



Marathon Oil

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Marathon Oil

Eddy County, NM

Sweet Tea State 24-29-31 (2-3-4-5-6)

WA #5H

OH

Design: OH 174'-17226' PTB 17281'

Survey Report

13 August, 2018



Company:	Marathon Oil	Local Co-ordinate Reference:	Well WA #5H
Project:	Eddy County, NM	TVD Reference:	Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
Site:	Sweet Tea State 24-29-31 (2-3-4-5-6)	MD Reference:	Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
Well:	WA #5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH 174'-17226' PTB 17281'	Database:	WellPlanner1

Project	Eddy 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	Sweet Tea State 24-29-31 (2-3-4-5-6)		
Site Position:		Northing:	426,778.23 usft
From:	Map	Easting:	593,717.06 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.172968
		Longitude:	-104.030446
		Grid Convergence:	0.16 °

Well	WA #5H					
Well Position	+N/-S	0.00 usft	Northing:	426,778.18 usft	Latitude:	32.172968
	+E/-W	0.00 usft	Easting:	593,667.02 usft	Longitude:	-104.030607
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,921.00 usft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	HDGM	5/20/2018	7.12	59.95	47,996.20

Design	OH 174'-17226' PTB 17281'		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			179.92

Survey Program	Date 8/13/2018		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
174.00	17,281.00	Survey #1 (OH)	MWD+IFR1
			OWSG MWD + IFR1

Company: Marathon Oil
Project: Eddy County, NM
Site: Sweet Tea State 24-29-31 (2-3-4-5-6)
Well: WA #5H
Wellbore: OH
Design: OH 174'-17226' PTB 17281'

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

Well WA #5H
 Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
 Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
 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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	426,778.18	593,667.02	
[SweetTeaWA#5H]FTP											
174.00	0.90	351.90	173.99	-1.35	1.35	-0.19	1.37	351.90	426,779.53	593,666.83	
235.00	1.00	355.80	234.98	-2.36	2.36	-0.30	2.38	352.77	426,780.54	593,666.72	
326.00	1.00	339.60	325.97	-3.90	3.89	-0.63	3.95	350.75	426,782.07	593,666.39	
392.00	1.00	334.40	391.96	-4.96	4.95	-1.08	5.07	347.66	426,783.13	593,665.94	
500.00	1.00	317.10	499.94	-6.50	6.49	-2.13	6.83	341.82	426,784.67	593,664.89	
591.00	0.50	317.30	590.94	-7.37	7.37	-2.94	7.93	338.23	426,785.55	593,664.08	
683.00	0.30	322.30	682.93	-7.86	7.85	-3.36	8.54	336.83	426,786.03	593,663.66	
774.00	0.10	189.40	773.93	-7.97	7.96	-3.52	8.71	336.15	426,786.14	593,663.50	
866.00	0.20	71.20	865.93	-7.94	7.94	-3.38	8.63	336.92	426,786.12	593,663.64	
958.00	1.20	346.40	957.93	-8.93	8.92	-3.46	9.57	338.83	426,787.10	593,663.56	
1,048.00	1.60	351.40	1,047.90	-11.09	11.08	-3.87	11.74	340.77	426,789.26	593,663.15	
1,138.00	2.60	349.90	1,137.84	-14.34	14.33	-4.41	15.00	342.89	426,792.51	593,662.61	
1,227.00	4.60	345.30	1,226.66	-19.78	19.77	-5.67	20.57	344.00	426,797.95	593,661.35	
1,316.00	7.10	343.90	1,315.19	-28.52	28.51	-8.10	29.64	344.14	426,806.69	593,658.92	
1,406.00	9.50	342.10	1,404.24	-40.94	40.93	-11.93	42.63	343.75	426,819.11	593,655.09	
1,495.00	10.20	343.10	1,491.93	-55.48	55.45	-16.48	57.85	343.45	426,833.63	593,650.54	
1,584.00	10.00	347.20	1,579.55	-70.56	70.53	-20.48	73.44	343.81	426,848.71	593,646.54	
1,673.00	9.70	347.50	1,667.24	-85.42	85.39	-23.81	88.64	344.42	426,863.57	593,643.21	
1,763.00	9.10	349.10	1,756.03	-99.81	99.78	-26.80	103.31	344.96	426,877.96	593,640.22	
1,852.00	8.30	348.80	1,844.00	-113.03	112.99	-29.38	116.75	345.42	426,891.17	593,637.64	
1,941.00	6.50	348.20	1,932.26	-124.27	124.22	-31.66	128.19	345.70	426,902.40	593,635.36	
2,030.00	5.50	347.60	2,020.77	-133.37	133.32	-33.60	137.49	345.85	426,911.50	593,633.42	
2,120.00	3.90	343.60	2,110.46	-140.52	140.47	-35.39	144.86	345.86	426,918.65	593,631.63	
2,209.00	2.70	329.10	2,199.32	-145.22	145.17	-37.33	149.89	345.58	426,923.35	593,629.69	
2,298.00	1.70	299.40	2,288.25	-147.67	147.62	-39.55	152.83	345.00	426,925.80	593,627.47	

