

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

RECEIVED

FEB 10 2020

Form C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

EMNRD-OCD ARTESIA

☐ AMENDED REPORT

As-Drilled

WELL LOCATION AND ACREAGE DEDICATION AS-DRILLED PLAT

¹ API Number 30-015-44691	² Pool Code 98220	³ Pool Name PURPLE SAGE; WOLFCAMP (GAS)
⁴ Property Code 324951	Property Name CATAPULT 1 WA FEE	⁶ Well Number 5H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 3217'

¹⁰ Surface Location

UL or lot no. 0	Section 36	Township T22S	Range R26E	Lot Idn	Feet from the 337	North/South line SOUTH	Feet from the 1417	East/West line EAST	County EDDY
--------------------	---------------	------------------	---------------	---------	----------------------	---------------------------	-----------------------	------------------------	----------------

¹¹ Bottom Hole Location If Different From Surface

UL or lot no. 0	Section 1	Township T23S	Range R26E	Lot Idn	Feet from the 286	North/South line SOUTH	Feet from the 2357	East/West line EAST	County EDDY
--------------------	--------------	------------------	---------------	---------	----------------------	---------------------------	-----------------------	------------------------	----------------

¹² Dedicated Acres 320.36	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
---	-------------------------------	----------------------------------	-------------------------

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

¹⁶				¹⁷ OPERATOR CERTIFICATION			
KICK OFF POINT SECTION 35 SECTION 36 T-22-S SECTION 2 SECTION 1 T-23-S SURFACE HOLE LOCATION 337' FSL 2325' FEL, SECTION 36 HAD 63. SPCS IN EAST X:569465.11' / Y:488179.22' LAT:32.34204313N / LON:104.24225590W HAD 27. SPCS IN EAST X:528283.43' / Y:488120.20' LAT:32.34192495N / LON:104.24175344W KICK OFF POINT 8,559' MEASURED DEPTH IN FEET HAD 63. SPCS IN EAST X:568565.09' / Y:488091.70' LAT:32.34180461N / LON:104.24517041W HAD 27. SPCS IN EAST X:527383.42' / Y:488032.68' LAT:32.34168647N / LON:104.24466786W FIRST TAKE POINT 9,331' MEASURED DEPTH IN FEET HAD 63. SPCS IN EAST X:568548.64' / Y:487518.73' LAT:32.34022965N / LON:104.24531317W HAD 27. SPCS IN EAST X:527366.96' / Y:487459.73' LAT:32.3401115N / LON:104.24472268W LAST TAKE POINT 13,990' MEASURED DEPTH IN FEET HAD 63. SPCS IN EAST X:568525.29' / Y:482866.45' LAT:32.32744123N / LON:104.24531317W HAD 27. SPCS IN EAST X:527343.52' / Y:482807.57' LAT:32.32732302N / LON:104.24481101W SECTION 2 SECTION 1 SECTION 11 SECTION 12 CORNER COORDINATES HAD 63. SPCS IN EAST A - X: 568227.81' / Y: 487840.96' A - X: 527046.14' / Y: 487781.95' B - X: 570881.56' / Y: 487843.47' B - X: 529699.85' / Y: 487784.43' C - X: 570883.00' / Y: 482531.56' C - X: 529701.19' / Y: 482492.66' D - X: 568203.23' / Y: 482533.94' D - X: 527021.46' / Y: 482475.08' SECTION 31 SECTION 6 SECTION 7 BOTTOM HOLE LOCATION 14,035' MEASURED DEPTH IN FEET HAD 63. SPCS IN EAST X:568525.92' / Y:482821.72' LAT:32.32731830N / LON:104.24531125W HAD 27. SPCS IN EAST X:527344.15' / Y:482762.85' LAT:32.32720009N / LON:104.2448091W				I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Adrian Covarrubias</i> 2/7/2020 Signature Date Adrian Covarrubias Printed Name E-mail Address ¹⁸ SURVEYOR CERTIFICATION I hereby certify that the well surface location shown on this plat was plotted from field notes of the as-staked surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. Data used for underground measurements were provided by others for reference only and does not constitute field measurements performed by R-Squared Global. FEBRUARY 06, 2020 Date of Survey Signature and Seal of Professional Surveyor LLOYD P. SHORT NEW MEXICO 21653 PROFESSIONAL SURVEYOR Certificate Number LLOYD P. SHORT 21653			

