



NM OIL CONSERVATION
ARTESIA DISTRICT

DEC 13 2018

RECEIVED

Devon Energy

Eddy County, NM (NAD83 NME)

Spud Muffin 31-30

624H

30.015-45268

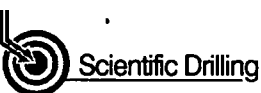
OH

Plan: Plan #1

Standard Planning Report

04 December, 2018





Scientific Drilling, Intl Planning Report



Database: Midland District
Company: Devon Energy
Project: Eddy County, NM (NAD83 NME)
Site: Spud Muffin 31-30
Well: 624H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well 624H
TVD Reference: KB = 32' @ 2992.00usft
MD Reference: KB = 32' @ 2992.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Eddy County, NM (NAD83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone	Using geodetic scale factor	

Site		Spud Muffin 31-30			
Site Position:		Northing:	456,686.87 usft	Latitude:	32° 15' 18.399 N
From:	Map	Easting:	639,208.90 usft	Longitude:	104° 1' 0.221 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.17 °

Well	624H					
Well Position	+N/-S	148.52 usft	Northing:	456,835.38 usft	Latitude:	32° 15' 19.863 N
	+E/-W	202.11 usft	Easting:	639,410.99 usft	Longitude:	104° 0' 57.862 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	2,960.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/4/2018	7.10	60.02	47,955

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (bearing)
	0.00	0.00	0.00	358.89

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,100.00	6.00	180.00	3,098.90	-31.39	0.00	1.00	1.00	0.00	180.00	
6,000.00	6.00	180.00	5,983.02	-334.52	0.00	0.00	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,581.92	-365.91	0.00	1.00	-1.00	0.00	180.00	
9,297.08	0.00	0.00	9,279.00	-365.91	0.00	0.00	0.00	0.00	0.00	
10,194.18	89.71	352.00	9,851.95	198.60	-79.34	10.00	10.00	0.00	352.00	
10,214.18	89.71	352.00	9,852.05	218.41	-82.12	0.00	0.00	0.00	0.00	
10,589.17	89.71	359.50	9,853.95	592.10	-109.89	2.00	0.00	2.00	90.02	
19,831.98	89.71	359.50	9,901.00	9,834.44	-190.56	0.00	0.00	0.00	0.00	BHL[SM624H]



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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	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
24.00	0.00	0.00	24.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler - Top of Salt									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP - NUDGE									
2,600.00	1.00	180.00	2,599.99	-0.87	0.00	-0.87	1.00	1.00	0.00
2,700.00	2.00	180.00	2,699.96	-3.49	0.00	-3.49	1.00	1.00	0.00
2,760.09	2.60	180.00	2,760.00	-5.90	0.00	-5.90	1.00	1.00	0.00
Base of Salt - Delaware									
2,800.00	3.00	180.00	2,799.86	-7.85	0.00	-7.85	1.00	1.00	0.00
2,900.00	4.00	180.00	2,899.68	-13.96	0.00	-13.95	1.00	1.00	0.00
3,000.00	5.00	180.00	2,999.37	-21.80	0.00	-21.80	1.00	1.00	0.00
3,100.00	6.00	180.00	3,098.90	-31.39	0.00	-31.38	1.00	1.00	0.00
HOLD									
3,200.00	6.00	180.00	3,198.36	-41.84	0.00	-41.83	0.00	0.00	0.00
3,300.00	6.00	180.00	3,297.81	-52.29	0.00	-52.28	0.00	0.00	0.00
3,400.00	6.00	180.00	3,397.26	-62.75	0.00	-62.73	0.00	0.00	0.00
3,500.00	6.00	180.00	3,496.71	-73.20	0.00	-73.18	0.00	0.00	0.00
3,600.00	6.00	180.00	3,596.17	-83.65	0.00	-83.64	0.00	0.00	0.00
3,700.00	6.00	180.00	3,695.62	-94.10	0.00	-94.09	0.00	0.00	0.00
3,800.00	6.00	180.00	3,795.07	-104.56	0.00	-104.54	0.00	0.00	0.00
3,900.00	6.00	180.00	3,894.52	-115.01	0.00	-114.99	0.00	0.00	0.00
4,000.00	6.00	180.00	3,993.97	-125.46	0.00	-125.44	0.00	0.00	0.00
4,100.00	6.00	180.00	4,093.43	-135.92	0.00	-135.89	0.00	0.00	0.00
4,200.00	6.00	180.00	4,192.88	-146.37	0.00	-146.34	0.00	0.00	0.00
4,300.00	6.00	180.00	4,292.33	-156.82	0.00	-156.79	0.00	0.00	0.00
4,400.00	6.00	180.00	4,391.78	-167.27	0.00	-167.24	0.00	0.00	0.00
4,500.00	6.00	180.00	4,491.23	-177.73	0.00	-177.69	0.00	0.00	0.00
4,600.00	6.00	180.00	4,590.69	-188.18	0.00	-188.14	0.00	0.00	0.00
4,700.00	6.00	180.00	4,690.14	-198.63	0.00	-198.60	0.00	0.00	0.00



