

30-015-46273



Pro Directional Survey Report



Company: Marathon Oil
Project: Eddy County, NM
Site: Thor 28 (1-3-5-8)
Well: WD Fee #8H
Wellbore: OH
Design: Prelim Plan A

Local Co-ordinate Reference: Well WD Fee #8H
TVD Reference: well @ 3107.00usft
MD Reference: well @ 3107.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

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		Thor 28 (1-3-5-8)			
Site Position:		Northing:	462,147.63 usft	Latitude:	32° 16' 13.218256 N
From:	Map	Easting:	573,236.71 usft	Longitude:	104° 5' 46.983432 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.13 °

Well	WD Fee #8H					
Well Position	+N/-S	0.00 usft	Northing:	462,147.54 usft	Latitude:	32° 16' 13.219332 N
	+E/-W	0.00 usft	Easting:	573,146.67 usft	Longitude:	104° 5' 48.032158 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,082.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/15/2019	7.12	59.98	47,872.20

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	359.70

Survey Tool Program		Date	8/15/2019	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	1,850.00	Prelim Plan A (OH)	MWD+HDGM	OWSG MWD + HRGM
1,850.00	5,400.00	Prelim Plan A (OH)	MWD+HDGM	OWSG MWD + HRGM
5,400.00	9,700.00	Prelim Plan A (OH)	MWD+HDGM	OWSG MWD + HRGM
9,700.00	15,044.22	Prelim Plan A (OH)	MWD+HDGM	OWSG MWD + HRGM

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Buird 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
[ThorWD#8H]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

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WD Fee #8H
Project:	Eddy County, NM	TVD Reference:	well @ 3107.00usft
Site:	Thor 28 (1-3-5-8)	MD Reference:	well @ 3107.00usft
Well:	WD Fee #8H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan A	Database:	WellPlanner1

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)
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	2.00	237.97	1,299.98	-0.93	-1.48	-0.92	2.00	2.00	0.00
1,400.00	4.00	237.97	1,399.84	-3.70	-5.92	-3.67	2.00	2.00	0.00
1,500.00	6.00	237.97	1,499.45	-8.32	-13.30	-8.25	2.00	2.00	0.00
1,600.00	8.00	237.97	1,598.70	-14.79	-23.63	-14.66	2.00	2.00	0.00
1,700.00	10.00	237.97	1,697.47	-23.09	-36.90	-22.89	2.00	2.00	0.00
1,800.00	10.00	237.97	1,795.95	-32.30	-51.62	-32.03	0.00	0.00	0.00
1,900.00	10.00	237.97	1,894.43	-41.51	-66.34	-41.16	0.00	0.00	0.00
2,000.00	10.00	237.97	1,992.91	-50.72	-81.06	-50.29	0.00	0.00	0.00
2,100.00	10.00	237.97	2,091.39	-59.93	-95.78	-59.43	0.00	0.00	0.00
2,200.00	10.00	237.97	2,189.87	-69.14	-110.50	-68.56	0.00	0.00	0.00
2,300.00	10.00	237.97	2,288.35	-78.35	-125.22	-77.69	0.00	0.00	0.00
2,400.00	10.00	237.97	2,386.83	-87.56	-139.94	-86.83	0.00	0.00	0.00
2,500.00	10.00	237.97	2,485.31	-96.77	-154.66	-95.96	0.00	0.00	0.00
2,600.00	10.00	237.97	2,583.79	-105.98	-169.38	-105.09	0.00	0.00	0.00
2,700.00	10.00	237.97	2,682.27	-115.19	-184.10	-114.23	0.00	0.00	0.00
2,800.00	10.00	237.97	2,780.75	-124.40	-198.82	-123.36	0.00	0.00	0.00
2,900.00	10.00	237.97	2,879.23	-133.61	-213.54	-132.49	0.00	0.00	0.00
3,000.00	10.00	237.97	2,977.72	-142.83	-228.26	-141.63	0.00	0.00	0.00
3,100.00	10.00	237.97	3,076.20	-152.04	-242.99	-150.76	0.00	0.00	0.00
3,200.00	10.00	237.97	3,174.68	-161.25	-257.71	-159.89	0.00	0.00	0.00
3,300.00	10.00	237.97	3,273.16	-170.46	-272.43	-169.03	0.00	0.00	0.00
3,400.00	10.00	237.97	3,371.64	-179.67	-287.15	-178.16	0.00	0.00	0.00
3,500.00	10.00	237.97	3,470.12	-188.88	-301.87	-187.30	0.00	0.00	0.00
3,600.00	10.00	237.97	3,568.60	-198.09	-316.59	-196.43	0.00	0.00	0.00
3,700.00	10.00	237.97	3,667.08	-207.30	-331.31	-205.56	0.00	0.00	0.00
3,800.00	10.00	237.97	3,765.56	-216.51	-346.03	-214.70	0.00	0.00	0.00
3,900.00	10.00	237.97	3,864.04	-225.72	-360.75	-223.83	0.00	0.00	0.00
4,000.00	10.00	237.97	3,962.52	-234.93	-375.47	-232.96	0.00	0.00	0.00
4,100.00	10.00	237.97	4,061.00	-244.14	-390.19	-242.10	0.00	0.00	0.00
4,200.00	10.00	237.97	4,159.48	-253.35	-404.91	-251.23	0.00	0.00	0.00
4,300.00	10.00	237.97	4,257.97	-262.56	-419.63	-260.36	0.00	0.00	0.00
4,400.00	10.00	237.97	4,356.45	-271.78	-434.35	-269.50	0.00	0.00	0.00
4,500.00	10.00	237.97	4,454.93	-280.99	-449.08	-278.63	0.00	0.00	0.00
4,600.00	10.00	237.97	4,553.41	-290.20	-463.80	-287.76	0.00	0.00	0.00
4,700.00	10.00	237.97	4,651.89	-299.41	-478.52	-296.90	0.00	0.00	0.00
4,800.00	10.00	237.97	4,750.37	-308.62	-493.24	-306.03	0.00	0.00	0.00
4,900.00	10.00	237.97	4,848.85	-317.83	-507.96	-315.17	0.00	0.00	0.00