DISTANCES/AREAS RELATIVE TO NAD83
COMBINED SCALE FACTOR: 0.99978038 CONVERGENCE: 0.05095600'
NOTE: ALL DIMENSIONS IN U.S. FEET

2	02/06/2020	DEF
REV.	DATE	BY

SHEET 1 OF 1
R3798_003

R/R 4-9-20



PRODIRECTIONAL

RECEIVED

FEB 10 2020



EMNRD-OCD ARTESIA

Marathon Oil Corporation

Catapult Fee 23-26-1 WA No. 5H
Eddy County, NM

February 04, 2019

Job# LNM1417918
API# 30-015-44691

Survey Completion Report



PRODIRECTIONAL

Survey Certification Letter

February 04, 2019



Marathon Oil
Corporation

Operator Name: Marathon Oil
Well Name: Catapult Fee 23-26-1 WA No. 5H
County/Parish: Eddy County,
State: NM
Rig Name: Precision 594
Job Number: LNM1417918

This is to certify the surveys performed on the referenced well by Professional Directional Ent., Inc. are true and correct MWD Surveys, data provided as follows:

<u>Surveyor</u>	<u>Surveyed Depths</u>	<u>Projection to Bit</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
ProDirectional	505' MD – 13,978' MD	14,035' MD	12/11/18 – 01/03/19	MWD

Sincerely,

Mike Coats
Regulatory Specialist
Professional Directional

850 Conroe Park West Drive | Conroe, TX 77303 | Phone: 936.441.7266

prodirectional.com

The Standard of Excellence in Directional Supervision



Marathon Oil

Marathon Oil

Eddy County, NM

Catapult Fee 23-26-1 WA

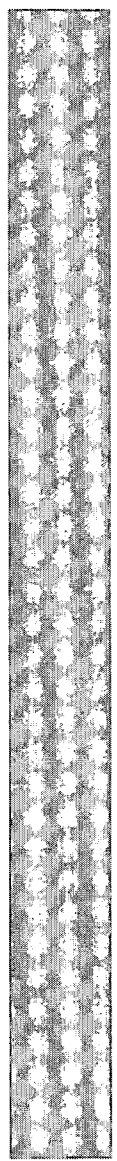
No. 5H

OH

Survey: ProDirectional

Survey Report

04 February, 2019



Company:	Marathon Oil	Local Co-ordinate Reference:	Well No. 5H
Project:	Eddy County, NM(NAD 83)	TVD Reference:	Well @ 3242.00usft
Site:	Catapult Fee 23-26-1 WA	MD Reference:	Well @ 3242.00usft
Well:	No. 5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Gyro-MWD-242-13978', Proj. 14035'	Database:	WellPlanner1

Project		Eddy County, NM(NAD 83)	
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Catapult Fee 23-26-1 WA				
Site Position:		Northing:	488,179.22 usft	Latitude:	32.342043
From:	Map	Easting:	569,435.11 usft	Longitude:	-104.242353
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.05 °

Well	No. 5H					
Well Position	+N/-S	0.00 usft	Northing:	488,179.22 usft	Latitude:	32.342043
	+E/-W	0.00 usft	Easting:	569,465.11 usft	Longitude:	-104.242256
Position Uncertainty	0.00 usft		Wellhead Elevation:	usft	Ground Level:	3,217.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/1/2018	7.30	60.03	47,944.90

Design		Gyro-MWD-242'-13978', Proj. 14035'		
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	180.27

Company:	Marathon Oil	Local Co-ordinate Reference:	Well No. 5H
Project:	Eddy County, NM(NAD 83)	TVD Reference:	Well @ 3242.00usft
Site:	Catapult Fee 23-26-1 WA	MD Reference:	Well @ 3242.00usft
Well:	No. 5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Gyro-MWD-242'-13978', Proj. 14035'	Database:	WellPlanner1

