



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

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

RKB Elevation: well @ 3541.00usft

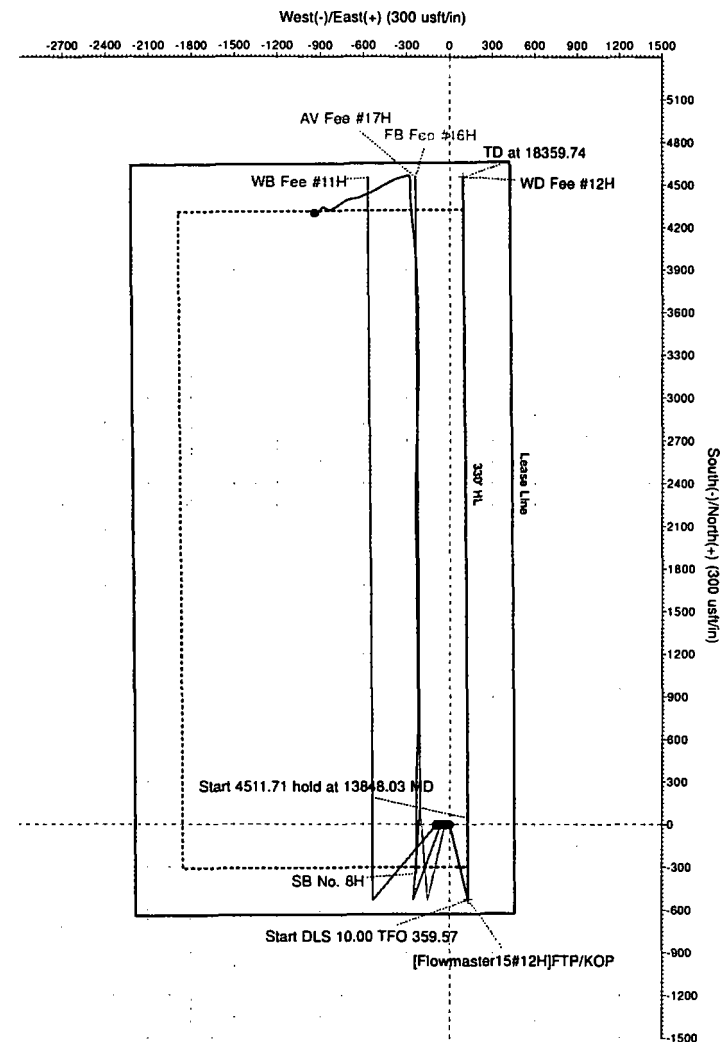
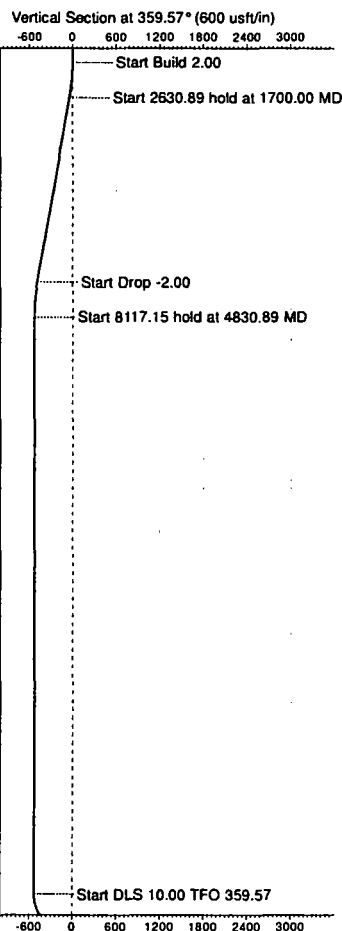
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	441903.19	770470.29	32.211884	-103.458831	

