

Results of Directional Survey

API number:	30-025-41618	DD
OGRID:		Operator: APACHE CORP
		Property: NORTHEAST DRINKARD UNIT # 635

surface	ULSTR:	D	14	T 21S	R 37E
				1230 FNL	680 FWL

BH Loc	ULSTR:	E	14	T 21S	R 37E
6953 MD		6949.5	TVD	1394 FNL	631 FWL

Top Perf/OH	ULSTR:	E	14	T 21S	R 37E
5603 MD		5600.3	TVD	1351 FNL	644 FWL

Bot Perf/OH	ULSTR:	E	14	T 21S	R 37E
6644 MD		6640.6	TVD	1386 FNL	632 FWL

	MD	N/S	E/W	VD
	5575	-119.69	-35.77	5572.3
TOP PERFS/OH	5603	-121.01	-36.20	5600.26
	5660	-123.71	-37.07	5657.19
	6600	-154.63	-47.64	6596.59
BOT PERFS/OH	6644	-155.87	-47.91	6640.57
	6685	-157.02	-48.16	6681.56

NEXT TO LAST	6901	-162.90	-49.12	6897.48
LAST READING	6953	-164.24	-49.35	6949.46
TD	6953	-164.24	-49.35	6949.46

Surface Location	1230 FN	680 FW
Projected BHL	1394 FN	631 FW
Location of		
Top Perfs/OH	1351 FN	644 FW
Bottom Perfs/OH	1386 FN	632 FW

SUMMARY of Subsurface Locations

Surface Location	D-14-21S-37E	1230 FN	680 FW	Vert. Depth
Top Perfs/OH	E-14-21S-37E	1351 FN	644 FW	5600.26
Bottom Perfs/OH	E-14-21S-37E	1386 FN	632 FW	6640.57
Projected TD	E-14-21S-37E	1394 FN	631 FW	6949.46

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Apache Corporation (873)

Lea County, NM (NAD27 NME)

Northeast Drinkard Unit 30-025-41618

#635

WB1/Job #1410089

ULO 14-215-37E

1230' FWL + 680' FWL

Survey: Phoenix MWD Survey

Standard Survey Report

04 March, 2014

Survey Report

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #635
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB @ 3444.00usft (Capstar 120)
Site:	Northeast Drinkard Unit	MD Reference:	KB @ 3444.00usft (Capstar 120)
Well:	#635	North Reference:	Grid
Wellbore:	WB1/Job #1410089	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 120)	Database:	Compass 5000 GCR DB

Project	Lea 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	Northeast Drinkard Unit		
Site Position:		Northing:	536,097.47 usft
From:	Map	Easting:	866,927.15 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 28' 5.59737 N
		Longitude:	103° 8' 37.06135 W
		Grid Convergence:	0.64 °

Well	#635		
Well Position	+N/-S	0.00 usft	Northing: 541,377.70 usft
	+E/-W	0.00 usft	Easting: 868,091.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 28' 57.71049 N
		Longitude:	103° 8' 22.78948 W
		Ground Level:	3,433.00 usft

Wellbore	WB1/Job #1410089		
Magnetics	Model Name	Sample Date	Declination
			(°)
	BGGM2013	01/09/14	7.19
			(°)
			60.43
			(nT)
			48,551

Design	Surveys (Capstar 120)		
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
			(°)
			196.74

Survey Program	Date 03/04/14		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
1,310.00	6,953.00	Phoenix MWD Survey (WB1/Job #141008)	MWD
			Description
			MWD - Standard

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,310.00	0.20	82.40	1,310.00	0.30	2.27	-0.94	0.02	0.02	0.00
First Phoenix MWD Survey									
1,395.00	0.40	78.40	1,395.00	0.38	2.70	-1.14	0.24	0.24	-4.71
1,481.00	0.80	80.40	1,480.99	0.54	3.59	-1.55	0.47	0.47	2.33
1,566.00	0.50	328.50	1,565.99	0.96	3.98	-2.06	1.28	-0.35	-131.65
1,652.00	1.00	341.40	1,651.98	1.99	3.55	-2.93	0.61	0.58	15.00
1,733.00	0.80	88.80	1,732.97	2.67	3.89	-3.68	1.80	-0.25	132.59
1,822.00	1.00	82.00	1,821.96	2.79	5.28	-4.19	0.25	0.22	-7.64
1,908.00	1.30	172.00	1,907.95	1.93	6.16	-3.62	1.91	0.35	104.65

