



Pro Directional
Survey Report

30-015-46271



HOBBS OCD
AUG 28 2019
RECEIVED

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

Local Co-ordinate Reference: Well WA Fee #3H
TVD Reference: well @ 3108.00usft
MD Reference: well @ 3108.00usft
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
From:	Map	Easting:	573,236.71 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 16' 13.218256 N
		Longitude:	104° 5' 46.983432 W
		Grid Convergence:	0.13 °

Well	WA Fee #3H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 16' 13.218713 N
		Longitude:	104° 5' 47.332619 W
		Ground Level:	3,083.00 usft

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

Design	Prelim Plan A		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			359.64

Survey Tool Program	Date 8/15/2019		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
0.00	1,850.00	Prelim Plan A (OH)	MWD+HDGM
1,850.00	5,400.00	Prelim Plan A (OH)	MWD+HDGM
5,400.00	9,000.00	Prelim Plan A (OH)	MWD+HDGM
9,000.00	14,330.62	Prelim Plan A (OH)	MWD+HDGM
			Description
			OWSG MWD + HRGM
			OWSG MWD + HRGM
			OWSG MWD + HRGM
			OWSG MWD + HRGM

Planned 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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
[ThorWA#3H]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

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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)
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	2.00	165.96	2,099.98	-1.69	0.42	-1.70	2.00	2.00	0.00
2,200.00	4.00	165.96	2,199.84	-6.77	1.69	-6.78	2.00	2.00	0.00
2,300.00	6.00	165.96	2,299.45	-15.22	3.81	-15.25	2.00	2.00	0.00
2,400.00	8.00	165.96	2,398.70	-27.05	6.77	-27.09	2.00	2.00	0.00
2,500.00	10.00	165.96	2,497.47	-42.22	10.56	-42.29	2.00	2.00	0.00
2,600.00	10.00	165.96	2,595.95	-59.07	14.78	-59.16	0.00	0.00	0.00
2,700.00	10.00	165.96	2,694.43	-75.91	18.99	-76.03	0.00	0.00	0.00
2,800.00	10.00	165.96	2,792.91	-92.76	23.20	-92.90	0.00	0.00	0.00
2,900.00	10.00	165.96	2,891.39	-109.60	27.42	-109.77	0.00	0.00	0.00
3,000.00	10.00	165.96	2,989.87	-126.45	31.63	-126.65	0.00	0.00	0.00
3,100.00	10.00	165.96	3,088.35	-143.30	35.84	-143.52	0.00	0.00	0.00
3,200.00	10.00	165.96	3,186.83	-160.14	40.06	-160.39	0.00	0.00	0.00
3,300.00	10.00	165.96	3,285.31	-176.99	44.27	-177.26	0.00	0.00	0.00
3,400.00	10.00	165.96	3,383.79	-193.83	48.49	-194.13	0.00	0.00	0.00
3,500.00	10.00	165.96	3,482.27	-210.68	52.70	-211.01	0.00	0.00	0.00
3,600.00	10.00	165.96	3,580.75	-227.53	56.91	-227.88	0.00	0.00	0.00
3,700.00	10.00	165.96	3,679.23	-244.37	61.13	-244.75	0.00	0.00	0.00
3,800.00	10.00	165.96	3,777.72	-261.22	65.34	-261.62	0.00	0.00	0.00
3,900.00	10.00	165.96	3,876.20	-278.06	69.56	-278.49	0.00	0.00	0.00
4,000.00	10.00	165.96	3,974.68	-294.91	73.77	-295.37	0.00	0.00	0.00
4,100.00	10.00	165.96	4,073.16	-311.75	77.98	-312.24	0.00	0.00	0.00
4,200.00	10.00	165.96	4,171.64	-328.60	82.20	-329.11	0.00	0.00	0.00
4,300.00	10.00	165.96	4,270.12	-345.45	86.41	-345.98	0.00	0.00	0.00
4,400.00	10.00	165.96	4,368.60	-362.29	90.62	-362.85	0.00	0.00	0.00
4,500.00	10.00	165.96	4,467.08	-379.14	94.84	-379.73	0.00	0.00	0.00
4,600.00	10.00	165.96	4,565.56	-395.98	99.05	-396.60	0.00	0.00	0.00
