

30-015-45008



Professional Directional Planning Report



Database: WellPlanner1
Company: Marathon Oil

Local Co-ordinate Reference
TVD Reference:

Well TB #14H
Well @ 3063.50usft (GL: 3037' + KB: 26.5'
(H&P423))

Project: Eddy County, NM

MD Reference:

Well @ 3063.50usft (GL: 3037' + KB: 26.5'
(H&P423))

Site: Maximus Fee 23-28-6

North Reference:

Grid

Well: TB #14H

Survey Calculation Method:

Minimum Curvature

Wellbore: OH

Design: Prelim Plan A

Project	Eddy County, NM		
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	Maximus Fee 23-28-6				
Site Position:		Northing:	487,037.57 usft	Latitude:	32.338800
From: Map		Easting:	566,163.47 usft	Longitude:	-104.119108
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.11 °

Well	TB #14H					
Well Position	+N-S	59.99 usft	Northing:	487,097.56 usft	Latitude:	32.338965
	+E-W	0.01 usft	Easting:	566,163.48 usft	Longitude:	-104.119108
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	3,037.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/16/2018	7.28	60.10	48,020.60

Design	Prelim Plan A				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	269.78	

Plan Survey Tool Program	Date	5/16/2018			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,500.00 Prelim Plan A (OH)	MWD+IFR1 OWSG MWD + IFR1		
2	1,500.00	5,000.00 Prelim Plan A (OH)	MWD+IFR1 OWSG MWD + IFR1		
3	5,000.00	10,000.00 Prelim Plan A (OH)	MWD+IFR1 OWSG MWD + IFR1		
4	10,000.00	13,876.48 Prelim Plan A (OH)	MWD+IFR1 OWSG MWD + IFR1		

**NM OIL CONSERVATION
ARTESIA DISTRICT**

JUN 01 2018

RECEIVED



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Grid

Minimum Curvature

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	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	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,000.00	10.00	69.62	1,997.47	15.16	40.80	2.00	2.00	0.00	69.62	
4,343.08	10.00	69.62	4,304.94	156.84	422.20	0.00	0.00	0.00	0.00	
4,843.08	0.00	0.00	4,802.41	172.00	463.00	2.00	-2.00	0.00	180.00	
8,718.67	0.00	0.00	8,678.00	172.00	463.00	0.00	0.00	0.00	0.00	[Maximus#14H]KOP
9,625.71	90.70	269.78	9,250.91	169.76	-117.00	10.00	10.00	-9.95	269.78	
13,876.48	90.70	269.78	9,198.65	153.32	-4,367.41	0.00	0.00	0.00	0.00	[Maximus#14H]LTP/B

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Grid

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Survey Calculation Method:

