

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

NFE Federal #034H
Eddy County, New Mexico

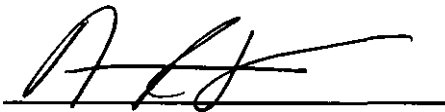
API #30-015-42654
Sec. 6, 175, 31E 945 FSL + 155 FES

259	2.59	0.50	0.88	2.27	2.27
418	1.59	0.75	1.31	2.09	4.35
645	2.27	1.60	2.80	6.36	10.71
901	2.56	0.90	1.58	4.03	14.74
1200	2.99	0.70	1.23	3.66	18.40
1411	2.11	0.60	1.05	2.22	20.62
1583	1.72	0.60	1.05	1.81	22.43
1753	1.70	0.20	0.35	0.60	23.02
1925	1.72	0.20	0.35	0.60	23.62
2179	2.54	0.20	0.35	0.89	24.51
2477	2.98	0.30	0.53	1.56	26.08
2690	2.13	0.10	0.18	0.37	26.45
2815	1.25	0.10	0.18	0.22	26.67
3032	2.17	0.10	0.18	0.38	27.05
3202	1.70	0.20	0.35	0.60	27.64
3469	2.67	0.10	0.18	0.47	28.11
3533	0.64	0.10	0.18	0.11	28.22
3746	2.13	0.10	0.18	0.37	28.59
3959	2.13	0.10	0.18	0.37	28.97
4172	2.13	0.00	0.00	0.00	28.97
4385	2.13	0.30	0.53	1.12	30.09

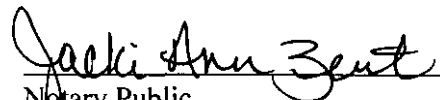
NM OIL CONSERVATION
ARTESIA DISTRICT

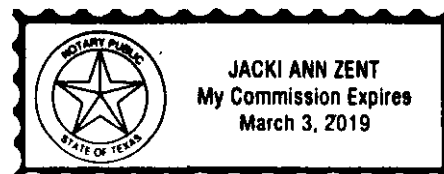
DEC 04 2015

RECEIVED


Archie Brown - General Manager

The attached instrument was acknowledged before me on the 13th day of April, 2015 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public





NM OIL CONSERVATION

ARTESIA DISTRICT

DEC 04 2015

RECEIVED

Apache Corporation

Eddy County, NM (NAD27 NME)

NFE Federal

#34H

WB1 / Job #1512835

Survey: Phoenix MWD Surveys

Standard Survey Report

08 April, 2015



Company:	Apache Corporation	Local Co-ordinate Reference:	Well #34H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3765.00usft (Capstar 119)
Site:	NFE Federal	MD Reference:	KB @ 3765.00usft (Capstar 119)
Well:	#34H	North Reference:	Grid
Wellbore:	WB1 / Job #1512835	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	#34H		
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' 31.51952 N
		Longitude:	103° 54' 1.80475 W
		Ground Level:	3,754.00 usft

Wellbore	WB1 / Job #1512835		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	3/23/2015	7.68
			Dip Angle
			(°)
			Field Strength
			(nT)
			60.80
			48,587

Design	Surveys (Capstar 119)		
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
			(°)
			89.59

Survey Program	Date 4/8/2015		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
118.00	4,314.00	Phoenix Gyro Surveys (WB1 / Job #15128)	NS-GYRO-MS
4,413.00	9,812.00	Phoenix MWD Surveys (WB1 / Job #1512)	PHX+MWD+HDGM
			Description
			North sensing gyrocompassing m/s
			PHX+MWD+HDGM

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)
4,314.00	0.11	267.59	4,313.58	11.74	19.53	19.61	0.00	0.00	0.00
Tie-on to Phoenix Gyro Survey									
4,413.00	0.30	238.30	4,412.58	11.60	19.21	19.30	0.21	0.19	-29.59
First Phoenix MWD Survey									
4,456.00	2.50	91.60	4,455.57	11.52	20.06	20.14	6.41	5.12	-341.16
4,498.00	7.60	96.50	4,497.39	11.18	23.73	23.81	12.18	12.14	11.67
4,541.00	13.60	88.40	4,539.64	11.00	31.62	31.70	14.34	13.95	-18.84
4,583.00	19.50	85.60	4,579.88	11.67	43.56	43.64	14.17	14.05	-6.67
4,626.00	22.80	88.30	4,619.98	12.47	59.04	59.13	8.00	7.67	6.28

