

**Provide Signature Page for
Directional Survey**



Marathon Oil

Marathon Oil

Eddy County, NM

El Presidente State 5-6-10

WXY #10H

OH

30-015-44485

Design: OH 225'-13974' PTB 14048'

Survey Report

23 February, 2018

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 30 2018

RECEIVED





Professional Directional Survey Report



Company: Marathon Oil
Project: Eddy County, NM
Site: El Presidente State 5-6-10
Well: WXY #10H
Wellbore: OH
Design: OH 225'-13974' PTB 14048'

Local Co-ordinate Reference: Well WXY #10H
TVD Reference: Well @ 3161.50usft (GL: 3135' + KB: 26.5' (H&P423))
MD Reference: Well @ 3161.50usft (GL: 3135' + KB: 26.5' (H&P423))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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	El Presidente State 5-6-10		
Site Position:		Northing:	451,111.94 usft
From:	Map	Easting:	555,065.83 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 14' 24.3537 N
		Longitude:	104° 9' 18.8390 W
		Grid Convergence:	0.10 °

Well		WXY #10H				
Well Position	+N/-S	0.00 usft	Northing:	451,111.94 usft	Latitude:	32° 14' 24.3521 N
	+E/-W	0.00 usft	Easting:	555,165.83 usft	Longitude:	104° 9' 17.6746 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,135.00 usft	

Wellbore	OH					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	HDGM	12/31/2017	7.33	60.05	48,033.00	

Design	OH 225'-13974' PTB 14048'				
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	1.16	



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Survey Program Date 2/23/2018

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
225.00	501.00	Survey #1 (OH)	GYRO-MWD	OWSG Gyro MWD
603.00	14,048.00	Survey #2 (OH)	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	451,111.94	555,165.83
225.00	2.00	292.00	224.95	1.40	1.47	-3.64	3.93	292.00	451,113.41	555,162.19
318.00	1.00	304.10	317.92	2.42	2.53	-5.82	6.35	293.54	451,114.47	555,160.01
410.00	0.70	335.10	409.91	3.36	3.49	-6.72	7.57	297.47	451,115.43	555,159.11
501.00	0.40	39.10	500.91	4.11	4.24	-6.75	7.98	302.15	451,116.18	555,159.08
603.00	0.70	168.00	602.91	3.78	3.91	-6.40	7.50	301.44	451,115.85	555,159.43
695.00	1.40	167.90	694.89	2.14	2.26	-6.05	6.46	290.52	451,114.20	555,159.78
787.00	1.50	179.70	786.86	-0.16	-0.04	-5.80	5.80	269.60	451,111.90	555,160.03
878.00	1.30	174.70	877.83	-2.37	-2.26	-5.70	6.13	248.39	451,109.68	555,160.13
970.00	2.00	167.70	969.79	-4.97	-4.87	-5.26	7.17	227.24	451,107.07	555,160.57
1,061.00	2.10	167.70	1,060.74	-8.14	-8.05	-4.57	9.25	209.59	451,103.89	555,161.26
1,156.00	2.50	159.80	1,155.66	-11.76	-11.69	-3.48	12.20	196.59	451,100.25	555,162.35
1,250.00	3.90	138.00	1,249.51	-16.00	-15.99	-0.64	16.01	182.28	451,095.95	555,165.19
1,344.00	3.80	141.40	1,343.30	-20.73	-20.80	3.45	21.09	170.60	451,091.14	555,169.28
1,439.00	4.40	152.40	1,438.06	-26.34	-26.49	7.10	27.43	165.00	451,085.45	555,172.93
1,534.00	5.60	141.70	1,532.70	-33.12	-33.36	11.66	35.34	160.74	451,078.58	555,177.49
1,628.00	6.80	118.00	1,626.16	-39.17	-39.57	19.42	44.08	153.87	451,072.37	555,185.25
1,722.00	7.10	113.20	1,719.47	-43.86	-44.47	29.67	53.46	146.29	451,067.47	555,195.50
1,817.00	7.10	113.20	1,813.74	-48.27	-49.10	40.46	63.62	140.51	451,062.84	555,206.29
1,912.00	7.50	113.80	1,907.97	-52.86	-53.91	51.53	74.58	136.29	451,058.03	555,217.36
2,006.00	8.00	112.50	2,001.12	-57.60	-58.89	63.19	86.38	132.99	451,053.05	555,229.02



