



Marathon Oil

Marathon Oil

Lea County, NM

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

TB #7H

OH

Design: Gyros/MWD 100'-17246' PTB 17307'

Survey Report

19 July, 2018



Company:	Marathon Oil	Local Co-ordinate Reference:	Well TB #7H
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:	TB #7H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Gyros/MWD 100'-17246' PTB 17307'	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	Latitude:	32.194895
From:	Map	Easting:	777,788.07	usft	Longitude:	-103.435339
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16	"	Grid Convergence:	0.48 °

Well		TB #7H				
Well Position	+N/-S	0.00 usft	Northing:	435,782.47 usft	Latitude:	32.194895
	+E/-W	0.00 usft	Easting:	777,758.07 usft	Longitude:	-103.435436
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,447.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	4/26/2018	6.74	59.91	48,030.60

Design		Gyros/MWD 100'-17246' PTB 17307'		
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	179.51



Professional Directional Survey Report



Company: Marathon Oil
Project: Lea County, NM
Site: Dee Boot Fee 24-34-26 (3-6-7-19)
Well: TB #7H
Wellbore: OH
Design: Gyros/MWD 100'-17246' PTB 17307'

Local Co-ordinate Reference: Well TB #7H
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 Program		Date 7/19/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	1,009.00	Survey #1 (OH)	GYRO-NS-CT	OWSG XYZ Accel with XY Static and Continuous Gyro	
1,119.00	17,307.00	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	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	777,758.07
[KnifeFight#7H]FTP										
100.00	0.53	309.44	100.00	-0.30	0.29	-0.36	0.46	309.44	435,782.76	777,757.71
200.00	0.55	301.54	199.99	-0.85	0.84	-1.12	1.40	306.74	435,783.31	777,756.95
300.00	0.47	202.17	299.99	-0.72	0.71	-1.69	1.83	292.82	435,783.18	777,756.38
400.00	0.16	191.89	399.99	-0.21	0.19	-1.87	1.88	275.90	435,782.66	777,756.20
500.00	0.20	243.45	499.99	0.00	-0.02	-2.06	2.06	269.41	435,782.45	777,756.01
600.00	0.20	255.32	599.99	0.12	-0.14	-2.38	2.38	266.55	435,782.33	777,755.69
700.00	0.23	230.17	699.99	0.29	-0.32	-2.70	2.72	263.33	435,782.15	777,755.37
800.00	0.31	189.16	799.99	0.69	-0.71	-2.90	2.99	256.21	435,781.76	777,755.17
900.00	0.58	156.39	899.98	1.42	-1.44	-2.74	3.10	242.24	435,781.03	777,755.33
1,000.00	1.06	116.73	999.97	2.31	-2.32	-1.71	2.89	216.40	435,780.15	777,756.36
1,009.00	1.09	114.03	1,008.97	2.38	-2.39	-1.56	2.86	213.08	435,780.08	777,756.51
1,119.00	1.00	153.50	1,118.96	3.68	-3.68	-0.18	3.68	182.74	435,778.79	777,757.89
1,149.00	1.00	165.00	1,148.95	4.17	-4.17	0.01	4.17	179.88	435,778.30	777,758.08
1,240.00	0.30	247.90	1,239.95	5.02	-5.02	-0.01	5.02	180.07	435,777.45	777,758.06
1,331.00	1.10	302.80	1,330.94	4.63	-4.64	-0.96	4.74	191.71	435,777.83	777,757.11
1,422.00	1.80	319.90	1,421.91	3.05	-3.07	-2.62	4.04	220.40	435,779.40	777,755.45
1,517.00	2.20	326.20	1,516.85	0.38	-0.42	-4.59	4.61	264.81	435,782.05	777,753.48
1,611.00	2.00	336.70	1,610.79	-2.64	2.59	-6.24	6.76	292.52	435,785.06	777,751.83
1,706.00	2.40	354.10	1,705.72	-6.15	6.09	-7.10	9.36	310.60	435,788.56	777,750.97

