



Pro Directional Survey Report



HOBBS OCD
MAY 10 2019
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Company: Marathon Oil
Project: Lea County, NM
Site: Flowmaster 15 (2-14-15)
Well: WA FEE #14H
Wellbore: OH
Design: Prelim Plan A

Local Co-ordinate Reference: Well WA FEE #14H
TVD Reference: Well @ 3545.00usft (GL: 3518' + KB: 27' (PD582))
MD Reference: Well @ 3545.00usft (GL: 3518' + KB: 27' (PD582))
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 (2-14-15)		
Site Position:		Northing:	441,863.15 usft
From:	Map	Easting:	770,170.21 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.211781
		Longitude:	-103.459803
		Grid Convergence:	0.47 °

Well	WA FEE #14H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32.211780
		Longitude:	-103.459706
		Ground Level:	3,518.00 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM	5/7/2019	6.63
		Dip Angle (°)	59.87
		Field Strength (nT)	47,904.70

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)
	0.00	0.00	0.00
			Direction (°)
			359.57

Survey Tool Program	Date	5/7/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	1,800.00	Prelim Plan A (OH)	MWD+HDGM	OWSG MWD + HRGM
1,800.00	5,000.00	Prelim Plan A (OH)	MWD+HDGM	OWSG MWD + HRGM
5,000.00	10,000.00	Prelim Plan A (OH)	MWD+HDGM	OWSG MWD + HRGM
10,000.00	17,430.40	Prelim Plan A (OH)	MWD+HDGM	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



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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	2.00	140.59	1,599.98	-1.35	1.11	-1.36	2.00	2.00	0.00
1,700.00	4.00	140.59	1,699.84	-5.39	4.43	-5.42	2.00	2.00	0.00
1,800.00	6.00	140.59	1,799.45	-12.12	9.96	-12.20	2.00	2.00	0.00
1,900.00	8.00	140.59	1,898.70	-21.54	17.70	-21.67	2.00	2.00	0.00
2,000.00	10.00	140.59	1,997.47	-33.63	27.63	-33.83	2.00	2.00	0.00
2,100.00	10.00	140.59	2,095.95	-47.04	38.66	-47.33	0.00	0.00	0.00
2,200.00	10.00	140.59	2,194.43	-60.46	49.68	-60.83	0.00	0.00	0.00
2,300.00	10.00	140.59	2,292.91	-73.87	60.71	-74.33	0.00	0.00	0.00
2,400.00	10.00	140.59	2,391.39	-87.29	71.73	-87.83	0.00	0.00	0.00
2,500.00	10.00	140.59	2,489.87	-100.71	82.76	-101.32	0.00	0.00	0.00
2,600.00	10.00	140.59	2,588.35	-114.12	93.78	-114.82	0.00	0.00	0.00
2,700.00	10.00	140.59	2,686.83	-127.54	104.81	-128.32	0.00	0.00	0.00
2,800.00	10.00	140.59	2,785.31	-140.95	115.83	-141.82	0.00	0.00	0.00
2,900.00	10.00	140.59	2,883.79	-154.37	126.85	-155.32	0.00	0.00	0.00
3,000.00	10.00	140.59	2,982.27	-167.79	137.88	-168.82	0.00	0.00	0.00
3,100.00	10.00	140.59	3,080.75	-181.20	148.90	-182.32	0.00	0.00	0.00
3,200.00	10.00	140.59	3,179.23	-194.62	159.93	-195.81	0.00	0.00	0.00
3,300.00	10.00	140.59	3,277.72	-208.03	170.95	-209.31	0.00	0.00	0.00
3,400.00	10.00	140.59	3,376.20	-221.45	181.98	-222.81	0.00	0.00	0.00
3,500.00	10.00	140.59	3,474.68	-234.87	193.00	-236.31	0.00	0.00	0.00
3,600.00	10.00	140.59	3,573.16	-248.28	204.03	-249.81	0.00	0.00	0.00
3,700.00	10.00	140.59	3,671.64	-261.70	215.05	-263.31	0.00	0.00	0.00
3,800.00	10.00	140.59	3,770.12	-275.12	226.08	-276.80	0.00	0.00	0.00
3,900.00	10.00	140.59	3,868.60	-288.53	237.10	-290.30	0.00	0.00	0.00
4,000.00	10.00	140.59	3,967.08	-301.95	248.13	-303.80	0.00	0.00	0.00
4,100.00	10.00	140.59	4,065.56	-315.36	259.15	-317.30	0.00	0.00	0.00
4,200.00	10.00	140.59	4,164.04	-328.78	270.18	-330.80	0.00	0.00	0.00
4,300.00	10.00	140.59	4,262.52	-342.20	281.20	-344.30	0.00	0.00	0.00
4,400.00	10.00	140.59	4,361.00	-355.61	292.23	-357.80	0.00	0.00	0.00
4,500.00	10.00	140.59	4,459.48	-369.03	303.25	-371.29	0.00	0.00	0.00
4,600.00	10.00	140.59	4,557.97	-382.44	314.28	-384.79	0.00	0.00	0.00
4,700.00	10.00	140.59	4,656.45	-395.86	325.30	-398.29	0.00	0.00	0.00

