
1800.0	0.58	121.74	1800.0	-6.7	2.0	-6.7	0.02	163.13	7.0
1900.0	0.63	130.70	1900.0	-7.3	2.9	-7.3	0.11	158.53	7.9
2000.0	0.80	109.31	1999.9	-7.9	4.0	-7.9	0.31	153.43	8.8
2100.0	0.98	89.00	2099.9	-8.1	5.5	-8.1	0.36	146.04	9.8
2200.0	1.22	83.08	2199.9	-8.0	7.4	-8.0	0.27	137.22	10.9
2300.0	1.98	60.13	2299.9	-7.0	9.9	-7.0	0.98	125.11	12.1
2400.0	2.38	52.22	2399.8	-4.8	13.1	-4.8	0.50	110.36	13.9
2500.0	2.39	56.31	2499.7	-2.4	16.4	-2.4	0.17	98.37	16.6
2600.0	2.50	57.98	2599.6	-0.1	20.0	-0.1	0.13	90.31	20.0
2700.0	2.52	57.57	2699.5	2.2	23.7	2.2	0.03	84.64	23.8
2800.0	2.25	59.94	2799.4	4.4	27.3	4.4	0.29	80.86	27.6
2900.0	2.17	58.44	2899.4	6.4	30.6	6.4	0.10	78.25	31.3
3000.0	1.58	48.41	2999.3	8.3	33.2	8.3	0.67	76.03	34.3
3100.0	1.22	55.59	3099.3	9.8	35.2	9.8	0.40	74.44	36.5
3200.0	0.85	58.81	3199.3	10.8	36.7	10.8	0.37	73.63	38.2
3300.0	0.52	113.66	3299.3	11.0	37.7	11.0	0.70	73.78	39.3
3400.0	0.55	137.36	3399.3	10.4	38.5	10.4	0.22	74.81	39.9
3500.0	0.68	179.91	3499.3	9.5	38.8	9.5	0.46	76.25	39.9
3600.0	0.78	173.86	3599.2	8.2	38.9	8.2	0.13	78.05	39.7
3700.0	0.96	187.15	3699.2	6.7	38.8	6.7	0.27	80.19	39.4
3800.0	0.94	179.85	3799.2	5.1	38.7	5.1	0.12	82.55	39.1
3900.0	0.94	196.62	3899.2	3.5	38.5	3.5	0.27	84.87	38.6
4000.0	0.97	193.49	3999.2	1.8	38.1	1.8	0.06	87.22	38.1
4100.0	0.94	209.35	4099.2	0.3	37.5	0.3	0.27	89.53	37.5
4200.0	1.02	193.44	4199.2	-1.3	36.9	-1.3	0.28	91.98	36.9
4300.0	1.02	205.83	4299.1	-2.9	36.3	-2.9	0.22	94.63	36.4
4400.0	1.28	208.46	4399.1	-4.7	35.3	-4.7	0.27	97.61	35.7
4500.0	1.26	227.03	4499.1	-6.5	34.0	-6.5	0.41	100.75	34.6
4600.0	1.91	236.60	4599.1	-8.1	31.8	-8.1	0.70	104.32	32.8
4700.0	2.15	248.55	4699.0	-9.7	28.7	-9.7	0.49	108.73	30.3

SCIENTIFIC DRILLING SURVEY REPORT

Company: TEXACO E & P INC	Date: 3/24/2000	Time: 12:21:42	Page: 2
Field: Vacuum Glorata West	Coordinate (NE) Reference:	Site: Lea County, NM, True North	
Site: Lea County, NM	Vertical (TYD) Reference:	SITE 0.0 above Mean Sea Level	
Well: VGWU #120	Section (VS) Reference:	Slot (0.0E, 0.0N, 0.0Azi)	
Wellpath: VH Job #32K1099269	Survey Calculation Method:	Minimum Curvature	

