



RECEIVED

APR 03 2019

DISTRICT II-ARTESIA O.C.D.

Marathon Oil

Eddy County, NM

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

SB #4H

OH

Design: OH 200'-15803' PTB 15865'

Survey Report

17 July, 2018



Company:	Marathon Oil	Local Co-ordinate Reference:	Well SB #4H
Project:	Eddy County, NM	TVD Reference:	Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
Site:	Sweet Tea State 24-29-31 (2-3-4-5-6)	MD Reference:	Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
Well:	SB #4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH 200'-15803' PTB 15865'	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	SB #4H					
Well Position	+N/-S	0.00 usft	Northing:	426,743.19 usft	Latitude:	32.172871
	+E/-W	0.00 usft	Easting:	593,742.10 usft	Longitude:	-104.030365
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,919.00 usft	

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/3/2018	7.12	59.93	47,991.60

Design	OH 200'-15803' PTB 15865'			
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	179.98

Survey Program	Date 7/17/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
200.00	15,865.00	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: SB #4H
Wellbore: OH
Design: OH 200'-15803' PTB 15865'

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

Well SB #4H
 Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
 Well @ 2944.00usft (GL: 2919' + 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 (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	426,743.19	593,742.10	
200.00	0.20	123.20	200.00	0.19	-0.19	0.29	0.35	123.20	426,743.00	593,742.39	
234.00	0.40	152.20	234.00	0.33	-0.33	0.40	0.52	129.61	426,742.86	593,742.50	
325.00	0.80	147.50	324.99	1.15	-1.15	0.89	1.45	142.26	426,742.04	593,742.99	
384.00	1.00	147.30	383.99	1.93	-1.93	1.39	2.37	144.26	426,741.26	593,743.49	
502.00	0.80	134.20	501.97	3.37	-3.37	2.53	4.21	143.05	426,739.82	593,744.63	
593.00	0.80	133.90	592.96	4.25	-4.25	3.45	5.47	140.96	426,738.94	593,745.55	
685.00	0.80	135.20	684.95	5.15	-5.15	4.36	6.75	139.75	426,738.04	593,746.46	
776.00	0.80	146.90	775.95	6.14	-6.13	5.16	8.01	139.95	426,737.06	593,747.26	
867.00	0.80	146.40	866.94	7.20	-7.20	5.85	9.28	140.87	426,735.99	593,747.95	
959.00	0.70	150.80	958.93	8.22	-8.22	6.48	10.47	141.74	426,734.97	593,748.58	
1,050.00	0.60	154.60	1,049.92	9.14	-9.14	6.96	11.49	142.70	426,734.05	593,749.06	
1,139.00	1.00	63.50	1,138.92	9.21	-9.21	7.85	12.11	139.55	426,733.98	593,749.95	
1,228.00	1.30	66.30	1,227.90	8.46	-8.46	9.47	12.70	131.76	426,734.73	593,751.57	
1,317.00	1.50	70.90	1,316.87	7.68	-7.67	11.50	13.82	123.71	426,735.52	593,753.60	
1,407.00	2.50	53.70	1,406.82	6.13	-6.12	14.19	15.46	113.34	426,737.07	593,756.29	
1,496.00	4.30	44.60	1,495.66	2.61	-2.60	18.10	18.29	98.17	426,740.59	593,760.20	
1,585.00	6.30	43.30	1,584.27	-3.32	3.33	23.79	24.03	82.03	426,746.52	593,765.89	
1,674.00	6.70	44.00	1,672.70	-10.61	10.62	30.75	32.53	70.95	426,753.81	593,772.85	
1,764.00	7.70	43.20	1,761.99	-18.78	18.79	38.52	42.86	64.00	426,761.98	593,780.62	
1,853.00	7.90	43.30	1,850.17	-27.57	27.59	46.80	54.33	59.48	426,770.78	593,788.90	
1,942.00	7.20	43.70	1,938.39	-36.05	36.07	54.85	65.65	56.67	426,779.26	593,796.95	
2,032.00	8.00	46.10	2,027.60	-44.47	44.49	63.26	77.34	54.88	426,787.68	593,805.36	
2,121.00	10.00	48.40	2,115.50	-53.89	53.92	73.50	91.16	53.74	426,797.11	593,815.60	
2,210.00	10.60	49.20	2,203.07	-64.37	64.40	85.48	107.02	53.01	426,807.59	593,827.58	
2,299.00	10.10	54.00	2,290.62	-74.30	74.33	97.99	122.99	52.82	426,817.52	593,840.09	
2,388.00	10.10	58.00	2,378.24	-83.02	83.06	110.92	138.57	53.17	426,826.25	593,853.02	