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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)
5,000.00	10.00	237.97	4,947.33	-327.04	-522.68	-324.30	0.00	0.00	0.00
5,100.00	10.00	237.97	5,045.81	-336.25	-537.40	-333.43	0.00	0.00	0.00
5,200.00	10.00	237.97	5,144.29	-345.46	-552.12	-342.57	0.00	0.00	0.00
5,300.00	10.00	237.97	5,242.77	-354.67	-566.84	-351.70	0.00	0.00	0.00
5,400.00	10.00	237.97	5,341.25	-363.88	-581.56	-360.83	0.00	0.00	0.00
5,500.00	10.00	237.97	5,439.73	-373.09	-596.28	-369.97	0.00	0.00	0.00
5,600.00	10.00	237.97	5,538.22	-382.30	-611.00	-379.10	0.00	0.00	0.00
5,700.00	10.00	237.97	5,636.70	-391.51	-625.72	-388.23	0.00	0.00	0.00
5,800.00	10.00	237.97	5,735.18	-400.73	-640.44	-397.37	0.00	0.00	0.00
5,900.00	10.00	237.97	5,833.66	-409.94	-655.17	-406.50	0.00	0.00	0.00
6,000.00	10.00	237.97	5,932.14	-419.15	-669.89	-415.63	0.00	0.00	0.00
6,100.00	10.00	237.97	6,030.62	-428.36	-684.61	-424.77	0.00	0.00	0.00
6,200.00	10.00	237.97	6,129.10	-437.57	-699.33	-433.90	0.00	0.00	0.00
6,300.00	10.00	237.97	6,227.58	-446.78	-714.05	-443.03	0.00	0.00	0.00
6,400.00	10.00	237.97	6,326.06	-455.99	-728.77	-452.17	0.00	0.00	0.00
6,500.00	10.00	237.97	6,424.54	-465.20	-743.49	-461.30	0.00	0.00	0.00
6,600.00	10.00	237.97	6,523.02	-474.41	-758.21	-470.44	0.00	0.00	0.00
6,700.00	10.00	237.97	6,621.50	-483.62	-772.93	-479.57	0.00	0.00	0.00
6,800.00	10.00	237.97	6,719.99	-492.83	-787.65	-488.70	0.00	0.00	0.00
6,832.70	10.00	237.97	6,752.18	-495.84	-792.46	-491.69	0.00	0.00	0.00
6,900.00	8.65	237.97	6,818.60	-501.63	-801.71	-497.43	2.00	-2.00	0.00
7,000.00	6.65	237.97	6,917.70	-508.69	-813.00	-504.43	2.00	-2.00	0.00
7,100.00	4.65	237.97	7,017.21	-513.92	-821.35	-509.61	2.00	-2.00	0.00
7,200.00	2.65	237.97	7,117.00	-517.30	-826.76	-512.96	2.00	-2.00	0.00
7,300.00	0.65	237.97	7,216.95	-518.83	-829.20	-514.48	2.00	-2.00	0.00
7,332.70	0.00	0.00	7,249.65	-518.93	-829.36	-514.58	2.00	-2.00	0.00
7,400.00	0.00	0.00	7,316.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
7,500.00	0.00	0.00	7,416.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
7,600.00	0.00	0.00	7,516.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
7,700.00	0.00	0.00	7,616.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
7,800.00	0.00	0.00	7,716.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
7,900.00	0.00	0.00	7,816.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
8,000.00	0.00	0.00	7,916.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
8,100.00	0.00	0.00	8,016.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
8,200.00	0.00	0.00	8,116.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
8,300.00	0.00	0.00	8,216.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
8,400.00	0.00	0.00	8,316.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
8,500.00	0.00	0.00	8,416.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
8,600.00	0.00	0.00	8,516.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
8,700.00	0.00	0.00	8,616.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
8,800.00	0.00	0.00	8,716.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
8,900.00	0.00	0.00	8,816.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
9,000.00	0.00	0.00	8,916.95	-518.93	-829.36	-514.58	0.00	0.00	0.00
9,100.00	0.00	0.00	9,016.95	-518.93	-829.36	-514.58	0.00	0.00	0.00