4,700.00	10.00	165.96	4,664.04	-412.83	103.27	-413.47	0.00	0.00	0.00
4,800.00	10.00	165.96	4,762.52	-429.67	107.48	-430.34	0.00	0.00	0.00
4,900.00	10.00	165.96	4,861.00	-446.52	111.69	-447.21	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	165.96	4,959.48	-463.37	115.91	-464.09	0.00	0.00	0.00
5,033.02	10.00	165.96	4,992.00	-468.93	117.30	-469.66	0.00	0.00	0.00
5,100.00	8.66	165.96	5,058.10	-479.46	119.93	-480.21	2.00	-2.00	0.00
5,200.00	6.66	165.96	5,157.20	-492.39	123.17	-493.16	2.00	-2.00	0.00
5,300.00	4.66	165.96	5,256.71	-501.96	125.56	-502.74	2.00	-2.00	0.00
5,400.00	2.66	165.96	5,356.50	-508.15	127.11	-508.94	2.00	-2.00	0.00
5,500.00	0.66	165.96	5,456.45	-510.97	127.81	-511.76	2.00	-2.00	0.00
5,533.02	0.00	0.00	5,489.47	-511.15	127.86	-511.94	2.00	-2.00	0.00
5,600.00	0.00	0.00	5,556.45	-511.15	127.86	-511.94	0.00	0.00	0.00
5,700.00	0.00	0.00	5,656.45	-511.15	127.86	-511.94	0.00	0.00	0.00
5,800.00	0.00	0.00	5,756.45	-511.15	127.86	-511.94	0.00	0.00	0.00
5,900.00	0.00	0.00	5,856.45	-511.15	127.86	-511.94	0.00	0.00	0.00
6,000.00	0.00	0.00	5,956.45	-511.15	127.86	-511.94	0.00	0.00	0.00
6,100.00	0.00	0.00	6,056.45	-511.15	127.86	-511.94	0.00	0.00	0.00
6,200.00	0.00	0.00	6,156.45	-511.15	127.86	-511.94	0.00	0.00	0.00
6,300.00	0.00	0.00	6,256.45	-511.15	127.86	-511.94	0.00	0.00	0.00
6,400.00	0.00	0.00	6,356.45	-511.15	127.86	-511.94	0.00	0.00	0.00
6,500.00	0.00	0.00	6,456.45	-511.15	127.86	-511.94	0.00	0.00	0.00
6,600.00	0.00	0.00	6,556.45	-511.15	127.86	-511.94	0.00	0.00	0.00
6,700.00	0.00	0.00	6,656.45	-511.15	127.86	-511.94	0.00	0.00	0.00
6,800.00	0.00	0.00	6,756.45	-511.15	127.86	-511.94	0.00	0.00	0.00
6,900.00	0.00	0.00	6,856.45	-511.15	127.86	-511.94	0.00	0.00	0.00
7,000.00	0.00	0.00	6,956.45	-511.15	127.86	-511.94	0.00	0.00	0.00
7,100.00	0.00	0.00	7,056.45	-511.15	127.86	-511.94	0.00	0.00	0.00
7,200.00	0.00	0.00	7,156.45	-511.15	127.86	-511.94	0.00	0.00	0.00
7,300.00	0.00	0.00	7,256.45	-511.15	127.86	-511.94	0.00	0.00	0.00
7,400.00	0.00	0.00	7,356.45	-511.15	127.86	-511.94	0.00	0.00	0.00
7,500.00	0.00	0.00	7,456.45	-511.15	127.86	-511.94	0.00	0.00	0.00
7,600.00	0.00	0.00	7,556.45	-511.15	127.86	-511.94	0.00	0.00	0.00
7,700.00	0.00	0.00	7,656.45	-511.15	127.86	-511.94	0.00	0.00	0.00
7,800.00	0.00	0.00	7,756.45	-511.15	127.86	-511.94	0.00	0.00	0.00
7,900.00	0.00	0.00	7,856.45	-511.15	127.86	-511.94	0.00	0.00	0.00
8,000.00	0.00	0.00	7,956.45	-511.15	127.86	-511.94	0.00	0.00	0.00
8,100.00	0.00	0.00	8,056.45	-511.15	127.86	-511.94	0.00	0.00	0.00
8,200.00	0.00	0.00	8,156.45	-511.15	127.86	-511.94	0.00	0.00	0.00
8,300.00	0.00	0.00	8,256.45	-511.15	127.86	-511.94	0.00	0.00	0.00
8,400.00	0.00	0.00	8,356.45	-511.15	127.86	-511.94	0.00	0.00	0.00
8,500.00	0.00	0.00	8,456.45	-511.15	127.86	-511.94	0.00	0.00	0.00
8,600.00	0.00	0.00	8,556.45	-511.15	127.86	-511.94	0.00	0.00	0.00
8,700.00	0.00	0.00	8,656.45	-511.15	127.86	-511.94	0.00	0.00	0.00
8,800.00	0.00	0.00	8,756.45	-511.15	127.86	-511.94	0.00	0.00	0.00
8,900.00	0.00	0.00	8,856.45	-511.15	127.86	-511.94	0.00	0.00	0.00
9,000.00	0.00	0.00	8,956.45	-511.15	127.86	-511.94	0.00	0.00	0.00
9,100.00	0.00	0.00	9,056.45	-511.15	127.86	-511.94	0.00	0.00	0.00