SECTION DETAILS

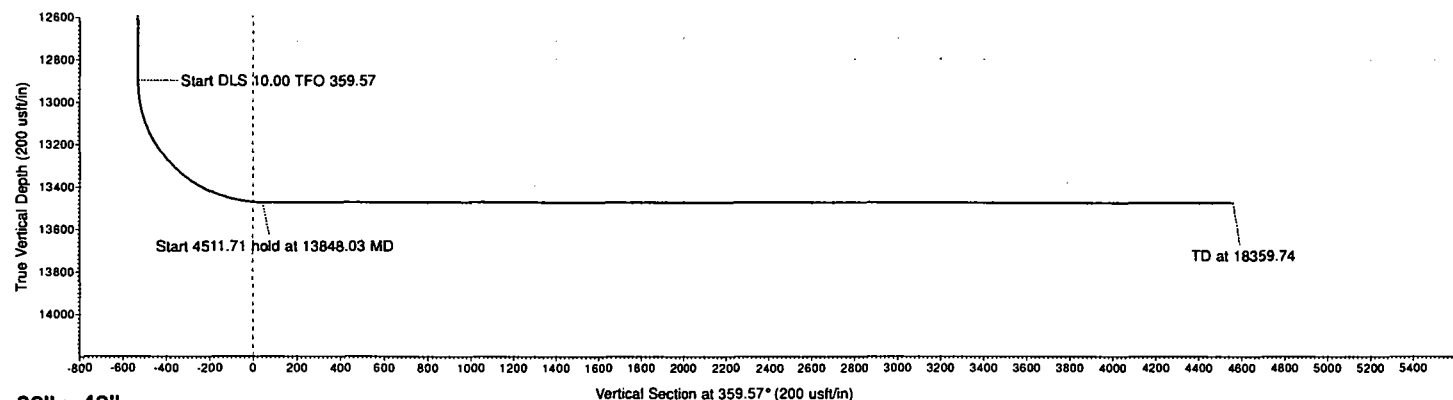
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00
3	1700.00	10.00	166.06	1697.47	-42.24	10.49	2.00	-42.32
4	4330.89	10.00	166.06	4288.36	-485.63	120.56	0.00	-486.52
5	4830.89	0.00	0.00	4785.85	-527.87	131.05	2.00	-528.84
6	12948.04	0.00	0.00	12903.00	-527.87	131.05	0.00	-528.84
7	13848.03	90.00	359.57	13475.96	45.07	126.75	10.00	44.11
8	18359.74	90.00	359.57	13476.00	4556.65	92.85	0.00	4555.82

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
[Flowmaster15#12H]FTP/KOP	12903.00	-527.87	131.05	441375.32	770601.34
[Flowmaster15#12H]LTP/BHL	13476.00	4556.65	92.85	446459.84	770563.14



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



Azimuths to Grid North
True North: -0.41°
Magnetic North: 6.22°
Magnetic Field
Strength: 47846 Sat T
Dip Angle: 59.88°
Date: 12/17/2018
Model: HDGM

Azimuth Corrections
Total Magnetic Corr. (M to G): 6.22°
Declination (M to T): 6.68° East



Pro Directional Survey Report



Company: Marathon Oil
Project: Lea County, NM
Site: Flowmaster 15 (11-12-16-17)
Well: WD Fee #12H
Wellbore: OH
Design: Prelim Plan B

Local Co-ordinate Reference: Well WD Fee #12H
TVD Reference: well @ 3541.00usft
MD Reference: well @ 3541.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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:	Slot Radius:	13-3/16 "	Grid Convergence: 0.47 °

Well	WD Fee #12H		
Well Position	+N/-S	0.00 usft	Northing: 441,903.19 usft
	+E/-W	0.00 usft	Easting: 770,470.29 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
			Ground Level: 3,515.00 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM	12/17/2018	6.68
			Dip Angle (°)
			59.88
			Field Strength (nT)
			47,946.80

Design	Prelim Plan B		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°)
			359.57

