



Marathon Oil

Marathon Oil

Lea County, NM

Dee Boot Fee 24-34-26 (3-6-7-19)

WXY #3H

ST01

Design: MWD 12036'-17447' PTB 17496'

Survey Report

14 August, 2018



Company:	Marathon Oil	Local Co-ordinate Reference:	Well WXY #3H
Project:	Lea County, NM	TVD Reference:	Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
Site:	Dee Boot Fee 24-34-26 (3-6-7-19)	MD Reference:	Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
Well:	WXY #3H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	MWD 12036'-17447' PTB 17496'	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	Dee Boot Fee 24-34-26 (3-6-7-19)		
Site Position:		Northing:	435,782.47 usft
From:	Map	Easting:	777,788.07 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.194895
		Longitude:	-103.435339
		Grid Convergence:	0.48 °

Well		WXY #3H				
Well Position	+N/-S	0.00 usft	Northing:	435,782.47 usft	Latitude:	32.194897
	+E/-W	0.00 usft	Easting:	777,698.07 usft	Longitude:	-103.435630
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,447.00 usft

Wellbore	ST01				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	4/26/2018	6.73	59.90	47,997.70

Design		MWD 12036'-17447' PTB 17496'		
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 11,923.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.41

Company: Marathon Oil
Project: Lea County, NM
Site: Dee Boot Fee 24-34-26 (3-6-7-19)
Well: WXY #3H
Wellbore: ST01
Design: MWD 12036'-17447' PTB 17496'

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well WXY #3H
 Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
 Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
 Grid
 Minimum Curvature
 WellPlanner1

Survey Program **Date** 8/14/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	983.00	Survey #1 (OH)	GYRO-NS-CT	OWSG XYZ Accel with XY Static and Continuous Gyro
1,149.00	11,923.00	Survey #2 (OH)	MWD+IFR1	OWSG MWD + IFR1
12,036.00	17,496.00	Survey #3 (ST01)	MWD+IFR1	OWSG MWD + IFR1

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	435,782.47	777,698.07
100.00	0.24	44.60	100.00	-0.15	0.15	0.15	0.21	44.60	435,782.62	777,698.22
200.00	0.22	61.11	200.00	-0.39	0.39	0.46	0.61	49.77	435,782.86	777,698.53
300.00	0.50	35.68	300.00	-0.83	0.84	0.88	1.22	46.55	435,783.31	777,698.95
400.00	0.27	25.53	399.99	-1.39	1.41	1.24	1.87	41.45	435,783.88	777,699.31
500.00	0.32	314.89	499.99	-1.80	1.81	1.14	2.15	32.24	435,784.28	777,699.21
600.00	0.17	258.91	599.99	-1.98	1.98	0.80	2.14	21.99	435,784.45	777,698.87
700.00	0.24	225.81	699.99	-1.80	1.81	0.51	1.88	15.61	435,784.28	777,698.58
800.00	0.12	200.75	799.99	-1.56	1.57	0.32	1.60	11.49	435,784.04	777,698.39
900.00	0.31	166.69	899.99	-1.20	1.20	0.34	1.25	15.92	435,783.67	777,698.41
983.00	0.53	102.28	982.99	-0.90	0.90	0.77	1.19	40.44	435,783.37	777,698.84
1,149.00	0.60	82.10	1,148.98	-0.84	0.86	2.38	2.53	70.15	435,783.33	777,700.45
1,240.00	0.40	68.80	1,239.98	-1.01	1.04	3.15	3.32	71.72	435,783.51	777,701.22
1,331.00	0.30	79.00	1,330.98	-1.16	1.20	3.68	3.87	71.93	435,783.67	777,701.75
1,422.00	1.00	241.90	1,421.97	-0.84	0.87	3.21	3.33	74.81	435,783.34	777,701.28
1,517.00	1.50	242.90	1,516.95	0.10	-0.08	1.37	1.38	93.54	435,782.39	777,699.44
1,611.00	1.10	242.70	1,610.92	1.05	-1.06	-0.52	1.18	206.26	435,781.41	777,697.55
1,705.00	1.30	251.00	1,704.90	1.80	-1.82	-2.33	2.96	232.03	435,780.65	777,695.74
1,800.00	2.00	258.40	1,799.86	2.45	-2.50	-4.98	5.57	243.28	435,779.97	777,693.09
1,894.00	1.90	264.70	1,893.81	2.89	-2.98	-8.13	8.66	249.89	435,779.49	777,689.94