Survey Program		Date	2/4/2019	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
242.00	429.00	Survey #1 (OH)	GYRO-NS-CT	OWSG XYZ Accel with XY Static and Continuous Gyro
505.00	14,035.00	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	488,179.22	569,465.11
242.00	0.00	337.10	242.00	0.00	0.00	0.00	0.00	0.00	488,179.22	569,465.11
299.00	0.10	226.10	299.00	0.03	-0.03	-0.04	0.05	226.10	488,179.19	569,465.07
390.00	0.20	256.10	390.00	0.13	-0.13	-0.25	0.28	242.68	488,179.09	569,464.86
429.00	0.30	260.10	429.00	0.16	-0.16	-0.41	0.44	248.67	488,179.06	569,464.70
505.00	0.60	260.70	505.00	0.26	-0.26	-1.00	1.04	255.45	488,178.96	569,464.11
Pro MWD First Survey: 505' MD										
597.00	0.80	268.90	596.99	0.36	-0.35	-2.12	2.15	260.62	488,178.87	569,462.99
687.00	1.60	279.10	686.97	0.18	-0.16	-3.99	3.99	267.65	488,179.06	569,461.12
778.00	1.80	247.40	777.93	0.54	-0.51	-6.56	6.58	265.54	488,178.71	569,458.55
869.00	1.20	150.80	868.91	1.93	-1.89	-7.42	7.66	255.68	488,177.33	569,457.69
961.00	3.70	127.20	960.82	4.55	-4.53	-4.58	6.44	225.34	488,174.69	569,460.53
1,052.00	7.10	124.50	1,051.40	9.48	-9.49	2.39	9.79	165.85	488,169.73	569,467.50
1,141.00	7.60	117.60	1,139.67	15.28	-15.33	12.14	19.56	141.63	488,163.89	569,477.25
1,231.00	5.80	113.90	1,229.06	19.83	-19.93	21.57	29.37	132.74	488,159.29	569,486.68
1,320.00	3.60	111.80	1,317.75	22.66	-22.79	28.28	36.32	128.87	488,156.43	569,493.39
1,409.00	1.90	109.60	1,406.65	24.17	-24.33	32.27	40.41	127.01	488,154.89	569,497.38
1,499.00	0.20	306.20	1,496.63	24.58	-24.73	33.54	41.68	126.40	488,154.49	569,498.65
1,588.00	1.50	297.50	1,585.62	23.95	-24.10	32.39	40.37	126.66	488,155.12	569,497.50
1,677.00	1.20	301.00	1,674.59	22.94	-23.09	30.55	38.30	127.07	488,156.13	569,495.66
1,766.00	1.00	301.60	1,763.58	22.06	-22.20	29.09	36.60	127.35	488,157.02	569,494.20

