

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

NFE Federal #029H
Eddy County, New Mexico

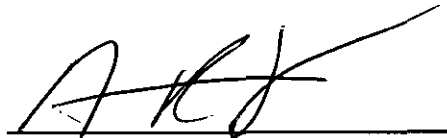
API # 30-015-42585
LL-P-SEC. 6 T17S R31E
985' FSL + 155' FEL

167	1.67	0.50	0.88	1.46	1.46
445	2.78	1.40	2.45	6.81	8.27
589	1.44	0.70	1.23	1.76	10.04
843	2.54	0.80	1.40	3.56	13.59
1065	2.22	0.90	1.58	3.50	17.09
1321	2.56	1.00	1.75	4.48	21.57
1507	1.86	0.90	1.58	2.93	24.50
1974	4.67	0.10	0.18	0.82	25.32
2142	1.68	0.10	0.18	0.29	25.61
2364	2.22	0.40	0.70	1.55	27.16
2584	2.20	0.20	0.35	0.77	27.93
2837	2.53	0.50	0.88	2.21	30.15
3090	2.53	0.50	0.88	2.21	32.36
3343	2.53	0.00	0.00	0.00	32.36
3534	1.91	0.20	0.35	0.67	33.03
3755	2.21	0.10	0.18	0.39	33.42
4210	4.55	0.40	0.70	3.19	36.60
4420	2.10	0.30	0.53	1.10	37.70
4525	1.05	0.50	0.88	0.92	38.62

NM OIL CONSERVATION
ARTESIA DISTRICT

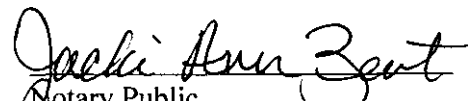
DEC 04 2015

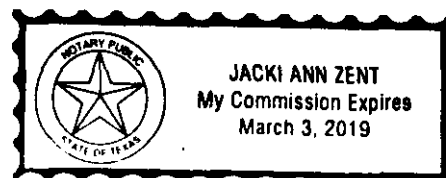
RECEIVED



Archie Brown - General Manager

The attached instrument was acknowledged before me on the 30th day of March, 2015 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public





NM OIL CONSERVATION

ARTESIA DISTRICT

DEC 04 2013

RECEIVED

Apache Corporation

Eddy County, NM (NAD27 NME)

NFE Federal

#29H

WB1 / Job #1512834

Design: Surveys (Capstar 119)

Standard Survey Report

23 March, 2015



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #29H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3764.00usft (Capstar 119)
Site:	NFE Federal	MD Reference:	KB @ 3764.00usft (Capstar 119)
Well:	#29H	North Reference:	Grid
Wellbore:	WB1 / Job #1512834	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	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	NFE Federal		
Site Position:		Northing:	673,264.70 usft
From:	Map	Easting:	633,303.50 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 51' 0.49036 N
		Longitude:	103° 53' 57.34966 W
		Grid Convergence:	0.24 °

Well	#29H		
Well Position	+N/-S	0.00 usft	Northing: 676,438.90 usft
	+E/-W	0.00 usft	Easting: 632,910.40 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 51' 31.91534 N
		Longitude:	103° 54' 1.80517 W
		Ground Level:	3,753.00 usft

Wellbore	WB1 / Job #1512834				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	3/18/2015	7.51	60.62	48,529

Design	Surveys (Capstar 119)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	269.62	

Survey Program	Date	3/23/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	4,425.00	Phoenix Gyro Survey (WB1 / Job #151283	NS-GYRO-MS	North sensing gyrocompassing m/s	
4,525.00	9,580.00	Phoenix MWD Survey (WB1 / Job #15128	PHX+MWD+BGGM	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	0.21	314.69	100.00	0.13	-0.13	0.13	0.21	0.21	0.00	
200.00	0.27	313.37	200.00	0.42	-0.43	0.43	0.06	0.06	-1.32	
300.00	0.94	261.00	299.99	0.45	-1.41	1.41	0.80	0.67	-52.37	
400.00	1.01	261.15	399.98	0.19	-3.09	3.09	0.07	0.07	0.15	
500.00	0.92	238.43	499.96	-0.37	-4.65	4.65	0.39	-0.09	-22.72	
600.00	0.92	182.68	599.95	-1.59	-5.37	5.38	0.86	0.00	-55.75	
700.00	0.97	193.17	699.94	-3.22	-5.60	5.62	0.18	0.05	10.49	
800.00	0.87	293.50	799.93	-3.74	-6.49	6.51	1.41	-0.10	100.33	
900.00	0.90	234.49	899.92	-3.89	-7.83	7.85	0.87	0.03	-59.01	

