

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

Lee Federal #077
Eddy County, New Mexico

API# 30-015-42401
L-20-175-31E 1550 FSL 970 F WL

275

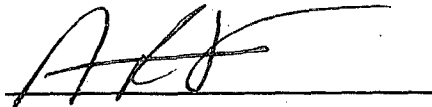
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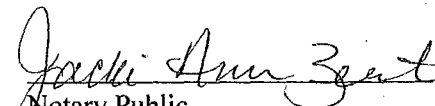
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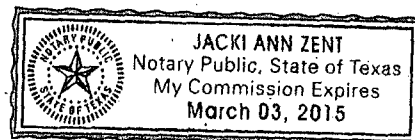
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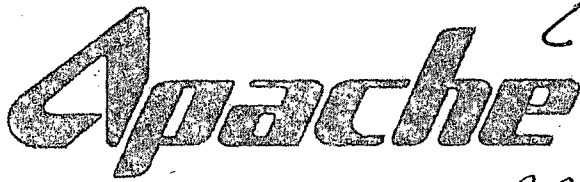
2.41


Archie Brown - General Manager

The attached instrument was acknowledged before me on the 24th day of September, 2014 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public





L-20 T17S, R31E
1550 FSL, 970 FWL

API # 30-015-42401

Apache Corporation

Eddy County, New Mexico

Sec 20, T17-S, R31-E

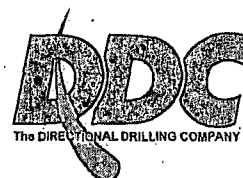
Lee Federal #77

Wellbore #1

Survey: MWD Survey

DDC Survey Report

16 September, 2014





Survey Certification Sheet

Apache Corporation
Company

WT-140904
Job Number

9/16/14
Date

Sec20, T17S, R31E
Lease

Lee Federal #77
Well Name

Eddy, NM
County & State

API: 30-015-42401

Surveyed from a depth of: 450 feet to 6472 feet MD

Type of Survey: MWD

Directional Supervisor/Surveyor: Anthony Carrasco

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by **The Directional Drilling Company (DDC)**. This report represents a true and correct Directional survey of this well based on the original data obtained at the well site. Wellbore Coordinates are calculated using minimum curvature.

Larry Wright
MWD General Manager



Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well-Lee Federal #77
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3644.0usft (Capstar #119)
Site:	Sec 20, T17-S, R31-E	MD Reference:	WELL @ 3644.0usft (Capstar #119)
Well:	Lee Federal #77	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM Compass

Project:	Eddy County, New Mexico		
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		Sec 20, T17-S, R31-E			
Site Position:		Northing:	661,172.80 usft	Latitude:	32° 49' 0.798 N
From:	Map	Easting:	634,332.20 usft	Longitude:	103° 53' 45.878 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.24 °

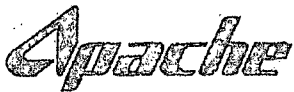
Well:	Lee Federal #77					
Well Position	+N-S	0.0 usft	Northing:	661,171.30 usft	Latitude:	32° 49' 0.791 N
	+E-W	0.0 usft	Easting:	634,122.30 usft	Longitude:	103° 53' 48.337 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,633.0 usft	

Wellbore		Wellbore #1			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/3/2014	7.38	60.60	48,613

Design:	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	359.70	

Survey Program		Date: 9/15/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	450.0	GYRO (Wellbore #1)	Good_gyro	Good Gyro
634.0	6,472.0	MWD Survey (Wellbore #1)	MWD default	MWD - Standard

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)
TIE IN @ 450' MD / 450' TVD									
450.0	0.58	233.56	450.0	0.8	-1.3	0.8	0.00	0.00	0.00
634.0	1.60	181.20	634.0	-2.3	-2.1	-2.3	0.72	0.55	-28.46
823.0	1.40	198.80	822.9	-7.1	-2.9	-7.1	0.26	-0.11	9.31
930.0	1.20	194.90	929.9	-9.4	-3.6	-9.4	0.20	-0.19	-3.64
1,025.0	1.10	193.80	1,024.9	-11.3	-4.1	-11.3	0.11	-0.11	-1.16
1,119.0	1.10	194.90	1,118.8	-13.0	-4.6	-13.0	0.02	0.00	1.17
1,214.0	0.30	67.30	1,213.8	-13.8	-4.6	-13.8	1.37	-0.84	-134.32
1,309.0	1.60	22.60	1,308.8	-12.5	-3.8	-12.5	1.48	1.37	-47.05
1,403.0	2.60	358.00	1,402.8	-9.2	-3.4	-9.1	1.41	1.06	-26.17