Company: Marathon Oil
Project: Eddy County, NM
Site: Sweet Tea State 24-29-31 (2-3-4-5-6)
Well: SB #4H
Wellbore: OH
Design: OH 200'-15803' PTB 15865'

Local Co-ordinate Reference: Well SB #4H
TVD Reference: Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
MD Reference: Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
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)
2,478.00	10.10	58.50		2,466.85	-91.32	91.36	124.34	154.30	53.69	426,834.55	593,866.44
2,567.00	9.60	55.20		2,554.54	-99.63	99.67	137.09	169.49	53.98	426,842.86	593,879.19
2,656.00	9.10	52.70		2,642.35	-108.12	108.18	148.78	183.95	53.98	426,851.37	593,890.88
2,752.00	8.00	52.20		2,737.29	-116.81	116.87	160.10	198.22	53.87	426,860.06	593,902.20
2,842.00	8.60	45.40		2,826.35	-125.37	125.43	169.84	211.14	53.55	426,868.62	593,911.94
2,931.00	10.10	26.60		2,914.18	-137.03	137.09	178.07	224.73	52.41	426,880.28	593,920.17
3,020.00	10.10	25.10		3,001.80	-151.07	151.13	184.88	238.79	50.73	426,894.32	593,926.98
3,110.00	10.40	23.80		3,090.37	-165.64	165.71	191.50	253.25	49.13	426,908.90	593,933.60
3,199.00	9.20	25.90		3,178.07	-179.39	179.46	197.85	267.12	47.79	426,922.65	593,939.95
3,288.00	8.10	28.70		3,266.05	-191.29	191.36	203.97	279.68	46.83	426,934.55	593,946.07
3,378.00	6.60	32.40		3,355.31	-201.22	201.29	209.79	290.74	46.18	426,944.48	593,951.89
3,467.00	4.70	54.40		3,443.88	-207.66	207.73	215.49	299.32	46.05	426,950.92	593,957.59
3,557.00	3.70	62.70		3,533.64	-211.14	211.21	221.07	305.75	46.31	426,954.40	593,963.17
3,645.00	3.40	64.30		3,621.47	-213.57	213.65	225.95	310.96	46.60	426,956.84	593,968.05
3,735.00	2.60	24.50		3,711.36	-216.58	216.66	229.20	315.40	46.61	426,959.85	593,971.30
3,824.00	2.60	16.40		3,800.27	-220.35	220.43	230.61	319.02	46.29	426,963.62	593,972.71
3,913.00	1.80	353.90		3,889.20	-223.68	223.76	231.03	321.63	45.92	426,966.95	593,973.13
4,003.00	2.20	317.60		3,979.15	-226.36	226.44	229.71	322.56	45.41	426,969.63	593,971.81
4,092.00	2.50	323.90		4,068.08	-229.19	229.27	227.42	322.93	44.77	426,972.46	593,969.52
4,181.00	1.60	333.00		4,157.02	-231.87	231.95	225.71	323.64	44.22	426,975.14	593,967.81
4,271.00	1.30	146.50		4,247.01	-232.14	232.22	225.70	323.83	44.18	426,975.41	593,967.80
4,360.00	1.00	143.00		4,335.99	-230.67	230.75	226.73	323.50	44.50	426,973.94	593,968.83
4,450.00	1.00	151.00		4,425.98	-229.36	229.44	227.58	323.16	44.77	426,972.63	593,969.68
4,539.00	0.80	153.80		4,514.97	-228.12	228.20	228.23	322.75	45.00	426,971.39	593,970.33
4,628.00	1.00	160.50		4,603.96	-226.83	226.91	228.76	322.22	45.23	426,970.10	593,970.86
4,718.00	1.10	149.20		4,693.94	-225.35	225.43	229.47	321.68	45.51	426,968.62	593,971.57
4,807.00	1.30	146.40		4,782.92	-223.78	223.86	230.46	321.29	45.83	426,967.05	593,972.56

