



Marathon Oil
Lea County, NM
Flowmaster 15 (11-12-16-17)
WD Fee #12H
Prelim Plan A

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

RKB Elevation: well @ 3545.50usft

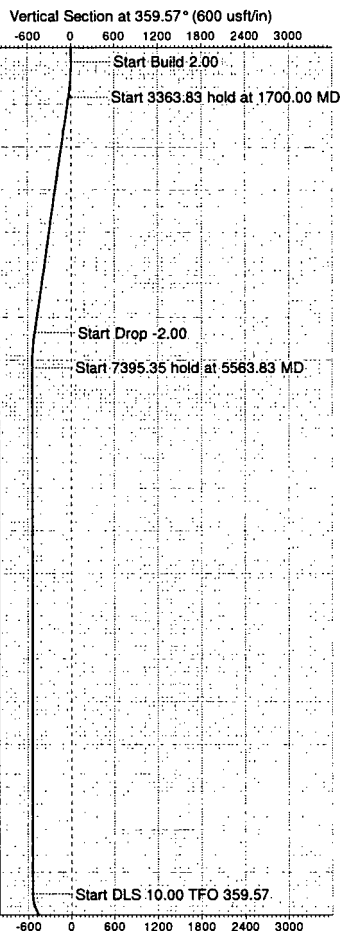
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
0.00	0.00	441863.19	770200.26	32.211780	-103.459705	

SECTION DETAILS

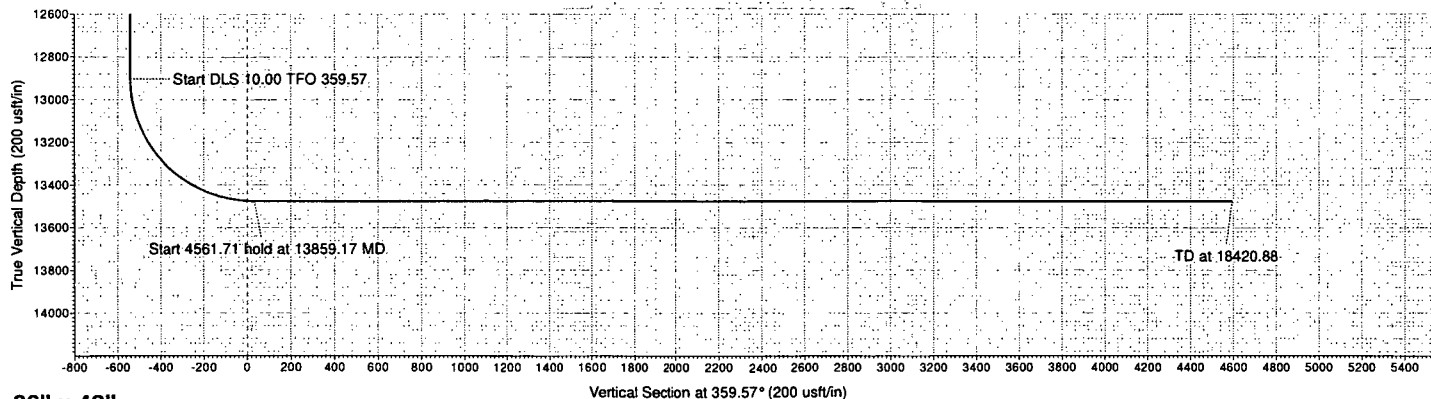
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00
3	1700.00	10.00	143.26	1697.47	-34.88	26.03	2.00	-35.07
4	5063.83	10.00	143.26	5010.19	-502.99	375.42	0.00	-505.79
5	5563.83	0.00	0.00	5507.65	-537.87	401.45	2.00	-540.87
6	12959.17	0.00	0.00	12903.00	-537.87	401.45	0.00	-540.87
7	13859.17	90.00	359.57	13475.96	35.07	397.15	10.00	32.08
8	18420.88	90.00	359.57	13476.00	4596.65	362.88	0.00	4593.80

