

Database:	WellPlanner1	Local Co-ordinate Reference:	Well WD #19H
Company:	Marathon Oil	TVD Reference:	Well @ 3722.50usft (GL: 3696' + KB: 26.5' (H&P480))
Project:	Lea County, NM	MD Reference:	Well @ 3722.50usft (GL: 3696' + KB: 26.5' (H&P480))
Site:	Battle 34	North Reference:	Grid
Well:	WD #19H	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	WD #19H			
Well Position	+N/-S	1.50 usft	Northing:	525,064.11 usft
	+E/-W	29.96 usft	Easting:	739,738.60 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level: 3,696.00 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	179.48

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	18,210.05	Prelim Plan A (OH)	MWD+IFR1	
				OWSG MWD + IFR1	

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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	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,300.00	10.00	50.71	2,297.47	27.56	33.68	2.00	2.00	0.00	50.71	
5,740.82	10.00	50.71	5,686.01	405.93	496.11	0.00	0.00	0.00	0.00	
6,240.82	0.00	0.00	6,183.48	433.49	529.79	2.00	-2.00	0.00	180.00	
12,755.34	0.00	0.00	12,698.00	433.49	529.79	0.00	0.00	0.00	0.00	[Battle34WD#19H]KC
13,652.37	89.70	179.48	13,270.95	-136.47	534.93	10.00	10.00	20.01	179.48	
18,210.05	89.70	179.48	13,294.60	-4,693.90	576.05	0.00	0.00	0.00	0.00	[Battle34WD#19H]LTI

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Site:	Battle 34	North Reference:	Grid
Well:	WD #19H	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
[Battle34WD#19H]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	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	2.00	50.71	1,899.98	1.11	1.35	-1.09	2.00	2.00	0.00
2,000.00	4.00	50.71	1,999.84	4.42	5.40	-4.37	2.00	2.00	0.00
2,100.00	6.00	50.71	2,099.45	9.94	12.15	-9.83	2.00	2.00	0.00
2,200.00	8.00	50.71	2,198.70	17.66	21.58	-17.46	2.00	2.00	0.00
2,300.00	10.00	50.71	2,297.47	27.56	33.68	-27.25	2.00	2.00	0.00
2,400.00	10.00	50.71	2,395.95	38.56	47.12	-38.13	0.00	0.00	0.00
2,500.00	10.00	50.71	2,494.43	49.55	60.56	-49.00	0.00	0.00	0.00
2,600.00	10.00	50.71	2,592.91	60.55	74.00	-59.88	0.00	0.00	0.00
2,700.00	10.00	50.71	2,691.39	71.55	87.44	-70.75	0.00	0.00	0.00
2,800.00	10.00	50.71	2,789.87	82.54	100.88	-81.62	0.00	0.00	0.00
2,900.00	10.00	50.71	2,888.35	93.54	114.32	-92.50	0.00	0.00	0.00
3,000.00	10.00	50.71	2,986.83	104.54	127.76	-103.37	0.00	0.00	0.00
3,100.00	10.00	50.71	3,085.31	115.53	141.20	-114.25	0.00	0.00	0.00
3,200.00	10.00	50.71	3,183.79	126.53	154.64	-125.12	0.00	0.00	0.00
3,300.00	10.00	50.71	3,282.27	137.53	168.08	-135.99	0.00	0.00	0.00
3,400.00	10.00	50.71	3,380.75	148.52	181.52	-146.87	0.00	0.00	0.00
3,500.00	10.00	50.71	3,479.23	159.52	194.96	-157.74	0.00	0.00	0.00
3,600.00	10.00	50.71	3,577.72	170.51	208.39	-168.62	0.00	0.00	0.00
3,700.00	10.00	50.71	3,676.20	181.51	221.83	-179.49	0.00	0.00	0.00
3,800.00	10.00	50.71	3,774.68	192.51	235.27	-190.36	0.00	0.00	0.00
3,900.00	10.00	50.71	3,873.16	203.50	248.71	-201.24	0.00	0.00	0.00
4,000.00	10.00	50.71	3,971.64	214.50	262.15	-212.11	0.00	0.00	0.00
4,100.00	10.00	50.71	4,070.12	225.50	275.59	-222.99	0.00	0.00	0.00
4,200.00	10.00	50.71	4,168.60	236.49	289.03	-233.86	0.00	0.00	0.00
4,300.00	10.00	50.71	4,267.08	247.49	302.47	-244.73	0.00	0.00	0.00
4,400.00	10.00	50.71	4,365.56	258.49	315.91	-255.61	0.00	0.00	0.00
4,500.00	10.00	50.71	4,464.04	269.48	329.35	-266.48	0.00	0.00	0.00
4,600.00	10.00	50.71	4,562.52	280.48	342.79	-277.36	0.00	0.00	0.00
4,700.00	10.00	50.71	4,661.00	291.48	356.23	-288.23	0.00	0.00	0.00
4,800.00	10.00	50.71	4,759.48	302.47	369.67	-299.10	0.00	0.00	0.00
4,900.00	10.00	50.71	4,857.97	313.47	383.11	-309.98	0.00	0.00	0.00
5,000.00	10.00	50.71	4,956.45	324.47	396.55	-320.85	0.00	0.00	0.00