Minimum Curvature

Wellbore: OH

Design: Prelim Plan A

Planned 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
[Maximus#14H]FTP									
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	2.00	69.62	1,599.98	0.61	1.64	-1.64	2.00	2.00	0.00
1,700.00	4.00	69.62	1,699.84	2.43	6.54	-6.55	2.00	2.00	0.00
1,800.00	6.00	69.62	1,799.45	5.47	14.71	-14.73	2.00	2.00	0.00
1,900.00	8.00	69.62	1,898.70	9.71	26.13	-26.17	2.00	2.00	0.00
2,000.00	10.00	69.62	1,997.47	15.16	40.80	-40.86	2.00	2.00	0.00
2,100.00	10.00	69.62	2,095.95	21.20	57.08	-57.16	0.00	0.00	0.00
2,200.00	10.00	69.62	2,194.43	27.25	73.35	-73.46	0.00	0.00	0.00
2,300.00	10.00	69.62	2,292.91	33.30	89.63	-89.76	0.00	0.00	0.00
2,400.00	10.00	69.62	2,391.39	39.34	105.91	-106.06	0.00	0.00	0.00
2,500.00	10.00	69.62	2,489.87	45.39	122.19	-122.36	0.00	0.00	0.00
2,600.00	10.00	69.62	2,588.35	51.44	138.47	-138.66	0.00	0.00	0.00
2,700.00	10.00	69.62	2,686.83	57.49	154.74	-154.96	0.00	0.00	0.00
2,800.00	10.00	69.62	2,785.31	63.53	171.02	-171.26	0.00	0.00	0.00
2,900.00	10.00	69.62	2,883.79	69.58	187.30	-187.57	0.00	0.00	0.00
3,000.00	10.00	69.62	2,982.27	75.63	203.58	-203.87	0.00	0.00	0.00
3,100.00	10.00	69.62	3,080.75	81.67	219.86	-220.17	0.00	0.00	0.00
3,200.00	10.00	69.62	3,179.23	87.72	236.13	-236.47	0.00	0.00	0.00
3,300.00	10.00	69.62	3,277.72	93.77	252.41	-252.77	0.00	0.00	0.00
3,400.00	10.00	69.62	3,376.20	99.82	268.69	-269.07	0.00	0.00	0.00
3,500.00	10.00	69.62	3,474.68	105.86	284.97	-285.37	0.00	0.00	0.00
3,600.00	10.00	69.62	3,573.16	111.91	301.24	-301.67	0.00	0.00	0.00
3,700.00	10.00	69.62	3,671.64	117.96	317.52	-317.97	0.00	0.00	0.00
3,800.00	10.00	69.62	3,770.12	124.00	333.80	-334.27	0.00	0.00	0.00
3,900.00	10.00	69.62	3,868.60	130.05	350.08	-350.58	0.00	0.00	0.00
4,000.00	10.00	69.62	3,967.08	136.10	366.36	-366.88	0.00	0.00	0.00
4,100.00	10.00	69.62	4,065.56	142.14	382.63	-383.18	0.00	0.00	0.00
4,200.00	10.00	69.62	4,164.04	148.19	398.91	-399.48	0.00	0.00	0.00
4,300.00	10.00	69.62	4,262.52	154.24	415.19	-415.78	0.00	0.00	0.00
4,343.08	10.00	69.62	4,304.94	156.84	422.20	-422.80	0.00	0.00	0.00
4,400.00	8.86	69.62	4,361.10	160.09	430.95	-431.56	2.00	-2.00	0.00
4,500.00	6.86	69.62	4,460.15	164.85	443.77	-444.40	2.00	-2.00	0.00
4,600.00	4.86	69.62	4,559.63	168.41	453.34	-453.98	2.00	-2.00	0.00
4,700.00	2.86	69.62	4,659.39	170.76	459.65	-460.30	2.00	-2.00	0.00
4,800.00	0.86	69.62	4,759.34	171.89	462.70	-463.35	2.00	-2.00	0.00