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WXY #3H
Project:	Lea County, NM	TVD Reference:	Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
Site:	Dee Boot Fee 24-34-26 (3-6-7-19)	MD Reference:	Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
Well:	WXY #3H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	MWD 12036'-17447' PTB 17496'	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)	
1,988.00	1.70	268.10	1,987.76	3.05	-3.17	-11.08	11.52	254.04	435,779.30	777,686.99	
2,083.00	1.60	264.00	2,082.72	3.21	-3.35	-13.81	14.21	256.35	435,779.12	777,684.26	
2,177.00	1.50	271.00	2,176.69	3.30	-3.47	-16.34	16.71	258.01	435,779.00	777,681.73	
2,272.00	2.00	289.20	2,271.65	2.71	-2.90	-19.15	19.37	261.38	435,779.57	777,678.92	
2,366.00	2.20	291.70	2,365.58	1.47	-1.70	-22.38	22.44	265.67	435,780.77	777,675.69	
2,461.00	2.20	292.10	2,460.51	0.07	-0.34	-25.76	25.76	269.25	435,782.13	777,672.31	
2,556.00	1.90	296.30	2,555.45	-1.35	1.05	-28.86	28.88	272.08	435,783.52	777,669.21	
2,650.00	1.40	311.70	2,649.41	-2.82	2.50	-31.12	31.22	274.60	435,784.97	777,666.95	
2,745.00	1.40	310.60	2,744.38	-4.37	4.03	-32.86	33.11	276.99	435,786.50	777,665.21	
2,839.00	0.30	332.40	2,838.37	-5.34	5.00	-33.85	34.22	278.39	435,787.47	777,664.22	
2,934.00	0.50	319.70	2,933.37	-5.88	5.53	-34.23	34.68	279.18	435,788.00	777,663.84	
3,028.00	0.40	331.60	3,027.37	-6.49	6.13	-34.65	35.19	280.04	435,788.60	777,663.42	
3,123.00	0.50	298.20	3,122.37	-6.98	6.62	-35.18	35.79	280.66	435,789.09	777,662.89	
3,217.00	0.40	287.00	3,216.36	-7.28	6.91	-35.85	36.51	280.91	435,789.38	777,662.22	
3,311.00	0.30	315.60	3,310.36	-7.56	7.18	-36.34	37.04	281.18	435,789.65	777,661.73	
3,406.00	0.10	22.30	3,405.36	-7.81	7.44	-36.48	37.23	281.52	435,789.91	777,661.59	
3,500.00	0.30	52.30	3,499.36	-8.04	7.66	-36.25	37.06	281.93	435,790.13	777,661.82	
3,595.00	0.40	115.50	3,594.36	-8.04	7.67	-35.76	36.57	282.11	435,790.14	777,662.31	
3,689.00	0.50	105.30	3,688.36	-7.78	7.42	-35.07	35.84	281.95	435,789.89	777,663.00	
3,784.00	0.90	105.60	3,783.35	-7.46	7.11	-33.95	34.69	281.83	435,789.58	777,664.12	
3,878.00	1.10	116.10	3,877.33	-6.85	6.52	-32.43	33.08	281.36	435,788.99	777,665.64	
3,973.00	1.00	104.30	3,972.32	-6.23	5.91	-30.80	31.37	280.86	435,788.38	777,667.27	
4,067.00	1.00	123.90	4,066.30	-5.55	5.25	-29.33	29.80	280.15	435,787.72	777,668.74	
4,162.00	1.00	140.60	4,161.29	-4.44	4.15	-28.11	28.42	278.39	435,786.62	777,669.96	
4,256.00	1.80	205.80	4,255.27	-2.48	2.19	-28.24	28.32	274.43	435,784.66	777,669.83	
4,351.00	3.40	228.70	4,350.17	0.70	-1.02	-31.00	31.02	268.12	435,781.45	777,667.07	
4,445.00	3.80	242.60	4,443.98	3.92	-4.29	-35.86	36.12	263.18	435,778.18	777,662.21	

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Wellbore: ST01
Design: MWD 12036'-17447' PTB 17496'