Survey Tool Program	Date 5/9/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
0.00	1,850.00	Prelim Plan B (OH)	MWD+HDGM
1,850.00	5,400.00	Prelim Plan B (OH)	MWD+HDGM
5,400.00	10,000.00	Prelim Plan B (OH)	MWD+HDGM
10,000.00	18,359.74	Prelim Plan B (OH)	MWD+HDGM
			Description
			OWSG MWD + HRGM
			OWSG MWD + HRGM
			OWSG MWD + HRGM
			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)	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	
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	

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WD Fee #12H
Project:	Lea County, NM	TVD Reference:	well @ 3541.00usft
Site:	Flowmaster 15 (11-12-16-17)	MD Reference:	well @ 3541.00usft
Well:	WD Fee #12H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan B	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)
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	166.06	1,299.98	-1.69	0.42	-1.70	2.00	2.00	0.00
1,400.00	4.00	166.06	1,399.84	-6.77	1.68	-6.79	2.00	2.00	0.00
1,500.00	6.00	166.06	1,499.45	-15.23	3.78	-15.26	2.00	2.00	0.00
1,600.00	8.00	166.06	1,598.70	-27.06	6.72	-27.11	2.00	2.00	0.00
1,700.00	10.00	166.06	1,697.47	-42.24	10.49	-42.32	2.00	2.00	0.00
1,800.00	10.00	166.06	1,795.95	-59.09	14.67	-59.20	0.00	0.00	0.00
1,900.00	10.00	166.06	1,894.43	-75.95	18.85	-76.09	0.00	0.00	0.00
2,000.00	10.00	166.06	1,992.91	-92.80	23.04	-92.97	0.00	0.00	0.00
2,100.00	10.00	166.06	2,091.39	-109.65	27.22	-109.85	0.00	0.00	0.00
2,200.00	10.00	166.06	2,189.87	-126.51	31.41	-126.74	0.00	0.00	0.00
2,300.00	10.00	166.06	2,288.35	-143.36	35.59	-143.62	0.00	0.00	0.00
2,400.00	10.00	166.06	2,386.83	-160.21	39.77	-160.51	0.00	0.00	0.00
2,500.00	10.00	166.06	2,485.31	-177.07	43.96	-177.39	0.00	0.00	0.00
2,600.00	10.00	166.06	2,583.79	-193.92	48.14	-194.28	0.00	0.00	0.00
2,700.00	10.00	166.06	2,682.27	-210.77	52.33	-211.16	0.00	0.00	0.00
2,800.00	10.00	166.06	2,780.75	-227.63	56.51	-228.04	0.00	0.00	0.00
2,900.00	10.00	166.06	2,879.23	-244.48	60.69	-244.93	0.00	0.00	0.00
3,000.00	10.00	166.06	2,977.72	-261.33	64.88	-261.81	0.00	0.00	0.00
3,100.00	10.00	166.06	3,076.20	-278.19	69.06	-278.70	0.00	0.00	0.00
3,200.00	10.00	166.06	3,174.68	-295.04	73.25	-295.58	0.00	0.00	0.00
3,300.00	10.00	166.06	3,273.16	-311.89	77.43	-312.46	0.00	0.00	0.00
3,400.00	10.00	166.06	3,371.64	-328.75	81.61	-329.35	0.00	0.00	0.00
3,500.00	10.00	166.06	3,470.12	-345.60	85.80	-346.23	0.00	0.00	0.00
3,600.00	10.00	166.06	3,568.60	-362.45	89.98	-363.12	0.00	0.00	0.00
3,700.00	10.00	166.06	3,667.08	-379.30	94.17	-380.00	0.00	0.00	0.00
3,800.00	10.00	166.06	3,765.56	-396.16	98.35	-396.89	0.00	0.00	0.00
3,900.00	10.00	166.06	3,864.04	-413.01	102.53	-413.77	0.00	0.00	0.00
4,000.00	10.00	166.06	3,962.52	-429.86	106.72	-430.65	0.00	0.00	0.00
4,100.00	10.00	166.06	4,061.00	-446.72	110.90	-447.54	0.00	0.00	0.00
4,200.00	10.00	166.06	4,159.48	-463.57	115.09	-464.42	0.00	0.00	0.00
4,300.00	10.00	166.06	4,257.97	-480.42	119.27	-481.31	0.00	0.00	0.00
4,330.89	10.00	166.06	4,288.38	-485.63	120.56	-486.52	0.00	0.00	0.00
4,400.00	8.62	166.06	4,356.58	-496.48	123.26	-497.39	2.00	-2.00	0.00
4,500.00	6.62	166.06	4,455.70	-509.34	126.45	-510.28	2.00	-2.00	0.00
4,600.00	4.62	166.06	4,555.21	-518.84	128.81	-519.80	2.00	-2.00	0.00
4,700.00	2.62	166.06	4,655.01	-524.97	130.33	-525.93	2.00	-2.00	0.00
4,800.00	0.62	166.06	4,754.96	-527.71	131.01	-528.68	2.00	-2.00	0.00
4,830.89	0.00	0.00	4,785.85	-527.87	131.05	-528.84	2.00	-2.00	0.00