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Design: Prelim Plan A

Planned 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)
4,843.08	0.00	0.00	4,802.41	172.00	463.00	-463.66	2.00	-2.00	0.00
4,900.00	0.00	0.00	4,859.33	172.00	463.00	-463.66	0.00	0.00	0.00
5,000.00	0.00	0.00	4,959.33	172.00	463.00	-463.66	0.00	0.00	0.00
5,100.00	0.00	0.00	5,059.33	172.00	463.00	-463.66	0.00	0.00	0.00
5,200.00	0.00	0.00	5,159.33	172.00	463.00	-463.66	0.00	0.00	0.00
5,300.00	0.00	0.00	5,259.33	172.00	463.00	-463.66	0.00	0.00	0.00
5,400.00	0.00	0.00	5,359.33	172.00	463.00	-463.66	0.00	0.00	0.00
5,500.00	0.00	0.00	5,459.33	172.00	463.00	-463.66	0.00	0.00	0.00
5,600.00	0.00	0.00	5,559.33	172.00	463.00	-463.66	0.00	0.00	0.00
5,700.00	0.00	0.00	5,659.33	172.00	463.00	-463.66	0.00	0.00	0.00
5,800.00	0.00	0.00	5,759.33	172.00	463.00	-463.66	0.00	0.00	0.00
5,900.00	0.00	0.00	5,859.33	172.00	463.00	-463.66	0.00	0.00	0.00
6,000.00	0.00	0.00	5,959.33	172.00	463.00	-463.66	0.00	0.00	0.00
6,100.00	0.00	0.00	6,059.33	172.00	463.00	-463.66	0.00	0.00	0.00
6,200.00	0.00	0.00	6,159.33	172.00	463.00	-463.66	0.00	0.00	0.00
6,300.00	0.00	0.00	6,259.33	172.00	463.00	-463.66	0.00	0.00	0.00
6,400.00	0.00	0.00	6,359.33	172.00	463.00	-463.66	0.00	0.00	0.00
6,500.00	0.00	0.00	6,459.33	172.00	463.00	-463.66	0.00	0.00	0.00
6,600.00	0.00	0.00	6,559.33	172.00	463.00	-463.66	0.00	0.00	0.00
6,700.00	0.00	0.00	6,659.33	172.00	463.00	-463.66	0.00	0.00	0.00
6,800.00	0.00	0.00	6,759.33	172.00	463.00	-463.66	0.00	0.00	0.00
6,900.00	0.00	0.00	6,859.33	172.00	463.00	-463.66	0.00	0.00	0.00
7,000.00	0.00	0.00	6,959.33	172.00	463.00	-463.66	0.00	0.00	0.00
7,100.00	0.00	0.00	7,059.33	172.00	463.00	-463.66	0.00	0.00	0.00
7,200.00	0.00	0.00	7,159.33	172.00	463.00	-463.66	0.00	0.00	0.00
7,300.00	0.00	0.00	7,259.33	172.00	463.00	-463.66	0.00	0.00	0.00
7,400.00	0.00	0.00	7,359.33	172.00	463.00	-463.66	0.00	0.00	0.00
7,500.00	0.00	0.00	7,459.33	172.00	463.00	-463.66	0.00	0.00	0.00
7,600.00	0.00	0.00	7,559.33	172.00	463.00	-463.66	0.00	0.00	0.00
7,700.00	0.00	0.00	7,659.33	172.00	463.00	-463.66	0.00	0.00	0.00
7,800.00	0.00	0.00	7,759.33	172.00	463.00	-463.66	0.00	0.00	0.00
7,900.00	0.00	0.00	7,859.33	172.00	463.00	-463.66	0.00	0.00	0.00
8,000.00	0.00	0.00	7,959.33	172.00	463.00	-463.66	0.00	0.00	0.00
8,100.00	0.00	0.00	8,059.33	172.00	463.00	-463.66	0.00	0.00	0.00
8,200.00	0.00	0.00	8,159.33	172.00	463.00	-463.66	0.00	0.00	0.00
8,300.00	0.00	0.00	8,259.33	172.00	463.00	-463.66	0.00	0.00	0.00
8,400.00	0.00	0.00	8,359.33	172.00	463.00	-463.66	0.00	0.00	0.00
8,500.00	0.00	0.00	8,459.33	172.00	463.00	-463.66	0.00	0.00	0.00
8,600.00	0.00	0.00	8,559.33	172.00	463.00	-463.66	0.00	0.00	0.00
8,700.00	0.00	0.00	8,659.33	172.00	463.00	-463.66	0.00	0.00	0.00
8,718.67	0.00	0.00	8,678.00	172.00	463.00	-463.66	0.00	0.00	0.00
[Maximus#14H]KOP									
8,750.00	3.13	269.78	8,709.32	172.00	462.14	-462.80	10.00	10.00	0.00
8,800.00	8.13	269.78	8,759.06	171.98	457.24	-457.89	10.00	10.00	0.00
8,850.00	13.13	269.78	8,808.19	171.94	448.01	-448.67	10.00	10.00	0.00
8,900.00	18.13	269.78	8,856.32	171.89	434.54	-435.20	10.00	10.00	0.00
8,950.00	23.13	269.78	8,903.10	171.82	416.93	-417.59	10.00	10.00	0.00
9,000.00	28.13	269.78	8,948.16	171.74	395.31	-395.96	10.00	10.00	0.00
9,050.00	33.13	269.78	8,991.17	171.64	369.84	-370.49	10.00	10.00	0.00
9,100.00	38.13	269.78	9,031.80	171.53	340.72	-341.37	10.00	10.00	0.00
9,150.00	43.13	269.78	9,069.73	171.40	308.17	-308.82	10.00	10.00	0.00

