

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

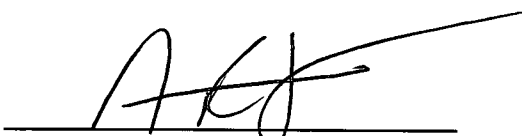
AAO Federal #028
Eddy County, New Mexico

30-015-42358

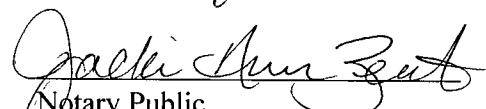
UL N Sec 1 T18S R27E 183 FSL 2497 FWL

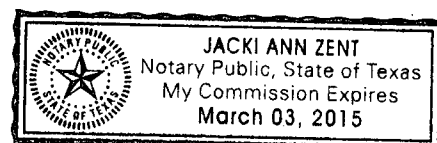
281	2.81	0.50	0.88	2.46	2.46
365	0.84	1.00	1.75	1.47	3.93
596	2.31	1.70	2.98	6.87	10.80
766	1.70	3.50	6.13	10.41	21.21
1022	2.56	3.60	6.30	16.13	37.34
1236	2.14	4.00	7.00	14.98	52.32
1493	2.57	4.80	8.40	21.59	73.91
1749	2.56	4.40	7.70	19.71	93.62
2003	2.54	4.30	7.53	19.11	112.74
2261	2.58	5.40	9.45	24.38	137.12
2517	2.56	5.20	9.10	23.30	160.41
2731	2.14	4.00	7.00	14.98	175.39
2987	2.56	3.80	6.65	17.02	192.42
3115	1.28	4.10	7.18	9.18	201.60
3372	2.57	3.80	6.65	17.09	218.69
3663	2.91	4.10	7.18	20.88	239.57
3884	2.21	4.10	7.18	15.86	255.43
4098	2.14	4.70	8.23	17.60	273.03
4268	1.70	4.50	7.88	13.39	286.42
4521	2.53	3.80	6.65	16.82	303.24

NM OIL CONSERVATION
ARTESIA DISTRICT
NOV 24 2014
RECEIVED


Archie Brown - General Manager

The attached instrument was acknowledged before me on the 30th day of July, 2014 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public





Apache Corporation

Eddy County, New Mexico (NAD 83)

Sec 1, T18S, R27E

AAO Federal #28

Wellbore #1

Plan: Design #3

DDC Well Planning Report

10 June, 2014

HOBBS OCD

NOV 14 2014

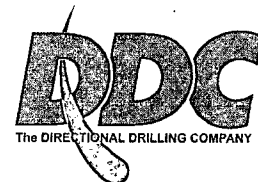
RECEIVED

NM OIL CONSERVATION

ARTESIA DISTRICT

NOV 24 2014

RECEIVED





DDC
Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well AAO Federal #28
Company:	Apache Corporation	TVD Reference:	WELL @ 3642.0usft (Capstar #118)
Project:	Eddy County New Mexico (NAD 83)	MD Reference:	WELL @ 3642.0usft (Capstar #118)
Site:	Sec 1 T18S R27E	North Reference:	Grid
Well:	AAO Federal #28	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

Project:	Eddy County New Mexico (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Sec 1 T18S R27E			
Site Position:		Northing:	643,718.88 usft	Latitude:	32° 46' 10.477 N
From:	Map	Easting:	572,345.53 usft	Longitude:	104° 13' 56.827 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.05 °

Well		AAO Federal #28				
Well Position	+N/-S	0.0 usft	Northing:	643,718.88 usft	Latitude:	32° 46' 10.477 N
	+E/-W	0.0 usft	Easting:	572,345.53 usft	Longitude:	104° 13' 56.827 W
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	3,631.0 usft

Wellbore:	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/8/2014	7.62	60.51	48,613

Design: Design #3				
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	312.04

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	
895.3	3.95	308.90	894.9	8.6	-10.6	1.00	1.00	-12.93	308.90	
4,609.1	3.95	308.90	4,600.0	169.3	-209.8	0.00	0.00	0.00	0.00	PBHL AAO Federal #.



DDC
Well Planning Report



Database:	EDM:5000.1 Single User Db	Local Co-ordinate Reference:	Well AAO Federal #28
Company:	Apache Corporation	TVD Reference:	WELL @ 3642.0usft (Capstar #118)
Project:	Eddy County, New Mexico (NAD:83)	MD Reference:	WELL @ 3642.0usft (Capstar #118)
Site:	Sec 1-118S R27E	North Reference:	Grid
Well:	AAO Federal #28	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