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4,900.00	0.00	0.00	4,854.96	-527.87	131.05	-528.84	0.00	0.00	0.00
5,000.00	0.00	0.00	4,954.96	-527.87	131.05	-528.84	0.00	0.00	0.00
5,100.00	0.00	0.00	5,054.96	-527.87	131.05	-528.84	0.00	0.00	0.00
5,200.00	0.00	0.00	5,154.96	-527.87	131.05	-528.84	0.00	0.00	0.00
5,300.00	0.00	0.00	5,254.96	-527.87	131.05	-528.84	0.00	0.00	0.00
5,400.00	0.00	0.00	5,354.96	-527.87	131.05	-528.84	0.00	0.00	0.00
5,500.00	0.00	0.00	5,454.96	-527.87	131.05	-528.84	0.00	0.00	0.00
5,600.00	0.00	0.00	5,554.96	-527.87	131.05	-528.84	0.00	0.00	0.00
5,700.00	0.00	0.00	5,654.96	-527.87	131.05	-528.84	0.00	0.00	0.00
5,800.00	0.00	0.00	5,754.96	-527.87	131.05	-528.84	0.00	0.00	0.00
5,900.00	0.00	0.00	5,854.96	-527.87	131.05	-528.84	0.00	0.00	0.00
6,000.00	0.00	0.00	5,954.96	-527.87	131.05	-528.84	0.00	0.00	0.00
6,100.00	0.00	0.00	6,054.96	-527.87	131.05	-528.84	0.00	0.00	0.00
6,200.00	0.00	0.00	6,154.96	-527.87	131.05	-528.84	0.00	0.00	0.00
6,300.00	0.00	0.00	6,254.96	-527.87	131.05	-528.84	0.00	0.00	0.00
6,400.00	0.00	0.00	6,354.96	-527.87	131.05	-528.84	0.00	0.00	0.00
6,500.00	0.00	0.00	6,454.96	-527.87	131.05	-528.84	0.00	0.00	0.00
6,600.00	0.00	0.00	6,554.96	-527.87	131.05	-528.84	0.00	0.00	0.00
6,700.00	0.00	0.00	6,654.96	-527.87	131.05	-528.84	0.00	0.00	0.00
6,800.00	0.00	0.00	6,754.96	-527.87	131.05	-528.84	0.00	0.00	0.00
6,900.00	0.00	0.00	6,854.96	-527.87	131.05	-528.84	0.00	0.00	0.00
7,000.00	0.00	0.00	6,954.96	-527.87	131.05	-528.84	0.00	0.00	0.00
7,100.00	0.00	0.00	7,054.96	-527.87	131.05	-528.84	0.00	0.00	0.00
7,200.00	0.00	0.00	7,154.96	-527.87	131.05	-528.84	0.00	0.00	0.00
7,300.00	0.00	0.00	7,254.96	-527.87	131.05	-528.84	0.00	0.00	0.00
7,400.00	0.00	0.00	7,354.96	-527.87	131.05	-528.84	0.00	0.00	0.00
7,500.00	0.00	0.00	7,454.96	-527.87	131.05	-528.84	0.00	0.00	0.00
7,600.00	0.00	0.00	7,554.96	-527.87	131.05	-528.84	0.00	0.00	0.00
7,700.00	0.00	0.00	7,654.96	-527.87	131.05	-528.84	0.00	0.00	0.00
7,800.00	0.00	0.00	7,754.96	-527.87	131.05	-528.84	0.00	0.00	0.00
7,900.00	0.00	0.00	7,854.96	-527.87	131.05	-528.84	0.00	0.00	0.00
8,000.00	0.00	0.00	7,954.96	-527.87	131.05	-528.84	0.00	0.00	0.00
8,100.00	0.00	0.00	8,054.96	-527.87	131.05	-528.84	0.00	0.00	0.00
8,200.00	0.00	0.00	8,154.96	-527.87	131.05	-528.84	0.00	0.00	0.00
8,300.00	0.00	0.00	8,254.96	-527.87	131.05	-528.84	0.00	0.00	0.00
8,400.00	0.00	0.00	8,354.96	-527.87	131.05	-528.84	0.00	0.00	0.00
8,500.00	0.00	0.00	8,454.96	-527.87	131.05	-528.84	0.00	0.00	0.00
8,600.00	0.00	0.00	8,554.96	-527.87	131.05	-528.84	0.00	0.00	0.00
8,700.00	0.00	0.00	8,654.96	-527.87	131.05	-528.84	0.00	0.00	0.00
8,800.00	0.00	0.00	8,754.96	-527.87	131.05	-528.84	0.00	0.00	0.00
8,900.00	0.00	0.00	8,854.96	-527.87	131.05	-528.84	0.00	0.00	0.00
9,000.00	0.00	0.00	8,954.96	-527.87	131.05	-528.84	0.00	0.00	0.00
9,100.00	0.00	0.00	9,054.96	-527.87	131.05	-528.84	0.00	0.00	0.00
9,200.00	0.00	0.00	9,154.96	-527.87	131.05	-528.84	0.00	0.00	0.00