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Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,800.00	6.00	180.00	4,789.59	-209.09	0.00	-209.05	0.00	0.00	0.00
4,900.00	6.00	180.00	4,889.04	-219.54	0.00	-219.50	0.00	0.00	0.00
5,000.00	6.00	180.00	4,988.50	-229.99	0.00	-229.95	0.00	0.00	0.00
5,100.00	6.00	180.00	5,087.95	-240.44	0.00	-240.40	0.00	0.00	0.00
5,200.00	6.00	180.00	5,187.40	-250.90	0.00	-250.85	0.00	0.00	0.00
5,300.00	6.00	180.00	5,286.85	-261.35	0.00	-261.30	0.00	0.00	0.00
5,400.00	6.00	180.00	5,386.30	-271.80	0.00	-271.75	0.00	0.00	0.00
5,500.00	6.00	180.00	5,485.76	-282.26	0.00	-282.20	0.00	0.00	0.00
5,600.00	6.00	180.00	5,585.21	-292.71	0.00	-292.65	0.00	0.00	0.00
5,700.00	6.00	180.00	5,684.66	-303.16	0.00	-303.10	0.00	0.00	0.00
5,800.00	6.00	180.00	5,784.11	-313.61	0.00	-313.56	0.00	0.00	0.00
5,900.00	6.00	180.00	5,883.57	-324.07	0.00	-324.01	0.00	0.00	0.00
6,000.00	6.00	180.00	5,983.02	-334.52	0.00	-334.46	0.00	0.00	0.00
DROP									
6,100.00	5.00	180.00	6,082.56	-344.10	0.00	-344.04	1.00	-1.00	0.00
6,143.60	4.56	180.00	6,126.00	-347.74	0.00	-347.67	1.00	-1.00	0.00
Lower Brushy Canyon									
6,200.00	4.00	180.00	6,182.25	-351.95	0.00	-351.88	1.00	-1.00	0.00
6,300.00	3.00	180.00	6,282.06	-358.05	0.00	-357.99	1.00	-1.00	0.00
6,400.00	2.00	180.00	6,381.96	-362.42	0.00	-362.35	1.00	-1.00	0.00
6,474.07	1.26	180.00	6,456.00	-364.52	0.00	-364.45	1.00	-1.00	0.00
1st BSPG Lime									
6,500.00	1.00	180.00	6,481.93	-365.03	0.00	-364.97	1.00	-1.00	0.00
6,600.00	0.00	0.00	6,581.92	-365.91	0.00	-365.84	1.00	-1.00	0.00
HOLD									
6,700.00	0.00	0.00	6,681.92	-365.91	0.00	-365.84	0.00	0.00	0.00
6,800.00	0.00	0.00	6,781.92	-365.91	0.00	-365.84	0.00	0.00	0.00
6,900.00	0.00	0.00	6,881.92	-365.91	0.00	-365.84	0.00	0.00	0.00
7,000.00	0.00	0.00	6,981.92	-365.91	0.00	-365.84	0.00	0.00	0.00
7,100.00	0.00	0.00	7,081.92	-365.91	0.00	-365.84	0.00	0.00	0.00
7,200.00	0.00	0.00	7,181.92	-365.91	0.00	-365.84	0.00	0.00	0.00
7,300.00	0.00	0.00	7,281.92	-365.91	0.00	-365.84	0.00	0.00	0.00
7,400.00	0.00	0.00	7,381.92	-365.91	0.00	-365.84	0.00	0.00	0.00
7,490.08	0.00	0.00	7,472.00	-365.91	0.00	-365.84	0.00	0.00	0.00
1st BSPG Sand									
7,500.00	0.00	0.00	7,481.92	-365.91	0.00	-365.84	0.00	0.00	0.00
7,600.00	0.00	0.00	7,581.92	-365.91	0.00	-365.84	0.00	0.00	0.00
7,700.00	0.00	0.00	7,681.92	-365.91	0.00	-365.84	0.00	0.00	0.00
7,800.00	0.00	0.00	7,781.92	-365.91	0.00	-365.84	0.00	0.00	0.00
7,808.08	0.00	0.00	7,790.00	-365.91	0.00	-365.84	0.00	0.00	0.00
2nd BSPG Lime									
7,900.00	0.00	0.00	7,881.92	-365.91	0.00	-365.84	0.00	0.00	0.00
8,000.00	0.00	0.00	7,981.92	-365.91	0.00	-365.84	0.00	0.00	0.00
8,100.00	0.00	0.00	8,081.92	-365.91	0.00	-365.84	0.00	0.00	0.00
8,200.00	0.00	0.00	8,181.92	-365.91	0.00	-365.84	0.00	0.00	0.00
8,275.08	0.00	0.00	8,257.00	-365.91	0.00	-365.84	0.00	0.00	0.00
2nd BSPG Sand									
8,300.00	0.00	0.00	8,281.92	-365.91	0.00	-365.84	0.00	0.00	0.00
8,400.00	0.00	0.00	8,381.92	-365.91	0.00	-365.84	0.00	0.00	0.00
8,500.00	0.00	0.00	8,481.92	-365.91	0.00	-365.84	0.00	0.00	0.00
8,600.00	0.00	0.00	8,581.92	-365.91	0.00	-365.84	0.00	0.00	0.00
8,700.00	0.00	0.00	8,681.92	-365.91	0.00	-365.84	0.00	0.00	0.00

