

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

Coffee Federal #018
Eddy County, New Mexico

NM OIL CONSERVATION

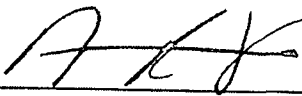
ARTESIA DISTRICT

MAR 02 2015

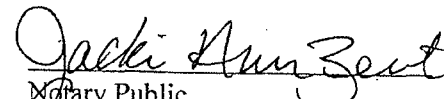
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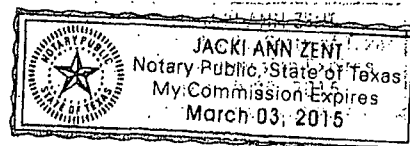
15-42400

375	3.75	0.50	0.88	3.28	3.28
556	1.81	0.90	1.58	2.85	6.13
743	1.87	0.70	1.23	2.29	8.42
838	0.95	0.70	1.23	1.16	9.59
1166	3.28	0.10	0.18	0.57	10.16
1313	1.47	0.40	0.70	1.03	11.19
1534	2.21	0.60	1.05	2.32	13.51
1724	1.90	2.80	4.90	9.31	22.82
1819	0.95	4.10	7.18	6.82	29.64
2053	2.34	4.80	8.40	19.66	49.29
2230	1.77	4.40	7.70	13.63	62.92
2419	1.89	4.00	7.00	13.23	76.15
2609	1.90	4.00	7.00	13.30	89.45
2703	0.94	3.90	6.83	6.42	95.87
2937	2.34	4.20	7.35	17.20	113.07
3177	2.40	4.70	8.23	19.74	132.81
3316	1.39	4.70	8.23	11.43	144.24
3572	2.56	5.00	8.75	22.40	166.64
3743	1.71	3.80	6.65	11.37	178.01
3933	1.90	3.30	5.78	10.97	188.98
4028	0.95	3.10	5.43	5.15	194.14
4595	5.67	3.60	6.30	35.72	229.86
4784	1.89	3.30	5.78	10.91	240.77
4974	1.90	3.10	5.43	10.31	251.08
5163	1.89	3.70	6.48	12.24	263.32
5353	1.90	4.10	7.18	13.63	276.95
5543	1.90	4.70	8.23	15.63	292.58
5733	1.90	3.90	6.83	12.97	305.54
5922	1.89	5.30	9.28	17.53	323.07
6112	1.90	5.00	8.75	16.63	339.70
6412	3.00	4.10	7.18	21.53	361.22


Archie Brown - General Manager

The attached instrument was acknowledged before me on the 6th day of September, 2014 by
Archie Brown - General Manager, CapStar Drilling, Inc.


Notary Public





NM OIL CONSERVATION
ARTESIA DISTRICT

MAR 02 2015

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Apache Corporation

Eddy County, New Mexico

Sec 18, T17S,31E

Coffee Federal #18

Wellbore #1

Design: Wellbore #1

DDC Survey Report

04 September, 2014





Survey Report



Company:	Apache Corporation	Local Co-ordinate Reference:	Well Coffee Federal #18
Project:	Eddy County New Mexico	TVD Reference:	WELL @ 3777.0usft (Capstar #118)
Site:	Sec 18, T17S, 31E	MD Reference:	WELL @ 3777.0usft (Capstar #118)
Well:	Coffee Federal #18	North Reference:	Grid:
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM Compass

Project:	Eddy County, New Mexico		
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: Sec 18, T17S, 31E					
Site Position:		Northing:	669,030.90 usft	Latitude:	32° 50' 18.784 N
From:	Map	Easting:	628,605.90 usft	Longitude:	103° 54' 52.613 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.23 °

Well:		Coffee Federal #18				
Well Position	+N/-S	0.0 usft	Northing:	668,159.30 usft	Latitude:	32° 50' 10.140 N
	+E/-W	0.0 usft	Easting:	629,103.60 usft	Longitude:	103° 54' 46.820 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,766.0 usft

