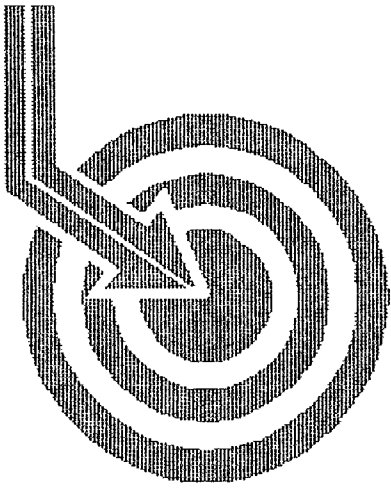




Scientific Drilling

30-025-39582

HOEBS OCD

JUN 03 2013

RECEIVED

APACHE CORPORATION

Field: Monument
Site: Lea County, NM
Well: Bertha Barber #24
Wellpath: DH - Job #32D0110018
Survey: 01/11/10-01/16/10

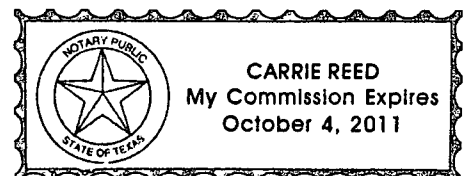
API: 30-025-39582

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

Richard
Company Representative

Notorized this date 16th of February, 2010.

Carrie Reed
Notary Signature
Couty of Midland
State of Texas





Scientific Drilling International, Inc.

Survey Report

Company: APACHE CORPORATION
Field: Monument
Site: Lea County, NM
Well: Bertha Barber #24
Wellpath: DH - Job #32D0110018

Date: 2/16/2010
Co-ordinate(NE) Reference:
Vertical (TVD) Reference:
Section (VS) Reference:
Survey Calculation Method: Minimum Curvature

Time: 11:00:34
Site: Lea County, NM, Grid North
SITE 0.0
Well (0.00N,0.00E,172.88Azi)
Db: Sybase

Page: 1

Survey: 01/11/10-01/16/10
Start Date: 1/11/2010
Company: Scientific Drilling Internatio
Engineer: McCormick/White
Tool: MWD,MWD
Tied-to: From Surface