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Project:	Eddy County, NM	TVD Reference:	well @ 3107.00usft
Site:	Thor 28 (1-3-5-8)	MD Reference:	well @ 3107.00usft
Well:	WD Fee #8H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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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)	
9,200.00	0.00	0.00	9,116.95	-518.93	-829.36	-514.58	0.00	0.00	0.00	
9,300.00	0.00	0.00	9,216.95	-518.93	-829.36	-514.58	0.00	0.00	0.00	
9,400.00	0.00	0.00	9,316.95	-518.93	-829.36	-514.58	0.00	0.00	0.00	
9,500.00	0.00	0.00	9,416.95	-518.93	-829.36	-514.58	0.00	0.00	0.00	
9,600.00	0.00	0.00	9,516.95	-518.93	-829.36	-514.58	0.00	0.00	0.00	
9,700.00	0.00	0.00	9,616.95	-518.93	-829.36	-514.58	0.00	0.00	0.00	
9,800.00	0.00	0.00	9,716.95	-518.93	-829.36	-514.58	0.00	0.00	0.00	
9,905.55	0.00	0.00	9,822.50	-518.93	-829.36	-514.58	0.00	0.00	0.00	
[ThorWD#8H]KOP										
9,925.00	2.33	359.70	9,841.95	-518.53	-829.36	-514.18	12.00	12.00	0.00	
9,950.00	5.33	359.70	9,866.89	-516.86	-829.37	-512.51	12.00	12.00	0.00	
9,975.00	8.33	359.70	9,891.71	-513.89	-829.39	-509.54	12.00	12.00	0.00	
10,000.00	11.33	359.70	9,916.34	-509.62	-829.41	-505.27	12.00	12.00	0.00	
10,025.00	14.33	359.70	9,940.71	-504.07	-829.44	-499.72	12.00	12.00	0.00	
10,050.00	17.33	359.70	9,964.76	-497.24	-829.47	-492.89	12.00	12.00	0.00	
10,075.00	20.33	359.70	9,988.42	-489.17	-829.52	-484.82	12.00	12.00	0.00	
10,100.00	23.33	359.70	10,011.62	-479.88	-829.56	-475.53	12.00	12.00	0.00	
10,125.00	26.33	359.70	10,034.31	-469.38	-829.62	-465.03	12.00	12.00	0.00	
10,150.00	29.33	359.70	10,056.41	-457.71	-829.68	-453.36	12.00	12.00	0.00	
10,175.00	32.33	359.70	10,077.88	-444.90	-829.75	-440.54	12.00	12.00	0.00	
10,200.00	35.33	359.70	10,098.64	-430.98	-829.82	-426.63	12.00	12.00	0.00	
10,225.00	38.33	359.70	10,118.65	-415.99	-829.90	-411.64	12.00	12.00	0.00	
10,250.00	41.33	359.70	10,137.84	-399.98	-829.98	-395.63	12.00	12.00	0.00	
10,275.00	44.33	359.70	10,156.17	-382.98	-830.07	-378.63	12.00	12.00	0.00	
10,300.00	47.33	359.70	10,173.59	-365.05	-830.17	-360.70	12.00	12.00	0.00	
10,325.00	50.33	359.70	10,190.04	-346.24	-830.26	-341.88	12.00	12.00	0.00	
10,350.00	53.33	359.70	10,205.49	-326.58	-830.37	-322.23	12.00	12.00	0.00	
10,375.00	56.33	359.70	10,219.89	-306.15	-830.47	-301.80	12.00	12.00	0.00	
10,400.00	59.33	359.70	10,233.20	-284.99	-830.58	-280.64	12.00	12.00	0.00	
10,425.00	62.33	359.70	10,245.38	-263.16	-830.70	-258.81	12.00	12.00	0.00	
10,450.00	65.33	359.70	10,256.40	-240.73	-830.82	-236.37	12.00	12.00	0.00	
10,475.00	68.33	359.70	10,266.23	-217.74	-830.94	-213.39	12.00	12.00	0.00	
10,500.00	71.33	359.70	10,274.85	-194.28	-831.06	-189.93	12.00	12.00	0.00	
10,525.00	74.33	359.70	10,282.23	-170.40	-831.18	-166.04	12.00	12.00	0.00	
10,550.00	77.33	359.70	10,288.35	-146.16	-831.31	-141.80	12.00	12.00	0.00	
10,575.00	80.33	359.70	10,293.19	-121.64	-831.44	-117.28	12.00	12.00	0.00	
10,600.00	83.33	359.70	10,296.74	-96.89	-831.57	-92.54	12.00	12.00	0.00	
10,625.00	86.33	359.70	10,298.99	-72.00	-831.70	-67.64	12.00	12.00	0.00	
10,650.00	89.33	359.70	10,299.93	-47.02	-831.83	-42.66	12.00	12.00	0.00	
10,655.54	90.00	359.70	10,299.97	-41.48	-831.86	-37.12	12.00	12.00	0.00	
10,700.00	90.00	359.70	10,299.97	2.98	-832.09	7.34	0.00	0.00	0.00	
10,800.00	90.00	359.70	10,299.97	102.98	-832.61	107.34	0.00	0.00	0.00	
10,900.00	90.00	359.70	10,299.97	202.98	-833.14	207.34	0.00	0.00	0.00	

