

Apache Corporation
303 Veterans Airpark Lane, #3000
Midland, TX 79705

NM OIL CONSERVATION
ARTESIA DISTRICT

APR 13 2015

Lee Federal #075 API # 30-015-41414

Eddy County, New Mexico SL: 2215' FNL + 670' FNL UL: E 20-178-31E

RECEIVED

210
517

2.10
3.07

1.00
0.80

1.75
1.40

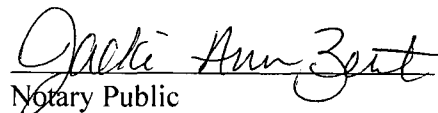
3.68
4.30

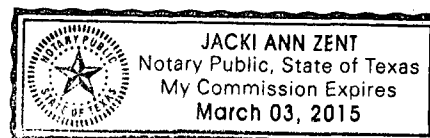
3.68
7.97



Archie Brown - General Manager

The attached instrument was acknowledged before me on the 22nd day of October, 2014 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public





NM OIL CONSERVATION
ARTESIA DISTRICT

APR 13 2015

RECEIVED

Apache Corporation

Eddy County, NM (NAD27 NME)

Lee Federal

#75 AP1#30-015-41414

WB1 / Job #1411871

SL: 2215' FNL + 670' FWL
UL: E 20-175-31E

Survey: Phoenix MWD Survey

Standard Survey Report

16 October, 2014



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #75
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3646.00usft (Capstar 114)
Site:	Lee Federal	MD Reference:	KB @ 3646.00usft (Capstar 114)
Well:	#75	North Reference:	Grid
Wellbore:	WB1 / Job #1411871	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000.GCR DB

Project	Eddy County, NM (NAD27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Lee Federal		
Site Position:		Northing:	664,811.60 usft
From:	Map	Easting:	634,967.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 49' 36.77792 N
		Longitude:	103° 53' 38.26184 W
		Grid Convergence:	0.24 °

Well	#75		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 49' 15.76435 N
		Longitude:	103° 53' 51.88384 W
		Ground Level:	3,635.00 usft

Wellbore	WB1 / Job #1411871		
Magnetics	Model Name	Sample Date	Declination
			(°)
	BGGM2014	9/18/2014	7.55
			Dip Angle
			(°)
			Field Strength
			(nT)
			48,569

Design	Surveys (Capstar 114)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			106.09

Survey Program	Date 10/16/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.00	497.00	Gyro Survey (WB1 / Job #1411871)	NS-GYRO-MS
497.00	6,422.00	Phoenix MWD Survey (WB1 / Job #14118)	PHX+MWD+BGGM
			Description
			North sensing gyrocompassing m/s
			PHX+MWD+BGGM v3:standard declination

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
497.00	0.90	351.70	496.99	1.09	0.21	-0.10	0.00	0.00	0.00	
Tie-on Gyro Survey										
517.00	0.80	337.70	516.99	1.37	0.13	-0.25	1.15	-0.50	-70.00	
First Phoenix MWD Survey										
644.00	0.80	347.90	643.98	3.06	-0.39	-1.22	0.11	0.00	8.03	
772.00	0.80	9.70	771.96	4.82	-0.42	-1.74	0.24	0.00	17.03	
900.00	0.80	17.50	899.95	6.55	-0.01	-1.82	0.09	0.00	6.09	
1,029.00	0.80	48.30	1,028.94	8.01	0.94	-1.32	0.33	0.00	23.88	
1,156.00	1.40	58.10	1,155.92	9.42	2.92	0.19	0.49	0.47	7.72	

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Well:	#75	North Reference:	Grid
Wellbore:	WB1 / Job #1411871	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass.5000 GCR DB