Company:	Apache Corporation	Local Co-ordinate Reference:	Well #34H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3765.00usft (Capstar 119)
Site:	NFE Federal	MD Reference:	KB @ 3765.00usft (Capstar 119)
Well:	#34H	North Reference:	Grid
Wellbore:	WB1 / Job #1512835	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)
4,669.00	25.70	88.00	4,659.18	13.05	76.69	76.78	6.75	6.74	-0.70
4,711.00	29.00	88.60	4,696.48	13.61	95.98	96.07	7.88	7.86	1.43
4,754.00	33.50	89.20	4,733.23	14.03	118.28	118.37	10.49	10.47	1.40
4,796.00	40.30	90.00	4,766.80	14.19	143.48	143.58	16.23	16.19	1.90
4,839.00	45.20	90.50	4,798.37	14.06	172.66	172.75	11.42	11.40	1.16
4,881.00	51.20	90.70	4,826.35	13.73	203.95	204.04	14.29	14.29	0.48
4,924.00	55.00	91.10	4,852.16	13.19	238.33	238.41	8.87	8.84	0.93
4,967.00	59.10	92.00	4,875.55	12.21	274.39	274.47	9.70	9.53	2.09
5,009.00	63.80	92.00	4,895.61	10.92	311.25	311.32	11.19	11.19	0.00
5,052.00	70.00	91.40	4,912.48	9.75	350.76	350.82	14.48	14.42	-1.40
5,095.00	74.20	91.90	4,925.69	8.57	391.66	391.71	9.83	9.77	1.16
5,137.00	79.30	90.10	4,935.31	7.86	432.52	432.56	12.84	12.14	-4.29
5,179.00	82.90	88.20	4,941.81	8.48	474.00	474.05	9.67	8.57	-4.52
5,222.00	86.20	86.70	4,945.89	10.39	516.75	516.81	8.42	7.67	-3.49
5,264.00	86.50	87.10	4,948.57	12.66	558.61	558.68	1.19	0.71	0.95
5,307.00	86.80	86.60	4,951.08	15.01	601.47	601.56	1.35	0.70	-1.16
5,434.00	86.90	87.80	4,958.06	21.21	728.12	728.26	0.95	0.08	0.94
5,562.00	87.70	89.60	4,964.09	24.11	855.94	856.09	1.54	0.63	1.41
5,690.00	88.90	90.80	4,967.89	23.66	983.88	984.02	1.33	0.94	0.94
5,817.00	89.00	90.90	4,970.21	21.78	1,110.84	1,110.97	0.11	0.08	0.08
5,945.00	90.40	91.00	4,970.88	19.66	1,238.82	1,238.93	1.10	1.09	0.08
6,073.00	91.20	91.10	4,969.10	17.31	1,366.79	1,366.87	0.63	0.63	0.08
6,201.00	90.50	90.80	4,967.20	15.19	1,494.75	1,494.82	0.59	-0.55	-0.23
6,328.00	89.60	89.90	4,967.09	14.41	1,621.75	1,621.81	1.00	-0.71	-0.71
6,456.00	89.70	90.10	4,967.87	14.41	1,749.75	1,749.80	0.17	0.08	0.16
6,584.00	89.30	90.00	4,968.99	14.30	1,877.74	1,877.79	0.32	-0.31	-0.08
6,711.00	88.60	88.30	4,971.31	16.18	2,004.70	2,004.76	1.45	-0.55	-1.34
6,839.00	88.60	87.60	4,974.44	20.76	2,132.58	2,132.67	0.55	0.00	-0.55
6,967.00	88.10	86.60	4,978.13	27.23	2,260.36	2,260.50	0.87	-0.39	-0.78
7,094.00	87.10	87.30	4,983.45	33.99	2,387.07	2,387.25	0.96	-0.79	0.55
7,222.00	86.90	89.30	4,990.15	37.78	2,514.83	2,515.03	1.57	-0.16	1.56
7,349.00	88.60	91.40	4,995.13	37.00	2,641.72	2,641.91	2.13	1.34	1.65
7,478.00	88.40	89.90	4,998.51	35.54	2,770.66	2,770.84	1.17	-0.16	-1.16
7,605.00	89.10	90.70	5,001.28	34.87	2,897.63	2,897.80	0.84	0.55	0.63
7,733.00	89.90	91.40	5,002.40	32.53	3,025.60	3,025.75	0.83	0.63	0.55
7,861.00	91.00	92.50	5,001.39	28.17	3,153.52	3,153.64	1.22	0.86	0.86
7,988.00	89.30	91.20	5,001.06	24.07	3,280.44	3,280.53	1.69	-1.34	-1.02
8,116.00	88.30	89.40	5,003.74	23.40	3,408.41	3,408.49	1.61	-0.78	-1.41
8,243.00	88.70	90.20	5,007.06	23.85	3,535.36	3,535.44	0.70	0.31	0.63
8,371.00	89.90	90.70	5,008.63	22.84	3,663.34	3,663.41	1.02	0.94	0.39
8,499.00	89.30	89.90	5,009.52	22.17	3,791.34	3,791.40	0.78	-0.47	-0.63
8,627.00	89.10	90.40	5,011.31	21.84	3,919.32	3,919.38	0.42	-0.16	0.39
8,755.00	88.90	89.60	5,013.54	21.84	4,047.30	4,047.36	0.64	-0.16	-0.63