Survey Report



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Well:	Lee Federal #77	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM Compass

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)
1,498.0	4.20	358.00	1,497.6	-3.5	-3.6	-3.5	1.68	1.68	0.00
1,593.0	5.30	1.20	1,592.3	4.3	-3.6	4.4	1.19	1.16	3.37
1,688.0	5.40	1.50	1,686.8	13.2	-3.4	13.2	0.11	0.11	0.32
1,782.0	5.10	1.20	1,780.4	21.8	-3.2	21.8	0.32	-0.32	-0.32
1,878.0	5.30	0.80	1,876.0	30.5	-3.1	30.5	0.21	0.21	-0.42
1,972.0	5.40	0.80	1,969.6	39.3	-2.9	39.3	0.11	0.11	0.00
2,067.0	5.30	2.20	2,064.2	48.1	-2.7	48.1	0.17	-0.11	1.47
2,162.0	5.60	3.30	2,158.8	57.1	-2.3	57.1	0.33	0.32	1.16
2,256.0	5.80	2.20	2,252.3	66.4	-1.8	66.5	0.24	0.21	-1.17
2,351.0	6.30	2.60	2,346.8	76.4	-1.4	76.5	0.53	0.53	0.42
2,446.0	6.30	1.90	2,441.2	86.9	-1.0	86.9	0.08	0.00	-0.74
2,540.0	7.20	1.20	2,534.6	97.9	-0.7	97.9	0.96	0.96	-0.74
2,635.0	8.30	357.30	2,628.7	110.7	-0.9	110.7	1.28	1.16	-4.11
2,730.0	9.50	358.00	2,722.6	125.4	-1.5	125.4	1.27	1.26	0.74
2,825.0	10.20	359.40	2,816.2	141.6	-1.9	141.6	0.78	0.74	1.47
2,919.0	9.70	0.80	2,908.7	157.9	-1.8	157.9	0.59	-0.53	1.49
3,014.0	10.00	1.50	3,002.3	174.1	-1.5	174.1	0.34	0.32	0.74
3,109.0	10.60	2.90	3,095.8	191.1	-0.9	191.1	0.68	0.63	1.47
3,203.0	10.00	4.70	3,188.3	207.9	0.3	207.9	0.72	-0.64	1.91
3,329.0	9.50	6.40	3,312.5	229.1	2.3	229.1	0.46	-0.40	1.35
3,465.0	9.70	10.00	3,446.6	251.5	5.6	251.5	0.47	0.15	2.65
3,529.0	10.20	9.60	3,509.6	262.4	7.4	262.4	0.79	0.78	-0.63
3,623.0	10.20	3.30	3,602.1	279.0	9.3	278.9	1.19	0.00	-6.70
3,718.0	9.50	355.90	3,695.7	295.2	9.2	295.1	1.52	-0.74	-7.79
3,813.0	9.00	354.90	3,789.5	310.4	8.0	310.4	0.55	-0.53	-1.05
3,907.0	9.00	353.40	3,882.3	325.0	6.5	325.0	0.25	0.00	-1.60
4,002.0	9.00	353.10	3,976.2	339.8	4.8	339.8	0.05	0.00	-0.32
4,097.0	9.10	353.40	4,070.0	354.6	3.0	354.6	0.12	0.11	0.32
4,192.0	9.30	352.70	4,163.8	369.7	1.2	369.7	0.24	0.21	-0.74
4,287.0	9.30	353.40	4,257.5	384.9	-0.7	384.9	0.12	0.00	0.74
4,381.0	9.30	353.40	4,350.3	400.0	-2.4	400.0	0.00	0.00	0.00
4,476.0	9.50	353.10	4,444.0	415.4	-4.3	415.5	0.22	0.21	-0.32
4,571.0	9.50	2.20	4,537.7	431.1	-4.9	431.1	1.58	0.00	9.58
4,665.0	8.80	1.50	4,630.5	446.0	-4.4	446.0	0.75	-0.74	-0.74
4,854.0	9.00	3.30	4,817.2	475.2	-3.2	475.2	0.18	0.11	0.95
5,044.0	9.00	5.40	5,004.9	504.8	-0.9	504.8	0.17	0.00	1.11
5,234.0	9.50	355.90	5,192.4	535.3	-0.7	535.3	0.84	0.26	-5.00
5,423.0	9.10	357.00	5,379.0	565.8	-2.6	565.8	0.23	-0.21	0.58
5,611.0	9.00	356.30	5,564.6	595.3	-4.3	595.3	0.08	-0.05	-0.37
5,801.0	8.40	351.70	5,752.4	623.8	-7.2	623.9	0.48	-0.32	-2.42
5,991.0	9.10	355.20	5,940.2	652.5	-10.5	652.6	0.46	0.37	1.84
6,180.0	10.40	357.70	6,126.5	684.5	-12.4	684.5	0.72	0.69	1.32
6,370.0	10.70	349.90	6,313.3	719.0	-16.2	719.1	0.77	0.16	-4.11