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

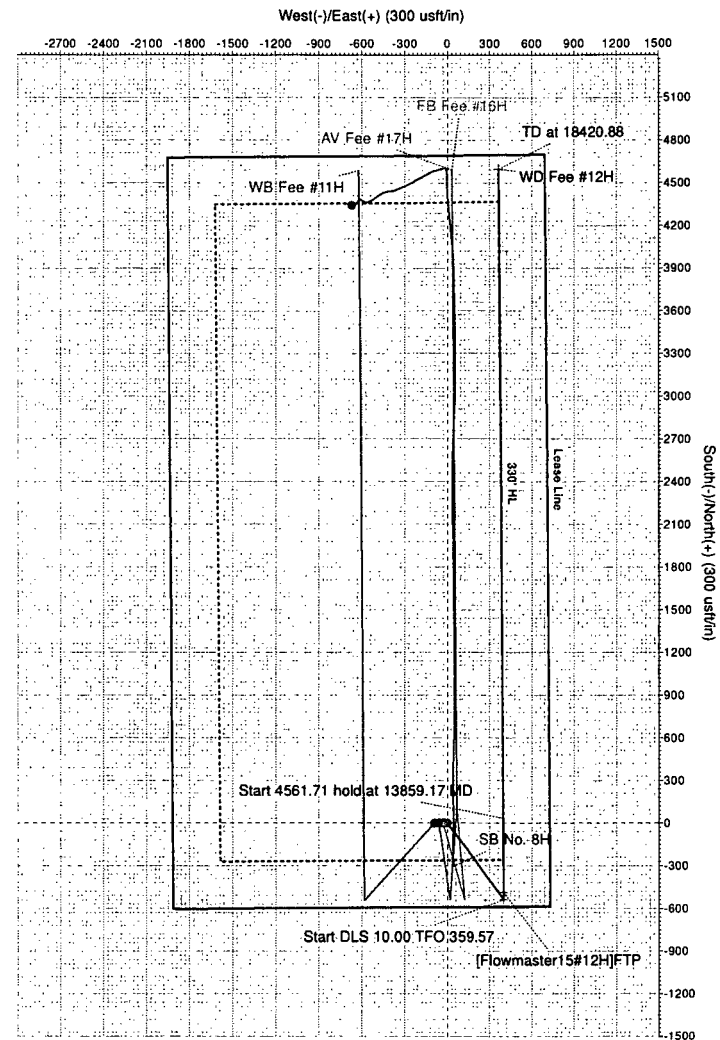
Name	TVD	+N/-S	+E/-W	Northing	Easting
[Flowmaster15#12H]FTP	0.00	-487.87	401.08	441375.32	770601.34
[Flowmaster15#12H]KOP	12903.00	-537.87	401.45	441325.32	770601.71
[Flowmaster15#12H]LTP/BHL	13476.00	4596.65	362.88	446459.84	770563.14



Target Line: 13476' TVD @ 0° VS, 90° INC



36" x 48"



Azimuths to Grid North
True North: -0.47°
Magnetic North: 6.22°

Magnetic Field
Strength: 47939.1nT
Dip Angle: 59.90°
Date: 12/17/2019
Model: HDGM

Azimuth Corrections

Total Magnetic Corr. (M to G): 6.22°

Declination (M to T): 6.68° East

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WD Fee #12H
Project:	Lea County, NM	TVD Reference:	well @ 3545.50usft
Site:	Flowmaster 15 (11-12-16-17)	MD Reference:	well @ 3545.50usft
Well:	WD Fee #12H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan A	Database:	WellPlanner1

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	Flowmaster 15 (11-12-16-17)			
Site Position:		Northing:	441,863.44 usft	Latitude: 32.211783
From: Map		Easting:	770,110.06 usft	Longitude: -103.459997
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.47 °

Well	WD Fee #12H			
Well Position	+N/-S	0.00 usft	Northing:	441,863.19 usft
	+E/-W	0.00 usft	Easting:	770,200.26 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	usft
			Ground Level:	3,519.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/17/2018	6.68	59.90	47,939.10