Company:	Marathon Oil	Local Co-ordinate Reference:	Well No. 5H
Project:	Eddy County, NM(NAD 83)	TVD Reference:	Well @ 3242.00usft
Site:	Catapult Fee 23-26-1 WA	MD Reference:	Well @ 3242.00usft
Well:	No. 5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Gyro-MWD-242'-13978', Proj. 14035'	Database:	WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
1,855.00	0.90	296.90	1,852.57	21.35	-21.48	27.81	35.14	127.68	488,157.74	569,492.92	
1,893.00	1.00	296.60	1,890.56	21.06	-21.19	27.25	34.52	127.88	488,158.03	569,492.36	
1,959.00	0.20	301.40	1,956.56	20.75	-20.88	26.63	33.84	128.09	488,158.34	569,491.74	
2,038.00	2.20	266.20	2,035.54	20.79	-20.90	25.00	32.59	129.90	488,158.32	569,490.11	
2,127.00	4.20	269.30	2,124.39	20.96	-21.06	20.04	29.07	136.42	488,158.16	569,485.15	
2,216.00	6.40	267.00	2,213.01	21.30	-21.36	11.82	24.41	151.03	488,157.86	569,476.93	
2,306.00	8.40	268.50	2,302.25	21.79	-21.79	0.24	21.79	179.36	488,157.43	569,465.35	
2,395.00	10.50	268.70	2,390.04	22.21	-22.15	-14.36	26.40	212.97	488,157.07	569,450.75	
2,485.00	12.20	268.70	2,478.28	22.70	-22.55	-32.07	39.20	234.89	488,156.67	569,433.04	
2,574.00	12.70	267.90	2,565.18	23.36	-23.12	-51.25	56.22	245.72	488,156.10	569,413.86	
2,663.00	11.90	267.40	2,652.14	24.22	-23.89	-70.19	74.15	251.20	488,155.33	569,394.92	
2,753.00	11.60	266.20	2,740.25	25.33	-24.91	-88.49	91.93	254.28	488,154.31	569,376.62	
2,843.00	12.70	265.30	2,828.24	26.83	-26.32	-107.38	110.56	256.23	488,152.90	569,357.73	
2,932.00	13.40	264.60	2,914.94	28.70	-28.10	-127.40	130.46	257.56	488,151.12	569,337.71	
3,021.00	13.10	264.50	3,001.57	30.73	-30.03	-147.71	150.73	258.51	488,149.19	569,317.40	
3,110.00	12.60	263.60	3,088.34	32.87	-32.08	-167.39	170.44	259.15	488,147.14	569,297.72	
3,200.00	13.00	262.50	3,176.10	35.38	-34.50	-187.18	190.34	259.56	488,144.72	569,277.93	
3,289.00	13.10	261.70	3,262.80	38.24	-37.26	-207.09	210.41	259.80	488,141.96	569,258.02	
3,379.00	13.10	266.10	3,350.46	40.50	-39.43	-227.36	230.75	260.16	488,139.79	569,237.75	
3,468.00	13.40	266.70	3,437.09	41.87	-40.71	-247.72	251.04	260.67	488,138.51	569,217.39	
3,557.00	13.50	266.00	3,523.65	43.29	-42.02	-268.37	271.64	261.10	488,137.20	569,196.74	
3,647.00	13.40	264.90	3,611.19	45.05	-43.68	-289.24	292.52	261.41	488,135.54	569,175.87	
3,736.00	13.60	263.50	3,697.73	47.25	-45.79	-309.91	313.27	261.60	488,133.43	569,155.20	
3,825.00	12.90	262.20	3,784.36	49.87	-48.32	-330.15	333.67	261.67	488,130.90	569,134.96	
3,915.00	13.00	268.00	3,872.07	51.69	-50.04	-350.22	353.78	261.87	488,129.18	569,114.89	
4,004.00	12.70	270.00	3,958.84	52.13	-50.38	-370.01	373.42	262.25	488,128.84	569,095.10	
4,093.00	12.00	269.30	4,045.78	52.33	-50.50	-389.04	392.31	262.60	488,128.72	569,076.07	

