

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELL
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

HOBBS OCD
MAR 12 2019

SUBMIT IN TRIPLICATE - Other instructions on page 2

RECEIVED

5. Lease Serial No. NMNM13647
6. If Indian, Allottee or Tribe Name
7. If Unit or CA/Agreement, Name and/or No.
8. Well Name and No. CAVE LION FEDERAL 26 35 5 WXY 6H
9. API Well No. 30-025-45426-00-X1
10. Field and Pool or Exploratory Area WOLFCAMP
11. County or Parish, State LEA COUNTY, NM

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other	
2. Name of Operator MARATHON OIL PERMIAN LLC	Contact: JENNIFER VAN CUREN E-Mail: jvancuren@marathonoil.com
3a. Address 5555 SAN FELIPE STREET HOUSTON, TX 77056	3b. Phone No. (include area code) Ph: 713.296.2500

4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 5 T26S R35E SESW 287FSL 1781FWL 32.065876 N Lat, 103.392273 W Lon
--

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☒ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original APD
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomple horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recomple in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Marathon Oil Permian LLC. respectfully requests to make the following changes to the approved APD.

Change Name to match OCD formatting
From: Cave Lion Federal 5 WXY 6H
To: Cave Lion 5 WXY Federal 6H

Change FTP
From: 150 FSL & 1323 FWL
To: 100 FSL & 993 FWL

Change LTP
From: 150 FNL & 1322 FWL

All previous COAs still apply.

14. I hereby certify that the foregoing is true and correct.	
Electronic Submission #451471 verified by the BLM Well Information System For MARATHON OIL PERMIAN LLC, sent to the Hobbs Committed to AFMSS for processing by PRISCILLA PEREZ on 01/29/2019 (19PP0860SE)	
Name (Printed/Typed) JENNIFER VAN CUREN	Title SR. REGULATORY COMPLIANCE REP
Signature (Electronic Submission)	Date 01/23/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>ZOTA STEVENS</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>02/18/2019</u>
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office Hobbs

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

[Handwritten signature]

Additional data for EC transaction #451471 that would not fit on the form

32. Additional remarks, continued

To: 100 FNL & 992 FWL

Update slurry density of the intermediate 2

From: 15.6

To: 14.8

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

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office
☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code 98117	³ Pool Name WC-025 G-09 S263504N; WOLFCAMP
⁴ Property Code	⁵ Property Name CAVE LION 5 FEDERAL WXY	⁶ Well Number 6H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 3263'

¹⁰ Surface Location

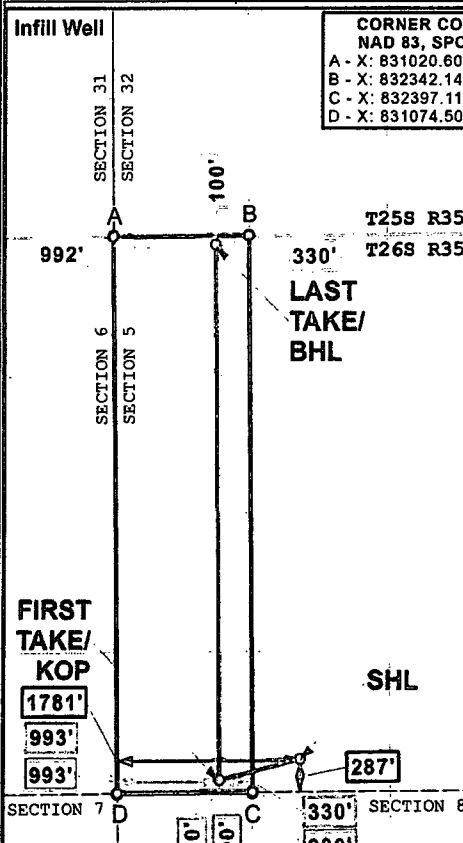
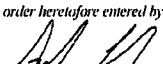
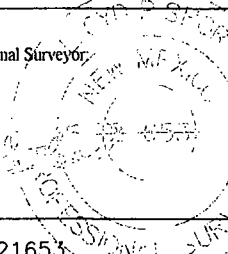
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	5	26S	35E		287	SOUTH	1781	WEST	LEA