Company: Marathon Oil
Project: Eddy County, NM
Site: Sweet Tea State 24-29-31 (2-3-4-5-6)
Well: WA #5H
Wellbore: OH
Design: OH 174'-17226' PTB 17281'

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

Well WA #5H
 Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
 Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
 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)	
2,387.00	0.40	254.60	2,377.24	-148.24	148.18	-41.00	153.75	344.53	426,926.36	593,626.02	
2,477.00	1.50	138.80	2,467.23	-147.27	147.21	-40.53	152.69	344.61	426,925.39	593,626.49	
2,566.00	2.00	129.70	2,556.18	-145.40	145.35	-38.57	150.38	345.14	426,923.53	593,628.45	
2,655.00	1.50	137.50	2,645.14	-143.55	143.49	-36.58	148.09	345.70	426,921.67	593,630.44	
2,839.00	0.80	138.60	2,829.10	-140.80	140.76	-34.11	144.83	346.38	426,918.94	593,632.91	
2,929.00	0.80	137.90	2,919.10	-139.86	139.82	-33.27	143.72	346.61	426,918.00	593,633.75	
3,018.00	0.90	142.00	3,008.09	-138.85	138.81	-32.42	142.54	346.85	426,916.99	593,634.60	
3,107.00	0.80	263.30	3,097.08	-138.23	138.18	-32.61	141.98	346.72	426,916.36	593,634.41	
3,196.00	1.00	272.60	3,186.07	-138.19	138.15	-34.00	142.27	346.17	426,916.33	593,633.02	
3,286.00	0.70	248.50	3,276.06	-138.03	137.98	-35.30	142.42	345.65	426,916.16	593,631.72	
3,375.00	0.80	249.70	3,365.05	-137.62	137.57	-36.39	142.30	345.18	426,915.75	593,630.63	
3,465.00	0.70	240.80	3,455.05	-137.13	137.08	-37.46	142.10	344.72	426,915.26	593,629.56	
3,554.00	1.00	253.70	3,544.04	-136.65	136.60	-38.68	141.97	344.19	426,914.78	593,628.34	
3,643.00	1.00	256.60	3,633.02	-136.25	136.20	-40.18	142.00	343.56	426,914.38	593,626.84	
3,732.00	1.00	249.50	3,722.01	-135.80	135.75	-41.66	142.00	342.94	426,913.93	593,625.36	
3,822.00	1.20	256.40	3,811.99	-135.31	135.25	-43.31	142.02	342.24	426,913.43	593,623.71	
3,911.00	1.20	251.00	3,900.97	-134.79	134.73	-45.10	142.08	341.49	426,912.91	593,621.92	
4,000.00	1.30	260.60	3,989.95	-134.32	134.26	-46.98	142.24	340.71	426,912.44	593,620.04	
4,089.00	0.50	142.10	4,078.94	-133.85	133.79	-47.74	142.05	340.36	426,911.97	593,619.28	
4,179.00	0.40	169.50	4,168.94	-133.23	133.17	-47.44	141.36	340.39	426,911.35	593,619.58	
4,268.00	0.60	189.80	4,257.94	-132.47	132.40	-47.46	140.65	340.28	426,910.58	593,619.56	
4,358.00	0.70	194.60	4,347.93	-131.47	131.41	-47.68	139.79	340.06	426,909.59	593,619.34	
4,447.00	0.90	205.90	4,436.92	-130.32	130.25	-48.12	138.86	339.72	426,908.43	593,618.90	
4,537.00	0.70	196.70	4,526.91	-129.16	129.09	-48.59	137.93	339.37	426,907.27	593,618.43	
4,626.00	0.70	196.40	4,615.91	-128.12	128.05	-48.90	137.07	339.10	426,906.23	593,618.12	
4,715.00	0.70	217.40	4,704.90	-127.16	127.09	-49.38	136.35	338.77	426,905.27	593,617.64	
4,805.00	0.70	46.60	4,794.90	-127.10	127.04	-49.32	136.27	338.78	426,905.22	593,617.70	