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Well: TB #7H
Wellbore: OH
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Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well TB #7H
 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	Closure Azimuth	Northing (usft)	Easting (usft)	
1,800.00	3.00	14.30	1,799.62	-10.49	10.43	-6.70	12.40	327.29	435,792.90	777,751.37	
1,894.00	2.80	11.10	1,893.50	-15.12	15.07	-5.65	16.09	339.45	435,797.54	777,752.42	
1,989.00	2.60	4.80	1,988.39	-19.53	19.49	-5.02	20.13	345.55	435,801.96	777,753.05	
2,083.00	2.50	5.40	2,082.30	-23.70	23.66	-4.65	24.11	348.88	435,806.13	777,753.42	
2,178.00	2.20	15.10	2,177.22	-27.51	27.48	-3.98	27.77	351.76	435,809.95	777,754.09	
2,272.00	1.90	25.50	2,271.16	-30.65	30.63	-2.84	30.76	354.70	435,813.10	777,755.23	
2,367.00	1.60	37.40	2,366.12	-33.11	33.10	-1.36	33.13	357.65	435,815.57	777,756.71	
2,461.00	1.20	53.00	2,460.09	-34.74	34.74	0.23	34.74	0.37	435,817.21	777,758.30	
2,556.00	1.00	74.50	2,555.07	-35.54	35.56	1.82	35.61	2.93	435,818.03	777,759.89	
2,650.00	1.10	70.10	2,649.05	-36.05	36.09	3.46	36.25	5.47	435,818.56	777,761.53	
2,745.00	0.40	63.20	2,744.05	-36.50	36.55	4.61	36.84	7.19	435,819.02	777,762.68	
2,839.00	0.20	353.50	2,838.04	-36.81	36.86	4.89	37.18	7.55	435,819.33	777,762.96	
2,934.00	0.20	17.30	2,933.04	-37.14	37.18	4.92	37.50	7.53	435,819.65	777,762.99	
3,028.00	0.30	104.80	3,027.04	-37.23	37.27	5.20	37.63	7.95	435,819.74	777,763.27	
3,123.00	0.50	76.20	3,122.04	-37.26	37.31	5.85	37.76	8.91	435,819.78	777,763.92	
3,217.00	0.30	46.20	3,216.04	-37.52	37.58	6.42	38.12	9.70	435,820.05	777,764.49	
3,312.00	0.30	46.20	3,311.04	-37.86	37.92	6.78	38.52	10.14	435,820.39	777,764.85	
3,406.00	0.40	76.10	3,405.04	-38.11	38.17	7.28	38.86	10.79	435,820.64	777,765.35	
3,500.00	0.60	70.40	3,499.03	-38.34	38.41	8.06	39.25	11.85	435,820.88	777,766.13	
3,595.00	0.50	66.60	3,594.03	-38.67	38.75	8.91	39.76	12.95	435,821.22	777,766.98	
3,690.00	0.80	80.30	3,689.02	-38.94	39.02	9.94	40.27	14.29	435,821.49	777,768.01	
3,784.00	0.80	89.00	3,783.01	-39.05	39.14	11.25	40.73	16.03	435,821.61	777,769.32	
3,879.00	0.80	69.00	3,878.00	-39.28	39.39	12.53	41.34	17.64	435,821.86	777,770.60	
3,973.00	0.80	73.10	3,971.99	-39.70	39.82	13.77	42.13	19.07	435,822.29	777,771.84	
4,068.00	1.00	104.00	4,066.98	-39.68	39.81	15.21	42.62	20.91	435,822.28	777,773.28	
4,162.00	0.90	127.30	4,160.97	-39.02	39.17	16.59	42.53	22.96	435,821.64	777,774.66	
4,256.00	1.30	183.80	4,254.96	-37.51	37.65	17.11	41.36	24.43	435,820.12	777,775.18	

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Well TB #7H
 Well @ 3473.50usft (GL: 3447' + KB; 26.5' (H&P480))
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 Grid
 Minimum Curvature
 WellPlanner1