Company:	Marathon Oil	Local Co-ordinate Reference:	Well No. 5H
Project:	Eddy County, NM(NAD 83)	TVD Reference:	Well @ 3242.00usft
Site:	Catapult Fee 23-26-1 WA	MD Reference:	Well @ 3242.00usft
Well:	No. 5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Gyro-MWD-242'-13978', Proj. 14035'	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)	
4,183.00	11.70	268.20	4,133.87	52.82	-50.90	-407.52	410.68	262.88	488,128.32	569,057.59	
4,272.00	11.70	267.40	4,221.02	53.60	-51.59	-425.55	428.67	263.09	488,127.63	569,039.56	
4,361.00	11.60	265.60	4,308.18	54.78	-52.69	-443.49	446.61	263.22	488,126.53	569,021.62	
4,451.00	11.80	264.60	4,396.31	56.42	-54.25	-461.67	464.85	263.30	488,124.97	569,003.44	
4,541.00	11.60	263.50	4,484.44	58.40	-56.14	-479.82	483.10	263.33	488,123.08	568,985.29	
4,630.00	11.00	262.00	4,571.72	60.67	-58.33	-497.12	500.53	263.31	488,120.89	568,967.99	
4,719.00	10.60	268.20	4,659.14	62.19	-59.77	-513.71	517.18	263.36	488,119.45	568,951.40	
4,809.00	10.30	268.50	4,747.65	62.74	-60.24	-530.03	533.44	263.52	488,118.98	568,935.08	
4,898.00	9.90	267.90	4,835.27	63.30	-60.73	-545.63	549.00	263.65	488,118.49	568,919.48	
4,988.00	10.00	265.70	4,923.92	64.24	-61.60	-561.15	564.53	263.74	488,117.62	568,903.96	
5,077.00	9.50	262.70	5,011.63	65.83	-63.11	-576.15	579.59	263.75	488,116.11	568,888.96	
5,166.00	9.10	259.40	5,099.46	68.12	-65.34	-590.35	593.95	263.68	488,113.88	568,874.76	
5,255.00	9.00	257.60	5,187.36	70.98	-68.13	-604.07	607.90	263.57	488,111.09	568,861.04	
5,344.00	9.50	265.50	5,275.20	73.11	-70.20	-618.19	622.16	263.52	488,109.02	568,846.92	
5,434.00	9.10	266.00	5,364.02	74.26	-71.28	-632.69	636.69	263.57	488,107.94	568,832.42	
5,523.00	8.20	264.20	5,452.01	75.46	-72.41	-646.03	650.07	263.60	488,106.81	568,819.08	
5,612.00	7.30	261.60	5,540.19	76.98	-73.88	-657.94	662.07	263.59	488,105.34	568,807.17	
5,701.00	6.70	271.70	5,628.53	77.70	-74.55	-668.72	672.86	263.64	488,104.67	568,796.39	
5,791.00	8.00	271.60	5,717.79	77.43	-74.22	-680.23	684.27	263.77	488,105.00	568,784.88	
5,880.00	8.50	265.00	5,805.87	77.89	-74.62	-692.97	696.98	263.85	488,104.60	568,772.14	
5,970.00	8.20	260.00	5,894.92	79.64	-76.32	-705.92	710.03	263.83	488,102.90	568,759.19	
6,059.00	8.10	270.80	5,983.02	80.72	-77.33	-718.44	722.59	263.86	488,101.89	568,746.67	
6,149.00	8.00	272.40	6,072.14	80.42	-76.98	-731.04	735.08	263.99	488,102.24	568,734.07	
6,238.00	7.40	270.50	6,160.33	80.17	-76.67	-742.96	746.90	264.11	488,102.55	568,722.15	
6,327.00	7.50	271.40	6,248.58	80.03	-76.48	-754.49	758.36	264.21	488,102.74	568,710.62	
6,416.00	7.30	269.50	6,336.84	80.00	-76.39	-765.95	769.75	264.30	488,102.83	568,699.16	
6,505.00	6.90	265.20	6,425.16	80.54	-76.88	-776.94	780.73	264.35	488,102.34	568,688.17	



