

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

Lee Federal #094
Eddy County, New Mexico

API # 30-015-43365
Sec. 17 17S R31E
105 FSL & 850 FWL

196	1.96	0.50	0.88	1.72	1.72
407	2.11	1.30	2.28	4.80	6.52
577	1.70	1.20	2.10	3.57	10.09
787	2.10	0.90	1.58	3.31	13.39
1000	2.13	1.10	1.93	4.10	17.49
1170	1.70	1.50	2.63	4.46	21.96
1383	2.13	1.40	2.45	5.22	27.17
1596	2.13	0.50	0.88	1.86	29.04
1851	2.55	0.20	0.35	0.89	29.93
2107	2.56	0.10	0.18	0.45	30.38
2320	2.13	0.40	0.70	1.49	31.87
2490	1.70	0.40	0.70	1.19	33.06
2703	2.13	0.60	1.05	2.24	35.30
2916	2.13	0.60	1.05	2.24	37.53
3084	1.68	0.50	0.88	1.47	39.00
3299	2.15	0.10	0.18	0.38	39.38
3557	2.58	0.40	0.70	1.81	41.18
3727	1.70	4.00	7.00	11.90	53.08
3897	1.70	6.10	10.68	18.15	71.23
4068	1.71	9.40	16.45	28.13	99.36
4281	2.13	10.60	18.55	39.51	138.87
4409	1.28	9.50	16.63	21.28	160.15
4664	2.55	9.10	15.93	40.61	200.76
5048	3.84	10.40	18.20	69.89	270.65
5304	2.56	10.00	17.50	44.80	315.45
5560	2.56	9.10	15.93	40.77	356.22
5688	1.28	9.30	16.28	20.83	377.05
6070	3.82	8.90	15.58	59.50	436.55
6326	2.56	8.50	14.88	38.08	474.63
6435	1.09	7.70	13.48	14.69	489.31

NM OIL CONSERVATION
ARTESIA DISTRICT

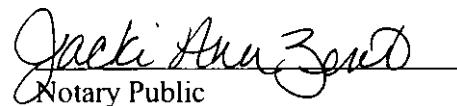
AUG 12 2016

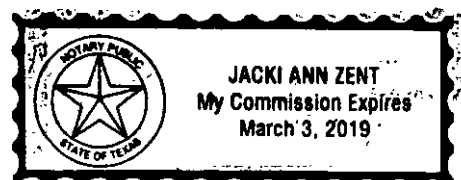
RECEIVED



Archie Brown - General Manager

The attached instrument was acknowledged before me on the 2nd day of November, 2015
by Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public



Apache Corporation

Eddy County, NM (NAD27 NME)

Lee Federal

#94H

OH / Job #1514491

Design: Surveys (Capstar 119)

Standard Survey Report

26 October, 2015

NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 12 2016

RECEIVED

Phoenix Technology Services LP

Survey Report

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #94H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	RKB @ 3683.00usft (Capstar 119)
Site:	Lee Federal	MD Reference:	RKB @ 3683.00usft (Capstar 119)
Well:	#94H	North Reference:	Grid
Wellbore:	OH / Job #1514491	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	Database:	Compass 5000 GCR

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

Well	#94H					
Well Position	+N/-S	0.00 usft	Northing:	665,004.10 usft	Latitude:	32° 49' 38.72307 N
	+E/-W	0.00 usft	Easting:	633,981.10 usft	Longitude:	103° 53' 49.80644 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,672.00 usft	

Wellbore	OH / Job #1514491				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	HDGM	10/16/2015	7.63	60.77	48,556

Design					Surveys (Capstar 119)						
Audit Notes:											
Version:		1.0		Phase:		ACTUAL		Tie On Depth:		0.00	
Vertical Section:		Depth From (TVD)		+N/-S		+E/-W		Direction			
		(usft)		(usft)		(usft)		(°)			
		0.00		0.00		0.00		161.84			

Survey Program	Date 10/26/2015				
From	To	Survey (Wellbore)	Tool Name	Description	
57.00	3,444.00	Scientific Gyro Surveys (OH / Job #1514491)	CB-GYRO-MS	Camera based gyro multishot	
3,444.00	6,435.00	Phoenix MWD Surveys (OH / Job #1514491)	PHX+MWD+HDGM	PHX+OWSG MWD + HDGM	