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	5	26S	35E		100	NORTH	992	WEST	LEA

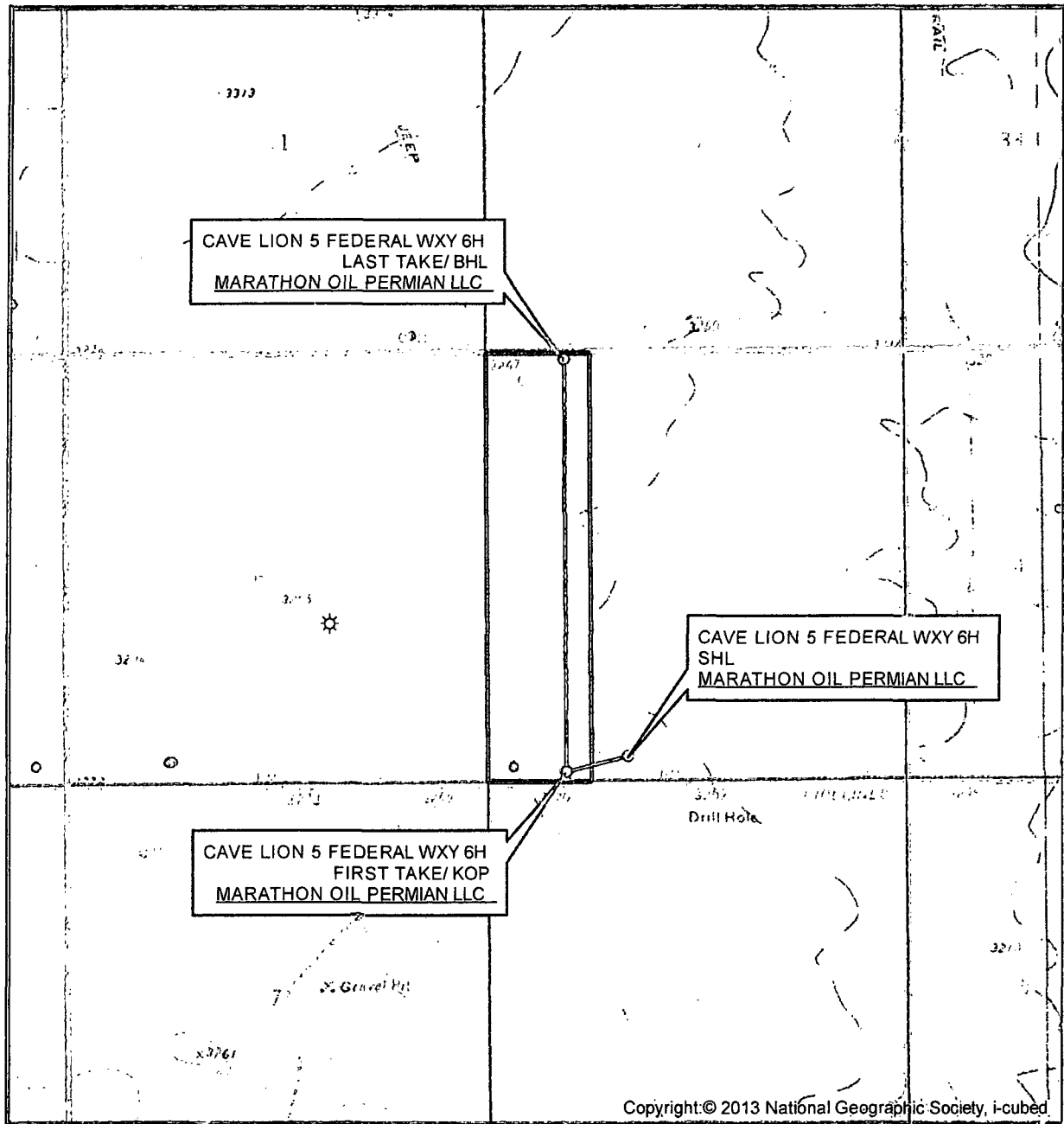
¹² Dedicated Acres 160.0	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
--	-------------------------------	----------------------------------	-------------------------

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.