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,284.00	1.60	79.40	1,283.87	10.57	6.00	2.84	0.46	0.16	16.64	
1,415.00	3.30	96.90	1,414.75	10.46	11.54	8.19	1.40	1.30	13.36	
1,544.00	3.90	104.30	1,543.49	8.93	19.48	16.24	0.59	0.47	5.74	
1,672.00	4.00	109.40	1,671.19	6.37	27.91	25.05	0.29	0.08	3.98	
1,800.00	3.90	111.90	1,798.89	3.26	36.16	33.84	0.16	-0.08	1.95	
2,056.00	3.70	107.20	2,054.32	-2.43	52.13	50.76	0.14	-0.08	-1.84	
2,184.00	3.50	104.60	2,182.07	-4.63	59.85	58.79	0.20	-0.16	-2.03	
2,313.00	3.30	101.60	2,310.85	-6.37	67.30	66.43	0.21	-0.16	-2.33	
2,441.00	3.20	110.90	2,438.64	-8.39	74.25	73.66	0.42	-0.08	7.27	
2,569.00	3.00	108.90	2,566.45	-10.75	80.75	80.57	0.18	-0.16	-1.56	
2,697.00	3.50	115.30	2,694.25	-13.50	87.45	87.77	0.48	0.39	5.00	
2,826.00	3.70	118.10	2,822.99	-17.15	94.69	95.73	0.21	0.16	2.17	
2,954.00	4.00	121.90	2,950.70	-21.45	102.12	104.06	0.31	0.23	2.97	
3,082.00	4.40	125.80	3,078.36	-26.68	109.89	112.98	0.38	0.31	3.05	
3,210.00	4.80	125.80	3,205.95	-32.69	118.22	122.65	0.31	0.31	0.00	
3,339.00	4.80	115.80	3,334.50	-38.19	127.46	133.05	0.65	0.00	-7.75	
3,448.00	4.30	105.20	3,443.16	-41.25	135.50	141.63	0.90	-0.46	-9.72	
3,548.00	4.00	105.10	3,542.89	-43.14	142.49	148.86	0.30	-0.30	-0.10	
3,676.00	3.60	104.90	3,670.61	-45.34	150.68	157.35	0.31	-0.31	-0.16	
3,805.00	3.50	105.60	3,799.36	-47.44	158.39	165.33	0.08	-0.08	0.54	
3,933.00	3.40	103.20	3,927.13	-49.36	165.85	173.03	0.14	-0.08	-1.88	
4,061.00	3.40	102.80	4,054.91	-51.06	173.25	180.61	0.02	0.00	-0.31	
4,192.00	3.30	101.10	4,185.68	-52.65	180.73	188.25	0.11	-0.08	-1.30	
4,321.00	3.30	99.00	4,314.47	-53.95	188.04	195.63	0.09	0.00	-1.63	
4,449.00	3.00	100.50	4,442.28	-55.13	194.98	202.62	0.24	-0.23	1.17	
4,577.00	2.90	104.70	4,570.11	-56.56	201.40	209.19	0.19	-0.08	3.28	
4,706.00	2.50	102.90	4,698.96	-58.02	207.30	215.26	0.32	-0.31	-1.40	
4,834.00	3.00	108.10	4,826.81	-59.68	213.21	221.39	0.44	0.39	4.06	
4,962.00	4.50	115.10	4,954.54	-62.86	220.94	229.70	1.22	1.17	5.47	
5,091.00	4.70	116.70	5,083.12	-67.38	230.24	239.89	0.18	0.16	1.24	
5,219.00	4.80	116.00	5,210.68	-72.08	239.74	250.32	0.09	0.08	-0.55	
5,350.00	4.40	115.70	5,341.26	-76.66	249.19	260.68	0.31	-0.31	-0.23	
5,482.00	4.40	111.00	5,472.87	-80.67	258.48	270.72	0.27	0.00	-3.56	
5,610.00	3.80	102.20	5,600.55	-83.33	267.21	279.84	0.68	-0.47	-6.88	
5,738.00	3.50	97.80	5,728.29	-84.76	275.23	287.94	0.32	-0.23	-3.44	
5,870.00	4.10	105.60	5,860.00	-86.57	283.77	296.64	0.60	0.45	5.91	
6,001.00	3.30	101.40	5,990.72	-88.58	291.97	305.08	0.64	-0.61	-3.21	
6,132.00	3.00	99.00	6,121.52	-89.86	299.06	312.24	0.25	-0.23	-1.83	
6,264.00	2.20	74.60	6,253.39	-89.72	304.91	317.83	1.02	-0.61	-18.48	
6,370.00	2.10	72.30	6,359.32	-88.59	308.72	321.18	0.12	-0.09	-2.17	
Last Phoenix MWD Survey										
6,422.00	2.10	72.30	6,411.28	-88.01	310.54	322.77	0.00	0.00	0.00	
Projection to TD										



Phoenix Technology Services

Survey Report



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Survey Annotations				
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		+N/-S (usft)	+E/-W (usft)	
497.00	496.99	1.09	0.21	Tie-on Gyro Survey
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6,370.00	6,359.32	-88.59	308.72	Last Phoenix MWD Survey
6,422.00	6,411.28	-88.01	310.54	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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