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8,718.08	0.00	0.00	8,700.00	-365.91	0.00	-365.84	0.00	0.00	0.00
3rd BSPG Lime									
8,800.00	0.00	0.00	8,781.92	-365.91	0.00	-365.84	0.00	0.00	0.00
8,900.00	0.00	0.00	8,881.92	-365.91	0.00	-365.84	0.00	0.00	0.00
9,000.00	0.00	0.00	8,981.92	-365.91	0.00	-365.84	0.00	0.00	0.00
9,100.00	0.00	0.00	9,081.92	-365.91	0.00	-365.84	0.00	0.00	0.00
9,200.00	0.00	0.00	9,181.92	-365.91	0.00	-365.84	0.00	0.00	0.00
9,297.08	0.00	0.00	9,279.00	-365.91	0.00	-365.84	0.00	0.00	0.00
Curve KOP - Build 10.0° / 100									
9,300.00	0.29	352.00	9,281.92	-365.90	0.00	-365.83	10.00	10.00	0.00
9,350.00	5.29	352.00	9,331.85	-363.49	-0.34	-363.41	10.00	10.00	0.00
9,400.00	10.29	352.00	9,381.37	-356.78	-1.28	-356.69	10.00	10.00	0.00
9,407.77	11.07	352.00	9,389.00	-355.35	-1.48	-355.26	10.00	10.00	0.00
3rd BSPG Sand									
9,450.00	15.29	352.00	9,430.11	-345.82	-2.82	-345.70	10.00	10.00	0.00
9,500.00	20.29	352.00	9,477.71	-330.69	-4.95	-330.54	10.00	10.00	0.00
9,550.00	25.29	352.00	9,523.79	-311.52	-7.64	-311.31	10.00	10.00	0.00
9,600.00	30.29	352.00	9,568.01	-288.44	-10.89	-288.17	10.00	10.00	0.00
9,650.00	35.29	352.00	9,610.02	-261.63	-14.65	-261.30	10.00	10.00	0.00
9,700.00	40.29	352.00	9,649.52	-231.30	-18.92	-230.89	10.00	10.00	0.00
9,750.00	45.29	352.00	9,686.20	-197.67	-23.64	-197.18	10.00	10.00	0.00
9,756.86	45.98	352.00	9,691.00	-192.82	-24.33	-192.31	10.00	10.00	0.00
3BSS G									
9,800.00	50.29	352.00	9,719.78	-161.01	-28.80	-160.42	10.00	10.00	0.00
9,841.30	54.42	352.00	9,745.00	-128.63	-33.35	-127.96	10.00	10.00	0.00
Wolfcamp									
9,850.00	55.29	352.00	9,750.01	-121.59	-34.34	-120.90	10.00	10.00	0.00
9,900.00	60.29	352.00	9,776.65	-79.71	-40.22	-78.91	10.00	10.00	0.00
9,950.00	65.29	352.00	9,799.50	-35.69	-46.41	-34.78	10.00	10.00	0.00
10,000.00	70.29	352.00	9,818.40	10.14	-52.85	11.16	10.00	10.00	0.00
10,050.00	75.29	352.00	9,833.18	57.42	-59.50	58.56	10.00	10.00	0.00
10,100.00	80.29	352.00	9,843.75	105.80	-66.29	107.06	10.00	10.00	0.00
10,101.47	80.44	352.00	9,844.00	107.24	-66.50	108.51	10.00	10.00	0.00
Wolfcamp Y (TZT)									
10,150.00	85.29	352.00	9,850.02	154.91	-73.20	156.30	10.00	10.00	0.00
10,194.18	89.71	352.00	9,851.95	198.60	-79.34	200.10	10.00	10.00	0.00
EOC - HOLD - FTP[SM624H]									
10,200.00	89.71	352.00	9,851.98	204.37	-80.15	205.88	0.00	0.00	0.00
10,214.18	89.71	352.00	9,852.05	218.41	-82.12	219.96	0.00	0.00	0.00
TURN									
10,300.00	89.71	353.72	9,852.49	303.56	-92.79	305.30	2.00	0.00	2.00
10,400.00	89.71	355.72	9,852.99	403.13	-102.00	405.03	2.00	0.00	2.00
10,500.00	89.71	357.72	9,853.50	502.96	-107.72	504.95	2.00	0.00	2.00
10,589.17	89.71	359.50	9,853.95	592.10	-109.89	594.12	2.00	0.00	2.00
HOLD									
10,600.00	89.71	359.50	9,854.01	602.93	-109.98	604.94	0.00	0.00	0.00
10,700.00	89.71	359.50	9,854.51	702.92	-110.86	704.94	0.00	0.00	0.00
10,800.00	89.71	359.50	9,855.02	802.92	-111.73	804.93	0.00	0.00	0.00
10,900.00	89.71	359.50	9,855.53	902.91	-112.60	904.92	0.00	0.00	0.00
11,000.00	89.71	359.50	9,856.03	1,002.91	-113.48	1,004.92	0.00	0.00	0.00
11,100.00	89.71	359.50	9,856.54	1,102.90	-114.35	1,104.91	0.00	0.00	0.00
11,200.00	89.71	359.50	9,857.04	1,202.90	-115.22	1,204.90	0.00	0.00	0.00
11,300.00	89.71	359.50	9,857.55	1,302.89	-116.09	1,304.89	0.00	0.00	0.00