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Project:	Eddy County, NM	TVD Reference:	Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
Site:	Sweet Tea State 24-29-31 (2-3-4-5-6)	MD Reference:	Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
Well:	WA #5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH 174'-17226' PTB 17281'	Database:	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)	
4,894.00	1.80	18.80	4,883.88	-128.80	128.73	-48.47	137.55	339.37	426,906.91	593,618.55	
4,983.00	1.40	7.80	4,972.84	-131.20	131.13	-47.87	139.60	339.94	426,909.31	593,619.15	
5,073.00	1.00	357.60	5,062.82	-133.07	133.01	-47.76	141.32	340.25	426,911.19	593,619.26	
5,162.00	0.80	335.80	5,151.81	-134.42	134.35	-48.04	142.68	340.32	426,912.53	593,618.98	
5,251.00	0.80	291.70	5,240.80	-135.21	135.15	-48.87	143.71	340.12	426,913.33	593,618.15	
5,341.00	1.10	269.20	5,330.79	-135.44	135.37	-50.32	144.42	339.61	426,913.55	593,616.70	
5,430.00	1.10	262.70	5,419.78	-135.32	135.25	-52.02	144.91	338.96	426,913.43	593,615.00	
5,519.00	1.20	255.30	5,508.76	-134.98	134.90	-53.77	145.22	338.27	426,913.08	593,613.25	
5,608.00	1.20	255.10	5,597.74	-134.50	134.42	-55.57	145.46	337.54	426,912.60	593,611.45	
5,697.00	0.40	277.10	5,686.73	-134.30	134.22	-56.78	145.74	337.07	426,912.40	593,610.24	
5,787.00	0.60	72.30	5,776.73	-134.48	134.41	-56.65	145.85	337.15	426,912.59	593,610.37	
5,876.00	0.40	82.10	5,865.72	-134.67	134.59	-55.89	145.73	337.45	426,912.77	593,611.13	
5,965.00	0.70	101.10	5,954.72	-134.60	134.53	-55.05	145.36	337.74	426,912.71	593,611.97	
6,055.00	0.60	121.70	6,044.71	-134.25	134.17	-54.11	144.68	338.04	426,912.35	593,612.91	
6,144.00	0.50	118.90	6,133.71	-133.82	133.74	-53.38	144.00	338.24	426,911.92	593,613.64	
6,233.00	0.50	125.20	6,222.71	-133.40	133.33	-52.72	143.37	338.43	426,911.51	593,614.30	
6,322.00	0.60	147.40	6,311.70	-132.79	132.71	-52.15	142.59	338.55	426,910.89	593,614.87	
6,412.00	0.10	221.70	6,401.70	-132.33	132.26	-51.95	142.09	338.56	426,910.44	593,615.07	
6,501.00	0.40	210.20	6,490.70	-132.00	131.93	-52.16	141.87	338.43	426,910.11	593,614.86	
6,590.00	0.80	201.10	6,579.69	-131.16	131.08	-52.54	141.22	338.16	426,909.26	593,614.48	
6,680.00	1.00	201.40	6,669.68	-129.84	129.77	-53.05	140.19	337.76	426,907.95	593,613.97	
6,769.00	0.50	225.60	6,758.68	-128.85	128.77	-53.61	139.49	337.40	426,906.95	593,613.41	
6,858.00	1.30	204.40	6,847.66	-127.66	127.58	-54.31	138.66	336.94	426,905.76	593,612.71	
6,947.00	0.90	300.90	6,936.65	-127.10	127.02	-55.32	138.54	336.46	426,905.20	593,611.70	
7,037.00	1.30	309.60	7,026.64	-128.11	128.03	-56.72	140.03	336.11	426,906.21	593,610.30	
7,126.00	0.30	56.80	7,115.63	-128.88	128.80	-57.30	140.97	336.02	426,906.98	593,609.72	
7,216.00	1.00	121.20	7,205.62	-128.61	128.53	-56.43	140.37	336.30	426,906.71	593,610.59	