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WA Fee #3H
Project:	Eddy County, NM	TVD Reference:	well @ 3108.00usft
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Well:	WA Fee #3H	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)
9,193.30	0.00	0.00	9,149.75	-511.15	127.86	-511.94	0.00	0.00	0.00
[ThorWA#3H]KOP									
9,200.00	0.80	359.64	9,156.45	-511.10	127.86	-511.90	12.00	12.00	0.00
9,225.00	3.80	359.64	9,181.43	-510.10	127.85	-510.89	12.00	12.00	0.00
9,250.00	6.80	359.64	9,206.32	-507.79	127.84	-508.58	12.00	12.00	0.00
9,275.00	9.80	359.64	9,231.05	-504.18	127.82	-504.97	12.00	12.00	0.00
9,300.00	12.80	359.64	9,255.56	-499.28	127.79	-500.07	12.00	12.00	0.00
9,325.00	15.80	359.64	9,279.79	-493.10	127.75	-493.90	12.00	12.00	0.00
9,350.00	18.80	359.64	9,303.65	-485.67	127.70	-486.46	12.00	12.00	0.00
9,375.00	21.80	359.64	9,327.09	-476.99	127.64	-477.79	12.00	12.00	0.00
9,400.00	24.80	359.64	9,350.05	-467.10	127.58	-467.90	12.00	12.00	0.00
9,425.00	27.80	359.64	9,372.46	-456.03	127.51	-456.82	12.00	12.00	0.00
9,450.00	30.80	359.64	9,394.26	-443.79	127.44	-444.59	12.00	12.00	0.00
9,475.00	33.80	359.64	9,415.39	-430.43	127.35	-431.23	12.00	12.00	0.00
9,500.00	36.80	359.64	9,435.79	-415.99	127.26	-416.78	12.00	12.00	0.00
9,525.00	39.80	359.64	9,455.40	-400.50	127.16	-401.29	12.00	12.00	0.00
9,550.00	42.80	359.64	9,474.18	-384.00	127.06	-384.79	12.00	12.00	0.00
9,575.00	45.80	359.64	9,492.07	-366.54	126.95	-367.33	12.00	12.00	0.00
9,600.00	48.80	359.64	9,509.02	-348.17	126.83	-348.96	12.00	12.00	0.00
9,625.00	51.80	359.64	9,524.99	-328.93	126.71	-329.72	12.00	12.00	0.00
9,650.00	54.80	359.64	9,539.93	-308.89	126.59	-309.68	12.00	12.00	0.00
9,675.00	57.80	359.64	9,553.79	-288.09	126.46	-288.88	12.00	12.00	0.00
9,700.00	60.80	359.64	9,566.56	-266.60	126.32	-267.39	12.00	12.00	0.00
9,725.00	63.80	359.64	9,578.17	-244.47	126.18	-245.25	12.00	12.00	0.00
9,750.00	66.80	359.64	9,588.62	-221.76	126.04	-222.54	12.00	12.00	0.00
9,775.00	69.80	359.64	9,597.86	-198.53	125.89	-199.32	12.00	12.00	0.00
9,800.00	72.80	359.64	9,605.87	-174.85	125.74	-175.64	12.00	12.00	0.00
9,825.00	75.80	359.64	9,612.63	-150.79	125.59	-151.57	12.00	12.00	0.00
9,850.00	78.80	359.64	9,618.13	-126.40	125.44	-127.19	12.00	12.00	0.00
9,875.00	81.80	359.64	9,622.34	-101.76	125.28	-102.55	12.00	12.00	0.00
9,900.00	84.80	359.64	9,625.25	-76.94	125.13	-77.72	12.00	12.00	0.00
9,925.00	87.80	359.64	9,626.86	-51.99	124.97	-52.78	12.00	12.00	0.00
9,943.33	90.00	359.64	9,627.22	-33.67	124.85	-34.46	12.00	12.00	0.00
10,000.00	90.00	359.64	9,627.21	23.00	124.50	22.22	0.00	0.00	0.00
10,100.00	90.00	359.64	9,627.21	123.00	123.87	122.22	0.00	0.00	0.00
10,200.00	90.00	359.64	9,627.20	223.00	123.24	222.22	0.00	0.00	0.00
10,300.00	90.00	359.64	9,627.20	323.00	122.61	322.22	0.00	0.00	0.00
10,400.00	90.00	359.64	9,627.19	422.99	121.98	422.22	0.00	0.00	0.00
10,500.00	90.00	359.64	9,627.19	522.99	121.35	522.22	0.00	0.00	0.00
10,600.00	90.00	359.64	9,627.18	622.99	120.72	622.22	0.00	0.00	0.00
10,700.00	90.00	359.64	9,627.18	722.99	120.09	722.22	0.00	0.00	0.00
10,800.00	90.00	359.64	9,627.17	822.99	119.46	822.22	0.00	0.00	0.00
10,900.00	90.00	359.64	9,627.17	922.98	118.83	922.22	0.00	0.00	0.00