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Site:	Battle 34	North Reference:	Grid
Well:	WD #19H	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)	
5,100.00	10.00	50.71	5,054.93	335.46	409.98	-331.73	0.00	0.00	0.00	
5,200.00	10.00	50.71	5,153.41	346.46	423.42	-342.60	0.00	0.00	0.00	
5,300.00	10.00	50.71	5,251.89	357.45	436.86	-353.47	0.00	0.00	0.00	
5,400.00	10.00	50.71	5,350.37	368.45	450.30	-364.35	0.00	0.00	0.00	
5,500.00	10.00	50.71	5,448.85	379.45	463.74	-375.22	0.00	0.00	0.00	
5,600.00	10.00	50.71	5,547.33	390.44	477.18	-386.10	0.00	0.00	0.00	
5,700.00	10.00	50.71	5,645.81	401.44	490.62	-396.97	0.00	0.00	0.00	
5,740.82	10.00	50.71	5,686.01	405.93	496.11	-401.41	0.00	0.00	0.00	
5,800.00	8.82	50.71	5,744.39	412.06	503.59	-407.47	2.00	-2.00	0.00	
5,900.00	6.82	50.71	5,843.46	420.67	514.12	-415.98	2.00	-2.00	0.00	
6,000.00	4.82	50.71	5,942.94	427.08	521.96	-422.33	2.00	-2.00	0.00	
6,100.00	2.82	50.71	6,042.71	431.30	527.11	-426.50	2.00	-2.00	0.00	
6,200.00	0.82	50.71	6,142.66	433.31	529.56	-428.48	2.00	-2.00	0.00	
6,240.82	0.00	0.00	6,183.48	433.49	529.79	-428.66	2.00	-2.00	0.00	
6,300.00	0.00	0.00	6,242.66	433.49	529.79	-428.66	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,342.66	433.49	529.79	-428.66	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,442.66	433.49	529.79	-428.66	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,542.66	433.49	529.79	-428.66	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,642.66	433.49	529.79	-428.66	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,742.66	433.49	529.79	-428.66	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,842.66	433.49	529.79	-428.66	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,942.66	433.49	529.79	-428.66	0.00	0.00	0.00	
7,100.00	0.00	0.00	7,042.66	433.49	529.79	-428.66	0.00	0.00	0.00	
7,200.00	0.00	0.00	7,142.66	433.49	529.79	-428.66	0.00	0.00	0.00	
7,300.00	0.00	0.00	7,242.66	433.49	529.79	-428.66	0.00	0.00	0.00	
7,400.00	0.00	0.00	7,342.66	433.49	529.79	-428.66	0.00	0.00	0.00	
7,500.00	0.00	0.00	7,442.66	433.49	529.79	-428.66	0.00	0.00	0.00	
7,600.00	0.00	0.00	7,542.66	433.49	529.79	-428.66	0.00	0.00	0.00	
7,700.00	0.00	0.00	7,642.66	433.49	529.79	-428.66	0.00	0.00	0.00	
7,800.00	0.00	0.00	7,742.66	433.49	529.79	-428.66	0.00	0.00	0.00	
7,900.00	0.00	0.00	7,842.66	433.49	529.79	-428.66	0.00	0.00	0.00	
8,000.00	0.00	0.00	7,942.66	433.49	529.79	-428.66	0.00	0.00	0.00	
8,100.00	0.00	0.00	8,042.66	433.49	529.79	-428.66	0.00	0.00	0.00	
8,200.00	0.00	0.00	8,142.66	433.49	529.79	-428.66	0.00	0.00	0.00	
8,300.00	0.00	0.00	8,242.66	433.49	529.79	-428.66	0.00	0.00	0.00	
8,400.00	0.00	0.00	8,342.66	433.49	529.79	-428.66	0.00	0.00	0.00	
8,500.00	0.00	0.00	8,442.66	433.49	529.79	-428.66	0.00	0.00	0.00	
8,600.00	0.00	0.00	8,542.66	433.49	529.79	-428.66	0.00	0.00	0.00	
8,700.00	0.00	0.00	8,642.66	433.49	529.79	-428.66	0.00	0.00	0.00	
8,800.00	0.00	0.00	8,742.66	433.49	529.79	-428.66	0.00	0.00	0.00	
8,900.00	0.00	0.00	8,842.66	433.49	529.79	-428.66	0.00	0.00	0.00	
9,000.00	0.00	0.00	8,942.66	433.49	529.79	-428.66	0.00	0.00	0.00	
9,100.00	0.00	0.00	9,042.66	433.49	529.79	-428.66	0.00	0.00	0.00	
9,200.00	0.00	0.00	9,142.66	433.49	529.79	-428.66	0.00	0.00	0.00	
9,300.00	0.00	0.00	9,242.66	433.49	529.79	-428.66	0.00	0.00	0.00	
9,400.00	0.00	0.00	9,342.66	433.49	529.79	-428.66	0.00	0.00	0.00	
9,500.00	0.00	0.00	9,442.66	433.49	529.79	-428.66	0.00	0.00	0.00	
9,600.00	0.00	0.00	9,542.66	433.49	529.79	-428.66	0.00	0.00	0.00	
9,700.00	0.00	0.00	9,642.66	433.49	529.79	-428.66	0.00	0.00	0.00	
9,800.00	0.00	0.00	9,742.66	433.49	529.79	-428.66	0.00	0.00	0.00	
9,900.00	0.00	0.00	9,842.66	433.49	529.79	-428.66	0.00	0.00	0.00	
10,000.00	0.00	0.00	9,942.66	433.49	529.79	-428.66	0.00	0.00	0.00	