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	359.57

Survey Tool Program	Date 12/17/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	1,850.00	Prelim Plan A (OH)	MWD+IFR1	OWSG MWD + IFR1
1,850.00	5,400.00	Prelim Plan A (OH)	MWD+IFR1	OWSG MWD + IFR1
5,400.00	10,000.00	Prelim Plan A (OH)	MWD+IFR1	OWSG MWD + IFR1
10,000.00	18,420.88	Prelim Plan A (OH)	MWD+IFR1	OWSG MWD + IFR1

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
[Flowmaster15#12H]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 #12H
Project:	Lea County, NM	TVD Reference:	well @ 3545.50usft
Site:	Flowmaster 15 (11-12-16-17)	MD Reference:	well @ 3545.50usft
Well:	WD Fee #12H	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	143.26	1,299.98	-1.40	1.04	-1.41	2.00	2.00	0.00
1,400.00	4.00	143.26	1,399.84	-5.59	4.17	-5.62	2.00	2.00	0.00
1,500.00	6.00	143.26	1,499.45	-12.58	9.39	-12.65	2.00	2.00	0.00
1,600.00	8.00	143.26	1,598.70	-22.34	16.68	-22.47	2.00	2.00	0.00
1,700.00	10.00	143.26	1,697.47	-34.88	26.03	-35.07	2.00	2.00	0.00
1,800.00	10.00	143.26	1,795.95	-48.79	36.42	-49.07	0.00	0.00	0.00
1,900.00	10.00	143.26	1,894.43	-62.71	46.81	-63.06	0.00	0.00	0.00
2,000.00	10.00	143.26	1,992.91	-76.63	57.19	-77.05	0.00	0.00	0.00
2,100.00	10.00	143.26	2,091.39	-90.54	67.58	-91.05	0.00	0.00	0.00
2,200.00	10.00	143.26	2,189.87	-104.46	77.97	-105.04	0.00	0.00	0.00
2,300.00	10.00	143.26	2,288.35	-118.38	88.35	-119.03	0.00	0.00	0.00
2,400.00	10.00	143.26	2,386.83	-132.29	98.74	-133.03	0.00	0.00	0.00
2,500.00	10.00	143.26	2,485.31	-146.21	109.12	-147.02	0.00	0.00	0.00
2,600.00	10.00	143.26	2,583.79	-160.12	119.51	-161.02	0.00	0.00	0.00
2,700.00	10.00	143.26	2,682.27	-174.04	129.90	-175.01	0.00	0.00	0.00
2,800.00	10.00	143.26	2,780.75	-187.96	140.28	-189.00	0.00	0.00	0.00
2,900.00	10.00	143.26	2,879.23	-201.87	150.67	-203.00	0.00	0.00	0.00
3,000.00	10.00	143.26	2,977.72	-215.79	161.06	-216.99	0.00	0.00	0.00
3,100.00	10.00	143.26	3,076.20	-229.70	171.44	-230.98	0.00	0.00	0.00
3,200.00	10.00	143.26	3,174.68	-243.62	181.83	-244.98	0.00	0.00	0.00
3,300.00	10.00	143.26	3,273.16	-257.54	192.22	-258.97	0.00	0.00	0.00
3,400.00	10.00	143.26	3,371.64	-271.45	202.60	-272.96	0.00	0.00	0.00
3,500.00	10.00	143.26	3,470.12	-285.37	212.99	-286.96	0.00	0.00	0.00
3,600.00	10.00	143.26	3,568.60	-299.28	223.38	-300.95	0.00	0.00	0.00
3,700.00	10.00	143.26	3,667.08	-313.20	233.76	-314.95	0.00	0.00	0.00
3,800.00	10.00	143.26	3,765.56	-327.12	244.15	-328.94	0.00	0.00	0.00
3,900.00	10.00	143.26	3,864.04	-341.03	254.54	-342.93	0.00	0.00	0.00
4,000.00	10.00	143.26	3,962.52	-354.95	264.92	-356.93	0.00	0.00	0.00
4,100.00	10.00	143.26	4,061.00	-368.86	275.31	-370.92	0.00	0.00	0.00
4,200.00	10.00	143.26	4,159.48	-382.78	285.70	-384.91	0.00	0.00	0.00
4,300.00	10.00	143.26	4,257.97	-396.70	296.08	-398.91	0.00	0.00	0.00
4,400.00	10.00	143.26	4,356.45	-410.61	306.47	-412.90	0.00	0.00	0.00
4,500.00	10.00	143.26	4,454.93	-424.53	316.86	-426.89	0.00	0.00	0.00
4,600.00	10.00	143.26	4,553.41	-438.44	327.24	-440.89	0.00	0.00	0.00
4,700.00	10.00	143.26	4,651.89	-452.36	337.63	-454.88	0.00	0.00	0.00
4,800.00	10.00	143.26	4,750.37	-466.28	348.01	-468.88	0.00	0.00	0.00
4,900.00	10.00	143.26	4,848.85	-480.19	358.40	-482.87	0.00	0.00	0.00