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance	Closure Azimuth	Northing (usft)	Easting (usft)
4,351.00	1.60	187.60	4,349.92	-35.12	35.26	16.86	39.09	25.55	435,817.73	777,774.93
4,445.00	1.00	217.90	4,443.90	-33.18	33.32	16.18	37.04	25.91	435,815.79	777,774.25
4,540.00	1.10	262.00	4,538.89	-32.41	32.54	14.77	35.73	24.42	435,815.01	777,772.84
4,634.00	0.70	195.20	4,632.88	-31.74	31.86	13.73	34.69	23.31	435,814.33	777,771.80
4,729.00	1.40	132.60	4,727.86	-30.39	30.51	14.43	33.75	25.31	435,812.98	777,772.50
4,823.00	1.50	125.30	4,821.83	-28.88	29.02	16.28	33.28	29.29	435,811.49	777,774.35
4,918.00	1.20	109.40	4,916.81	-27.82	27.97	18.23	33.39	33.09	435,810.44	777,776.30
5,013.00	1.50	107.90	5,011.78	-27.09	27.26	20.35	34.02	36.75	435,809.73	777,778.42
5,107.00	1.70	115.60	5,105.74	-26.08	26.28	22.78	34.78	40.92	435,808.75	777,780.85
5,202.00	1.80	117.40	5,200.70	-24.77	24.98	25.38	35.61	45.45	435,807.45	777,783.45
5,296.00	1.30	138.00	5,294.67	-23.28	23.51	27.40	36.11	49.37	435,805.98	777,785.47
5,391.00	1.10	150.90	5,389.65	-21.67	21.91	28.57	36.00	52.51	435,804.38	777,786.64
5,485.00	1.10	150.80	5,483.63	-20.09	20.34	29.44	35.79	55.37	435,802.81	777,787.51
5,663.00	1.00	134.00	5,661.60	-17.50	17.77	31.40	36.07	60.49	435,800.24	777,789.47
5,757.00	2.70	49.20	5,755.56	-18.36	18.65	33.66	38.48	61.02	435,801.12	777,791.73
5,851.00	5.80	36.00	5,849.29	-23.61	23.94	38.13	45.02	57.88	435,806.41	777,796.20
5,945.00	6.50	36.80	5,942.75	-31.66	32.04	44.11	54.52	54.01	435,814.51	777,802.18
6,040.00	8.80	34.20	6,036.90	-41.91	42.36	51.42	66.62	50.52	435,824.83	777,809.49
6,134.00	11.00	37.50	6,129.49	-54.90	55.42	60.92	82.36	47.71	435,837.89	777,818.99
6,228.00	12.00	38.10	6,221.60	-69.60	70.22	72.41	100.87	45.88	435,852.69	777,830.48
6,323.00	11.10	39.70	6,314.68	-84.31	85.03	84.34	119.77	44.77	435,867.50	777,842.41
6,418.00	10.30	37.70	6,408.03	-97.97	98.79	95.38	137.32	43.99	435,881.26	777,853.45
6,512.00	9.30	37.00	6,500.65	-110.60	111.50	105.09	153.22	43.30	435,893.97	777,863.16
6,606.00	9.30	36.50	6,593.42	-122.69	123.68	114.18	168.32	42.71	435,906.15	777,872.25
6,701.00	9.60	36.00	6,687.13	-135.19	136.26	123.40	183.83	42.17	435,918.73	777,881.47
6,795.00	8.40	35.70	6,779.97	-147.04	148.17	132.01	198.45	41.70	435,930.64	777,890.08
6,890.00	8.00	34.60	6,874.00	-158.05	159.25	139.82	211.92	41.28	435,941.72	777,897.89

Company: Marathon Oil
Project: Lea County, NM
Site: Dee Boot Fee 24-34-26 (3-6-7-19)
Well: TB #7H
Wellbore: OH
Design: Gyros/MWD 100'-17246' PTB 17307'

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

Well TB #7H
 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	Closure Azimuth	Northing (usft)	Easting (usft)
6,984.00	6.70	33.70	6,967.22	-167.94	169.20	146.57	223.86	40.90	435,951.67	777,904.64
7,079.00	6.20	32.00	7,061.62	-176.85	178.16	152.37	234.43	40.54	435,960.63	777,910.44
7,174.00	4.90	32.80	7,156.18	-184.57	185.92	157.28	243.52	40.23	435,968.39	777,915.35
7,268.00	3.00	35.80	7,249.95	-189.91	191.29	160.90	249.96	40.07	435,973.76	777,918.97
7,363.00	1.90	29.30	7,344.86	-193.28	194.68	163.12	253.99	39.96	435,977.15	777,921.19
7,457.00	1.90	9.90	7,438.81	-196.16	197.57	164.15	256.87	39.72	435,980.04	777,922.22
7,552.00	1.50	325.60	7,533.77	-198.74	200.15	163.72	258.58	39.28	435,982.62	777,921.79
7,646.00	2.30	296.00	7,627.72	-200.60	201.99	161.33	258.51	38.61	435,984.46	777,919.40
7,741.00	0.20	160.90	7,722.70	-201.30	202.67	159.67	258.01	38.23	435,985.14	777,917.74
7,835.00	1.40	134.70	7,816.69	-200.33	201.71	160.54	257.80	38.52	435,984.18	777,918.61
7,930.00	1.30	135.60	7,911.66	-198.73	200.12	162.12	257.55	39.01	435,982.59	777,920.19
8,024.00	1.70	212.20	8,005.64	-196.79	198.18	162.12	256.05	39.29	435,980.65	777,920.19
8,118.00	2.50	218.10	8,099.57	-194.01	195.39	160.12	252.61	39.33	435,977.86	777,918.19
8,213.00	2.30	226.40	8,194.49	-191.09	192.44	157.46	248.65	39.29	435,974.91	777,915.53
8,307.00	2.40	227.30	8,288.41	-188.48	189.81	154.64	244.83	39.17	435,972.28	777,912.71
8,402.00	2.50	228.60	8,383.32	-185.78	187.09	151.63	240.82	39.02	435,969.56	777,909.70
8,496.00	0.90	205.10	8,477.28	-183.77	185.06	149.78	238.08	38.98	435,967.53	777,907.85
8,591.00	0.80	201.30	8,572.27	-182.49	183.77	149.22	236.72	39.08	435,966.24	777,907.29
8,685.00	0.80	216.10	8,666.26	-181.35	182.63	148.59	235.44	39.13	435,965.10	777,906.66
8,780.00	1.00	236.90	8,761.25	-180.37	181.64	147.51	233.99	39.08	435,964.11	777,905.58
8,874.00	1.20	249.00	8,855.23	-179.58	180.84	145.90	232.36	38.90	435,963.31	777,903.97
8,968.00	1.20	263.10	8,949.21	-179.13	180.37	144.01	230.80	38.60	435,962.84	777,902.08
9,063.00	1.40	270.20	9,044.19	-179.03	180.25	141.86	229.38	38.20	435,962.72	777,899.93
9,157.00	1.50	279.90	9,138.16	-179.27	180.47	139.50	228.10	37.70	435,962.94	777,897.57
9,252.00	0.30	138.30	9,233.15	-179.30	180.50	138.44	227.47	37.49	435,962.97	777,896.51
9,346.00	0.40	210.10	9,327.14	-178.84	180.03	138.44	227.10	37.56	435,962.50	777,896.51
9,440.00	1.00	253.60	9,421.14	-178.33	179.51	137.49	226.11	37.45	435,961.98	777,895.56