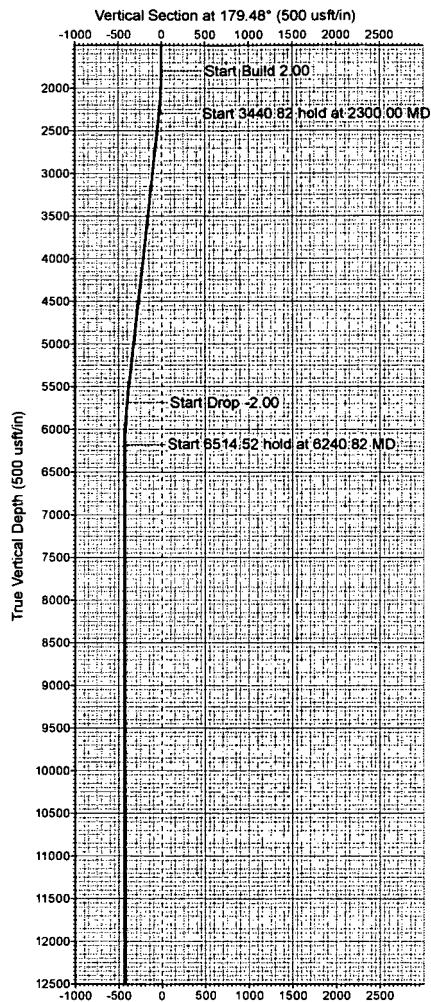
Database:	WellPlanner1	Local Co-ordinate Reference:	Well WD #19H
Company:	Marathon Oil	TVD Reference:	Well @ 3722.50usft (GL: 3696' + KB: 26.5' (H&P480))
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Wellbore:	OH		
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Planned Survey									
Measured 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)
10,100.00	0.00	0.00	10,042.66	433.49	529.79	-428.66	0.00	0.00	0.00
10,200.00	0.00	0.00	10,142.66	433.49	529.79	-428.66	0.00	0.00	0.00
10,300.00	0.00	0.00	10,242.66	433.49	529.79	-428.66	0.00	0.00	0.00
10,400.00	0.00	0.00	10,342.66	433.49	529.79	-428.66	0.00	0.00	0.00
10,500.00	0.00	0.00	10,442.66	433.49	529.79	-428.66	0.00	0.00	0.00
10,600.00	0.00	0.00	10,542.66	433.49	529.79	-428.66	0.00	0.00	0.00
10,700.00	0.00	0.00	10,642.66	433.49	529.79	-428.66	0.00	0.00	0.00
10,800.00	0.00	0.00	10,742.66	433.49	529.79	-428.66	0.00	0.00	0.00
10,900.00	0.00	0.00	10,842.66	433.49	529.79	-428.66	0.00	0.00	0.00
11,000.00	0.00	0.00	10,942.66	433.49	529.79	-428.66	0.00	0.00	0.00
11,100.00	0.00	0.00	11,042.66	433.49	529.79	-428.66	0.00	0.00	0.00
11,200.00	0.00	0.00	11,142.66	433.49	529.79	-428.66	0.00	0.00	0.00
11,300.00	0.00	0.00	11,242.66	433.49	529.79	-428.66	0.00	0.00	0.00
11,400.00	0.00	0.00	11,342.66	433.49	529.79	-428.66	0.00	0.00	0.00
11,500.00	0.00	0.00	11,442.66	433.49	529.79	-428.66	0.00	0.00	0.00
11,600.00	0.00	0.00	11,542.66	433.49	529.79	-428.66	0.00	0.00	0.00
11,700.00	0.00	0.00	11,642.66	433.49	529.79	-428.66	0.00	0.00	0.00
11,800.00	0.00	0.00	11,742.66	433.49	529.79	-428.66	0.00	0.00	0.00
11,900.00	0.00	0.00	11,842.66	433.49	529.79	-428.66	0.00	0.00	0.00
12,000.00	0.00	0.00	11,942.66	433.49	529.79	-428.66	0.00	0.00	0.00
12,100.00	0.00	0.00	12,042.66	433.49	529.79	-428.66	0.00	0.00	0.00
12,200.00	0.00	0.00	12,142.66	433.49	529.79	-428.66	0.00	0.00	0.00
12,300.00	0.00	0.00	12,242.66	433.49	529.79	-428.66	0.00	0.00	0.00