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WD Fee #12H
Project:	Lea County, NM	TVD Reference:	well @ 3541.00usft
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9,300.00	0.00	0.00	9,254.96	-527.87	131.05	-528.84	0.00	0.00	0.00
9,400.00	0.00	0.00	9,354.96	-527.87	131.05	-528.84	0.00	0.00	0.00
9,500.00	0.00	0.00	9,454.96	-527.87	131.05	-528.84	0.00	0.00	0.00
9,600.00	0.00	0.00	9,554.96	-527.87	131.05	-528.84	0.00	0.00	0.00
9,700.00	0.00	0.00	9,654.96	-527.87	131.05	-528.84	0.00	0.00	0.00
9,800.00	0.00	0.00	9,754.96	-527.87	131.05	-528.84	0.00	0.00	0.00
9,900.00	0.00	0.00	9,854.96	-527.87	131.05	-528.84	0.00	0.00	0.00
10,000.00	0.00	0.00	9,954.96	-527.87	131.05	-528.84	0.00	0.00	0.00
10,100.00	0.00	0.00	10,054.96	-527.87	131.05	-528.84	0.00	0.00	0.00
10,200.00	0.00	0.00	10,154.96	-527.87	131.05	-528.84	0.00	0.00	0.00
10,300.00	0.00	0.00	10,254.96	-527.87	131.05	-528.84	0.00	0.00	0.00
10,400.00	0.00	0.00	10,354.96	-527.87	131.05	-528.84	0.00	0.00	0.00
10,500.00	0.00	0.00	10,454.96	-527.87	131.05	-528.84	0.00	0.00	0.00
10,600.00	0.00	0.00	10,554.96	-527.87	131.05	-528.84	0.00	0.00	0.00
10,700.00	0.00	0.00	10,654.96	-527.87	131.05	-528.84	0.00	0.00	0.00
10,800.00	0.00	0.00	10,754.96	-527.87	131.05	-528.84	0.00	0.00	0.00
10,900.00	0.00	0.00	10,854.96	-527.87	131.05	-528.84	0.00	0.00	0.00
11,000.00	0.00	0.00	10,954.96	-527.87	131.05	-528.84	0.00	0.00	0.00
11,100.00	0.00	0.00	11,054.96	-527.87	131.05	-528.84	0.00	0.00	0.00
11,200.00	0.00	0.00	11,154.96	-527.87	131.05	-528.84	0.00	0.00	0.00
11,300.00	0.00	0.00	11,254.96	-527.87	131.05	-528.84	0.00	0.00	0.00
11,400.00	0.00	0.00	11,354.96	-527.87	131.05	-528.84	0.00	0.00	0.00
11,500.00	0.00	0.00	11,454.96	-527.87	131.05	-528.84	0.00	0.00	0.00
11,600.00	0.00	0.00	11,554.96	-527.87	131.05	-528.84	0.00	0.00	0.00
11,700.00	0.00	0.00	11,654.96	-527.87	131.05	-528.84	0.00	0.00	0.00
11,800.00	0.00	0.00	11,754.96	-527.87	131.05	-528.84	0.00	0.00	0.00
11,900.00	0.00	0.00	11,854.96	-527.87	131.05	-528.84	0.00	0.00	0.00
12,000.00	0.00	0.00	11,954.96	-527.87	131.05	-528.84	0.00	0.00	0.00
12,100.00	0.00	0.00	12,054.96	-527.87	131.05	-528.84	0.00	0.00	0.00
12,200.00	0.00	0.00	12,154.96	-527.87	131.05	-528.84	0.00	0.00	0.00
12,300.00	0.00	0.00	12,254.96	-527.87	131.05	-528.84	0.00	0.00	0.00
12,400.00	0.00	0.00	12,354.96	-527.87	131.05	-528.84	0.00	0.00	0.00
12,500.00	0.00	0.00	12,454.96	-527.87	131.05	-528.84	0.00	0.00	0.00
12,600.00	0.00	0.00	12,554.96	-527.87	131.05	-528.84	0.00	0.00	0.00
12,700.00	0.00	0.00	12,654.96	-527.87	131.05	-528.84	0.00	0.00	0.00
12,800.00	0.00	0.00	12,754.96	-527.87	131.05	-528.84	0.00	0.00	0.00
12,900.00	0.00	0.00	12,854.96	-527.87	131.05	-528.84	0.00	0.00	0.00
12,948.04	0.00	0.00	12,903.00	-527.87	131.05	-528.84	0.00	0.00	0.00
[Flowmaster15#12H]FTP/KOP									
12,950.00	0.20	359.57	12,904.96	-527.87	131.05	-528.84	10.00	10.00	0.00
13,000.00	5.20	359.57	12,954.89	-525.52	131.03	-526.49	10.00	10.00	0.00
13,050.00	10.20	359.57	13,004.42	-518.82	130.98	-519.79	10.00	10.00	0.00
13,100.00	15.20	359.57	13,053.19	-507.84	130.90	-508.81	10.00	10.00	0.00