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Local Co-ordinate Reference:
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Well WA #5H

Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))

Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))

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)	
7,305.00	1.70	108.70	7,294.60	-127.78	127.70	-54.51	138.85	336.88	426,905.88	593,612.51	
7,395.00	1.50	102.50	7,384.56	-127.09	127.02	-52.10	137.29	337.70	426,905.20	593,614.92	
7,485.00	1.50	92.20	7,474.53	-126.79	126.72	-49.77	136.14	338.56	426,904.90	593,617.25	
7,574.00	1.70	12.80	7,563.51	-128.03	127.96	-48.32	136.78	339.31	426,906.14	593,618.70	
7,664.00	3.30	356.10	7,653.42	-131.91	131.85	-48.20	140.38	339.92	426,910.03	593,618.82	
7,753.00	3.70	358.60	7,742.25	-137.34	137.27	-48.44	145.57	340.56	426,915.45	593,618.58	
7,842.00	1.80	11.40	7,831.15	-141.58	141.52	-48.23	149.51	341.18	426,919.70	593,618.79	
7,931.00	0.80	24.40	7,920.12	-143.52	143.45	-47.70	151.17	341.61	426,921.63	593,619.32	
8,021.00	1.50	318.10	8,010.11	-144.97	144.90	-48.23	152.72	341.59	426,923.08	593,618.79	
8,110.00	2.20	289.40	8,099.06	-146.41	146.33	-50.62	154.84	340.92	426,924.51	593,616.40	
8,199.00	2.30	269.40	8,188.00	-146.96	146.88	-54.02	156.50	339.81	426,925.06	593,613.00	
8,288.00	2.10	244.10	8,276.93	-146.23	146.15	-57.27	156.97	338.60	426,924.33	593,609.75	
8,378.00	2.10	245.90	8,366.87	-144.84	144.76	-60.26	156.80	337.40	426,922.94	593,606.76	
8,467.00	0.90	229.10	8,455.84	-143.72	143.64	-62.27	156.55	336.56	426,921.82	593,604.75	
8,556.00	1.40	132.70	8,544.83	-142.53	142.44	-62.00	155.35	336.48	426,920.62	593,605.02	
8,645.00	1.20	137.00	8,633.81	-141.11	141.02	-60.57	153.48	336.76	426,919.20	593,606.45	
8,735.00	0.40	121.80	8,723.80	-140.25	140.17	-59.66	152.33	336.94	426,918.35	593,607.36	
8,824.00	1.50	85.80	8,812.78	-140.17	140.09	-58.23	151.71	337.43	426,918.27	593,608.79	
8,914.00	1.30	90.70	8,902.76	-140.24	140.16	-56.04	150.95	338.21	426,918.34	593,610.98	
9,003.00	0.40	117.70	8,991.75	-140.08	140.01	-54.75	150.33	338.64	426,918.19	593,612.27	
9,092.00	1.00	79.70	9,080.74	-140.07	140.00	-53.71	149.95	339.01	426,918.18	593,613.31	
9,182.00	0.80	77.60	9,170.73	-140.35	140.27	-52.33	149.72	339.54	426,918.45	593,614.69	
9,269.00	0.80	77.40	9,257.72	-140.61	140.54	-51.14	149.55	340.00	426,918.72	593,615.88	
9,345.36	1.06	78.83	9,334.07	-140.86	140.79	-49.93	149.38	340.47	426,918.97	593,617.09	
[SweetTeaWA#5H]KOP											
9,358.00	1.10	79.00	9,346.71	-140.91	140.84	-49.70	149.35	340.56	426,919.02	593,617.32	
9,447.00	6.60	156.70	9,435.50	-136.36	136.30	-46.83	144.12	341.04	426,914.48	593,620.19	