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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)	
2,101.00	8.60	115.50	2,095.12	-62.94	-64.48	75.71	99.45	130.42	451,047.46	555,241.54	
2,196.00	7.60	117.70	2,189.17	-68.67	-70.46	87.68	112.48	128.79	451,041.48	555,253.51	
2,291.00	6.70	118.70	2,283.43	-74.04	-76.04	98.10	124.12	127.78	451,035.90	555,263.93	
2,324.00	6.50	118.80	2,316.21	-75.80	-77.87	101.43	127.87	127.51	451,034.07	555,267.26	
2,478.00	6.00	119.00	2,469.30	-83.60	-85.97	116.11	144.47	126.52	451,025.97	555,281.94	
2,573.00	7.30	117.40	2,563.66	-88.59	-91.15	125.81	155.36	125.92	451,020.79	555,291.64	
2,668.00	7.90	114.30	2,657.82	-93.82	-96.62	137.12	167.74	125.17	451,015.32	555,302.95	
2,762.00	8.10	114.10	2,750.91	-98.94	-101.98	149.05	180.60	124.38	451,009.96	555,314.88	
2,857.00	8.00	113.40	2,844.97	-104.05	-107.34	161.23	193.69	123.65	451,004.60	555,327.06	
2,952.00	8.20	112.00	2,939.02	-108.96	-112.50	173.57	206.84	122.95	450,999.44	555,339.40	
3,046.00	8.10	111.40	3,032.07	-113.64	-117.43	185.96	219.93	122.27	450,994.51	555,351.79	
3,141.00	7.90	109.10	3,126.15	-117.97	-122.01	198.36	232.88	121.60	450,989.93	555,364.19	
3,235.00	9.00	111.50	3,219.13	-122.51	-126.81	211.30	246.44	120.97	450,985.13	555,377.13	
3,330.00	9.20	111.50	3,312.93	-127.73	-132.32	225.28	261.27	120.43	450,979.62	555,391.11	
3,425.00	9.10	109.70	3,406.72	-132.76	-137.64	239.42	276.16	119.89	450,974.30	555,405.25	
3,519.00	8.80	108.50	3,499.58	-137.27	-142.42	253.24	290.54	119.35	450,969.52	555,419.07	
3,614.00	9.30	117.10	3,593.40	-142.79	-148.23	266.96	305.35	119.04	450,963.71	555,432.79	
3,709.00	9.60	117.80	3,687.11	-149.70	-155.42	280.80	320.95	118.96	450,956.52	555,446.63	
3,804.00	9.60	116.80	3,780.78	-156.68	-162.69	294.88	336.78	118.89	450,949.25	555,460.71	
3,899.00	9.70	116.70	3,874.44	-163.56	-169.85	309.10	352.70	118.79	450,942.09	555,474.93	
3,993.00	9.50	116.90	3,967.12	-170.34	-176.92	323.09	368.36	118.70	450,935.02	555,488.92	
4,089.00	9.70	116.00	4,061.78	-177.18	-184.05	337.43	384.36	118.61	450,927.89	555,503.26	
4,183.00	9.60	115.20	4,154.45	-183.70	-190.86	351.64	400.10	118.49	450,921.08	555,517.47	
4,278.00	9.50	114.00	4,248.13	-189.97	-197.42	365.97	415.82	118.34	450,914.52	555,531.80	
4,373.00	9.30	113.20	4,341.85	-195.89	-203.63	380.19	431.29	118.17	450,908.31	555,546.02	
4,467.00	7.90	122.50	4,434.80	-202.11	-210.10	392.62	445.30	118.15	450,901.84	555,558.45	
4,562.00	7.00	123.10	4,529.00	-208.56	-216.77	402.97	457.57	118.28	450,895.17	555,568.80	