Local Co-ordinate Reference: Well WXY #3H
TVD Reference: Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
MD Reference: Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
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)	
4,539.00	3.60	252.50	4,537.79	6.18	-6.61	-41.44	41.97	260.94	435,775.86	777,656.63	
4,634.00	3.60	249.80	4,632.60	8.05	-8.54	-47.09	47.85	259.72	435,773.93	777,650.98	
4,729.00	4.30	251.60	4,727.37	10.14	-10.69	-53.26	54.33	258.65	435,771.78	777,644.81	
4,823.00	8.00	255.50	4,820.82	12.79	-13.44	-62.94	64.36	257.94	435,769.03	777,635.13	
4,918.00	11.90	260.70	4,914.37	15.87	-16.68	-79.02	80.76	258.08	435,765.79	777,619.05	
5,012.00	12.80	262.50	5,006.20	18.59	-19.61	-98.91	100.83	258.79	435,762.86	777,599.16	
5,107.00	13.00	262.50	5,098.80	21.14	-22.38	-119.93	122.00	259.43	435,760.09	777,578.14	
5,201.00	14.10	263.10	5,190.18	23.67	-25.13	-141.78	143.99	259.95	435,757.34	777,556.29	
5,296.00	13.90	267.30	5,282.36	25.36	-27.06	-164.67	166.88	260.67	435,755.41	777,533.40	
5,390.00	13.70	275.50	5,373.66	24.60	-26.53	-187.03	188.90	261.93	435,755.94	777,511.04	
5,482.00	13.70	275.50	5,463.04	22.29	-24.44	-208.72	210.14	263.32	435,758.03	777,489.35	
5,600.00	11.60	275.80	5,578.17	19.48	-21.90	-234.43	235.45	264.66	435,760.57	777,463.64	
5,663.00	12.60	278.50	5,639.77	17.69	-20.24	-247.53	248.36	265.32	435,762.23	777,450.54	
5,757.00	14.70	284.10	5,731.11	13.05	-15.82	-269.24	269.71	266.64	435,766.65	777,428.83	
5,851.00	16.60	282.60	5,821.62	6.96	-9.99	-293.92	294.09	268.05	435,772.48	777,404.15	
5,946.00	16.60	281.50	5,912.67	1.02	-4.32	-320.46	320.49	269.23	435,778.15	777,377.61	
6,040.00	16.30	281.50	6,002.82	-4.56	0.99	-346.54	346.54	270.16	435,783.46	777,351.53	
6,134.00	16.70	279.50	6,092.95	-9.68	5.85	-372.79	372.83	270.90	435,788.32	777,325.28	
6,229.00	16.40	279.80	6,184.01	-14.49	10.38	-399.47	399.60	271.49	435,792.85	777,298.60	
6,323.00	17.10	279.40	6,274.02	-19.29	14.90	-426.18	426.44	272.00	435,797.37	777,271.89	
6,418.00	16.20	279.80	6,365.04	-24.10	19.43	-453.02	453.43	272.46	435,801.90	777,245.05	
6,512.00	14.90	277.80	6,455.60	-28.23	23.31	-477.91	478.48	272.79	435,805.78	777,220.16	
6,607.00	14.80	281.30	6,547.43	-32.51	27.34	-501.91	502.66	273.12	435,809.81	777,196.16	
6,701.00	15.00	281.40	6,638.26	-37.51	32.10	-525.61	526.59	273.49	435,814.57	777,172.46	
6,796.00	15.20	280.30	6,729.98	-42.42	36.76	-549.91	551.14	273.82	435,819.23	777,148.16	
6,890.00	14.90	279.30	6,820.76	-46.82	40.91	-573.97	575.42	274.08	435,823.38	777,124.10	
6,985.00	14.60	277.70	6,912.63	-50.64	44.49	-597.88	599.54	274.26	435,826.96	777,100.19	

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Project: Lea County, NM
Site: Dee Boot Fee 24-34-26 (3-6-7-19)
Well: WXY #3H
Wellbore: ST01
Design: MWD 12036'-17447' PTB 17496'

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well WXY #3H
 Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
 Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
 Grid
 Minimum Curvature
 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)
7,079.00	14.40	281.40	7,003.64	-54.78	48.39	-621.08	622.97	274.45	435,830.86	777,076.99
7,174.00	14.90	282.60	7,095.55	-60.02	53.39	-644.58	646.79	274.73	435,835.86	777,053.49
7,268.00	14.80	282.40	7,186.41	-65.48	58.60	-668.10	670.67	275.01	435,841.07	777,029.97
7,363.00	14.30	281.10	7,278.36	-70.58	63.47	-691.47	694.37	275.24	435,845.94	777,006.60
7,457.00	13.50	281.50	7,369.61	-75.23	67.89	-713.61	716.83	275.43	435,850.36	776,984.46
7,552.00	13.70	281.50	7,461.95	-79.91	72.34	-735.50	739.05	275.62	435,854.81	776,962.57
7,646.00	14.10	289.90	7,553.20	-86.25	78.46	-757.18	761.23	275.92	435,860.93	776,940.89
7,741.00	13.60	291.10	7,645.44	-94.43	86.42	-778.48	783.26	276.33	435,868.89	776,919.59
7,835.00	13.20	292.30	7,736.88	-102.69	94.47	-798.72	804.29	276.75	435,876.94	776,899.35
7,930.00	13.20	292.30	7,829.37	-111.13	102.70	-818.79	825.21	277.15	435,885.17	776,879.28
8,024.00	12.80	290.90	7,920.96	-119.12	110.49	-838.45	845.70	277.51	435,892.96	776,859.62
8,118.00	14.00	287.50	8,012.40	-126.46	117.62	-859.02	867.04	277.80	435,900.09	776,839.05
8,213.00	13.80	285.70	8,104.62	-133.21	124.14	-880.89	889.59	278.02	435,906.61	776,817.18
8,307.00	12.60	284.10	8,196.14	-138.95	129.68	-901.63	910.90	278.18	435,912.15	776,796.44
8,402.00	12.90	279.90	8,288.80	-143.51	134.02	-922.12	931.81	278.27	435,916.49	776,775.95
8,496.00	14.50	279.00	8,380.12	-147.38	137.67	-944.08	954.07	278.30	435,920.14	776,753.99
8,591.00	14.20	279.90	8,472.15	-151.49	141.53	-967.31	977.61	278.32	435,924.00	776,730.76
8,685.00	12.50	278.20	8,563.61	-155.14	144.97	-988.74	999.31	278.34	435,927.44	776,709.33
8,780.00	12.30	277.70	8,656.40	-158.17	147.79	-1,008.94	1,019.71	278.33	435,930.26	776,689.13
8,874.00	11.60	278.10	8,748.36	-161.04	150.46	-1,028.22	1,039.17	278.33	435,932.93	776,669.85
8,968.00	9.60	278.00	8,840.75	-163.64	152.88	-1,045.34	1,056.46	278.32	435,935.35	776,652.73
9,063.00	8.40	277.50	8,934.58	-165.80	154.89	-1,060.06	1,071.32	278.31	435,937.36	776,638.01
9,157.00	7.30	277.00	9,027.70	-167.56	156.52	-1,072.80	1,084.16	278.30	435,938.99	776,625.27
9,252.00	6.60	276.60	9,122.00	-169.04	157.88	-1,084.21	1,095.65	278.29	435,940.35	776,613.86
9,346.00	5.70	276.50	9,215.45	-170.29	159.03	-1,094.22	1,105.71	278.27	435,941.50	776,603.85
9,440.00	5.00	275.10	9,309.04	-171.27	159.92	-1,102.93	1,114.47	278.25	435,942.39	776,595.14
9,534.00	4.30	272.80	9,402.73	-171.88	160.46	-1,110.53	1,122.07	278.22	435,942.93	776,587.54

