

Database:	WellPlanner1	Local Co-ordinate Reference:	Well WC #13H
Company:	Marathon Oil	TVD Reference:	Well @ 3720.50usft (GL: 3694' + KB: 26.5' (H&P480))
Project:	Lea County, NM	MD Reference:	Well @ 3720.50usft (GL: 3694' + KB: 26.5' (H&P480))
Site:	Battle 34	North Reference:	Grid
Well:	WC #13H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan A		

Project	Lea 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	Battle 34			
Site Position:		Northing:	525,062.61 usft	Latitude: 32.441113
From:	Map	Easting:	739,708.64 usft	Longitude: -103.556334
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.42 °

Well	WC #13H			
Well Position	+N/-S	-1.47 usft	Northing:	525,061.14 usft
	+E/-W	-29.99 usft	Easting:	739,678.65 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	
			Ground Level:	3,694.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/23/2018	6.72	60.28	48,128.70

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	179.47

Plan Survey Tool Program			Date	10/23/2018	
	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,850.00	Prelim Plan A (OH)	MWD+IFR1 OWSG MWD + IFR1	
2	1,850.00	5,400.00	Prelim Plan A (OH)	MWD+IFR1 OWSG MWD + IFR1	
3	5,400.00	10,000.00	Prelim Plan A (OH)	MWD+IFR1 OWSG MWD + IFR1	
4	10,000.00	17,432.75	Prelim Plan A (OH)	MWD+IFR1 OWSG MWD + IFR1	

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Site:	Battle 34	North Reference:	Grid
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Wellbore:	OH		
Design:	Prelim Plan A		

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	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,700.00	10.00	316.99	1,697.47	31.82	-29.69	2.00	2.00	0.00	316.99	
4,589.46	10.00	316.99	4,543.03	398.71	-371.96	0.00	0.00	0.00	0.00	
5,089.46	0.00	0.00	5,040.49	430.53	-401.65	2.00	-2.00	0.00	180.00	
11,978.97	0.00	0.00	11,930.00	430.53	-401.65	0.00	0.00	0.00	0.00	[Battle34WC#13H]KC
12,876.00	89.70	179.47	12,502.95	-139.43	-396.43	10.00	10.00	20.01	179.47	
17,432.75	89.70	179.47	12,526.57	-4,695.93	-354.67	0.00	0.00	0.00	0.00	[Battle34WC#13H]LTI