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4,656.00	5.80	118.30	4,622.41	-213.76	-222.15	411.95	468.03	118.34	450,889.79	555,577.78	
4,751.00	5.60	115.30	4,716.94	-217.85	-226.40	420.37	477.46	118.31	450,885.54	555,586.20	
4,846.00	5.70	114.90	4,811.48	-221.64	-230.37	428.84	486.80	118.24	450,881.57	555,594.67	
4,940.00	4.80	116.20	4,905.08	-225.19	-234.07	436.60	495.39	118.20	450,877.87	555,602.43	
5,035.00	4.10	129.30	4,999.80	-228.96	-237.98	442.80	502.70	118.26	450,873.96	555,608.63	
5,130.00	4.30	126.80	5,094.54	-233.14	-242.26	448.28	509.55	118.39	450,869.68	555,614.11	
5,224.00	3.50	137.60	5,188.33	-237.27	-246.49	453.03	515.75	118.55	450,865.45	555,618.86	
5,319.00	1.80	147.60	5,283.22	-240.62	-249.89	455.79	519.80	118.73	450,862.05	555,621.62	
5,414.00	1.50	169.50	5,378.18	-243.08	-252.38	456.81	521.89	118.92	450,859.56	555,622.64	
5,508.00	1.50	171.00	5,472.15	-245.49	-254.80	457.23	523.44	119.13	450,857.14	555,623.06	
5,603.00	1.70	173.50	5,567.11	-248.11	-257.43	457.59	525.03	119.36	450,854.51	555,623.42	
5,698.00	1.30	211.60	5,662.08	-250.44	-259.75	457.18	525.82	119.60	450,852.19	555,623.01	
5,793.00	1.30	225.80	5,757.06	-252.13	-261.42	455.84	525.48	119.83	450,850.52	555,621.67	
5,888.00	1.50	229.20	5,852.03	-253.73	-262.98	454.13	524.78	120.07	450,848.96	555,619.96	
5,982.00	2.00	231.70	5,945.99	-255.60	-264.80	451.91	523.78	120.37	450,847.14	555,617.74	
6,077.00	1.20	226.90	6,040.95	-257.35	-266.51	449.88	522.90	120.64	450,845.43	555,615.71	
6,172.00	2.10	233.10	6,135.91	-259.11	-268.23	447.77	521.96	120.92	450,843.71	555,613.60	
6,266.00	1.70	226.80	6,229.86	-261.15	-270.22	445.37	520.94	121.25	450,841.72	555,611.20	
6,361.00	1.80	212.80	6,324.81	-263.40	-272.44	443.54	520.53	121.56	450,839.50	555,609.37	
6,456.00	2.30	262.60	6,419.76	-264.96	-273.94	440.84	519.02	121.86	450,838.00	555,606.67	
6,550.00	1.40	275.70	6,513.71	-265.15	-274.07	437.82	516.53	122.05	450,837.87	555,603.65	
6,645.00	1.50	260.80	6,608.68	-265.28	-274.15	435.44	514.56	122.19	450,837.79	555,601.27	
6,740.00	0.80	181.00	6,703.66	-266.17	-275.01	434.20	513.97	122.35	450,836.93	555,600.03	
6,835.00	1.30	159.40	6,798.65	-267.83	-276.69	434.57	515.18	122.48	450,835.25	555,600.40	
6,930.00	1.70	182.30	6,893.62	-270.24	-279.10	434.89	516.75	122.69	450,832.84	555,600.72	
7,025.00	0.50	198.20	6,988.60	-272.05	-280.90	434.71	517.57	122.87	450,831.04	555,600.54	
7,120.00	0.60	257.80	7,083.59	-272.56	-281.40	434.09	517.32	122.95	450,830.54	555,599.92	