Company:	Marathon Oil	Local Co-ordinate Reference:	Well SB #4H
Project:	Eddy County, NM	TVD Reference:	Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
Site:	Sweet Tea State 24-29-31 (2-3-4-5-6)	MD Reference:	Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
Well:	SB #4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH 200'-15803' PTB 15865'	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)	
4,896.00	1.30	162.90	4,871.90	-221.97	222.05	231.32	320.65	46.17	426,965.24	593,973.42	
4,986.00	1.50	152.20	4,961.87	-219.95	220.03	232.17	319.87	46.54	426,963.22	593,974.27	
5,075.00	0.70	168.30	5,050.85	-218.39	218.47	232.82	319.27	46.82	426,961.66	593,974.92	
5,165.00	1.60	331.00	5,140.85	-218.95	219.03	232.33	319.30	46.69	426,962.22	593,974.43	
5,254.00	1.80	313.00	5,229.81	-220.99	221.07	230.70	319.52	46.22	426,964.26	593,972.80	
5,343.00	1.50	293.60	5,318.77	-222.41	222.49	228.61	319.01	45.78	426,965.68	593,970.71	
5,432.00	1.50	285.70	5,407.74	-223.19	223.27	226.42	317.99	45.40	426,966.46	593,968.52	
5,521.00	1.60	289.80	5,496.71	-223.93	224.01	224.13	316.88	45.02	426,967.20	593,966.23	
5,611.00	1.50	290.30	5,586.67	-224.76	224.84	221.85	315.86	44.62	426,968.03	593,963.95	
5,700.00	1.40	283.40	5,675.65	-225.42	225.50	219.69	314.83	44.25	426,968.69	593,961.79	
5,789.00	1.60	273.80	5,764.62	-225.76	225.83	217.40	313.47	43.91	426,969.02	593,959.50	
5,879.00	1.20	10.80	5,854.60	-226.77	226.84	216.32	313.45	43.64	426,970.03	593,958.42	
5,968.00	1.80	16.40	5,943.57	-229.02	229.10	216.89	315.48	43.43	426,972.29	593,958.99	
6,057.00	1.50	29.40	6,032.53	-231.38	231.45	217.86	317.86	43.27	426,974.64	593,959.96	
6,146.00	1.70	25.10	6,121.50	-233.59	233.66	218.99	320.24	43.14	426,976.85	593,961.09	
6,235.00	1.50	26.20	6,210.46	-235.83	235.91	220.06	322.61	43.01	426,979.10	593,962.16	
6,325.00	1.20	35.00	6,300.44	-237.66	237.73	221.12	324.67	42.93	426,980.92	593,963.22	
6,414.00	1.50	28.00	6,389.41	-239.45	239.53	222.20	326.72	42.85	426,982.72	593,964.30	
6,503.00	1.40	0.70	6,478.38	-241.56	241.64	222.76	328.66	42.67	426,984.83	593,964.86	
6,593.00	1.60	338.90	6,568.35	-243.84	243.91	222.33	330.03	42.35	426,987.10	593,964.43	
6,682.00	0.30	129.00	6,657.34	-244.85	244.93	222.06	330.60	42.20	426,988.12	593,964.16	
6,771.00	1.00	150.40	6,746.34	-244.03	244.10	222.62	330.38	42.36	426,987.29	593,964.72	
6,860.00	0.50	183.30	6,835.33	-242.96	243.04	222.99	329.84	42.54	426,986.23	593,965.09	
6,950.00	0.50	204.20	6,925.33	-242.21	242.29	222.80	329.16	42.60	426,985.48	593,964.90	
7,039.00	0.90	184.10	7,014.32	-241.16	241.24	222.59	328.24	42.70	426,984.43	593,964.69	
7,129.00	1.20	178.50	7,104.30	-239.51	239.59	222.57	327.02	42.89	426,982.78	593,964.67	
7,218.00	1.00	182.80	7,193.29	-237.81	237.88	222.55	325.76	43.09	426,981.07	593,964.65	

Company: Marathon Oil
Project: Eddy County, NM
Site: Sweet Tea State 24-29-31 (2-3-4-5-6)
Well: SB #4H
Wellbore: OH
Design: OH 200'-15803' PTB 15865'