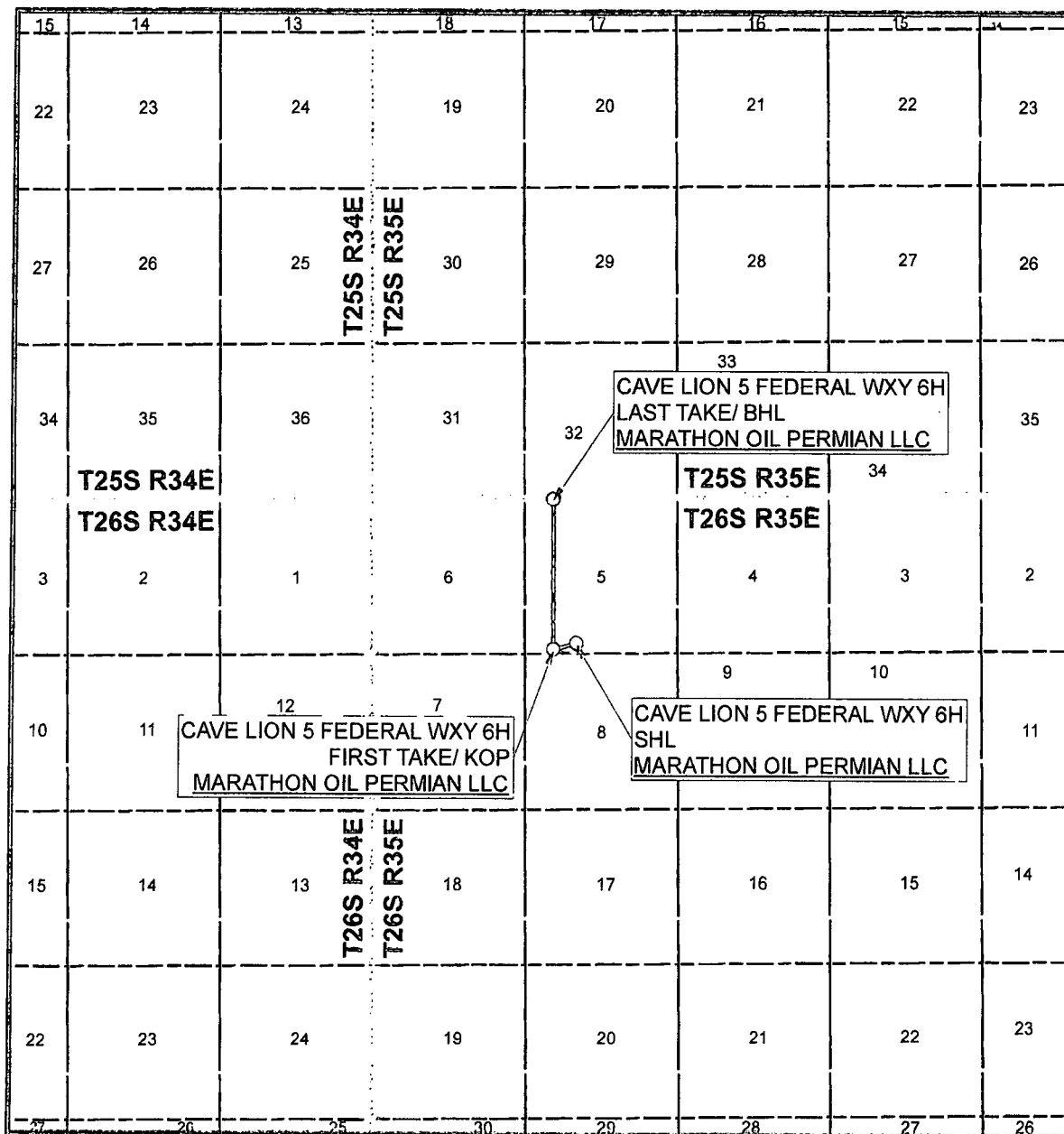
Infill Well 	CORNER COORDINATES NAD 83, SPCS NM EAST A - X: 831020.60' / Y: 393959.45' B - X: 832342.14' / Y: 393968.72' C - X: 832397.11' / Y: 388684.41' D - X: 831074.50' / Y: 388675.34'	CORNER COORDINATES NAD 27, SPCS NM EAST A - X: 789833.20' / Y: 393901.74' B - X: 791154.74' / Y: 393911.00' C - X: 791209.47' / Y: 388626.82' D - X: 789886.87' / Y: 388617.76'	17 OPERATOR CERTIFICATION <i>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> Signature:  Date: 1/4/2018 Printed Name: Adrian Covarrubias E-mail Address: _____	
	LAST TAKE POINT/BOTTOM HOLE LOCATION 100' FNL 992' FWL, SECTION 5 NAD 83, SPCS NM EAST X: 832013.21' / Y: 393866.41' LAT: 32.07934261N / LON: -103.39484302W NAD 27, SPCS NM EAST X: 790825.80' / Y: 393808.69' LAT: 32.07921643N / LON: -103.39437980W			18 SURVEYOR CERTIFICATION <i>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</i> DECEMBER 13, 2018 Date of Survey Signature and Seal of Professional Surveyor: 
	FIRST TAKE POINT 100' FSL 993' FWL, SECTION 5 NAD 83, SPCS NM EAST X: 832066.10' / Y: 388782.14' LAT: 32.06536672N / LON: -103.39481505W NAD 27, SPCS NM EAST X: 790878.46' / Y: 388724.56' LAT: 32.06524046N / LON: -103.39435263W			
	KICK OFF POINT 100' FSL 993' FWL, SECTION 5 NAD 83, SPCS NM EAST X: 832066.10' / Y: 388782.14' LAT: 32.06536672N / LON: -103.39481505W NAD 27, SPCS NM EAST X: 790878.46' / Y: 388724.56' LAT: 32.06524046N / LON: -103.39435263W			
SURFACE HOLE LOCATION 287' FSL 1781' FWL, SECTION 5 NAD 83, SPCS NM EAST X: 832852.39' / Y: 388974.69' LAT: 32.06587713N / LON: -103.39227165W NAD 27, SPCS NM EAST X: 791664.75' / Y: 388917.09' LAT: 32.06575085N / LON: -103.39180929W		Certificate Number LLOYD P. SHORT 21653		