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9,200.00	48.13	269.78	9,104.68	171.26	272.43	-273.09	10.00	10.00	0.00
9,250.00	53.13	269.78	9,136.39	171.11	233.79	-234.45	10.00	10.00	0.00
9,300.00	58.13	269.78	9,164.60	170.95	192.53	-193.19	10.00	10.00	0.00
9,350.00	63.13	269.78	9,189.11	170.79	148.97	-149.63	10.00	10.00	0.00
9,400.00	68.13	269.78	9,209.74	170.61	103.44	-104.10	10.00	10.00	0.00
9,450.00	73.13	269.78	9,226.31	170.43	56.29	-56.94	10.00	10.00	0.00
9,500.00	78.13	269.78	9,238.71	170.24	7.86	-8.52	10.00	10.00	0.00
9,550.00	83.13	269.78	9,246.85	170.05	-41.45	40.80	10.00	10.00	0.00
9,600.00	88.13	269.78	9,250.65	169.86	-91.29	90.64	10.00	10.00	0.00
9,625.71	90.70	269.78	9,250.91	169.76	-117.00	116.35	10.00	10.00	0.00
9,700.00	90.70	269.78	9,250.00	169.47	-191.28	190.63	0.00	0.00	0.00
9,800.00	90.70	269.78	9,248.77	169.08	-291.27	290.62	0.00	0.00	0.00
9,900.00	90.70	269.78	9,247.54	168.70	-391.26	390.61	0.00	0.00	0.00
10,000.00	90.70	269.78	9,246.31	168.31	-491.26	490.61	0.00	0.00	0.00
10,100.00	90.70	269.78	9,245.08	167.92	-591.25	590.60	0.00	0.00	0.00
10,200.00	90.70	269.78	9,243.85	167.54	-691.24	690.59	0.00	0.00	0.00
10,300.00	90.70	269.78	9,242.62	167.15	-791.23	790.58	0.00	0.00	0.00
10,400.00	90.70	269.78	9,241.39	166.76	-891.22	890.58	0.00	0.00	0.00
10,500.00	90.70	269.78	9,240.17	166.38	-991.21	990.57	0.00	0.00	0.00
10,600.00	90.70	269.78	9,238.94	165.99	-1,091.21	1,090.56	0.00	0.00	0.00
10,700.00	90.70	269.78	9,237.71	165.60	-1,191.20	1,190.55	0.00	0.00	0.00
10,800.00	90.70	269.78	9,236.48	165.22	-1,291.19	1,290.55	0.00	0.00	0.00
10,900.00	90.70	269.78	9,235.25	164.83	-1,391.18	1,390.54	0.00	0.00	0.00
11,000.00	90.70	269.78	9,234.02	164.44	-1,491.17	1,490.53	0.00	0.00	0.00
11,100.00	90.70	269.78	9,232.79	164.06	-1,591.17	1,590.52	0.00	0.00	0.00
11,200.00	90.70	269.78	9,231.56	163.67	-1,691.16	1,690.52	0.00	0.00	0.00
11,300.00	90.70	269.78	9,230.33	163.28	-1,791.15	1,790.51	0.00	0.00	0.00
11,400.00	90.70	269.78	9,229.10	162.90	-1,891.14	1,890.50	0.00	0.00	0.00
11,500.00	90.70	269.78	9,227.87	162.51	-1,991.13	1,990.49	0.00	0.00	0.00
11,600.00	90.70	269.78	9,226.64	162.12	-2,091.12	2,090.49	0.00	0.00	0.00
11,700.00	90.70	269.78	9,225.41	161.74	-2,191.12	2,190.48	0.00	0.00	0.00
11,800.00	90.70	269.78	9,224.18	161.35	-2,291.11	2,290.47	0.00	0.00	0.00
11,900.00	90.70	269.78	9,222.95	160.96	-2,391.10	2,390.46	0.00	0.00	0.00
12,000.00	90.70	269.78	9,221.72	160.58	-2,491.09	2,490.46	0.00	0.00	0.00
12,100.00	90.70	269.78	9,220.49	160.19	-2,591.08	2,590.45	0.00	0.00	0.00
12,200.00	90.70	269.78	9,219.26	159.80	-2,691.07	2,690.44	0.00	0.00	0.00
12,300.00	90.70	269.78	9,218.03	159.42	-2,791.07	2,790.43	0.00	0.00	0.00
12,400.00	90.70	269.78	9,216.80	159.03	-2,891.06	2,890.43	0.00	0.00	0.00
12,500.00	90.70	269.78	9,215.57	158.64	-2,991.05	2,990.42	0.00	0.00	0.00
12,600.00	90.70	269.78	9,214.34	158.26	-3,091.04	3,090.41	0.00	0.00	0.00
12,700.00	90.70	269.78	9,213.12	157.87	-3,191.03	3,190.40	0.00	0.00	0.00
12,800.00	90.70	269.78	9,211.89	157.48	-3,291.02	3,290.39	0.00	0.00	0.00
12,900.00	90.70	269.78	9,210.66	157.10	-3,391.02	3,390.39	0.00	0.00	0.00
13,000.00	90.70	269.78	9,209.43	156.71	-3,491.01	3,490.38	0.00	0.00	0.00
13,100.00	90.70	269.78	9,208.20	156.32	-3,591.00	3,590.37	0.00	0.00	0.00
13,200.00	90.70	269.78	9,206.97	155.94	-3,690.99	3,690.36	0.00	0.00	0.00
13,300.00	90.70	269.78	9,205.74	155.55	-3,790.98	3,790.36	0.00	0.00	0.00
13,400.00	90.70	269.78	9,204.51	155.16	-3,890.97	3,890.35	0.00	0.00	0.00
13,500.00	90.70	269.78	9,203.28	154.78	-3,990.97	3,990.34	0.00	0.00	0.00
13,600.00	90.70	269.78	9,202.05	154.39	-4,090.96	4,090.33	0.00	0.00	0.00
13,700.00	90.70	269.78	9,200.82	154.00	-4,190.95	4,190.33	0.00	0.00	0.00