Survey Report

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #635
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB @ 3444.00usft (Capstar 120)
Site:	Northeast Drinkard Unit	MD Reference:	KB @ 3444.00usft (Capstar 120)
Well:	#635	North Reference:	Grid
Wellbore:	WB1/Job #1410089	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 120)	Database:	Compass 5000 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)
1,993.00	2.50	193.20	1,992.90	-0.83	5.87	-0.89	1.61	1.41	24.94
2,078.00	2.30	183.70	2,077.83	-4.34	5.33	2.62	0.52	-0.24	-11.18
2,164.00	3.20	207.00	2,163.73	-8.20	4.13	6.66	1.65	1.05	27.09
2,249.00	3.00	204.30	2,248.61	-12.34	2.14	11.20	0.29	-0.24	-3.18
2,334.00	2.30	183.20	2,333.52	-16.07	1.13	15.06	1.40	-0.82	-24.82
2,419.00	2.30	179.40	2,418.45	-19.48	1.05	18.35	0.18	0.00	-4.47
2,505.00	2.20	172.20	2,504.38	-22.84	1.29	21.50	0.35	-0.12	-8.37
2,590.00	2.10	203.10	2,589.33	-25.89	0.90	24.53	1.35	-0.12	36.35
2,676.00	1.80	210.00	2,675.28	-28.51	-0.39	27.41	0.44	-0.35	8.02
2,761.00	1.50	208.70	2,760.24	-30.64	-1.59	29.80	0.36	-0.35	-1.53
2,846.00	1.30	213.70	2,845.22	-32.42	-2.66	31.81	0.28	-0.24	5.88
2,931.00	1.30	220.70	2,930.20	-33.95	-3.82	33.61	0.19	0.00	8.24
3,016.00	1.10	215.50	3,015.18	-35.35	-4.93	35.27	0.27	-0.24	-6.12
3,101.00	0.90	231.60	3,100.16	-36.42	-5.92	36.59	0.40	-0.24	18.94
3,187.00	1.80	220.50	3,186.14	-37.87	-7.33	38.38	1.08	1.05	-12.91
3,272.00	1.50	216.20	3,271.10	-39.78	-8.85	40.65	0.38	-0.35	-5.06
3,358.00	2.80	216.30	3,357.04	-42.38	-10.76	43.69	1.51	1.51	0.12
3,443.00	2.60	212.50	3,441.95	-45.68	-13.03	47.50	0.32	-0.24	-4.47
3,528.00	2.20	213.70	3,526.87	-48.67	-14.97	50.92	0.47	-0.47	1.41
3,613.00	2.20	218.70	3,611.81	-51.30	-16.89	53.99	0.23	0.00	5.88
3,698.00	2.10	220.50	3,696.75	-53.76	-18.93	56.93	0.14	-0.12	2.12
3,784.00	2.00	220.70	3,782.70	-56.09	-20.93	59.74	0.12	-0.12	0.23
3,869.00	1.90	216.30	3,867.65	-58.35	-22.73	62.43	0.21	-0.12	-5.18
3,954.00	1.80	215.30	3,952.60	-60.58	-24.34	65.02	0.12	-0.12	-1.18
4,039.00	1.90	213.00	4,037.56	-62.85	-25.87	67.64	0.15	0.12	-2.71
4,125.00	1.80	212.20	4,123.51	-65.19	-27.37	70.31	0.12	-0.12	-0.93
4,210.00	1.60	218.70	4,208.48	-67.24	-28.82	72.69	0.33	-0.24	7.65
4,295.00	1.60	211.90	4,293.44	-69.18	-30.19	74.94	0.22	0.00	-8.00
4,380.00	1.60	214.60	4,378.41	-71.16	-31.49	77.22	0.09	0.00	3.18
4,466.00	1.20	213.00	4,464.38	-72.90	-32.67	79.22	0.47	-0.47	-1.86
4,551.00	2.30	181.10	4,549.34	-75.36	-33.18	81.72	1.68	1.29	-37.53
4,636.00	1.90	178.70	4,634.29	-78.47	-33.18	84.70	0.48	-0.47	-2.82
4,722.00	1.80	185.60	4,720.24	-81.24	-33.28	87.38	0.28	-0.12	8.02
4,807.00	1.70	182.90	4,805.20	-83.83	-33.48	89.92	0.15	-0.12	-3.18
4,892.00	1.70	180.30	4,890.16	-86.35	-33.55	92.35	0.09	0.00	-3.06
4,978.00	1.60	179.00	4,976.13	-88.82	-33.53	94.72	0.12	-0.12	-1.51
5,063.00	2.90	178.00	5,061.06	-92.16	-33.44	97.88	1.53	1.53	-1.18
5,148.00	3.00	179.70	5,145.95	-96.53	-33.35	102.05	0.16	0.12	2.00
5,234.00	2.70	179.80	5,231.84	-100.81	-33.33	106.14	0.35	-0.35	0.12
5,319.00	2.70	175.70	5,316.75	-104.81	-33.18	109.92	0.23	0.00	-4.82