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4,800.00	10.00	140.59	4,754.93	-409.28	336.33	-411.79	0.00	0.00	0.00
4,900.00	10.00	140.59	4,853.41	-422.69	347.35	-425.29	0.00	0.00	0.00
5,000.00	10.00	140.59	4,951.89	-436.11	358.37	-438.79	0.00	0.00	0.00
5,100.00	10.00	140.59	5,050.37	-449.52	369.40	-452.28	0.00	0.00	0.00
5,135.18	10.00	140.59	5,085.01	-454.24	373.28	-457.03	0.00	0.00	0.00
5,200.00	8.70	140.59	5,148.97	-462.38	379.97	-465.22	2.00	-2.00	0.00
5,300.00	6.70	140.59	5,248.06	-472.74	388.48	-475.64	2.00	-2.00	0.00
5,400.00	4.70	140.59	5,347.56	-480.42	394.78	-483.37	2.00	-2.00	0.00
5,500.00	2.70	140.59	5,447.35	-485.41	398.89	-488.39	2.00	-2.00	0.00
5,600.00	0.70	140.59	5,547.30	-487.70	400.77	-490.70	2.00	-2.00	0.00
5,635.18	0.00	0.00	5,582.48	-487.87	400.91	-490.87	2.00	-2.00	0.00
5,700.00	0.00	0.00	5,647.30	-487.87	400.91	-490.87	0.00	0.00	0.00
5,800.00	0.00	0.00	5,747.30	-487.87	400.91	-490.87	0.00	0.00	0.00
5,900.00	0.00	0.00	5,847.30	-487.87	400.91	-490.87	0.00	0.00	0.00
6,000.00	0.00	0.00	5,947.30	-487.87	400.91	-490.87	0.00	0.00	0.00
6,100.00	0.00	0.00	6,047.30	-487.87	400.91	-490.87	0.00	0.00	0.00
6,200.00	0.00	0.00	6,147.30	-487.87	400.91	-490.87	0.00	0.00	0.00
6,300.00	0.00	0.00	6,247.30	-487.87	400.91	-490.87	0.00	0.00	0.00
6,400.00	0.00	0.00	6,347.30	-487.87	400.91	-490.87	0.00	0.00	0.00
6,500.00	0.00	0.00	6,447.30	-487.87	400.91	-490.87	0.00	0.00	0.00
6,600.00	0.00	0.00	6,547.30	-487.87	400.91	-490.87	0.00	0.00	0.00
6,700.00	0.00	0.00	6,647.30	-487.87	400.91	-490.87	0.00	0.00	0.00
6,800.00	0.00	0.00	6,747.30	-487.87	400.91	-490.87	0.00	0.00	0.00
6,900.00	0.00	0.00	6,847.30	-487.87	400.91	-490.87	0.00	0.00	0.00
7,000.00	0.00	0.00	6,947.30	-487.87	400.91	-490.87	0.00	0.00	0.00
7,100.00	0.00	0.00	7,047.30	-487.87	400.91	-490.87	0.00	0.00	0.00
7,200.00	0.00	0.00	7,147.30	-487.87	400.91	-490.87	0.00	0.00	0.00
7,300.00	0.00	0.00	7,247.30	-487.87	400.91	-490.87	0.00	0.00	0.00
7,400.00	0.00	0.00	7,347.30	-487.87	400.91	-490.87	0.00	0.00	0.00
7,500.00	0.00	0.00	7,447.30	-487.87	400.91	-490.87	0.00	0.00	0.00
7,600.00	0.00	0.00	7,547.30	-487.87	400.91	-490.87	0.00	0.00	0.00
7,700.00	0.00	0.00	7,647.30	-487.87	400.91	-490.87	0.00	0.00	0.00
7,800.00	0.00	0.00	7,747.30	-487.87	400.91	-490.87	0.00	0.00	0.00
7,900.00	0.00	0.00	7,847.30	-487.87	400.91	-490.87	0.00	0.00	0.00
8,000.00	0.00	0.00	7,947.30	-487.87	400.91	-490.87	0.00	0.00	0.00
8,100.00	0.00	0.00	8,047.30	-487.87	400.91	-490.87	0.00	0.00	0.00
8,200.00	0.00	0.00	8,147.30	-487.87	400.91	-490.87	0.00	0.00	0.00
8,300.00	0.00	0.00	8,247.30	-487.87	400.91	-490.87	0.00	0.00	0.00
8,400.00	0.00	0.00	8,347.30	-487.87	400.91	-490.87	0.00	0.00	0.00
8,500.00	0.00	0.00	8,447.30	-487.87	400.91	-490.87	0.00	0.00	0.00
8,600.00	0.00	0.00	8,547.30	-487.87	400.91	-490.87	0.00	0.00	0.00
8,700.00	0.00	0.00	8,647.30	-487.87	400.91	-490.87	0.00	0.00	0.00



