

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

Lee Federal #064 API # 30-015-41988
Eddy County, New Mexico 95' FNL + 1835' FWL UL: C 20-178-31E

308

3.08

0.50

0.88

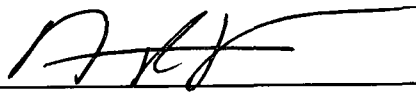
2.70

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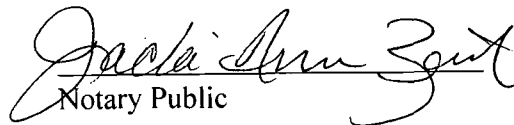
NM OIL CONSERVATION
ARTESIA DISTRICT

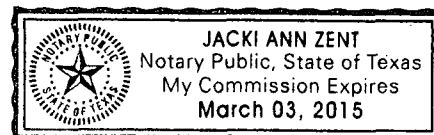
MAY 18 2015

RECEIVED


Archie Brown - General Manager

The attached instrument was acknowledged before me on the 18th day of November, 2014 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public





Apache Corporation

Eddy County, NM (NAD27 NME)

Lee Federal

#64 API #30-015-41988

95' FNW + 1835' FWL WL: C 20-178-31E

WB1 / Job #1411890

Design: Surveys (Capstar 114)

Standard Survey Report

10 November, 2014

NM OIL CONSERVATION
ARTESIA DISTRICT

MAY 18 2015

RECEIVED



PHOENIX
TECHNOLOGY SERVICES

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #64
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3679.00usft (Capstar 114)
Site:	Lee Federal	MD Reference:	KB @ 3679.00usft (Capstar 114)
Well:	#64	North Reference:	Grid
Wellbore:	WB1 / Job #1411890	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR epdm

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	#64		
Well Position	+N/-S	0.00 usft	Northing: 664,811.60 usft
	+E/-W	0.00 usft	Easting: 634,967.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 49' 36.77792 N
		Longitude:	103° 53' 38.26184 W
		Ground Level:	3,668.00 usft

Wellbore	WB1 / Job #1411890				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	10/27/2014	7.54	60.60	48,560

Design	Surveys (Capstar 114)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	115.92	

Survey Program	Date	11/9/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	500.00	Gyrodata Gyro Survey (WB1 / Job #14118)	NS-GYRO-MS	North sensing gyrocompassing m/s	
500.00	6,373.00	Phoenix MWD Survey (WB1 / Job #14118)	PHX+MWD+BGGM	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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.82	146.27	100.00	-0.60	0.40	0.62	0.82	0.82	0.00	
200.00	1.26	144.57	199.98	-2.09	1.43	2.20	0.44	0.44	-1.70	
300.00	1.82	146.36	299.94	-4.30	2.95	4.53	0.56	0.56	1.79	
400.00	2.31	148.55	399.88	-7.35	4.88	7.60	0.50	0.49	2.19	
500.00	2.56	157.86	499.79	-11.13	6.77	10.96	0.47	0.25	9.31	
Tie-on to Gyrodata Gyro Survey										
644.00	2.90	159.30	643.62	-17.52	9.27	16.00	0.24	0.24	1.00	
First Phoenix MWD Survey										

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Well:	#64	North Reference:	Grid
Wellbore:	WB1 / Job #1411890	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR epdm