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7,214.00	1.00	251.20	7,177.58	-272.95	-281.77	432.83	516.47	123.06	450,830.17	555,598.66
7,308.00	1.20	125.50	7,271.58	-273.79	-282.61	432.86	516.95	123.14	450,829.33	555,598.69
7,403.00	2.10	111.70	7,366.54	-274.96	-283.83	435.29	519.65	123.11	450,828.11	555,601.12
7,498.00	1.60	114.60	7,461.49	-276.10	-285.02	438.11	522.66	123.05	450,826.92	555,603.94
7,593.00	1.40	116.70	7,556.45	-277.12	-286.10	440.35	525.13	123.01	450,825.84	555,606.18
7,687.00	1.00	120.40	7,650.43	-278.02	-287.03	442.08	527.09	122.99	450,824.91	555,607.91
7,782.00	0.70	181.40	7,745.42	-279.01	-288.03	442.79	528.22	123.04	450,823.91	555,608.62
7,876.00	0.90	189.40	7,839.41	-280.31	-289.33	442.65	528.82	123.17	450,822.61	555,608.48
7,971.00	0.20	38.00	7,934.41	-280.92	-289.94	442.63	529.14	123.23	450,822.00	555,608.46
8,066.00	1.00	186.60	8,029.41	-281.61	-290.63	442.64	529.52	123.29	450,821.31	555,608.47
8,161.00	0.80	130.10	8,124.40	-282.85	-291.88	443.05	530.55	123.38	450,820.06	555,608.88
8,256.00	1.10	29.10	8,219.39	-282.46	-291.51	444.00	531.15	123.29	450,820.43	555,609.83
8,350.00	0.30	30.80	8,313.38	-281.45	-290.51	444.57	531.07	123.16	450,821.43	555,610.40
8,445.00	0.90	84.50	8,408.38	-281.15	-290.23	445.44	531.64	123.09	450,821.71	555,611.27
8,538.00	1.00	80.00	8,501.36	-280.91	-290.01	446.96	532.81	122.98	450,821.93	555,612.79
8,632.00	0.40	47.60	8,595.36	-280.52	-289.65	448.01	533.49	122.88	450,822.29	555,613.84
8,727.00	10.10	1.70	8,689.85	-271.94	-281.08	448.51	529.30	122.08	450,830.86	555,614.34
8,822.00	22.20	357.90	8,780.93	-245.60	-254.72	448.09	515.43	119.62	450,857.22	555,613.92
8,917.00	29.70	355.20	8,866.30	-204.21	-213.27	445.46	493.88	115.58	450,898.67	555,611.29
9,012.00	38.00	357.90	8,945.13	-151.51	-160.50	442.42	470.63	109.94	450,951.44	555,608.25
9,107.00	44.90	359.10	9,016.29	-88.73	-97.67	440.82	451.51	102.49	451,014.27	555,606.65
9,201.00	50.20	0.70	9,079.72	-19.42	-28.34	440.74	441.65	93.68	451,083.60	555,606.57
9,295.00	56.40	3.70	9,135.88	55.89	46.91	443.71	446.18	83.96	451,158.85	555,609.54
9,390.00	68.40	6.00	9,179.81	139.73	130.63	450.90	469.44	73.84	451,242.57	555,616.73
9,485.00	77.40	4.10	9,207.72	230.23	220.98	458.85	509.29	64.28	451,332.92	555,624.68
9,549.00	83.70	358.70	9,218.23	293.30	284.04	460.36	540.94	58.33	451,395.98	555,626.19
9,638.00	91.70	358.00	9,221.80	382.05	372.86	457.80	590.43	50.84	451,484.80	555,623.63