Company: Marathon Oil
Project: Eddy County, NM
Site: Thor 28 (1-3-5-8)
Well: WD Fee #8H
Wellbore: OH
Design: Prelim Plan A

Local Co-ordinate Reference: Well WD Fee #8H
TVD Reference: well @ 3107.00usft
MD Reference: well @ 3107.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Planned Survey

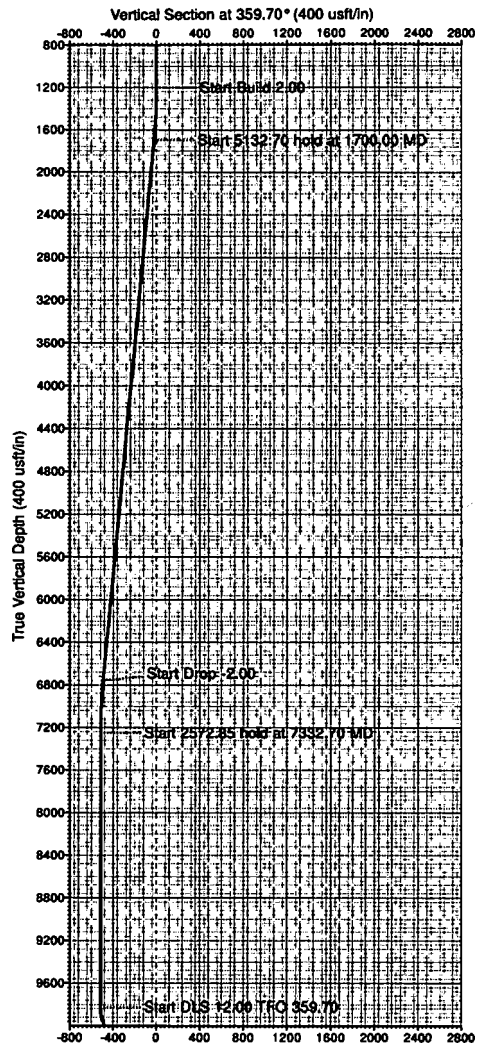
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,000.00	90.00	359.70	10,299.97	302.98	-833.66	307.34	0.00	0.00	0.00
11,100.00	90.00	359.70	10,299.97	402.98	-834.18	407.34	0.00	0.00	0.00
11,200.00	90.00	359.70	10,299.97	502.97	-834.71	507.34	0.00	0.00	0.00
11,300.00	90.00	359.70	10,299.97	602.97	-835.23	607.34	0.00	0.00	0.00
11,400.00	90.00	359.70	10,299.97	702.97	-835.75	707.34	0.00	0.00	0.00
11,500.00	90.00	359.70	10,299.97	802.97	-836.28	807.34	0.00	0.00	0.00
11,600.00	90.00	359.70	10,299.97	902.97	-836.80	907.34	0.00	0.00	0.00
11,700.00	90.00	359.70	10,299.97	1,002.97	-837.32	1,007.34	0.00	0.00	0.00
11,800.00	90.00	359.70	10,299.97	1,102.97	-837.85	1,107.34	0.00	0.00	0.00
11,900.00	90.00	359.70	10,299.98	1,202.96	-838.37	1,207.34	0.00	0.00	0.00
12,000.00	90.00	359.70	10,299.98	1,302.96	-838.89	1,307.34	0.00	0.00	0.00
12,100.00	90.00	359.70	10,299.98	1,402.96	-839.42	1,407.34	0.00	0.00	0.00
12,200.00	90.00	359.70	10,299.98	1,502.96	-839.94	1,507.34	0.00	0.00	0.00
12,300.00	90.00	359.70	10,299.98	1,602.96	-840.46	1,607.34	0.00	0.00	0.00
12,400.00	90.00	359.70	10,299.98	1,702.96	-840.99	1,707.34	0.00	0.00	0.00
12,500.00	90.00	359.70	10,299.98	1,802.96	-841.51	1,807.34	0.00	0.00	0.00
12,600.00	90.00	359.70	10,299.98	1,902.96	-842.03	1,907.34	0.00	0.00	0.00
12,700.00	90.00	359.70	10,299.98	2,002.95	-842.55	2,007.34	0.00	0.00	0.00
12,800.00	90.00	359.70	10,299.98	2,102.95	-843.08	2,107.34	0.00	0.00	0.00