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)
772.00	1.80	141.20	771.52	-22.12	11.68	20.17	1.03	-0.86	-14.14
901.00	1.30	102.70	900.47	-24.02	14.37	23.43	0.87	-0.39	-29.84
1,029.00	0.90	69.40	1,028.45	-23.98	16.73	25.53	0.58	-0.31	-26.02
1,160.00	1.30	53.40	1,159.43	-22.73	18.89	26.93	0.38	0.31	-12.21
1,292.00	1.30	65.80	1,291.39	-21.23	21.46	28.58	0.21	0.00	9.39
1,423.00	1.30	71.70	1,422.36	-20.15	24.22	30.59	0.10	0.00	4.50
1,551.00	2.70	88.20	1,550.28	-19.60	28.61	34.30	1.17	1.09	12.89
1,679.00	3.70	96.60	1,678.08	-19.98	35.73	40.87	0.86	0.78	6.56
1,808.00	4.90	109.00	1,806.71	-22.25	45.08	50.27	1.17	0.93	9.61
1,936.00	5.60	118.20	1,934.18	-26.98	55.75	61.94	0.85	0.55	7.19
2,065.00	6.00	121.00	2,062.52	-33.43	67.07	74.94	0.38	0.31	2.17
2,193.00	6.00	121.60	2,189.82	-40.38	78.51	88.26	0.05	0.00	0.47
2,320.00	6.20	122.60	2,316.10	-47.55	89.94	101.68	0.18	0.16	0.79
2,448.00	6.20	124.40	2,443.35	-55.18	101.46	115.38	0.15	0.00	1.41
2,577.00	6.40	125.90	2,571.57	-63.33	113.04	129.35	0.20	0.16	1.16
2,705.00	5.60	116.80	2,698.87	-70.33	124.39	142.62	0.97	-0.63	-7.11
2,833.00	6.10	117.70	2,826.20	-76.31	135.99	155.66	0.40	0.39	0.70
2,964.00	6.80	119.70	2,956.37	-83.39	148.88	170.36	0.56	0.53	1.53
3,096.00	7.70	121.60	3,087.32	-91.90	163.20	186.96	0.71	0.68	1.44
3,227.00	8.00	122.20	3,217.09	-101.35	178.39	204.75	0.24	0.23	0.46
3,354.00	8.80	122.80	3,342.73	-111.32	194.04	223.18	0.63	0.63	0.47
3,460.00	9.50	124.40	3,447.38	-120.66	208.07	239.88	0.70	0.66	1.51
3,564.00	9.50	125.70	3,549.95	-130.51	222.12	256.83	0.21	0.00	1.25
3,693.00	8.40	121.30	3,677.38	-141.62	238.82	276.70	1.00	-0.85	-3.41
3,821.00	7.60	113.80	3,804.14	-149.90	254.55	294.47	1.03	-0.63	-5.86
3,950.00	6.00	112.60	3,932.23	-155.93	268.58	309.72	1.25	-1.24	-0.93
4,084.00	4.70	106.00	4,065.64	-160.13	280.33	322.12	1.07	-0.97	-4.93
4,212.00	3.60	92.40	4,193.31	-161.75	289.38	330.98	1.15	-0.86	-10.63
4,340.00	3.60	95.00	4,321.05	-162.27	297.40	338.41	0.13	0.00	2.03
4,468.00	3.60	96.90	4,448.80	-163.10	305.39	345.97	0.09	0.00	1.48
4,597.00	3.60	96.50	4,577.55	-164.04	313.44	353.62	0.02	0.00	-0.31
4,725.00	3.40	103.50	4,705.31	-165.39	321.12	361.11	0.37	-0.16	5.47
4,853.00	3.30	104.50	4,833.09	-167.19	328.38	368.43	0.09	-0.08	0.78
4,981.00	4.70	115.80	4,960.78	-170.40	336.67	377.29	1.25	1.09	8.83
5,109.00	5.90	115.10	5,088.23	-175.47	347.35	389.11	0.94	0.94	-0.55
5,238.00	5.70	115.40	5,216.57	-181.03	359.14	402.14	0.16	-0.16	0.23
5,366.00	5.50	115.10	5,343.96	-186.36	370.44	414.63	0.16	-0.16	-0.23
5,494.00	6.10	112.90	5,471.30	-191.61	382.26	427.56	0.50	0.47	-1.72
5,623.00	6.00	110.70	5,599.58	-196.66	394.88	441.12	0.20	-0.08	-1.71
5,751.00	5.70	111.40	5,726.91	-201.34	407.05	454.12	0.24	-0.23	0.55
5,879.00	5.80	111.10	5,854.27	-205.99	419.00	466.90	0.08	0.08	-0.23
6,010.00	5.90	110.80	5,984.59	-210.77	431.47	480.20	0.08	0.08	-0.23
6,139.00	5.80	110.80	6,112.92	-215.43	443.77	493.30	0.08	-0.08	0.00

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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)
6,267.00	5.90	108.00	6,240.25	-219.76	456.07	506.25	0.24	0.08	-2.19
6,321.00	5.80	108.50	6,293.97	-221.49	461.30	511.71	0.21	-0.19	0.93
Final Phoenix MWD Survey									
6,373.00	5.80	108.50	6,345.70	-223.16	466.28	516.92	0.00	0.00	0.00
Projection to TD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
500.00	499.79	-11.13	6.77	Tie-on to Gyrodata Gyro Survey
644.00	643.62	-17.52	9.27	First Phoenix MWD Survey
6,321.00	6,293.97	-221.49	461.30	Final Phoenix MWD Survey
6,373.00	6,345.70	-223.16	466.28	Projection to TD

Checked By: _____ Approved By: _____ Date: _____