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9,732.00	88.50	358.00	9,221.64	475.90	466.79	454.52	651.53	44.24	451,578.73	555,620.35
9,826.00	88.00	356.80	9,224.51	569.65	560.65	450.26	719.07	38.77	451,672.59	555,616.09
9,920.00	89.60	0.60	9,226.48	663.52	654.58	448.13	793.28	34.40	451,766.52	555,613.96
10,015.00	90.20	4.10	9,226.64	758.48	749.49	452.03	875.25	31.09	451,861.43	555,617.86
10,107.00	86.70	3.80	9,229.13	850.33	841.22	458.36	957.99	28.58	451,953.16	555,624.19
10,201.00	87.10	4.40	9,234.21	944.07	934.84	465.07	1,044.14	26.45	452,046.78	555,630.90
10,297.00	87.50	4.20	9,238.74	1,039.82	1,030.47	472.26	1,133.53	24.62	452,142.41	555,638.09
10,392.00	88.40	3.40	9,242.13	1,134.65	1,125.19	478.55	1,222.73	23.04	452,237.13	555,644.38
10,486.00	89.20	3.20	9,244.10	1,228.57	1,219.02	483.96	1,311.57	21.65	452,330.96	555,649.79
10,579.00	90.10	3.40	9,244.67	1,321.50	1,311.86	489.32	1,400.15	20.46	452,423.80	555,655.15
10,672.00	88.00	1.20	9,246.21	1,414.46	1,404.76	493.05	1,488.78	19.34	452,516.70	555,658.88
10,767.00	88.30	0.20	9,249.28	1,509.40	1,499.70	494.21	1,579.04	18.24	452,611.64	555,660.04
10,861.00	90.00	1.20	9,250.67	1,603.38	1,593.68	495.36	1,668.89	17.27	452,705.62	555,661.19
10,955.00	91.00	0.50	9,249.85	1,697.38	1,687.67	496.75	1,759.26	16.40	452,799.61	555,662.58
11,049.00	91.50	0.00	9,247.80	1,791.34	1,781.64	497.16	1,849.71	15.59	452,893.58	555,662.99
11,144.00	92.00	359.80	9,244.90	1,886.27	1,876.60	497.00	1,941.29	14.83	452,988.54	555,662.83
11,238.00	90.40	0.70	9,242.93	1,980.24	1,970.57	497.41	2,032.38	14.17	453,082.51	555,663.24
11,333.00	88.60	0.30	9,243.76	2,075.22	2,065.56	498.24	2,124.80	13.56	453,177.50	555,664.07
11,427.00	87.50	0.50	9,246.96	2,169.16	2,159.50	498.89	2,216.38	13.01	453,271.44	555,664.72
11,521.00	86.70	1.00	9,251.72	2,263.04	2,253.37	500.12	2,308.20	12.51	453,365.31	555,665.95
11,616.00	89.20	0.20	9,255.12	2,357.96	2,348.30	501.11	2,401.17	12.05	453,460.24	555,666.94
11,710.00	88.10	358.50	9,257.33	2,451.88	2,442.26	500.05	2,492.93	11.57	453,554.20	555,665.88
11,804.00	89.70	359.60	9,259.13	2,545.80	2,536.23	498.49	2,584.75	11.12	453,648.17	555,664.32
11,899.00	91.20	358.10	9,258.39	2,640.71	2,631.20	496.58	2,677.65	10.69	453,743.14	555,662.41
11,993.00	91.00	356.60	9,256.58	2,734.49	2,725.08	492.24	2,769.18	10.24	453,837.02	555,658.07
12,087.00	94.50	359.10	9,252.07	2,828.20	2,818.88	488.71	2,860.93	9.84	453,930.82	555,654.54
12,182.00	91.00	359.60	9,247.52	2,923.03	2,913.75	487.64	2,954.27	9.50	454,025.69	555,653.47



Professional Directional Survey Report



Company: Marathon Oil
Project: Eddy County, NM
Site: El Presidente State 5-6-10
Well: WXY #10H
Wellbore: OH
Design: OH 225'-13974' PTB 14048'