Company: Marathon Oil
Project: Eddy County, NM
Site: Sweet Tea State 24-29-31 (2-3-4-5-6)
Well: WA #5H
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Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well WA #5H
 Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
 Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
 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)	
9,536.00	14.90	172.10	9,522.88	-120.29	120.23	-43.23	127.77	340.22	426,898.41	593,623.79	
9,626.00	24.50	180.70	9,607.53	-90.10	90.04	-41.86	99.29	335.06	426,868.22	593,625.16	
9,715.00	33.60	181.10	9,685.25	-46.93	46.87	-42.56	63.31	317.76	426,825.05	593,624.46	
9,804.00	44.40	179.10	9,754.31	8.99	-9.05	-42.55	43.50	257.99	426,769.13	593,624.47	
9,893.00	55.70	182.30	9,811.38	77.08	-77.14	-43.54	88.58	209.44	426,701.04	593,623.48	
9,983.00	64.90	181.60	9,855.92	155.13	-155.19	-46.17	161.91	196.57	426,622.99	593,620.85	
10,072.00	76.10	174.70	9,885.62	238.78	-238.84	-43.29	242.73	190.27	426,539.34	593,623.73	
10,092.00	77.30	173.60	9,890.22	258.14	-258.20	-41.31	261.49	189.09	426,519.98	593,625.71	
10,147.00	79.20	173.20	9,901.42	311.64	-311.69	-35.12	313.66	186.43	426,466.49	593,631.90	
10,241.00	87.50	176.60	9,912.30	404.56	-404.59	-26.85	405.48	183.80	426,373.59	593,640.17	
10,336.00	88.30	176.30	9,915.78	499.32	-499.35	-20.97	499.79	182.41	426,278.83	593,646.05	
10,430.00	88.80	178.70	9,918.16	593.20	-593.22	-16.88	593.46	181.63	426,184.96	593,650.14	
10,525.00	88.60	179.10	9,920.31	688.16	-688.18	-15.05	688.34	181.25	426,090.00	593,651.97	
10,619.00	87.60	179.10	9,923.43	782.09	-782.11	-13.58	782.23	180.99	425,996.07	593,653.44	
10,714.00	87.70	179.20	9,927.32	877.01	-877.02	-12.17	877.11	180.79	425,901.16	593,654.85	
10,808.00	88.70	179.80	9,930.28	970.96	-970.97	-11.35	971.04	180.67	425,807.21	593,655.67	
10,903.00	89.20	180.70	9,932.02	1,065.94	-1,065.95	-11.76	1,066.02	180.63	425,712.23	593,655.26	
10,998.00	86.90	180.90	9,935.25	1,160.86	-1,160.88	-13.09	1,160.96	180.65	425,617.30	593,653.93	
11,093.00	90.20	181.30	9,937.65	1,255.80	-1,255.82	-14.91	1,255.91	180.68	425,522.36	593,652.11	
11,187.00	90.90	181.40	9,936.75	1,349.77	-1,349.79	-17.13	1,349.90	180.73	425,428.39	593,649.89	
11,281.00	90.50	180.70	9,935.60	1,443.74	-1,443.77	-18.85	1,443.89	180.75	425,334.41	593,648.17	
11,376.00	94.50	181.60	9,931.46	1,538.61	-1,538.64	-20.75	1,538.78	180.77	425,239.54	593,646.27	
11,470.00	92.20	180.20	9,925.97	1,632.42	-1,632.46	-22.22	1,632.61	180.78	425,145.72	593,644.80	
11,565.00	91.40	179.90	9,922.98	1,727.38	-1,727.41	-22.31	1,727.55	180.74	425,050.77	593,644.71	
11,659.00	91.90	180.00	9,920.28	1,821.34	-1,821.37	-22.23	1,821.51	180.70	424,956.81	593,644.79	
11,753.00	92.00	179.80	9,917.08	1,915.28	-1,915.32	-22.06	1,915.44	180.66	424,862.86	593,644.96	
11,847.00	92.00	180.10	9,913.80	2,009.23	-2,009.26	-21.98	2,009.38	180.63	424,768.92	593,645.04	

Company: Marathon Oil
Project: Eddy County, NM
Site: Sweet Tea State 24-29-31 (2-3-4-5-6)
Well: WA #5H
Wellbore: OH
Design: OH 174'-17226' PTB 17281'

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

Well WA #5H

Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))

Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))