Survey

MD ft	Incl deg	Azim deg	TYD ft	N/S ft	E/W ft	VS ft	DLS o/100ft	CkA deg	CkD ft
4800.0	2.83	248.80	4798.9	-11.3	24.6	-11.3	0.68	114.68	27.1
4900.0	3.16	257.26	4898.8	-12.8	19.6	-12.8	0.55	123.11	23.4
5000.0	3.23	256.26	4998.6	-14.1	14.2	-14.1	0.09	134.74	20.0
5100.0	3.26	255.43	5098.5	-15.5	8.7	-15.5	0.06	150.59	17.8
5200.0	3.38	261.29	5198.3	-16.6	3.1	-16.6	0.36	169.60	16.9
5300.0	3.14	261.36	5298.1	-17.5	-2.6	-17.5	0.24	188.36	17.7
5400.0	3.13	259.55	5398.0	-18.4	-8.0	-18.4	0.10	203.41	20.0
5500.0	2.64	263.90	5497.8	-19.1	-12.9	-19.1	0.54	214.07	23.1
5600.0	2.19	258.28	5597.8	-19.8	-17.1	-19.8	0.51	220.87	26.1
5700.0	2.27	258.39	5697.7	-20.5	-20.9	-20.5	0.08	225.50	29.3
5800.0	2.05	253.16	5797.6	-21.5	-24.6	-21.5	0.30	228.85	32.6
5889.0	2.47	249.07	5886.5	-22.6	-27.9	-22.6	0.51	230.95	35.9

SCIENTIFIC DRILLING SURVEY REPORT

Company: TEXACO E & P INC. Field: Vacuum Gloria West Site: Lea County, NM Well: VGWU #128 Wellpath: VH/VH - Job #32D1099278/2	Date: 3/24/2000 Co-ordinate(NE) Reference: Vertical (TYD) Reference: Section (VS) Reference: Survey Calculation Method:	Time: 12:30:33 Page: 1 Site: Lea County, NM, True North SITE: 0.0 above Mean Sea Level Slot (0.0E,0.0N,104.8Azi) Minimum Curvature
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Survey: 10/15-10/26/99 KSRG 0'-5889'/MWD 5920'-7209'	Start Date: 12/10/1999
Company: SD/Ryan Tool: MWD	Engineer: DeSpain/Bergeron