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Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3765.00usft (Capstar 119)
Site:	NFE Federal	MD Reference:	KB @ 3765.00usft (Capstar 119)
Well:	#34H	North Reference:	Grid
Wellbore:	WB1 / Job #1512835	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)
8,882.00	88.80	89.50	5,016.09	22.83	4,174.27	4,174.33	0.11	-0.08	-0.08
9,010.00	88.70	89.40	5,018.88	24.06	4,302.24	4,302.30	0.11	-0.08	-0.08
9,138.00	88.30	88.80	5,022.23	26.07	4,430.18	4,430.25	0.56	-0.31	-0.47
9,266.00	88.30	88.60	5,026.03	28.97	4,558.09	4,558.18	0.16	0.00	-0.16
9,394.00	87.70	87.70	5,030.50	33.10	4,685.94	4,686.06	0.84	-0.47	-0.70
9,521.00	87.50	88.40	5,035.82	37.42	4,812.75	4,812.90	0.57	-0.16	0.55
9,649.00	87.30	87.90	5,041.62	41.55	4,940.56	4,940.73	0.42	-0.16	-0.39
9,747.00	87.90	88.70	5,045.73	44.45	5,038.43	5,038.61	1.02	0.61	0.82
Last Phoenix MWD Survey									
9,812.00	88.50	89.00	5,047.77	45.76	5,103.38	5,103.58	1.03	0.92	0.46
Projection to TD									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,314.00	4,313.58	11.74	19.53	Tie-on to Phoenix Gyro Survey
4,413.00	4,412.58	11.60	19.21	First Phoenix MWD Survey
9,747.00	5,045.73	44.45	5,038.43	Last Phoenix MWD Survey
9,812.00	5,047.77	45.76	5,103.38	Projection to TD

Checked By: _____ Approved By: _____ Date: _____

SURVEY CERTIFICATION FORM

3610 Elkins Road Midland, TX 79705 t: 432-684-0057 f: 432-686-7964



Company: Apache

Job #: 1513386

Well Name: NFE Federal #34H

County/State: Eddy Co, NM

Survey Instrument Type: North Seek Rate Gyro

API # 30-015-42654

TIE-IN DATA

Measure Depth (ft)	Vertical Depth (ft)	Inclination (°)	Azimuth (°)	N-S Coordinates	E-W Coordinates	Data Source
0	0	0	0	0	0	Surface

First Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
2015-04-03	0	0	0

Last Survey

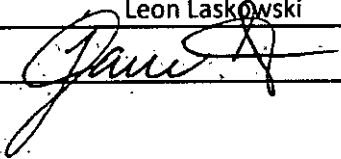
Date	Depth (ft)	Inclination (°)	Azimuth (°)
2015-04-03	4314	0.11	267.59