Local Co-ordinate Reference: Well WXY #10H
TVD Reference: Well @ 3161.50usft (GL: 3135' + KB: 26.5' (H&P423))
MD Reference: Well @ 3161.50usft (GL: 3135' + KB: 26.5' (H&P423))
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)	
12,277.00	89.90	3.00	9,246.77	3,018.01	3,008.71	489.79	3,048.32	9.25	454,120.65	555,655.62	
12,371.00	86.50	4.00	9,249.72	3,111.87	3,102.47	495.53	3,141.80	9.07	454,214.41	555,661.36	
12,465.00	87.00	4.20	9,255.05	3,205.59	3,196.08	502.24	3,235.30	8.93	454,308.02	555,668.07	
12,559.00	88.00	3.30	9,259.15	3,299.41	3,289.79	508.38	3,328.84	8.78	454,401.73	555,674.21	
12,653.00	88.00	2.60	9,262.43	3,393.30	3,383.61	513.21	3,422.31	8.62	454,495.55	555,679.04	
12,747.00	90.50	2.20	9,263.66	3,487.26	3,477.51	517.15	3,515.75	8.46	454,589.45	555,682.98	
12,841.00	92.60	3.30	9,261.12	3,581.19	3,571.36	521.66	3,609.26	8.31	454,683.30	555,687.49	
12,936.00	90.10	2.80	9,258.88	3,676.10	3,666.19	526.71	3,703.83	8.18	454,778.13	555,692.54	
13,030.00	89.90	2.70	9,258.88	3,770.06	3,760.08	531.22	3,797.42	8.04	454,872.02	555,697.05	
13,125.00	90.00	2.60	9,258.97	3,865.03	3,854.98	535.61	3,892.01	7.91	454,966.92	555,701.44	
13,219.00	89.80	2.60	9,259.13	3,959.00	3,948.88	539.88	3,985.62	7.78	455,060.82	555,705.71	
13,313.00	90.30	2.20	9,259.05	4,052.98	4,042.80	543.81	4,079.21	7.66	455,154.74	555,709.64	
13,408.00	90.20	3.10	9,258.63	4,147.95	4,137.70	548.20	4,173.85	7.55	455,249.64	555,714.03	
13,502.00	90.40	2.30	9,258.14	4,241.91	4,231.59	552.63	4,267.52	7.44	455,343.53	555,718.46	
13,596.00	91.60	3.50	9,256.50	4,335.85	4,325.45	557.39	4,361.22	7.34	455,437.39	555,723.22	
13,690.00	90.40	2.20	9,254.86	4,429.79	4,419.32	562.06	4,454.92	7.25	455,531.26	555,727.89	
13,784.00	92.50	4.40	9,252.48	4,523.68	4,513.12	567.47	4,548.66	7.17	455,625.06	555,733.30	
13,880.00	91.80	5.40	9,248.88	4,619.41	4,608.70	575.66	4,644.51	7.12	455,720.64	555,741.49	
13,974.00	88.80	0.20	9,248.39	4,713.33	4,702.54	580.25	4,738.21	7.03	455,814.48	555,746.08	
Last Survey: 13974' MD, 9248' TVD											
14,048.00	88.80	0.20	9,249.94	4,787.30	4,776.53	580.51	4,811.67	6.93	455,888.47	555,746.34	
PTB: 14048' MD, 9250' TVD											