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

Local Co-ordinate Reference: Well WA Fee #3H
TVD Reference: well @ 3108.00usft
MD Reference: well @ 3108.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Planned Survey

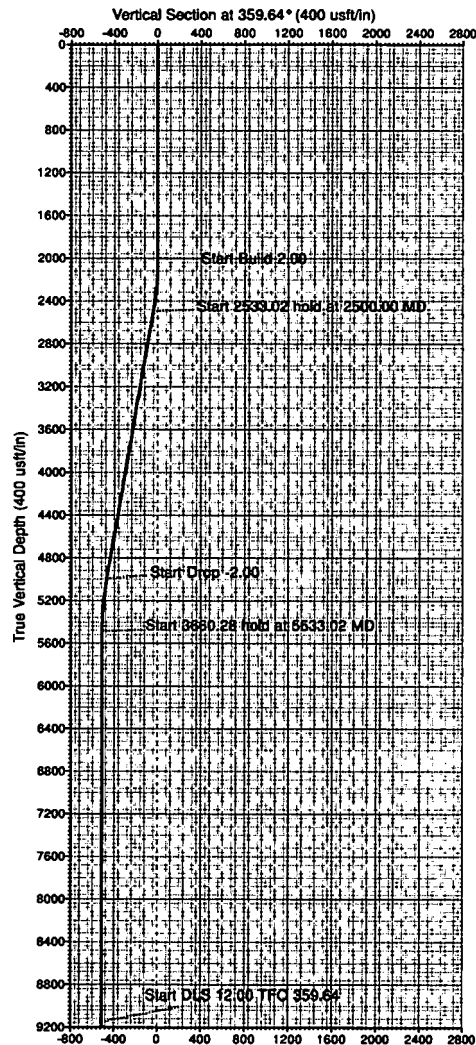
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,000.00	90.00	359.64	9,627.16	1,022.98	118.20	1,022.22	0.00	0.00	0.00
11,100.00	90.00	359.64	9,627.16	1,122.98	117.57	1,122.22	0.00	0.00	0.00
11,200.00	90.00	359.64	9,627.15	1,222.98	116.94	1,222.22	0.00	0.00	0.00
11,300.00	90.00	359.64	9,627.15	1,322.98	116.31	1,322.22	0.00	0.00	0.00
11,400.00	90.00	359.64	9,627.14	1,422.98	115.68	1,422.22	0.00	0.00	0.00
11,500.00	90.00	359.64	9,627.14	1,522.97	115.05	1,522.22	0.00	0.00	0.00
11,600.00	90.00	359.64	9,627.13	1,622.97	114.42	1,622.22	0.00	0.00	0.00
11,700.00	90.00	359.64	9,627.13	1,722.97	113.79	1,722.22	0.00	0.00	0.00
11,800.00	90.00	359.64	9,627.12	1,822.97	113.16	1,822.22	0.00	0.00	0.00
11,900.00	90.00	359.64	9,627.12	1,922.97	112.53	1,922.22	0.00	0.00	0.00
12,000.00	90.00	359.64	9,627.11	2,022.96	111.90	2,022.22	0.00	0.00	0.00
12,100.00	90.00	359.64	9,627.11	2,122.96	111.27	2,122.22	0.00	0.00	0.00
12,200.00	90.00	359.64	9,627.10	2,222.96	110.64	2,222.22	0.00	0.00	0.00
12,300.00	90.00	359.64	9,627.10	2,322.96	110.01	2,322.22	0.00	0.00	0.00
12,400.00	90.00	359.64	9,627.09	2,422.96	109.38	2,422.22	0.00	0.00	0.00