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)	
11,941.00	92.60	180.50	9,910.02	2,103.15	-2,103.18	-22.47	2,103.30	180.61	424,675.00	593,644.55	
12,035.00	90.40	179.80	9,907.56	2,197.11	-2,197.14	-22.72	2,197.26	180.59	424,581.04	593,644.30	
12,130.00	90.70	179.80	9,906.65	2,292.10	-2,292.14	-22.39	2,292.25	180.56	424,486.04	593,644.63	
12,224.00	89.70	179.80	9,906.32	2,386.10	-2,386.13	-22.06	2,386.24	180.53	424,392.05	593,644.96	
12,318.00	89.10	179.40	9,907.31	2,480.09	-2,480.13	-21.40	2,480.22	180.49	424,298.05	593,645.62	
12,413.00	88.10	179.00	9,909.63	2,575.06	-2,575.09	-20.07	2,575.17	180.45	424,203.09	593,646.95	
12,507.00	88.00	179.50	9,912.83	2,669.00	-2,669.02	-18.85	2,669.09	180.40	424,109.16	593,648.17	
12,601.00	87.20	179.30	9,916.76	2,762.91	-2,762.94	-17.86	2,762.99	180.37	424,015.24	593,649.16	
12,695.00	88.90	179.70	9,919.96	2,856.85	-2,856.87	-17.04	2,856.92	180.34	423,921.31	593,649.98	
12,790.00	88.30	179.80	9,922.28	2,951.82	-2,951.84	-16.63	2,951.89	180.32	423,826.34	593,650.39	
12,884.00	90.60	179.80	9,923.19	3,045.81	-3,045.83	-16.30	3,045.88	180.31	423,732.35	593,650.72	
12,978.00	90.60	179.90	9,922.20	3,139.80	-3,139.83	-16.05	3,139.87	180.29	423,638.35	593,650.97	
13,073.00	89.80	180.20	9,921.87	3,234.80	-3,234.83	-16.14	3,234.87	180.29	423,543.35	593,650.88	
13,168.00	92.80	180.60	9,919.71	3,329.76	-3,329.79	-16.80	3,329.83	180.29	423,448.39	593,650.22	
13,263.00	92.80	180.40	9,915.07	3,424.64	-3,424.67	-17.63	3,424.72	180.29	423,353.51	593,649.39	
13,357.00	91.60	179.90	9,911.47	3,518.57	-3,518.60	-17.87	3,518.65	180.29	423,259.58	593,649.15	
13,451.00	90.50	181.30	9,909.74	3,612.55	-3,612.57	-18.86	3,612.62	180.30	423,165.61	593,648.16	
13,546.00	90.40	181.50	9,909.00	3,707.51	-3,707.54	-21.18	3,707.60	180.33	423,070.64	593,645.84	
13,641.00	90.30	181.90	9,908.42	3,802.46	-3,802.50	-24.00	3,802.58	180.36	422,975.68	593,643.02	
13,736.00	91.30	182.30	9,907.09	3,897.38	-3,897.43	-27.48	3,897.52	180.40	422,880.75	593,639.54	
13,830.00	91.40	181.40	9,904.88	3,991.30	-3,991.35	-30.51	3,991.47	180.44	422,786.83	593,636.51	
13,924.00	90.60	181.00	9,903.24	4,085.26	-4,085.31	-32.48	4,085.44	180.46	422,692.87	593,634.54	
14,019.00	90.80	181.00	9,902.07	4,180.24	-4,180.29	-34.14	4,180.43	180.47	422,597.89	593,632.88	
14,113.00	89.80	179.80	9,901.58	4,274.23	-4,274.29	-34.79	4,274.43	180.47	422,503.89	593,632.23	
14,208.00	90.70	180.50	9,901.17	4,369.23	-4,369.28	-35.04	4,369.42	180.46	422,408.90	593,631.98	
14,302.00	89.30	180.50	9,901.17	4,463.22	-4,463.28	-35.86	4,463.42	180.46	422,314.90	593,631.16	
14,396.00	89.10	180.80	9,902.48	4,557.21	-4,557.26	-36.93	4,557.41	180.46	422,220.92	593,630.09	

Company: Marathon Oil
Project: Eddy County, NM
Site: Sweet Tea State 24-29-31 (2-3-4-5-6)
Well: WA #5H
Wellbore: OH
Design: OH 174'-17226' PTB 17281'