Local Co-ordinate Reference: Well SB #4H
TVD Reference: Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
MD Reference: Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
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)	
7,308.00	0.80	220.10	7,283.28	-236.54	236.62	222.11	324.53	43.19	426,979.81	593,964.21	
7,398.00	0.90	255.10	7,373.27	-235.88	235.96	221.02	323.31	43.13	426,979.15	593,963.12	
7,487.00	0.90	257.90	7,462.26	-235.55	235.63	219.66	322.14	42.99	426,978.82	593,961.76	
7,577.00	1.00	295.40	7,552.25	-235.74	235.82	218.26	321.32	42.79	426,979.01	593,960.36	
7,666.00	1.90	316.10	7,641.22	-237.14	237.22	216.54	321.19	42.39	426,980.41	593,958.64	
7,711.00	1.90	318.80	7,686.19	-238.24	238.32	215.53	321.32	42.13	426,981.51	593,957.63	
7,751.00	1.80	317.20	7,726.17	-239.20	239.28	214.67	321.46	41.90	426,982.47	593,956.77	
7,841.00	0.80	56.90	7,816.16	-240.58	240.66	214.23	322.20	41.68	426,983.85	593,956.33	
7,930.00	9.20	152.20	7,904.77	-234.61	234.69	218.08	320.37	42.90	426,977.88	593,960.18	
8,019.00	20.00	156.60	7,990.77	-214.29	214.37	227.47	312.56	46.70	426,957.56	593,969.57	
8,108.00	19.70	171.50	8,074.54	-185.46	185.54	235.74	300.00	51.79	426,928.73	593,977.84	
8,198.00	23.70	171.30	8,158.15	-152.56	152.65	240.72	285.04	57.62	426,895.84	593,982.82	
8,242.00	26.50	169.30	8,197.99	-134.17	134.26	243.88	278.39	61.17	426,877.45	593,985.98	
8,287.00	32.10	169.90	8,237.21	-112.52	112.60	247.84	272.22	65.57	426,855.79	593,989.94	
8,332.00	39.90	173.50	8,273.60	-86.36	86.45	251.58	266.02	71.04	426,829.64	593,993.68	
8,376.00	48.50	176.10	8,305.11	-55.84	55.93	254.30	260.38	77.60	426,799.12	593,996.40	
8,465.00	62.50	179.20	8,355.41	17.26	-17.17	257.13	257.71	93.82	426,726.02	593,999.23	
8,487.00	65.50	179.60	8,365.05	37.03	-36.94	257.34	259.98	98.17	426,706.25	593,999.44	
8,579.00	76.20	180.10	8,395.19	123.81	-123.72	257.56	285.73	115.66	426,619.47	593,999.66	
8,670.00	81.30	180.20	8,412.93	213.03	-212.94	257.32	334.00	129.61	426,530.25	593,999.42	
8,759.00	87.90	179.30	8,421.30	301.58	-301.49	257.71	396.63	139.48	426,441.70	593,999.81	
8,848.00	89.00	178.50	8,423.71	390.53	-390.44	259.42	468.77	146.40	426,352.75	594,001.52	
8,938.00	89.00	180.20	8,425.28	480.51	-480.42	260.44	546.47	151.54	426,262.77	594,002.54	
9,027.00	89.50	181.20	8,426.45	569.50	-569.41	259.35	625.69	155.51	426,173.78	594,001.45	
9,116.00	90.50	180.60	8,426.45	658.48	-658.39	257.96	707.12	158.60	426,084.80	594,000.06	
9,206.00	91.00	180.50	8,425.27	748.47	-748.38	257.09	791.31	161.04	425,994.81	593,999.19	
9,295.00	91.10	181.70	8,423.64	837.44	-837.35	255.38	875.43	163.04	425,905.84	593,997.48	