12,400.00	0.00	0.00	12,342.66	433.49	529.79	-428.66	0.00	0.00	0.00
12,500.00	0.00	0.00	12,442.66	433.49	529.79	-428.66	0.00	0.00	0.00
12,600.00	0.00	0.00	12,542.66	433.49	529.79	-428.66	0.00	0.00	0.00
12,700.00	0.00	0.00	12,642.66	433.49	529.79	-428.66	0.00	0.00	0.00
12,755.34	0.00	0.00	12,698.00	433.49	529.79	-428.66	0.00	0.00	0.00
[Battle34WD#19H]KOP									
12,800.00	4.47	179.48	12,742.61	431.75	529.81	-426.92	10.00	10.00	0.00
12,850.00	9.47	179.48	12,792.23	425.69	529.86	-420.86	10.00	10.00	0.00
12,900.00	14.47	179.48	12,841.13	415.33	529.95	-410.50	10.00	10.00	0.00
12,950.00	19.47	179.48	12,888.93	400.74	530.09	-395.91	10.00	10.00	0.00
13,000.00	24.47	179.48	12,935.29	382.05	530.25	-377.22	10.00	10.00	0.00
13,050.00	29.47	179.48	12,979.84	359.38	530.46	-354.55	10.00	10.00	0.00
13,100.00	34.47	179.48	13,022.24	332.92	530.70	-328.09	10.00	10.00	0.00
13,150.00	39.47	179.48	13,062.18	302.86	530.97	-298.03	10.00	10.00	0.00
13,200.00	44.47	179.48	13,099.35	269.44	531.27	-264.61	10.00	10.00	0.00
13,250.00	49.47	179.48	13,133.46	232.91	531.60	-228.07	10.00	10.00	0.00
13,300.00	54.47	179.48	13,164.25	193.54	531.95	-188.70	10.00	10.00	0.00
13,350.00	59.47	179.48	13,191.50	151.64	532.33	-146.80	10.00	10.00	0.00
13,400.00	64.47	179.48	13,215.00	107.52	532.73	-102.68	10.00	10.00	0.00
13,450.00	69.47	179.48	13,234.55	61.52	533.15	-56.68	10.00	10.00	0.00
13,500.00	74.47	179.48	13,250.03	14.00	533.57	-9.15	10.00	10.00	0.00
13,550.00	79.47	179.48	13,261.30	-34.70	534.01	39.54	10.00	10.00	0.00
13,600.00	84.47	179.48	13,268.29	-84.19	534.46	89.04	10.00	10.00	0.00
13,652.37	89.70	179.48	13,270.95	-136.47	534.93	141.32	10.00	10.00	0.00
13,700.00	89.70	179.48	13,271.20	-184.10	535.36	188.95	0.00	0.00	0.00
13,800.00	89.70	179.48	13,271.72	-284.09	536.26	288.95	0.00	0.00	0.00
13,900.00	89.70	179.48	13,272.24	-384.09	537.17	388.95	0.00	0.00	0.00
14,000.00	89.70	179.48	13,272.75	-484.08	538.07	488.95	0.00	0.00	0.00
14,100.00	89.70	179.48	13,273.27	-584.08	538.97	588.94	0.00	0.00	0.00