12,900.00	90.00	359.70	10,299.98	2,202.95	-843.60	2,207.34	0.00	0.00	0.00
13,000.00	90.00	359.70	10,299.98	2,302.95	-844.12	2,307.34	0.00	0.00	0.00
13,100.00	90.00	359.70	10,299.98	2,402.95	-844.65	2,407.34	0.00	0.00	0.00
13,200.00	90.00	359.70	10,299.99	2,502.95	-845.17	2,507.34	0.00	0.00	0.00
13,300.00	90.00	359.70	10,299.99	2,602.95	-845.69	2,607.34	0.00	0.00	0.00
13,400.00	90.00	359.70	10,299.99	2,702.94	-846.22	2,707.34	0.00	0.00	0.00
13,500.00	90.00	359.70	10,299.99	2,802.94	-846.74	2,807.34	0.00	0.00	0.00
13,600.00	90.00	359.70	10,299.99	2,902.94	-847.26	2,907.34	0.00	0.00	0.00
13,700.00	90.00	359.70	10,299.99	3,002.94	-847.79	3,007.34	0.00	0.00	0.00
13,800.00	90.00	359.70	10,299.99	3,102.94	-848.31	3,107.34	0.00	0.00	0.00
13,900.00	90.00	359.70	10,299.99	3,202.94	-848.83	3,207.34	0.00	0.00	0.00
14,000.00	90.00	359.70	10,299.99	3,302.94	-849.36	3,307.34	0.00	0.00	0.00
14,100.00	90.00	359.70	10,299.99	3,402.93	-849.88	3,407.34	0.00	0.00	0.00
14,200.00	90.00	359.70	10,299.99	3,502.93	-850.40	3,507.34	0.00	0.00	0.00
14,300.00	90.00	359.70	10,299.99	3,602.93	-850.93	3,607.34	0.00	0.00	0.00
14,400.00	90.00	359.70	10,300.00	3,702.93	-851.45	3,707.34	0.00	0.00	0.00
14,500.00	90.00	359.70	10,300.00	3,802.93	-851.97	3,807.34	0.00	0.00	0.00
14,600.00	90.00	359.70	10,300.00	3,902.93	-852.50	3,907.34	0.00	0.00	0.00
14,700.00	90.00	359.70	10,300.00	4,002.93	-853.02	4,007.34	0.00	0.00	0.00
14,800.00	90.00	359.70	10,300.00	4,102.93	-853.54	4,107.34	0.00	0.00	0.00
14,900.00	90.00	359.70	10,300.00	4,202.92	-854.07	4,207.34	0.00	0.00	0.00
15,000.00	90.00	359.70	10,300.00	4,302.92	-854.59	4,307.34	0.00	0.00	0.00
15,044.22	90.00	359.70	10,300.00	4,347.14	-854.82	4,351.56	0.00	0.00	0.00