Wellbore		Wellbore #1			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/24/2014	7.47	60.63	48,683

Design: Wellbore #1				
Audit Notes:				
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.0		
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	352.68

Survey Program		Date	9/4/2014	
From	To			
(usft)	(usft)	Survey (Wellbore)	Tool Name	Description
495.0	6,412.0	MWD Survey (Wellbore #1)	MWD default	MWD - Standard

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
FIRST MWD SURVEY @ 495' MD / 495' TVD										
495.0	1.10	134.10	495.0	-3.3	3.4	-3.7	0.22	0.22	0.00	
556.0	0.90	180.70	556.0	-4.2	3.8	-4.6	1.33	-0.33	76.39	
649.0	1.10	243.40	648.9	-5.3	3.0	-5.7	1.13	0.22	67.42	
743.0	0.70	277.40	742.9	-5.7	1.6	-5.8	0.69	-0.43	36.17	
838.0	0.70	281.20	837.9	-5.5	0.5	-5.5	0.05	0.00	4.00	
933.0	0.60	264.70	932.9	-5.4	-0.6	-5.3	0.22	-0.11	-17.37	
1,028.0	0.30	264.30	1,027.9	-5.5	-1.3	-5.3	0.32	-0.32	-0.42	
1,122.0	0.10	209.70	1,121.9	-5.6	-1.6	-5.3	0.27	-0.21	-58.09	
1,217.0	0.40	90.50	1,216.9	-5.6	-1.3	-5.4	0.48	0.32	-125.47	



Survey Report



Company	Apache Corporation	Local/Co-ordinate Reference	Well Coffee Federal #18
Project	Eddy County, New Mexico	TVD Reference:	WELL @ 3777.0usft (Capstar #118)
Site	Sec 18 T17S31E	MD Reference	WELL @ 3777.0usft (Capstar #118)
Well	Coffee Federal #18	North Reference	Grid
Wellbore	Wellbore #1	Survey Calculation Method	Minimum Curvature
Design	Wellbore #1	Database	EDM Compass