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #29H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3764.00usft (Capstar 119)
Site:	NFE Federal	MD Reference:	KB @ 3764.00usft (Capstar 119)
Well:	#29H	North Reference:	Grid
Wellbore:	WB1 / Job #1512834	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	Database:	Compass 5000 GCR

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	0.89	187.22	999.91	-5.12	-8.56	8.60	0.72	-0.01	-47.27
1,100.00	0.87	170.40	1,099.90	-6.64	-8.53	8.58	0.26	-0.02	-16.82
1,200.00	0.96	244.29	1,199.89	-7.75	-9.16	9.21	1.10	0.09	73.89
1,300.00	1.06	229.55	1,299.87	-8.71	-10.62	10.68	0.28	0.10	-14.74
1,400.00	1.01	243.39	1,399.86	-9.71	-12.11	12.18	0.25	-0.05	13.84
1,500.00	0.72	220.34	1,499.85	-10.58	-13.31	13.38	0.45	-0.29	-23.05
1,600.00	0.70	247.16	1,599.84	-11.30	-14.28	14.35	0.33	-0.02	26.82
1,700.00	0.50	101.75	1,699.84	-11.62	-14.41	14.49	1.15	-0.20	-145.41
1,800.00	0.32	324.96	1,799.84	-11.48	-14.15	14.22	0.77	-0.18	-136.79
1,900.00	0.29	132.98	1,899.84	-11.43	-14.12	14.20	0.61	-0.03	168.02
2,000.00	0.13	267.43	1,999.84	-11.60	-14.05	14.13	0.39	-0.16	134.45
2,100.00	0.09	265.37	2,099.84	-11.62	-14.24	14.32	0.04	-0.04	-2.06
2,200.00	0.22	133.93	2,199.84	-11.75	-14.18	14.26	0.29	0.13	-131.44
2,300.00	0.18	299.36	2,299.84	-11.81	-14.18	14.26	0.40	-0.04	165.43
2,400.00	0.22	302.29	2,399.83	-11.63	-14.48	14.56	0.04	0.04	2.93
2,500.00	0.22	187.58	2,499.83	-11.72	-14.67	14.74	0.37	0.00	-114.71
2,600.00	0.41	85.42	2,599.83	-11.88	-14.33	14.41	0.50	0.19	-102.16
2,700.00	0.49	92.45	2,699.83	-11.87	-13.55	13.63	0.10	0.08	7.03
2,800.00	0.39	162.06	2,799.83	-12.21	-13.02	13.10	0.51	-0.10	69.61
2,900.00	0.43	249.85	2,899.83	-12.67	-13.27	13.35	0.57	0.04	87.79
3,000.00	0.54	46.47	2,999.82	-12.47	-13.28	13.36	0.95	0.11	156.62
3,100.00	0.29	354.36	3,099.82	-11.89	-12.96	13.04	0.43	-0.25	-52.11
3,200.00	0.25	130.25	3,199.82	-11.78	-12.82	12.90	0.50	-0.04	135.89
3,300.00	0.36	34.45	3,299.82	-11.66	-12.47	12.55	0.46	0.11	-95.80
3,400.00	0.26	102.96	3,399.82	-11.46	-12.08	12.15	0.36	-0.10	68.51
3,500.00	0.28	97.36	3,499.82	-11.54	-11.61	11.69	0.03	0.02	-5.60
3,600.00	0.17	190.86	3,599.82	-11.72	-11.40	11.48	0.34	-0.11	93.50
3,700.00	0.33	201.64	3,699.82	-12.13	-11.53	11.61	0.17	0.16	10.78
3,800.00	0.24	152.96	3,799.82	-12.58	-11.54	11.63	0.25	-0.09	-48.68
3,900.00	0.30	320.82	3,899.82	-12.57	-11.61	11.70	0.54	0.06	167.86
4,000.00	0.36	21.72	3,999.81	-12.07	-11.66	11.74	0.34	0.06	60.90
4,100.00	0.38	118.68	4,099.81	-11.94	-11.26	11.33	0.55	0.02	96.96
4,200.00	0.44	85.07	4,199.81	-12.07	-10.58	10.66	0.24	0.06	-33.61
4,300.00	0.45	286.18	4,299.81	-11.92	-10.58	10.65	0.87	0.01	-158.89
4,400.00	0.30	10.66	4,399.81	-11.56	-10.90	10.98	0.52	-0.15	84.48
4,425.00	0.52	59.00	4,424.81	-11.43	-10.80	10.87	1.56	0.88	193.36
Tie-on to Phoenix Gyro Survey									
4,525.00	0.50	337.90	4,524.80	-10.80	-10.57	10.64	0.66	-0.02	-81.10
First Phoenix MWD Survey									
4,620.00	0.70	336.20	4,619.80	-9.88	-10.96	11.03	0.21	0.21	-1.79
4,715.00	0.50	336.30	4,714.79	-8.97	-11.36	11.42	0.21	-0.21	0.11
4,778.00	0.50	319.50	4,777.79	-8.51	-11.65	11.71	0.23	0.00	-26.67
4,810.00	2.90	256.60	4,809.78	-8.45	-12.55	12.61	8.21	7.50	-165.31