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Site:	Battle 34	North Reference:	Grid
Well:	WC #13H	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
[Battle34WC#13H]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	2.00	316.99	1,299.98	1.28	-1.19	-1.29	2.00	2.00	0.00
1,400.00	4.00	316.99	1,399.84	5.10	-4.76	-5.15	2.00	2.00	0.00
1,500.00	6.00	316.99	1,499.45	11.48	-10.71	-11.57	2.00	2.00	0.00
1,600.00	8.00	316.99	1,598.70	20.39	-19.02	-20.56	2.00	2.00	0.00
1,700.00	10.00	316.99	1,697.47	31.82	-29.69	-32.10	2.00	2.00	0.00
1,800.00	10.00	316.99	1,795.95	44.52	-41.53	-44.90	0.00	0.00	0.00
1,900.00	10.00	316.99	1,894.43	57.22	-53.38	-57.71	0.00	0.00	0.00
2,000.00	10.00	316.99	1,992.91	69.92	-65.23	-70.52	0.00	0.00	0.00
2,100.00	10.00	316.99	2,091.39	82.61	-77.07	-83.32	0.00	0.00	0.00
2,200.00	10.00	316.99	2,189.87	95.31	-88.92	-96.13	0.00	0.00	0.00
2,300.00	10.00	316.99	2,288.35	108.01	-100.76	-108.93	0.00	0.00	0.00
2,400.00	10.00	316.99	2,386.83	120.70	-112.61	-121.74	0.00	0.00	0.00
2,500.00	10.00	316.99	2,485.31	133.40	-124.45	-134.55	0.00	0.00	0.00
2,600.00	10.00	316.99	2,583.79	146.10	-136.30	-147.35	0.00	0.00	0.00
2,700.00	10.00	316.99	2,682.27	158.80	-148.14	-160.16	0.00	0.00	0.00
2,800.00	10.00	316.99	2,780.75	171.49	-159.99	-172.97	0.00	0.00	0.00
2,900.00	10.00	316.99	2,879.23	184.19	-171.84	-185.77	0.00	0.00	0.00
3,000.00	10.00	316.99	2,977.72	196.89	-183.68	-198.58	0.00	0.00	0.00
3,100.00	10.00	316.99	3,076.20	209.59	-195.53	-211.39	0.00	0.00	0.00
3,200.00	10.00	316.99	3,174.68	222.28	-207.37	-224.19	0.00	0.00	0.00
3,300.00	10.00	316.99	3,273.16	234.98	-219.22	-237.00	0.00	0.00	0.00
3,400.00	10.00	316.99	3,371.64	247.68	-231.06	-249.80	0.00	0.00	0.00
3,500.00	10.00	316.99	3,470.12	260.37	-242.91	-262.61	0.00	0.00	0.00
3,600.00	10.00	316.99	3,568.60	273.07	-254.75	-275.42	0.00	0.00	0.00
3,700.00	10.00	316.99	3,667.08	285.77	-266.60	-288.22	0.00	0.00	0.00
3,800.00	10.00	316.99	3,765.56	298.47	-278.45	-301.03	0.00	0.00	0.00
3,900.00	10.00	316.99	3,864.04	311.16	-290.29	-313.84	0.00	0.00	0.00
4,000.00	10.00	316.99	3,962.52	323.86	-302.14	-326.64	0.00	0.00	0.00
4,100.00	10.00	316.99	4,061.00	336.56	-313.98	-339.45	0.00	0.00	0.00
4,200.00	10.00	316.99	4,159.48	349.26	-325.83	-352.25	0.00	0.00	0.00
4,300.00	10.00	316.99	4,257.97	361.95	-337.67	-365.06	0.00	0.00	0.00
4,400.00	10.00	316.99	4,356.45	374.65	-349.52	-377.87	0.00	0.00	0.00
4,500.00	10.00	316.99	4,454.93	387.35	-361.36	-390.67	0.00	0.00	0.00
4,589.46	10.00	316.99	4,543.03	398.71	-371.96	-402.13	0.00	0.00	0.00
4,600.00	9.79	316.99	4,553.41	400.03	-373.20	-403.47	2.00	-2.00	0.00
4,700.00	7.79	316.99	4,652.23	411.20	-383.62	-414.73	2.00	-2.00	0.00
4,800.00	5.79	316.99	4,751.53	419.85	-391.68	-423.45	2.00	-2.00	0.00
4,900.00	3.79	316.99	4,851.17	425.95	-397.38	-429.61	2.00	-2.00	0.00