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Well:	WD Fee #12H	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)
5,000.00	10.00	143.26	4,947.33	-494.11	368.79	-496.86	0.00	0.00	0.00
5,063.83	10.00	143.26	5,010.19	-502.99	375.42	-505.79	0.00	0.00	0.00
5,100.00	9.28	143.26	5,045.85	-507.84	379.04	-510.67	2.00	-2.00	0.00
5,200.00	7.28	143.26	5,144.80	-519.38	387.65	-522.27	2.00	-2.00	0.00
5,300.00	5.28	143.26	5,244.20	-528.14	394.19	-531.08	2.00	-2.00	0.00
5,400.00	3.28	143.26	5,343.92	-534.12	398.65	-537.09	2.00	-2.00	0.00
5,500.00	1.28	143.26	5,443.83	-537.30	401.02	-540.29	2.00	-2.00	0.00
5,563.83	0.00	0.00	5,507.66	-537.87	401.45	-540.87	2.00	-2.00	0.00
5,600.00	0.00	0.00	5,543.83	-537.87	401.45	-540.87	0.00	0.00	0.00
5,700.00	0.00	0.00	5,643.83	-537.87	401.45	-540.87	0.00	0.00	0.00
5,800.00	0.00	0.00	5,743.83	-537.87	401.45	-540.87	0.00	0.00	0.00
5,900.00	0.00	0.00	5,843.83	-537.87	401.45	-540.87	0.00	0.00	0.00
6,000.00	0.00	0.00	5,943.83	-537.87	401.45	-540.87	0.00	0.00	0.00
6,100.00	0.00	0.00	6,043.83	-537.87	401.45	-540.87	0.00	0.00	0.00
6,200.00	0.00	0.00	6,143.83	-537.87	401.45	-540.87	0.00	0.00	0.00
6,300.00	0.00	0.00	6,243.83	-537.87	401.45	-540.87	0.00	0.00	0.00
6,400.00	0.00	0.00	6,343.83	-537.87	401.45	-540.87	0.00	0.00	0.00
6,500.00	0.00	0.00	6,443.83	-537.87	401.45	-540.87	0.00	0.00	0.00
6,600.00	0.00	0.00	6,543.83	-537.87	401.45	-540.87	0.00	0.00	0.00
6,700.00	0.00	0.00	6,643.83	-537.87	401.45	-540.87	0.00	0.00	0.00
6,800.00	0.00	0.00	6,743.83	-537.87	401.45	-540.87	0.00	0.00	0.00
6,900.00	0.00	0.00	6,843.83	-537.87	401.45	-540.87	0.00	0.00	0.00
7,000.00	0.00	0.00	6,943.83	-537.87	401.45	-540.87	0.00	0.00	0.00
7,100.00	0.00	0.00	7,043.83	-537.87	401.45	-540.87	0.00	0.00	0.00
7,200.00	0.00	0.00	7,143.83	-537.87	401.45	-540.87	0.00	0.00	0.00
7,300.00	0.00	0.00	7,243.83	-537.87	401.45	-540.87	0.00	0.00	0.00
7,400.00	0.00	0.00	7,343.83	-537.87	401.45	-540.87	0.00	0.00	0.00
7,500.00	0.00	0.00	7,443.83	-537.87	401.45	-540.87	0.00	0.00	0.00
7,600.00	0.00	0.00	7,543.83	-537.87	401.45	-540.87	0.00	0.00	0.00
7,700.00	0.00	0.00	7,643.83	-537.87	401.45	-540.87	0.00	0.00	0.00
7,800.00	0.00	0.00	7,743.83	-537.87	401.45	-540.87	0.00	0.00	0.00
7,900.00	0.00	0.00	7,843.83	-537.87	401.45	-540.87	0.00	0.00	0.00
8,000.00	0.00	0.00	7,943.83	-537.87	401.45	-540.87	0.00	0.00	0.00
8,100.00	0.00	0.00	8,043.83	-537.87	401.45	-540.87	0.00	0.00	0.00
8,200.00	0.00	0.00	8,143.83	-537.87	401.45	-540.87	0.00	0.00	0.00
8,300.00	0.00	0.00	8,243.83	-537.87	401.45	-540.87	0.00	0.00	0.00
8,400.00	0.00	0.00	8,343.83	-537.87	401.45	-540.87	0.00	0.00	0.00
8,500.00	0.00	0.00	8,443.83	-537.87	401.45	-540.87	0.00	0.00	0.00
8,600.00	0.00	0.00	8,543.83	-537.87	401.45	-540.87	0.00	0.00	0.00
8,700.00	0.00	0.00	8,643.83	-537.87	401.45	-540.87	0.00	0.00	0.00
8,800.00	0.00	0.00	8,743.83	-537.87	401.45	-540.87	0.00	0.00	0.00
8,900.00	0.00	0.00	8,843.83	-537.87	401.45	-540.87	0.00	0.00	0.00
9,000.00	0.00	0.00	8,943.83	-537.87	401.45	-540.87	0.00	0.00	0.00
9,100.00	0.00	0.00	9,043.83	-537.87	401.45	-540.87	0.00	0.00	0.00

