



Apache Corporation

Eddy County, New Mexico

Sec 1, T18S, R27E

AAO Federal #30

Wellbore #1

15-42360

Plan: Design #2

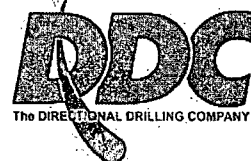
DDC Curve Report

08 January, 2014

NM OIL CONSERVATION
ARTESIA DISTRICT

OCT 16 2014

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DDC
Curve Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well: AAO Federal #30
Company:	Apache Corporation	TVD Reference:	WELL @ 3581.0usft (Capstar #118)
Project:	Eddy County New Mexico	MD Reference:	WELL @ 3581.0usft (Capstar #118)
Site:	Sec 1, T18S, R27E	North Reference:	Grid
Well:	AAO Federal #30	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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 #30		
Well Position	+N/-S -675.2 usft	Northing:	644,763.60 usft
	+E/-W -1,772.2 usft	Easting:	528,933.70 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	
		Latitude:	32° 46' 21.042 N
		Longitude:	104° 14' 21.118 W
		Ground Level:	3,570.0 usft

Wellbore		Wellbore #1			
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	12/20/2013	7.63	60.52	48,620

Design:	Design #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	9.32

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
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	
1,476.6	14.65	9.32	1,466.0	122.5	20.1	1.50	1.50	0.00	9.32	
1,951.9	14.65	9.32	1,925.8	241.1	39.6	0.00	0.00	0.00	0.00	
3,123.8	0.00	0.00	3,085.0	388.2	63.7	1.25	-1.25	0.00	180.00	VP AAO Federal #30
4,538.8	0.00	0.00	4,500.0	388.2	63.7	0.00	0.00	0.00	0.00	



