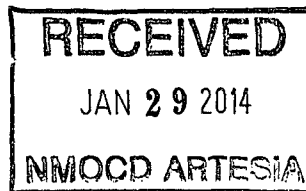


Apache Corporation
303 Veterans Airpark Lane, #300
Midland, TX 79705

Washington 33 State # 067 API# 30-015-41680
Eddy County, New Mexico 140' FNL + 1520' FEL UL: B 33-175-28E

247	2.47	0.50	0.88	2.16	2.16
510	2.63	0.75	1.31	3.45	5.61

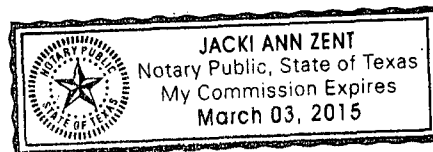


A handwritten signature in dark ink, appearing to be "Archie Brown", written over a horizontal line.

Archie Brown - General Manager

The attached instrument was acknowledged before me on the 3rd day of December, 2013
by Archie Brown - General Manager, CapStar Drilling, Inc.

A handwritten signature in dark ink, appearing to be "Jacki Ann Zent", written over a horizontal line.
Notary Public





Apache Corporation

Eddy County, NM (NAD27 NME)

Washington 33 State

#67 API# 30-015-41680

WB1/Job #1311522



Survey: Phoenix MWD Survey

Phoenix Final Survey Report

22 November, 2013





Phoenix Technology Services
Phoenix Final Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #67
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3691.00usft (Capstar 114)
Site:	Washington 33 State	MD Reference:	KB @ 3691.00usft (Capstar 114)
Well:	#67	North Reference:	Grid
Wellbore:	WB1/Job #1311522	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	GCR DB

Project	Eddy County, NM (NAD27 NME)		
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	Washington 33 State		
Site Position:		Northing:	653,591.90 usft
From:	Map	Easting:	549,165.70 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 47' 48.16208 N
		Longitude:	104° 10' 23.99797 W
		Grid Convergence:	0.09 °

Well	#67		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 47' 52.15563 N
		Longitude:	104° 10' 37.11587 W
		Ground Level:	3,680.00 usft

Wellbore	WB1/Job #1311522		
Magnetics	Model Name	Sample Date	Declination
			(°)
	BGGM2013	11/05/13	7.73
			Dip Angle
			(°)
			60.54
			Field Strength
			(nT)
			48,633

Design	Surveys (Capstar 114)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			214.58

Survey Program	Date 11/22/13		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	500.00	Gyro (WB1/Job #1311522)	CB-GYRO-MS
603.00	4,520.00	Phoenix MWD Survey (WB1/Job #131152)	MWD
			Description
			Camera based gyro multishot
			MWD - Standard

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
500.00	1.92	212.25	499.88	-7.86	-0.68	6.86	0.00
Tie-on to Gyro							
603.00	1.80	213.50	602.83	-10.67	-2.50	10.20	0.12
First Phoenix MWD Survey							
649.00	1.90	215.50	648.81	-11.89	-3.34	11.68	0.26
734.00	1.80	243.70	733.76	-13.63	-5.35	14.26	1.07
820.00	2.20	252.60	819.71	-14.72	-8.14	16.74	0.59
905.00	3.80	242.10	904.59	-16.53	-12.18	20.52	1.98
991.00	3.80	240.40	990.40	-19.27	-17.18	25.62	0.13
1,077.00	4.50	254.90	1,076.18	-21.56	-22.92	30.75	1.46
1,162.00	5.00	242.20	1,160.89	-24.15	-29.41	36.58	1.37

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #67
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3691.00usft (Capstar 114)
Site:	Washington 33 State	MD Reference:	KB @ 3691.00usft (Capstar 114)
Well:	#67	North Reference:	Grid
Wellbore:	WB1/Job #1311522	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	GCR DB