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Project: Lea County, NM
Site: Dee Boot Fee 24-34-26 (3-6-7-19)
Well: WXY #3H
Wellbore: ST01
Design: MWD 12036'-17447' PTB 17496'

Local Co-ordinate Reference:
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Survey Calculation Method:
Database:

Well WXY #3H
 Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
 Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
 Grid
 Minimum Curvature
 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)
9,629.00	2.10	278.80	9,497.58	-172.38	160.90	-1,115.81	1,127.35	278.21	435,943.37	776,582.26
9,723.00	1.90	268.60	9,591.52	-172.64	161.12	-1,119.07	1,130.61	278.19	435,943.59	776,579.00
9,818.00	0.40	255.20	9,686.50	-172.53	161.00	-1,120.97	1,132.47	278.17	435,943.47	776,577.10
9,912.00	0.20	199.10	9,780.50	-172.30	160.76	-1,121.34	1,132.80	278.16	435,943.23	776,576.73
10,007.00	0.40	228.70	9,875.50	-171.93	160.39	-1,121.64	1,133.05	278.14	435,942.86	776,576.43
10,101.00	0.80	244.30	9,969.49	-171.43	159.88	-1,122.48	1,133.81	278.11	435,942.35	776,575.59
10,196.00	1.40	267.50	10,064.48	-171.11	159.55	-1,124.24	1,135.50	278.08	435,942.02	776,573.83
10,290.00	1.70	274.50	10,158.44	-171.20	159.61	-1,126.77	1,138.02	278.06	435,942.08	776,571.30
10,385.00	2.20	275.80	10,253.39	-171.53	159.90	-1,129.99	1,141.25	278.05	435,942.37	776,568.08
10,479.00	2.00	284.30	10,347.32	-172.15	160.49	-1,133.38	1,144.68	278.06	435,942.96	776,564.69
10,574.00	2.70	279.80	10,442.24	-172.98	161.28	-1,137.19	1,148.57	278.07	435,943.75	776,560.88
10,668.00	2.60	282.50	10,536.14	-173.86	162.12	-1,141.45	1,152.91	278.08	435,944.59	776,556.62
10,763.00	0.30	85.30	10,631.11	-174.37	162.60	-1,143.31	1,154.81	278.09	435,945.07	776,554.76
10,858.00	0.90	97.70	10,726.11	-174.28	162.52	-1,142.32	1,153.82	278.10	435,944.99	776,555.75
10,952.00	0.20	142.00	10,820.10	-174.04	162.30	-1,141.49	1,152.97	278.09	435,944.77	776,556.58
11,046.00	0.50	282.00	10,914.10	-174.00	162.25	-1,141.79	1,153.26	278.09	435,944.72	776,556.28
11,140.00	1.50	336.40	11,008.09	-175.22	163.46	-1,142.68	1,154.31	278.14	435,945.93	776,555.39
11,235.00	2.70	325.10	11,103.02	-178.22	166.44	-1,144.46	1,156.50	278.27	435,948.91	776,553.61
11,330.00	1.00	319.50	11,197.97	-180.70	168.91	-1,146.28	1,158.66	278.38	435,951.38	776,551.79
11,424.00	0.90	323.00	11,291.96	-181.92	170.12	-1,147.26	1,159.80	278.43	435,952.59	776,550.81
11,518.00	1.60	303.20	11,385.93	-183.25	171.43	-1,148.80	1,161.52	278.49	435,953.90	776,549.27
11,613.00	2.20	260.50	11,480.89	-183.70	171.85	-1,151.71	1,164.46	278.49	435,954.32	776,546.36
11,707.00	3.80	250.80	11,574.76	-182.43	170.53	-1,156.43	1,168.93	278.39	435,953.00	776,541.64
11,802.00	4.30	251.10	11,669.52	-180.31	168.34	-1,162.77	1,174.89	278.24	435,950.81	776,535.30
11,896.00	3.30	253.10	11,763.31	-178.44	166.41	-1,168.69	1,180.48	278.10	435,948.88	776,529.38
11,923.00	3.00	254.50	11,790.27	-178.04	166.00	-1,170.12	1,181.83	278.07	435,948.47	776,527.95