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8,800.00	0.00	0.00	8,747.30	-487.87	400.91	-490.87	0.00	0.00	0.00
8,900.00	0.00	0.00	8,847.30	-487.87	400.91	-490.87	0.00	0.00	0.00
9,000.00	0.00	0.00	8,947.30	-487.87	400.91	-490.87	0.00	0.00	0.00
9,100.00	0.00	0.00	9,047.30	-487.87	400.91	-490.87	0.00	0.00	0.00
9,200.00	0.00	0.00	9,147.30	-487.87	400.91	-490.87	0.00	0.00	0.00
9,300.00	0.00	0.00	9,247.30	-487.87	400.91	-490.87	0.00	0.00	0.00
9,400.00	0.00	0.00	9,347.30	-487.87	400.91	-490.87	0.00	0.00	0.00
9,500.00	0.00	0.00	9,447.30	-487.87	400.91	-490.87	0.00	0.00	0.00
9,600.00	0.00	0.00	9,547.30	-487.87	400.91	-490.87	0.00	0.00	0.00
9,700.00	0.00	0.00	9,647.30	-487.87	400.91	-490.87	0.00	0.00	0.00
9,800.00	0.00	0.00	9,747.30	-487.87	400.91	-490.87	0.00	0.00	0.00
9,900.00	0.00	0.00	9,847.30	-487.87	400.91	-490.87	0.00	0.00	0.00
10,000.00	0.00	0.00	9,947.30	-487.87	400.91	-490.87	0.00	0.00	0.00
10,100.00	0.00	0.00	10,047.30	-487.87	400.91	-490.87	0.00	0.00	0.00
10,200.00	0.00	0.00	10,147.30	-487.87	400.91	-490.87	0.00	0.00	0.00
10,300.00	0.00	0.00	10,247.30	-487.87	400.91	-490.87	0.00	0.00	0.00
10,400.00	0.00	0.00	10,347.30	-487.87	400.91	-490.87	0.00	0.00	0.00
10,500.00	0.00	0.00	10,447.30	-487.87	400.91	-490.87	0.00	0.00	0.00
10,600.00	0.00	0.00	10,547.30	-487.87	400.91	-490.87	0.00	0.00	0.00
10,700.00	0.00	0.00	10,647.30	-487.87	400.91	-490.87	0.00	0.00	0.00
10,800.00	0.00	0.00	10,747.30	-487.87	400.91	-490.87	0.00	0.00	0.00
10,900.00	0.00	0.00	10,847.30	-487.87	400.91	-490.87	0.00	0.00	0.00
11,000.00	0.00	0.00	10,947.30	-487.87	400.91	-490.87	0.00	0.00	0.00
11,100.00	0.00	0.00	11,047.30	-487.87	400.91	-490.87	0.00	0.00	0.00
11,200.00	0.00	0.00	11,147.30	-487.87	400.91	-490.87	0.00	0.00	0.00
11,300.00	0.00	0.00	11,247.30	-487.87	400.91	-490.87	0.00	0.00	0.00
11,400.00	0.00	0.00	11,347.30	-487.87	400.91	-490.87	0.00	0.00	0.00
11,500.00	0.00	0.00	11,447.30	-487.87	400.91	-490.87	0.00	0.00	0.00
11,600.00	0.00	0.00	11,547.30	-487.87	400.91	-490.87	0.00	0.00	0.00
11,700.00	0.00	0.00	11,647.30	-487.87	400.91	-490.87	0.00	0.00	0.00
11,800.00	0.00	0.00	11,747.30	-487.87	400.91	-490.87	0.00	0.00	0.00
11,900.00	0.00	0.00	11,847.30	-487.87	400.91	-490.87	0.00	0.00	0.00
12,000.00	0.00	0.00	11,947.30	-487.87	400.91	-490.87	0.00	0.00	0.00
12,028.20	0.00	0.00	11,975.50	-487.87	400.91	-490.87	0.00	0.00	0.00
[FlowmasterWA#14H]FTP									
12,050.00	2.62	359.57	11,997.29	-487.37	400.91	-490.37	12.00	12.00	0.00
12,075.00	5.62	359.57	12,022.23	-485.58	400.89	-488.57	12.00	12.00	0.00
12,100.00	8.62	359.57	12,047.03	-482.48	400.87	-485.48	12.00	12.00	0.00
12,125.00	11.62	359.57	12,071.64	-478.09	400.84	-481.09	12.00	12.00	0.00
12,150.00	14.62	359.57	12,095.98	-472.42	400.79	-475.41	12.00	12.00	0.00
12,175.00	17.62	359.57	12,120.00	-465.48	400.74	-468.47	12.00	12.00	0.00
12,200.00	20.62	359.57	12,143.62	-457.29	400.68	-460.29	12.00	12.00	0.00