Company: Marathon Oil
Project: Lea County, NM
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Wellbore: OH
Design: Gyros/MWD 100'-17246' PTB 17307'

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

Well TB #7H
 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	Closure Azimuth	Northing (usft)	Easting (usft)
9,534.00	0.70	198.50	9,515.13	-177.56	178.74	136.52	224.91	37.37	435,961.21	777,894.59
9,629.00	1.00	221.20	9,610.12	-176.39	177.56	135.79	223.53	37.41	435,960.03	777,893.86
9,723.00	1.40	248.00	9,704.10	-175.36	176.51	134.18	221.73	37.24	435,958.98	777,892.25
9,817.00	2.10	268.50	9,798.06	-174.91	176.04	131.40	219.67	36.74	435,958.51	777,889.47
9,912.00	0.30	145.80	9,893.04	-174.67	175.79	129.80	218.51	36.44	435,958.26	777,887.87
10,006.00	0.50	66.50	9,987.03	-174.63	175.75	130.31	218.79	36.56	435,958.22	777,888.38
10,101.00	0.80	306.90	10,082.03	-175.19	176.31	130.16	219.15	36.44	435,958.78	777,888.23
10,195.00	1.70	295.60	10,176.01	-176.20	177.31	128.38	218.90	35.91	435,959.78	777,886.45
10,290.00	1.10	285.60	10,270.98	-177.08	178.16	126.23	218.35	35.32	435,960.63	777,884.30
10,384.00	1.70	262.10	10,364.95	-177.15	178.21	123.98	217.10	34.83	435,960.68	777,882.05
10,479.00	2.00	270.80	10,459.90	-177.00	178.04	120.93	215.23	34.18	435,960.51	777,879.00
10,574.00	2.20	268.50	10,554.84	-177.01	178.02	117.45	213.27	33.41	435,960.49	777,875.52
10,668.00	0.90	200.30	10,648.81	-176.28	177.28	115.39	211.52	33.06	435,959.75	777,873.46
10,763.00	3.40	120.10	10,743.74	-174.15	175.16	117.56	210.96	33.87	435,957.63	777,875.63
10,857.00	2.50	122.20	10,837.62	-171.63	172.67	121.71	211.26	35.18	435,955.14	777,879.78
10,951.00	1.40	128.00	10,931.56	-169.81	170.88	124.35	211.33	36.04	435,953.35	777,882.42
11,046.00	0.80	170.50	11,026.55	-168.43	169.51	125.37	210.83	36.49	435,951.98	777,883.44
11,140.00	0.60	179.60	11,120.54	-167.29	168.37	125.49	209.99	36.70	435,950.84	777,883.56
11,234.00	0.50	180.40	11,214.54	-166.39	167.46	125.49	209.26	36.85	435,949.93	777,883.56
11,329.00	0.70	259.50	11,309.53	-165.87	166.94	124.91	208.50	36.80	435,949.41	777,882.98
11,424.00	1.50	280.90	11,404.51	-166.01	167.07	123.12	207.54	36.39	435,949.54	777,881.19
11,518.00	1.60	257.90	11,498.48	-165.99	167.03	120.63	206.04	35.84	435,949.50	777,878.70
11,612.00	1.50	224.00	11,592.45	-164.85	165.87	118.49	203.85	35.54	435,948.34	777,876.56
11,644.00	1.60	208.10	11,624.44	-164.16	165.18	117.99	202.99	35.54	435,947.65	777,876.06
11,767.00	3.10	208.70	11,747.33	-159.75	160.74	115.58	197.99	35.72	435,943.21	777,873.65
11,862.00	2.70	209.60	11,842.21	-155.57	156.54	113.25	193.21	35.88	435,939.01	777,871.32

