

SCIENTIFIC DRILLING INTERNATIONAL

MIDLAND, TEXAS

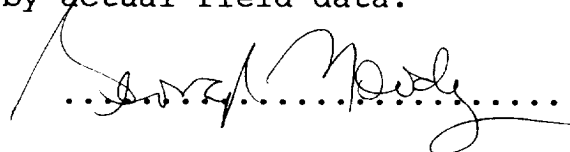
PATTERSON PETROLEUM

Well Name
Location
SHL
BHL
ACTUAL BHL
Date Surveyed
Job No.
Surveyor

: TOMAHAWK STATE ²19 #1
: LEA COUNTY, NM
:
:
:
: 4/4/99-5/2/99
: 32K0499075/32ER0499080
: DESPAIN/RIG CREW

SUR: 2616/N & 1148/E
BAL: 2528/N & 1054/E
H-19-17s-34e
30-025-34583

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

..... COMPANY REPRESENTATIVE

SCIENTIFIC DRILLING INTERNATIONAL

Customer : PATTERSON PETROLEUM
Well Name : TOMAHAWK STATE 19 #1
Location : LEA COUNTY, NM

Page 1 of 3
Date 4/4/99-5/2/99
Filename : TOMAHWK1

SHL :
BHL :
ACTUAL BHL :

No Interpolation

Height Of WELLSITE Datum Above Field Datum 0.00 ft

MD ft	INC deg	DIR deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	D'LEG °/100
0.0	0.00	N 0.00°E	0.00	0.00	0.00	0.00	0.0
100.0	0.37	S 1.46°W	100.00	-0.32	-0.01	-0.27	0.4
200.0	0.22	S60.31°W	200.00	-0.74	-0.18	-0.71	0.3
300.0	0.49	S50.06°W	300.00	-1.11	-0.68	-1.30	0.3
400.0	0.44	S52.29°W	399.99	-1.62	-1.31	-2.08	0.1
500.0	0.73	S35.74°W	499.99	-2.37	-1.99	-3.08	0.3
600.0	0.39	S61.39°W	599.98	-3.05	-2.66	-4.02	0.4
700.0	0.61	S37.72°W	699.98	-3.64	-3.28	-4.86	0.3
800.0	0.46	S48.63°W	799.97	-4.32	-3.91	-5.78	0.2
900.0	0.59	S52.68°W	899.97	-4.90	-4.62	-6.67	0.1
1000.0	0.48	S41.87°W	999.97	-5.52	-5.31	-7.57	0.1
1100.0	0.42	S43.96°W	1099.96	-6.10	-5.84	-8.35	0.1
1200.0	0.32	S25.13°W	1199.96	-6.62	-6.21	-8.99	0.2
1300.0	0.27	S 9.97°W	1299.96	-7.10	-6.37	-9.48	0.1
1400.0	0.48	S17.49°W	1399.96	-7.73	-6.54	-10.09	0.2
1500.0	0.28	S27.45°W	1499.95	-8.35	-6.78	-10.73	0.2
1600.0	0.27	S21.00°W	1599.95	-8.79	-6.98	-11.20	0.0
1700.0	0.35	S 2.75°E	1699.95	-9.31	-7.05	-11.67	0.1
1800.0	0.39	S30.33°E	1799.95	-9.91	-6.86	-12.05	0.2
1900.0	0.63	S65.38°E	1899.95	-10.43	-6.19	-12.09	0.4
2000.0	1.10	S86.01°E	1999.94	-10.73	-4.73	-11.49	0.6
2100.0	1.01	N88.80°E	2099.92	-10.78	-2.89	-10.47	0.1
2200.0	0.83	N77.09°E	2199.91	-10.60	-1.30	-9.41	0.3
2300.0	0.82	N53.74°E	2299.90	-10.01	-0.02	-8.19	0.3
2400.0	1.10	N38.58°E	2399.88	-8.84	1.15	-6.56	0.4
2500.0	1.35	N31.98°E	2499.86	-7.09	2.38	-4.42	0.3
2600.0	1.34	N35.95°E	2599.83	-5.14	3.69	-2.08	0.1
2700.0	1.60	N28.92°E	2699.80	-2.97	5.05	0.48	0.3
2800.0	1.37	N33.08°E	2799.76	-0.75	6.38	3.06	0.3
2900.0	1.58	N28.60°E	2899.73	1.46	7.69	5.62	0.2
3000.0	1.49	N30.96°E	2999.70	3.79	9.02	8.29	0.1
3100.0	1.16	N32.87°E	3099.67	5.75	10.24	10.60	0.3
3200.0	1.11	N36.25°E	3199.65	7.38	11.36	12.58	0.1
3300.0	0.91	N25.18°E	3299.63	8.88	12.27	14.33	0.3
3400.0	0.93	N36.41°E	3399.62	10.26	13.09	15.92	0.2
3500.0	1.04	N41.46°E	3499.61	11.59	14.17	17.64	0.1
3600.0	0.93	N51.47°E	3599.59	12.77	15.41	19.32	0.2
3700.0	0.95	N41.38°E	3699.58	13.90	16.59	20.92	0.2
3800.0	0.96	N32.36°E	3799.56	15.23	17.59	22.58	0.2
3900.0	0.78	N31.51°E	3899.55	16.52	18.39	24.10	0.2