Tie into OH: 11923' MD

Company:	Marathon Oil	Local Co-ordinate Reference:	Well WXY #3H
Project:	Lea County, NM	TVD Reference:	Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
Site:	Dee Boot Fee 24-34-26 (3-6-7-19)	MD Reference:	Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
Well:	WXY #3H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	MWD 12036'-17447' PTB 17496'	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)
12,036.00	2.50	261.60	11,903.14	-176.94	164.85	-1,175.41	1,186.91	277.98	435,947.32	776,522.66
12,130.00	2.30	175.20	11,997.08	-174.78	162.67	-1,177.28	1,188.46	277.87	435,945.14	776,520.79
12,201.07	10.08	182.27	12,067.69	-167.14	155.02	-1,177.40	1,187.56	277.50	435,937.49	776,520.67
[KnifeFight#3H]KOP										
12,225.00	12.70	182.70	12,091.14	-162.42	150.30	-1,177.61	1,187.16	277.27	435,932.77	776,520.46
12,319.00	27.10	159.70	12,179.42	-131.75	119.70	-1,170.62	1,176.73	275.84	435,902.17	776,527.45
12,414.00	39.10	162.30	12,258.86	-82.56	70.68	-1,153.94	1,156.11	273.51	435,853.15	776,544.13
12,509.00	50.00	168.00	12,326.48	-18.04	6.33	-1,137.21	1,137.23	270.32	435,788.80	776,560.86
12,603.00	55.30	171.60	12,383.50	55.60	-67.18	-1,124.07	1,126.08	266.58	435,715.29	776,574.00
12,698.00	55.20	171.80	12,437.65	132.95	-144.42	-1,112.80	1,122.14	262.61	435,638.05	776,585.27
12,792.00	64.10	178.80	12,485.15	213.72	-225.12	-1,106.40	1,129.07	258.50	435,557.35	776,591.67
12,887.00	69.60	179.00	12,522.48	301.03	-312.42	-1,104.72	1,148.05	254.21	435,470.05	776,593.35
12,982.00	72.80	180.00	12,553.09	390.95	-402.34	-1,103.94	1,174.98	249.98	435,380.13	776,594.13
13,076.00	89.00	180.70	12,567.91	483.45	-494.85	-1,104.52	1,210.31	245.87	435,287.62	776,593.55
13,170.00	89.40	180.90	12,569.22	577.41	-588.83	-1,105.83	1,252.83	241.97	435,193.64	776,592.24
13,264.00	87.90	179.60	12,571.44	671.37	-682.80	-1,106.25	1,300.00	238.32	435,099.67	776,591.82
13,359.00	87.60	179.40	12,575.17	766.29	-777.72	-1,105.42	1,351.59	234.87	435,004.75	776,592.65
13,453.00	89.00	179.00	12,577.95	860.25	-871.67	-1,104.11	1,406.72	231.71	434,910.80	776,593.96
13,547.00	88.80	178.60	12,579.76	954.23	-965.63	-1,102.14	1,465.31	228.78	434,816.84	776,595.93
13,641.00	88.70	178.40	12,581.81	1,048.19	-1,059.57	-1,099.68	1,527.08	226.06	434,722.90	776,598.39
13,735.00	89.50	177.20	12,583.29	1,142.14	-1,153.49	-1,096.07	1,591.20	223.54	434,628.98	776,602.00
13,852.00	90.70	176.00	12,583.08	1,259.00	-1,270.28	-1,089.13	1,673.26	220.61	434,512.19	776,608.94
13,946.00	93.40	179.20	12,579.72	1,352.87	-1,364.11	-1,085.20	1,743.12	218.50	434,418.36	776,612.87
14,040.00	92.20	177.80	12,575.13	1,446.74	-1,457.97	-1,082.74	1,816.04	216.60	434,324.50	776,615.33
14,135.00	92.20	177.40	12,571.48	1,541.62	-1,552.81	-1,078.76	1,890.76	214.79	434,229.66	776,619.31
14,229.00	91.40	178.00	12,568.53	1,635.53	-1,646.69	-1,074.99	1,966.52	213.14	434,135.78	776,623.08
14,323.00	91.50	176.90	12,566.15	1,729.45	-1,740.57	-1,070.81	2,043.58	211.60	434,041.90	776,627.26