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,248.00	5.10	226.70	1,246.56	-28.52	-35.51	43.64	1.59
1,333.00	4.70	231.70	1,331.25	-33.27	-40.99	50.66	0.69
1,419.00	5.40	220.20	1,416.92	-38.55	-46.37	58.05	1.43
1,505.00	5.10	222.40	1,502.56	-44.46	-51.56	65.87	0.42
1,590.00	5.90	216.80	1,587.16	-50.75	-56.72	73.98	1.13
1,676.00	7.00	216.20	1,672.62	-58.52	-62.47	83.63	1.28
1,761.00	8.60	212.30	1,756.83	-68.07	-68.92	95.16	1.98
1,847.00	9.90	211.40	1,841.71	-79.81	-76.21	108.97	1.52
1,933.00	10.00	210.90	1,926.42	-92.53	-83.90	123.80	0.15
2,018.00	11.10	206.80	2,009.98	-106.17	-91.38	139.27	1.57
2,104.00	11.00	206.30	2,094.39	-120.91	-98.74	155.59	0.16
2,192.00	10.60	206.60	2,180.83	-135.68	-106.09	171.92	0.46
2,278.00	10.50	205.50	2,265.37	-149.82	-113.00	187.49	0.26
2,363.00	9.80	209.50	2,349.04	-163.11	-119.90	202.34	1.17
2,449.00	8.50	208.20	2,433.95	-175.08	-126.51	215.95	1.53
2,535.00	8.30	207.80	2,519.02	-186.17	-132.41	228.43	0.24
2,620.00	6.80	211.00	2,603.29	-195.91	-137.86	239.55	1.83
2,706.00	5.50	203.60	2,688.79	-204.06	-142.13	248.67	1.77
2,792.00	4.40	202.30	2,774.47	-210.88	-145.03	255.94	1.29
2,877.00	2.90	205.90	2,859.29	-215.84	-147.21	261.25	1.78
2,963.00	1.90	206.40	2,945.22	-219.07	-148.79	264.82	1.16
3,048.00	0.50	124.40	3,030.20	-220.54	-149.11	266.21	2.23
3,134.00	0.60	151.30	3,116.20	-221.15	-148.59	266.41	0.32
3,219.00	0.30	133.50	3,201.19	-221.69	-148.21	266.65	0.39
3,305.00	0.30	147.50	3,287.19	-222.04	-147.93	266.77	0.09
3,390.00	0.40	133.70	3,372.19	-222.43	-147.60	266.90	0.15
3,476.00	0.40	144.10	3,458.19	-222.88	-147.20	267.05	0.08
3,561.00	0.20	151.80	3,543.19	-223.25	-146.96	267.22	0.24
3,647.00	0.20	162.20	3,629.19	-223.53	-146.84	267.38	0.04
3,732.00	0.30	138.30	3,714.19	-223.83	-146.65	267.52	0.17
3,818.00	0.30	157.30	3,800.18	-224.21	-146.41	267.70	0.12
3,904.00	0.10	211.10	3,886.18	-224.48	-146.36	267.89	0.30
3,989.00	0.20	291.10	3,971.18	-224.49	-146.54	268.00	0.24
4,075.00	0.40	282.40	4,057.18	-224.37	-146.97	268.15	0.24
4,161.00	0.40	264.50	4,143.18	-224.34	-147.57	268.46	0.14
4,246.00	0.60	270.20	4,228.18	-224.36	-148.31	268.90	0.24
4,334.00	0.70	297.90	4,316.17	-224.11	-149.24	269.22	0.37
4,420.00	0.80	303.10	4,402.16	-223.54	-150.21	269.30	0.14
4,472.00	0.80	315.90	4,454.16	-223.08	-150.77	269.24	0.34
Last Phoenix MWD Survey							
4,520.00	0.80	315.90	4,502.15	-222.60	-151.23	269.10	0.00
Projection to TD							