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Project:	Lea County, NM	TVD Reference:	well @ 3545.50usft
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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	9,143.83	-537.87	401.45	-540.87	0.00	0.00	0.00
9,300.00	0.00	0.00	9,243.83	-537.87	401.45	-540.87	0.00	0.00	0.00
9,400.00	0.00	0.00	9,343.83	-537.87	401.45	-540.87	0.00	0.00	0.00
9,500.00	0.00	0.00	9,443.83	-537.87	401.45	-540.87	0.00	0.00	0.00
9,600.00	0.00	0.00	9,543.83	-537.87	401.45	-540.87	0.00	0.00	0.00
9,700.00	0.00	0.00	9,643.83	-537.87	401.45	-540.87	0.00	0.00	0.00
9,800.00	0.00	0.00	9,743.83	-537.87	401.45	-540.87	0.00	0.00	0.00
9,900.00	0.00	0.00	9,843.83	-537.87	401.45	-540.87	0.00	0.00	0.00
10,000.00	0.00	0.00	9,943.83	-537.87	401.45	-540.87	0.00	0.00	0.00
10,100.00	0.00	0.00	10,043.83	-537.87	401.45	-540.87	0.00	0.00	0.00
10,200.00	0.00	0.00	10,143.83	-537.87	401.45	-540.87	0.00	0.00	0.00
10,300.00	0.00	0.00	10,243.83	-537.87	401.45	-540.87	0.00	0.00	0.00
10,400.00	0.00	0.00	10,343.83	-537.87	401.45	-540.87	0.00	0.00	0.00
10,500.00	0.00	0.00	10,443.83	-537.87	401.45	-540.87	0.00	0.00	0.00
10,600.00	0.00	0.00	10,543.83	-537.87	401.45	-540.87	0.00	0.00	0.00
10,700.00	0.00	0.00	10,643.83	-537.87	401.45	-540.87	0.00	0.00	0.00
10,800.00	0.00	0.00	10,743.83	-537.87	401.45	-540.87	0.00	0.00	0.00
10,900.00	0.00	0.00	10,843.83	-537.87	401.45	-540.87	0.00	0.00	0.00
11,000.00	0.00	0.00	10,943.83	-537.87	401.45	-540.87	0.00	0.00	0.00
11,100.00	0.00	0.00	11,043.83	-537.87	401.45	-540.87	0.00	0.00	0.00
11,200.00	0.00	0.00	11,143.83	-537.87	401.45	-540.87	0.00	0.00	0.00
11,300.00	0.00	0.00	11,243.83	-537.87	401.45	-540.87	0.00	0.00	0.00
11,400.00	0.00	0.00	11,343.83	-537.87	401.45	-540.87	0.00	0.00	0.00
11,500.00	0.00	0.00	11,443.83	-537.87	401.45	-540.87	0.00	0.00	0.00
11,600.00	0.00	0.00	11,543.83	-537.87	401.45	-540.87	0.00	0.00	0.00
11,700.00	0.00	0.00	11,643.83	-537.87	401.45	-540.87	0.00	0.00	0.00
11,800.00	0.00	0.00	11,743.83	-537.87	401.45	-540.87	0.00	0.00	0.00
11,900.00	0.00	0.00	11,843.83	-537.87	401.45	-540.87	0.00	0.00	0.00
12,000.00	0.00	0.00	11,943.83	-537.87	401.45	-540.87	0.00	0.00	0.00
12,100.00	0.00	0.00	12,043.83	-537.87	401.45	-540.87	0.00	0.00	0.00
12,200.00	0.00	0.00	12,143.83	-537.87	401.45	-540.87	0.00	0.00	0.00
12,300.00	0.00	0.00	12,243.83	-537.87	401.45	-540.87	0.00	0.00	0.00
12,400.00	0.00	0.00	12,343.83	-537.87	401.45	-540.87	0.00	0.00	0.00
12,500.00	0.00	0.00	12,443.83	-537.87	401.45	-540.87	0.00	0.00	0.00
12,600.00	0.00	0.00	12,543.83	-537.87	401.45	-540.87	0.00	0.00	0.00
12,700.00	0.00	0.00	12,643.83	-537.87	401.45	-540.87	0.00	0.00	0.00
12,800.00	0.00	0.00	12,743.83	-537.87	401.45	-540.87	0.00	0.00	0.00
12,900.00	0.00	0.00	12,843.83	-537.87	401.45	-540.87	0.00	0.00	0.00
12,959.17	0.00	0.00	12,903.00	-537.87	401.45	-540.87	0.00	0.00	0.00
[Flowmaster15#12H]KOP									
13,000.00	4.08	359.57	12,943.79	-536.42	401.44	-539.41	10.00	10.00	0.00
13,050.00	9.08	359.57	12,993.45	-530.69	401.40	-533.68	10.00	10.00	0.00
13,100.00	14.08	359.57	13,042.41	-520.65	401.32	-523.65	10.00	10.00	0.00