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WD Fee #12H
Project:	Lea County, NM	TVD Reference:	well @ 3541.00usft
Site:	Flowmaster 15 (11-12-16-17)	MD Reference:	well @ 3541.00usft
Well:	WD Fee #12H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan B	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	20.20	359.57	13,100.81	-492.64	130.79	-493.61	10.00	10.00	0.00
13,200.00	25.20	359.57	13,146.92	-473.36	130.64	-474.33	10.00	10.00	0.00
13,250.00	30.20	359.57	13,191.18	-450.13	130.47	-451.09	10.00	10.00	0.00
13,300.00	35.20	359.57	13,233.24	-423.13	130.26	-424.09	10.00	10.00	0.00
13,350.00	40.20	359.57	13,272.79	-392.56	130.03	-393.53	10.00	10.00	0.00
13,400.00	45.20	359.57	13,309.53	-358.67	129.78	-359.63	10.00	10.00	0.00
13,450.00	50.20	359.57	13,343.17	-321.70	129.50	-322.67	10.00	10.00	0.00
13,500.00	55.20	359.57	13,373.46	-281.95	129.20	-282.91	10.00	10.00	0.00
13,550.00	60.20	359.57	13,400.17	-239.70	128.88	-240.66	10.00	10.00	0.00
13,600.00	65.20	359.57	13,423.10	-195.28	128.55	-196.25	10.00	10.00	0.00
13,650.00	70.20	359.57	13,442.07	-149.04	128.20	-150.00	10.00	10.00	0.00
13,700.00	75.20	359.57	13,456.94	-101.32	127.85	-102.28	10.00	10.00	0.00
13,750.00	80.20	359.57	13,467.59	-52.49	127.48	-53.44	10.00	10.00	0.00
13,800.00	85.20	359.57	13,473.95	-2.91	127.11	-3.86	10.00	10.00	0.00
13,848.03	90.00	359.57	13,475.96	45.07	126.75	44.11	10.00	10.00	0.00
13,900.00	90.00	359.57	13,475.96	97.03	126.36	96.08	0.00	0.00	0.00
14,000.00	90.00	359.57	13,475.96	197.03	125.60	196.08	0.00	0.00	0.00
14,100.00	90.00	359.57	13,475.96	297.03	124.85	296.08	0.00	0.00	0.00
14,200.00	90.00	359.57	13,475.96	397.02	124.10	396.08	0.00	0.00	0.00