Company:	Marathon Oil	Local Co-ordinate Reference:	Well SB #4H
Project:	Eddy County, NM	TVD Reference:	Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
Site:	Sweet Tea State 24-29-31 (2-3-4-5-6)	MD Reference:	Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
Well:	SB #4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH 200'-15803' PTB 15865'	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)	
9,384.00	88.90	180.30	8,423.64	926.41	-926.33	253.83	960.47	164.68	425,816.86	593,995.93	
9,473.00	89.30	179.90	8,425.04	1,015.40	-1,015.31	253.67	1,046.53	165.97	425,727.88	593,995.77	
9,562.00	90.60	180.00	8,425.11	1,104.40	-1,104.31	253.75	1,133.09	167.06	425,638.88	593,995.85	
9,652.00	88.60	179.80	8,425.74	1,194.39	-1,194.31	253.91	1,221.00	168.00	425,548.88	593,996.01	
9,741.00	89.30	180.10	8,427.37	1,283.38	-1,283.29	253.99	1,308.18	168.80	425,459.90	593,996.09	
9,830.00	89.00	180.70	8,428.69	1,372.37	-1,372.28	253.37	1,395.47	169.54	425,370.91	593,995.47	
9,920.00	88.80	181.30	8,430.42	1,462.33	-1,462.25	251.80	1,483.77	170.23	425,280.94	593,993.90	
10,009.00	89.90	181.00	8,431.43	1,551.31	-1,551.22	250.01	1,571.24	170.84	425,191.97	593,992.11	
10,099.00	90.60	180.80	8,431.04	1,641.30	-1,641.21	248.60	1,659.93	171.39	425,101.98	593,990.70	
10,188.00	89.80	182.80	8,430.73	1,730.25	-1,730.16	245.80	1,747.53	171.91	425,013.03	593,987.90	
10,277.00	89.60	182.60	8,431.19	1,819.14	-1,819.06	241.61	1,835.03	172.43	424,924.13	593,983.71	
10,366.00	90.70	182.70	8,430.96	1,908.05	-1,907.96	237.49	1,922.69	172.90	424,835.23	593,979.59	
10,455.00	88.30	182.20	8,431.74	1,996.95	-1,996.87	233.69	2,010.50	173.33	424,746.32	593,975.79	
10,545.00	88.30	182.60	8,434.41	2,086.83	-2,086.75	229.92	2,099.38	173.71	424,656.44	593,972.02	
10,635.00	89.40	183.00	8,436.21	2,176.70	-2,176.63	225.53	2,188.28	174.08	424,566.56	593,967.63	
10,724.00	90.20	182.90	8,436.52	2,265.58	-2,265.51	220.95	2,276.25	174.43	424,477.68	593,963.05	
10,813.00	90.30	182.60	8,436.14	2,354.48	-2,354.40	216.68	2,364.35	174.74	424,388.79	593,958.78	
10,902.00	88.30	181.30	8,437.22	2,443.41	-2,443.34	213.65	2,452.66	175.00	424,299.85	593,955.75	
10,992.00	88.80	181.10	8,439.50	2,533.36	-2,533.29	211.76	2,542.12	175.22	424,209.90	593,953.86	
11,081.00	90.80	181.00	8,439.81	2,622.34	-2,622.27	210.13	2,630.68	175.42	424,120.92	593,952.23	
11,170.00	90.10	179.60	8,439.11	2,711.34	-2,711.26	209.67	2,719.36	175.58	424,031.93	593,951.77	
11,260.00	90.90	178.90	8,438.33	2,801.32	-2,801.25	210.84	2,809.17	175.70	423,941.94	593,952.94	
11,349.00	91.10	178.40	8,436.77	2,890.29	-2,890.21	212.94	2,898.05	175.79	423,852.98	593,955.04	
11,438.00	92.30	178.70	8,434.13	2,979.22	-2,979.14	215.19	2,986.90	175.87	423,764.05	593,957.29	
11,528.00	90.40	178.00	8,432.01	3,069.15	-3,069.08	217.78	3,076.79	175.94	423,674.11	593,959.88	
11,617.00	89.00	177.60	8,432.48	3,158.08	-3,158.01	221.20	3,165.74	175.99	423,585.18	593,963.30	
11,706.00	88.40	178.80	8,434.50	3,247.02	-3,246.94	223.99	3,254.65	176.05	423,496.25	593,966.09	

Company: Marathon Oil
Project: Eddy County, NM
Site: Sweet Tea State 24-29-31 (2-3-4-5-6)
Well: SB #4H
Wellbore: OH
Design: OH 200'-15803' PTB 15865'