Company: Marathon Oil
Project: Lea County, NM
Site: Dee Boot Fee 24-34-26 (3-6-7-19)
Well: TB #7H
Wellbore: OH
Design: Gyros/MWD 100'-17246' PTB 17307'

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

Well TB #7H
 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	Closure Azimuth	Northing (usft)	Easting (usft)
11,931.64	6.88	206.02	11,911.59	-150.42	151.37	110.61	187.47	36.16	435,933.84	777,868.68
[KnifeFight#7H]KOP										
11,957.00	8.40	205.60	11,936.72	-147.40	148.33	109.14	184.16	36.34	435,930.80	777,867.21
12,030.00	10.40	204.80	12,008.74	-136.65	137.54	104.07	172.48	37.11	435,920.01	777,862.14
12,124.00	16.90	211.40	12,100.04	-117.35	118.16	93.38	150.60	38.32	435,900.63	777,851.45
12,219.00	31.40	214.30	12,186.50	-85.13	85.75	72.13	112.05	40.07	435,868.22	777,830.20
12,313.00	45.20	201.70	12,260.20	-33.82	34.21	45.83	57.19	53.26	435,816.68	777,803.90
12,408.00	57.20	185.80	12,319.85	37.61	-37.37	29.21	47.43	141.99	435,745.10	777,787.28
12,525.00	68.10	177.30	12,373.60	141.19	-140.97	26.78	143.49	169.24	435,641.50	777,784.85
12,619.00	78.40	176.10	12,400.65	230.97	-230.70	31.98	232.91	172.11	435,551.77	777,790.05
12,714.00	83.80	173.00	12,415.35	324.43	-324.09	40.91	326.66	172.81	435,458.38	777,798.98
12,761.00	81.80	171.00	12,421.24	370.65	-370.26	47.40	373.28	172.70	435,412.21	777,805.47
12,808.00	85.90	171.90	12,426.27	416.91	-416.46	54.34	419.99	172.57	435,366.01	777,812.41
12,903.00	86.20	171.10	12,432.82	510.76	-510.19	68.35	514.75	172.37	435,272.28	777,826.42
12,997.00	88.10	177.40	12,437.50	604.20	-603.55	77.75	608.54	172.66	435,178.92	777,835.82
13,091.00	87.50	178.30	12,441.11	698.09	-697.42	81.27	702.14	173.35	435,085.05	777,839.34
13,186.00	86.60	179.10	12,445.99	792.95	-792.26	83.43	796.64	173.99	434,990.21	777,841.50
13,280.00	86.90	179.50	12,451.32	886.80	-886.10	84.57	890.13	174.55	434,896.37	777,842.64
13,375.00	86.10	179.50	12,457.12	981.62	-980.92	85.40	984.63	175.02	434,801.55	777,843.47
13,469.00	87.70	177.90	12,462.21	1,075.46	-1,074.76	87.53	1,078.31	175.34	434,707.71	777,845.60
13,563.00	91.00	175.40	12,463.27	1,169.32	-1,168.57	93.02	1,172.27	175.45	434,613.90	777,851.09
13,610.00	91.80	173.00	12,462.12	1,216.10	-1,215.31	97.77	1,219.24	175.40	434,567.16	777,855.84
13,657.00	91.80	170.40	12,460.65	1,262.64	-1,261.79	104.55	1,266.11	175.26	434,520.68	777,862.62
13,751.00	89.60	168.50	12,459.50	1,355.18	-1,354.18	121.76	1,359.85	174.86	434,428.29	777,879.83
13,796.00	90.94	168.83	12,459.29	1,399.37	-1,398.31	130.60	1,404.39	174.66	434,384.16	777,888.67
ENTER TB: 13796' MD										
13,845.00	92.40	169.20	12,457.86	1,447.53	-1,446.39	139.93	1,453.14	174.47	434,336.08	777,898.00

Company: Marathon Oil
Project: Lea County, NM
Site: Dee Boot Fee 24-34-26 (3-6-7-19)
Well: TB #7H
Wellbore: OH
Design: Gyros/MWD 100'-17246' PTB 17307'