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WD Fee #12H
Project:	Lea County, NM	TVD Reference:	well @ 3545.50usft
Site:	Flowmaster 15 (11-12-16-17)	MD Reference:	well @ 3545.50usft
Well:	WD Fee #12H	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)
13,150.00	19.08	359.57	13,090.32	-506.39	401.21	-509.38	10.00	10.00	0.00
13,200.00	24.08	359.57	13,136.80	-488.00	401.08	-491.00	10.00	10.00	0.00
13,250.00	29.08	359.57	13,181.50	-465.63	400.91	-468.63	10.00	10.00	0.00
13,300.00	34.08	359.57	13,224.08	-439.46	400.71	-442.45	10.00	10.00	0.00
13,350.00	39.08	359.57	13,264.22	-409.67	400.49	-412.66	10.00	10.00	0.00
13,400.00	44.08	359.57	13,301.60	-376.49	400.24	-379.49	10.00	10.00	0.00
13,450.00	49.08	359.57	13,335.96	-340.19	399.97	-343.18	10.00	10.00	0.00
13,500.00	54.08	359.57	13,367.02	-301.03	399.67	-304.02	10.00	10.00	0.00
13,550.00	59.08	359.57	13,394.55	-259.31	399.36	-262.30	10.00	10.00	0.00
13,600.00	64.08	359.57	13,418.33	-215.35	399.03	-218.33	10.00	10.00	0.00
13,650.00	69.08	359.57	13,438.20	-169.48	398.68	-172.47	10.00	10.00	0.00
13,700.00	74.08	359.57	13,453.99	-122.06	398.33	-125.04	10.00	10.00	0.00
13,750.00	79.08	359.57	13,465.59	-73.44	397.96	-76.42	10.00	10.00	0.00
13,800.00	84.08	359.57	13,472.91	-23.99	397.59	-26.98	10.00	10.00	0.00
13,850.00	89.08	359.57	13,475.88	25.90	397.22	22.92	10.00	10.00	0.00
13,859.17	90.00	359.57	13,475.96	35.07	397.15	32.08	10.00	10.00	0.00
13,900.00	90.00	359.57	13,475.96	75.90	396.84	72.92	0.00	0.00	0.00
14,000.00	90.00	359.57	13,475.96	175.89	396.09	172.92	0.00	0.00	0.00
14,100.00	90.00	359.57	13,475.96	275.89	395.34	272.92	0.00	0.00	0.00
14,200.00	90.00	359.57	13,475.96	375.89	394.59	372.92	0.00	0.00	0.00