Survey Report



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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)
6,422.0	10.70	349.20	6,364.4	728.5	-18.0	728.6	0.25	0.00	-1.35
TD @ 6472' MD / 6413.5' TVD									
6,472.0	10.70	349.20	6,413.5	737.6	-19.7	737.7	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
450.0	450.0	0.8	-1.3	TIE IN @ 450' MD / 450' TVD
6,472.0	6,413.5	737.6	-19.7	TD @ 6472' MD / 6413.5' TVD

Checked By: _____ Approved By: _____ Date: _____

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

DAMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 3001542401	Pool Code 96831	Pool Name Cedar Lake; Glorieta - 4ASO
Property Code 308720	Property Name LEE FEDERAL	Well Number 77
OGRID No. 873	Operator Name APACHE CORPORATION	Elevation 3633'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	20	17-S	31-E		1550	SOUTH	970	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	20	17-S	31-E		2288	SOUTH	950	WEST	EDDY
Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

NOTE: AS-DRILLED PATH AND B.H. PLOTTED FROM DDC SURVEY REPORT DATED 09/16/2014	CORNER COORDINATES TABLE NAD 27 NME A - Y=662251.2 N, X=633145.7 E B - Y=662261.6 N, X=634466.5 E C - Y=660942.9 N, X=634473.9 E D - Y=660933.0 N, X=633153.9 E		OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Emily Follis</i> 11/20/14 Signature Date Emily Follis Printed Name emily.follis@apachecorp.com E-mail Address	
	GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=661171.3 N X=634122.3 E LAT.=32.816886° N LONG.=103.896760° W LAT.=32° 49' 01" N LONG.=103° 53' 48" W		GEODETIC COORDINATES NAD 83 NME SURFACE LOCATION Y=661235.1 N X=675301.0 E LAT.=32.817004° N LONG.=103.897267° W LAT.=32° 49' 01" N LONG.=103° 53' 50" W	
	AS-DRILLED B.H. LOCATION Y=661908.7 N X=634102.6 E LAT.=32.818914° N LONG.=103.896815° W LAT.=32° 49' 08" N LONG.=103° 53' 49" W		AS-DRILLED B.H. LOCATION Y=661972.5 N X=675281.3 E LAT.=32.81903° N LONG.=103.897321° W LAT.=32° 49' 09" N LONG.=103° 53' 50" W	
	CORNER COORDINATES TABLE NAD 83 NME A - Y=662315.0 N, X=674324.4 E B - Y=662325.4 N, X=675645.2 E C - Y=661006.7 N, X=675652.6 E D - Y=660996.8 N, X=674332.6 E		SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. MARCH 25, 2013 Date of Survey Signature & Seal of Professional Surveyor: <i>Ronald J. Eidson</i> 11/12/2014 Certificate Number Gary G. Eidson 12641 Ronald J. Eidson 3239 LSL REL W.O. 131328 JWSC W.O.: 14.13.1203	