Scientific Drilling, Intl
Planning Report

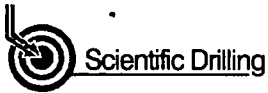


Database: Midland District
Company: Devon Energy
Project: Eddy County, NM (NAD83 NME)
Site: Spud Muffin 31-30
Well: 624H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well 624H
TVD Reference: KB = 32' @ 2992.00usft
MD Reference: KB = 32' @ 2992.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,400.00	89.71	359.50	9,858.06	1,402.89	-116.97	1,404.89	0.00	0.00	0.00
11,500.00	89.71	359.50	9,858.56	1,502.88	-117.84	1,504.88	0.00	0.00	0.00
11,600.00	89.71	359.50	9,859.07	1,602.88	-118.71	1,604.87	0.00	0.00	0.00
11,700.00	89.71	359.50	9,859.58	1,702.87	-119.58	1,704.87	0.00	0.00	0.00
11,800.00	89.71	359.50	9,860.08	1,802.87	-120.46	1,804.86	0.00	0.00	0.00
11,900.00	89.71	359.50	9,860.59	1,902.86	-121.33	1,904.85	0.00	0.00	0.00
12,000.00	89.71	359.50	9,861.09	2,002.85	-122.20	2,004.85	0.00	0.00	0.00
12,100.00	89.71	359.50	9,861.60	2,102.85	-123.07	2,104.84	0.00	0.00	0.00
12,200.00	89.71	359.50	9,862.11	2,202.84	-123.95	2,204.83	0.00	0.00	0.00
12,300.00	89.71	359.50	9,862.61	2,302.84	-124.82	2,304.83	0.00	0.00	0.00
12,400.00	89.71	359.50	9,863.12	2,402.83	-125.69	2,404.82	0.00	0.00	0.00
12,500.00	89.71	359.50	9,863.62	2,502.83	-126.56	2,504.81	0.00	0.00	0.00
12,600.00	89.71	359.50	9,864.13	2,602.82	-127.44	2,604.80	0.00	0.00	0.00
12,700.00	89.71	359.50	9,864.64	2,702.82	-128.31	2,704.80	0.00	0.00	0.00
12,800.00	89.71	359.50	9,865.14	2,802.81	-129.18	2,804.79	0.00	0.00	0.00
12,895.22	89.71	359.50	9,865.62	2,898.03	-130.01	2,900.00	0.00	0.00	0.00
AP1[SM624H]									
12,900.00	89.71	359.50	9,865.65	2,902.81	-130.06	2,904.78	0.00	0.00	0.00
13,000.00	89.71	359.50	9,866.15	3,002.80	-130.93	3,004.78	0.00	0.00	0.00
13,100.00	89.71	359.50	9,866.66	3,102.80	-131.80	3,104.77	0.00	0.00	0.00
13,200.00	89.71	359.50	9,867.17	3,202.79	-132.67	3,204.76	0.00	0.00	0.00
13,300.00	89.71	359.50	9,867.67	3,302.79	-133.55	3,304.76	0.00	0.00	0.00
13,400.00	89.71	359.50	9,868.18	3,402.78	-134.42	3,404.75	0.00	0.00	0.00
13,500.00	89.71	359.50	9,868.69	3,502.78	-135.29	3,504.74	0.00	0.00	0.00