[ThorWD#8H]LTP/BHL

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WD Fee #8H
Project:	Eddy County, NM	TVD Reference:	well @ 3107.00usft
Site:	Thor 28 (1-3-5-8)	MD Reference:	well @ 3107.00usft
Well:	WD Fee #8H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan A	Database:	WellPlanner1

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
[ThorWD#8H]FTP	0.00	0.00	0.00	-288.94	-830.56	461,858.60	572,316.11	32° 16' 10.377939 N	104° 5' 57.713282 W
- hit/miss target									
- Shape									
- plan misses target center by 879.38usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
[ThorWD#8H]KOP	0.00	0.00	9,822.50	-518.93	-829.36	461,628.61	572,317.31	32° 16' 8.101880 N	104° 5' 57.705146 W
- plan hits target center									
- Point									
[ThorWD#8H]LTP/BHL	0.00	0.00	10,300.0 0	4,347.14	-854.82	466,494.68	572,291.85	32° 16' 56.258123 N	104° 5' 57.878120 W
- plan hits target center									
- Point									

Checked By: _____ Approved By: _____ Date: _____



Marathon Oil
Eddy County, NM
Thor 28 (1-3-5-8)
WD Fee #8H
Prelim Plan A

US State Plane 1927 (Exact solution)
 NAD 1927 (NADCON CONUS)
 Clarke 1886
 New Mexico East 3001
 Mean Sea Level

RKB Elevation: well @ 3107.00usft
 +N-S +E-W Northing Easting Latitude Longitude Slot
 0.00 0.00 482147.54 573146.67 32° 16' 13.219332 N 104° 5' 48.032158 W

SECTION DETAILS							
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00
3	1700.00	10.00	237.97	1697.47	-23.09	-36.90	2.00
4	6832.70	10.00	237.97	6752.18	-435.84	-792.48	0.00
5	7332.70	0.00	0.00	7249.65	-518.93	-829.36	2.00
6	9905.55	0.00	0.00	9822.50	-518.93	-829.38	0.00
7	10655.54	90.00	359.70	10299.98	-41.48	-831.86	12.00
8	15044.22	90.00	359.70	10300.00	4347.14	-854.82	0.00

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
[ThorWD#8H]FTP	0.00	-288.94	-830.56	481858.60	572316.11
[ThorWD#8H]KOP	9822.50	-518.93	-829.36	481628.61	572317.31
[ThorWD#8H]LTP/BHL	10300.00	4347.14	-854.82	486494.68	572291.85