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

Well WA #5H
 Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
 Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
 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)	
14,490.00	90.80	179.10	9,902.56	4,651.20	-4,651.25	-36.85	4,651.40	180.45	422,126.93	593,630.17	
14,585.00	91.20	179.60	9,900.90	4,746.18	-4,746.23	-35.77	4,746.37	180.43	422,031.95	593,631.25	
14,679.00	86.30	177.20	9,902.95	4,840.09	-4,840.14	-33.15	4,840.25	180.39	421,938.04	593,633.87	
14,773.00	86.70	178.10	9,908.69	4,933.84	-4,933.88	-29.30	4,933.97	180.34	421,844.30	593,637.72	
14,866.00	86.00	178.20	9,914.61	5,026.60	-5,026.65	-26.30	5,026.71	180.30	421,751.53	593,640.72	
14,960.00	87.10	178.80	9,920.27	5,120.40	-5,120.44	-23.85	5,120.50	180.27	421,657.74	593,643.17	
15,054.00	89.80	179.00	9,922.81	5,214.35	-5,214.38	-22.05	5,214.43	180.24	421,563.80	593,644.97	
15,149.00	91.20	179.10	9,921.98	5,309.33	-5,309.36	-20.47	5,309.40	180.22	421,468.82	593,646.55	
15,243.00	90.80	179.60	9,920.34	5,403.31	-5,403.34	-19.40	5,403.38	180.21	421,374.84	593,647.62	
15,337.00	92.00	180.60	9,918.05	5,497.28	-5,497.31	-19.57	5,497.34	180.20	421,280.87	593,647.45	
15,430.00	93.40	181.60	9,913.67	5,590.15	-5,590.19	-21.35	5,590.23	180.22	421,187.99	593,645.67	
15,523.00	94.40	181.90	9,907.34	5,682.89	-5,682.93	-24.18	5,682.98	180.24	421,095.25	593,642.84	
15,620.00	92.90	181.30	9,901.17	5,779.65	-5,779.69	-26.89	5,779.75	180.27	420,998.49	593,640.13	
15,714.00	90.20	180.50	9,898.62	5,873.59	-5,873.63	-28.36	5,873.70	180.28	420,904.55	593,638.66	
15,808.00	89.10	180.30	9,899.20	5,967.58	-5,967.63	-29.02	5,967.70	180.28	420,810.55	593,638.00	
15,902.00	88.70	180.70	9,901.00	6,061.56	-6,061.61	-29.84	6,061.68	180.28	420,716.57	593,637.18	
15,997.00	87.20	181.30	9,904.40	6,156.48	-6,156.53	-31.49	6,156.61	180.29	420,621.65	593,635.53	
16,091.00	85.50	179.60	9,910.38	6,250.28	-6,250.33	-32.23	6,250.41	180.30	420,527.85	593,634.79	
16,185.00	88.20	181.60	9,915.55	6,344.11	-6,344.17	-33.22	6,344.25	180.30	420,434.01	593,633.80	
16,280.00	88.40	180.10	9,918.37	6,439.06	-6,439.11	-34.63	6,439.20	180.31	420,339.07	593,632.39	
16,375.00	87.10	178.40	9,922.10	6,533.97	-6,534.02	-33.38	6,534.11	180.29	420,244.16	593,633.64	
16,469.00	89.70	177.50	9,924.72	6,627.87	-6,627.92	-30.02	6,627.99	180.26	420,150.26	593,637.00	
16,564.00	89.60	176.60	9,925.30	6,722.75	-6,722.79	-25.13	6,722.84	180.21	420,055.39	593,641.89	
16,658.00	92.00	177.40	9,923.99	6,816.61	-6,816.64	-20.21	6,816.67	180.17	419,961.54	593,646.81	
16,752.00	90.30	177.20	9,922.10	6,910.49	-6,910.52	-15.79	6,910.54	180.13	419,867.66	593,651.23	
16,847.00	92.80	177.50	9,919.53	7,005.35	-7,005.37	-11.40	7,005.38	180.09	419,772.81	593,655.62	
16,941.00	92.40	178.30	9,915.27	7,099.20	-7,099.21	-7.96	7,099.22	180.06	419,678.97	593,659.06	

Company: Marathon Oil
Project: Eddy County, NM
Site: Sweet Tea State 24-29-31 (2-3-4-5-6)
Well: WA #5H
Wellbore: OH
Design: OH 174'-17226' PTB 17281'