Professional Directional Survey Report



Company: Marathon Oil
Project: Lea County, NM
Site: Dee Boot Fee 24-34-26 (3-6-7-19)
Well: WXY #3H
Wellbore: ST01
Design: MWD 12036'-17447' PTB 17496'

Local Co-ordinate Reference: Well WXY #3H
TVD Reference: Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
MD Reference: Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
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)	
14,417.00	91.10	180.30	12,564.02	1,823.40	-1,834.50	-1,068.52	2,123.00	210.22	433,947.97	776,629.55	
14,512.00	90.40	179.80	12,562.77	1,918.38	-1,929.49	-1,068.60	2,205.64	208.98	433,852.98	776,629.47	
14,606.00	88.50	179.70	12,563.67	2,012.37	-2,023.48	-1,068.19	2,288.12	207.83	433,758.99	776,629.88	
14,701.00	88.60	179.30	12,566.08	2,107.34	-2,118.45	-1,067.36	2,372.14	206.74	433,664.02	776,630.71	
14,795.00	88.10	178.70	12,568.78	2,201.30	-2,212.39	-1,065.72	2,455.69	205.72	433,570.08	776,632.35	
14,890.00	88.20	178.60	12,571.85	2,296.24	-2,307.32	-1,063.48	2,540.61	204.75	433,475.15	776,634.59	
14,984.00	90.10	179.20	12,573.25	2,390.22	-2,401.28	-1,061.68	2,625.51	203.85	433,381.19	776,636.39	
15,079.00	89.80	179.70	12,573.33	2,485.22	-2,496.28	-1,060.77	2,712.31	203.02	433,286.19	776,637.30	
15,173.00	89.50	182.30	12,573.90	2,579.18	-2,590.25	-1,062.41	2,799.67	202.30	433,192.22	776,635.66	
15,268.00	89.30	182.80	12,574.90	2,674.03	-2,685.16	-1,066.63	2,889.25	201.66	433,097.31	776,631.44	
15,362.00	90.30	180.30	12,575.23	2,767.95	-2,779.11	-1,069.18	2,977.68	201.04	433,003.36	776,628.89	
15,457.00	91.90	179.60	12,573.40	2,862.93	-2,874.09	-1,069.09	3,066.49	200.40	432,908.38	776,628.98	
15,551.00	93.40	179.90	12,569.06	2,956.82	-2,967.99	-1,068.68	3,154.52	199.80	432,814.48	776,629.39	
15,646.00	93.40	179.80	12,563.42	3,051.65	-3,062.82	-1,068.43	3,243.83	199.23	432,719.65	776,629.64	
15,740.00	93.80	179.80	12,557.52	3,145.47	-3,156.63	-1,068.11	3,332.44	198.69	432,625.84	776,629.96	
15,835.00	91.90	179.00	12,552.80	3,240.34	-3,251.50	-1,067.11	3,422.14	198.17	432,530.97	776,630.96	
15,929.00	91.70	178.30	12,549.84	3,334.29	-3,345.43	-1,064.90	3,510.83	197.66	432,437.04	776,633.17	
16,024.00	91.90	178.60	12,546.86	3,429.23	-3,440.35	-1,062.33	3,600.63	197.16	432,342.12	776,635.74	
16,118.00	91.60	178.10	12,543.99	3,523.17	-3,534.27	-1,059.63	3,689.69	196.69	432,248.20	776,638.44	
16,213.00	91.10	177.70	12,541.75	3,618.11	-3,629.18	-1,056.15	3,779.73	196.23	432,153.29	776,641.92	
16,307.00	90.80	177.20	12,540.19	3,712.04	-3,723.07	-1,051.96	3,868.83	195.78	432,059.40	776,646.11	
16,402.00	90.90	178.20	12,538.78	3,806.99	-3,817.98	-1,048.15	3,959.24	195.35	431,964.49	776,649.92	
16,496.00	90.50	178.10	12,537.63	3,900.96	-3,911.92	-1,045.12	4,049.13	194.96	431,870.55	776,652.95	
16,591.00	91.10	179.80	12,536.31	3,995.94	-4,006.90	-1,043.38	4,140.51	194.60	431,775.57	776,654.69	
16,685.00	90.80	180.10	12,534.75	4,089.92	-4,100.88	-1,043.29	4,231.51	194.27	431,681.59	776,654.78	
16,780.00	93.10	179.80	12,531.52	4,184.86	-4,195.82	-1,043.21	4,323.56	193.96	431,586.65	776,654.86	
16,874.00	93.10	179.90	12,526.43	4,278.72	-4,289.68	-1,042.97	4,414.65	193.67	431,492.79	776,655.10	

Company: Marathon Oil
Project: Lea County, NM
Site: Dee Boot Fee 24-34-26 (3-6-7-19)
Well: WXY #3H
Wellbore: ST01
Design: MWD 12036'-17447' PTB 17496'

