

Results of Directional Survey

API number:	30-025-41799		
OGRID:		Operator:	APACHE CORP
		Property:	NORTH MONUMENT G/SA UNIT # 437

surface	ULSTR:	A	31	T 19S	R 37E
				218 FNL	1021 FEL

BH Loc	ULSTR:	P	30	T 19S	R 37E
3985	MD	3953.1	TVD	17 FSL	1319 FEL

Top Perf/OH	ULSTR:	A	31	T 19S	R 37E
3782	MD	3753.3	TVD	4 FNL	1290 FEL

Bot Perf/OH	ULSTR:	P	30	T 19S	R 37E
3894	MD	3863.5	TVD	8 FSL	1312 FEL

	MD	N/S	E/W	VD
	3723	208.47	-261.02	3695.17
TOP PERFS/OH	3782	214.48	-269.38	3753.27
	3851	221.50	-279.16	3821.21
	3851	221.50	-290.91	3821.21
BOT PERFS/OH	3894	225.92	-290.91	3863.53
	3933	229.93	-290.91	3901.92

NEXT TO LAST	3933	229.93	-290.91	3901.92
LAST READING	3980.00	234.80	-297.65	3948.18
TD	3985	235.32	-298.37	3953.10

Surface Location	218	FN	1021	FE
Projected BHL	17	FS	1319	FE
Location of				
Top Perfs/OH	4	FN	1290	FE
Bottom Perfs/OH	8	FS	1312	FE

SUMMARY of Subsurface Locations

Surface Location	A-31-19S-37E	218	FN	1021	FE	Vert. Depth
Top Perfs/OH	A-31-19S-37E	4	FN	1290	FE	3753.27
Bottom Perfs/OH	P-30-19S-37E	8	FS	1312	FE	3863.53
Projected TD	P-30-19S-37E	17	FS	1319	FE	3953.10

MAY 21 2015

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

HOBBS OCD

NM OIL CONSERVATION

ARTESIA DISTRICT

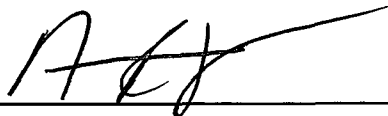
MAR 17 2015

MAR 9 2015

North Monument G/SA Unit #437
Lea County, New Mexico

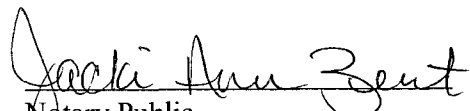
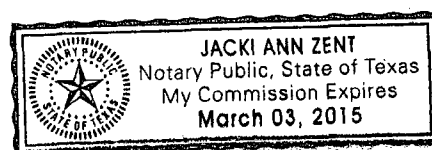
			RECEIVED		RECEIVED
236	2.36	0.50	0.88	2.07	2.07
501	2.65	0.70	1.23	3.25	5.31
744	2.43	0.30	0.53	1.28	6.59
872	1.28	0.70	1.23	1.57	8.16
915	0.43	0.40	0.70	0.30	8.46
1243	3.28	1.10	1.93	6.31	14.77
1300	0.57	0.67	1.17	0.67	15.44
1546	2.46	1.50	2.63	6.46	21.90
1930	3.84	5.80	10.15	38.98	60.87
2186	2.56	10.20	17.85	45.70	106.57
2443	2.57	11.20	19.60	50.37	156.94
2698	2.55	7.60	13.30	33.92	190.85
2827	1.29	9.40	16.45	21.22	212.08
3083	2.56	9.90	17.33	44.35	256.43
3211	1.28	10.90	19.08	24.42	280.84
3467	2.56	10.30	18.03	46.14	326.99
3723	2.56	10.00	17.50	44.80	371.79
3938	2.15	10.20	17.85	38.38	410.16

30-025-41799



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



NM OIL CONSERVATION

ARTESIA DISTRICT

HOBBSOCD

MAR 9 2015

MAR 17 2015

RECEIVED

RECEIVED

Apache Corporation

Lea County, NM (NAD83 NME)

NMGSAU

#437

WB1/Job #1411368

30.025-41799

Design: Survey (Capstar 118)

Standard Survey Report

30 August, 2014



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #437
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB @ 3591.00usft (Capstar 118)
Site:	NMGSAU	MD Reference:	KB @ 3591.00usft (Capstar 118)
Well:	#437	North Reference:	Grid
Wellbore:	WB1/Job #1411368	Survey Calculation Method:	Minimum Curvature
Design:	Survey (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	#437		
Well Position	+N/-S	0.00 usft	Northing: 592,046.64 usft
	+E/-W	0.00 usft	Easting: 863,961.94 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 37' 23.56977 N
		Longitude:	103° 17' 7.59819 W
		Ground Level:	3,580.00 usft

Wellbore	WB1/Job #1411368		
Magnetics	Model Name	Sample Date	Declination (°)
	BGGM2013	08/27/14	7.20
			Dip Angle (°)
			60.51
			Field Strength (nT)
			48,543

Design	Survey (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 (°)
			308.03