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

Well TB #7H
 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	Closure Azimuth	Northing (usft)	Easting (usft)
13,939.00	91.30	170.30	12,454.82	1,540.12	-1,538.84	156.65	1,546.79	174.19	434,243.63	777,914.72
14,034.00	91.80	174.80	12,452.25	1,634.36	-1,632.97	168.96	1,641.69	174.09	434,149.50	777,927.03
14,128.00	88.50	178.90	12,452.01	1,728.23	-1,726.80	174.12	1,735.56	174.24	434,055.67	777,932.19
14,222.00	92.20	180.70	12,451.43	1,822.20	-1,820.78	174.45	1,829.11	174.53	433,961.69	777,932.52
14,317.00	91.30	180.60	12,448.53	1,917.14	-1,915.73	173.37	1,923.55	174.83	433,866.74	777,931.44
14,411.00	89.00	179.20	12,448.29	2,011.13	-2,009.72	173.54	2,017.19	175.06	433,772.75	777,931.61
14,505.00	88.80	179.80	12,450.09	2,105.11	-2,103.69	174.36	2,110.91	175.26	433,678.78	777,932.43
14,600.00	90.90	181.50	12,450.34	2,200.08	-2,198.68	173.28	2,205.50	175.49	433,583.79	777,931.35
14,694.00	89.30	177.20	12,450.18	2,294.06	-2,292.65	174.35	2,299.27	175.65	433,489.82	777,932.42
14,788.00	89.60	177.80	12,451.08	2,387.99	-2,386.55	178.45	2,393.22	175.72	433,395.92	777,936.52
14,883.00	92.60	178.20	12,449.25	2,482.93	-2,481.47	181.76	2,488.12	175.81	433,301.00	777,939.83
14,978.00	91.90	178.40	12,445.52	2,577.84	-2,576.35	184.58	2,582.96	175.90	433,206.12	777,942.65
15,072.00	93.20	178.00	12,441.34	2,671.72	-2,670.21	187.53	2,676.79	175.98	433,112.26	777,945.60
15,166.00	92.80	177.60	12,436.42	2,765.55	-2,764.01	191.13	2,770.61	176.04	433,018.46	777,949.20
15,261.00	91.70	176.80	12,432.69	2,860.39	-2,858.82	195.77	2,865.52	176.08	432,923.65	777,953.84
15,356.00	90.30	179.90	12,431.03	2,955.34	-2,953.76	198.50	2,960.42	176.16	432,828.71	777,956.57
15,450.00	93.80	180.50	12,427.67	3,049.26	-3,047.68	198.17	3,054.12	176.28	432,734.79	777,956.24
15,544.00	93.30	179.70	12,421.85	3,143.08	-3,141.50	198.01	3,147.73	176.39	432,640.97	777,956.08
15,639.00	95.80	180.50	12,414.32	3,237.76	-3,236.19	197.85	3,242.23	176.50	432,546.28	777,955.92
15,734.00	91.80	181.30	12,408.02	3,332.51	-3,330.95	196.36	3,336.73	176.63	432,451.52	777,954.43
15,828.00	91.10	180.90	12,405.64	3,426.44	-3,424.90	194.55	3,430.42	176.75	432,357.57	777,952.62
15,923.00	91.30	180.00	12,403.65	3,521.41	-3,519.88	193.81	3,525.21	176.85	432,262.59	777,951.88
16,017.00	92.40	180.60	12,400.62	3,615.35	-3,613.82	193.32	3,618.99	176.94	432,168.65	777,951.39
16,112.00	91.70	180.10	12,397.22	3,710.27	-3,708.76	192.74	3,713.77	177.03	432,073.71	777,950.81
16,206.00	91.50	179.10	12,394.60	3,804.24	-3,802.72	193.39	3,807.64	177.09	431,979.75	777,951.46
16,301.00	90.60	177.40	12,392.85	3,899.19	-3,897.66	196.29	3,902.60	177.12	431,884.81	777,954.36
16,395.00	92.30	179.10	12,390.48	3,993.13	-3,991.58	199.16	3,996.54	177.14	431,790.89	777,957.23

Company: Marathon Oil
Project: Lea County, NM
Site: Dee Boot Fee 24-34-26 (3-6-7-19)
Well: TB #7H
Wellbore: OH
Design: Gyros/MWD 100'-17246' PTB 17307'