Database: WellPlanner1
Company: Marathon Oil

Local Co-ordinate Reference
TVD Reference:

Well TB #14H
Well @ 3063.50usft (GL: 3037' + KB: 26.5'
(H&P423))

Project: Eddy County, NM

MD Reference:

Well @ 3063.50usft (GL: 3037' + KB: 26.5'
(H&P423))

Site: Maximus Fee 23-28-6

North Reference:

Grid

Well: TB #14H

Survey Calculation Method:

Minimum Curvature

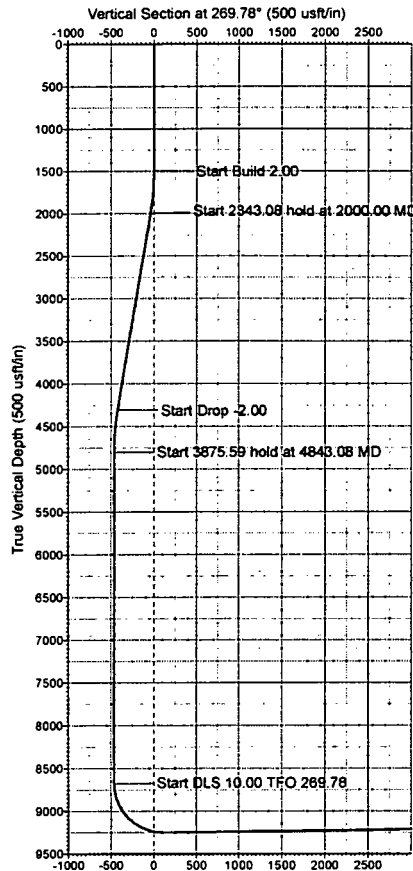
Wellbore: OH

Design: Prelim Plan A

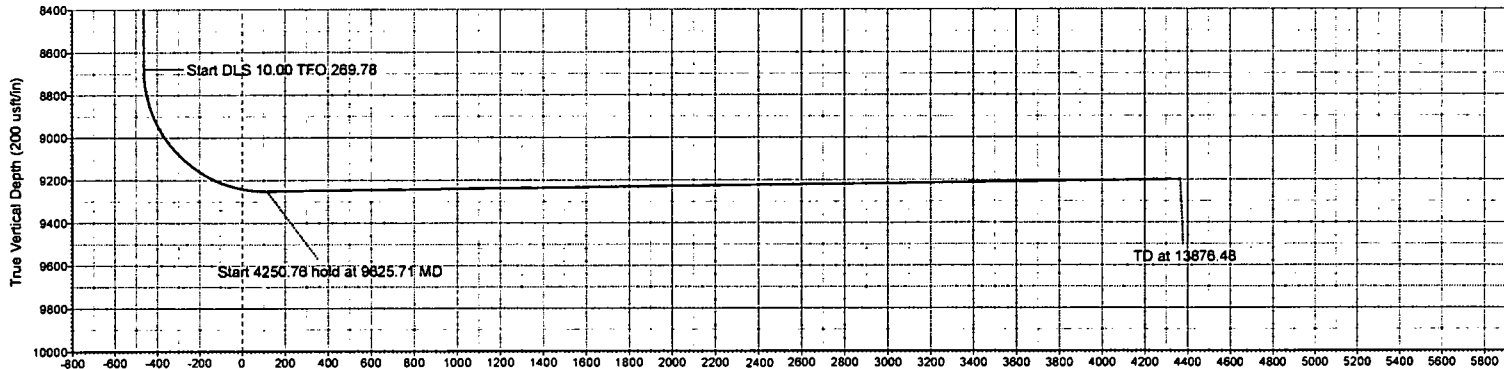
Planned Survey

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)
13,800.00	90.70	269.78	9,199.59	153.62	-4,290.94	4,290.32	0.00	0.00	0.00
13,876.48	90.70	269.78	9,198.65	153.32	-4,367.41	4,366.79	0.00	0.00	0.00
[Maximus#14H]LTP/BHL									

US State Plane 1927 (Exact solution)
 NAD 1927 (NADCON CONUS)
 Clarke 1866
 New Mexico East 3001
 Mean Sea Level



Target Line: 9252' TVD @ 0' VS: 90.7° INC



Vertical Section at 269.78° (200 usf/in)

RKB Elevation: Well @ 3063.50usft (GL: 3037' + KB: 26.5' (H&P423))