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Well:	#29H	North Reference:	Grid
Wellbore:	WB1 / Job #1512834	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	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)
4,841.00	7.00	265.10	4,840.65	-8.66	-15.22	15.27	13.23	13.23	-4.84
4,873.00	11.30	267.10	4,872.24	-8.98	-20.29	20.35	13.47	13.44	6.25
4,904.00	15.70	270.00	4,902.38	-9.14	-27.52	27.58	14.36	14.19	9.35
4,936.00	20.00	272.70	4,932.83	-8.88	-37.32	37.38	13.68	13.44	8.44
4,968.00	24.20	274.10	4,962.47	-8.15	-49.34	49.39	13.23	13.13	4.38
4,999.00	25.90	274.00	4,990.55	-7.23	-62.43	62.48	5.49	5.48	-0.32
5,031.00	27.20	270.60	5,019.18	-6.66	-76.72	76.76	6.25	4.06	-10.63
5,062.00	30.10	268.80	5,046.38	-6.75	-91.58	91.62	9.76	9.35	-5.81
5,094.00	33.60	268.80	5,073.56	-7.10	-108.46	108.50	10.94	10.94	0.00
5,126.00	38.00	268.80	5,099.51	-7.50	-127.17	127.21	13.75	13.75	0.00
5,157.00	41.80	269.50	5,123.29	-7.79	-147.04	147.09	12.34	12.26	2.26
5,188.00	44.80	270.50	5,145.84	-7.78	-168.30	168.35	9.93	9.68	3.23
5,220.00	47.70	270.90	5,167.97	-7.50	-191.41	191.46	9.11	9.06	1.25
5,251.00	51.00	271.60	5,188.16	-6.98	-214.92	214.97	10.78	10.65	2.26
5,283.00	54.00	271.60	5,207.64	-6.27	-240.30	240.34	9.38	9.38	0.00
5,314.00	57.00	271.60	5,225.20	-5.56	-265.83	265.86	9.68	9.68	0.00
5,346.00	59.60	270.90	5,242.01	-4.97	-293.05	293.08	8.34	8.13	-2.19
5,378.00	63.00	269.60	5,257.38	-4.85	-321.11	321.14	11.21	10.63	-4.06
5,409.00	66.50	269.50	5,270.60	-5.07	-349.15	349.17	11.29	11.29	-0.32
5,441.00	69.60	269.80	5,282.56	-5.25	-378.82	378.85	9.73	9.69	0.94
5,473.00	72.20	270.00	5,293.03	-5.30	-409.06	409.09	8.15	8.13	0.63
5,504.00	74.10	271.00	5,302.01	-5.04	-438.72	438.75	6.86	6.13	3.23
5,535.00	76.00	271.60	5,310.01	-4.36	-468.67	468.69	6.41	6.13	1.94
5,567.00	78.90	271.60	5,316.96	-3.49	-499.89	499.90	9.06	9.06	0.00
5,599.00	83.20	271.00	5,321.94	-2.77	-531.48	531.49	13.56	13.44	-1.88
5,646.00	90.50	269.20	5,324.52	-2.70	-578.38	578.38	16.00	15.53	-3.83
5,677.00	92.50	269.20	5,323.71	-3.13	-609.36	609.37	6.45	6.45	0.00
5,709.00	92.80	268.70	5,322.23	-3.71	-641.32	641.33	1.82	0.94	-1.56
5,741.00	93.10	268.60	5,320.58	-4.47	-673.27	673.28	0.99	0.94	-0.31
5,836.00	94.30	268.80	5,314.45	-6.62	-768.05	768.07	1.28	1.26	0.21
5,931.00	93.40	267.20	5,308.07	-9.93	-862.77	862.82	1.93	-0.95	-1.68
6,026.00	93.30	265.80	5,302.52	-15.72	-957.43	957.51	1.47	-0.11	-1.47
6,120.00	90.10	269.30	5,299.73	-19.73	-1,051.27	1,051.38	5.04	-3.40	3.72
6,215.00	91.30	269.40	5,298.57	-20.81	-1,146.26	1,146.37	1.27	1.26	0.11
6,310.00	90.20	270.10	5,297.33	-21.22	-1,241.25	1,241.36	1.37	-1.16	0.74
6,406.00	88.50	270.90	5,298.42	-20.38	-1,337.23	1,337.34	1.96	-1.77	0.83
6,500.00	89.60	270.50	5,299.98	-19.24	-1,431.21	1,431.31	1.25	1.17	-0.43
6,596.00	90.60	270.60	5,299.81	-18.31	-1,527.21	1,527.29	1.05	1.04	0.10
6,691.00	91.50	270.80	5,298.07	-17.15	-1,622.18	1,622.26	0.97	0.95	0.21
6,785.00	91.10	271.70	5,295.94	-15.10	-1,716.13	1,716.20	1.05	-0.43	0.96
6,880.00	90.90	270.70	5,294.28	-13.11	-1,811.10	1,811.15	1.07	-0.21	-1.05
6,975.00	91.10	270.40	5,292.62	-12.20	-1,906.08	1,906.12	0.38	0.21	-0.32
7,069.00	90.10	269.60	5,291.64	-12.20	-2,000.07	2,000.11	1.36	-1.06	-0.85
7,164.00	90.70	269.70	5,290.97	-12.78	-2,095.07	2,095.11	0.64	0.63	0.11