Survey Report

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #635
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB @ 3444.00usft (Capstar 120)
Site:	Northeast Drinkard Unit	MD Reference:	KB @ 3444.00usft (Capstar 120)
Well:	#635	North Reference:	Grid
Wellbore:	WB1/Job #1410089	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 120)	Database:	Compass 5000 GCR DB

Survey

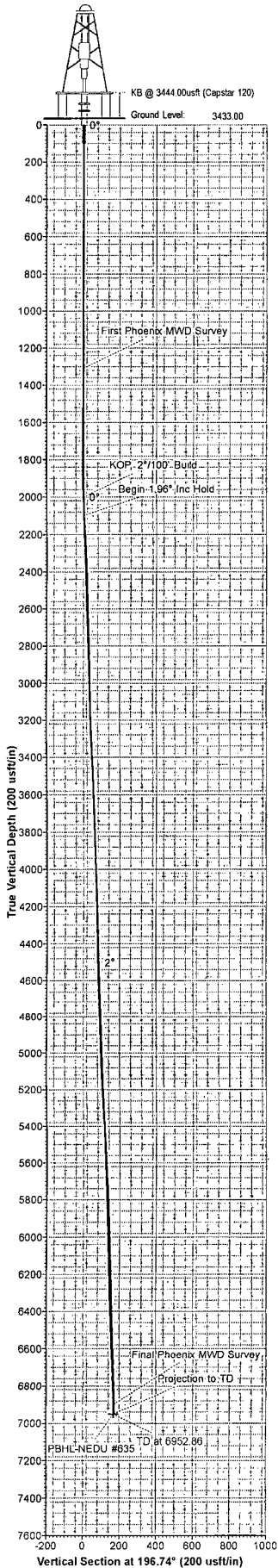
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,404.00	3.90	190.20	5,401.61	-109.65	-33.54	114.66	1.71	1.41	17.06
5,490.00	3.40	191.80	5,487.43	-115.02	-34.58	120.11	0.59	-0.58	1.86
5,575.00	3.10	197.20	5,572.30	-119.69	-35.77	124.92	0.50	-0.35	6.35
5,660.00	2.60	198.70	5,657.19	-123.71	-37.07	129.14	0.59	-0.59	1.76
5,746.00	2.60	199.20	5,743.10	-127.40	-38.34	133.04	0.03	0.00	0.58
5,831.00	2.60	202.80	5,828.01	-130.99	-39.72	136.88	0.19	0.00	4.24
5,917.00	2.30	202.10	5,913.94	-134.39	-41.12	140.54	0.35	-0.35	-0.81
6,002.00	2.10	206.70	5,998.87	-137.36	-42.46	143.77	0.31	-0.24	5.41
6,088.00	2.10	204.90	6,084.82	-140.20	-43.84	146.88	0.08	0.00	-2.09
6,173.00	1.90	196.70	6,169.76	-142.96	-44.90	149.84	0.41	-0.24	-9.65
6,258.00	1.70	194.50	6,254.72	-145.53	-45.62	152.50	0.25	-0.24	-2.59
6,344.00	1.60	191.00	6,340.69	-147.95	-46.16	154.97	0.17	-0.12	-4.07
6,429.00	1.50	193.30	6,425.66	-150.19	-46.65	157.26	0.14	-0.12	2.71
6,515.00	1.50	191.40	6,511.63	-152.39	-47.13	159.51	0.06	0.00	-2.21
6,600.00	1.60	194.30	6,596.59	-154.63	-47.64	161.80	0.15	0.12	3.41
6,685.00	1.70	190.30	6,681.56	-157.02	-48.16	164.24	0.18	0.12	-4.71
6,771.00	1.60	189.40	6,767.52	-159.46	-48.58	166.70	0.12	-0.12	-1.05
6,856.00	1.50	188.10	6,852.49	-161.74	-48.94	168.98	0.12	-0.12	-1.53
6,901.00	1.50	189.80	6,897.48	-162.90	-49.12	170.14	0.10	0.00	3.78
Final Phoenix MWD Survey									
6,953.00	1.50	189.80	6,949.46	-164.24	-49.35	171.49	0.00	0.00	0.00
Projection to TD									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,310.00	1,310.00	0.30	2.27	First Phoenix MWD Survey
6,901.00	6,897.48	-162.90	-49.12	Final Phoenix MWD Survey
6,953.00	6,949.46	-164.24	-49.35	Projection to TD

