

PRO DIRECTIONAL



Marathon Oil Corporation

**Flowmaster Fee 24-34-15 WA No. 14H
Lea County, NM**

August 28, 2019

**Job No. LNM1452419
API No. 30-025-44687**

Survey Completion Report



PRODIRECTIONAL

Survey Certification Letter

August 28, 2019



Marathon Oil[®]
Corporation

Operator Name: Marathon Oil
Well Name: Flowmaster Fee 24-34-15 WA No. 14H
County/Parish: Lea County,
State: NM
Rig Name: Precision 582
Job Number: LNM1452419

This is to certify the surveys performed on the referenced well by Professional Directional Ent., Inc. are true and correct MWD Surveys, data provided as follows:

<u>Surveyor</u>	<u>Surveyed Depths</u>	<u>Projection to Bit</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
ProDirectional	1,211' MD – 17,407' MD	17,462' MD	07/08/19 – 07/28/19	MWD

Sincerely,

Mike Coats

Mike Coats
Regulatory Specialist
Professional Directional

850 Conroe Park West Drive | Conroe, TX 77303 | Phone: 936.441.7266

prodirectional.com

The Standard of Excellence in Directional Supervision



Marathon Oil

Marathon Oil

Lea County, NM

Flowmaster 24-34-15

No. 14H

OH

Survey: ProDirectional

Survey Report

28 August, 2019



Company: Marathon Oil
Project: Lea County, NM(NAD 83)
Site: Flowmaster 24-34-15
Well: No. 14H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference: Well No. 14H
TVD Reference: Well @ 3545.00usft
MD Reference: Well @ 3545.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Project Lea County, NM(NAD 83)

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

Site Flowmaster 24-34-15

Site Position:		Northing:	446,265.62 usft	Latitude:	32.223859
From:	Map	Easting:	810,715.91 usft	Longitude:	-103.462229
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.46 °

Well No. 14H, LNM1452419

Well Position	+N/-S	0.00 usft	Northing:	441,921.98 usft	Latitude:	32.211905
	+E/-W	0.00 usft	Easting:	811,385.06 usft	Longitude:	-103.460179
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,518.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/31/2019	6.63	59.87	47,897.60

Design MWD

Audit Notes:

Version: 1.0 **Phase:** ACTUAL **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

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Survey Program **Date** 8/28/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
94.00	1,053.00	Survey #1 (OH)	GYRO-NS-CT	OWSG XYZ Accel with XY Static and Continuous Gyro
1,211.00	17,462.00	Survey #2 (OH)	MWD+IFR1	OWSG MWD + IFR1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	441,921.98	811,385.06
94.00	0.30	169.23	94.00	-0.24	-0.24	0.05	0.25	169.23	441,921.74	811,385.11
208.00	0.20	295.23	208.00	-0.45	-0.45	-0.08	0.46	189.86	441,921.53	811,384.98
328.00	0.40	36.23	328.00	-0.02	-0.02	-0.02	0.03	221.21	441,921.96	811,385.04
422.00	0.40	228.23	422.00	0.02	0.02	-0.07	0.07	288.06	441,922.00	811,384.99
517.00	0.40	217.23	516.99	-0.46	-0.46	-0.52	0.69	228.33	441,921.52	811,384.54
580.00	0.30	282.23	579.99	-0.60	-0.60	-0.81	1.01	233.49	441,921.38	811,384.25
675.00	0.40	187.23	674.99	-0.87	-0.88	-1.10	1.41	231.34	441,921.10	811,383.96
770.00	0.50	60.23	769.99	-1.00	-1.00	-0.78	1.27	217.91	441,920.98	811,384.28
896.00	0.50	114.23	895.99	-0.96	-0.95	0.20	0.97	168.23	441,921.03	811,385.26
990.00	0.10	256.23	989.99	-1.15	-1.14	0.49	1.24	156.65	441,920.84	811,385.55
1,053.00	0.40	68.23	1,052.99	-1.08	-1.07	0.64	1.25	149.04	441,920.91	811,385.70
1,211.00	0.60	174.70	1,210.98	-1.70	-1.69	1.23	2.09	143.94	441,920.29	811,386.29
Pro MWD First Survey: 1211' MD										
1,255.00	0.40	189.80	1,254.98	-2.08	-2.07	1.23	2.41	149.37	441,919.91	811,386.29
1,345.00	2.10	124.50	1,344.96	-3.34	-3.32	2.53	4.17	142.63	441,918.66	811,387.59
1,435.00	2.20	118.60	1,434.89	-5.12	-5.08	5.41	7.42	133.19	441,916.90	811,390.47
1,524.00	2.80	134.50	1,523.81	-7.48	-7.42	8.46	11.25	131.25	441,914.56	811,393.52
1,614.00	4.90	147.10	1,613.60	-12.28	-12.19	12.12	17.19	135.17	441,909.79	811,397.18
1,703.00	5.20	141.40	1,702.26	-18.66	-18.53	16.70	24.94	137.98	441,903.45	811,401.76
1,793.00	8.80	138.30	1,791.57	-27.04	-26.86	23.82	35.90	138.43	441,895.12	811,408.88