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

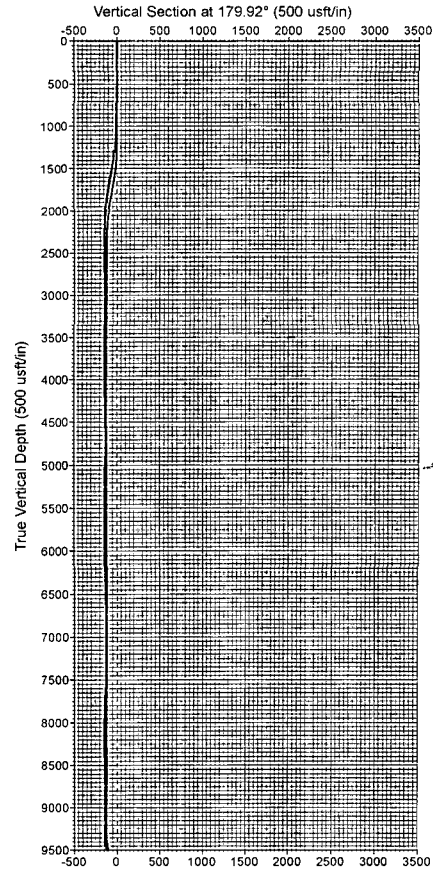
Well WA #5H
 Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
 Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))
 Grid
 Minimum Curvature
 WellPlanner1

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)
17,035.00	90.90	178.00		9,912.56	7,193.11	-7,193.12	-4.92	7,193.12	180.04	419,585.06	593,662.10
17,129.00	91.30	179.60		9,910.76	7,287.07	-7,287.08	-2.96	7,287.08	180.02	419,491.10	593,664.06
17,226.00	91.20	180.10		9,908.64	7,384.05	-7,384.06	-2.70	7,384.06	180.02	419,394.12	593,664.32
Last Survey: 17226' MD, 9909' TVD - [SweetTeaWA#5H]LTP/BHL											
17,281.00	91.20	180.10		9,907.49	7,439.03	-7,439.05	-2.80	7,439.05	180.02	419,339.13	593,664.22
PTB: 17281' MD, 9907' TVD											

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
17,226.00	9,908.64	-7,384.06	-2.70	Last Survey: 17226' MD, 9909' TVD	
17,281.00	9,907.49	-7,439.05	-2.80	PTB: 17281' MD, 9907' TVD	



Marathon Oil
Eddy County, NM
Sweet Tea State 24-29-31 (2-3-4-5-6)
WA #5H
Plan #4
GL: 2921' + KB: 25' (Prec594)



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

RKB Elevation: Well @ 2946.00usft (GL: 2921' + KB: 25' (Prec594))

	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
	0.00	0.00	426778.18	593667.02	32.172968	-104.030607	

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	500.00	0.00	-0.00	500.00	0.00	0.00	0.00	0.00
3	800.00	-1.50	270.00	799.97	0.00	-3.93	0.50	-0.01
4	1200.17	1.50	270.00	1200.00	0.00	-14.40	0.00	-0.02
5	1691.35	10.00	349.06	1688.59	41.97	-28.96	2.00	-42.01
6	1927.81	10.00	349.06	1921.43	82.28	-36.75	0.00	-82.33
7	2427.75	0.00	0.00	2418.84	125.00	-45.00	2.00	-125.06
8	9342.95	0.00	0.00	9334.04	125.00	-45.00	0.00	-125.06
9	10242.95	90.00	178.10	9907.00	-447.64	-26.00	10.00	447.61
10	10303.49	90.00	179.92	9907.00	-508.17	-24.96	3.00	508.13
11	17190.09	90.00	179.92	9907.00	-7394.76	-14.88	0.00	7394.73
12	17235.09	90.00	179.92	9907.00	-7439.76	-14.81	0.00	7439.73

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N/-S	+E/-W	Northing	Easting	
[SweetTeaWA#5HJFTP	0.00	-67.29	-25.47	426710.89	593641.55	
[SweetTeaWA#5HJKOP	9334.04	125.00	-45.00	426903.18	593622.02	
[SweetTeaWA#5HJLTP/BHL	9907.00	-7394.76	-14.88	419383.42	593652.14	



Azimuths to Grid North
True North: -0.16°
Magnetic North: 6.96°

Magnetic Field
Strength: 47996.2nT
Dip Angle: 59.96°
Date: 5/20/2018
Model: HDGM

Azimuth Corrections

Total Magnetic Corr. (M to G): 6.96°

Declination (M to T): 7.12° East

Target Line: 9907' TVD @ 0° VS: 90° INC