SHEET 1 OF 3
JOB No. R3757_003
REV 4 JCS 12/13/2018

LOCATION VERIFICATION MAP



VICINITY MAP



SEC. 5 TWP. 26-S RGE. 35-E
 SURVEY: N.M.P.M.
 COUNTY: LEA
 OPERATOR: MARATHON OIL PERMIAN LLC
 DESCRIPTION: 287' FSL & 1781' FWL
 ELEVATION: 3263'
 LEASE: CAVE LION 5 FEDERAL
 U.S.G.S. TOPOGRAPHIC MAP: ANDREWS PLACE, NM, TX.

1" = 1 MILE



SHEET 3 OF 3

PREPARED BY:
 R-SQUARED GLOBAL, LLC
 1309 LOUISVILLE AVENUE, MONROE, LA 71201
 318-323-6900 OFFICE
 JOB No. R3757_003

Marathon Oil Corporation

Marathon Oil
Lea County, NM
Cave Lion 5 Federal
WCY #6H
Prelim Plan C
GL: 3263' + KB: 26.5' (H&P480)

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

RKB Elevation: Well @ 3289.50ust (GL: 3263' + KB: 26.5' (H&P480))

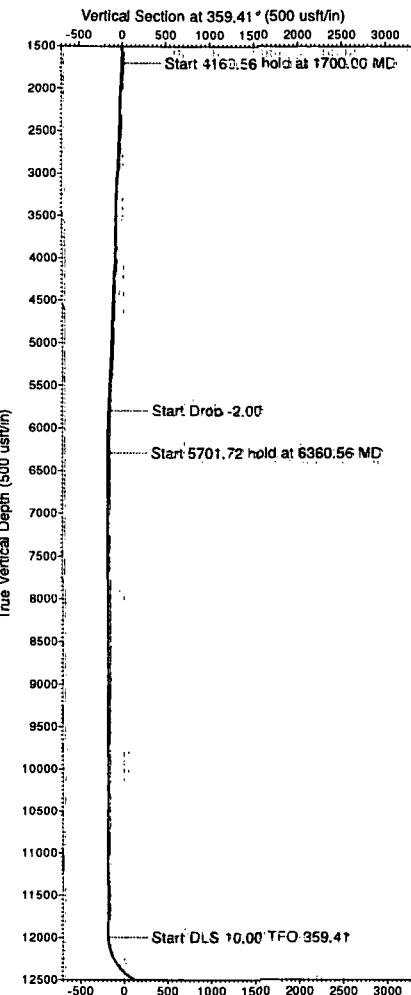
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Spot
0.00	0.00	388917.09	791664.75	32.065751	-103.391809	

SECTION DETAILS

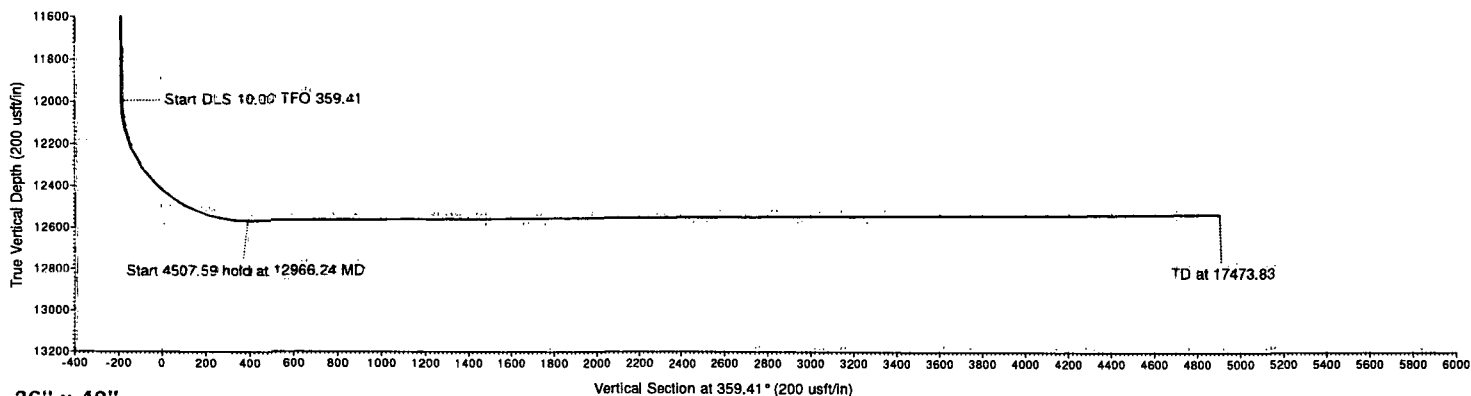
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1208.00	0.00	0.00	1208.00	0.00	0.00	0.00	0.00
3	1700.00	10.00	256.24	1697.47	-10.35	-42.27	2.00	-9.92
4	5960.56	10.00	256.24	5794.81	-182.18	-744.02	0.00	-174.51
5	6360.56	0.00	0.00	6292.28	-192.53	-786.29	2.00	-194.42
6	12062.28	0.00	0.00	11994.00	-192.53	-786.29	0.00	-184.42
7	12966.24	90.40	359.41	12566.94	384.36	-792.27	10.00	392.49
8	17473.83	90.40	359.41	12535.79	4891.60	-838.95	0.00	4899.96