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

Well TB #7H
 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	Closure Azimuth	Northing (usft)	Easting (usft)	
16,490.00	92.10	178.40	12,386.83	4,088.05	-4,086.48	201.23	4,091.43	177.18	431,695.99	777,959.30	
16,584.00	91.60	177.50	12,383.79	4,181.97	-4,180.37	204.59	4,185.38	177.20	431,602.10	777,962.66	
16,679.00	91.60	178.60	12,381.14	4,276.90	-4,275.28	207.83	4,280.33	177.22	431,507.19	777,965.90	
16,773.00	91.00	179.50	12,379.01	4,370.87	-4,369.24	209.38	4,374.25	177.26	431,413.23	777,967.45	
16,868.00	90.20	178.90	12,378.01	4,465.86	-4,464.22	210.71	4,469.19	177.30	431,318.25	777,968.78	
16,962.00	90.60	178.70	12,377.36	4,559.85	-4,558.20	212.68	4,563.16	177.33	431,224.27	777,970.75	
17,057.00	91.30	178.90	12,375.78	4,654.83	-4,653.17	214.67	4,658.12	177.36	431,129.30	777,972.74	
17,151.00	91.30	178.60	12,373.65	4,748.80	-4,747.12	216.72	4,752.06	177.39	431,035.35	777,974.79	
17,246.00	90.40	176.90	12,372.24	4,843.74	-4,842.03	220.45	4,847.05	177.39	430,940.44	777,978.52	
Last Survey: 17246' MD, 12372' TVD - [KnifeFight#7H]LTP/BHL											
17,307.00	90.40	176.90	12,371.82	4,904.67	-4,902.94	223.75	4,908.04	177.39	430,879.53	777,981.82	
PTB: 17307' MD, 12372' TVD											

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
13,796.00	12,459.29	-1,398.31	130.60	ENTER TB: 13796' MD
17,246.00	12,372.24	-4,842.03	220.45	Last Survey: 17246' MD, 12372' TVD
17,307.00	12,371.82	-4,902.94	223.75	PTB: 17307' MD, 12372' TVD



Marathon Oil
Lea County, NM
Dee Boot Fee 24-34-26 (3-6-7-19)
TB #7H
Plan #4
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	Slot
0.00	0.00	435782.47	777758.07	32.194895	-103.435436	

SECTION DETAILS

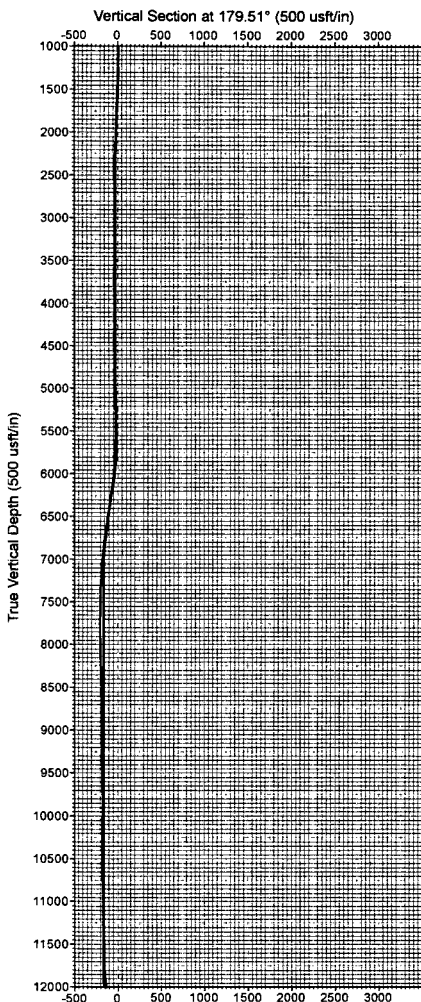
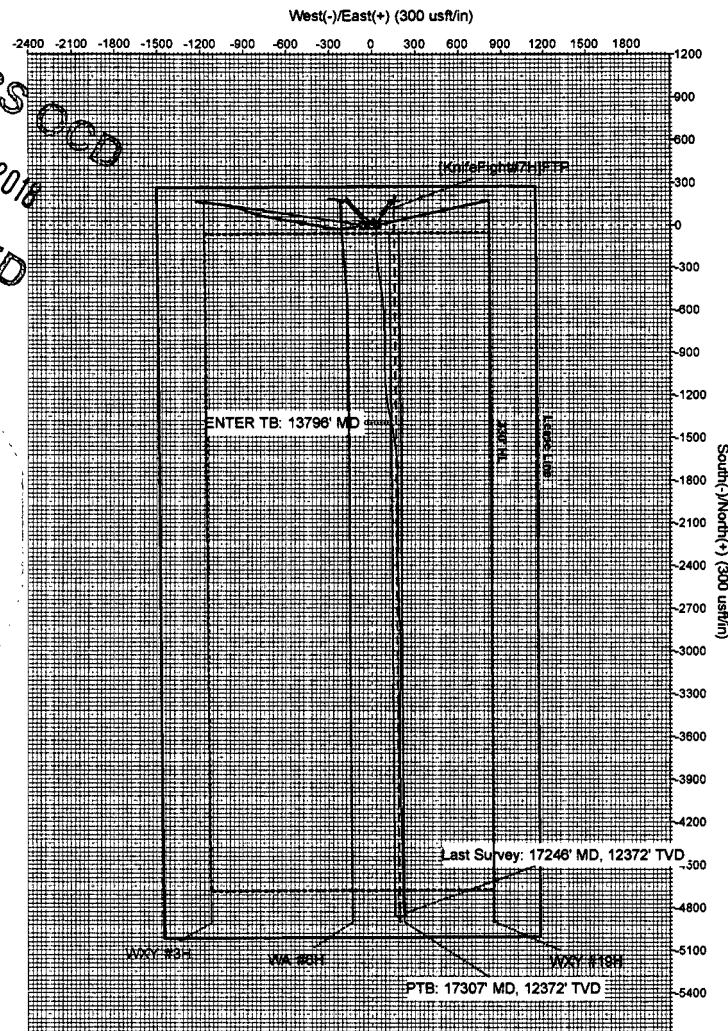
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00
3	1500.00	2.00	0.00	1499.92	6.98	0.00	0.50	-6.98
4	2000.39	2.00	0.00	2000.00	24.44	0.00	0.00	-24.44
5	2200.39	0.00	0.00	2199.96	27.93	0.00	1.00	-27.93
6	5600.43	0.00	0.00	5600.00	27.93	0.00	0.00	-27.93
7	6100.32	10.00	46.36	6097.36	57.96	31.48	2.00	-57.69
8	6793.12	10.00	46.36	6779.64	140.97	118.52	0.00	-139.96
9	7293.01	0.00	0.00	7277.00	171.00	150.00	2.00	-169.71
10	11931.01	0.00	0.00	11915.00	171.00	150.00	0.00	-169.71
11	12645.98	91.50	179.51	12487.76	-418.90	155.04	10.00	418.21
12	17289.05	91.50	179.51	12371.74	-4858.29	193.10	0.00	4858.76
13	17334.05	91.50	179.51	12370.56	-4903.27	193.49	0.00	4904.75