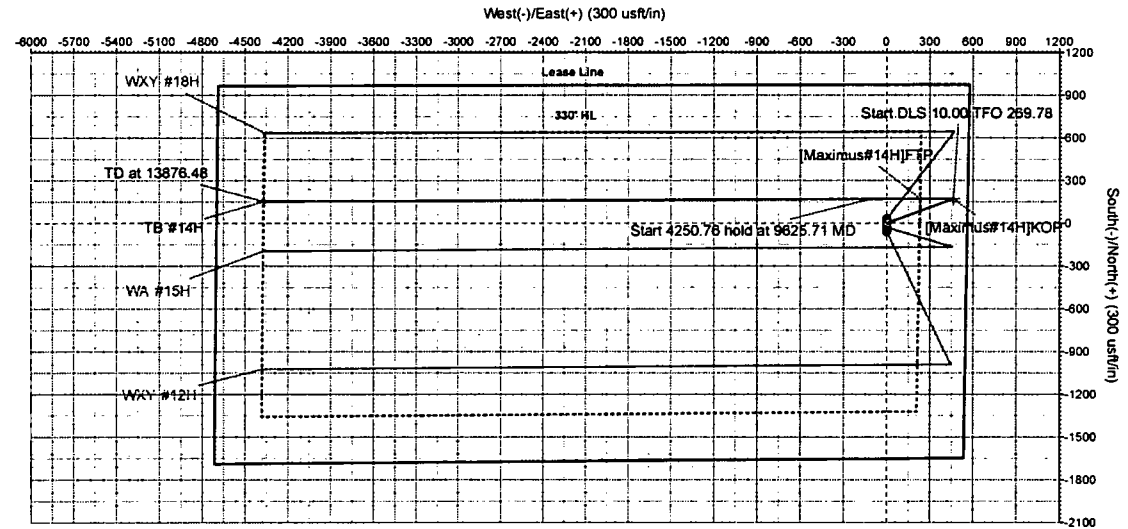
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
0.00	0.00	487097.56	566163.48	32.338965	-104.119107	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00
3	2000.00	10.00	69.62	1997.47	15.16	40.80	2.00	-40.88
4	4343.08	10.00	69.62	4304.94	156.84	422.20	0.00	-422.80
5	4843.08	0.00	0.00	4802.41	172.00	463.00	2.00	-463.66
6	8718.67	0.00	0.00	8678.00	172.00	463.00	0.00	-463.66
7	9625.71	90.70	269.78	9250.91	169.76	-117.00	10.00	116.35
8	13876.48	90.70	269.78	9198.65	153.32	-4367.41	0.00	4366.79

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
[Maximus#14H]FTP	0.00	170.90	232.76	487268.46	566396.24
[Maximus#14H]KOP	8678.00	172.00	463.00	487269.56	566626.48
[Maximus#14H]LTP/BHL	9198.65	153.32	-4367.41	487250.88	561796.07



Azimuths to Grid North
 True North: -0.12°
 Magnetic North: 7.17°
 Magnetic Field
 Strength: 48020.6nT
 Dip Angle: 80.10°
 Date: 5/16/2018
 Model: HDGM

Azimuth Corrections

Total Magnetic Corr. (M to G): 7.17°

Declination (M to T): 7.28° East