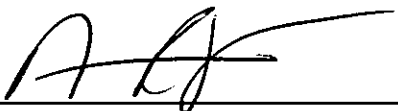


Apache Corporation
303 Veterans Airpark Lane, #3000
Midland, TX 79705

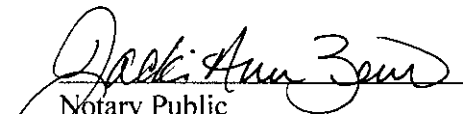
Hummingbird Federal Com #008H
Eddy County, New Mexico

API # 30-015-43051
E-Sec. 1 175, R31E
2210 FNL, 100 FWL

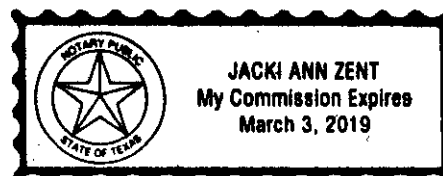
253	2.53	0.50	0.88	2.21	2.21
489	2.36	1.25	2.19	5.16	7.38
761	2.72	2.00	3.50	9.52	16.90
806	0.45	2.10	3.68	1.65	18.55
1020	2.14	0.40	0.70	1.50	20.05
1364	3.44	0.90	1.58	5.42	25.47
1663	2.99	0.30	0.53	1.57	27.04
1961	2.98	1.00	1.75	5.22	32.25
2214	2.53	0.50	0.88	2.21	34.46
2471	2.57	0.10	0.18	0.45	34.91
2684	2.13	0.10	0.18	0.37	35.29
2985	3.01	0.10	0.18	0.53	35.81
3241	2.56	0.40	0.70	1.79	37.61
3454	2.13	0.60	1.05	2.24	39.84
3748	2.94	0.50	0.88	2.57	42.41
3976	2.28	0.70	1.23	2.79	45.21
4270	2.94	0.50	0.88	2.57	47.78
4518	2.48	0.50	0.88	2.17	49.95
4787	2.69	0.60	1.05	2.82	52.77
5030	2.43	0.70	1.23	2.98	55.75
5354	3.24	0.20	0.35	1.13	56.89


Archie Brown - General Manager

The attached instrument was acknowledged before me on the 22nd day of September, 2015 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public

NM OIL CONSERVATION
ARTESIA DISTRICT
MAY 16 2016
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Apache Corporation

**Eddy County, NM (NAD27 NME)
Hummingbird Federal Com
#8H**

OH / Job# 1514236

Design: Surveys (Capstar 114)

Standard Survey Report

13 September, 2015





Phoenix Technology Services LP Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #8H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 4030.00usft (Capstar 114)
Site:	Hummingbird Federal Com	MD Reference:	KB @ 4030.00usft (Capstar 114)
Well:	#8H	North Reference:	Grid
Wellbore:	OH / Job# 1514236	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

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:		Hummingbird Federal Com			
Site Position:		Northing:	677,262.80 usft	Latitude:	32° 51' 39.07482 N
From:	Map	Easting:	655,481.80 usft	Longitude:	103° 49' 37.14798 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.27 °

Well	#8H					
Well Position	+N/-S	0.00 usft	Northing:	878,672.30 usft	Latitude:	32° 51' 53.07888 N
	+E/-W	0.00 usft	Easting:	654,274.20 usft	Longitude:	103° 49' 51.22665 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,019.00 usft

Wellbore	OH / Job# 1514236				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/27/2015	7.50	60.85	48,615

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	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.00	0.00	0.00	89.57	

Survey Program:		Date: 9/13/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	5,237.00	Phoenix Gyro Surveys (OH / Job# 151423	PHX_SPT_GTD	PHX Continuous north-seeking gyro
5,385.00	10,520.00	Phoenix MWD Surveys (OH / Job# 151423	PHX+MWD+HDGM	PHX+MWD+HDGM

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	0.16	215.44	100.00	-0.11	-0.08	-0.08	0.16	0.16	0.00
200.00	0.58	238.73	200.00	-0.48	-0.60	-0.61	0.45	0.43	23.28
300.00	1.16	237.16	299.99	-1.31	-1.89	-1.90	0.57	0.57	-1.57
400.00	1.84	234.49	399.95	-2.79	-4.05	-4.07	0.68	0.68	-2.67
500.00	2.10	236.38	499.89	-4.74	-6.88	-6.92	0.27	0.28	1.89
600.00	2.24	229.29	599.82	-7.03	-9.89	-9.94	0.30	0.14	-7.09
700.00	2.31	233.07	699.74	-9.51	-12.98	-13.05	0.17	0.07	3.78
800.00	2.42	232.09	799.66	-12.02	-16.26	-16.35	0.12	0.11	-0.98
900.00	1.85	238.69	899.58	-14.20	-19.38	-19.48	0.53	-0.47	6.60



