



Apache Corporation

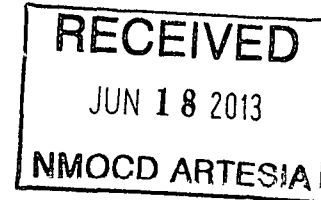
Eddy County, New Mexico
Sec 20, T17-S, R31-E
Lee Federal #58

Wellbore #1

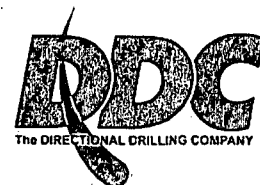
Design: Wellbore #1

DDC Survey Report

19 April, 2013



30-015-40175





Survey Certification Sheet

Apache Corporation
Company

WT-13203
Job Number

4/23/13
Date

Sec 20, T-17-S,R31-E
Lease

Lee Federal # 58
Well Name

Eddy, NM
County & State

API: 30-015-40175

Surveyed from a depth of: 100 feet to 6412 feet MD

Type of Survey: MWD

Directional Supervisor/Surveyor: Orlando Saucedo

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.

Digitally signed by Larry Wright
DN: cn=Larry Wright, o=The
Directional Drilling Company,
ou=GM of Guidance Services,
email=larryw@directionaldrillers.
com, c=US
Date: 2013.04.23 16:02:15 -05'00'

Larry Wright
MWD General Manager



DDC Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well Lee Federal #58
Project:	Eddy County, New Mexico	TVD Reference:	WELL @ 3652.0usft (Original Well Elev)
Site:	Sec 20, T17-S, R31-E	MD Reference:	WELL @ 3652.0usft (Original Well Elev)
Well:	Lee Federal #58	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

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
From:	Map	Easting:	634,332.20 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 49' 0.798 N
		Longitude:	103° 53' 45.878 W
		Grid Convergence:	0.24 °

Well	Lee Federal #58		
Well Position	+N/-S	0.0 usft	Northing: 663,629.30 usft
	+E/-W	0.0 usft	Easting: 635,948.20 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 49' 25.038 N
		Longitude:	103° 53' 26.821 W
		Ground Level:	3,652.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	11/26/2012	7.60
			Dip Angle (°)
			60.65
			Field Strength (nT)
			48,795

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction (°)
			28.12

Survey Program	Date 4/19/2013		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.0	6,412.0	MWD (Wellbore #1)	MWD default
			Description
			MWD - Standard

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)
FIRST MWD SURVEY @ 100' MD / 100' TVD									
100.0	0.23	302.58	100.0	0.1	-0.2	0.0	0.23	0.23	0.00
200.0	0.26	254.86	200.0	0.2	-0.6	-0.1	0.20	0.03	-47.72
250.0	1.52	330.09	250.0	0.7	-1.0	0.1	2.95	2.52	150.46
347.0	2.00	349.40	346.9	3.5	-2.0	2.2	0.78	0.49	19.91
434.0	1.20	332.40	433.9	5.8	-2.7	3.8	1.06	-0.92	-19.54
524.0	1.20	317.80	523.9	7.3	-3.7	4.7	0.34	0.00	-16.22
610.0	1.30	307.90	609.9	8.6	-5.1	5.2	0.28	0.12	-11.51
699.0	1.20	317.40	698.9	9.9	-6.5	5.6	0.26	-0.11	10.67
791.0	1.00	323.20	790.8	11.2	-7.7	6.3	0.25	-0.22	6.30