Phoenix Technology Services

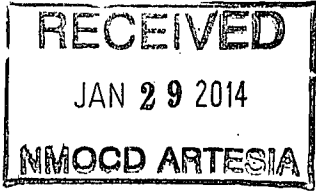
Phoenix Final Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #67
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3691.00usft (Capstar 114)
Site:	Washington 33 State	MD Reference:	KB @ 3691.00usft (Capstar 114)
Well:	#67	North Reference:	Grid
Wellbore:	WB1/Job #1311522	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	GCR DB

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
500.00	499.88	-7.86	-0.68	Tie-on to Gyro
603.00	602.83	-10.67	-2.50	First Phoenix MWD Survey
4,472.00	4,454.16	-223.08	-150.77	Last Phoenix MWD Survey
4,520.00	4,502.15	-222.60	-151.23	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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Project: Eddy County, NM (NAD27 NME)
Site: Washington 33 State
Well: #67 API# 30-015-41680
Wellbore: WB1/Job #1311522
Design: Plan #3 11-16-13
Rig: Capstar 114



Azimuths to Grid North
True North: -0.09°
Magnetic North: 7.65°
Magnetic Field:
Strength: 48632.5nT
Dip Angle: 60.54°
Date: 11/05/2013
Model: BGGM2013

WELL DETAILS							
				Ground Level:	3680.00		
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
0.00	0.00	653993.80	548045.40	32° 47' 52.15563 N	104° 10' 37.11587 W		

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
1	991.00	3.80	240.40	990.40	-19.27	-17.18	0.00	0.00	25.62	Tie-on to Current Survey
2	1039.00	3.80	239.50	1038.30	-20.86	-19.93	0.12	-90.45	28.49	PTB & Start 200.00 hold at 1039.00 MD
3	1239.00	3.80	239.50	1237.86	-27.59	-31.35	0.00	0.00	40.51	Start DLS 1.00 TFO -45.67
4	2005.20	10.67	208.49	1997.73	-102.92	-87.14	1.00	-45.67	134.19	Start 144.17 hold at 2005.20 MD
5	2149.37	10.67	208.49	2139.40	-126.37	-99.87	0.00	0.00	160.73	Start Drop -1.00
6	3216.12	0.00	0.00	3200.00	-213.40	-147.10	1.00	180.00	259.19	TG1-Washington 33 State #67 Start 1300.00 hold at 3216.12 MD
7	4516.12	0.00	0.00	4500.00	-213.40	-147.10	0.00	0.00	259.19	PBHL-Washington 33 State #67 at 4516.12

DESIGN TARGET DETAILS										
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape		
TG1-Washington 33 State #67	3200.00	-213.40	-147.10	653780.40	547898.30	32° 47' 50.04609 N	104° 10' 38.84292 W	Point		
- plan hits target center										
PBHL-Washington 33 State #67	4500.00	-213.40	-147.10	653780.40	547898.30	32° 47' 50.04609 N	104° 10' 38.84292 W	Circle (Radius: 20.00)		
- plan hits target center										

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001
Local Origin: Well #67, Grid North
Latitude: 32° 47' 52.15563 N
Longitude: 104° 10' 37.11587 W
Grid East: 548045.40
Grid North: 653993.80
Scale Factor: 1.000

Geomagnetic Model: BGGM2013
Sample Date: 05-Nov-13
Magnetic Declination: 7.73°
Dip Angle from Horizontal: 60.54°
Magnetic Field Strength: 48633
To convert a Magnetic Direction to a Grid Direction, Add 7.65°
To convert a Magnetic Direction to a True Direction, Add 7.73° East
To convert a True Direction to a Grid Direction, Subtract 0.08°

FORMATION TOP DETAILS				
TVDPath	MDPath	Formation	DipAngle	DipDir
1258.00	1259.19	Queen		
1695.00	1698.50	Grayburg		
1996.00	2003.44	San Andres		
3441.00	3457.12	Glorieta		
3518.00	3534.12	Yeso		