Phoenix Technology Services LP Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #8H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 4030.00usft (Capstar 114)
Site:	Hummingbird Federal Con	MD Reference:	KB @ 4030.00usft (Capstar 114)
Well:	#8H	North Reference:	Grid
Wellbore:	OH / Job# 1514238	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

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	1.70	240.97	999.53	-15.81	-22.13	-22.25	0.26	-0.25	2.28
1,100.00	1.42	238.28	1,089.50	-17.18	-24.48	-24.61	0.29	-0.28	-2.88
1,200.00	1.17	257.59	1,199.47	-18.05	-26.53	-26.67	0.50	-0.25	19.30
1,300.00	1.28	248.29	1,299.45	-18.68	-28.55	-28.69	0.22	0.09	-9.30
1,400.00	0.84	221.38	1,399.43	-19.63	-30.06	-30.20	0.64	-0.42	-26.81
1,500.00	0.47	33.08	1,499.43	-19.84	-30.32	-30.46	1.31	-0.37	171.70
1,600.00	0.17	227.25	1,599.43	-19.80	-30.20	-30.35	0.84	-0.30	-165.83
1,700.00	0.37	179.71	1,699.43	-20.02	-30.31	-30.46	0.28	0.20	-47.54
1,800.00	0.98	50.57	1,799.42	-19.81	-28.66	-29.81	1.23	0.59	-129.14
1,900.00	1.02	47.64	1,899.41	-18.68	-28.35	-28.49	0.08	0.08	-2.93
2,000.00	0.88	56.13	1,999.39	-17.65	-27.06	-27.19	0.20	-0.14	8.49
2,100.00	0.91	88.39	2,099.38	-18.93	-25.68	-25.81	0.19	0.03	12.26
2,200.00	0.88	73.25	2,199.37	-18.47	-24.38	-24.50	0.24	-0.23	4.86
2,300.00	0.38	342.68	2,299.37	-18.00	-23.90	-24.02	0.77	-0.32	-80.57
2,400.00	0.40	158.10	2,399.37	-18.01	-23.85	-23.97	0.78	0.04	173.42
2,500.00	0.24	209.61	2,499.37	-18.52	-23.82	-23.94	0.32	-0.16	53.51
2,600.00	0.28	158.33	2,599.37	-18.91	-23.84	-23.98	0.22	0.02	-51.28
2,700.00	0.20	333.18	2,699.37	-18.96	-23.83	-23.98	0.46	-0.06	174.85
2,800.00	0.14	292.72	2,799.37	-16.76	-24.02	-24.15	0.13	-0.06	-40.46
2,900.00	0.15	282.62	2,899.36	-18.73	-24.27	-24.39	0.08	0.01	-30.10
3,000.00	0.25	325.29	2,999.36	-16.57	-24.52	-24.64	0.22	0.10	82.67
3,100.00	0.31	231.59	3,099.36	-16.56	-24.86	-24.98	0.41	0.06	-93.70
3,200.00	0.31	162.74	3,199.36	-16.98	-24.99	-25.11	0.35	0.00	-68.85
3,300.00	0.44	152.51	3,299.36	-17.58	-24.73	-24.86	0.15	0.13	-10.23
3,400.00	0.69	275.75	3,399.36	-17.86	-25.15	-25.29	1.00	0.25	123.24
3,500.00	0.48	107.07	3,499.36	-17.92	-25.37	-25.50	1.14	-0.23	-168.68
3,600.00	0.54	245.56	3,599.35	-18.23	-25.41	-25.55	0.94	0.08	138.49
3,700.00	0.53	255.88	3,699.35	-18.54	-26.29	-26.43	0.10	-0.01	10.32
3,800.00	0.57	169.92	3,799.35	-19.14	-26.85	-26.79	0.75	0.04	-85.98
3,900.00	0.45	176.92	3,899.34	-20.02	-26.54	-26.69	0.13	-0.12	7.00
4,000.00	0.58	313.15	3,999.34	-20.07	-26.89	-27.04	0.98	0.13	136.23
4,100.00	0.39	268.13	4,099.34	-19.74	-27.60	-27.75	0.41	-0.19	-45.02
4,200.00	0.34	204.71	4,199.34	-20.02	-28.06	-28.21	0.39	-0.05	-83.42
4,300.00	0.32	178.36	4,299.33	-20.57	-28.18	-28.33	0.15	-0.02	-26.35
4,400.00	0.38	216.56	4,399.33	-21.11	-28.37	-28.53	0.24	0.06	38.20
4,500.00	0.34	295.02	4,499.33	-21.25	-28.84	-29.00	0.46	-0.04	78.46
4,600.00	0.36	130.71	4,599.33	-21.33	-28.87	-29.03	0.69	0.02	-164.31
4,700.00	0.36	237.90	4,699.33	-21.70	-28.90	-29.06	0.58	0.00	107.19
4,800.00	0.37	119.87	4,799.33	-22.03	-28.88	-29.05	0.83	0.01	-118.03
4,900.00	0.33	47.57	4,899.33	-22.00	-28.39	-28.55	0.41	-0.04	-72.30
5,000.00	0.38	252.45	4,999.33	-21.80	-28.49	-28.66	0.89	0.05	-155.12
5,100.00	0.30	319.35	5,099.32	-21.80	-28.98	-29.14	0.38	-0.08	68.90
5,200.00	0.26	258.99	5,199.32	-21.85	-29.37	-29.53	0.28	-0.04	-60.36