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Site:	Battle 34	North Reference:	Grid
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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)
5,000.00	1.79	316.99	4,951.05	429.51	-400.70	-433.20	2.00	-2.00	0.00
5,089.46	0.00	0.00	5,040.49	430.53	-401.65	-434.23	2.00	-2.00	0.00
5,100.00	0.00	0.00	5,051.03	430.53	-401.65	-434.23	0.00	0.00	0.00
5,200.00	0.00	0.00	5,151.03	430.53	-401.65	-434.23	0.00	0.00	0.00
5,300.00	0.00	0.00	5,251.03	430.53	-401.65	-434.23	0.00	0.00	0.00
5,400.00	0.00	0.00	5,351.03	430.53	-401.65	-434.23	0.00	0.00	0.00
5,500.00	0.00	0.00	5,451.03	430.53	-401.65	-434.23	0.00	0.00	0.00
5,600.00	0.00	0.00	5,551.03	430.53	-401.65	-434.23	0.00	0.00	0.00
5,700.00	0.00	0.00	5,651.03	430.53	-401.65	-434.23	0.00	0.00	0.00
5,800.00	0.00	0.00	5,751.03	430.53	-401.65	-434.23	0.00	0.00	0.00
5,900.00	0.00	0.00	5,851.03	430.53	-401.65	-434.23	0.00	0.00	0.00
6,000.00	0.00	0.00	5,951.03	430.53	-401.65	-434.23	0.00	0.00	0.00
6,100.00	0.00	0.00	6,051.03	430.53	-401.65	-434.23	0.00	0.00	0.00
6,200.00	0.00	0.00	6,151.03	430.53	-401.65	-434.23	0.00	0.00	0.00
6,300.00	0.00	0.00	6,251.03	430.53	-401.65	-434.23	0.00	0.00	0.00
6,400.00	0.00	0.00	6,351.03	430.53	-401.65	-434.23	0.00	0.00	0.00
6,500.00	0.00	0.00	6,451.03	430.53	-401.65	-434.23	0.00	0.00	0.00
6,600.00	0.00	0.00	6,551.03	430.53	-401.65	-434.23	0.00	0.00	0.00
6,700.00	0.00	0.00	6,651.03	430.53	-401.65	-434.23	0.00	0.00	0.00
6,800.00	0.00	0.00	6,751.03	430.53	-401.65	-434.23	0.00	0.00	0.00
6,900.00	0.00	0.00	6,851.03	430.53	-401.65	-434.23	0.00	0.00	0.00
7,000.00	0.00	0.00	6,951.03	430.53	-401.65	-434.23	0.00	0.00	0.00
7,100.00	0.00	0.00	7,051.03	430.53	-401.65	-434.23	0.00	0.00	0.00
7,200.00	0.00	0.00	7,151.03	430.53	-401.65	-434.23	0.00	0.00	0.00
7,300.00	0.00	0.00	7,251.03	430.53	-401.65	-434.23	0.00	0.00	0.00
7,400.00	0.00	0.00	7,351.03	430.53	-401.65	-434.23	0.00	0.00	0.00
7,500.00	0.00	0.00	7,451.03	430.53	-401.65	-434.23	0.00	0.00	0.00
7,600.00	0.00	0.00	7,551.03	430.53	-401.65	-434.23	0.00	0.00	0.00
7,700.00	0.00	0.00	7,651.03	430.53	-401.65	-434.23	0.00	0.00	0.00
7,800.00	0.00	0.00	7,751.03	430.53	-401.65	-434.23	0.00	0.00	0.00
7,900.00	0.00	0.00	7,851.03	430.53	-401.65	-434.23	0.00	0.00	0.00
8,000.00	0.00	0.00	7,951.03	430.53	-401.65	-434.23	0.00	0.00	0.00
8,100.00	0.00	0.00	8,051.03	430.53	-401.65	-434.23	0.00	0.00	0.00
8,200.00	0.00	0.00	8,151.03	430.53	-401.65	-434.23	0.00	0.00	0.00
8,300.00	0.00	0.00	8,251.03	430.53	-401.65	-434.23	0.00	0.00	0.00
8,400.00	0.00	0.00	8,351.03	430.53	-401.65	-434.23	0.00	0.00	0.00
8,500.00	0.00	0.00	8,451.03	430.53	-401.65	-434.23	0.00	0.00	0.00
8,600.00	0.00	0.00	8,551.03	430.53	-401.65	-434.23	0.00	0.00	0.00
8,700.00	0.00	0.00	8,651.03	430.53	-401.65	-434.23	0.00	0.00	0.00
8,800.00	0.00	0.00	8,751.03	430.53	-401.65	-434.23	0.00	0.00	0.00
8,900.00	0.00	0.00	8,851.03	430.53	-401.65	-434.23	0.00	0.00	0.00
9,000.00	0.00	0.00	8,951.03	430.53	-401.65	-434.23	0.00	0.00	0.00
9,100.00	0.00	0.00	9,051.03	430.53	-401.65	-434.23	0.00	0.00	0.00
9,200.00	0.00	0.00	9,151.03	430.53	-401.65	-434.23	0.00	0.00	0.00
9,300.00	0.00	0.00	9,251.03	430.53	-401.65	-434.23	0.00	0.00	0.00
9,400.00	0.00	0.00	9,351.03	430.53	-401.65	-434.23	0.00	0.00	0.00
9,500.00	0.00	0.00	9,451.03	430.53	-401.65	-434.23	0.00	0.00	0.00
9,600.00	0.00	0.00	9,551.03	430.53	-401.65	-434.23	0.00	0.00	0.00
9,700.00	0.00	0.00	9,651.03	430.53	-401.65	-434.23	0.00	0.00	0.00
9,800.00	0.00	0.00	9,751.03	430.53	-401.65	-434.23	0.00	0.00	0.00
9,900.00	0.00	0.00	9,851.03	430.53	-401.65	-434.23	0.00	0.00	0.00
10,000.00	0.00	0.00	9,951.03	430.53	-401.65	-434.23	0.00	0.00	0.00