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well WXY #3H
 Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
 Well @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))
 Grid
 Minimum Curvature
 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)	
16,969.00	93.20	180.40	12,521.21	4,373.56	-4,384.54	-1,043.21	4,506.94	193.38	431,397.93	776,654.86	
17,063.00	93.60	180.90	12,515.64	4,467.38	-4,478.37	-1,044.28	4,598.51	193.13	431,304.10	776,653.79	
17,158.00	92.20	179.70	12,510.83	4,562.24	-4,573.24	-1,044.77	4,691.06	192.87	431,209.23	776,653.30	
17,253.00	92.60	180.40	12,506.85	4,657.15	-4,668.16	-1,044.86	4,783.66	192.62	431,114.31	776,653.21	
17,347.00	90.20	180.00	12,504.56	4,751.11	-4,762.12	-1,045.19	4,875.47	192.38	431,020.35	776,652.88	
17,442.00	91.50	180.60	12,503.15	4,846.08	-4,857.11	-1,045.68	4,968.39	192.15	430,925.36	776,652.39	
17,447.00	91.50	180.60	12,503.02	4,851.08	-4,862.10	-1,045.74	4,973.29	192.14	430,920.37	776,652.33	
Last Survey: 17447' MD, 12503' TVD - [KnifeFight#3H]LTP/BHL											
17,496.00	91.50	180.60	12,501.73	4,900.05	-4,911.08	-1,046.25	5,021.29	192.03	430,871.39	776,651.82	
PTB: 17496' MD, 12502' TVD											

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
11,923.00	11,790.27	166.00	-1,170.12	Tie into OH: 11923' MD	
17,447.00	12,503.02	-4,862.10	-1,045.74	Last Survey: 17447' MD, 12503' TVD	
17,496.00	12,501.73	-4,911.08	-1,046.25	PTB: 17496' MD, 12502' TVD	



Marathon Oil
Lea County, NM
Dee Boot Fee 24-34-26 (3-6-7-19)
WXY #3H
ST01-Plan #2
GL: 3447' + 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 @ 3473.50usft (GL: 3447' + KB: 26.5' (H&P480))

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
0.00	0.00	435782.47	777698.07	32.194897	-103.435630	

SECTION DETAILS

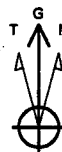
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00
3	2800.00	14.00	278.48	2893.06	12.54	-84.17	2.00	-13.41
4	6852.13	14.00	278.48	6727.79	153.46	-1029.93	0.00	-164.05
5	7552.13	0.00	0.00	7420.85	168.00	-1114.00	2.00	-177.48
6	12200.61	0.00	0.00	12089.33	168.00	-1114.00	0.00	-177.48
7	13118.62	91.80	179.41	12642.01	-424.92	-1107.94	10.00	413.49
8	17563.31	91.80	179.41	12502.39	-4867.19	-1062.41	0.00	4855.99
9	17608.31	91.80	179.41	12500.98	-4912.17	-1061.95	0.00	4900.97

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
[KnifeFight#3H]KOP	12089.33	168.00	-1114.00	435948.47	778584.07
[KnifeFight#3H]LTP/BHL	12502.39	-4867.19	-1062.41	430915.28	776635.66



PRODIRECTIONAL



Azimuths to Grid North
True North: -0.48°
Magnetic North: 6.25°

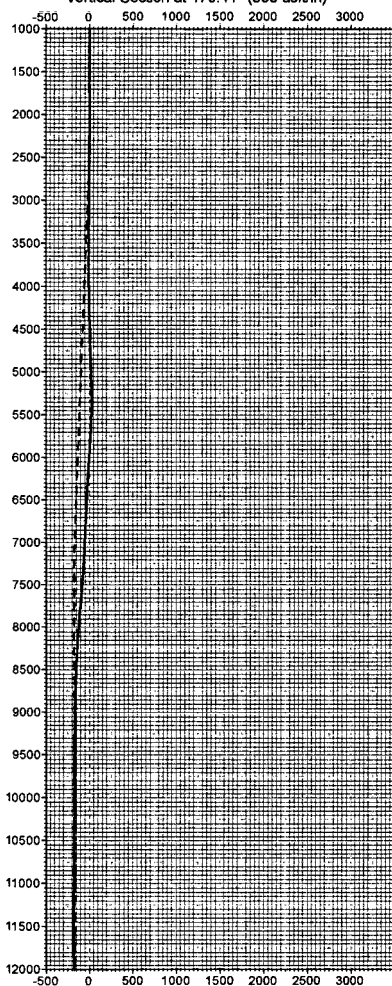
Magnetic Field
Strength: 47997.7nT
Dip Angle: 59.90°
Date: 4/26/2018
Model: HDGM