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Wellbore:	WB1 / Job #1512834	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	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)
7,260.00	90.30	268.10	5,290.13	-14.63	-2,191.04	2,191.09	1.72	-0.42	-1.67
7,355.00	91.20	268.40	5,288.89	-17.53	-2,285.99	2,286.06	1.00	0.95	0.32
7,450.00	90.20	268.60	5,287.73	-20.01	-2,380.95	2,381.03	1.07	-1.05	0.21
7,544.00	90.40	268.90	5,287.24	-22.06	-2,474.92	2,475.02	0.38	0.21	0.32
7,639.00	91.40	268.80	5,285.75	-23.97	-2,569.89	2,569.99	1.06	1.05	-0.11
7,734.00	90.30	270.20	5,284.34	-24.80	-2,664.87	2,664.98	1.87	-1.16	1.47
7,828.00	91.00	269.80	5,283.27	-24.80	-2,758.87	2,758.97	0.86	0.74	-0.43
7,923.00	90.80	270.30	5,281.78	-24.72	-2,853.86	2,853.96	0.57	-0.21	0.53
8,017.00	91.50	271.30	5,279.89	-23.40	-2,947.83	2,947.92	1.30	0.74	1.06
8,113.00	89.70	271.70	5,278.89	-20.89	-3,043.78	3,043.86	1.92	-1.88	0.42
8,207.00	90.90	272.70	5,278.39	-17.28	-3,137.71	3,137.76	1.66	1.28	1.06
8,302.00	90.40	271.60	5,277.32	-13.72	-3,232.64	3,232.66	1.27	-0.53	-1.16
8,397.00	89.30	270.90	5,277.57	-11.65	-3,327.61	3,327.61	1.37	-1.16	-0.74
8,492.00	89.80	268.80	5,278.31	-11.90	-3,422.60	3,422.61	2.27	0.53	-2.21
8,587.00	90.90	268.70	5,277.73	-13.97	-3,517.58	3,517.59	1.16	1.16	-0.11
8,682.00	92.50	268.30	5,274.91	-16.45	-3,612.50	3,612.53	1.74	1.68	-0.42
8,777.00	90.80	269.10	5,272.18	-18.61	-3,707.43	3,707.47	1.98	-1.79	0.84
8,872.00	91.40	268.80	5,270.35	-20.35	-3,802.40	3,802.45	0.71	0.63	-0.32
8,965.00	90.40	267.90	5,268.89	-23.03	-3,895.34	3,895.41	1.45	-1.08	-0.97
9,060.00	91.10	268.30	5,267.65	-26.17	-3,990.28	3,990.37	0.85	0.74	0.42
9,155.00	92.00	268.00	5,265.08	-29.24	-4,085.20	4,085.30	1.00	0.95	-0.32
9,250.00	90.30	270.30	5,263.17	-30.65	-4,180.16	4,180.27	3.01	-1.79	2.42
9,344.00	90.60	269.60	5,262.43	-30.73	-4,274.15	4,274.26	0.81	0.32	-0.74
9,439.00	91.40	269.80	5,260.78	-31.23	-4,369.14	4,369.25	0.87	0.84	0.21
9,511.00	92.50	269.50	5,258.33	-31.67	-4,441.09	4,441.21	1.58	1.53	-0.42
Last Phoenix MWD Survey									
9,580.00	92.50	269.50	5,255.32	-32.27	-4,510.03	4,510.14	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)	
4,425.00	4,424.81	-11.43	-10.80	Tie-on to Phoenix Gyro Survey
4,525.00	4,524.80	-10.80	-10.57	First Phoenix MWD Survey
9,511.00	5,258.33	-31.67	-4,441.09	Last Phoenix MWD Survey
9,580.00	5,255.32	-32.27	-4,510.03	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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NM OIL CONSERVATION
ARTESIA DISTRICT
DEC 04 2015