Local Co-ordinate Reference: Well SB #4H
TVD Reference: Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
MD Reference: Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
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)
11,795.00	88.80	179.10	8,436.67	3,335.97	-3,335.90	225.62	3,343.52	176.13	423,407.29	593,967.72
11,884.00	88.90	179.10	8,438.46	3,424.95	-3,424.87	227.02	3,432.38	176.21	423,318.32	593,969.12
11,974.00	89.70	178.80	8,439.56	3,514.92	-3,514.84	228.67	3,522.27	176.28	423,228.35	593,970.77
12,063.00	90.40	179.00	8,439.48	3,603.91	-3,603.83	230.38	3,611.18	176.34	423,139.36	593,972.48
12,152.00	91.00	178.30	8,438.39	3,692.88	-3,692.79	232.48	3,700.10	176.40	423,050.40	593,974.58
12,242.00	91.10	178.40	8,436.74	3,782.82	-3,782.74	235.07	3,790.04	176.44	422,960.45	593,977.17
12,331.00	90.90	179.00	8,435.19	3,871.79	-3,871.71	237.09	3,878.96	176.50	422,871.48	593,979.19
12,420.00	88.10	176.50	8,435.97	3,960.70	-3,960.62	240.58	3,967.92	176.52	422,782.57	593,982.68
12,510.00	89.00	177.30	8,438.25	4,050.54	-4,050.46	245.44	4,057.88	176.53	422,692.73	593,987.54
12,600.00	90.70	177.90	8,438.48	4,140.46	-4,140.37	249.21	4,147.87	176.56	422,602.82	593,991.31
12,689.00	89.90	178.50	8,438.01	4,229.41	-4,229.33	252.01	4,236.83	176.59	422,513.86	593,994.11
12,778.00	89.40	177.60	8,438.56	4,318.36	-4,318.27	255.04	4,325.80	176.62	422,424.92	593,997.14
12,868.00	90.40	180.20	8,438.72	4,408.34	-4,408.25	256.76	4,415.72	176.67	422,334.94	593,998.86
12,957.00	91.30	182.60	8,437.40	4,497.29	-4,497.20	254.59	4,504.40	176.76	422,245.99	593,996.69
13,047.00	87.10	182.40	8,438.65	4,587.17	-4,587.09	250.67	4,593.93	176.87	422,156.10	593,992.77
13,136.00	88.60	183.20	8,441.99	4,676.00	-4,675.92	246.32	4,682.40	176.98	422,067.27	593,988.42
13,225.00	90.20	183.20	8,442.92	4,764.85	-4,764.77	241.35	4,770.88	177.10	421,978.42	593,983.45
13,315.00	90.90	183.00	8,442.06	4,854.71	-4,854.63	236.49	4,860.39	177.21	421,888.56	593,978.59
13,404.00	88.90	182.80	8,442.21	4,943.59	-4,943.51	231.98	4,948.95	177.31	421,799.68	593,974.08
13,493.00	88.00	181.30	8,444.62	5,032.50	-5,032.42	228.80	5,037.62	177.40	421,710.77	593,970.90
13,583.00	86.80	180.40	8,448.70	5,122.39	-5,122.32	227.47	5,127.36	177.46	421,620.87	593,969.57
13,672.00	87.50	180.50	8,453.13	5,211.28	-5,211.20	226.77	5,216.13	177.51	421,531.99	593,968.87
13,761.00	88.40	180.70	8,456.31	5,300.22	-5,300.14	225.84	5,304.95	177.56	421,443.05	593,967.94
13,850.00	89.60	181.10	8,457.87	5,389.19	-5,389.11	224.44	5,393.78	177.62	421,354.08	593,966.54
13,940.00	90.90	180.70	8,457.47	5,479.18	-5,479.10	223.03	5,483.64	177.67	421,264.09	593,965.13
14,029.00	91.70	181.30	8,455.45	5,568.14	-5,568.06	221.47	5,572.46	177.72	421,175.13	593,963.57
14,119.00	89.10	179.80	8,454.83	5,658.12	-5,658.04	220.61	5,662.34	177.77	421,085.15	593,962.71

Company:	Marathon Oil	Local Co-ordinate Reference:	Well SB #4H
Project:	Eddy County, NM	TVD Reference:	Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
Site:	Sweet Tea State 24-29-31 (2-3-4-5-6)	MD Reference:	Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
Well:	SB #4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH 200'-15803' PTB 15865'	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)	
14,208.00	89.60	180.30	8,455.84	5,747.12	-5,747.04	220.53	5,751.27	177.80	420,996.15	593,962.63	
14,297.00	90.50	179.70	8,455.76	5,836.11	-5,836.04	220.53	5,840.20	177.84	420,907.15	593,962.63	
14,387.00	88.90	180.10	8,456.23	5,926.11	-5,926.03	220.69	5,930.14	177.87	420,817.16	593,962.79	
14,477.00	89.40	180.20	8,457.56	6,016.10	-6,016.02	220.45	6,020.06	177.90	420,727.17	593,962.55	
14,566.00	90.20	179.80	8,457.87	6,105.10	-6,105.02	220.45	6,109.00	177.93	420,638.17	593,962.55	
14,656.00	91.30	180.00	8,456.70	6,195.09	-6,195.01	220.61	6,198.94	177.96	420,548.18	593,962.71	
14,745.00	90.20	180.60	8,455.53	6,284.08	-6,284.00	220.15	6,287.86	177.99	420,459.19	593,962.25	
14,834.00	89.20	180.10	8,456.00	6,373.07	-6,373.00	219.60	6,376.78	178.03	420,370.19	593,961.70	
14,924.00	90.40	180.60	8,456.31	6,463.07	-6,462.99	219.05	6,466.70	178.06	420,280.20	593,961.15	
15,013.00	91.90	180.90	8,454.53	6,552.04	-6,551.96	217.89	6,555.59	178.10	420,191.23	593,959.99	
15,102.00	90.00	180.00	8,453.05	6,641.02	-6,640.94	217.19	6,644.49	178.13	420,102.25	593,959.29	
15,191.00	88.80	180.10	8,453.98	6,730.01	-6,729.94	217.11	6,733.44	178.15	420,013.25	593,959.21	
15,281.00	90.10	180.10	8,454.85	6,820.01	-6,819.93	216.95	6,823.38	178.18	419,923.26	593,959.05	
15,370.00	90.50	179.80	8,454.38	6,909.01	-6,908.93	217.03	6,912.34	178.20	419,834.26	593,959.13	
15,459.00	90.40	180.60	8,453.68	6,998.00	-6,997.93	216.72	7,001.28	178.23	419,745.26	593,958.82	
15,549.00	91.50	180.50	8,452.19	7,087.98	-7,087.91	215.86	7,091.19	178.26	419,655.28	593,957.96	
15,638.00	89.90	179.30	8,451.10	7,176.97	-7,176.90	216.01	7,180.15	178.28	419,566.29	593,958.11	
15,727.00	91.30	180.10	8,450.17	7,265.96	-7,265.89	216.48	7,269.11	178.29	419,477.30	593,958.58	
15,803.00	91.30	179.80	8,448.45	7,341.94	-7,341.87	216.55	7,345.06	178.31	419,401.32	593,958.65	
Last Survey: 15803' MD, 8448' TVD											
15,865.00	91.30	179.80	8,447.04	7,403.93	-7,403.85	216.76	7,407.02	178.32	419,339.34	593,958.86	
PTB: 15865' MD, 8447' TVD											