ProDirectional Survey Report



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Site: Flowmaster 24-34-15
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Wellbore: OH
Design: MWD

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Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
1,883.00	8.70	137.30	1,880.53	-37.25	-37.00	33.02	49.59	138.26	441,884.98	811,418.08
1,972.00	9.10	138.40	1,968.45	-47.53	-47.21	42.26	63.36	138.17	441,874.77	811,427.32
2,062.00	9.10	138.30	2,057.32	-58.24	-57.85	51.72	77.60	138.20	441,864.13	811,436.78
2,152.00	8.90	138.90	2,146.21	-68.87	-68.41	61.03	91.67	138.26	441,853.57	811,446.09
2,241.00	8.90	139.60	2,234.14	-79.36	-78.84	70.01	105.44	138.39	441,843.14	811,455.07
2,331.00	9.00	138.90	2,323.05	-90.04	-89.45	79.15	119.44	138.49	441,832.53	811,464.21
2,421.00	9.10	138.00	2,411.93	-100.70	-100.04	88.54	133.60	138.49	441,821.94	811,473.60
2,510.00	9.10	138.00	2,499.81	-111.23	-110.50	97.96	147.67	138.44	441,811.48	811,483.02
2,600.00	9.10	138.60	2,588.67	-121.93	-121.13	107.43	161.91	138.43	441,800.85	811,492.49
2,690.00	9.10	138.80	2,677.54	-132.70	-131.82	116.83	176.14	138.45	441,790.16	811,501.89
2,779.00	9.10	139.20	2,765.42	-143.39	-142.45	126.06	190.22	138.49	441,779.53	811,511.12
2,869.00	8.90	139.70	2,854.31	-154.15	-153.14	135.21	204.29	138.56	441,768.84	811,520.27
2,959.00	8.80	138.50	2,943.24	-164.69	-163.61	144.28	218.14	138.59	441,758.37	811,529.34
3,049.00	8.90	138.40	3,032.17	-175.12	-173.97	153.46	231.99	138.58	441,748.01	811,538.52
3,139.00	10.00	138.30	3,120.95	-186.23	-185.01	163.28	246.76	138.57	441,736.97	811,548.34
3,228.00	10.20	137.60	3,208.57	-197.90	-196.60	173.74	262.37	138.53	441,725.38	811,558.80
3,318.00	10.00	136.90	3,297.17	-209.57	-208.19	184.45	278.15	138.46	441,713.79	811,569.51
3,407.00	10.50	143.30	3,384.75	-221.79	-220.34	194.58	293.95	138.55	441,701.64	811,579.64
3,497.00	10.60	145.60	3,473.23	-235.27	-233.74	204.16	310.35	138.87	441,688.24	811,589.22
3,586.00	10.60	145.00	3,560.72	-248.80	-247.20	213.48	326.62	139.19	441,674.78	811,598.54
3,676.00	10.50	144.30	3,649.19	-262.31	-260.64	223.01	343.03	139.45	441,661.34	811,608.07
3,766.00	10.60	143.90	3,737.67	-275.73	-273.99	232.67	359.45	139.66	441,647.99	811,617.73
3,856.00	10.00	144.30	3,826.22	-288.83	-287.02	242.11	375.50	139.85	441,634.96	811,627.17
3,945.00	10.00	144.70	3,913.87	-301.48	-299.61	251.08	390.90	140.04	441,622.37	811,636.14
4,035.00	9.60	144.70	4,002.56	-314.05	-312.11	259.94	406.17	140.21	441,609.87	811,645.00
4,125.00	9.40	144.20	4,091.32	-326.20	-324.19	268.57	420.99	140.36	441,597.79	811,653.63
4,214.00	9.90	146.30	4,179.06	-338.52	-336.45	277.07	435.85	140.53	441,585.53	811,662.13