DDC
Curve Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well AAO Federal #30
Company:	Apache Corporation	TVD Reference:	WELL @ 3581.0usft (Capstar #118)
Project:	Eddy County, New Mexico	MD Reference:	WELL @ 3581.0usft (Capstar #118)
Site:	Sec 14 T18S R27E	North Reference:	Grid
Well:	AAO Federal #30	Survey/Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)
KOP @ 500' / Build @ 1.5°/100'									
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
510.0	0.15	9.32	510.0	0.0	0.0	0.0	1.50	1.50	0.00
540.0	0.60	9.32	540.0	0.2	0.0	0.2	1.50	1.50	0.00
570.0	1.05	9.32	570.0	0.6	0.1	0.6	1.50	1.50	0.00
600.0	1.50	9.32	600.0	1.3	0.2	1.3	1.50	1.50	0.00
630.0	1.95	9.32	630.0	2.2	0.4	2.2	1.50	1.50	0.00
660.0	2.40	9.32	660.0	3.3	0.5	3.4	1.50	1.50	0.00
690.0	2.85	9.32	689.9	4.7	0.8	4.7	1.50	1.50	0.00
720.0	3.30	9.32	719.9	6.3	1.0	6.3	1.50	1.50	0.00
750.0	3.75	9.32	749.8	8.1	1.3	8.2	1.50	1.50	0.00
780.0	4.20	9.32	779.7	10.1	1.7	10.3	1.50	1.50	0.00
810.0	4.65	9.32	809.7	12.4	2.0	12.6	1.50	1.50	0.00
840.0	5.10	9.32	839.6	14.9	2.4	15.1	1.50	1.50	0.00
870.0	5.55	9.32	869.4	17.7	2.9	17.9	1.50	1.50	0.00
900.0	6.00	9.32	899.3	20.6	3.4	20.9	1.50	1.50	0.00
930.0	6.45	9.32	929.1	23.9	3.9	24.2	1.50	1.50	0.00
960.0	6.90	9.32	958.9	27.3	4.5	27.7	1.50	1.50	0.00
990.0	7.35	9.32	988.7	31.0	5.1	31.4	1.50	1.50	0.00
1,020.0	7.80	9.32	1,018.4	34.9	5.7	35.3	1.50	1.50	0.00
1,050.0	8.25	9.32	1,048.1	39.0	6.4	39.5	1.50	1.50	0.00
1,080.0	8.70	9.32	1,077.8	43.4	7.1	44.0	1.50	1.50	0.00
1,110.0	9.15	9.32	1,107.4	48.0	7.9	48.6	1.50	1.50	0.00
1,140.0	9.60	9.32	1,137.0	52.8	8.7	53.5	1.50	1.50	0.00
1,170.0	10.05	9.32	1,166.6	57.8	9.5	58.6	1.50	1.50	0.00
1,200.0	10.50	9.32	1,196.1	63.1	10.4	64.0	1.50	1.50	0.00
1,230.0	10.95	9.32	1,225.6	68.6	11.3	69.5	1.50	1.50	0.00
1,260.0	11.40	9.32	1,255.0	74.4	12.2	75.4	1.50	1.50	0.00
1,290.0	11.85	9.32	1,284.4	80.3	13.2	81.4	1.50	1.50	0.00
1,320.0	12.30	9.32	1,313.7	86.5	14.2	87.7	1.50	1.50	0.00
1,350.0	12.75	9.32	1,343.0	92.9	15.3	94.2	1.50	1.50	0.00
1,380.0	13.20	9.32	1,372.2	99.6	16.3	100.9	1.50	1.50	0.00
1,410.0	13.65	9.32	1,401.4	106.5	17.5	107.9	1.50	1.50	0.00
1,440.0	14.10	9.32	1,430.5	113.6	18.6	115.1	1.50	1.50	0.00
1,470.0	14.55	9.32	1,459.6	120.9	19.8	122.5	1.50	1.50	0.00
End of Build @ 14.65° Inc.									
1,476.6	14.65	9.32	1,466.0	122.5	20.1	124.2	1.50	1.50	0.00
1,500.0	14.65	9.32	1,488.6	128.4	21.1	130.1	0.00	0.00	0.00
1,530.0	14.65	9.32	1,517.7	135.9	22.3	137.7	0.00	0.00	0.00
1,560.0	14.65	9.32	1,546.7	143.3	23.5	145.3	0.00	0.00	0.00
1,590.0	14.65	9.32	1,575.7	150.8	24.8	152.8	0.00	0.00	0.00
1,620.0	14.65	9.32	1,604.7	158.3	26.0	160.4	0.00	0.00	0.00
1,650.0	14.65	9.32	1,633.8	165.8	27.2	168.0	0.00	0.00	0.00
1,680.0	14.65	9.32	1,662.8	173.3	28.4	175.6	0.00	0.00	0.00
1,710.0	14.65	9.32	1,691.8	180.8	29.7	183.2	0.00	0.00	0.00
1,740.0	14.65	9.32	1,720.8	188.3	30.9	190.8	0.00	0.00	0.00
1,770.0	14.65	9.32	1,749.9	195.7	32.1	198.4	0.00	0.00	0.00
1,800.0	14.65	9.32	1,778.9	203.2	33.4	206.0	0.00	0.00	0.00
1,830.0	14.65	9.32	1,807.9	210.7	34.6	213.5	0.00	0.00	0.00
1,860.0	14.65	9.32	1,836.9	218.2	35.8	221.1	0.00	0.00	0.00
1,890.0	14.65	9.32	1,866.0	225.7	37.0	228.7	0.00	0.00	0.00
1,920.0	14.65	9.32	1,895.0	233.2	38.3	236.3	0.00	0.00	0.00
1,950.0	14.65	9.32	1,924.0	240.7	39.5	243.9	0.00	0.00	0.00