RECEIVED

Apache Corporation

Eddy County, NM (NAD27 NME)

NFE Federal

#29H

WB1 / Job #1512834

Survey: Phoenix MWD Survey

Standard Survey Report

23 March, 2015



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #29H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3764.00usft (Capstar 119)
Site:	NFE Federal	MD Reference:	KB @ 3764.00usft (Capstar 119)
Well:	#29H	North Reference:	Grid
Wellbore:	WB1 / Job #1512834	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	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	NFE Federal		
Site Position:		Northing:	673,264.70 usft
From:	Map	Easting:	633,303.50 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 51' 0.49036 N
		Longitude:	103° 53' 57.34966 W
		Grid Convergence:	0.24 °

Well	#29H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 51' 31.91534 N
		Longitude:	103° 54' 1.80517 W
		Ground Level:	3,753.00 usft

Wellbore	WB1 / Job #1512834				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	3/18/2015	7.51	60.62	48,529

Design	Surveys (Capstar 119)				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	269.62	

Survey Program	Date 3/23/2015				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	4,425.00	Phoenix Gyro Survey (WB1 / Job #151283	NS-GYRO-MS	North sensing gyrocompassing m/s	
4,525.00	9,580.00	Phoenix MWD Survey (WB1 / Job #15128	PHX+MWD+BGGM	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)	
4,425.00	0.52	59.00	4,424.81	-11.43	-10.80	10.87	0.00	0.00	0.00	
Tie-on to Phoenix Gyro Survey										
4,525.00	0.50	337.90	4,524.80	-10.80	-10.57	10.64	0.66	-0.02	-81.10	
First Phoenix MWD Survey										
4,620.00	0.70	336.20	4,619.80	-9.88	-10.96	11.03	0.21	0.21	-1.79	
4,715.00	0.50	336.30	4,714.79	-8.97	-11.36	11.42	0.21	-0.21	0.11	
4,778.00	0.50	319.50	4,777.79	-8.51	-11.65	11.71	0.23	0.00	-26.67	
4,810.00	2.90	266.60	4,809.78	-8.45	-12.55	12.61	8.21	7.50	-165.31	
4,841.00	7.00	265.10	4,840.65	-8.66	-15.22	15.27	13.23	13.23	-4.84	