Survey

MD ft	Incl deg	Azim deg	TYD ft	N/S ft	E/W ft	VS ft	DLS d/100ft	ClsA deg	ClsD ft
5868.0	2.37	249.90	5865.6	-22.3	-27.0	-20.5	0.00	230.49	35.1
5920.0	20.00	100.80	5916.6	-24.4	-19.2	-12.4	42.43	218.28	31.0
5930.0	24.40	100.50	5925.9	-25.1	-15.5	-8.6	44.01	211.76	29.5
5940.0	28.40	98.70	5934.8	-25.8	-11.1	-4.2	40.79	203.33	28.1
5950.0	32.00	96.60	5943.5	-26.5	-6.1	0.8	37.51	193.07	27.2
5960.0	36.00	95.20	5951.7	-27.0	-0.6	6.3	40.76	181.23	27.0
5970.0	40.20	94.20	5959.6	-27.5	5.6	12.4	42.45	168.57	28.1
5980.0	44.30	93.80	5967.0	-28.0	12.3	19.0	41.09	156.33	30.6
5990.0	48.50	93.80	5973.9	-28.5	19.5	26.1	42.00	145.61	34.5
6000.0	52.80	94.50	5980.2	-29.0	27.2	33.7	43.34	136.87	39.8
6015.0	59.20	96.30	5988.6	-30.2	39.6	46.0	43.81	127.36	49.8
6038.0	66.70	100.80	5999.1	-33.3	59.8	66.3	36.96	119.10	68.5
6070.0	76.70	103.30	6009.1	-39.6	89.5	96.6	32.12	113.89	97.9
6102.0	83.70	103.30	6014.6	-46.9	120.1	128.1	21.87	111.32	129.0
6134.0	86.80	102.90	6017.2	-54.1	151.2	160.0	9.77	109.69	160.6
6165.0	85.30	102.90	6019.4	-61.0	181.3	190.9	4.84	108.60	191.3
6197.0	86.70	105.10	6021.6	-68.7	212.3	222.8	8.13	107.94	223.2
6229.0	85.80	105.80	6023.7	-77.3	243.1	254.8	3.56	107.63	255.1
6260.0	87.60	106.10	6025.5	-85.8	272.9	285.7	5.89	107.45	286.0
6292.0	87.40	105.80	6026.9	-94.5	303.6	317.7	1.13	107.30	318.0
6323.0	89.30	103.70	6027.8	-102.4	333.6	348.7	9.13	107.07	348.9
6355.0	89.80	102.60	6028.0	-109.7	364.7	380.6	3.78	106.74	380.9
6387.0	90.40	102.60	6027.9	-116.7	395.9	412.6	1.87	106.42	412.8
6419.0	89.80	104.30	6027.9	-124.1	427.1	444.6	5.63	106.21	444.7
6450.0	90.80	104.30	6027.7	-131.8	457.1	475.6	3.23	106.08	475.7
6482.0	88.60	103.30	6027.9	-139.4	488.2	507.6	7.55	105.94	507.7
6514.0	86.10	103.70	6029.4	-146.9	519.3	539.5	7.91	105.79	539.6
6545.0	85.90	104.30	6031.5	-154.4	549.3	570.5	2.04	105.70	570.5
6577.0	87.50	103.30	6033.4	-162.0	580.3	602.4	5.89	105.60	602.5
6607.0	88.50	102.60	6034.4	-168.7	609.5	632.4	4.07	105.47	632.4
6639.0	88.20	102.20	6035.3	-175.6	640.7	664.3	1.56	105.32	664.4
6671.0	87.80	101.20	6036.5	-182.1	672.1	696.3	3.36	105.16	696.3
6703.0	88.30	100.50	6037.6	-188.1	703.5	728.2	2.69	104.97	728.2
6734.0	89.30	100.50	6038.2	-193.7	733.9	759.1	3.23	104.79	759.1
6766.0	88.90	101.50	6038.7	-199.8	765.4	791.0	3.37	104.63	791.0
6796.0	87.50	105.10	6039.6	-206.7	794.5	821.0	12.87	104.58	821.0
6828.0	87.80	105.40	6041.0	-215.1	825.4	852.9	1.33	104.61	852.9
6859.0	88.50	106.10	6042.0	-223.5	855.2	883.9	3.19	104.65	883.9
6890.0	89.00	106.10	6042.6	-232.1	885.0	914.9	1.61	104.70	914.9
6922.0	88.20	105.40	6043.4	-240.8	915.8	946.9	3.32	104.73	946.9
6954.0	88.70	105.10	6044.3	-249.2	946.6	978.9	1.82	104.75	978.9
6985.0	89.40	105.40	6044.8	-257.4	976.5	1009.9	2.46	104.77	1009.9
7017.0	87.10	105.40	6045.8	-265.9	1007.4	1041.9	7.19	104.79	1041.9
7049.0	84.60	106.10	6048.1	-274.5	1038.1	1073.8	8.11	104.81	1073.8
7081.0	84.90	105.80	6051.0	-283.3	1068.7	1105.6	1.32	104.85	1105.6
7112.0	87.70	103.70	6053.0	-291.2	1098.6	1136.6	11.28	104.84	1136.6
7143.0	87.40	102.60	6054.3	-298.2	1128.8	1167.5	3.67	104.80	1167.5
7173.0	89.20	102.30	6055.2	-304.7	1158.1	1197.5	6.08	104.74	1197.5

SCIENTIFIC DRILLING SURVEY REPORT

Company: TEXACO E & P INC	Date: 3/24/2000	Time: 12:30:33	Page: 2
Field: Vulcan/Gloria West	Coordinate (M/D) Reference:	Site: Las County, NM True North	
Site: Las County, NM	Vertical (TYD) Reference:	SITE 0.0 FROM Mean Sea Level	
Well: VGWU #126	Section (VS) Reference:	Slo (0.0E.0 ON 104.8Azi)	
Wellpath: VVHH - Job #32D1099278/2	Survey Calculation Method:	Minimum Curvature	

Survey

MD ft	Incl deg	Azim deg	TYD ft	NS ft	E/W ft	VS ft	DLS d/100ft	C/A deg	C/D ft
7209.0	91.50	102.30	6055.0	-312.4	1193.2	1233.4	6.39	104.67	1233.4