14,300.00	90.00	359.57	13,475.96	475.89	393.83	472.92	0.00	0.00	0.00
14,400.00	90.00	359.57	13,475.96	575.88	393.08	572.92	0.00	0.00	0.00
14,500.00	90.00	359.57	13,475.96	675.88	392.33	672.92	0.00	0.00	0.00
14,600.00	90.00	359.57	13,475.96	775.88	391.58	772.92	0.00	0.00	0.00
14,700.00	90.00	359.57	13,475.97	875.87	390.83	872.92	0.00	0.00	0.00
14,800.00	90.00	359.57	13,475.97	975.87	390.08	972.92	0.00	0.00	0.00
14,900.00	90.00	359.57	13,475.97	1,075.87	389.33	1,072.92	0.00	0.00	0.00
15,000.00	90.00	359.57	13,475.97	1,175.87	388.58	1,172.92	0.00	0.00	0.00
15,100.00	90.00	359.57	13,475.97	1,275.86	387.83	1,272.92	0.00	0.00	0.00
15,200.00	90.00	359.57	13,475.97	1,375.86	387.07	1,372.92	0.00	0.00	0.00
15,300.00	90.00	359.57	13,475.97	1,475.86	386.32	1,472.92	0.00	0.00	0.00
15,400.00	90.00	359.57	13,475.97	1,575.85	385.57	1,572.92	0.00	0.00	0.00
15,500.00	90.00	359.57	13,475.97	1,675.85	384.82	1,672.92	0.00	0.00	0.00
15,600.00	90.00	359.57	13,475.97	1,775.85	384.07	1,772.92	0.00	0.00	0.00
15,700.00	90.00	359.57	13,475.98	1,875.85	383.32	1,872.92	0.00	0.00	0.00
15,800.00	90.00	359.57	13,475.98	1,975.84	382.57	1,972.92	0.00	0.00	0.00
15,900.00	90.00	359.57	13,475.98	2,075.84	381.82	2,072.92	0.00	0.00	0.00
16,000.00	90.00	359.57	13,475.98	2,175.84	381.06	2,172.92	0.00	0.00	0.00
16,100.00	90.00	359.57	13,475.98	2,275.84	380.31	2,272.92	0.00	0.00	0.00
16,200.00	90.00	359.57	13,475.98	2,375.83	379.56	2,372.92	0.00	0.00	0.00
16,300.00	90.00	359.57	13,475.98	2,475.83	378.81	2,472.92	0.00	0.00	0.00
16,400.00	90.00	359.57	13,475.98	2,575.83	378.06	2,572.92	0.00	0.00	0.00
16,500.00	90.00	359.57	13,475.98	2,675.82	377.31	2,672.92	0.00	0.00	0.00
16,600.00	90.00	359.57	13,475.98	2,775.82	376.56	2,772.92	0.00	0.00	0.00