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #29H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3764.00usft (Capstar 119)
Site:	NFE Federal	MD Reference:	KB @ 3764.00usft (Capstar 119)
Well:	#29H	North Reference:	Grid
Wellbore:	WB1 / Job #1512834	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	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)
4,873.00	11.30	267.10	4,872.24	-8.98	-20.29	20.35	13.47	13.44	6.25
4,904.00	15.70	270.00	4,902.38	-9.14	-27.52	27.58	14.36	14.19	9.35
4,936.00	20.00	272.70	4,932.83	-8.88	-37.32	37.38	13.68	13.44	8.44
4,968.00	24.20	274.10	4,962.47	-8.15	-49.34	49.39	13.23	13.13	4.38
4,999.00	25.90	274.00	4,990.55	-7.23	-62.43	62.48	5.49	5.48	-0.32
5,031.00	27.20	270.60	5,019.18	-6.66	-76.72	76.76	6.25	4.06	-10.63
5,062.00	30.10	268.80	5,046.38	-6.75	-91.58	91.62	9.76	9.35	-5.81
5,094.00	33.60	268.80	5,073.56	-7.10	-108.46	108.50	10.94	10.94	0.00
5,126.00	38.00	268.80	5,099.51	-7.50	-127.17	127.21	13.75	13.75	0.00
5,157.00	41.80	269.50	5,123.29	-7.79	-147.04	147.09	12.34	12.26	2.26
5,188.00	44.80	270.50	5,145.84	-7.78	-168.30	168.35	9.93	9.68	3.23
5,220.00	47.70	270.90	5,167.97	-7.50	-191.41	191.46	9.11	9.06	1.25
5,251.00	51.00	271.60	5,188.16	-6.98	-214.92	214.97	10.78	10.65	2.26
5,283.00	54.00	271.60	5,207.64	-6.27	-240.30	240.34	9.38	9.38	0.00
5,314.00	57.00	271.60	5,225.20	-5.56	-265.83	265.86	9.68	9.68	0.00
5,346.00	59.60	270.90	5,242.01	-4.97	-293.05	293.08	8.34	8.13	-2.19
5,378.00	63.00	269.60	5,257.38	-4.85	-321.11	321.14	11.21	10.63	-4.06
5,409.00	66.50	269.50	5,270.60	-5.07	-349.15	349.17	11.29	11.29	-0.32
5,441.00	69.60	269.80	5,282.56	-5.25	-378.82	378.85	9.73	9.69	0.94
5,473.00	72.20	270.00	5,293.03	-5.30	-409.06	409.09	8.15	8.13	0.63
5,504.00	74.10	271.00	5,302.01	-5.04	-438.72	438.75	6.86	6.13	3.23
5,535.00	76.00	271.60	5,310.01	-4.36	-468.67	468.69	6.41	6.13	1.94
5,567.00	78.90	271.60	5,316.96	-3.49	-499.89	499.90	9.06	9.06	0.00
5,599.00	83.20	271.00	5,321.94	-2.77	-531.48	531.49	13.56	13.44	-1.88
5,646.00	90.50	269.20	5,324.52	-2.70	-578.38	578.38	16.00	15.53	-3.83
5,677.00	92.50	269.20	5,323.71	-3.13	-609.36	609.37	6.45	6.45	0.00
5,709.00	92.80	268.70	5,322.23	-3.71	-641.32	641.33	1.82	0.94	-1.56
5,741.00	93.10	268.60	5,320.58	-4.47	-673.27	673.28	0.99	0.94	-0.31
5,836.00	94.30	268.80	5,314.45	-6.62	-768.05	768.07	1.28	1.26	0.21
5,931.00	93.40	267.20	5,308.07	-9.93	-862.77	862.82	1.93	-0.95	-1.68
6,026.00	93.30	265.80	5,302.52	-15.72	-957.43	957.51	1.47	-0.11	-1.47
6,120.00	90.10	269.30	5,299.73	-19.73	-1,051.27	1,051.38	5.04	-3.40	3.72
6,215.00	91.30	269.40	5,298.57	-20.81	-1,146.26	1,146.37	1.27	1.26	0.11
6,310.00	90.20	270.10	5,297.33	-21.22	-1,241.25	1,241.36	1.37	-1.16	0.74
6,406.00	88.50	270.90	5,298.42	-20.38	-1,337.23	1,337.34	1.96	-1.77	0.83
6,500.00	89.60	270.50	5,299.98	-19.24	-1,431.21	1,431.31	1.25	1.17	-0.43
6,596.00	90.60	270.60	5,299.81	-18.31	-1,527.21	1,527.29	1.05	1.04	0.10
6,691.00	91.50	270.80	5,298.07	-17.15	-1,622.18	1,622.26	0.97	0.95	0.21
6,785.00	91.10	271.70	5,295.94	-15.10	-1,716.13	1,716.20	1.05	-0.43	0.96
6,880.00	90.90	270.70	5,294.28	-13.11	-1,811.10	1,811.15	1.07	-0.21	-1.05
6,975.00	91.10	270.40	5,292.62	-12.20	-1,906.08	1,906.12	0.38	0.21	-0.32
7,069.00	90.10	269.60	5,291.64	-12.20	-2,000.07	2,000.11	1.36	-1.06	-0.85
7,164.00	90.70	269.70	5,290.97	-12.78	-2,095.07	2,095.11	0.64	0.63	0.11