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)
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	308.90	600.0	0.5	-0.7	0.9	1.00	1.00	0.00
700.0	2.00	308.90	700.0	2.2	-2.7	3.5	1.00	1.00	0.00
800.0	3.00	308.90	799.9	4.9	-6.1	7.8	1.00	1.00	0.00
End of Build @ 3.95° Inc									
895.3	3.95	308.90	894.9	8.6	-10.6	13.6	1.00	1.00	0.00
900.0	3.95	308.90	899.7	8.8	-10.9	13.9	0.00	0.00	0.00
1,000.0	3.95	308.90	999.4	13.1	-16.2	20.8	0.00	0.00	0.00
1,100.0	3.95	308.90	1,099.2	17.4	-21.6	27.7	0.00	0.00	0.00
1,200.0	3.95	308.90	1,199.0	21.8	-27.0	34.6	0.00	0.00	0.00
1,300.0	3.95	308.90	1,298.7	26.1	-32.3	41.5	0.00	0.00	0.00
1,400.0	3.95	308.90	1,398.5	30.4	-37.7	48.3	0.00	0.00	0.00
1,500.0	3.95	308.90	1,498.2	34.7	-43.0	55.2	0.00	0.00	0.00
1,600.0	3.95	308.90	1,598.0	39.1	-48.4	62.1	0.00	0.00	0.00
1,700.0	3.95	308.90	1,697.8	43.4	-53.8	69.0	0.00	0.00	0.00
1,800.0	3.95	308.90	1,797.5	47.7	-59.1	75.9	0.00	0.00	0.00
1,900.0	3.95	308.90	1,897.3	52.1	-64.5	82.8	0.00	0.00	0.00
2,000.0	3.95	308.90	1,997.1	56.4	-69.9	89.6	0.00	0.00	0.00
2,100.0	3.95	308.90	2,096.8	60.7	-75.2	96.5	0.00	0.00	0.00
2,200.0	3.95	308.90	2,196.6	65.0	-80.6	103.4	0.00	0.00	0.00
2,300.0	3.95	308.90	2,296.3	69.4	-86.0	110.3	0.00	0.00	0.00
2,400.0	3.95	308.90	2,396.1	73.7	-91.3	117.2	0.00	0.00	0.00
2,500.0	3.95	308.90	2,495.9	78.0	-96.7	124.1	0.00	0.00	0.00
2,600.0	3.95	308.90	2,595.6	82.4	-102.1	130.9	0.00	0.00	0.00
2,700.0	3.95	308.90	2,695.4	86.7	-107.4	137.8	0.00	0.00	0.00
2,800.0	3.95	308.90	2,795.2	91.0	-112.8	144.7	0.00	0.00	0.00
2,900.0	3.95	308.90	2,894.9	95.3	-118.1	151.6	0.00	0.00	0.00
3,000.0	3.95	308.90	2,994.7	99.7	-123.5	158.5	0.00	0.00	0.00
3,100.0	3.95	308.90	3,094.4	104.0	-128.9	165.4	0.00	0.00	0.00
3,200.0	3.95	308.90	3,194.2	108.3	-134.2	172.2	0.00	0.00	0.00
3,300.0	3.95	308.90	3,294.0	112.7	-139.6	179.1	0.00	0.00	0.00
3,400.0	3.95	308.90	3,393.7	117.0	-145.0	186.0	0.00	0.00	0.00
3,500.0	3.95	308.90	3,493.5	121.3	-150.3	192.9	0.00	0.00	0.00
3,600.0	3.95	308.90	3,593.3	125.6	-155.7	199.8	0.00	0.00	0.00
Top of Glorietta									
3,603.8	3.95	308.90	3,597.0	125.8	-155.9	200.0	0.00	0.00	0.00
3,700.0	3.95	308.90	3,693.0	130.0	-161.1	206.7	0.00	0.00	0.00
3,800.0	3.95	308.90	3,792.8	134.3	-166.4	213.5	0.00	0.00	0.00
3,900.0	3.95	308.90	3,892.5	138.6	-171.8	220.4	0.00	0.00	0.00
4,000.0	3.95	308.90	3,992.3	143.0	-177.2	227.3	0.00	0.00	0.00
4,100.0	3.95	308.90	4,092.1	147.3	-182.5	234.2	0.00	0.00	0.00
4,200.0	3.95	308.90	4,191.8	151.6	-187.9	241.1	0.00	0.00	0.00
4,300.0	3.95	308.90	4,291.6	155.9	-193.2	247.9	0.00	0.00	0.00
4,400.0	3.95	308.90	4,391.4	160.3	-198.6	254.8	0.00	0.00	0.00
4,500.0	3.95	308.90	4,491.1	164.6	-204.0	261.7	0.00	0.00	0.00
PBHL @ 4609' MD / 4600' TVD									
4,609.1	3.95	308.90	4,600.0	169.3	-209.8	269.2	0.00	0.00	0.00



DDC
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Well:	AAO Federal #28	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

Design Targets									
Target Name	hit/miss target	Dip Angle	Dip Dir	TVD	+N/-S	+E/-W	Northing	Easting	
Shape		(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	
									Latitude Longitude
PBHL AAO Federal #28		0.00	0.00	4,600.0	169.3	-209.8	643,888.20	572,135.70	32° 46' 12.154 N 104° 13' 59.283 W
	- plan hits target center								
	- Point								

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)					
3,603.8	3,597.0	Top of Glorietta		0.00	308.90	

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(usft)	(usft)	+N/-S	+E/-W		
(usft)	(usft)	(usft)	(usft)		
500.0	500.0	0.0	0.0	Build @ 1°/100'	
895.3	894.9	8.6	-10.6	End of Build @ 3.95° Inc.	
4,609.1	4,600.0	169.3	-209.8	PBHL @ 4609' MD / 4600' TVD	