Phoenix Technology Services LP

Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #8H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 4030.00usft (Capstar 114)
Site:	Hummingbird Federal Com	MD Reference:	KB @ 4030.00usft (Capstar 114)
Well:	#8H	North Reference:	Grid
Wellbore:	OH / Job# 1514236	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

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)
5,237.00	0.34	298.57	5,236.32	-21.61	-29.55	-29.71	0.59	0.22	108.97
5,385.00	2.90	88.10	5,384.27	-21.28	-26.19	-26.35	2.16	1.73	101.03
First Phoenix MWD Survey									
5,428.00	9.40	87.90	5,427.00	-21.11	-21.59	-21.75	15.12	15.12	-0.47
5,470.00	15.80	82.80	5,467.96	-20.27	-12.48	-12.64	15.45	15.24	-12.14
5,513.00	22.40	78.60	5,508.58	-17.91	1.37	1.24	15.67	15.35	-9.77
5,555.00	26.80	78.10	5,548.78	-14.55	18.48	18.35	10.01	10.00	1.19
5,598.00	30.00	81.70	5,584.64	-11.18	38.55	38.47	8.41	7.81	8.05
5,641.00	32.90	83.70	5,621.32	-8.35	60.81	60.74	7.17	6.74	4.65
5,683.00	36.70	85.00	5,655.81	-6.00	64.65	64.61	9.22	9.05	3.10
5,726.00	41.50	87.70	5,689.17	-4.31	111.71	111.67	11.84	11.16	8.28
5,769.00	46.30	88.10	5,720.14	-3.49	141.50	141.47	11.39	11.16	3.28
5,811.00	51.60	89.20	5,747.72	-3.02	173.16	173.13	12.62	12.62	0.24
5,854.00	55.90	88.70	5,773.14	-2.38	207.82	207.80	10.04	10.00	-1.16
5,897.00	60.00	88.40	5,795.95	-1.48	244.25	244.23	9.55	9.53	-0.70
5,940.00	64.20	89.20	5,816.07	-0.87	282.24	282.22	9.90	9.77	1.86
5,982.00	67.30	89.50	5,833.31	-0.23	320.52	320.51	7.41	7.38	0.71
6,025.00	71.30	90.40	5,848.51	-0.20	360.74	360.73	9.51	9.30	2.09
6,068.00	75.30	91.20	5,860.86	-0.78	401.91	401.89	9.47	9.30	1.86
6,110.00	78.40	91.60	5,870.06	-1.78	442.87	442.84	9.81	9.76	0.95
6,154.00	85.80	90.20	5,875.80	-2.46	486.47	486.43	14.44	14.09	-3.18
6,196.00	89.60	88.50	5,877.56	-1.99	528.42	528.39	10.35	9.52	-4.05
6,239.00	90.80	87.60	5,877.41	-0.52	571.39	571.37	3.49	2.79	-2.09
6,282.00	91.50	87.40	5,876.55	1.35	614.34	614.33	1.89	1.63	-0.47
6,409.00	92.30	88.40	5,872.34	6.00	741.18	741.21	1.01	0.63	0.79
6,537.00	88.80	81.30	5,871.11	6.34	869.14	869.17	3.55	-2.73	2.27
6,664.00	89.10	92.00	5,873.43	2.66	996.07	996.08	0.60	0.24	0.55
6,792.00	90.00	91.80	5,874.44	-1.56	1,123.69	1,123.95	0.72	0.70	-0.16
6,920.00	89.00	91.30	5,875.56	-5.03	1,251.94	1,251.87	0.87	-0.78	-0.39
7,048.00	89.60	91.10	5,877.12	-7.71	1,379.90	1,379.80	0.49	0.47	-0.16
7,176.00	88.40	90.00	5,879.35	-8.93	1,507.87	1,507.78	1.27	-0.94	-0.86
7,305.00	88.20	90.30	5,883.18	-9.27	1,636.81	1,636.70	0.28	-0.16	0.23
7,432.00	88.70	89.20	5,886.62	-8.72	1,763.76	1,763.65	0.95	0.39	-0.87
7,560.00	89.30	88.70	5,888.85	-6.37	1,891.72	1,891.62	0.81	0.47	-0.39
7,688.00	90.20	87.70	5,889.41	-2.35	2,019.65	2,019.58	1.05	0.70	-0.78
7,817.00	90.70	86.60	5,888.40	4.06	2,148.49	2,148.46	0.94	0.39	-0.85
7,944.00	91.00	88.40	5,886.51	9.60	2,275.35	2,275.36	1.44	0.24	1.42
8,072.00	90.50	89.60	5,884.84	11.83	2,403.31	2,403.34	1.02	-0.39	0.94
8,200.00	88.70	91.00	5,885.73	11.16	2,531.30	2,531.31	1.78	-1.41	1.09
8,328.00	87.90	90.50	5,889.53	9.49	2,659.23	2,659.23	0.74	-0.63	-0.39
8,456.00	87.40	88.70	5,894.78	10.38	2,787.12	2,787.12	1.46	-0.39	-1.41
8,584.00	88.50	87.80	5,899.36	14.29	2,914.97	2,915.00	1.11	0.86	-0.70
8,712.00	90.10	87.30	5,900.92	19.76	3,042.84	3,042.90	1.31	1.25	-0.39