Survey Program	Date 08/30/14		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
100.00	1,360.00	Gyrodata Gyro Survey (WB1/Job #1411368)	NS-GYRO-MS
1,418.00	3,980.00	Phoenix MWD Survey (WB1/Job #1411368)	PHX+MWD+BGGM
			Description
			North sensing gyrocompassing m/s
			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	0.53	10.25	100.00	0.46	0.08	0.22	0.53	0.53	0.00
200.00	0.62	17.00	199.99	1.43	0.32	0.63	0.11	0.09	6.75
300.00	0.58	31.74	299.99	2.38	0.75	0.87	0.16	-0.04	14.74
400.00	0.57	41.44	399.98	3.18	1.34	0.90	0.10	-0.01	9.70
500.00	0.38	39.36	499.98	3.81	1.88	0.86	0.19	-0.19	-2.08
600.00	0.23	47.07	599.98	4.20	2.24	0.82	0.16	-0.15	7.71
700.00	0.12	7.31	699.98	4.44	2.40	0.85	0.16	-0.11	-39.76
800.00	0.27	253.86	799.98	4.48	2.19	1.04	0.34	0.15	-113.45
900.00	0.46	229.66	899.98	4.15	1.65	1.26	0.24	0.19	-24.20

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #437
Project:	Lea County, NM (NAD83 NME)	TVD Reference:	KB @ 3591.00usft (Capstar 118)
Site:	NMGSAU	MD Reference:	KB @ 3591.00usft (Capstar 118)
Well:	#437	North Reference:	Grid
Wellbore:	WB1/Job #1411368	Survey Calculation Method:	Minimum Curvature
Design:	Survey (Capstar 118)	Database:	GCR DB

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	0.37	208.00	999.97	3.61	1.20	1.28	0.18	-0.09	-21.66
1,100.00	0.50	199.67	1,099.97	2.91	0.90	1.09	0.14	0.13	-8.33
1,200.00	0.88	216.36	1,199.96	1.88	0.30	0.93	0.43	0.38	16.69
1,300.00	0.67	212.01	1,299.95	0.77	-0.47	0.84	0.22	-0.21	-4.35
1,360.00	0.70	211.58	1,359.95	0.16	-0.85	0.77	0.05	0.05	-0.72
Tie-on to Gyrodata Gyro Survey									
1,418.00	0.80	210.70	1,417.94	-0.49	-1.24	0.67	0.17	0.17	-1.52
First Phoenix MWD Survey									
1,546.00	1.50	310.60	1,545.93	-0.17	-2.97	2.23	1.42	0.55	78.05
1,674.00	3.50	319.50	1,673.80	3.89	-6.78	7.74	1.59	1.56	6.95
1,802.00	6.00	322.60	1,801.35	12.18	-13.38	18.04	1.96	1.95	2.42
1,930.00	5.80	322.50	1,928.67	22.63	-21.38	30.78	0.16	-0.16	-0.08
2,058.00	9.10	324.00	2,055.57	35.95	-31.27	46.78	2.58	2.58	1.17
2,186.00	10.20	315.80	2,181.77	52.27	-45.12	67.74	1.37	0.86	-6.41
2,314.00	11.30	306.20	2,307.53	67.80	-63.14	91.51	1.64	0.86	-7.50
2,442.00	11.20	307.10	2,433.07	82.70	-83.18	116.47	0.16	-0.08	0.70
2,570.00	9.40	306.90	2,559.00	96.48	-101.45	139.35	1.41	-1.41	-0.16
2,698.00	7.60	303.50	2,685.59	107.43	-116.87	158.24	1.46	-1.41	-2.66
2,827.00	9.40	310.50	2,813.17	118.98	-132.00	177.27	1.61	1.40	5.43
2,955.00	8.30	309.20	2,939.65	131.61	-147.11	196.95	0.87	-0.86	-1.02
3,083.00	9.90	304.30	3,066.03	143.65	-163.36	217.17	1.39	1.25	-3.83
3,211.00	10.90	308.30	3,191.93	157.35	-181.95	240.26	0.96	0.78	3.13
3,339.00	11.20	300.90	3,317.56	171.24	-202.11	264.69	1.13	0.23	-5.78
3,467.00	10.30	299.40	3,443.32	183.24	-222.75	288.34	0.74	-0.70	-1.17
3,595.00	10.50	304.10	3,569.22	195.39	-242.38	311.29	0.68	0.16	3.67
3,723.00	10.00	306.00	3,695.17	208.47	-261.02	334.04	0.47	-0.39	1.48
3,851.00	10.10	305.40	3,821.21	221.50	-279.16	356.35	0.11	0.08	-0.47
3,933.00	10.20	305.90	3,901.92	229.92	-290.91	370.79	0.16	0.12	0.61
Last Phoenix MWD Survey									
3,980.00	10.20	305.90	3,948.18	234.80	-297.65	379.11	0.00	0.00	0.00
Projection to TD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,360.00	1,359.95	0.16	-0.85	Tie-on to Gyrodata Gyro Survey
1,418.00	1,417.94	-0.49	-1.24	First Phoenix MWD Survey
3,933.00	3,901.92	229.92	-290.91	Last Phoenix MWD Survey
3,980.00	3,948.18	234.80	-297.65	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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