13,600.00	89.71	359.50	9,869.19	3,602.77	-136.16	3,604.74	0.00	0.00	0.00
13,700.00	89.71	359.50	9,869.70	3,702.77	-137.04	3,704.73	0.00	0.00	0.00
13,800.00	89.71	359.50	9,870.20	3,802.76	-137.91	3,804.72	0.00	0.00	0.00
13,900.00	89.71	359.50	9,870.71	3,902.76	-138.78	3,904.71	0.00	0.00	0.00
14,000.00	89.71	359.50	9,871.22	4,002.75	-139.65	4,004.71	0.00	0.00	0.00
14,100.00	89.71	359.50	9,871.72	4,102.75	-140.53	4,104.70	0.00	0.00	0.00
14,200.00	89.71	359.50	9,872.23	4,202.74	-141.40	4,204.69	0.00	0.00	0.00
14,300.00	89.71	359.50	9,872.73	4,302.74	-142.27	4,304.69	0.00	0.00	0.00
14,400.00	89.71	359.50	9,873.24	4,402.73	-143.15	4,404.68	0.00	0.00	0.00
14,500.00	89.71	359.50	9,873.75	4,502.73	-144.02	4,504.67	0.00	0.00	0.00
14,600.00	89.71	359.50	9,874.25	4,602.72	-144.89	4,604.67	0.00	0.00	0.00
14,700.00	89.71	359.50	9,874.76	4,702.72	-145.76	4,704.66	0.00	0.00	0.00
14,800.00	89.71	359.50	9,875.27	4,802.71	-146.64	4,804.65	0.00	0.00	0.00
14,900.00	89.71	359.50	9,875.77	4,902.71	-147.51	4,904.64	0.00	0.00	0.00
15,000.00	89.71	359.50	9,876.28	5,002.70	-148.38	5,004.64	0.00	0.00	0.00
15,100.00	89.71	359.50	9,876.78	5,102.70	-149.25	5,104.63	0.00	0.00	0.00
15,142.74	89.71	359.50	9,877.00	5,145.44	-149.63	5,147.37	0.00	0.00	0.00
Wolfcamp 100 (TZB)									
15,200.00	89.71	359.50	9,877.29	5,202.69	-150.13	5,204.62	0.00	0.00	0.00
15,300.00	89.71	359.50	9,877.80	5,302.69	-151.00	5,304.62	0.00	0.00	0.00
15,400.00	89.71	359.50	9,878.30	5,402.68	-151.87	5,404.61	0.00	0.00	0.00
15,500.00	89.71	359.50	9,878.81	5,502.68	-152.74	5,504.60	0.00	0.00	0.00
15,600.00	89.71	359.50	9,879.31	5,602.67	-153.62	5,604.60	0.00	0.00	0.00
15,700.00	89.71	359.50	9,879.82	5,702.67	-154.49	5,704.59	0.00	0.00	0.00
15,800.00	89.71	359.50	9,880.33	5,802.66	-155.36	5,804.58	0.00	0.00	0.00
15,900.00	89.71	359.50	9,880.83	5,902.66	-156.23	5,904.58	0.00	0.00	0.00
16,000.00	89.71	359.50	9,881.34	6,002.65	-157.11	6,004.57	0.00	0.00	0.00
16,100.00	89.71	359.50	9,881.85	6,102.65	-157.98	6,104.56	0.00	0.00	0.00
16,200.00	89.71	359.50	9,882.35	6,202.64	-158.85	6,204.55	0.00	0.00	0.00