Database:	WellPlanner1	Local Co-ordinate Reference:	Well WD #19H
Company:	Marathon Oil	TVD Reference:	Well @ 3722.50usft (GL: 3696' + KB: 26.5' (H&P480))
Project:	Lea County, NM	MD Reference:	Well @ 3722.50usft (GL: 3696' + KB: 26.5' (H&P480))
Site:	Battle 34	North Reference:	Grid
Well:	WD #19H	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)	
14,200.00	89.70	179.48	13,273.79	-684.07	539.87	688.94	0.00	0.00	0.00	
14,300.00	89.70	179.48	13,274.31	-784.07	540.77	788.94	0.00	0.00	0.00	
14,400.00	89.70	179.48	13,274.83	-884.06	541.68	888.94	0.00	0.00	0.00	
14,500.00	89.70	179.48	13,275.35	-984.06	542.58	988.94	0.00	0.00	0.00	
14,600.00	89.70	179.48	13,275.87	-1,084.05	543.48	1,088.94	0.00	0.00	0.00	
14,700.00	89.70	179.48	13,276.39	-1,184.04	544.38	1,188.94	0.00	0.00	0.00	
14,800.00	89.70	179.48	13,276.91	-1,284.04	545.29	1,288.94	0.00	0.00	0.00	
14,900.00	89.70	179.48	13,277.42	-1,384.03	546.19	1,388.93	0.00	0.00	0.00	
15,000.00	89.70	179.48	13,277.94	-1,484.03	547.09	1,488.93	0.00	0.00	0.00	
15,100.00	89.70	179.48	13,278.46	-1,584.02	547.99	1,588.93	0.00	0.00	0.00	
15,200.00	89.70	179.48	13,278.98	-1,684.02	548.89	1,688.93	0.00	0.00	0.00	
15,300.00	89.70	179.48	13,279.50	-1,784.01	549.80	1,788.93	0.00	0.00	0.00	
15,400.00	89.70	179.48	13,280.02	-1,884.01	550.70	1,888.93	0.00	0.00	0.00	
15,500.00	89.70	179.48	13,280.54	-1,984.00	551.60	1,988.93	0.00	0.00	0.00	
15,600.00	89.70	179.48	13,281.06	-2,084.00	552.50	2,088.92	0.00	0.00	0.00	
15,700.00	89.70	179.48	13,281.58	-2,183.99	553.41	2,188.92	0.00	0.00	0.00	
15,800.00	89.70	179.48	13,282.09	-2,283.99	554.31	2,288.92	0.00	0.00	0.00	
15,900.00	89.70	179.48	13,282.61	-2,383.98	555.21	2,388.92	0.00	0.00	0.00	
16,000.00	89.70	179.48	13,283.13	-2,483.97	556.11	2,488.92	0.00	0.00	0.00	
16,100.00	89.70	179.48	13,283.65	-2,583.97	557.01	2,588.92	0.00	0.00	0.00	
16,200.00	89.70	179.48	13,284.17	-2,683.96	557.92	2,688.92	0.00	0.00	0.00	
16,300.00	89.70	179.48	13,284.69	-2,783.96	558.82	2,788.92	0.00	0.00	0.00	
16,400.00	89.70	179.48	13,285.21	-2,883.95	559.72	2,888.91	0.00	0.00	0.00	
16,500.00	89.70	179.48	13,285.73	-2,983.95	560.62	2,988.91	0.00	0.00	0.00	
16,600.00	89.70	179.48	13,286.25	-3,083.94	561.52	3,088.91	0.00	0.00	0.00	
16,700.00	89.70	179.48	13,286.76	-3,183.94	562.43	3,188.91	0.00	0.00	0.00	
16,800.00	89.70	179.48	13,287.28	-3,283.93	563.33	3,288.91	0.00	0.00	0.00	
16,900.00	89.70	179.48	13,287.80	-3,383.93	564.23	3,388.91	0.00	0.00	0.00	
17,000.00	89.70	179.48	13,288.32	-3,483.92	565.13	3,488.91	0.00	0.00	0.00	
17,100.00	89.70	179.48	13,288.84	-3,583.91	566.04	3,588.90	0.00	0.00	0.00	
17,200.00	89.70	179.48	13,289.36	-3,683.91	566.94	3,688.90	0.00	0.00	0.00	
17,300.00	89.70	179.48	13,289.88	-3,783.90	567.84	3,788.90	0.00	0.00	0.00	
17,400.00	89.70	179.48	13,290.40	-3,883.90	568.74	3,888.90	0.00	0.00	0.00	
17,500.00	89.70	179.48	13,290.92	-3,983.89	569.64	3,988.90	0.00	0.00	0.00	
17,600.00	89.70	179.48	13,291.43	-4,083.89	570.55	4,088.90	0.00	0.00	0.00	
17,700.00	89.70	179.48	13,291.95	-4,183.88	571.45	4,188.90	0.00	0.00	0.00	
17,800.00	89.70	179.48	13,292.47	-4,283.88	572.35	4,288.90	0.00	0.00	0.00	
17,900.00	89.70	179.48	13,292.99	-4,383.87	573.25	4,388.89	0.00	0.00	0.00	
18,000.00	89.70	179.48	13,293.51	-4,483.87	574.16	4,488.89	0.00	0.00	0.00	
18,100.00	89.70	179.48	13,294.03	-4,583.86	575.06	4,588.89	0.00	0.00	0.00	
18,200.00	89.70	179.48	13,294.55	-4,683.86	575.96	4,688.89	0.00	0.00	0.00	
18,210.05	89.70	179.48	13,294.60	-4,693.90	576.05	4,698.93	0.00	0.00	0.00	