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

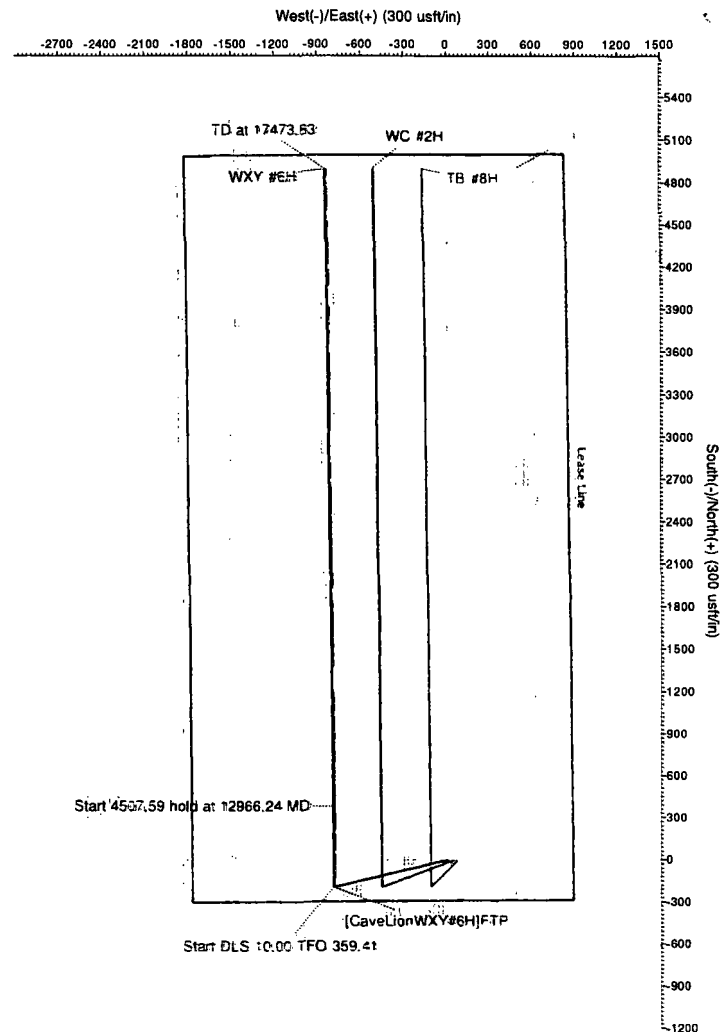
Name	TVD	+N/-S	+E/-W	Northing	Easting
[CaveLionWCY#6H]FTP	11994.00	-192.53	-786.29	388724.56	790678.46
[CaveLionWCY#6H]LTP/BHL	12535.79	4891.60	-838.95	393808.69	791525.90



Target Line: 12570' TVD @ 0' VS, 90.4° INC



36" x 48"



Azimuths to Grid North
True North: 0.50°
Magnetic North: 6.20°
Magnetic Field
Strength: 47829.2nT
Dip Angle: 58.73°
Date: 4/10/2018
Model: HDGM

Azimuth Corrections

Total Magnetic Corr. (M to G): 6.20°

Declination (M to T): 6.70° East

Marathon Oil

Pro Directional Survey Report



Company: Marathon Oil
Project: Lea County, NM
Site: Cave Lion 5 Federal
Well: WXY #6H
Wellbore: OH
Design: Prelim Plan C

Local Co-ordinate Reference: Well WXY #6H
TVD Reference: Well @ 3289.50usft (GL: 3263' + KB: 26.5' (H&P480))
MD Reference: Well @ 3289.50usft (GL: 3263' + KB: 26.5' (H&P480))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Project	Lea County, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Cave Lion 5 Federal				
Site Position:		Northing:	388,805.07 usft	Latitude:	32.065478
From:	Map	Easting:	790,215.00 usft	Longitude:	-103.396492
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.50 °

Well	WXY #6H					
Well Position	+N/-S	0.00 usft	Northing:	388,917.09 usft	Latitude:	32.065751
	+E/-W	0.00 usft	Easting:	791,664.75 usft	Longitude:	-103.391810
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,263.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	4/10/2018	6.70	59.73	47,828.20

Design	Prelim Plan C				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	359.41	

Survey Tool Program	Date	12/17/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	1,150.00	Prelim Plan C (OH)	MWD+IFR1	OWSG MWD + IFR1	
1,150.00	5,400.00	Prelim Plan C (OH)	MWD+IFR1	OWSG MWD + IFR1	
5,400.00	10,000.00	Prelim Plan C (OH)	MWD+IFR1	OWSG MWD + IFR1	
10,000.00	17,473.83	Prelim Plan C (OH)	MWD+IFR1	OWSG MWD + IFR1	