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Design: Plan #1

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MD Reference: KB = 32' @ 2992.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (bearing)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,300.00	89.71	359.50	9,882.86	6,302.64	-159.73	6,304.55	0.00	0.00	0.00
16,400.00	89.71	359.50	9,883.36	6,402.63	-160.60	6,404.54	0.00	0.00	0.00
16,500.00	89.71	359.50	9,883.87	6,502.63	-161.47	6,504.53	0.00	0.00	0.00
16,600.00	89.71	359.50	9,884.38	6,602.62	-162.34	6,604.53	0.00	0.00	0.00
16,700.00	89.71	359.50	9,884.88	6,702.62	-163.22	6,704.52	0.00	0.00	0.00
16,800.00	89.71	359.50	9,885.39	6,802.61	-164.09	6,804.51	0.00	0.00	0.00
16,900.00	89.71	359.50	9,885.89	6,902.61	-164.96	6,904.51	0.00	0.00	0.00
17,000.00	89.71	359.50	9,886.40	7,002.60	-165.83	7,004.50	0.00	0.00	0.00
17,100.00	89.71	359.50	9,886.91	7,102.60	-166.71	7,104.49	0.00	0.00	0.00
17,200.00	89.71	359.50	9,887.41	7,202.59	-167.58	7,204.49	0.00	0.00	0.00
17,300.00	89.71	359.50	9,887.92	7,302.59	-168.45	7,304.48	0.00	0.00	0.00
17,400.00	89.71	359.50	9,888.43	7,402.58	-169.32	7,404.47	0.00	0.00	0.00
17,500.00	89.71	359.50	9,888.93	7,502.58	-170.20	7,504.46	0.00	0.00	0.00
17,600.00	89.71	359.50	9,889.44	7,602.57	-171.07	7,604.46	0.00	0.00	0.00
17,700.00	89.71	359.50	9,889.94	7,702.57	-171.94	7,704.45	0.00	0.00	0.00
17,800.00	89.71	359.50	9,890.45	7,802.56	-172.82	7,804.44	0.00	0.00	0.00
17,900.00	89.71	359.50	9,890.96	7,902.55	-173.69	7,904.44	0.00	0.00	0.00
18,000.00	89.71	359.50	9,891.46	8,002.55	-174.56	8,004.43	0.00	0.00	0.00
18,100.00	89.71	359.50	9,891.97	8,102.54	-175.43	8,104.42	0.00	0.00	0.00
18,200.00	89.71	359.50	9,892.47	8,202.54	-176.31	8,204.42	0.00	0.00	0.00
18,300.00	89.71	359.50	9,892.98	8,302.53	-177.18	8,304.41	0.00	0.00	0.00
18,400.00	89.71	359.50	9,893.49	8,402.53	-178.05	8,404.40	0.00	0.00	0.00
18,500.00	89.71	359.50	9,893.99	8,502.52	-178.92	8,504.39	0.00	0.00	0.00
18,600.00	89.71	359.50	9,894.50	8,602.52	-179.80	8,604.39	0.00	0.00	0.00
18,700.00	89.71	359.50	9,895.01	8,702.51	-180.67	8,704.38	0.00	0.00	0.00
18,800.00	89.71	359.50	9,895.51	8,802.51	-181.54	8,804.37	0.00	0.00	0.00
18,900.00	89.71	359.50	9,896.02	8,902.50	-182.41	8,904.37	0.00	0.00	0.00
19,000.00	89.71	359.50	9,896.52	9,002.50	-183.29	9,004.36	0.00	0.00	0.00
19,100.00	89.71	359.50	9,897.03	9,102.49	-184.16	9,104.35	0.00	0.00	0.00
19,200.00	89.71	359.50	9,897.54	9,202.49	-185.03	9,204.35	0.00	0.00	0.00