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4,303.00	9.70	147.00	4,266.76	-351.24	-349.11	285.40	450.92	140.73	441,572.87	811,670.46
4,393.00	9.30	146.80	4,355.53	-363.74	-361.55	293.51	465.69	140.93	441,560.43	811,678.57
4,483.00	8.90	147.90	4,444.40	-375.78	-373.53	301.19	479.84	141.12	441,548.45	811,686.25
4,573.00	9.00	148.00	4,533.30	-387.71	-385.40	308.62	493.74	141.31	441,536.58	811,693.68
4,662.00	9.90	146.50	4,621.09	-400.05	-397.69	316.53	508.28	141.48	441,524.29	811,701.59
4,752.00	10.30	144.50	4,709.70	-413.12	-410.69	325.47	524.02	141.60	441,511.29	811,710.53
4,842.00	10.20	145.70	4,798.26	-426.32	-423.82	334.64	540.01	141.71	441,498.16	811,719.70
4,932.00	10.00	147.30	4,886.87	-439.54	-436.98	343.35	555.73	141.84	441,485.00	811,728.41
5,021.00	10.80	146.40	4,974.40	-453.06	-450.43	352.14	571.74	141.98	441,471.55	811,737.20
5,111.00	9.60	145.60	5,062.98	-466.34	-463.64	361.04	587.64	142.09	441,458.34	811,746.10
5,200.00	8.40	144.60	5,150.88	-477.82	-475.07	369.00	601.54	142.16	441,446.91	811,754.06
5,290.00	5.70	136.70	5,240.20	-486.49	-483.68	375.88	612.56	142.15	441,438.30	811,760.94
5,380.00	3.00	139.80	5,329.93	-491.57	-488.73	380.46	619.36	142.10	441,433.25	811,765.52
5,469.00	3.00	139.10	5,418.81	-495.14	-492.27	383.49	624.02	142.08	441,429.71	811,768.55
5,559.00	2.70	141.50	5,508.69	-498.60	-495.71	386.35	628.49	142.07	441,426.27	811,771.41
5,648.00	1.80	109.90	5,597.63	-500.73	-497.83	388.97	631.77	142.00	441,424.15	811,774.03
5,738.00	1.70	116.80	5,687.59	-501.83	-498.91	391.49	634.18	141.88	441,423.07	811,776.55
5,827.00	0.70	239.60	5,776.57	-502.71	-499.78	392.20	635.30	141.88	441,422.20	811,777.26
5,917.00	1.10	250.30	5,866.56	-503.27	-500.35	390.92	634.95	142.00	441,421.63	811,775.98
6,006.00	1.40	249.20	5,955.54	-503.93	-501.02	389.10	634.37	142.17	441,420.96	811,774.16
6,096.00	1.00	225.00	6,045.52	-504.86	-501.97	387.51	634.14	142.33	441,420.01	811,772.57
6,186.00	0.80	218.80	6,135.51	-505.90	-503.01	386.56	634.39	142.46	441,418.97	811,771.62
6,276.00	0.90	237.30	6,225.50	-506.77	-503.89	385.57	634.48	142.58	441,418.09	811,770.63
6,365.00	0.90	226.80	6,314.49	-507.61	-504.74	384.48	634.50	142.70	441,417.24	811,769.54
6,455.00	0.80	213.20	6,404.48	-508.62	-505.75	383.62	634.78	142.82	441,416.23	811,768.68
6,545.00	0.60	212.60	6,494.47	-509.53	-506.67	383.02	635.16	142.91	441,415.31	811,768.08
6,634.00	0.80	206.60	6,583.47	-510.48	-507.62	382.49	635.59	143.00	441,414.36	811,767.55