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Well:	WA FEE #14H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Prelim Plan A	Database:	WellPlanner1

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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)
12,225.00	23.62	359.57	12,166.78	-447.88	400.61	-450.88	12.00	12.00	0.00
12,250.00	26.62	359.57	12,189.41	-437.27	400.53	-440.27	12.00	12.00	0.00
12,275.00	29.62	359.57	12,211.46	-425.49	400.44	-428.49	12.00	12.00	0.00
12,300.00	32.62	359.57	12,232.86	-412.58	400.35	-415.57	12.00	12.00	0.00
12,325.00	35.62	359.57	12,253.55	-398.56	400.24	-401.55	12.00	12.00	0.00
12,350.00	38.62	359.57	12,273.49	-383.47	400.13	-386.47	12.00	12.00	0.00
12,375.00	41.62	359.57	12,292.60	-367.37	400.01	-370.36	12.00	12.00	0.00
12,400.00	44.62	359.57	12,310.85	-350.28	399.88	-353.27	12.00	12.00	0.00
12,425.00	47.62	359.57	12,328.18	-332.27	399.75	-335.26	12.00	12.00	0.00
12,450.00	50.62	359.57	12,344.54	-313.37	399.60	-316.36	12.00	12.00	0.00
12,475.00	53.62	359.57	12,359.89	-293.64	399.46	-296.63	12.00	12.00	0.00
12,500.00	56.62	359.57	12,374.18	-273.13	399.30	-276.12	12.00	12.00	0.00
12,525.00	59.62	359.57	12,387.39	-251.91	399.15	-254.90	12.00	12.00	0.00
12,550.00	62.62	359.57	12,399.46	-230.02	398.98	-233.01	12.00	12.00	0.00
12,575.00	65.62	359.57	12,410.37	-207.53	398.81	-210.52	12.00	12.00	0.00
12,600.00	68.62	359.57	12,420.10	-184.51	398.64	-187.49	12.00	12.00	0.00
12,625.00	71.62	359.57	12,428.60	-161.00	398.47	-163.98	12.00	12.00	0.00
12,650.00	74.62	359.57	12,435.86	-137.08	398.29	-140.07	12.00	12.00	0.00
12,675.00	77.62	359.57	12,441.86	-112.81	398.10	-115.80	12.00	12.00	0.00
12,700.00	80.62	359.57	12,446.58	-88.27	397.92	-91.25	12.00	12.00	0.00
12,725.00	83.62	359.57	12,450.00	-63.51	397.74	-66.49	12.00	12.00	0.00
12,750.00	86.62	359.57	12,452.13	-38.60	397.55	-41.58	12.00	12.00	0.00
12,775.00	89.62	359.57	12,452.95	-13.62	397.36	-16.60	12.00	12.00	0.00
12,778.20	90.00	359.57	12,452.97	-10.42	397.34	-13.40	12.00	12.00	0.00
12,800.00	90.00	359.57	12,452.97	11.38	397.18	8.40	0.00	0.00	0.00
12,900.00	90.00	359.57	12,452.97	111.38	396.43	108.40	0.00	0.00	0.00
13,000.00	90.00	359.57	12,452.97	211.38	395.68	208.40	0.00	0.00	0.00
13,100.00	90.00	359.57	12,452.97	311.37	394.93	308.40	0.00	0.00	0.00
13,200.00	90.00	359.57	12,452.97	411.37	394.18	408.40	0.00	0.00	0.00
13,300.00	90.00	359.57	12,452.97	511.37	393.44	508.40	0.00	0.00	0.00
13,400.00	90.00	359.57	12,452.97	611.36	392.69	608.40	0.00	0.00	0.00
13,500.00	90.00	359.57	12,452.97	711.36	391.94	708.40	0.00	0.00	0.00
13,600.00	90.00	359.57	12,452.97	811.36	391.19	808.40	0.00	0.00	0.00
13,700.00	90.00	359.57	12,452.97	911.36	390.44	908.40	0.00	0.00	0.00
13,800.00	90.00	359.57	12,452.97	1,011.35	389.70	1,008.40	0.00	0.00	0.00
13,900.00	90.00	359.57	12,452.97	1,111.35	388.95	1,108.40	0.00	0.00	0.00
14,000.00	90.00	359.57	12,452.97	1,211.35	388.20	1,208.40	0.00	0.00	0.00
14,100.00	90.00	359.57	12,452.98	1,311.34	387.45	1,308.40	0.00	0.00	0.00
14,200.00	90.00	359.57	12,452.98	1,411.34	386.70	1,408.40	0.00	0.00	0.00
14,300.00	90.00	359.57	12,452.98	1,511.34	385.96	1,508.40	0.00	0.00	0.00
14,400.00	90.00	359.57	12,452.98	1,611.34	385.21	1,608.40	0.00	0.00	0.00
14,500.00	90.00	359.57	12,452.98	1,711.33	384.46	1,708.40	0.00	0.00	0.00



Pro Directional Survey Report



Company: Marathon Oil
Project: Lea County, NM
Site: Flowmaster 15 (2-14-15)
Well: WA FEE #14H
Wellbore: OH
Design: Prelim Plan A