19,300.00	89.71	359.50	9,898.04	9,302.48	-185.90	9,304.34	0.00	0.00	0.00
19,400.00	89.71	359.50	9,898.55	9,402.48	-186.78	9,404.33	0.00	0.00	0.00
19,500.00	89.71	359.50	9,899.05	9,502.47	-187.65	9,504.33	0.00	0.00	0.00
19,600.00	89.71	359.50	9,899.56	9,602.47	-188.52	9,604.32	0.00	0.00	0.00
19,700.00	89.71	359.50	9,900.07	9,702.46	-189.40	9,704.31	0.00	0.00	0.00
19,800.00	89.71	359.50	9,900.57	9,802.46	-190.27	9,804.30	0.00	0.00	0.00
19,831.98	89.71	359.50	9,901.00	9,834.44	-190.56	9,836.28	0.00	0.00	0.00

TD at 19831.98 - BHL[SM624H]



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Planning Report



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Design: Plan #1

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North Reference: Grid
Survey Calculation Method: Minimum Curvature

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (bearing)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP[SM624H] - plan misses target center by 0.05usft at 10194.18usft MD (9851.95 TVD, 198.60 N, -79.34 E) - Point	0.00	0.00	9,852.00	198.60	-79.34	457,033.97	639,331.66	32° 15' 21.830 N	104° 0' 58.779 W
AP1[SM624H] - plan hits target center - Point	0.00	0.00	9,865.62	2,898.03	-130.01	459,733.18	639,280.99	32° 15' 48.542 N	104° 0' 59.276 W
BHL[SM624H] - plan hits target center - Point	0.00	0.00	9,901.00	9,834.44	-190.56	466,669.03	639,220.45	32° 16' 57.180 N	104° 0' 59.743 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (bearing)
24.00	24.00	Rustler			
24.00	24.00	Top of Salt			
2,760.09	2,760.00	Base of Salt			
2,760.09	2,760.00	Delaware			
6,143.60	6,126.00	Lower Brushy Canyon			
6,474.07	6,456.00	1st BSPG Lime			
7,490.08	7,472.00	1st BSPG Sand			
7,808.08	7,790.00	2nd BSPG Lime			
8,275.08	8,257.00	2nd BSPG Sand			
8,718.08	8,700.00	3rd BSPG Lime			
9,407.77	9,389.00	3rd BSPG Sand			
9,756.86	9,691.00	3BSS G			
9,841.30	9,745.00	Wolfcamp			
10,101.47	9,844.00	Wolfcamp Y (TZT)			
15,142.74	9,877.00	Wolfcamp 100 (TZB)			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,500.00	2,500.00	0.00	0.00	KOP - NUDGE
3,100.00	3,098.90	-31.39	0.00	HOLD
6,000.00	5,983.02	-334.52	0.00	DROP
6,600.00	6,581.92	-365.91	0.00	HOLD
9,297.08	9,279.00	-365.91	0.00	Curve KOP - Build 10.0° / 100
10,194.18	9,851.95	198.60	-79.34	EOC - HOLD
10,214.18	9,852.05	218.41	-82.12	TURN
10,589.17	9,853.95	592.10	-109.89	HOLD
19,831.98	9,901.00	9,834.44	-190.56	TD at 19831.98