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6,724.00	0.80	198.40	6,673.46	-511.63	-508.78	382.01	636.23	143.10	441,413.20	811,767.07
6,813.00	0.50	52.30	6,762.46	-511.99	-509.13	382.12	636.58	143.11	441,412.85	811,767.18
6,902.00	1.50	43.50	6,851.44	-510.91	-508.05	383.23	636.38	142.97	441,413.93	811,768.29
6,992.00	1.40	44.20	6,941.41	-509.28	-506.41	384.81	636.02	142.77	441,415.57	811,769.87
7,082.00	1.40	45.80	7,031.39	-507.74	-504.85	386.36	635.73	142.57	441,417.13	811,771.42
7,171.00	1.40	42.70	7,120.36	-506.19	-503.30	387.88	635.42	142.38	441,418.68	811,772.94
7,261.00	1.50	48.30	7,210.33	-504.61	-501.70	389.51	635.15	142.18	441,420.28	811,774.57
7,351.00	1.50	42.70	7,300.30	-502.98	-500.06	391.18	634.89	141.96	441,421.92	811,776.24
7,440.00	1.30	47.00	7,389.27	-501.44	-498.51	392.71	634.61	141.77	441,423.47	811,777.77
7,530.00	1.30	45.00	7,479.25	-500.04	-497.09	394.18	634.41	141.59	441,424.89	811,779.24
7,619.00	1.20	41.90	7,568.23	-498.64	-495.68	395.52	634.14	141.41	441,426.30	811,780.58
7,709.00	1.00	40.00	7,658.21	-497.34	-494.38	396.65	633.83	141.26	441,427.60	811,781.71
7,799.00	1.40	40.00	7,748.19	-495.91	-492.94	397.86	633.47	141.09	441,429.04	811,782.92
7,889.00	1.30	56.90	7,838.17	-494.52	-491.54	399.42	633.36	140.90	441,430.44	811,784.48
7,978.00	0.90	65.00	7,927.15	-493.69	-490.69	400.90	633.64	140.75	441,431.29	811,785.96
8,068.00	0.60	70.10	8,017.14	-493.24	-490.23	401.99	633.97	140.65	441,431.75	811,787.05
8,157.00	0.50	73.10	8,106.14	-492.97	-489.96	402.80	634.28	140.58	441,432.02	811,787.86
8,246.00	0.60	91.40	8,195.14	-492.87	-489.86	403.63	634.73	140.51	441,432.12	811,788.69
8,336.00	0.60	98.00	8,285.13	-492.96	-489.94	404.57	635.39	140.45	441,432.04	811,789.63
8,425.00	0.50	112.90	8,374.13	-493.18	-490.15	405.39	636.07	140.41	441,431.83	811,790.45
8,515.00	0.20	171.00	8,464.12	-493.49	-490.46	405.78	636.56	140.40	441,431.52	811,790.84
8,604.00	0.30	199.70	8,553.12	-493.86	-490.83	405.72	636.81	140.42	441,431.15	811,790.78
8,694.00	0.00	50.70	8,643.12	-494.09	-491.05	405.64	636.93	140.44	441,430.93	811,790.70
8,784.00	0.10	132.90	8,733.12	-494.14	-491.11	405.70	637.01	140.44	441,430.87	811,790.76
8,873.00	0.10	194.30	8,822.12	-494.27	-491.24	405.74	637.13	140.44	441,430.74	811,790.80
8,962.00	0.20	219.00	8,911.12	-494.46	-491.43	405.62	637.21	140.46	441,430.55	811,790.68
9,052.00	0.40	285.80	9,001.12	-494.50	-491.47	405.22	636.98	140.49	441,430.51	811,790.28