Company:	Marathon Oil	Local Co-ordinate Reference:	Well SB #4H
Project:	Eddy County, NM	TVD Reference:	Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
Site:	Sweet Tea State 24-29-31 (2-3-4-5-6)	MD Reference:	Well @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))
Well:	SB #4H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH 200'-15803' PTB 15865'	Database:	WellPlanner1

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
15,803.00	8,448.45	-7,341.87	216.55	Last Survey: 15803' MD, 8448' TVD
15,865.00	8,447.04	-7,403.85	216.76	PTB: 15865' MD, 8447' TVD

Marathon Oil Corporation

Marathon Oil
Eddy County, NM
Sweet Tea State 24-29-31 (2-3-4-5-6)
SB #4H
Plan #4
GL: 2919' + 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 @ 2944.00usft (GL: 2919' + KB: 25' (Prec594))

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	426743.19	593742.10	32.172871	-104.030365	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00
3	2000.00	10.00	45.09	1997.47	30.72	30.83	2.00	-30.71
4	3376.94	10.00	45.09	3353.49	199.52	200.17	0.00	-199.45
5	3876.94	0.00	0.00	3850.96	230.24	231.00	2.00	-230.16
6	7907.99	0.00	0.00	7882.00	230.24	231.00	0.00	-230.16
7	8607.98	90.00	179.98	8454.96	-342.71	231.24	10.00	342.79
8	15819.47	90.00	179.98	8455.00	-7354.20	234.17	0.00	7354.28
9	15864.47	90.00	179.98	8455.00	-7399.20	234.19	0.00	7399.28

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
[SweetTea#4H]PP/FTP	0.00	-30.55	232.12	426712.64	593974.22
[SweetTea#4H]KOP	7882.00	230.24	231.00	426973.43	593973.10
[SweetTea#4H]LTP/BHL	8455.00	-7354.20	234.17	419388.99	593976.27



PRODIRECTIONAL



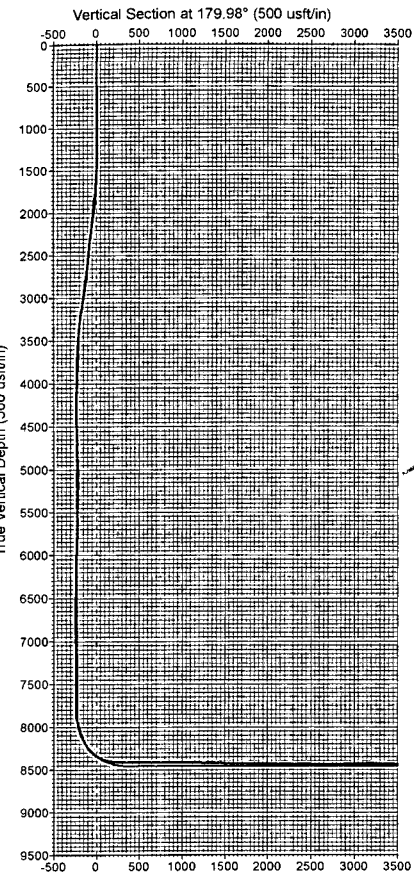
Azimuths to Grid North
True North: -0.16°
Magnetic North: 6.96°