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)
1,313.0	0.40	108.40	1,312.9	-5.7	-0.7	-5.6	0.13	0.00	18.65
1,439.0	0.60	111.90	1,438.9	-6.1	0.4	-6.1	0.16	0.16	2.78
1,534.0	0.60	287.90	1,533.9	-6.2	0.4	-6.2	1.26	0.00	185.26
1,629.0	1.70	304.20	1,628.9	-5.2	-1.3	-5.0	1.20	1.16	17.16
1,724.0	2.80	303.20	1,723.8	-3.2	-4.4	-2.6	1.16	1.16	-1.05
1,819.0	4.10	309.30	1,818.6	0.3	-8.9	1.4	1.42	1.37	6.42
1,913.0	4.60	310.70	1,912.4	4.8	-14.4	6.6	0.54	0.53	1.49
2,008.0	4.80	309.70	2,007.1	9.9	-20.4	12.4	0.23	0.21	-1.05
CROSSED HARD LINE @ 2020 MD / 2019 TVD									
2,019.8	4.79	309.57	2,018.8	10.5	-21.1	13.1	0.12	-0.08	-1.08
2,135.0	4.70	308.30	2,133.6	16.5	-28.5	20.0	0.12	-0.08	-1.10
2,230.0	4.40	321.60	2,228.3	21.8	-33.8	25.9	1.15	-0.32	14.00
2,325.0	3.60	330.40	2,323.1	27.2	-37.6	31.8	1.06	-0.84	9.26
2,419.0	4.00	339.80	2,416.9	32.9	-40.2	37.7	0.79	0.43	10.00
2,514.0	4.50	354.90	2,511.6	39.7	-41.6	44.7	1.29	0.53	15.89
2,609.0	4.00	1.20	2,606.4	46.7	-41.9	51.7	0.72	-0.53	6.63
2,703.0	3.90	2.10	2,700.1	53.2	-41.7	58.1	0.13	-0.11	0.96
2,798.0	3.90	3.10	2,794.9	59.6	-41.4	64.4	0.07	0.00	1.05
2,893.0	4.20	0.10	2,889.7	66.3	-41.2	71.0	0.39	0.32	-3.16
2,988.0	4.70	359.40	2,984.4	73.7	-41.3	78.4	0.53	0.53	-0.74
3,082.0	5.10	359.40	3,078.1	81.7	-41.4	86.3	0.43	0.43	0.00
3,177.0	4.70	1.50	3,172.7	89.8	-41.3	94.4	0.46	-0.42	2.21
3,272.0	4.70	1.50	3,267.4	97.6	-41.1	102.1	0.00	0.00	0.00
3,366.0	4.50	1.50	3,361.1	105.2	-40.9	109.5	0.21	-0.21	0.00
3,474.0	4.80	3.50	3,468.7	113.9	-40.5	118.1	0.32	0.28	1.85
3,554.0	4.90	8.10	3,548.4	120.6	-39.8	124.7	0.50	0.13	5.75
3,649.0	4.20	348.40	3,643.1	128.1	-40.0	132.1	1.79	-0.74	-20.74
3,743.0	3.80	4.20	3,736.9	134.5	-40.4	138.6	1.24	-0.43	16.81
3,838.0	4.00	357.00	3,831.7	141.0	-40.4	145.0	0.56	0.21	-7.58
3,933.0	3.30	357.90	3,926.5	147.0	-40.6	151.0	0.74	-0.74	0.95
4,028.0	3.10	356.30	4,021.4	152.3	-40.9	156.3	0.23	-0.21	-1.68
4,122.0	4.00	3.50	4,115.2	158.1	-40.9	162.0	1.07	0.96	7.66
4,217.0	4.00	357.90	4,209.9	164.7	-40.8	168.6	0.41	0.00	-5.89
4,406.0	3.80	359.40	4,398.5	177.6	-41.1	181.4	0.12	-0.11	0.79
4,595.0	3.60	359.80	4,587.1	189.8	-41.2	193.5	0.11	-0.11	0.21
4,784.0	3.30	357.00	4,775.8	201.2	-41.5	204.8	0.18	-0.16	-1.48
4,974.0	3.10	356.50	4,965.5	211.7	-42.1	215.4	0.11	-0.11	-0.26
5,163.0	3.70	358.40	5,154.1	222.9	-42.6	226.6	0.32	0.32	1.01
5,353.0	4.10	14.00	5,343.7	235.7	-41.1	239.0	0.59	0.21	8.21
5,543.0	4.70	355.90	5,533.2	250.0	-40.0	253.1	0.79	0.32	-9.53
5,733.0	3.90	355.60	5,722.6	264.2	-41.1	267.3	0.42	-0.42	-0.16
5,922.0	5.30	354.90	5,911.0	279.3	-42.3	282.4	0.74	0.74	-0.37
6,112.0	5.00	356.10	6,100.2	296.3	-43.7	299.5	0.17	-0.16	0.63



Survey Report



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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)
6,302.0	4.30	350.10	6,289.6	311.6	-45.5	314.9	0.45	-0.37	-3.16
6,362.0	4.10	348.70	6,349.5	315.9	-46.3	319.2	0.37	-0.33	-2.33
TD @ 6412' MD / 6399' TVD									
6,412.0	4.10	348.70	6,399.3	319.4	-47.0	322.8	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
495.0	495.0	-3.3	3.4	FIRST MWD SURVEY @ 495' MD / 495' TVD
2,019.8	2,018.8	10.5	-21.1	CROSSED HARD LINE @ 2020' MD / 2019' TVD
6,412.0	6,399.3	319.4	-47.0	TD @ 6412' MD / 6399' TVD

Checked By: _____ Approved By: _____ Date: _____