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9,142.00	0.50	251.40	9,091.12	-494.53	-491.51	404.55	636.58	140.54	441,430.47	811,789.61
9,231.00	0.60	254.10	9,180.12	-494.78	-491.76	403.73	636.26	140.61	441,430.22	811,788.79
9,321.00	0.60	271.80	9,270.11	-494.88	-491.87	402.81	635.76	140.69	441,430.11	811,787.87
9,411.00	0.50	220.00	9,360.11	-495.16	-492.16	402.08	635.53	140.75	441,429.82	811,787.14
9,500.00	0.80	238.40	9,449.10	-495.78	-492.78	401.30	635.52	140.84	441,429.20	811,786.36
9,590.00	0.60	276.80	9,539.09	-496.05	-493.06	400.30	635.10	140.93	441,428.92	811,785.36
9,680.00	1.00	271.20	9,629.09	-495.97	-492.98	399.05	634.25	141.01	441,429.00	811,784.11
9,769.00	0.90	269.10	9,718.07	-495.95	-492.98	397.57	633.32	141.11	441,429.00	811,782.63
9,856.00	1.20	247.60	9,805.06	-496.30	-493.34	396.05	632.64	141.24	441,428.64	811,781.11
9,945.00	1.00	243.80	9,894.04	-496.98	-494.04	394.49	632.21	141.39	441,427.94	811,779.55
10,035.00	1.10	243.50	9,984.03	-497.70	-494.77	393.01	631.86	141.54	441,427.21	811,778.07
10,125.00	0.80	278.20	10,074.02	-497.99	-495.06	391.62	631.23	141.65	441,426.92	811,776.68
10,214.00	0.90	277.00	10,163.01	-497.80	-494.89	390.31	630.28	141.74	441,427.09	811,775.37
10,304.00	1.10	256.80	10,252.99	-497.90	-495.00	388.76	629.42	141.85	441,426.98	811,773.82
10,391.00	1.00	229.70	10,339.98	-498.58	-495.68	387.37	629.09	141.99	441,426.30	811,772.43
10,481.00	0.60	238.20	10,429.97	-499.32	-496.44	386.37	629.08	142.11	441,425.54	811,771.43
10,570.00	0.70	247.50	10,518.96	-499.77	-496.89	385.47	628.88	142.20	441,425.09	811,770.53
10,660.00	1.00	175.50	10,608.96	-500.76	-497.89	385.03	629.39	142.28	441,424.09	811,770.09
10,749.00	1.40	195.30	10,697.94	-502.58	-499.71	384.80	630.70	142.40	441,422.27	811,769.86
10,839.00	1.50	173.90	10,787.91	-504.81	-501.94	384.64	632.37	142.54	441,420.04	811,769.70
10,929.00	1.50	168.90	10,877.88	-507.14	-504.27	384.99	634.43	142.64	441,417.71	811,770.05
11,019.00	1.10	186.40	10,967.85	-509.16	-506.28	385.12	636.11	142.74	441,415.70	811,770.18
11,108.00	0.90	196.80	11,056.84	-510.67	-507.80	384.82	637.14	142.84	441,414.18	811,769.88
11,198.00	1.00	197.20	11,146.83	-512.10	-509.23	384.39	638.02	142.95	441,412.75	811,769.45
11,288.00	1.20	194.40	11,236.81	-513.76	-510.89	383.92	639.06	143.08	441,411.09	811,768.98
11,377.00	1.60	215.20	11,325.79	-515.67	-512.81	382.97	640.03	143.25	441,409.17	811,768.03
11,467.00	1.60	233.40	11,415.75	-517.43	-514.58	381.24	640.42	143.47	441,407.40	811,766.30