Magnetic Field
Strength: 47991.6nT
Dip Angle: 59.93°
Date: 8/3/2018
Model: HDGM

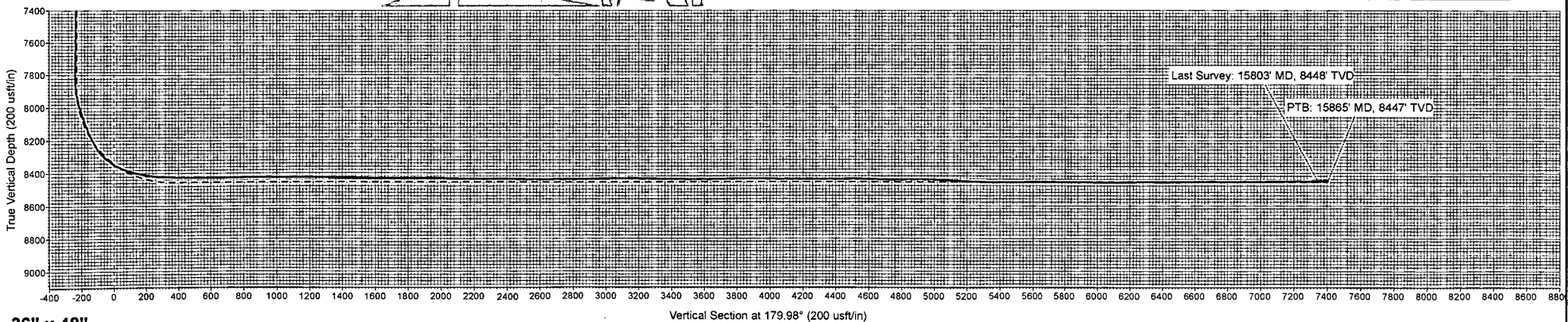
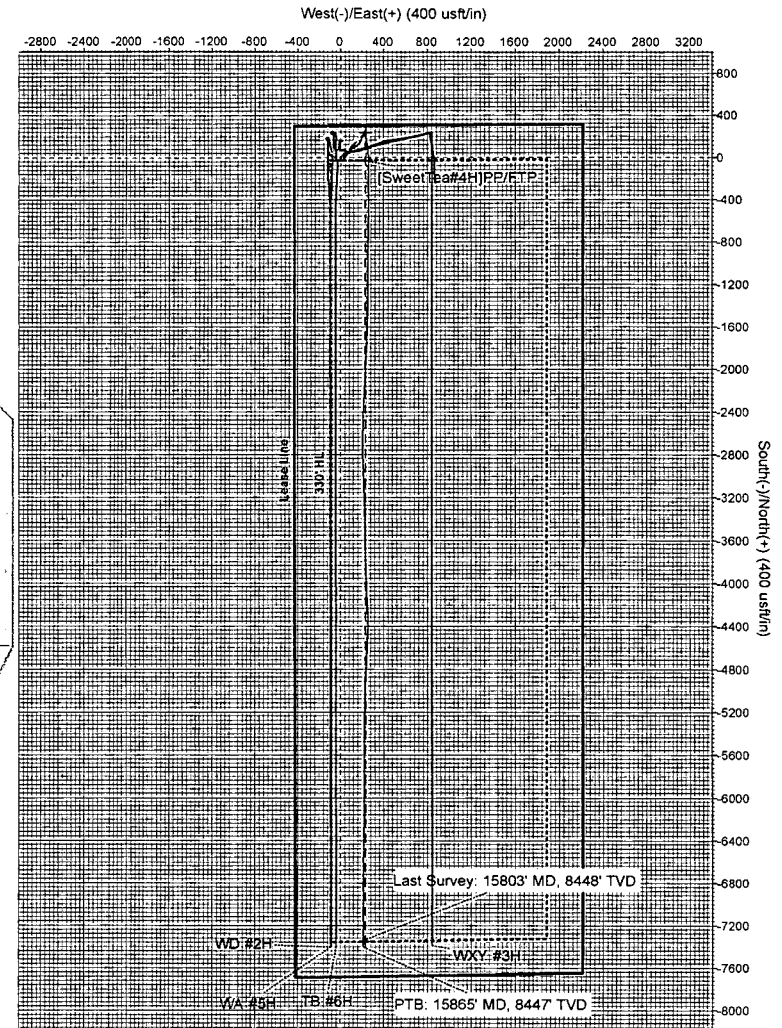
Azimuth Corrections

Total Magnetic Corr. (M to G): 6.96°

Declination (M to T): 7.12° East



Target Line: 8455' TVD @ 0° VS: 90° INC



36" x 48"