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Project:	Lea County, NM	MD Reference:	Well @ 3720.50usft (GL: 3694' + KB: 26.5' (H&P480))
Site:	Battle 34	North Reference:	Grid
Well:	WC #13H	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)
10,100.00	0.00	0.00	10,051.03	430.53	-401.65	-434.23	0.00	0.00	0.00
10,200.00	0.00	0.00	10,151.03	430.53	-401.65	-434.23	0.00	0.00	0.00
10,300.00	0.00	0.00	10,251.03	430.53	-401.65	-434.23	0.00	0.00	0.00
10,400.00	0.00	0.00	10,351.03	430.53	-401.65	-434.23	0.00	0.00	0.00
10,500.00	0.00	0.00	10,451.03	430.53	-401.65	-434.23	0.00	0.00	0.00
10,600.00	0.00	0.00	10,551.03	430.53	-401.65	-434.23	0.00	0.00	0.00
10,700.00	0.00	0.00	10,651.03	430.53	-401.65	-434.23	0.00	0.00	0.00
10,800.00	0.00	0.00	10,751.03	430.53	-401.65	-434.23	0.00	0.00	0.00
10,900.00	0.00	0.00	10,851.03	430.53	-401.65	-434.23	0.00	0.00	0.00
11,000.00	0.00	0.00	10,951.03	430.53	-401.65	-434.23	0.00	0.00	0.00
11,100.00	0.00	0.00	11,051.03	430.53	-401.65	-434.23	0.00	0.00	0.00
11,200.00	0.00	0.00	11,151.03	430.53	-401.65	-434.23	0.00	0.00	0.00
11,300.00	0.00	0.00	11,251.03	430.53	-401.65	-434.23	0.00	0.00	0.00
11,400.00	0.00	0.00	11,351.03	430.53	-401.65	-434.23	0.00	0.00	0.00
11,500.00	0.00	0.00	11,451.03	430.53	-401.65	-434.23	0.00	0.00	0.00
11,600.00	0.00	0.00	11,551.03	430.53	-401.65	-434.23	0.00	0.00	0.00
11,700.00	0.00	0.00	11,651.03	430.53	-401.65	-434.23	0.00	0.00	0.00
11,800.00	0.00	0.00	11,751.03	430.53	-401.65	-434.23	0.00	0.00	0.00
11,900.00	0.00	0.00	11,851.03	430.53	-401.65	-434.23	0.00	0.00	0.00
11,978.97	0.00	0.00	11,930.00	430.53	-401.65	-434.23	0.00	0.00	0.00
[Battle34WC#13H]KOP									
12,000.00	2.10	179.47	11,951.03	430.14	-401.65	-433.84	10.00	10.00	0.00
12,050.00	7.10	179.47	12,000.85	426.13	-401.61	-429.83	10.00	10.00	0.00
12,100.00	12.10	179.47	12,050.14	417.79	-401.53	-421.49	10.00	10.00	0.00
12,150.00	17.10	179.47	12,098.50	405.19	-401.42	-408.89	10.00	10.00	0.00