Company: Marathon Oil
Project: Lea County, NM(NAD 83)
Site: Flowmaster 24-34-15
Well: No. 14H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference: Well No. 14H
TVD Reference: Well @ 3545.00usft
MD Reference: Well @ 3545.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
11,557.00	1.20	241.40	11,505.72	-518.62	-515.78	379.40	640.30	143.66	441,406.20	811,764.46
11,646.00	2.10	222.20	11,594.69	-520.26	-517.44	377.49	640.50	143.89	441,404.54	811,762.55
11,689.00	2.70	218.60	11,637.65	-521.62	-518.81	376.33	640.93	144.04	441,403.17	811,761.39
11,781.00	3.00	223.30	11,729.54	-525.05	-522.26	373.32	641.97	144.44	441,399.72	811,758.38
11,844.00	2.70	217.70	11,792.46	-527.40	-524.63	371.29	642.72	144.71	441,397.35	811,756.35
11,939.00	2.30	42.50	11,887.43	-527.77	-525.00	371.21	642.98	144.74	441,396.98	811,756.27
12,034.00	9.00	347.50	11,981.95	-519.09	-516.32	370.89	635.73	144.31	441,405.66	811,755.95
12,128.00	26.60	347.90	12,071.10	-491.07	-488.35	364.83	609.58	143.24	441,433.63	811,749.89
12,222.00	33.50	353.70	12,152.44	-444.59	-441.92	357.57	568.46	141.02	441,480.06	811,742.63
12,317.00	40.90	0.70	12,228.09	-387.31	-384.66	355.07	523.48	137.29	441,537.32	811,740.13
12,411.00	47.30	1.70	12,295.56	-321.96	-319.29	356.47	478.56	131.85	441,602.69	811,741.53
12,505.00	58.80	6.70	12,351.99	-247.27	-244.56	362.20	437.04	124.03	441,677.42	811,747.26
12,600.00	63.50	3.90	12,397.82	-164.51	-161.74	369.84	403.66	113.62	441,760.24	811,754.90
12,694.00	75.10	5.60	12,431.00	-77.09	-74.27	377.16	384.40	101.14	441,847.71	811,762.22
12,789.00	87.70	7.70	12,445.17	15.93	18.84	388.04	388.50	87.22	441,940.82	811,773.10
12,808.00	90.00	7.70	12,445.56	34.73	37.66	390.59	392.40	84.49	441,959.64	811,775.65
12,903.00	87.30	3.00	12,447.80	129.18	132.19	399.44	420.75	71.69	442,054.17	811,784.50
12,998.00	90.90	3.60	12,449.29	223.96	227.00	404.91	464.20	60.72	442,148.98	811,789.97
13,092.00	89.40	359.70	12,449.04	317.87	320.94	407.62	518.80	51.78	442,242.92	811,792.68
13,186.00	87.70	0.50	12,451.42	411.83	414.91	407.78	581.75	44.50	442,336.89	811,792.84
13,281.00	90.10	359.20	12,453.24	506.81	509.88	407.53	652.73	38.63	442,431.86	811,792.59
13,376.00	89.90	357.90	12,453.24	601.79	604.85	405.13	727.99	33.81	442,526.83	811,790.19
13,471.00	93.20	357.60	12,450.67	696.69	699.73	401.40	806.68	29.84	442,621.71	811,786.46
13,565.00	90.60	358.20	12,447.56	790.59	793.60	397.96	887.79	26.63	442,715.58	811,783.02
13,660.00	90.40	359.10	12,446.73	885.58	888.57	395.72	972.70	24.01	442,810.55	811,780.78
13,754.00	94.30	357.70	12,442.87	979.46	982.44	393.10	1,058.16	21.81	442,904.42	811,778.16
13,849.00	93.90	358.40	12,436.08	1,074.18	1,077.14	389.87	1,145.52	19.90	442,999.12	811,774.93