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Site:	NFE Federal	MD Reference:	KB @ 3764.00usft (Capstar 119)
Well:	#29H	North Reference:	Grid
Wellbore:	WB1 / Job #1512834	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Capstar 119)	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)
7,260.00	90.30	268.10	5,290.13	-14.63	-2,191.04	2,191.09	1.72	-0.42	-1.67
7,355.00	91.20	268.40	5,288.89	-17.53	-2,285.99	2,286.06	1.00	0.95	0.32
7,450.00	90.20	268.60	5,287.73	-20.01	-2,380.95	2,381.03	1.07	-1.05	0.21
7,544.00	90.40	268.90	5,287.24	-22.06	-2,474.92	2,475.02	0.38	0.21	0.32
7,639.00	91.40	268.80	5,285.75	-23.97	-2,569.89	2,569.99	1.06	1.05	-0.11
7,734.00	90.30	270.20	5,284.34	-24.80	-2,664.87	2,664.98	1.87	-1.16	1.47
7,828.00	91.00	269.80	5,283.27	-24.80	-2,758.87	2,758.97	0.86	0.74	-0.43
7,923.00	90.80	270.30	5,281.78	-24.72	-2,853.86	2,853.96	0.57	-0.21	0.53
8,017.00	91.50	271.30	5,279.89	-23.40	-2,947.83	2,947.92	1.30	0.74	1.06
8,113.00	89.70	271.70	5,278.89	-20.89	-3,043.78	3,043.86	1.92	-1.88	0.42
8,207.00	90.90	272.70	5,278.39	-17.28	-3,137.71	3,137.76	1.66	1.28	1.06
8,302.00	90.40	271.60	5,277.32	-13.72	-3,232.64	3,232.66	1.27	-0.53	-1.16
8,397.00	89.30	270.90	5,277.57	-11.65	-3,327.61	3,327.61	1.37	-1.16	-0.74
8,492.00	89.80	268.80	5,278.31	-11.90	-3,422.60	3,422.61	2.27	0.53	-2.21
8,587.00	90.90	268.70	5,277.73	-13.97	-3,517.58	3,517.59	1.16	1.16	-0.11
8,682.00	92.50	268.30	5,274.91	-16.45	-3,612.50	3,612.53	1.74	1.68	-0.42
8,777.00	90.80	269.10	5,272.18	-18.61	-3,707.43	3,707.47	1.98	-1.79	0.84
8,872.00	91.40	268.80	5,270.35	-20.35	-3,802.40	3,802.45	0.71	0.63	-0.32
8,965.00	90.40	267.90	5,268.89	-23.03	-3,895.34	3,895.41	1.45	-1.08	-0.97
9,060.00	91.10	268.30	5,267.65	-26.17	-3,990.28	3,990.37	0.85	0.74	0.42
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Survey Annotations				
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Checked By: _____ Approved By: _____ Date: _____