12,200.00	22.10	179.47	12,145.59	388.42	-401.26	-392.12	10.00	10.00	0.00
12,250.00	27.10	179.47	12,191.04	367.61	-401.07	-371.31	10.00	10.00	0.00
12,300.00	32.10	179.47	12,234.50	342.92	-400.85	-346.62	10.00	10.00	0.00
12,350.00	37.10	179.47	12,275.64	314.54	-400.59	-318.23	10.00	10.00	0.00
12,400.00	42.10	179.47	12,314.15	282.68	-400.30	-286.37	10.00	10.00	0.00
12,450.00	47.10	179.47	12,349.74	247.58	-399.97	-251.27	10.00	10.00	0.00
12,500.00	52.10	179.47	12,382.13	209.51	-399.62	-213.20	10.00	10.00	0.00
12,550.00	57.10	179.47	12,411.09	168.77	-399.25	-172.46	10.00	10.00	0.00
12,600.00	62.10	179.47	12,436.38	125.66	-398.86	-129.34	10.00	10.00	0.00
12,650.00	67.10	179.47	12,457.81	80.51	-398.44	-84.19	10.00	10.00	0.00
12,700.00	72.10	179.47	12,475.23	33.66	-398.01	-37.34	10.00	10.00	0.00
12,750.00	77.10	179.47	12,488.50	-14.53	-397.57	10.85	10.00	10.00	0.00
12,800.00	82.10	179.47	12,497.52	-63.69	-397.12	60.01	10.00	10.00	0.00
12,850.00	87.10	179.47	12,502.23	-113.45	-396.66	109.78	10.00	10.00	0.00
12,876.00	89.70	179.47	12,502.95	-139.43	-396.43	135.76	10.00	10.00	0.00
12,900.00	89.70	179.47	12,503.07	-163.44	-396.21	159.76	0.00	0.00	0.00
13,000.00	89.70	179.47	12,503.59	-263.43	-395.29	259.76	0.00	0.00	0.00
13,100.00	89.70	179.47	12,504.11	-363.42	-394.37	359.76	0.00	0.00	0.00
13,200.00	89.70	179.47	12,504.63	-463.42	-393.46	459.76	0.00	0.00	0.00
13,300.00	89.70	179.47	12,505.15	-563.41	-392.54	559.76	0.00	0.00	0.00
13,400.00	89.70	179.47	12,505.67	-663.41	-391.62	659.76	0.00	0.00	0.00
13,500.00	89.70	179.47	12,506.18	-763.40	-390.71	759.76	0.00	0.00	0.00
13,600.00	89.70	179.47	12,506.70	-863.40	-389.79	859.75	0.00	0.00	0.00
13,700.00	89.70	179.47	12,507.22	-963.39	-388.88	959.75	0.00	0.00	0.00
13,800.00	89.70	179.47	12,507.74	-1,063.39	-387.96	1,059.75	0.00	0.00	0.00
13,900.00	89.70	179.47	12,508.26	-1,163.38	-387.04	1,159.75	0.00	0.00	0.00
14,000.00	89.70	179.47	12,508.78	-1,263.38	-386.13	1,259.75	0.00	0.00	0.00