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00

Marathon Oil

Pro Directional Survey Report



Company: Marathon Oil
Project: Lea County, NM
Site: Cave Lion 5 Federal
Well: WXY #6H
Wellbore: OH
Design: Prelim Plan C

Local Co-ordinate Reference: Well WXY #6H
TVD Reference: Well @ 3289.50usft (GL: 3263' + KB: 26.5' (H&P480))
MD Reference: Well @ 3289.50usft (GL: 3263' + KB: 26.5' (H&P480))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	2.00	256.24	1,299.98	-0.42	-1.70	-0.40	2.00	2.00	0.00
1,400.00	4.00	256.24	1,399.84	-1.66	-6.78	-1.59	2.00	2.00	0.00
1,500.00	6.00	256.24	1,499.45	-3.73	-15.24	-3.58	2.00	2.00	0.00
1,600.00	8.00	256.24	1,598.70	-6.63	-27.08	-6.35	2.00	2.00	0.00
1,700.00	10.00	256.24	1,697.47	-10.35	-42.27	-9.92	2.00	2.00	0.00
1,800.00	10.00	256.24	1,795.95	-14.48	-59.14	-13.87	0.00	0.00	0.00
1,900.00	10.00	256.24	1,894.43	-18.61	-76.01	-17.83	0.00	0.00	0.00
2,000.00	10.00	256.24	1,992.91	-22.74	-92.87	-21.78	0.00	0.00	0.00
2,100.00	10.00	256.24	2,091.39	-26.87	-109.74	-25.74	0.00	0.00	0.00
2,200.00	10.00	256.24	2,189.87	-31.00	-126.61	-29.70	0.00	0.00	0.00
2,300.00	10.00	256.24	2,288.35	-35.13	-143.47	-33.65	0.00	0.00	0.00
2,400.00	10.00	256.24	2,386.83	-39.26	-160.34	-37.61	0.00	0.00	0.00
2,500.00	10.00	256.24	2,485.31	-43.39	-177.21	-41.56	0.00	0.00	0.00
2,600.00	10.00	256.24	2,583.79	-47.52	-194.07	-45.52	0.00	0.00	0.00
2,700.00	10.00	256.24	2,682.27	-51.65	-210.94	-49.48	0.00	0.00	0.00
2,800.00	10.00	256.24	2,780.75	-55.78	-227.81	-53.43	0.00	0.00	0.00
2,900.00	10.00	256.24	2,879.23	-59.91	-244.67	-57.39	0.00	0.00	0.00
3,000.00	10.00	256.24	2,977.72	-64.04	-261.54	-61.34	0.00	0.00	0.00
3,100.00	10.00	256.24	3,076.20	-68.17	-278.41	-65.30	0.00	0.00	0.00
3,200.00	10.00	256.24	3,174.68	-72.30	-295.27	-69.26	0.00	0.00	0.00
3,300.00	10.00	256.24	3,273.16	-76.43	-312.14	-73.21	0.00	0.00	0.00
3,400.00	10.00	256.24	3,371.64	-80.56	-329.01	-77.17	0.00	0.00	0.00
3,500.00	10.00	256.24	3,470.12	-84.69	-345.87	-81.12	0.00	0.00	0.00
3,600.00	10.00	256.24	3,568.60	-88.82	-362.74	-85.08	0.00	0.00	0.00
3,700.00	10.00	256.24	3,667.08	-92.95	-379.60	-89.04	0.00	0.00	0.00
3,800.00	10.00	256.24	3,765.56	-97.08	-396.47	-92.99	0.00	0.00	0.00
3,900.00	10.00	256.24	3,864.04	-101.21	-413.34	-96.95	0.00	0.00	0.00
4,000.00	10.00	256.24	3,962.52	-105.34	-430.20	-100.90	0.00	0.00	0.00
4,100.00	10.00	256.24	4,061.00	-109.47	-447.07	-104.86	0.00	0.00	0.00
4,200.00	10.00	256.24	4,159.48	-113.60	-463.94	-108.82	0.00	0.00	0.00
4,300.00	10.00	256.24	4,257.97	-117.73	-480.80	-112.77	0.00	0.00	0.00
4,400.00	10.00	256.24	4,356.45	-121.86	-497.67	-116.73	0.00	0.00	0.00
4,500.00	10.00	256.24	4,454.93	-125.99	-514.54	-120.68	0.00	0.00	0.00
4,600.00	10.00	256.24	4,553.41	-130.12	-531.40	-124.64	0.00	0.00	0.00
4,700.00	10.00	256.24	4,651.89	-134.25	-548.27	-128.60	0.00	0.00	0.00