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WD Fee #12H
Project:	Lea County, NM	TVD Reference:	well @ 3545.50usft
Site:	Flowmaster 15 (11-12-16-17)	MD Reference:	well @ 3545.50usft
Well:	WD Fee #12H	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)
16,700.00	90.00	359.57	13,475.98	2,875.82	375.81	2,872.92	0.00	0.00	0.00
16,800.00	90.00	359.57	13,475.99	2,975.82	375.06	2,972.92	0.00	0.00	0.00
16,900.00	90.00	359.57	13,475.99	3,075.81	374.30	3,072.92	0.00	0.00	0.00
17,000.00	90.00	359.57	13,475.99	3,175.81	373.55	3,172.92	0.00	0.00	0.00
17,100.00	90.00	359.57	13,475.99	3,275.81	372.80	3,272.92	0.00	0.00	0.00
17,200.00	90.00	359.57	13,475.99	3,375.80	372.05	3,372.92	0.00	0.00	0.00
17,300.00	90.00	359.57	13,475.99	3,475.80	371.30	3,472.92	0.00	0.00	0.00
17,400.00	90.00	359.57	13,475.99	3,575.80	370.55	3,572.92	0.00	0.00	0.00
17,500.00	90.00	359.57	13,475.99	3,675.80	369.80	3,672.92	0.00	0.00	0.00
17,600.00	90.00	359.57	13,475.99	3,775.79	369.05	3,772.92	0.00	0.00	0.00
17,700.00	90.00	359.57	13,475.99	3,875.79	368.30	3,872.92	0.00	0.00	0.00
17,800.00	90.00	359.57	13,475.99	3,975.79	367.54	3,972.92	0.00	0.00	0.00
17,900.00	90.00	359.57	13,476.00	4,075.78	366.79	4,072.92	0.00	0.00	0.00
18,000.00	90.00	359.57	13,476.00	4,175.78	366.04	4,172.92	0.00	0.00	0.00
18,100.00	90.00	359.57	13,476.00	4,275.78	365.29	4,272.92	0.00	0.00	0.00
18,200.00	90.00	359.57	13,476.00	4,375.78	364.54	4,372.92	0.00	0.00	0.00
18,300.00	90.00	359.57	13,476.00	4,475.77	363.79	4,472.92	0.00	0.00	0.00
18,400.00	90.00	359.57	13,476.00	4,575.77	363.04	4,572.92	0.00	0.00	0.00
18,420.88	90.00	359.57	13,476.00	4,596.65	362.88	4,593.80	0.00	0.00	0.00
[Flowmaster15#12H]LTP/BHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
[Flowmaster15#12H]FTF	0.00	0.00	0.00	-487.87	401.08	441,375.32	770,601.34	32.210430	-103.458422
- plan misses target center by 631.57usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
[Flowmaster15#12H]KOI	0.00	0.00	12,903.00	-537.87	401.45	441,325.32	770,601.71	32.210293	-103.458422
- plan hits target center									
- Point									
[Flowmaster15#12H]LTF	0.00	0.00	13,476.00	4,596.65	362.88	446,459.84	770,563.14	32.224407	-103.458411
- plan hits target center									
- Point									

Checked By: _____ Approved By: _____ Date: _____