Database:	WellPlanner1	Local Co-ordinate Reference:	Well WC #13H
Company:	Marathon Oil	TVD Reference:	Well @ 3720.50usft (GL: 3694' + KB: 26.5' (H&P480))
Project:	Lea County, NM	MD Reference:	Well @ 3720.50usft (GL: 3694' + KB: 26.5' (H&P480))
Site:	Battle 34	North Reference:	Grid
Well:	WC #13H	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)
14,100.00	89.70	179.47	12,509.29	-1,363.37	-385.21	1,359.75	0.00	0.00	0.00
14,200.00	89.70	179.47	12,509.81	-1,463.36	-384.29	1,459.75	0.00	0.00	0.00
14,300.00	89.70	179.47	12,510.33	-1,563.36	-383.38	1,559.75	0.00	0.00	0.00
14,400.00	89.70	179.47	12,510.85	-1,663.35	-382.46	1,659.74	0.00	0.00	0.00
14,500.00	89.70	179.47	12,511.37	-1,763.35	-381.54	1,759.74	0.00	0.00	0.00
14,600.00	89.70	179.47	12,511.89	-1,863.34	-380.63	1,859.74	0.00	0.00	0.00
14,700.00	89.70	179.47	12,512.41	-1,963.34	-379.71	1,959.74	0.00	0.00	0.00
14,800.00	89.70	179.47	12,512.92	-2,063.33	-378.80	2,059.74	0.00	0.00	0.00
14,900.00	89.70	179.47	12,513.44	-2,163.33	-377.88	2,159.74	0.00	0.00	0.00
15,000.00	89.70	179.47	12,513.96	-2,263.32	-376.96	2,259.74	0.00	0.00	0.00
15,100.00	89.70	179.47	12,514.48	-2,363.31	-376.05	2,359.73	0.00	0.00	0.00
15,200.00	89.70	179.47	12,515.00	-2,463.31	-375.13	2,459.73	0.00	0.00	0.00
15,300.00	89.70	179.47	12,515.52	-2,563.30	-374.21	2,559.73	0.00	0.00	0.00
15,400.00	89.70	179.47	12,516.03	-2,663.30	-373.30	2,659.73	0.00	0.00	0.00
15,500.00	89.70	179.47	12,516.55	-2,763.29	-372.38	2,759.73	0.00	0.00	0.00
15,600.00	89.70	179.47	12,517.07	-2,863.29	-371.46	2,859.73	0.00	0.00	0.00
15,700.00	89.70	179.47	12,517.59	-2,963.28	-370.55	2,959.73	0.00	0.00	0.00
15,800.00	89.70	179.47	12,518.11	-3,063.28	-369.63	3,059.73	0.00	0.00	0.00
15,900.00	89.70	179.47	12,518.63	-3,163.27	-368.72	3,159.72	0.00	0.00	0.00
16,000.00	89.70	179.47	12,519.14	-3,263.26	-367.80	3,259.72	0.00	0.00	0.00
16,100.00	89.70	179.47	12,519.66	-3,363.26	-366.88	3,359.72	0.00	0.00	0.00
16,200.00	89.70	179.47	12,520.18	-3,463.25	-365.97	3,459.72	0.00	0.00	0.00
16,300.00	89.70	179.47	12,520.70	-3,563.25	-365.05	3,559.72	0.00	0.00	0.00
16,400.00	89.70	179.47	12,521.22	-3,663.24	-364.13	3,659.72	0.00	0.00	0.00
16,500.00	89.70	179.47	12,521.74	-3,763.24	-363.22	3,759.72	0.00	0.00	0.00
16,600.00	89.70	179.47	12,522.25	-3,863.23	-362.30	3,859.71	0.00	0.00	0.00
16,700.00	89.70	179.47	12,522.77	-3,963.23	-361.38	3,959.71	0.00	0.00	0.00
16,800.00	89.70	179.47	12,523.29	-4,063.22	-360.47	4,059.71	0.00	0.00	0.00
16,900.00	89.70	179.47	12,523.81	-4,163.21	-359.55	4,159.71	0.00	0.00	0.00
17,000.00	89.70	179.47	12,524.33	-4,263.21	-358.64	4,259.71	0.00	0.00	0.00
17,100.00	89.70	179.47	12,524.85	-4,363.20	-357.72	4,359.71	0.00	0.00	0.00
17,200.00	89.70	179.47	12,525.36	-4,463.20	-356.80	4,459.71	0.00	0.00	0.00
17,300.00	89.70	179.47	12,525.88	-4,563.19	-355.89	4,559.70	0.00	0.00	0.00
17,400.00	89.70	179.47	12,526.40	-4,663.19	-354.97	4,659.70	0.00	0.00	0.00
17,432.75	89.70	179.47	12,526.57	-4,695.93	-354.67	4,692.45	0.00	0.00	0.00