14,300.00	90.00	359.57	13,475.96	497.02	123.35	496.08	0.00	0.00	0.00
14,400.00	90.00	359.57	13,475.96	597.02	122.60	596.08	0.00	0.00	0.00
14,500.00	90.00	359.57	13,475.96	697.01	121.85	696.08	0.00	0.00	0.00
14,600.00	90.00	359.57	13,475.97	797.01	121.10	796.08	0.00	0.00	0.00
14,700.00	90.00	359.57	13,475.97	897.01	120.34	896.08	0.00	0.00	0.00
14,800.00	90.00	359.57	13,475.97	997.01	119.59	996.08	0.00	0.00	0.00
14,900.00	90.00	359.57	13,475.97	1,097.00	118.84	1,096.08	0.00	0.00	0.00
15,000.00	90.00	359.57	13,475.97	1,197.00	118.09	1,196.08	0.00	0.00	0.00
15,100.00	90.00	359.57	13,475.97	1,297.00	117.34	1,296.08	0.00	0.00	0.00
15,200.00	90.00	359.57	13,475.97	1,397.00	116.59	1,396.08	0.00	0.00	0.00
15,300.00	90.00	359.57	13,475.97	1,496.99	115.84	1,496.08	0.00	0.00	0.00
15,400.00	90.00	359.57	13,475.97	1,596.99	115.09	1,596.08	0.00	0.00	0.00
15,500.00	90.00	359.57	13,475.97	1,696.99	114.33	1,696.08	0.00	0.00	0.00
15,600.00	90.00	359.57	13,475.97	1,796.98	113.58	1,796.08	0.00	0.00	0.00
15,700.00	90.00	359.57	13,475.98	1,896.98	112.83	1,896.08	0.00	0.00	0.00
15,800.00	90.00	359.57	13,475.98	1,996.98	112.08	1,996.08	0.00	0.00	0.00
15,900.00	90.00	359.57	13,475.98	2,096.98	111.33	2,096.08	0.00	0.00	0.00
16,000.00	90.00	359.57	13,475.98	2,196.97	110.58	2,196.08	0.00	0.00	0.00
16,100.00	90.00	359.57	13,475.98	2,296.97	109.83	2,296.08	0.00	0.00	0.00
16,200.00	90.00	359.57	13,475.98	2,396.97	109.08	2,396.08	0.00	0.00	0.00
16,300.00	90.00	359.57	13,475.98	2,496.96	108.32	2,496.08	0.00	0.00	0.00
16,400.00	90.00	359.57	13,475.98	2,596.96	107.57	2,596.08	0.00	0.00	0.00
16,500.00	90.00	359.57	13,475.98	2,696.96	106.82	2,696.08	0.00	0.00	0.00
16,600.00	90.00	359.57	13,475.98	2,796.96	106.07	2,796.08	0.00	0.00	0.00