Local Co-ordinate Reference: Well WA FEE #14H
TVD Reference: Well @ 3545.00usft (GL: 3518' + KB: 27' (PD582))
MD Reference: Well @ 3545.00usft (GL: 3518' + KB: 27' (PD582))
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)
14,600.00	90.00	359.57	12,452.98	1,811.33	383.71	1,808.40	0.00	0.00	0.00
14,700.00	90.00	359.57	12,452.98	1,911.33	382.97	1,908.40	0.00	0.00	0.00
14,800.00	90.00	359.57	12,452.98	2,011.33	382.22	2,008.40	0.00	0.00	0.00
14,900.00	90.00	359.57	12,452.98	2,111.32	381.47	2,108.40	0.00	0.00	0.00
15,000.00	90.00	359.57	12,452.98	2,211.32	380.72	2,208.40	0.00	0.00	0.00
15,100.00	90.00	359.57	12,452.98	2,311.32	379.97	2,308.40	0.00	0.00	0.00
15,200.00	90.00	359.57	12,452.98	2,411.31	379.23	2,408.40	0.00	0.00	0.00
15,300.00	90.00	359.57	12,452.98	2,511.31	378.48	2,508.40	0.00	0.00	0.00
15,400.00	90.00	359.57	12,452.99	2,611.31	377.73	2,608.40	0.00	0.00	0.00
15,500.00	90.00	359.57	12,452.99	2,711.31	376.98	2,708.40	0.00	0.00	0.00
15,600.00	90.00	359.57	12,452.99	2,811.30	376.23	2,808.40	0.00	0.00	0.00
15,700.00	90.00	359.57	12,452.99	2,911.30	375.49	2,908.40	0.00	0.00	0.00
15,800.00	90.00	359.57	12,452.99	3,011.30	374.74	3,008.40	0.00	0.00	0.00
15,900.00	90.00	359.57	12,452.99	3,111.29	373.99	3,108.40	0.00	0.00	0.00
16,000.00	90.00	359.57	12,452.99	3,211.29	373.24	3,208.40	0.00	0.00	0.00
16,100.00	90.00	359.57	12,452.99	3,311.29	372.49	3,308.40	0.00	0.00	0.00
16,200.00	90.00	359.57	12,452.99	3,411.29	371.75	3,408.40	0.00	0.00	0.00
16,300.00	90.00	359.57	12,452.99	3,511.28	371.00	3,508.40	0.00	0.00	0.00
16,400.00	90.00	359.57	12,452.99	3,611.28	370.25	3,608.40	0.00	0.00	0.00
16,500.00	90.00	359.57	12,452.99	3,711.28	369.50	3,708.40	0.00	0.00	0.00
16,600.00	90.00	359.57	12,452.99	3,811.28	368.75	3,808.40	0.00	0.00	0.00
16,700.00	90.00	359.57	12,453.00	3,911.27	368.01	3,908.40	0.00	0.00	0.00
16,800.00	90.00	359.57	12,453.00	4,011.27	367.26	4,008.40	0.00	0.00	0.00
16,900.00	90.00	359.57	12,453.00	4,111.27	366.51	4,108.40	0.00	0.00	0.00
17,000.00	90.00	359.57	12,453.00	4,211.26	365.76	4,208.40	0.00	0.00	0.00
17,100.00	90.00	359.57	12,453.00	4,311.26	365.01	4,308.40	0.00	0.00	0.00
17,200.00	90.00	359.57	12,453.00	4,411.26	364.27	4,408.40	0.00	0.00	0.00
17,300.00	90.00	359.57	12,453.00	4,511.26	363.52	4,508.40	0.00	0.00	0.00
17,385.40	90.00	359.57	12,453.00	4,596.65	362.88	4,593.80	0.00	0.00	0.00
[FlowmasterWA#14H]LTP/BHL									
17,400.00	90.00	359.57	12,453.00	4,611.25	362.77	4,608.40	0.00	0.00	0.00
17,430.40	90.00	359.57	12,453.00	4,641.65	362.54	4,638.80	0.00	0.00	0.00