ProDirectional Survey Report



Company:	Marathon Oil	Local Co-ordinate Reference:	Well No. 5H
Project:	Eddy County, NM(NAD 83)	TVD Reference:	Well @ 3242.00usft
Site:	Catapult Fee 23-26-1 WA	MD Reference:	Well @ 3242.00usft
Well:	No. 5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Gyro-MWD-242'-13978', Proj. 14035'	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)	
6,595.00	6.00	259.00	6,514.59	81.94	-78.23	-786.94	790.82	264.32	488,100.99	568,678.17	
6,684.00	5.50	259.30	6,603.14	83.66	-79.91	-795.70	799.70	264.26	488,099.31	568,669.41	
6,774.00	6.90	271.50	6,692.62	84.37	-80.57	-805.34	809.36	264.29	488,098.65	568,659.77	
6,862.00	5.60	276.20	6,780.09	83.81	-79.97	-814.89	818.81	264.40	488,099.25	568,650.22	
6,952.00	6.30	268.60	6,869.61	83.50	-79.62	-824.20	828.03	264.48	488,099.60	568,640.91	
7,041.00	6.70	264.10	6,958.04	84.20	-80.27	-834.24	838.10	264.50	488,098.95	568,630.87	
7,130.00	5.20	264.70	7,046.56	85.15	-81.18	-843.42	847.32	264.50	488,098.04	568,621.69	
7,219.00	3.50	267.90	7,135.30	85.65	-81.65	-850.16	854.07	264.51	488,097.57	568,614.95	
7,309.00	2.10	272.60	7,225.19	85.70	-81.67	-854.55	858.44	264.54	488,097.55	568,610.56	
7,398.00	2.90	264.70	7,314.10	85.85	-81.81	-858.42	862.31	264.56	488,097.41	568,606.69	
7,487.00	2.50	260.50	7,403.00	86.40	-82.34	-862.58	866.50	264.55	488,096.88	568,602.53	
7,577.00	1.60	288.60	7,492.95	86.34	-82.26	-865.70	869.60	264.57	488,096.96	568,599.41	
7,666.00	1.10	316.50	7,581.92	85.33	-81.24	-867.47	871.26	264.65	488,097.98	568,597.64	
7,756.00	1.40	284.40	7,671.90	84.44	-80.34	-869.13	872.83	264.72	488,098.88	568,595.98	
7,845.00	0.80	285.30	7,760.89	84.01	-79.91	-870.78	874.44	264.76	488,099.31	568,594.33	
7,935.00	0.30	60.50	7,850.88	83.73	-79.63	-871.18	874.81	264.78	488,099.59	568,593.93	
8,024.00	2.00	244.20	7,939.87	84.30	-80.19	-872.38	876.05	264.75	488,099.03	568,592.73	
8,114.00	1.10	258.40	8,029.83	85.17	-81.05	-874.64	878.38	264.71	488,098.17	568,590.47	
8,203.00	0.40	283.00	8,118.83	85.27	-81.15	-875.78	879.53	264.71	488,098.07	568,589.33	
8,292.00	0.10	8.20	8,207.82	85.13	-81.00	-876.07	879.80	264.72	488,098.22	568,589.04	
8,382.00	1.00	80.80	8,297.82	84.92	-80.80	-875.28	879.00	264.73	488,098.42	568,589.83	
8,466.00	2.10	81.60	8,381.79	84.57	-80.46	-873.04	876.73	264.73	488,098.76	568,592.07	
8,555.00	8.40	168.50	8,470.44	90.70	-86.60	-870.12	874.42	264.32	488,092.62	568,594.99	
8,644.00	20.50	175.40	8,556.47	112.67	-108.59	-867.57	874.33	262.87	488,070.63	568,597.54	
8,733.00	32.00	180.60	8,636.17	151.92	-147.84	-866.56	879.08	260.32	488,031.38	568,598.55	
8,822.00	43.20	180.80	8,706.57	206.13	-202.05	-867.23	890.46	256.89	487,977.17	568,597.88	
8,912.00	53.90	184.90	8,766.08	273.39	-269.29	-870.78	911.47	252.82	487,909.93	568,594.33	