Survey

MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.0	0.00
1175.0	0.53	227.15	1175.0	3.2	-3.7	-4.0	0.05	5.4	227.15
1220.0	0.60	231.59	1220.0	3.4	-4.0	-4.3	0.18	5.9	227.33
1265.0	0.59	220.10	1265.0	3.7	-4.3	-4.7	0.27	6.3	227.22
1311.0	0.66	220.74	1311.0	4.0	-4.7	-5.0	0.15	6.8	226.73
1355.0	0.88	223.28	1355.0	4.4	-5.1	-5.4	0.51	7.4	226.37
1401.0	0.55	221.58	1401.0	4.8	-5.5	-5.8	0.72	8.0	226.10
1446.0	1.06	213.29	1446.0	5.3	-6.1	-6.1	1.16	8.6	225.37
1492.0	0.94	211.51	1492.0	5.9	-6.7	-6.6	0.27	9.4	224.28
1537.0	1.12	229.67	1536.9	6.4	-7.3	-7.1	0.82	10.2	224.05
1583.0	1.19	242.92	1582.9	6.8	-7.8	-7.9	0.60	11.1	225.08
1628.0	1.28	240.24	1627.9	7.2	-8.3	-8.7	0.24	12.0	226.38
1673.0	1.31	233.71	1672.9	7.6	-8.9	-9.6	0.33	13.0	227.20
1764.0	1.12	229.96	1763.9	8.6	-10.0	-11.1	0.23	15.0	227.82
1855.0	0.62	229.93	1854.9	9.3	-10.9	-12.1	0.55	16.3	228.00
1946.0	0.44	144.88	1945.9	9.9	-11.5	-12.3	0.80	16.9	226.88
2037.0	0.38	143.84	2036.9	10.5	-12.1	-11.9	0.07	17.0	224.70
2128.0	0.81	123.98	2127.9	11.2	-12.7	-11.2	0.52	16.9	221.55
2219.0	1.58	126.76	2218.9	12.5	-13.8	-9.7	0.85	16.8	215.12
2310.0	1.98	146.46	2309.8	14.8	-15.8	-7.8	0.80	17.7	206.27
2401.0	2.19	156.36	2400.8	17.8	-18.7	-6.3	0.46	19.8	198.45
2468.0	2.72	154.47	2467.7	20.6	-21.4	-5.1	0.80	21.9	193.32
2537.0	2.78	166.66	2536.6	23.8	-24.5	-4.0	0.85	24.8	189.20
2582.0	3.23	160.40	2581.6	26.1	-26.7	-3.3	1.24	26.9	187.01
2628.0	3.28	160.52	2627.5	28.7	-29.2	-2.4	0.11	29.3	184.73
2673.0	3.97	168.29	2672.4	31.5	-31.9	-1.7	1.88	32.0	182.99
2694.0	2.99	165.41	2693.3	32.7	-33.2	-1.4	4.74	33.2	182.38
2739.0	2.92	163.14	2738.3	35.0	-35.4	-0.8	0.30	35.4	181.22
2785.0	2.40	169.63	2784.2	37.1	-37.5	-0.2	1.30	37.5	180.37
2829.0	1.94	175.83	2828.2	38.8	-39.1	0.0	1.17	39.1	180.03
2875.0	1.62	180.34	2874.2	40.2	-40.5	0.0	0.76	40.5	179.95
2920.0	1.04	210.04	2919.2	41.2	-41.5	-0.2	1.96	41.5	180.24
2965.0	0.90	195.75	2964.2	41.8	-42.2	-0.5	0.62	42.2	180.65
3010.0	0.92	192.64	3009.2	42.5	-42.9	-0.7	0.12	42.9	180.87
3056.0	1.22	195.09	3055.2	43.3	-43.7	-0.9	0.66	43.8	181.12
3101.0	0.95	192.58	3100.1	44.1	-44.6	-1.1	0.61	44.6	181.37
3192.0	1.38	191.94	3191.1	45.8	-46.4	-1.5	0.47	46.4	181.80
3237.0	1.35	186.15	3236.1	46.9	-47.4	-1.6	0.31	47.5	181.96
3328.0	1.25	191.79	3327.1	48.9	-49.5	-1.9	0.18	49.5	182.25
3418.0	1.18	200.93	3417.1	50.6	-51.3	-2.5	0.23	51.4	182.76
3508.0	1.18	198.13	3507.0	52.3	-53.0	-3.1	0.06	53.1	183.34
3599.0	1.02	193.90	3598.0	53.9	-54.7	-3.6	0.20	54.8	183.74
3690.0	0.48	181.48	3689.0	55.0	-55.9	-3.8	0.62	56.0	183.87
3780.0	0.47	182.56	3779.0	55.7	-56.6	-3.8	0.01	56.8	183.85
3870.0	0.83	154.70	3869.0	56.7	-57.6	-3.5	0.52	57.7	183.53
3961.0	0.98	126.42	3960.0	57.9	-58.7	-2.6	0.51	58.7	182.58
4051.0	0.72	84.26	4050.0	58.4	-59.1	-1.5	0.73	59.1	181.41
4232.0	1.18	54.12	4231.0	57.5	-57.8	1.2	0.37	57.9	178.83
4413.0	1.59	45.93	4411.9	55.1	-55.0	4.5	0.25	55.2	175.33



Scientific Drilling International, Inc.

Survey Report

Company: APACHE CORPORATION
Field: Monument
Site: Lea County, NM
Well: Bertha Barber #24
Wellpath: DH - Job #32D0110018

Date: 2/16/2010 Time: 11:00:34 Page: 2
Co-ordinate(NE) Reference: Site: Lea County, NM, Grid North
Vertical (TVD) Reference: SITE 0.0
Section (VS) Reference: Well (0.00N,0.00E,172.88Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

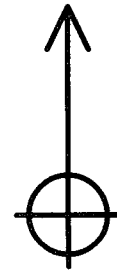
MD ft	Incl deg	Azim deg	TVD ft	VS ft	N/S ft	E/W ft	DLS deg/100ft	ClsD ft	ClsA deg
4504.0	2.15	45.15	4502.9	53.3	-52.9	6.6	0.62	53.3	172.88



**Scientific
Drilling**

Field: Monument
Site: Lea County, NM
Well: Bertha Barber #24
Survey: 01/11/10-01/16/10

G/T/M



Azimuths to Grid North
True North: 0.00°
Magnetic North: 0.00°
Magnetic Field
Dip Angle: 0.00°
Date: 2/16/2010
Model: igrf2000

West(-)/East(+) | 10ft/in |

South(-)/North(+) | 10ft/in |

