

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

North Monument G/SA Unit #436
Lea County, New Mexico

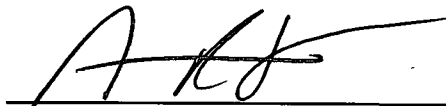
30-025-41726
W. I Sec. 30 T. 19S R. 37E 1125' FSL 115' FEL

262	2.62	0.40	0.70	1.83	1.83
587	3.25	0.70	1.23	3.98	5.82
815	2.28	0.50	0.88	2.00	7.81
1043	2.28	0.40	0.70	1.60	9.41
1214	1.71	0.60	1.05	1.80	11.20

HOBBS OCD

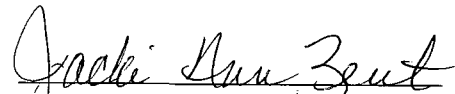
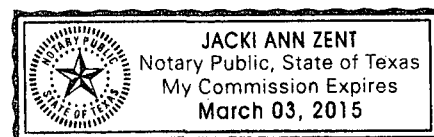
OCT 09 2014

RECEIVED



Archie Brown - General Manager

The attached instrument was acknowledged before me on the 4th day of September, 2014 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public

OCT 15 2014



HOBBS OCD
OCT 09 2014
RECEIVED

Apache Corporation

Lea County, NM (NAD83 NME)

NMGSAU

#436

WB#1 Job #1411367

Design: Surveys (Capstar 118)

Standard Survey Report

08 September, 2014



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #436
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB @ 3605.00usft (Capstar 118)
Site:	NMGSAU	MD Reference:	KB @ 3605.00usft (Capstar 118)
Well:	#436	North Reference:	Grid
Wellbore:	WB#1 Job #1411367	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 118)	Database:	GCR DB

Project	Lea County, NM (NAD83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	NMGSAU		
Site Position:		Northing:	582,973.08 usft
From:	Map	Easting:	870,597.88 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 35' 53.14439 N
		Longitude:	103° 15' 51.08348 W
		Grid Convergence:	0.58 °

Well	#436		
Well Position	+N/-S	0.00 usft	Northing: 593,914.34 usft
	+E/-W	0.00 usft	Easting: 864,838.90 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 37' 41.96269 N
		Longitude:	103° 16' 57.12948 W
		Ground Level:	3,594.00 usft

Wellbore	WB#1 Job #1411367		
Magnetics	Model Name	Sample Date	Declination (°)
	BGGM2013	08/20/14	7.20
			Dip Angle (°)
			60.52
			Field Strength (nT)
			48,549

Design	Surveys (Capstar 118)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°)
			160.08

Survey Program	Date 09/04/14		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.00	1,180.00	Gyrodatta Surveys (WB#1 Job #1411367)	PHX+MWD+BGGM
1,319.00	3,981.00	Phoenix MWD Survey (WB#1 Job #141136)	PHX+MWD+BGGM
			Description
			PHX+MWD+BGGM v3:standard declination
			PHX+MWD+BGGM v3:standard declination

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.45	248.49	100.00	-0.14	-0.37	0.01	0.45	0.45	0.00
200.00	0.36	260.71	200.00	-0.34	-1.04	-0.04	0.12	-0.09	12.22
300.00	0.33	256.78	299.99	-0.46	-1.63	-0.13	0.04	-0.03	-3.93
400.00	0.41	272.58	399.99	-0.51	-2.27	-0.30	0.13	0.08	15.80
500.00	0.44	280.45	499.99	-0.42	-3.00	-0.63	0.07	0.03	7.87
600.00	0.51	287.53	599.99	-0.22	-3.81	-1.09	0.09	0.07	7.08
700.00	0.57	292.57	699.98	0.11	-4.69	-1.70	0.08	0.06	5.04
800.00	0.50	287.02	799.98	0.43	-5.57	-2.30	0.09	-0.07	-5.55
900.00	0.34	290.07	899.97	0.66	-6.26	-2.75	0.16	-0.16	3.05