ProDirectional Survey Report



Company:	Marathon Oil	Local Co-ordinate Reference:	Well No. 5H
Project:	Eddy County, NM(NAD 83)	TVD Reference:	Well @ 3242.00usft
Site:	Catapult Fee 23-26-1 WA	MD Reference:	Well @ 3242.00usft
Well:	No. 5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Gyro-MWD-242'-13978', Proj. 14035'	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)	
9,001.00	61.30	184.80	8,813.73	348.24	-344.11	-877.13	942.21	248.58	487,835.11	568,587.98	
9,090.00	67.60	180.30	8,852.12	428.41	-424.27	-880.61	977.49	244.28	487,754.95	568,584.50	
9,179.00	77.90	178.80	8,878.47	513.28	-509.14	-879.92	1,016.60	239.95	487,670.08	568,585.19	
9,232.00	85.50	183.00	8,886.12	565.67	-561.53	-880.76	1,044.53	237.48	487,617.69	568,584.35	
9,355.00	87.60	183.60	8,893.52	688.27	-684.10	-887.82	1,120.81	232.38	487,495.12	568,577.29	
9,449.00	85.90	183.10	8,898.85	781.98	-777.78	-893.31	1,184.46	228.95	487,401.44	568,571.80	
9,543.00	85.10	185.10	8,906.23	875.48	-871.25	-900.01	1,252.63	225.93	487,307.97	568,565.10	
9,637.00	86.90	183.10	8,912.79	969.03	-964.77	-906.71	1,323.97	223.22	487,214.45	568,558.40	
9,732.00	93.80	184.40	8,912.21	1,063.79	-1,059.50	-912.92	1,398.56	220.75	487,119.72	568,552.19	
9,827.00	93.00	184.00	8,906.57	1,158.40	-1,154.08	-919.86	1,475.82	218.56	487,025.14	568,545.25	
9,922.00	90.20	180.30	8,903.92	1,253.29	-1,248.95	-923.42	1,553.25	216.48	486,930.27	568,541.69	
10,016.00	88.10	178.50	8,905.31	1,347.26	-1,342.93	-922.44	1,629.22	214.48	486,836.29	568,542.67	
10,110.00	89.60	178.80	8,907.20	1,441.20	-1,436.88	-920.23	1,706.29	212.64	486,742.34	568,544.88	
10,205.00	91.30	180.10	8,906.45	1,536.18	-1,531.87	-919.31	1,786.55	210.97	486,647.35	568,545.80	
10,299.00	91.00	179.60	8,904.57	1,630.16	-1,625.85	-919.07	1,867.63	209.48	486,553.37	568,546.04	
10,394.00	88.40	177.70	8,905.07	1,725.11	-1,720.81	-916.83	1,949.81	208.05	486,458.41	568,548.28	
10,488.00	88.30	177.80	8,907.77	1,818.98	-1,814.69	-913.14	2,031.49	206.71	486,364.53	568,551.97	
10,582.00	94.20	181.00	8,905.72	1,912.89	-1,908.61	-912.15	2,115.38	205.54	486,270.61	568,552.96	
10,677.00	90.30	179.60	8,901.99	2,007.80	-2,003.52	-912.65	2,201.59	204.49	486,175.70	568,552.46	
10,771.00	90.30	179.50	8,901.50	2,101.79	-2,097.51	-911.91	2,287.17	203.50	486,081.71	568,553.20	
10,865.00	89.70	179.70	8,901.50	2,195.78	-2,191.51	-911.26	2,373.42	202.58	485,987.71	568,553.85	
10,960.00	89.40	179.90	8,902.25	2,290.77	-2,286.51	-910.92	2,461.28	201.72	485,892.71	568,554.19	
11,055.00	92.00	182.50	8,901.09	2,385.74	-2,381.46	-912.91	2,550.45	200.97	485,797.76	568,552.20	
11,149.00	91.20	182.10	8,898.46	2,479.64	-2,475.35	-916.68	2,639.63	200.32	485,703.87	568,548.43	
11,243.00	92.10	182.20	8,895.75	2,573.55	-2,569.24	-920.21	2,729.06	199.71	485,609.98	568,544.90	
11,337.00	92.90	181.90	8,891.65	2,667.42	-2,663.09	-923.57	2,818.69	199.13	485,516.13	568,541.54	
11,432.00	93.00	181.40	8,886.77	2,762.26	-2,757.93	-926.30	2,909.33	198.57	485,421.29	568,538.81	

Company: Marathon Oil
Project: Eddy County, NM(NAD 83)
Site: Catapult Fee 23-26-1 WA
Well: No. 5H
Wellbore: OH
Design: Gyro-MWD-242'-13978', Proj. 14035'