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WA FEE #14H
Project:	Lea County, NM	TVD Reference:	Well @ 3545.00usft (GL: 3518' + KB: 27' (PD582))
Site:	Flowmaster 15 (2-14-15)	MD Reference:	Well @ 3545.00usft (GL: 3518' + KB: 27' (PD582))
Well:	WA FEE #14H	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
[FlowmasterWA#14H]FT - plan hits target center - Point	0.00	0.00	11,975.50	-487.87	400.91	441,375.32	770,601.17	32.210430	-103.458422
[FlowmasterWA#14H]LT - plan hits target center - Point	0.00	0.00	12,453.0 0	4,596.65	362.88	446,459.84	770,563.14	32.224407	-103.458411

Checked By: _____	Approved By: _____	Date: _____
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Marathon Oil
Lea County, NM
Flowmaster 15 (2-14-15)
WA FEE #14H
Prelim Plan A
GL: 3518' + KB: 27' (PD582)

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

RKB Elevation: Well @ 3545.00usft (GL: 3518' + KB: 27' (PD582))

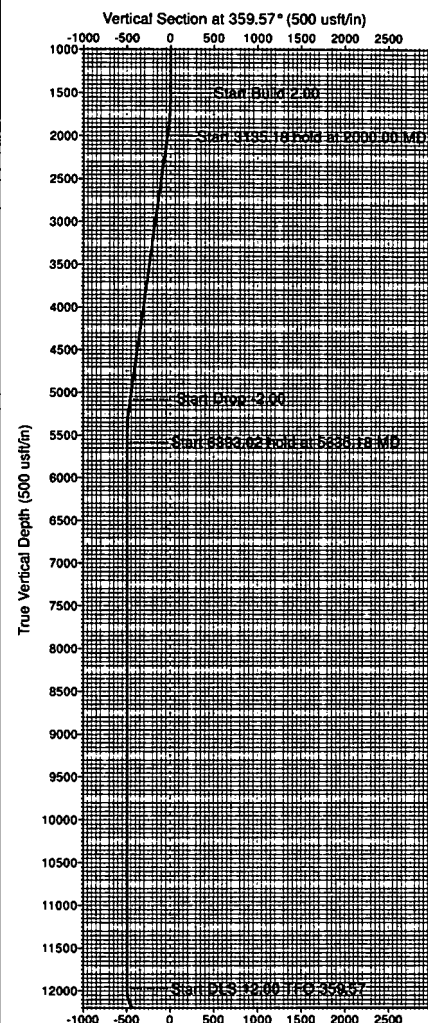
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	441863.19	770200.26	32.211780	-103.459705	

SECTION DETAILS

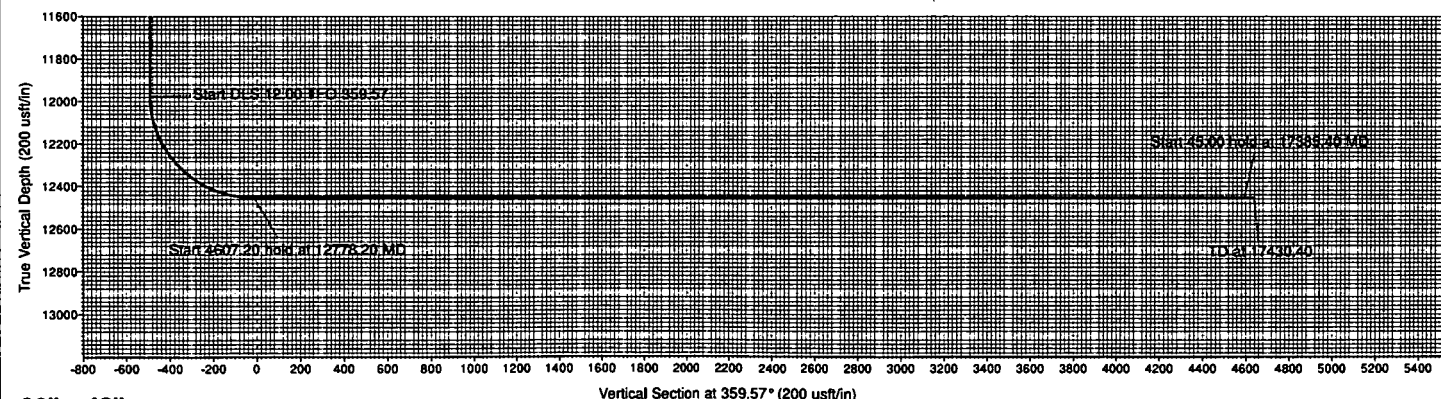
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00
3	2000.00	10.00	140.59	1997.47	-33.63	27.63	2.00	-33.63
4	5135.18	10.00	140.59	5085.01	-454.24	373.28	0.00	-457.03
5	5635.18	0.00	0.00	5582.48	-487.87	400.91	2.00	-490.87
6	12028.20	0.00	0.00	11975.50	-487.87	400.91	0.00	-490.87
7	12778.20	90.00	359.57	12452.96	-10.42	397.34	12.00	-13.40
8	17385.40	90.00	359.57	12453.00	4596.65	362.88	0.00	4593.80
9	17430.40	90.00	359.57	12453.00	4641.65	362.54	0.00	4638.80