Phoenix Technology Services LP Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #8H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 4030.00usft (Capstar 114)
Site:	Hummingbird Federal Corn	MD Reference:	KB @ 4030.00usft (Capstar 114)
Well:	#8H	North Reference:	Grid
Wellbore:	OH / Job# 1514236	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 114)	Database:	Compass 5000 GCR

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)	
8,840.00	80.80	88.50	5,889.91	24.45	3,170.75	3,170.84	1.09	0.55	0.94	
8,968.00	88.70	89.60	5,900.47	28.57	3,298.72	3,298.83	1.85	-1.84	0.86	
9,096.00	90.20	89.70	5,901.70	27.35	3,426.71	3,428.82	1.17	1.17	0.08	
9,224.00	89.10	90.20	5,902.48	27.48	3,554.70	3,554.81	0.94	-0.88	0.39	
9,353.00	87.70	90.00	5,908.08	27.24	3,683.65	3,683.75	1.10	-1.09	-0.16	
9,481.00	88.60	89.40	5,910.22	27.91	3,811.58	3,811.68	0.84	0.70	-0.47	
9,609.00	90.20	89.10	5,911.56	29.59	3,939.56	3,939.67	1.27	1.25	-0.23	
9,737.00	90.60	90.00	5,910.66	30.59	4,067.55	4,067.66	0.77	0.31	0.70	
9,865.00	91.00	90.60	5,908.88	29.92	4,195.53	4,195.64	0.56	0.31	0.47	
9,993.00	89.50	91.20	5,908.32	27.91	4,323.51	4,323.60	1.26	-1.17	0.47	
10,121.00	86.90	90.20	5,912.34	26.35	4,451.43	4,451.50	2.18	-2.03	-0.78	
10,249.00	88.60	89.70	5,917.36	28.46	4,579.32	4,579.39	1.38	1.33	-0.39	
10,377.00	89.90	88.90	5,919.04	28.02	4,707.30	4,707.38	1.19	1.02	-0.63	
10,450.00	90.50	88.20	5,918.78	29.87	4,780.27	4,780.36	1.26	0.82	-0.98	
Final Phoenix MWD Survey										
10,520.00	90.50	88.20	5,918.17	32.07	4,850.24	4,850.34	0.00	0.00	0.00	
Projection to TD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
5,385.00	5,384.27	-21.28	-26.19	First Phoenix MWD Survey	
10,450.00	5,918.78	29.07	4,780.27	Final Phoenix MWD Survey	
10,520.00	5,918.17	32.07	4,850.24	Projection to TD	

Checked By: _____ Approved By: _____ Date: _____