Survey										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate	
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
57.00	0.39	111.00	57.00	-0.07	0.18	0.12	0.68	0.68	0.00	
146.00	0.42	118.82	146.00	-0.34	0.75	0.55	0.07	0.03	8.79	
235.00	0.85	133.52	234.99	-0.95	1.51	1.37	0.51	0.48	16.52	
324.00	1.29	153.01	323.98	-2.29	2.45	2.94	0.63	0.49	21.90	
413.00	1.31	160.50	412.95	-4.15	3.24	4.95	0.19	0.02	8.42	
502.00	1.20	166.39	501.93	-6.01	3.80	6.90	0.19	-0.12	6.62	
592.00	1.16	163.04	591.91	-7.80	4.29	8.75	0.09	-0.04	-3.72	
762.00	1.09	151.65	761.88	-10.87	5.56	12.06	0.14	-0.04	-6.70	
890.00	1.17	141.76	889.86	-12.97	6.94	14.48	0.16	0.06	-7.73	

Phoenix Technology Services LP

Survey Report

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Site:	Lee Federal	MD Reference:	RKB @ 3683.00usft (Capstar 119)
Well:	#94H	North Reference:	Grid
Wellbore:	OH / Job #1514491	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	Database:	Compass 5000 GCR

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)
1,145.00	1.39	87.25	1,144.80	-14.86	11.65	17.75	0.47	0.09	-21.38
1,273.00	1.51	84.25	1,272.76	-14.62	14.87	18.53	0.11	0.09	-2.34
1,401.00	1.12	89.94	1,400.73	-14.45	17.80	19.28	0.32	-0.30	4.45
1,528.00	0.77	95.36	1,527.71	-14.53	19.89	20.00	0.28	-0.28	4.27
1,656.00	0.50	106.93	1,655.70	-14.77	21.28	20.67	0.23	-0.21	9.04
1,784.00	0.31	123.66	1,783.70	-15.12	22.11	21.26	0.17	-0.15	13.07
1,912.00	0.24	135.36	1,911.70	-15.51	22.58	21.77	0.07	-0.05	9.14
2,039.00	0.28	150.04	2,038.69	-15.96	22.93	22.31	0.06	0.03	11.56
2,167.00	0.30	186.08	2,166.69	-16.57	23.05	22.93	0.14	0.02	28.16
2,295.00	0.38	207.95	2,294.69	-17.28	22.81	23.53	0.12	0.06	17.09
2,550.00	0.63	232.55	2,549.68	-18.88	21.30	24.58	0.13	0.10	9.65
2,678.00	0.66	227.33	2,677.67	-19.80	20.20	25.11	0.05	0.02	-4.08
2,806.00	0.58	230.43	2,805.67	-20.72	19.16	25.66	0.07	-0.06	2.42
2,933.00	0.53	230.75	2,932.66	-21.50	18.21	26.10	0.04	-0.04	0.25
3,061.00	0.43	239.62	3,060.65	-22.11	17.34	26.42	0.10	-0.08	6.93
3,189.00	0.30	248.07	3,188.65	-22.48	16.61	26.54	0.11	-0.10	6.60
3,317.00	0.22	244.64	3,316.65	-22.71	16.08	26.59	0.06	-0.06	-2.68
3,444.00	0.17	258.75	3,443.65	-22.85	15.67	26.60	0.05	-0.04	11.11
Tie In to Gyro Surveys									
3,557.00	0.40	281.50	3,556.65	-22.81	15.12	26.39	0.22	0.20	20.13
First Phoenix MWD Survey									
3,642.00	1.50	188.70	3,641.64	-23.85	14.66	27.23	1.85	1.29	-109.18
3,727.00	4.00	182.00	3,726.53	-27.91	14.39	31.01	2.96	2.94	-7.88
3,812.00	5.80	179.40	3,811.22	-35.17	14.33	37.89	2.13	2.12	-3.06
3,897.00	6.10	179.20	3,895.76	-43.98	14.44	46.29	0.35	0.35	-0.24
3,983.00	8.00	177.80	3,981.11	-54.53	14.74	56.41	2.22	2.21	-1.63
4,068.00	9.40	171.10	4,065.13	-67.30	16.04	68.95	2.03	1.65	-7.88
4,153.00	10.10	160.10	4,148.91	-81.17	19.65	83.25	2.34	0.82	-12.94
4,281.00	10.60	159.40	4,274.83	-102.74	27.61	106.23	0.40	0.39	-0.55
4,409.00	9.50	164.60	4,400.86	-123.95	34.56	128.54	1.11	-0.86	4.06
4,537.00	9.80	165.00	4,527.05	-144.65	40.18	149.97	0.24	0.23	0.31
4,664.00	9.10	158.60	4,652.33	-164.44	46.64	170.79	0.99	-0.55	-5.04
4,792.00	9.60	159.40	4,778.63	-183.86	54.09	191.56	0.40	0.39	0.63
4,920.00	10.00	159.50	4,904.76	-204.26	61.74	213.33	0.31	0.31	0.08
5,048.00	10.40	161.50	5,030.74	-225.63	69.30	235.99	0.42	0.31	1.56
5,176.00	9.80	154.20	5,156.76	-246.39	77.71	258.34	1.10	-0.47	-5.70
5,304.00	10.00	155.30	5,282.85	-266.29	87.09	280.17	0.22	0.16	0.86
5,432.00	8.80	158.60	5,409.13	-285.51	95.31	300.99	1.03	-0.94	2.58
5,560.00	9.10	158.10	5,535.58	-304.02	102.66	320.87	0.24	0.23	-0.39
5,688.00	9.30	160.30	5,661.93	-323.14	109.92	341.31	0.32	0.16	1.72
5,815.00	9.80	161.50	5,787.17	-343.06	116.81	362.37	0.42	0.39	0.94
5,943.00	10.20	163.50	5,913.22	-364.25	123.48	384.60	0.41	0.31	1.56
6,070.00	8.90	163.40	6,038.46	-384.45	129.48	405.66	1.02	-1.02	-0.08