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

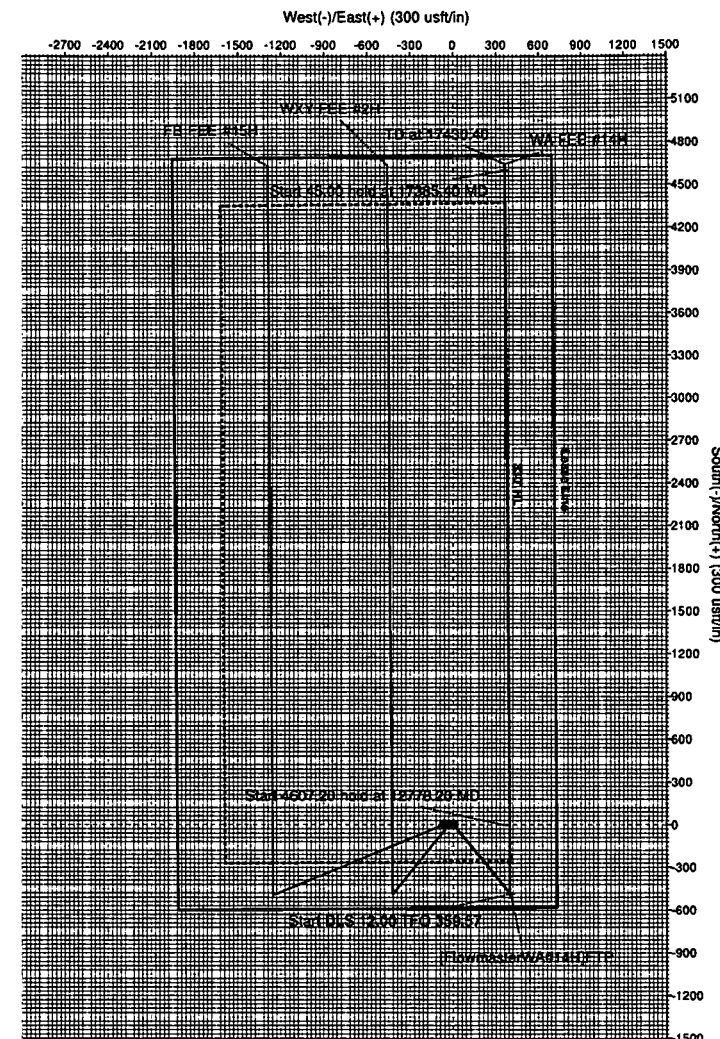
Name	TVD	+N/-S	+E/-W	Northing	Easting
[FlowmasterWA#14H]FTP	11975.50	-487.87	400.91	441375.32	770601.17
[FlowmasterWA#14H]LTP/BHL	12453.00	4596.65	362.88	446459.84	770563.14



Target Line: 12453' TVD @ 0° VS :: 90° INC



36" x 48"



Azimuths to Grid North
True North: -0.47°
Magnetic North: 6.17°

Magnetic Field
Strength: 47904.7nT
Dip Angle: 59.87°
Date: 5/7/2019
Model: HDGM

Azimuth Corrections

Total Magnetic Corr. (M to G): 6.17°

Declination (M to T): 6.63° East