

API #: 30-015-42359

UL.K, Sec.01, T18S, R27E, 1960' FSL 2063' FWL



Apache Corporation

Eddy County, New Mexico

Sec 1, T18S, R27E

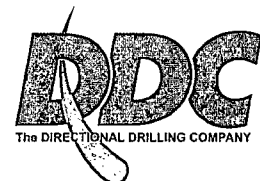
AAO Federal #27

Wellbore #1

Plan: Design #5

DDC Well Planning Report

10 June, 2014





DDC
Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well AAO Federal #27
Company:	Apache Corporation	TVD Reference:	WELL @ 3615.0usft (Capstar #118)
Project:	Eddy County, New Mexico	MD Reference:	WELL @ 3615.0usft (Capstar #118)
Site:	Sec 1, T18S, R27E	North Reference:	Grid
Well:	AAO Federal #27	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #5		

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 1, T18S, R27E		
Site Position:		Northing:	645,438.80 usft
From:	Map	Easting:	530,705.90 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 46' 27.708 N
		Longitude:	104° 14' 0.354 W
		Grid Convergence:	0.05 °

Well	AAO Federal #27		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level:
			3,604.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	6/9/2014	7.57
			Dip Angle
			(°)
			60.51
			Field Strength
			(nT)
			48,575

Design	Design #5		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			233.79

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,235.1	7.35	233.79	1,233.1	-27.8	-38.0	1.00	1.00	-17.17	233.79	
4,629.9	7.35	233.79	4,600.0	-284.4	-388.5	0.00	0.00	0.00	0.00	PBHL Target AAO Fe



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Well:	AAO Federal #27	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #5		

Planned 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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
Build 1°/100									
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	1.00	233.79	600.0	-0.5	-0.7	0.9	1.00	1.00	0.00
700.0	2.00	233.79	700.0	-2.1	-2.8	3.5	1.00	1.00	0.00
800.0	3.00	233.79	799.9	-4.6	-6.3	7.9	1.00	1.00	0.00
900.0	4.00	233.79	899.7	-8.2	-11.3	14.0	1.00	1.00	0.00
1,000.0	5.00	233.79	999.4	-12.9	-17.6	21.8	1.00	1.00	0.00
1,100.0	6.00	233.79	1,098.9	-18.5	-25.3	31.4	1.00	1.00	0.00
1,200.0	7.00	233.79	1,198.3	-25.2	-34.5	42.7	1.00	1.00	0.00
End of Build @ 7.35° Inc.									
1,235.1	7.35	233.79	1,233.1	-27.8	-38.0	47.1	1.00	1.00	0.00
1,300.0	7.35	233.79	1,297.5	-32.7	-44.7	55.4	0.00	0.00	0.00
1,400.0	7.35	233.79	1,396.6	-40.3	-55.0	68.2	0.00	0.00	0.00
1,500.0	7.35	233.79	1,495.8	-47.8	-65.3	81.0	0.00	0.00	0.00
1,600.0	7.35	233.79	1,595.0	-55.4	-75.7	93.8	0.00	0.00	0.00
1,700.0	7.35	233.79	1,694.2	-63.0	-86.0	106.6	0.00	0.00	0.00
1,800.0	7.35	233.79	1,793.3	-70.5	-96.3	119.4	0.00	0.00	0.00
1,900.0	7.35	233.79	1,892.5	-78.1	-106.6	132.2	0.00	0.00	0.00
2,000.0	7.35	233.79	1,991.7	-85.6	-117.0	145.0	0.00	0.00	0.00
2,100.0	7.35	233.79	2,090.9	-93.2	-127.3	157.8	0.00	0.00	0.00
2,200.0	7.35	233.79	2,190.1	-100.7	-137.6	170.6	0.00	0.00	0.00
2,300.0	7.35	233.79	2,289.2	-108.3	-147.9	183.3	0.00	0.00	0.00
2,400.0	7.35	233.79	2,388.4	-115.9	-158.3	196.1	0.00	0.00	0.00
2,500.0	7.35	233.79	2,487.6	-123.4	-168.6	208.9	0.00	0.00	0.00
2,600.0	7.35	233.79	2,586.8	-131.0	-178.9	221.7	0.00	0.00	0.00
2,700.0	7.35	233.79	2,685.9	-138.5	-189.2	234.5	0.00	0.00	0.00
2,800.0	7.35	233.79	2,785.1	-146.1	-199.6	247.3	0.00	0.00	0.00
2,900.0	7.35	233.79	2,884.3	-153.7	-209.9	260.1	0.00	0.00	0.00
3,000.0	7.35	233.79	2,983.5	-161.2	-220.2	272.9	0.00	0.00	0.00
3,100.0	7.35	233.79	3,082.7	-168.8	-230.5	285.7	0.00	0.00	0.00
3,200.0	7.35	233.79	3,181.8	-176.3	-240.9	298.5	0.00	0.00	0.00
3,300.0	7.35	233.79	3,281.0	-183.9	-251.2	311.3	0.00	0.00	0.00
Glorieta									
3,394.8	7.35	233.79	3,375.0	-191.0	-261.0	323.4	0.00	0.00	0.00
3,400.0	7.35	233.79	3,380.2	-191.4	-261.5	324.1	0.00	0.00	0.00
3,500.0	7.35	233.79	3,479.4	-199.0	-271.8	336.9	0.00	0.00	0.00
3,600.0	7.35	233.79	3,578.5	-206.6	-282.2	349.7	0.00	0.00	0.00
3,700.0	7.35	233.79	3,677.7	-214.1	-292.5	362.5	0.00	0.00	0.00
3,800.0	7.35	233.79	3,776.9	-221.7	-302.8	375.3	0.00	0.00	0.00
3,900.0	7.35	233.79	3,876.1	-229.2	-313.1	388.1	0.00	0.00	0.00
4,000.0	7.35	233.79	3,975.3	-236.8	-323.5	400.9	0.00	0.00	0.00
4,100.0	7.35	233.79	4,074.4	-244.3	-333.8	413.7	0.00	0.00	0.00
4,200.0	7.35	233.79	4,173.6	-251.9	-344.1	426.5	0.00	0.00	0.00
4,300.0	7.35	233.79	4,272.8	-259.5	-354.4	439.3	0.00	0.00	0.00
4,400.0	7.35	233.79	4,372.0	-267.0	-364.8	452.1	0.00	0.00	0.00
4,500.0	7.35	233.79	4,471.1	-274.6	-375.1	464.8	0.00	0.00	0.00
4,600.0	7.35	233.79	4,570.3	-282.1	-385.4	477.6	0.00	0.00	0.00
PBHL @ 4630' MD / 4600' TVD									
4,629.9	7.35	233.79	4,600.0	-284.4	-388.5	481.5	0.00	0.00	0.00



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Wellbore:	Wellbore #1		
Design:	Design #5		

Planned 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)

Design Targets									
Target Name	hit/miss target	Dip Angle (°)	Dip Dir (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude Longitude
PBHL Target AAO Fede	- plan hits target center - Point	0.00	0.00	4,600.0	-284.4	-388.5	645,154.40	530,317.40	32° 46' 24.897 N 104° 14' 4.907 W

Formations							Dip	
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Direction (°)			
3,394.8	3,375.0	Glorieta		0.00	234.33			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
500.0	500.0	0.0	0.0	Build 1°/100'	
1,235.1	1,233.1	-27.8	-38.0	End of Build @ 7.35° Inc.	
4,629.9	4,600.0	-284.4	-388.5	PBHL @ 4630' MD / 4600' TVD	