Company: Marathon Oil
Project: Lea County, NM(NAD 83)
Site: Flowmaster 24-34-15
Well: No. 14H
Wellbore: OH
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Local Co-ordinate Reference: Well No. 14H
TVD Reference: Well @ 3545.00usft
MD Reference: Well @ 3545.00usft
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Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
13,944.00	90.60	359.40	12,432.35	1,169.09	1,172.03	388.05	1,234.60	18.32	443,094.01	811,773.11
14,038.00	88.20	359.70	12,433.34	1,263.07	1,266.02	387.31	1,323.94	17.01	443,188.00	811,772.37
14,132.00	90.20	3.80	12,434.65	1,356.97	1,359.94	390.19	1,414.81	16.01	443,281.92	811,775.25
14,227.00	89.00	2.30	12,435.31	1,451.79	1,454.80	395.24	1,507.53	15.20	443,376.78	811,780.30
14,321.00	90.20	0.30	12,435.97	1,545.74	1,548.76	397.37	1,598.93	14.39	443,470.74	811,782.43
14,417.00	87.10	359.80	12,438.23	1,641.70	1,644.73	397.46	1,692.07	13.59	443,566.71	811,782.52
14,511.00	84.50	359.10	12,445.12	1,735.43	1,738.46	396.56	1,783.12	12.85	443,660.44	811,781.62
14,605.00	88.10	357.90	12,451.18	1,829.21	1,832.21	394.10	1,874.12	12.14	443,754.19	811,779.16
14,700.00	89.80	357.60	12,452.92	1,924.14	1,927.12	390.37	1,966.26	11.45	443,849.10	811,775.43
14,795.00	92.30	358.10	12,451.18	2,019.07	2,022.03	386.81	2,058.70	10.83	443,944.01	811,771.87
14,889.00	93.80	0.70	12,446.18	2,112.93	2,115.88	385.82	2,150.77	10.33	444,037.86	811,770.88
14,984.00	88.60	0.50	12,444.19	2,207.86	2,210.82	386.82	2,244.41	9.92	444,132.80	811,771.88
15,079.00	86.30	0.30	12,448.42	2,302.75	2,305.72	387.48	2,338.05	9.54	444,227.70	811,772.54
15,173.00	90.40	359.20	12,451.12	2,396.69	2,399.66	387.07	2,430.68	9.16	444,321.64	811,772.13
15,267.00	90.10	358.80	12,450.71	2,490.68	2,493.64	385.43	2,523.25	8.79	444,415.62	811,770.49
15,362.00	88.20	357.90	12,452.12	2,585.64	2,588.59	382.69	2,616.72	8.41	444,510.57	811,767.75
15,457.00	91.00	357.90	12,452.78	2,680.59	2,683.51	379.21	2,710.17	8.04	444,605.49	811,764.27
15,551.00	89.40	355.70	12,452.46	2,774.47	2,777.36	373.97	2,802.42	7.67	444,699.34	811,759.03
15,645.00	90.30	355.40	12,452.70	2,868.24	2,871.07	366.67	2,894.39	7.28	444,793.05	811,751.73
15,740.00	94.40	357.80	12,448.81	2,963.01	2,965.80	361.04	2,987.69	6.94	444,887.78	811,746.10
15,834.00	93.20	359.00	12,442.58	3,056.78	3,059.55	358.42	3,080.47	6.68	444,981.53	811,743.48
15,929.00	92.50	359.30	12,437.85	3,151.65	3,154.42	357.02	3,174.56	6.46	445,076.40	811,742.08
16,023.00	89.50	359.10	12,436.21	3,245.63	3,248.39	355.70	3,267.81	6.25	445,170.37	811,740.76
16,117.00	89.80	359.80	12,436.79	3,339.62	3,342.38	354.80	3,361.16	6.06	445,264.36	811,739.86
16,212.00	89.80	358.10	12,437.12	3,434.62	3,437.36	353.06	3,455.45	5.86	445,359.34	811,738.12
16,306.00	89.40	357.90	12,437.78	3,528.58	3,531.30	349.78	3,548.58	5.66	445,453.28	811,734.84
16,401.00	91.80	358.20	12,436.78	3,623.53	3,626.23	346.55	3,642.76	5.46	445,548.21	811,731.61