DDC
Survey Report



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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User 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)
886.0	1.20	345.90	885.8	12.9	-8.4	7.4	0.50	0.21	23.89
981.0	1.10	349.00	980.8	14.7	-8.8	8.8	0.12	-0.11	3.26
1,075.0	1.10	9.30	1,074.8	16.5	-8.8	10.4	0.41	0.00	21.60
1,171.0	1.70	13.10	1,170.8	18.8	-8.4	12.6	0.63	0.63	3.96
1,265.0	2.00	23.50	1,264.7	21.7	-7.4	15.6	0.48	0.32	11.06
1,360.0	1.90	31.20	1,359.6	24.5	-5.9	18.8	0.29	-0.11	8.11
1,455.0	1.90	30.70	1,454.6	27.2	-4.3	22.0	0.02	0.00	-0.53
1,549.0	2.10	29.10	1,548.5	30.1	-2.7	25.3	0.22	0.21	-1.70
1,644.0	2.20	28.60	1,643.5	33.2	-0.9	28.8	0.11	0.11	-0.53
2,403.0	3.90	30.70	2,401.4	68.2	19.2	69.2	0.22	0.22	0.28
2,498.0	4.50	36.00	2,496.1	74.0	23.0	76.1	0.75	0.63	5.58
2,593.0	4.80	33.70	2,590.8	80.3	27.4	83.8	0.37	0.32	-2.42
2,688.0	4.80	33.70	2,685.5	86.9	31.9	91.7	0.00	0.00	0.00
2,783.0	3.90	39.30	2,780.2	92.7	36.1	98.8	1.05	-0.95	5.89
2,878.0	4.00	45.30	2,875.0	97.6	40.5	105.1	0.45	0.11	6.32
2,973.0	3.90	42.50	2,969.7	102.3	45.0	111.4	0.23	-0.11	-2.95
3,068.0	3.80	34.40	3,064.5	107.2	49.0	117.7	0.58	-0.11	-8.53
3,162.0	4.00	24.90	3,158.3	112.8	52.1	124.1	0.72	0.21	-10.11
3,226.0	4.20	38.40	3,222.2	116.6	54.5	128.6	1.54	0.31	21.09
3,321.0	4.00	42.50	3,316.9	121.8	58.9	135.2	0.37	-0.21	4.32
3,416.0	2.90	18.00	3,411.7	126.5	61.9	140.8	1.91	-1.16	-25.79
3,459.0	3.10	12.80	3,454.7	128.7	62.5	143.0	0.78	0.47	-12.09
3,542.0	3.10	7.70	3,537.6	133.1	63.3	147.3	0.33	0.00	-6.14
3,636.0	3.10	14.70	3,631.4	138.1	64.3	152.1	0.40	0.00	7.45
3,732.0	4.60	55.70	3,727.2	142.8	68.1	158.0	3.17	1.56	42.71
3,826.0	4.20	50.20	3,820.9	147.1	73.9	164.6	0.62	-0.43	-5.85
3,921.0	3.30	13.80	3,915.8	152.0	77.2	170.5	2.62	-0.95	-38.32
4,016.0	4.20	18.60	4,010.5	157.9	79.0	176.5	1.00	0.95	5.05
4,775.0	3.60	20.00	4,767.8	206.7	96.0	227.5	0.08	-0.08	0.18
4,870.0	3.20	16.30	4,862.6	212.0	97.8	233.1	0.48	-0.42	-3.89
4,965.0	4.50	28.30	4,957.4	217.9	100.3	239.4	1.60	1.37	12.63
5,060.0	4.40	31.90	5,052.1	224.2	104.0	246.8	0.31	-0.11	3.79
5,155.0	4.50	20.50	5,146.8	230.8	107.2	254.1	0.94	0.11	-12.00
5,250.0	4.60	18.40	5,241.5	237.9	109.7	261.5	0.20	0.11	-2.21
5,345.0	3.80	29.10	5,336.3	244.3	112.4	268.4	1.18	-0.84	11.26
5,440.0	3.90	33.90	5,431.1	249.7	115.8	274.8	0.36	0.11	5.05
5,535.0	3.80	18.60	5,525.9	255.4	118.6	281.1	1.08	-0.11	-16.11
5,630.0	4.00	20.90	5,620.6	261.5	120.8	287.5	0.27	0.21	2.42
5,725.0	3.80	28.30	5,715.4	267.3	123.4	294.0	0.57	-0.21	7.79
5,820.0	4.00	17.90	5,810.2	273.3	126.0	300.4	0.77	0.21	-10.95
5,915.0	3.60	20.30	5,905.0	279.2	128.0	306.6	0.45	-0.42	2.53
6,010.0	3.40	23.30	5,999.8	284.6	130.2	312.3	0.29	-0.21	3.16
6,105.0	3.90	15.90	6,094.6	290.3	132.2	318.3	0.72	0.53	-7.79
6,200.0	3.60	16.30	6,189.4	296.3	133.9	324.4	0.32	-0.32	0.42



DDC
Survey Report



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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)
6,295.0	3.20	28.90	6,284.2	301.4	136.0	330.0	0.89	-0.42	13.26
TD @ 6412' MD / 6401.1' TVD									
6,412.0	3.30	25.10	6,401.1	307.3	139.0	336.6	0.20	0.09	-3.25

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
100.0	100.0	0.1	-0.2	FIRST MWD SURVEY @ 100' MD / 100' TVD
6,412.0	6,401.1	307.3	139.0	TD @ 6412' MD / 6401.1' TVD

Checked By: _____	Approved By: _____	Date: _____
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