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WD Fee #12H
Project:	Lea County, NM	TVD Reference:	well @ 3541.00usft
Site:	Flowmaster 15 (11-12-16-17)	MD Reference:	well @ 3541.00usft
Well:	WD Fee #12H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan B	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	2,896.95	105.32	2,896.08	0.00	0.00	0.00
16,800.00	90.00	359.57	13,475.99	2,996.95	104.57	2,996.08	0.00	0.00	0.00
16,900.00	90.00	359.57	13,475.99	3,096.95	103.82	3,096.08	0.00	0.00	0.00
17,000.00	90.00	359.57	13,475.99	3,196.94	103.07	3,196.08	0.00	0.00	0.00
17,100.00	90.00	359.57	13,475.99	3,296.94	102.31	3,296.08	0.00	0.00	0.00
17,200.00	90.00	359.57	13,475.99	3,396.94	101.56	3,396.08	0.00	0.00	0.00
17,300.00	90.00	359.57	13,475.99	3,496.94	100.81	3,496.08	0.00	0.00	0.00
17,400.00	90.00	359.57	13,475.99	3,596.93	100.06	3,596.08	0.00	0.00	0.00
17,500.00	90.00	359.57	13,475.99	3,696.93	99.31	3,696.08	0.00	0.00	0.00
17,600.00	90.00	359.57	13,475.99	3,796.93	98.56	3,796.08	0.00	0.00	0.00
17,700.00	90.00	359.57	13,475.99	3,896.92	97.81	3,896.08	0.00	0.00	0.00
17,800.00	90.00	359.57	13,476.00	3,996.92	97.06	3,996.08	0.00	0.00	0.00
17,900.00	90.00	359.57	13,476.00	4,096.92	96.30	4,096.08	0.00	0.00	0.00
18,000.00	90.00	359.57	13,476.00	4,196.92	95.55	4,196.08	0.00	0.00	0.00
18,100.00	90.00	359.57	13,476.00	4,296.91	94.80	4,296.08	0.00	0.00	0.00
18,200.00	90.00	359.57	13,476.00	4,396.91	94.05	4,396.08	0.00	0.00	0.00
18,300.00	90.00	359.57	13,476.00	4,496.91	93.30	4,496.08	0.00	0.00	0.00
18,359.74	90.00	359.57	13,476.00	4,556.65	92.85	4,555.82	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	12,903.00	-527.87	131.05	441,375.32	770,601.34	32.210430	-103.458422
- plan hits target center									
- Point									
[Flowmaster15#12H]LTF	0.00	0.00	13,476.00	4,556.65	92.85	446,459.84	770,563.14	32.224407	-103.458411
- plan hits target center									
- Point									

Checked By: _____ Approved By: _____ Date: _____