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Well:	#94H	North Reference:	Grid
Wellbore:	OH / Job #1514491	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	Database:	Compass 5000 GCR

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)
6,198.00	8.80	165.80	6,164.94	-403.43	134.71	425.32	0.30	-0.08	1.88
6,326.00	8.50	172.00	6,291.48	-422.29	138.43	444.40	0.76	-0.23	4.84
6,387.00	7.70	174.70	6,351.88	-430.82	139.44	452.82	1.45	-1.31	4.43
Final Phoenix MWD Survey									
6,435.00	7.70	174.70	6,399.44	-437.23	140.03	459.09	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)	
3,444.00	3,443.65	-22.85	15.67	Tie In to Gyro Surveys
3,557.00	3,556.65	-22.81	15.12	First Phoenix MWD Survey
6,387.00	6,351.88	-430.82	139.44	Final Phoenix MWD Survey
6,435.00	6,399.44	-437.23	140.03	Projection to TD

WELL DETAILS

+N-S	+E-W	Ground Level	Latitude	Longitude
0.00	0.00	3672.00	32° 49' 38.72307 N	103° 53' 49.80643 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Diag	TFace	VSec	Target	Annotation
1	3444.00	0.17	258.75	3443.65	-22.83	15.70	0.00	0.00	28.59		Tie In To Scientific Gyro Surveys
2	3600.00	0.17	258.75	3569.85	-22.92	15.25	0.00	0.00	28.53		KOP, Begin 2.00°/100' Build
3	4077.81	9.54	162.73	4075.26	-60.94	26.33	2.00	-97.03	86.11		Hold 9.54° Inc, 162.73° Azm
4	6435.13	9.54	162.73	6400.00	-433.89	142.30	0.00	0.00	456.83	BHL Lee Fed #94H	TD at 6435.13

DESIGN TARGET DETAILS

Name	TVD	+N-S	+E-W	North	East	Latitude	Longitude	Shape
BHL Lee Fed #94H	6400.00	-433.89	142.30	664570.20	634123.40	32° 49' 34.42383 N	103° 53' 48.15680 W	Circle (Radius: 20.00)

plan hits target center

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DpDir
4541.00	4550.08	Glorieta	0.00	161.84
4569.00	4608.85	Yeso	0.00	161.84

LEGEND

— #94H, OH / Job #1514491, Surveys (Capstar 119) VO
— Plan #3 10-22-15