[Battle34WD#19H]LTP/BHL



Marathon Oil Corporation

Marathon Oil
Lea County, NM
Battle 34
WD #19H
Prelim Plan A
GL: 3696' + 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 @ 3722.50usft (GL: 3696' + KB: 26.5' (H&P480))

+N-S	+E-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	525064.11	739738.60	32.441117	-103.556237	

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	1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00
3	2300.00	10.00	50.71	2297.47	27.56	33.68	2.00	-27.25
4	5740.82	10.00	50.71	5686.01	405.93	496.11	0.00	-401.41
5	6240.82	0.00	0.00	6183.48	433.49	529.79	2.00	-428.66
6	12755.34	0.00	0.00	12698.00	433.49	529.79	0.00	-428.66
7	13652.37	89.70	179.48	13270.95	-136.47	534.93	10.00	141.32
8	18210.05	89.70	179.48	13294.60	-4693.90	576.05	0.00	4698.93

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N-S	+E-W	Northing	Easting
[Battle34WD#19H]FTP	0.00	383.49	530.24	525447.60	740268.84
[Battle34WD#19H]KOP	12698.00	433.49	529.79	525497.60	740268.39
[Battle34WD#19H]LTP/BHL	13294.60	-4693.90	576.05	520370.21	740314.65



ProDirectional



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

Magnetic Field
 Strength: 48128.7nT
 Dip Angle: 60.28°
 Date: 10/23/2018
 Model: HDGM

Azimuth Corrections

Total Magnetic Corr. (M to G): 6.30°

Declination (M to T): 6.72° East

Target Line: 13270' TVD @ 0° VS: 89.7° INC