Professional Directional
Survey Report



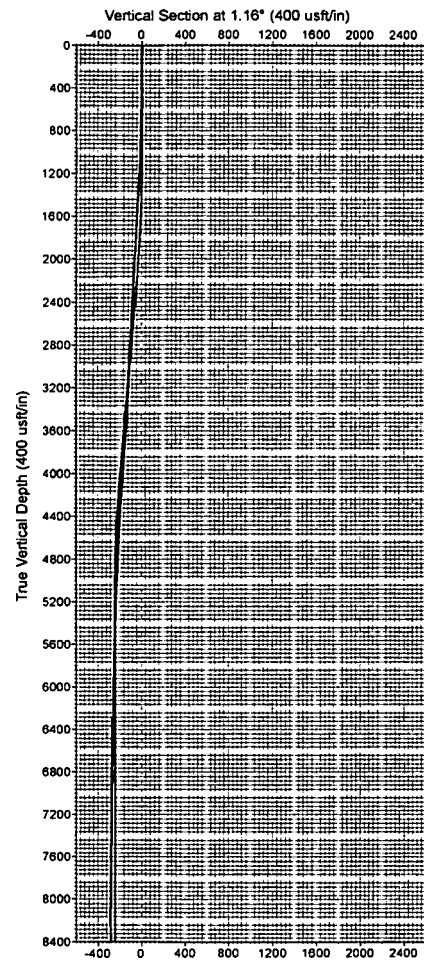
Company: Marathon Oil
Project: Eddy County, NM
Site: El Presidente State 5-6-10
Well: WXY #10H
Wellbore: OH
Design: OH 225'-13974' PTB 14048'

Local Co-ordinate Reference: Well WXY #10H
TVD Reference: Well @ 3161.50usft (GL: 3135' + KB: 26.5' (H&P423))
MD Reference: Well @ 3161.50usft (GL: 3135' + KB: 26.5' (H&P423))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
13,974.00	9,248.39	4,702.54	580.25	Last Survey: 13974' MD, 9248' TVD
14,048.00	9,249.94	4,776.53	580.51	PTB: 14048' MD, 9250' TVD

Checked By: _____ Approved By: _____ Date: _____



Marathon Oil
Eddy County, NM
El Presidente State 5-6-10
WXY #10H
Plan #1 - FINAL PVA
GL: 3135' + KB: 26.5' (H&P423)

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

RKB Elevation: Well @ 3161.50usft (GL: 3135' + KB: 26.5' (H&P423))

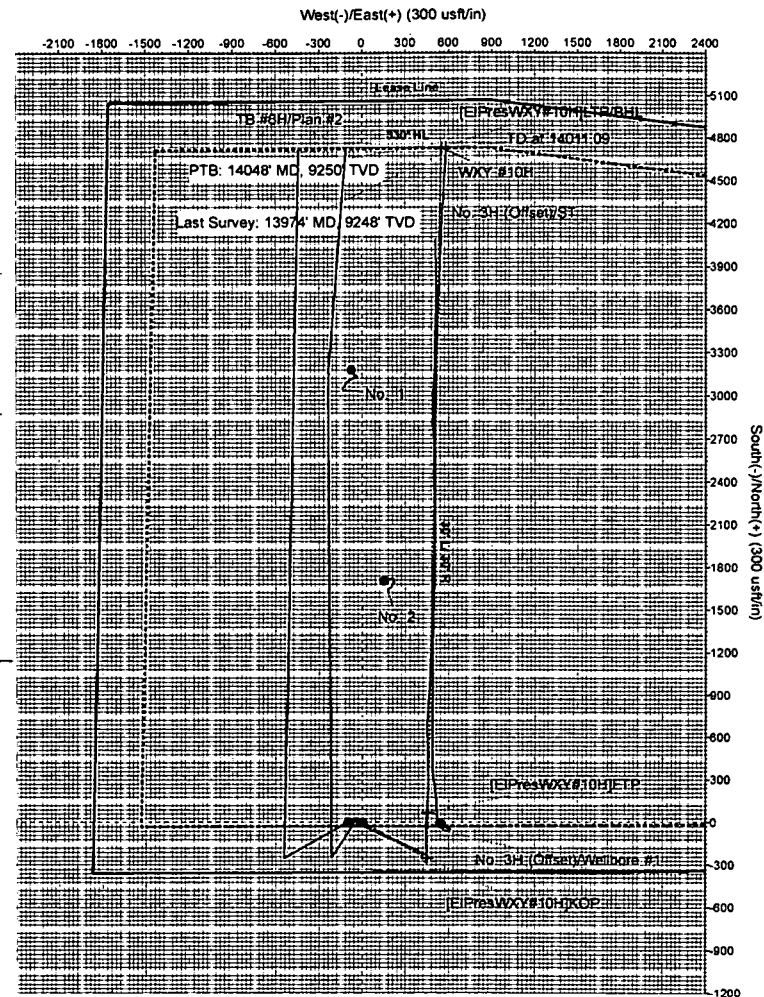
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
0.00	0.00	451111.94	555165.83	32° 14' 24.3521 N	104° 9' 17.6748 W	