Projected TD Survey

Date	Depth (ft)	Inclination (°)	Azimuth (°)
0	0	0	0

Grid Correction
-0.23

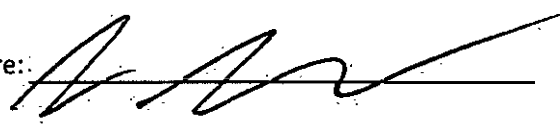
Gyro Operator: Leon Laskowski

Gyro Supervisor: 

To the best of my knowledge I certify this survey data to be correct and true

Date: 2015-04-03

Print Name: Leon Laskowski

Signature: 



Company:
Well:
Location:
Rig:

Apache
NFE Federal #34H
Eddy Co, NM
Capstar 119

Job Number: 1513336
Grid Corr.: -0.23
Lat: 32.86
Long: -103.90

Calculation Method
Proposed Azimuth
RKB - MSL in feet
Tie Into:

Minimum Curvature

11'

Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
Field Copy Non Definitive													
TIE IN	0	0.00	0	0	0	0	N/S (ft)	E/W (ft)	Distance (ft)	Angle (deg)			
Gyro	118.00	0.10	48.18	118	118.00	0.07	0.07 N	0.08 E	0.10	48.18	0.08	0.08	40.83
	207.00	0.10	45.19	89	207.00	0.18	0.18 N	0.19 E	0.26	47.28	0.01	0.00	-3.36
	298.00	1.25	53.46	91	297.99	0.82	0.82 N	1.04 E	1.33	51.77	1.26	1.26	9.09
	389.00	2.97	44.07	91	388.93	3.11	3.11 N	3.48 E	4.67	48.25	1.92	1.89	-10.32
	479.00	2.17	41.83	90	478.84	6.05	6.05 N	6.24 E	8.69	45.87	0.90	-0.89	-2.49
	564.00	1.96	45.77	85	563.78	8.27	8.27 N	8.35 E	11.75	45.31	0.30	-0.25	4.64
	650.00	1.74	45.50	86	649.74	10.21	10.21 N	10.34 E	14.53	45.37	0.26	-0.26	-0.31
	735.00	1.40	43.33	85	734.70	11.87	11.87 N	11.97 E	16.86	45.25	0.41	-0.40	-2.55
	820.00	1.26	44.25	85	819.68	13.29	13.29 N	13.34 E	18.83	45.10	0.17	-0.16	1.08
	905.00	1.03	48.22	85	904.66	14.47	14.47 N	14.56 E	20.53	45.18	0.29	-0.27	4.67
	990.00	0.90	52.08	85	989.65	15.39	15.39 N	15.65 E	21.95	45.49	0.17	-0.15	4.54
	1076.00	0.79	58.56	86	1075.64	16.11	16.11 N	16.69 E	23.20	46.01	0.17	-0.13	7.53
	1161.00	0.72	63.32	85	1160.63	16.66	16.66 N	17.67 E	24.28	46.69	0.11	-0.08	5.60
	1246.00	0.91	83.37	85	1245.63	16.98	16.98 N	18.82 E	25.34	47.95	0.40	0.22	23.59
	1332.00	0.93	102.13	86	1331.62	16.91	16.91 N	20.18 E	26.33	50.04	0.35	0.02	21.81
	1417.00	0.83	112.01	85	1416.61	16.53	16.53 N	21.42 E	27.06	52.34	0.21	-0.12	11.62
	1502.00	0.63	118.79	85	1501.60	16.08	16.08 N	22.40 E	27.58	54.34	0.26	-0.24	7.98
	1587.00	0.56	114.73	85	1586.59	15.68	15.68 N	23.19 E	27.99	55.94	0.10	-0.08	-4.78
	1673.00	0.37	123.90	86	1672.59	15.35	15.35 N	23.80 E	28.32	57.19	0.24	-0.22	10.66
	1758.00	0.24	137.30	85	1757.59	15.06	15.06 N	24.15 E	28.46	58.05	0.17	-0.15	15.76
	1843.00	0.20	150.90	85	1842.59	14.80	14.80 N	24.34 E	28.49	58.70	0.08	-0.05	16.00
	1928.00	0.15	216.82	85	1927.59	14.58	14.58 N	24.35 E	28.38	59.08	0.23	-0.06	77.55
	2013.00	0.17	262.81	85	2012.59	14.48	14.48 N	24.16 E	28.17	59.06	0.15	0.02	54.11
	2099.00	0.21	248.48	86	2098.59	14.41	14.41 N	23.89 E	27.89	58.91	0.07	0.05	-16.66
	2184.00	0.21	243.06	85	2183.59	14.28	14.28 N	23.60 E	27.58	58.83	0.02	0.00	-6.38
	2269.00	0.24	241.74	85	2268.59	14.12	14.12 N	23.31 E	27.25	58.79	0.04	0.04	-1.55
	2354.00	0.21	239.23	85	2353.59	13.96	13.96 N	23.02 E	26.92	58.76	0.04	-0.04	-2.95