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Well:	AAO Federal #30	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)
End of Tangent / Drop @ 1.25°/100'									
1,951.9	14.65	9.32	1,925.8	241.1	39.6	244.4	0.00	0.00	0.00
1,980.0	14.30	9.32	1,953.1	248.1	40.7	251.4	1.25	-1.25	0.00
2,010.0	13.92	9.32	1,982.1	255.3	41.9	258.7	1.25	-1.25	0.00
2,040.0	13.55	9.32	2,011.3	262.3	43.0	265.8	1.25	-1.25	0.00
2,070.0	13.17	9.32	2,040.5	269.2	44.2	272.8	1.25	-1.25	0.00
2,100.0	12.80	9.32	2,069.7	275.8	45.3	279.5	1.25	-1.25	0.00
2,130.0	12.42	9.32	2,099.0	282.3	46.3	286.0	1.25	-1.25	0.00
2,160.0	12.05	9.32	2,128.3	288.5	47.4	292.4	1.25	-1.25	0.00
2,190.0	11.67	9.32	2,157.7	294.6	48.4	298.6	1.25	-1.25	0.00
2,220.0	11.30	9.32	2,187.1	300.5	49.3	304.5	1.25	-1.25	0.00
2,250.0	10.92	9.32	2,216.5	306.2	50.3	310.3	1.25	-1.25	0.00
2,280.0	10.55	9.32	2,246.0	311.7	51.2	315.9	1.25	-1.25	0.00
2,310.0	10.17	9.32	2,275.5	317.1	52.0	321.3	1.25	-1.25	0.00
2,340.0	9.80	9.32	2,305.0	322.2	52.9	326.5	1.25	-1.25	0.00
2,370.0	9.42	9.32	2,334.6	327.1	53.7	331.5	1.25	-1.25	0.00
2,400.0	9.05	9.32	2,364.2	331.9	54.5	336.3	1.25	-1.25	0.00
2,430.0	8.67	9.32	2,393.9	336.5	55.2	341.0	1.25	-1.25	0.00
2,460.0	8.30	9.32	2,423.5	340.8	55.9	345.4	1.25	-1.25	0.00
2,490.0	7.92	9.32	2,453.2	345.0	56.6	349.6	1.25	-1.25	0.00
2,520.0	7.55	9.32	2,483.0	349.0	57.3	353.6	1.25	-1.25	0.00
2,550.0	7.17	9.32	2,512.7	352.8	57.9	357.5	1.25	-1.25	0.00
2,580.0	6.80	9.32	2,542.5	356.4	58.5	361.1	1.25	-1.25	0.00
2,610.0	6.42	9.32	2,572.3	359.8	59.0	364.6	1.25	-1.25	0.00
2,640.0	6.05	9.32	2,602.1	363.0	59.6	367.8	1.25	-1.25	0.00
2,670.0	5.67	9.32	2,632.0	366.0	60.1	370.9	1.25	-1.25	0.00
2,700.0	5.30	9.32	2,661.8	368.8	60.5	373.8	1.25	-1.25	0.00
2,730.0	4.92	9.32	2,691.7	371.5	61.0	376.5	1.25	-1.25	0.00
2,760.0	4.55	9.32	2,721.6	373.9	61.4	378.9	1.25	-1.25	0.00
2,790.0	4.17	9.32	2,751.5	376.2	61.7	381.2	1.25	-1.25	0.00
2,820.0	3.80	9.32	2,781.4	378.2	62.1	383.3	1.25	-1.25	0.00
2,850.0	3.42	9.32	2,811.4	380.1	62.4	385.2	1.25	-1.25	0.00
2,880.0	3.05	9.32	2,841.3	381.8	62.7	386.9	1.25	-1.25	0.00
2,910.0	2.67	9.32	2,871.3	383.2	62.9	388.4	1.25	-1.25	0.00
2,940.0	2.30	9.32	2,901.3	384.5	63.1	389.7	1.25	-1.25	0.00
2,970.0	1.92	9.32	2,931.2	385.6	63.3	390.8	1.25	-1.25	0.00
3,000.0	1.55	9.32	2,961.2	386.5	63.4	391.7	1.25	-1.25	0.00
3,030.0	1.17	9.32	2,991.2	387.2	63.5	392.4	1.25	-1.25	0.00
3,060.0	0.80	9.32	3,021.2	387.7	63.6	392.9	1.25	-1.25	0.00
3,090.0	0.42	9.32	3,051.2	388.0	63.7	393.2	1.25	-1.25	0.00
3,120.0	0.05	9.32	3,081.2	388.2	63.7	393.4	1.25	-1.25	0.00
End of Drop @ Vertical @ 3085' TVD									
3,123.8	0.00	0.00	3,085.0	388.2	63.7	393.4	1.25	-1.25	0.00

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
VP AAO Federal #30	- plan hits target center	0.00	0.00	3,085.0	388.2	63.7	645,151.77	528,997.40	32° 46' 24.883 N	104° 14' 20.368 W
	- Point									



DDC
Curve Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well AAO Federal #30
Company:	Apache Corporation	TVD Reference:	WELL @ 3581.0usft (Capstar #118)
Project:	Eddy County, New Mexico	MD Reference:	WELL @ 3581.0usft (Capstar #118)
Site:	Sec:1 T18S R27E	North Reference:	Grid
Well:	AAO Federal #30	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,323.8	3,285.0	Glorieta		0.00	9.32

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	KOP @ 500' / Build @ 1.5°/100'
1,476.6	1,466.0	122.5	20.1	End of Build @ 14.65° Inc.
1,951.9	1,925.8	241.1	39.6	End of Tangent / Drop @ 1.25°/100'
3,123.8	3,085.0	388.2	63.7	End of Drop @ Vertical @ 3085' TVD
4,538.8	4,500.0	388.2	63.7	PBHL @ 4539' MD / 4500' TVD