Local Co-ordinate Reference:
TVD Reference: Well No. 5H
MD Reference: Well @ 3242.00usft
North Reference: Well @ 3242.00usft
Survey Calculation Method: Grid
Database: 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)	
11,527.00	87.10	176.90	8,886.68	2,857.18	-2,852.85	-924.89	2,999.03	197.96	485,326.37	568,540.22	
11,621.00	90.80	178.50	8,888.40	2,951.05	-2,946.74	-921.12	3,087.35	197.36	485,232.48	568,543.99	
11,716.00	90.80	178.60	8,887.08	3,046.00	-3,041.70	-918.72	3,177.42	196.81	485,137.52	568,546.39	
11,810.00	92.10	179.20	8,884.70	3,139.94	-3,135.65	-916.91	3,266.96	196.30	485,043.57	568,548.20	
11,905.00	90.60	178.30	8,882.46	3,234.87	-3,230.60	-914.84	3,357.63	195.81	484,948.62	568,550.27	
11,999.00	89.60	177.30	8,882.30	3,328.78	-3,324.53	-911.23	3,447.15	195.33	484,854.69	568,553.88	
12,093.00	90.00	175.90	8,882.63	3,422.59	-3,418.36	-905.66	3,536.29	194.84	484,760.86	568,559.45	
12,187.00	91.90	178.10	8,881.07	3,516.41	-3,512.21	-900.74	3,625.87	194.38	484,667.01	568,564.37	
12,281.00	92.70	178.40	8,877.29	3,610.28	-3,606.09	-897.87	3,716.18	193.98	484,573.13	568,567.24	
12,376.00	92.30	180.70	8,873.15	3,705.17	-3,700.99	-897.13	3,808.17	193.63	484,478.23	568,567.98	
12,470.00	91.10	179.20	8,870.36	3,799.12	-3,794.94	-897.04	3,899.52	193.30	484,384.28	568,568.07	
12,564.00	92.60	181.20	8,867.33	3,893.07	-3,888.88	-897.37	3,991.07	192.99	484,290.34	568,567.74	
12,659.00	91.60	180.30	8,863.85	3,988.00	-3,983.81	-898.61	4,083.90	192.71	484,195.41	568,566.50	
12,753.00	93.10	181.80	8,859.99	4,081.91	-4,077.71	-900.33	4,175.92	192.45	484,101.51	568,564.78	
12,847.00	92.80	180.90	8,855.15	4,175.76	-4,171.56	-902.54	4,268.08	192.21	484,007.66	568,562.57	
12,941.00	90.70	179.50	8,852.28	4,269.71	-4,265.50	-902.87	4,360.01	191.95	483,913.72	568,562.24	
13,035.00	90.90	179.50	8,850.97	4,363.69	-4,359.49	-902.05	4,451.84	191.69	483,819.73	568,563.06	
13,129.00	90.70	179.20	8,849.66	4,457.67	-4,453.48	-900.99	4,543.70	191.44	483,725.74	568,564.12	
13,223.00	94.80	182.10	8,845.15	4,551.53	-4,547.33	-902.05	4,635.94	191.22	483,631.89	568,563.06	
13,317.00	89.80	179.30	8,841.38	4,645.41	-4,641.21	-903.19	4,728.27	191.01	483,538.01	568,561.92	
13,411.00	90.30	178.60	8,841.29	4,739.39	-4,735.19	-901.47	4,820.24	190.78	483,444.03	568,563.64	
13,508.00	93.10	180.70	8,838.42	4,836.33	-4,832.13	-900.87	4,915.39	190.56	483,347.09	568,564.24	
13,602.00	94.50	182.20	8,832.19	4,930.09	-4,925.89	-903.25	5,008.02	190.39	483,253.33	568,561.86	
13,696.00	94.50	181.70	8,824.81	5,023.76	-5,019.55	-906.43	5,100.73	190.24	483,159.67	568,558.68	
13,791.00	95.40	181.50	8,816.61	5,118.38	-5,114.16	-909.08	5,194.32	190.08	483,065.06	568,556.03	
13,885.00	94.70	180.20	8,808.34	5,212.01	-5,207.78	-910.47	5,286.77	189.92	482,971.44	568,554.64	

Company:	Marathon Oil	Local Co-ordinate Reference:	Well No. 5H
Project:	Eddy County, NM(NAD 83)	TVD Reference:	Well @ 3242.00usft
Site:	Catapult Fee 23-26-1 WA	MD Reference:	Well @ 3242.00usft
Well:	No. 5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Gyro-MWD-242'-13978', Proj. 14035'	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)	
13,978.00	92.80	179.20	8,802.26	5,304.80	-5,300.57	-909.98	5,378.11	189.74	482,878.65	568,555.13	
Last Survey: 13978' MD											
14,035.00	92.80	179.20	8,799.47	5,361.72	-5,357.50	-909.18	5,434.10	189.63	482,821.72	568,555.93	
PTB: 14035' MD											

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
505.00	505.00	-0.26	-1.00	Pro MWD First Survey: 505' MD	
13,978.00	8,802.26	-5,300.57	-909.98	Last Survey: 13978' MD	
14,035.00	8,799.47	-5,357.50	-909.18	PTB: 14035' MD	