12,500.00	90.00	359.64	9,627.09	2,522.95	108.75	2,522.22	0.00	0.00	0.00
12,600.00	90.00	359.64	9,627.08	2,622.95	108.12	2,622.22	0.00	0.00	0.00
12,700.00	90.00	359.64	9,627.08	2,722.95	107.49	2,722.22	0.00	0.00	0.00
12,800.00	90.00	359.64	9,627.08	2,822.95	106.86	2,822.22	0.00	0.00	0.00
12,900.00	90.00	359.64	9,627.07	2,922.95	106.23	2,922.22	0.00	0.00	0.00
13,000.00	90.00	359.64	9,627.07	3,022.94	105.60	3,022.22	0.00	0.00	0.00
13,100.00	90.00	359.64	9,627.06	3,122.94	104.97	3,122.22	0.00	0.00	0.00
13,200.00	90.00	359.64	9,627.06	3,222.94	104.34	3,222.22	0.00	0.00	0.00
13,300.00	90.00	359.64	9,627.05	3,322.94	103.71	3,322.22	0.00	0.00	0.00
13,400.00	90.00	359.64	9,627.05	3,422.94	103.08	3,422.22	0.00	0.00	0.00
13,500.00	90.00	359.64	9,627.04	3,522.93	102.45	3,522.22	0.00	0.00	0.00
13,600.00	90.00	359.64	9,627.04	3,622.93	101.82	3,622.22	0.00	0.00	0.00
13,700.00	90.00	359.64	9,627.03	3,722.93	101.19	3,722.22	0.00	0.00	0.00
13,800.00	90.00	359.64	9,627.03	3,822.93	100.56	3,822.22	0.00	0.00	0.00
13,900.00	90.00	359.64	9,627.02	3,922.93	99.93	3,922.22	0.00	0.00	0.00
14,000.00	90.00	359.64	9,627.02	4,022.92	99.30	4,022.22	0.00	0.00	0.00
14,100.00	90.00	359.64	9,627.01	4,122.92	98.67	4,122.22	0.00	0.00	0.00
14,200.00	90.00	359.64	9,627.01	4,222.92	98.04	4,222.22	0.00	0.00	0.00
14,300.00	90.00	359.64	9,627.00	4,322.92	97.41	4,322.22	0.00	0.00	0.00
14,330.62	90.00	359.64	9,627.00	4,353.54	97.22	4,352.84	0.00	0.00	0.00