[Battle34WC#13H]LTP/BHL

Marathon Oil Corporation

Marathon Oil
Lea County, NM
Battle 34
WC #13H
Prelim Plan A
GL: 3694' + KB: 26.5' (H&P480)

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

RKB Elevation: Well @ 3720.50usft (GL: 3694' + KB: 26.5' (H&P480))

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
0.00	0.00	525061.14	739678.65	32.441110	-103.556431	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
1	0.00	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	0.00
3	1700.00	10.00	316.99	1697.47	31.82	-29.69	2.00	-32.10
4	4589.46	10.00	316.99	4543.03	398.71	-371.96	0.00	-402.13
5	5089.46	0.00	0.00	5040.49	430.53	-401.65	2.00	-434.23
6	11978.97	0.00	0.00	11930.00	430.53	-401.65	0.00	-434.23
7	12876.00	89.70	179.47	12502.95	-139.43	-396.43	10.00	135.76
8	17432.75	89.70	179.47	12526.57	-4695.93	-354.67	0.00	4692.45

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
[Battle34WC#13H]FTP	0.00	380.53	-401.19	525441.87	739277.46
[Battle34WC#13H]KOP	11930.00	430.53	-401.65	525491.87	739277.00
[Battle34WC#13H]LTP/BHL	12526.57	-4695.93	-354.67	520365.21	739323.98



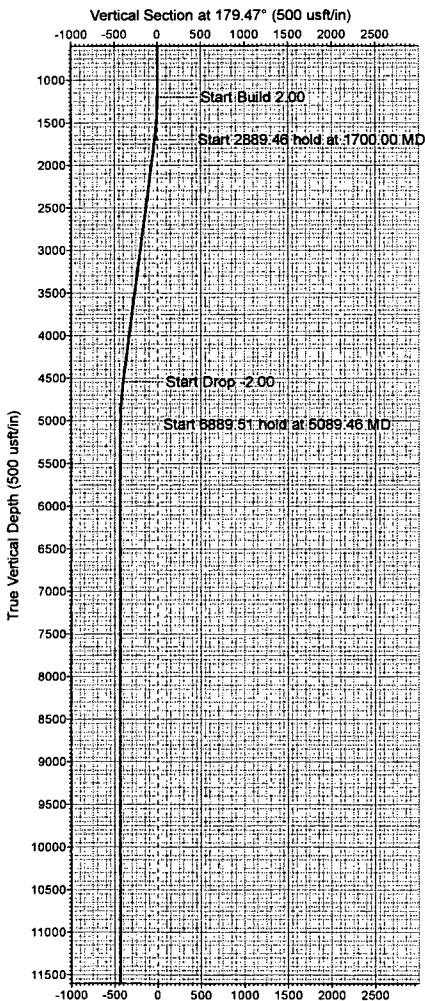
Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.30°

Magnetic Field
Strength: 48128.7anT
Dip Angle: 60.26°
Date: 10/23/2016
Model: HDGM

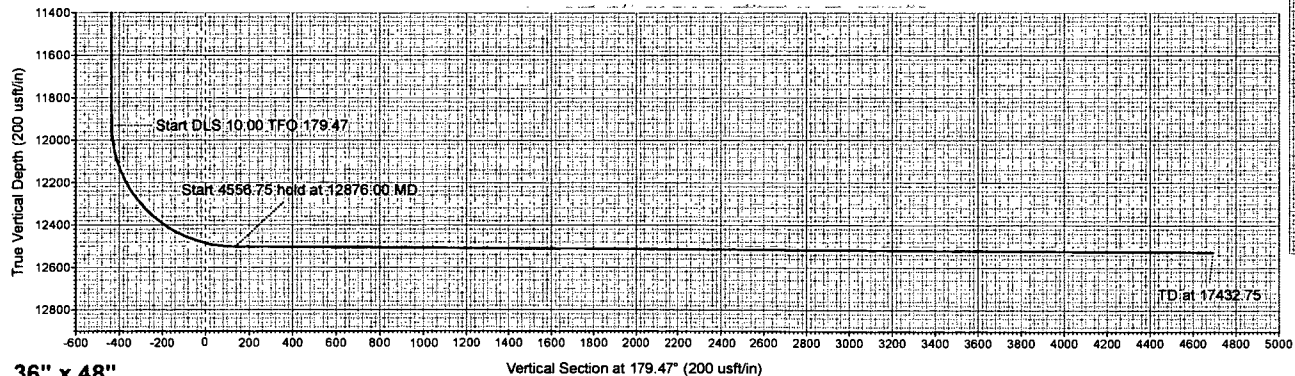
Azimuth Corrections

Total Magnetic Corr. (M to G): 6.30°

Declination (M to T): 6.72° East



Target Line: 12502' TVD @ 0° VS: 89.7° INC



36" x 48"