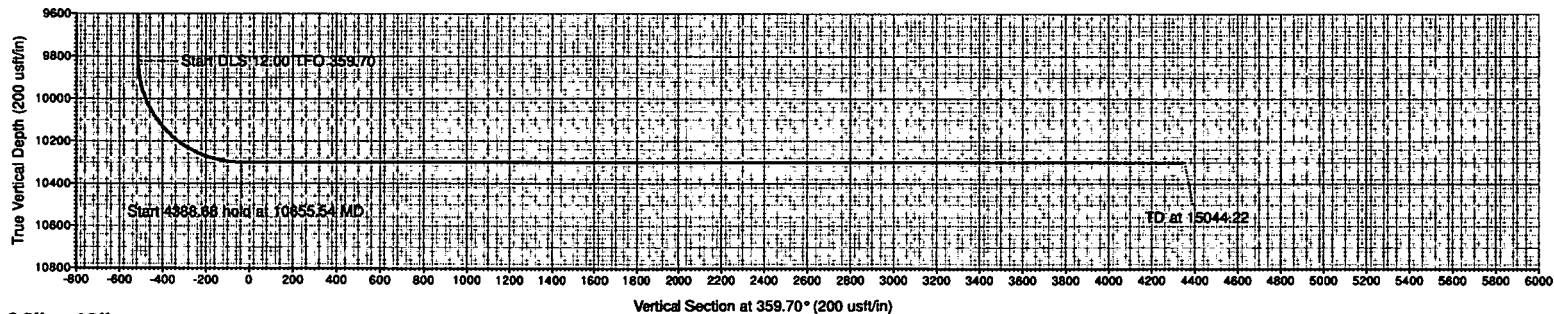
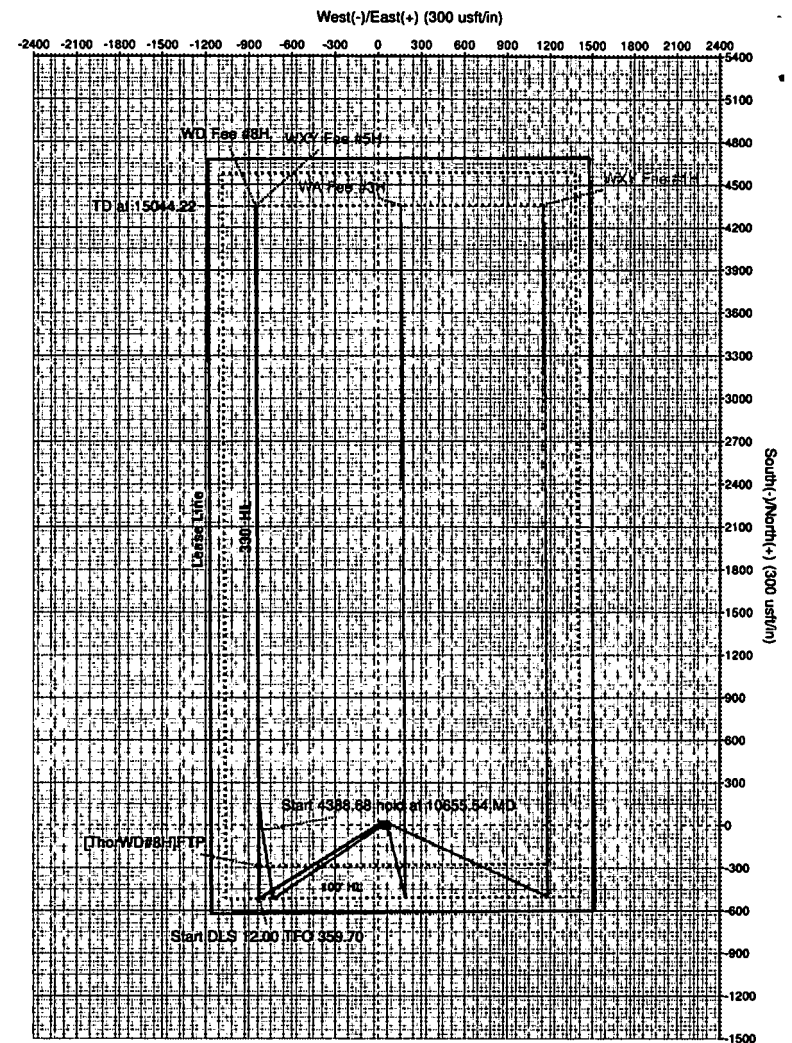


Azimuth to Grid North
 True North: -0.13°
 Magnetic North: 6.99°
 Magnetic Field
 Strength: 47872.2nT
 Dip Angle: 59.98°
 Date: 6/15/2019
 Model: HQ3M

Azimuth Corrections

Total Magnetic Corr. (M to G): 6.99°

Declination (M to T): 7.12° East



36" x 48"

Marathon Oil