Location: Eddy Co, NM

Rig: Capstar 119

Capstar 119

Capstar 119

-0.23

Grid Corr.: -0.23Lat: 32.86

Long: -103.

Proposed Azimuth

RKB - MSL in feet

Tie Into:

11

Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates			Closure		Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
							N/S (ft)	E/W (ft)	(ft)	Distance (ft)	Angle (deg)			
	2440.00	0.24	235.06	86	2439.58	13.78	13.78 N	22.73 E	26.58	58.79	0.04	0.03	-4.85	
	2525.00	0.20	242.71	85	2524.58	13.61	13.61 N	22.45 E	26.25	58.79	0.06	-0.05	9.00	
	2610.00	0.23	232.59	85	2609.58	13.43	13.43 N	22.19 E	25.94	58.81	0.06	0.04	-11.91	
	2695.00	0.15	231.76	85	2694.58	13.26	13.26 N	21.96 E	25.66	58.88	0.09	-0.09	-0.98	
	2780.00	0.11	223.47	85	2779.58	13.13	13.13 N	21.82 E	25.47	58.96	0.05	-0.05	-9.75	
	2865.00	0.06	182.76	85	2864.58	13.03	13.03 N	21.76 E	25.36	59.09	0.09	-0.06	-47.89	
	2950.00	0.08	217.90	85	2949.58	12.94	12.94 N	21.72 E	25.28	59.22	0.05	0.02	41.34	
	3036.00	0.05	221.23	86	3035.58	12.86	12.86 N	21.66 E	25.19	59.30	0.04	-0.03	3.87	
	3121.00	0.12	232.34	85	3120.58	12.78	12.78 N	21.57 E	25.07	59.35	0.08	0.08	13.07	
	3206.00	0.17	231.21	85	3205.58	12.65	12.65 N	21.40 E	24.86	59.42	0.06	0.06	-1.33	
	3291.00	0.20	241.80	85	3290.58	12.50	12.50 N	21.17 E	24.58	59.44	0.05	0.04	12.46	
	3376.00	0.17	265.31	85	3375.58	12.42	12.42 N	20.91 E	24.32	59.30	0.10	-0.04	27.66	
	3462.00	0.11	330.88	86	3461.58	12.48	12.48 N	20.75 E	24.21	58.97	0.19	-0.07	76.24	
	3547.00	0.08	282.31	85	3546.58	12.56	12.56 N	20.65 E	24.17	58.68	0.10	-0.04	-57.14	
	3632.00	0.13	204.40	85	3631.58	12.49	12.49 N	20.55 E	24.05	58.71	0.16	0.06	-91.66	
	3802.00	0.18	212.65	170	3801.58	12.09	12.09 N	20.33 E	23.65	59.26	0.03	0.03	4.85	
	3888.00	0.12	213.17	86	3887.58	11.90	11.90 N	20.20 E	23.45	59.51	0.07	-0.07	0.60	
	3973.00	0.20	228.57	85	3972.58	11.73	11.73 N	20.04 E	23.22	59.67	0.11	0.09	18.12	
	4058.00	0.17	0.81	85	4057.58	11.75	11.75 N	19.93 E	23.14	59.48	0.40	-0.04	-267.95	
	4143.00	0.03	325.06	85	4142.58	11.90	11.90 N	19.92 E	23.21	59.16	0.17	-0.16	381.47	
	4228.00	0.23	240.80	85	4227.58	11.83	11.83 N	19.76 E	23.03	59.09	0.27	0.24	-99.13	
	4314.00	0.11	267.59	86	4313.58	11.74	11.74 N	19.53 E	22.79	58.98	0.16	-0.14	31.15	