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

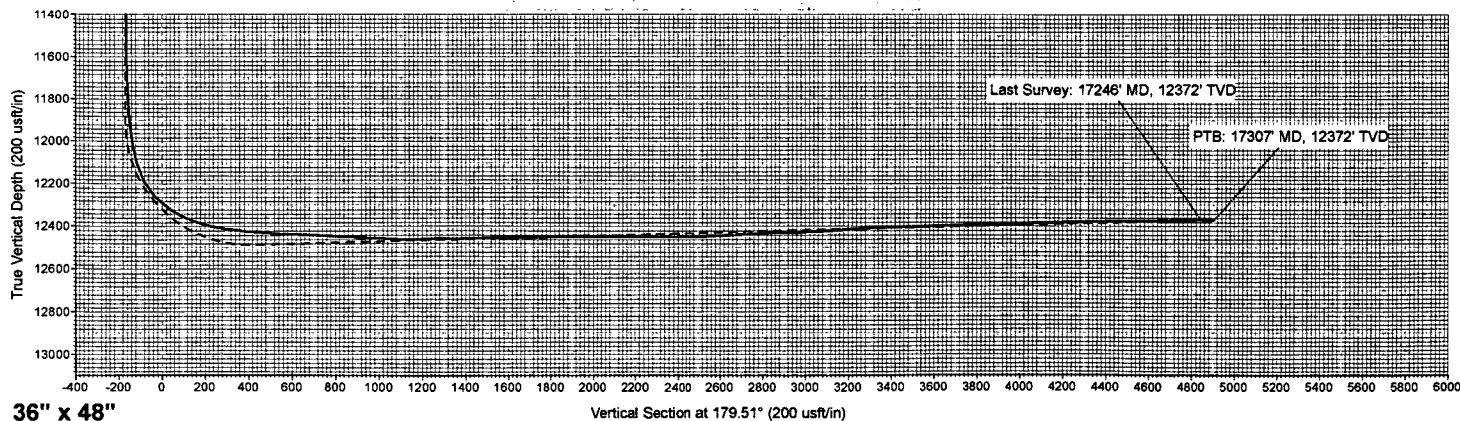
Name	TVD	+N/-S	+E/-W	Northing	Easting
[KnifeFight#7H]FTP	0.00	121.94	150.17	435904.41	777908.24
[KnifeFight#7H]KOP	11915.00	171.00	150.00	435953.47	777908.07
[KnifeFight#7H]LTP/BHL	12371.74	-4858.29	193.10	430924.18	777951.17



HOBBS OGD
NOV 05 2018
RECEIVED



Target Line: 12499' TVD @ 0° VS :: 91.5° INC



Azimuths to Grid North
True North: -0.48°
Magnetic North: 6.26°
Magnetic Field
Strength: 48030.6nT
Dip Angle: 59.91°
Date: 4/25/2018
Model: USER DEFINED

Azimuth Corrections

Total Magnetic Corr. (M to G): 6.26°

Declination (M to T): 6.74° East

36" x 48"

Vertical Section at 179.51° (200 usft/in)