[ThorWA#3H]LTP/BHL

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WA Fee #3H
Project:	Eddy County, NM	TVD Reference:	well @ 3108.00usft
Site:	Thor 28 (1-3-5-8)	MD Reference:	well @ 3108.00usft
Well:	WA Fee #3H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan A	Database:	WellPlanner1

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
[ThorWA#3H]FTP - plan misses target center by 308.27usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	-281.16	126.40	461,866.45	573,333.13	32° 16' 10.433527 N	104° 5' 45.867640 W
[ThorWA#3H]KOP - plan hits target center - Point	0.00	0.00	9,149.75	-511.15	127.86	461,636.46	573,334.59	32° 16' 8.157462 N	104° 5' 45.856557 W
[ThorWA#3H]LTP/BHL - plan hits target center - Point	0.00	0.00	9,627.00	4,353.54	97.22	466,501.15	573,303.95	32° 16' 56.300158 N	104° 5' 46.088169 W

Checked By: _____	Approved By: _____	Date: _____
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Marathon Oil
Eddy County, NM
Thor 28 (1-3-5-8)
WA Fee #3H
Prelim Plan A

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

well @ 3108.00usf
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.00 0.00 462147.61 573206.73 32° 16' 13.218713 N 104° 5' 47.332619 W

SECTION DETAILS							
Sec	MD	Inc	Adj	TVD	+N/-S	+E/-W	Dleg
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00
3	2500.00	10.00	165.96	2497.47	-42.22	10.56	-42.29
4	5033.02	10.00	165.96	4982.00	-468.93	117.30	-469.66
5	5533.02	0.00	0.00	5489.47	-511.15	127.86	-511.94
6	9193.30	0.00	0.00	9149.75	-511.15	127.86	-511.94
7	9949.32	90.00	359.64	9627.21	-33.67	124.85	-34.46
8	14330.62	90.00	359.64	9627.00	4353.54	97.22	0.00
							4352.84