Project: Lea County, NM (NAD27 NME)
 Site: Northeast Drinkard Unit
 Well: #635
 Wellbore: WB1/Job #1410089
 Design: Plan #1 01-21-14
 Rig: Capstar 120

T G M
 Azimuths to Grid North
 True North: -0.64°
 Magnetic North: 6.55°
 Magnetic Field
 Strength: 48550.6nT
 Dip Angle: 60.43°
 Date: 01/09/2014
 Model: BGGM2013



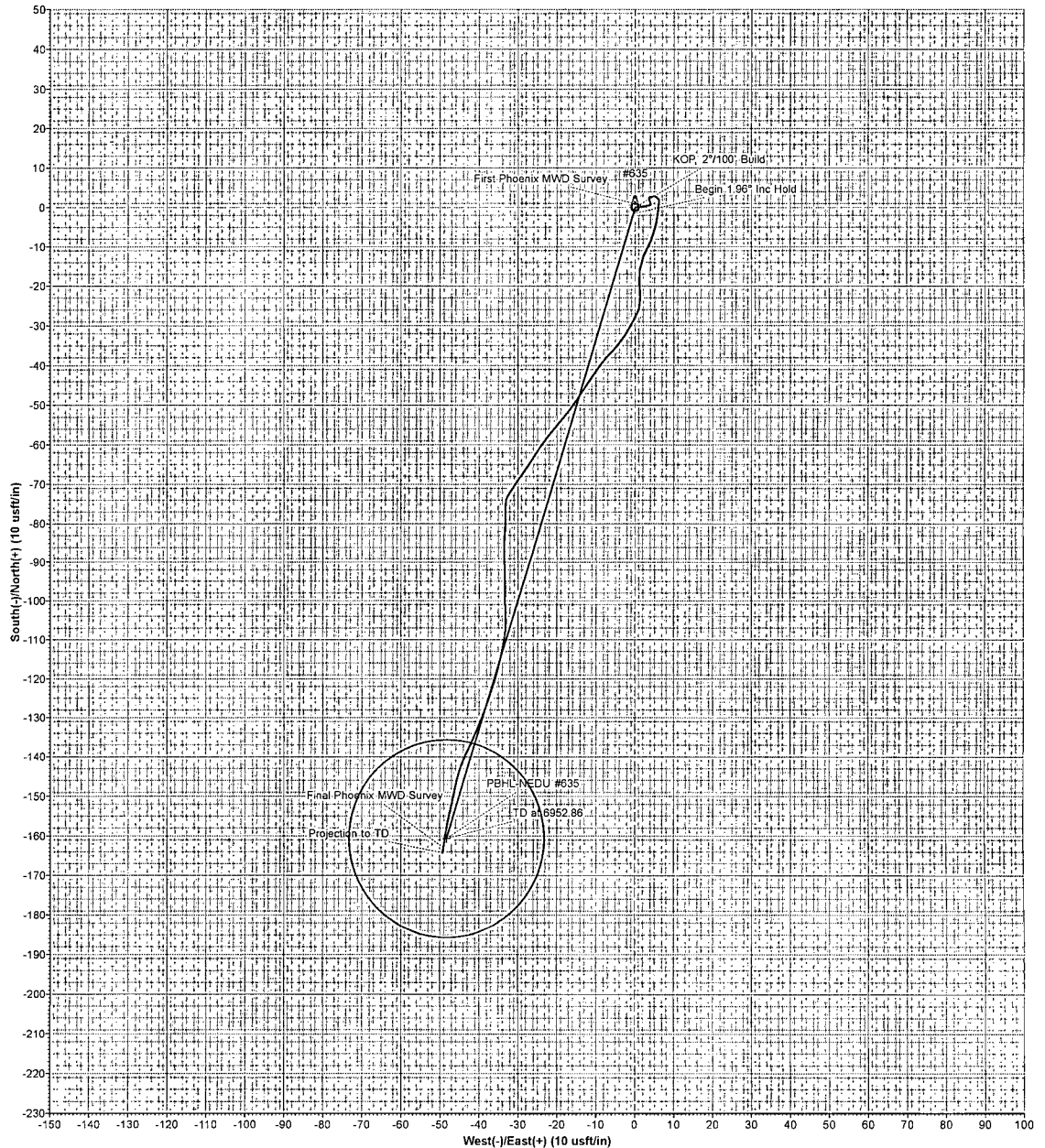
WELL DETAILS										
	+N-S	+E-W	Northing	Ground Level:	3433.00	Latitude	Longitude			
	0.00	0.00	541377.70	Existing	868091.00	32° 28' 57.71049 N	103° 8' 22.78948 W			