Azimuth Corrections

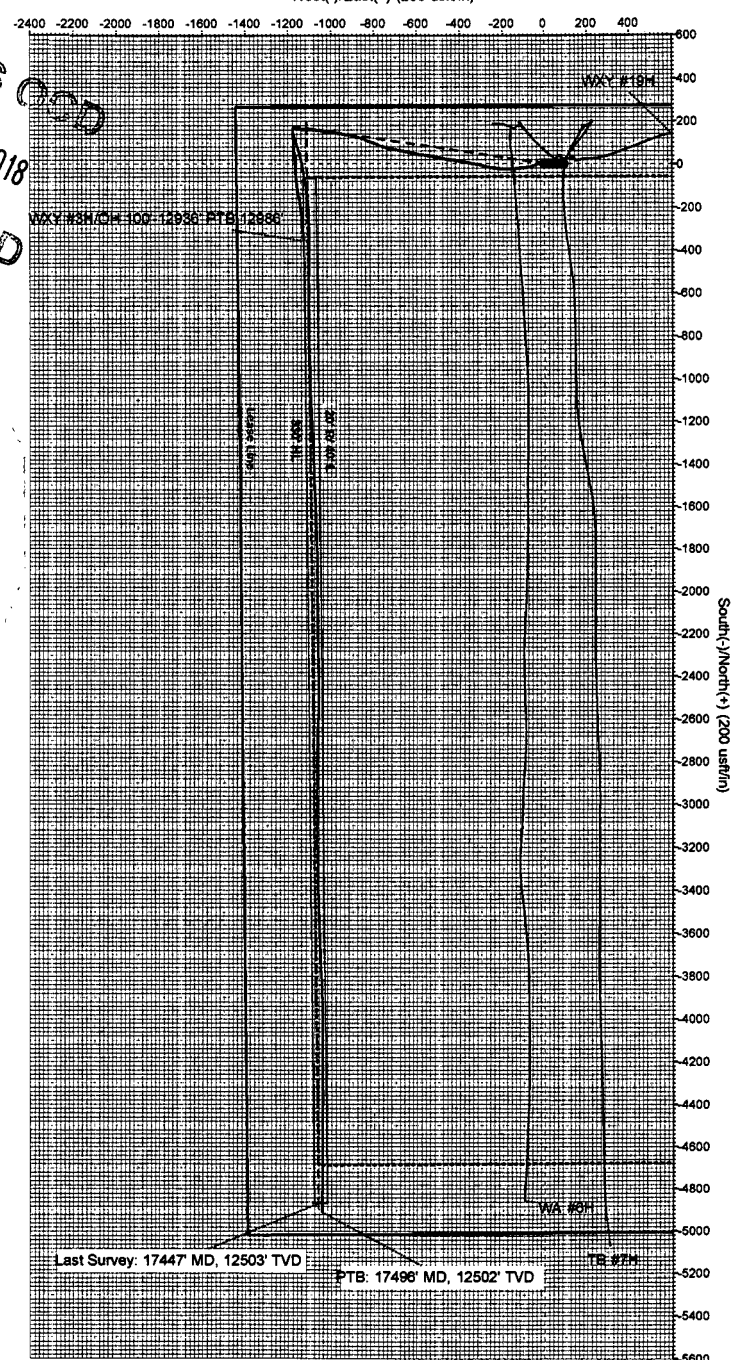
Total Magnetic Corr. (M to G): 6.25°

Declination (M to T): 6.73° East

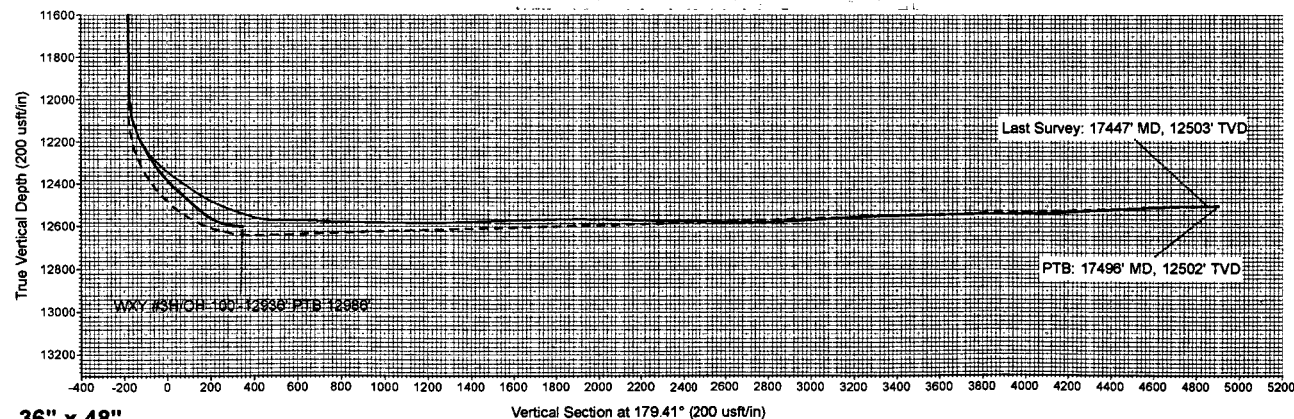
Vertical Section at 179.41° (500 usft/in)



West(-)/East(+) (200 usft/in)



Target Line: 12655' TVD @ 0° VS :: 91.8° INC



36" x 48"