devon

EDDY COUNTY, NM (NAD83 NME)
SPUD MUFFIN 31-30
624H

PLAN #1

WELL DETAILS:					
GROUND LEVEL: 2900.00					
NUTS	E/W	NORTHING	EASTING	LATITUDE LONGITUDE	
0.00	0.00	456835.38	617640.98	31° 15' 19.863 N 106° 0' 57.862 W	

SECTION DETAILS									
MD	INC	AZI	TVD	NUTS	E/W	DLN	TFACE	VSECT	TARGET
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	0.00	
3000.00	0.00	180.00	3000.00	31.39	0.00	1.00	180.00	-31.38	
6000.00	0.00	180.00	6000.00	-33.32	0.00	0.00	0.00	-33.32	
9000.00	0.00	0.00	9000.00	-505.91	0.00	1.00	180.00	-505.86	
9297.08	0.00	0.00	9297.08	-305.91	0.00	0.00	0.00	-305.86	
10194.18	89.71	352.00	9851.05	198.60	-79.34	10.00	352.00	200.10	
10254.18	89.71	352.00	9851.05	198.61	-82.12	0.00	0.00	219.90	
10589.17	89.71	359.50	9853.05	512.10	-109.89	2.00	90.02	504.12	
10834.98	89.71	359.50	9900.00	9834.64	-190.56	0.00	0.00	9830.28	BH[SPUD31-30]

DESIGN TARGET DETAILS					
North	TVD	NUTS	E/W	Northing	Easting
FT[SPUD31-30]	9857.00	198.60	-79.34	457033.87	633333.08
AP[SPUD31-30]	9885.82	2898.03	-130.01	456733.18	632280.99
BH[SPUD31-30]	9901.00	9834.64	-190.56	456999.03	632720.45

SITE DETAILS: SPUD MUFFIN 31-30		PROJECT DETAILS: EDDY COUNTY, NM (NAD83 NME)	
SITE CENTRE NORTHING: 456835.38		GEODETIC SYSTEM: US STATE PLANE 1983	
EASTING: 617640.98		DATUM: NORTH AMERICAN DATUM 1983	
POSITIONAL UNCERTAINTY: 0.00		ELLIPSOID: GRS 1960	
CONVERSION: 0.17		ZONE: NEW HEMISPHERE EASTERN ZONE	
LOCAL: NORTH GRID		SYSTEM DATUM: MEAN SEA LEVEL	

FORMATION TOP DETAILS		
TVCFATH	MDPATH	FORMATION
24.00	24.00	FLUPTON
2700.00	2700.00	TOP OF SALT
2760.00	2760.00	BASE OF SALT
9276.00	9276.00	LOWER BUDGET CAMPION
9454.00	9454.00	1ST BSCC LINE
9472.00	9472.00	2ND BSCC LINE
9790.00	9790.00	3RD BSCC LINE
8257.00	8257.00	4TH BSCC LINE
8790.00	8790.00	5TH BSCC LINE
9389.00	9389.00	6TH BSCC LINE
9596.00	9596.00	7TH BSCC LINE
9545.00	9545.00	8TH BSCC LINE
9844.00	9844.00	9TH BSCC LINE
9877.00	9877.00	10TH BSCC LINE