SECTION DETAILS

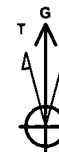
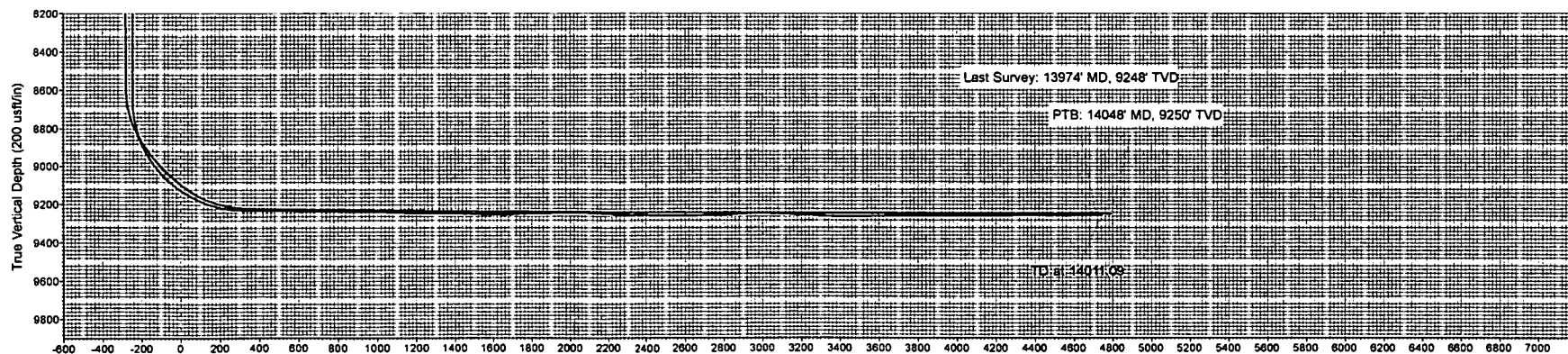
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00
3	2200.00	10.00	119.88	2194.93	-43.10	75.63	1.00	-41.58
4	4163.54	10.00	119.88	4128.84	-211.80	371.87	0.00	-204.33
5	5163.54	0.00	0.00	5123.57	-255.00	447.50	1.00	-245.89
6	8895.87	0.00	0.00	8856.00	-255.00	447.50	0.00	-245.89
7	9593.00	89.70	1.16	9228.95	314.87	459.03	10.00	324.10
8	14011.09	89.70	1.16	9251.83	4732.00	548.44	0.00	4742.13

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
[EIPresWXY#10H]JFTP	0.00	69.52	453.95	451181.46	555819.78
[EIPresWXY#10H]KOP	8856.00	-255.00	447.50	450856.94	555613.33
[EIPresWXY#10H]LTP/BHL	9251.83	4732.00	548.44	455843.94	555714.27



Target Line: 9227' TVD @ 0° VS: 89.7° INC



Azimuths to Grid North
True North: -0.09°
Magnetic North: 7.24°
Magnetic Field
Strength: 48033 GmT
Dip Angle: 60.05°
Date: 12/31/2017
Model: HDGM

Azimuth Corrections

Total Magnetic Corr. (M to G): 7.24°

Declination (M to T): 7.33° East