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ACTUAL BHL :

No Interpolation

Height Of WELLSITE Datum Above Field Datum 0.00 ft

MD ft	INC deg	DIR deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	D'LEG °/100
4000.0	0.79	N13.46°E	3999.54	17.77	18.91	25.42	0.2
4100.0	0.58	N12.02°E	4099.54	18.94	19.17	26.52	0.2
4200.0	0.55	N16.76°E	4199.53	19.89	19.42	27.44	0.1
4300.0	0.68	N18.91°E	4299.52	20.91	19.75	28.47	0.1
4400.0	0.77	N39.51°E	4399.52	21.99	20.37	29.71	0.3
4500.0	0.62	N38.89°E	4499.51	22.93	21.13	30.92	0.2
4600.0	0.59	N51.45°E	4599.50	23.67	21.88	31.95	0.1
4700.0	0.58	N38.10°E	4699.50	24.39	22.59	32.95	0.1
4775.0	0.63	N46.52°E	4774.50	24.97	23.12	33.74	0.1
5273.0	0.25	N84.00°W	5272.49	26.97	24.03	35.89	0.2
5774.0	0.75	N83.00°W	5773.46	27.49	19.69	33.81	0.1
6272.0	1.00	N20.00°E	6271.43	31.97	17.94	36.46	0.3
6770.0	1.00	N51.00°E	6769.36	38.78	22.80	44.84	0.1
7272.0	0.25	N30.00°W	7271.33	42.49	25.66	49.51	0.2
7768.0	0.50	N43.00°E	7767.32	45.01	26.59	52.11	0.1
8239.0	0.50	N 4.00°E	8238.30	48.56	28.14	55.91	0.1
8739.0	0.50	N44.00°E	8738.29	52.31	29.81	59.93	0.1
9270.0	0.50	N47.00°E	9269.27	55.56	33.11	64.49	0.0
9769.0	0.25	N34.00°E	9768.26	57.94	35.31	67.70	0.1
10232.0	0.75	N70.00°E	10231.24	59.82	38.72	71.20	0.1
10518.0	0.50	N54.00°E	10517.22	61.19	41.49	73.92	0.1
10736.0	0.50	N14.00°E	10735.21	62.67	42.49	75.71	0.2
11213.0	0.75	N 9.00°W	11212.18	67.78	42.51	79.89	0.1
11467.0	1.25	N24.00°E	11466.15	71.95	43.37	83.80	0.3
11551.0	1.50	N29.00°E	11550.12	73.75	44.28	85.79	0.3
11653.0	1.75	N14.00°E	11652.08	76.43	45.30	88.57	0.5
11743.0	1.50	N35.00°E	11742.05	78.72	46.31	91.03	0.7
11838.0	1.50	N31.00°E	11837.01	80.81	47.67	93.51	0.1
12122.0	1.00	N56.00°E	12120.95	85.38	51.64	99.54	0.3
12314.0	1.75	N79.00°E	12312.89	86.88	55.90	103.22	0.5
12409.0	1.75	N73.00°E	12407.85	87.58	58.71	105.41	0.2
12598.0	2.25	N77.00°E	12596.73	89.26	65.09	110.45	0.3
12726.0	1.75	N71.00°E	12724.66	90.46	69.38	113.91	0.4
12947.0	1.75	S75.00°E	12945.56	90.68	75.83	117.81	0.5
13140.0	1.50	S74.00°E	13138.48	89.22	81.11	119.66	0.1
13518.0	2.50	N90.00°E	13516.25	87.86	94.11	126.03	0.3

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No Interpolation

Height Of WELLSITE Datum Above Field Datum 0.00 ft

Origin of Bottom Hole Closure WELLSITE CENTRE

Bottom Hole Closure 129 ft N46.97°E





SCIENTIFIC DRILLING
FOR
PATTERSON PETROLEUM
TOMAHAWK STATE 19 81
IN
LEA COUNTY, NM