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Site:	NMGSAU	MD Reference:	KB @ 3605.00usft (Capstar 118)
Well:	#436	North Reference:	Grid
Wellbore:	WB#1 Job #1411367	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 118)	Database:	GCR 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)
1,000.00	0.30	248.03	999.97	0.66	-6.78	-2.93	0.23	-0.04	-42.04
1,100.00	0.48	227.07	1,099.97	0.28	-7.33	-2.76	0.23	0.18	-20.96
1,180.00	0.62	242.67	1,179.97	-0.15	-7.96	-2.57	0.25	0.18	19.50
Tie-on to Gyrodata Survey									
1,319.00	0.60	246.00	1,318.96	-0.79	-9.30	-2.42	0.03	-0.01	2.40
First Phoenix MWD Survey									
1,405.00	0.70	232.90	1,404.95	-1.29	-10.13	-2.24	0.21	0.12	-15.23
1,490.00	0.90	194.60	1,489.95	-2.25	-10.71	-1.53	0.66	0.24	-45.06
1,575.00	3.00	176.90	1,574.89	-5.12	-10.76	1.15	2.54	2.47	-20.82
1,661.00	4.70	172.70	1,660.70	-10.86	-10.19	6.74	2.00	1.98	-4.88
1,746.00	6.80	170.30	1,745.26	-19.27	-8.90	15.09	2.49	2.47	-2.82
1,831.00	7.40	169.90	1,829.61	-29.62	-7.09	25.44	0.71	0.71	-0.47
1,917.00	7.10	159.50	1,914.93	-40.05	-4.26	36.21	1.56	-0.35	-12.09
2,002.00	7.10	157.90	1,999.28	-49.84	-0.44	46.71	0.23	0.00	-1.88
2,087.00	7.20	156.10	2,083.61	-59.58	3.69	57.27	0.29	0.12	-2.12
2,173.00	7.30	156.40	2,168.93	-69.51	8.07	68.10	0.12	0.12	0.35
2,258.00	8.50	154.80	2,253.12	-80.15	12.90	79.75	1.44	1.41	-1.88
2,344.00	9.80	160.30	2,338.02	-92.79	18.08	93.40	1.82	1.51	6.40
2,429.00	9.80	161.70	2,421.78	-106.47	22.79	107.86	0.28	0.00	1.65
2,514.00	9.40	157.50	2,505.60	-119.75	27.71	122.03	0.95	-0.47	-4.94
2,600.00	8.80	157.60	2,590.51	-132.32	32.91	135.61	0.70	-0.70	0.12
2,685.00	7.60	159.80	2,674.64	-143.61	37.33	147.73	1.46	-1.41	2.59
2,770.00	9.00	161.00	2,758.75	-155.17	41.43	160.00	1.66	1.65	1.41
2,856.00	10.20	162.20	2,843.54	-168.78	45.95	174.34	1.41	1.40	1.40
2,941.00	9.70	153.50	2,927.27	-182.35	51.45	188.97	1.86	-0.59	-10.24
3,026.00	8.80	152.40	3,011.16	-194.52	57.65	202.53	1.08	-1.06	-1.29
3,112.00	8.60	153.00	3,096.17	-206.08	63.62	215.43	0.26	-0.23	0.70
3,197.00	8.60	155.80	3,180.22	-217.54	69.11	228.07	0.49	0.00	3.29
3,283.00	9.10	159.40	3,265.20	-229.77	74.14	241.29	0.87	0.58	4.19
3,368.00	10.50	159.90	3,348.95	-243.34	79.17	255.75	1.65	1.65	0.59
3,454.00	10.30	160.10	3,433.54	-257.93	84.48	271.28	0.24	-0.23	0.23
3,539.00	10.10	158.60	3,517.20	-272.01	89.78	286.33	0.39	-0.24	-1.76
3,625.00	10.90	156.00	3,601.76	-286.46	95.84	301.98	1.08	0.93	-3.02
3,710.00	10.50	157.20	3,685.28	-300.94	102.11	317.73	0.54	-0.47	1.41
3,795.00	10.50	157.30	3,768.86	-315.23	108.10	333.20	0.02	0.00	0.12
3,932.00	10.50	154.50	3,903.56	-338.01	118.29	358.09	0.37	0.00	-2.04
Last Phoenix MWD Survey									
3,981.00	10.50	154.50	3,951.74	-346.07	122.14	366.98	0.00	0.00	0.00
Projection to TD									



Phoenix Technology Services

Survey Report



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Well:	#436	North Reference:	Grid
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Design:	Surveys (Capstar 118)	Database:	GCR DB

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,180.00	1,179.97	-0.15	-7.96	Tie-on to Gyrodata Survey
1,319.00	1,318.96	-0.79	-9.30	First Phoenix MWD Survey
3,932.00	3,903.56	-338.01	118.29	Last Phoenix MWD Survey
3,981.00	3,951.74	-346.07	122.14	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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