SECTION DETAILS											
Sec	MD	Inc	Asi	TVD	+N-S	+E-W	Deg	TFace	VSect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00		KOP, 2°/100' Build
3	2097.99	1.96	196.74	2097.97	-1.60	-0.48	2.00	196.74	1.68		Begin 1.96° Inc Hold
4	6952.86	1.96	196.74	6950.00	-160.60	-48.30	0.00	0.00	167.71	PBHL-NEDU #635	TD at 6952.86

DESIGN TARGET DETAILS									
Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude	Shape	
PBHL-NEDU #635	6950.00	-160.60	-48.30	541217.10	868042.70	32° 28' 56.12889 N	103° 8' 23.37422 W	Circle (Radius: 25.00)	
- 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 #635, Grid North
 Latitude: 32° 28' 57.71049 N
 Longitude: 103° 8' 22.78948 W
 Grid East: 868091.00
 Grid North: 541377.70
 Scale Factor: 1.000
 Geomagnetic Model: BGGM2013
 Sample Date: 09-Jan-14
 Magnetic Declination: 7.19°
 Dip Angle from Horizontal: 60.43°
 Magnetic Field Strength: 48551
 To convert a Magnetic Direction to a Grid Direction, Add 6.55°
 To convert a Magnetic Direction to a True Direction, Add 7.19° East
 To convert a True Direction to a Grid Direction, Subtract 0.64°

LEGEND
 — #635, WB1/Job #1410089, Surveys (Capstar 120) V0
 — Plan #1 01-21-14



Apache Corporation (873)
303 Veterans Airpark Lane, #3000
Midland, TX 79705

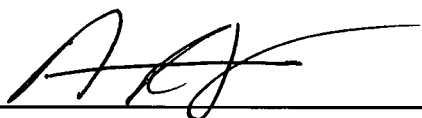
Northeast Drinkard Unit #635 30-025-41618 UL D 14-215-37E 1230' FWL + 680' FWL
Lea County, New Mexico

250	2.50	0.30	0.53	1.31	1.31
750	5.00	0.10	0.18	0.88	2.19
500	-2.50	0.60	1.05	-2.63	-0.44
1000	5.00	0.20	0.35	1.75	1.31
1264	2.64	0.80	1.40	3.70	5.01

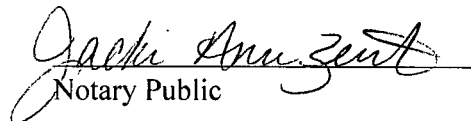
HOBBS OCD

APR 22 2014

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Archie Brown - General Manager

The attached instrument was acknowledged before me on the 24th day of March, 2014 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public