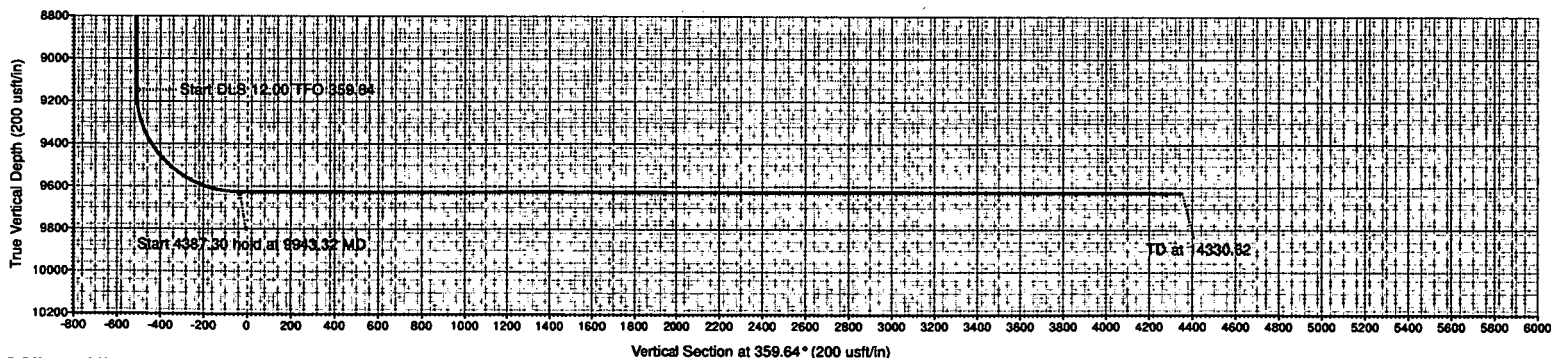
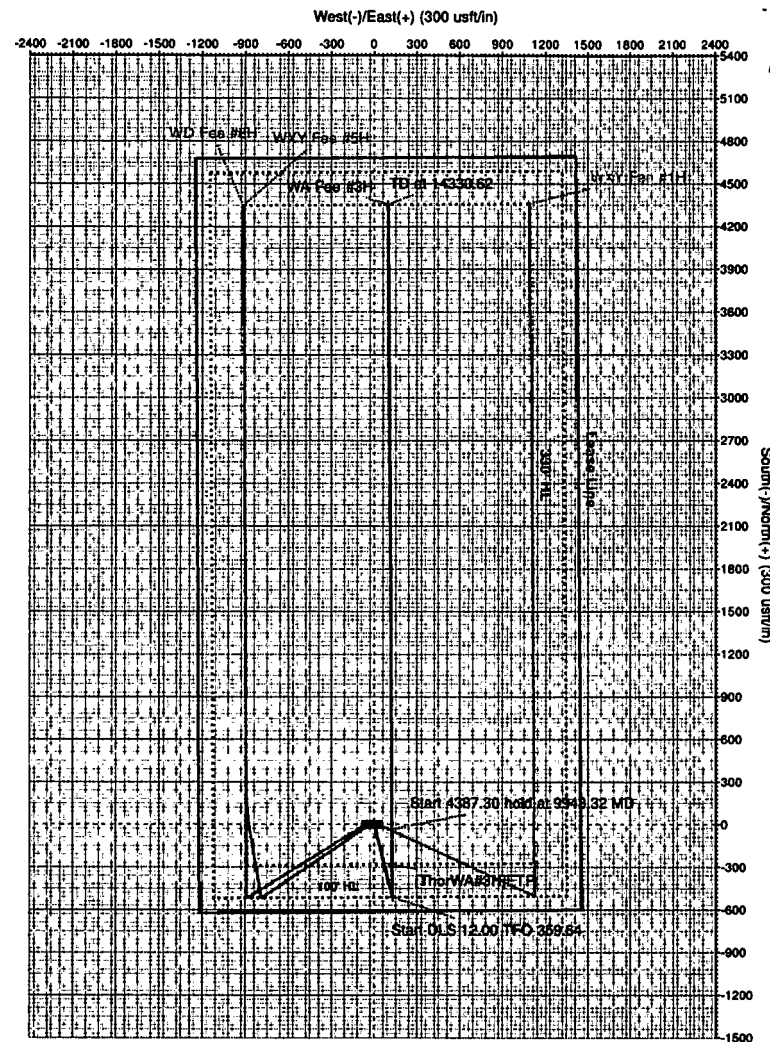
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
[ThorWA#3H]FTP	0.00	-281.16	126.40	461866.45	573333.13
[ThorWA#3H]KOP	9149.75	-511.15	127.86	461636.46	573334.59
[ThorWA#3H]LTP/BHL	9627.00	4353.54	97.22	468501.15	573303.95



Admutes to Grid North
 True North: -0.13°
 Magnetic North: 0.99°
 Magnetic Field
 Strength: 47872.2nT
 Dip Angle: 59.98°
 Date: 8/15/2019
 Model: HDGM

Azimuth Corrections
 Total Magnetic Corr. (M to G): 6.99°
 Declination (M to T): 7.12° East



Marathon Oil