Company: Marathon Oil
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Site: Flowmaster 24-34-15
Well: No. 14H
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TVD Reference: Well @ 3545.00usft
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
16,495.00	92.50	1.20	12,433.25	3,717.45	3,720.16	346.06	3,736.22	5.31	445,642.14	811,731.12
16,589.00	91.50	3.10	12,429.97	3,811.30	3,814.03	349.58	3,830.01	5.24	445,736.01	811,734.64
16,683.00	90.20	3.00	12,428.58	3,905.11	3,907.88	354.58	3,923.94	5.18	445,829.86	811,739.64
16,778.00	89.10	1.50	12,429.16	4,000.00	4,002.80	358.31	4,018.81	5.12	445,924.78	811,743.37
16,872.00	89.20	1.30	12,430.55	4,093.94	4,096.76	360.61	4,112.60	5.03	446,018.74	811,745.67
16,967.00	91.00	2.80	12,430.39	4,188.85	4,191.70	364.01	4,207.47	4.96	446,113.68	811,749.07
17,061.00	88.10	0.10	12,431.13	4,282.77	4,285.64	366.38	4,301.28	4.89	446,207.62	811,751.44
17,156.00	88.00	359.80	12,434.36	4,377.72	4,380.59	366.30	4,395.88	4.78	446,302.57	811,751.36
17,251.00	88.60	0.20	12,437.18	4,472.67	4,475.55	366.30	4,490.51	4.68	446,397.53	811,751.36
17,345.00	88.30	359.00	12,439.72	4,566.64	4,569.51	365.65	4,584.11	4.57	446,491.49	811,750.71
17,407.00	88.40	0.30	12,441.50	4,628.61	4,631.48	365.27	4,645.86	4.51	446,553.46	811,750.33
Last Survey: 17407' MD										
17,462.00	88.40	0.30	12,443.04	4,683.58	4,686.46	365.56	4,700.69	4.46	446,608.44	811,750.62
PTB: 17462' MD										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,211.00	1,210.98	-1.69	1.23	Pro MWD First Survey: 1211' MD
17,407.00	12,441.50	4,631.48	365.27	Last Survey: 17407' MD
17,462.00	12,443.04	4,686.46	365.56	PTB: 17462' MD



Marathon Oil

Wellbore Schematic

Well Name: FLOWMASTER FEE 24 34 15 WA 14H

State/Province NEW MEXICO	Country UNITED STATES	Field Name	Latitude (°) 32.21178290	Longitude (°) -103.45972700	North/South Distance (ft) 591.0	North/South Reference FSL
API/ IFO UWI 3002544887	KB-Ground Distance (ft) 27.50	KB-Mud Line Distance (ft)	Ground Elevation (ft) 3,518.00	Drilling Rig Spud Date 7/7/2019	Well Original Completion Date	Well First Production Date 11/17/2019

HORIZONTAL, FLOWMASTER FEE 24 34 15 WA 14H, 12/23/2019 11:45:44 AM