Company: Marathon Oil
Project: Lea County, NM
Site: Cave Lion 5 Federal
Well: WXY #6H
Wellbore: OH
Design: Prelim Plan C

Local Co-ordinate Reference: Well WXY #6H
TVD Reference: Well @ 3289.50usft (GL: 3263' + KB: 26.5' (H&P480))
MD Reference: Well @ 3289.50usft (GL: 3263' + KB: 26.5' (H&P480))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,800.00	10.00	256.24	4,750.37	-138.38	-565.14	-132.55	0.00	0.00	0.00
4,900.00	10.00	256.24	4,848.85	-142.51	-582.00	-136.51	0.00	0.00	0.00
5,000.00	10.00	256.24	4,947.33	-146.64	-598.87	-140.46	0.00	0.00	0.00
5,100.00	10.00	256.24	5,045.81	-150.77	-615.74	-144.42	0.00	0.00	0.00
5,200.00	10.00	256.24	5,144.29	-154.90	-632.60	-148.38	0.00	0.00	0.00
5,300.00	10.00	256.24	5,242.77	-159.03	-649.47	-152.33	0.00	0.00	0.00
5,400.00	10.00	256.24	5,341.25	-163.16	-666.34	-156.29	0.00	0.00	0.00
5,500.00	10.00	256.24	5,439.73	-167.29	-683.20	-160.24	0.00	0.00	0.00
5,600.00	10.00	256.24	5,538.22	-171.42	-700.07	-164.20	0.00	0.00	0.00
5,700.00	10.00	256.24	5,636.70	-175.55	-716.94	-168.16	0.00	0.00	0.00
5,800.00	10.00	256.24	5,735.18	-179.68	-733.80	-172.11	0.00	0.00	0.00
5,860.56	10.00	256.24	5,794.81	-182.18	-744.02	-174.51	0.00	0.00	0.00
5,900.00	9.21	256.24	5,833.70	-183.74	-750.41	-176.01	2.00	-2.00	0.00
6,000.00	7.21	256.24	5,932.67	-187.14	-764.28	-179.26	2.00	-2.00	0.00
6,100.00	5.21	256.24	6,032.08	-189.71	-774.79	-181.73	2.00	-2.00	0.00
6,200.00	3.21	256.24	6,131.81	-191.46	-781.92	-183.40	2.00	-2.00	0.00
6,300.00	1.21	256.24	6,231.73	-192.38	-785.67	-184.28	2.00	-2.00	0.00
6,360.56	0.00	0.00	6,292.28	-192.53	-786.29	-184.42	2.00	-2.00	0.00
6,400.00	0.00	0.00	6,331.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
6,500.00	0.00	0.00	6,431.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
6,600.00	0.00	0.00	6,531.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
6,700.00	0.00	0.00	6,631.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
6,800.00	0.00	0.00	6,731.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
6,900.00	0.00	0.00	6,831.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
7,000.00	0.00	0.00	6,931.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
7,100.00	0.00	0.00	7,031.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
7,200.00	0.00	0.00	7,131.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
7,300.00	0.00	0.00	7,231.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
7,400.00	0.00	0.00	7,331.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
7,500.00	0.00	0.00	7,431.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
7,600.00	0.00	0.00	7,531.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
7,700.00	0.00	0.00	7,631.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
7,800.00	0.00	0.00	7,731.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
7,900.00	0.00	0.00	7,831.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
8,000.00	0.00	0.00	7,931.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
8,100.00	0.00	0.00	8,031.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
8,200.00	0.00	0.00	8,131.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
8,300.00	0.00	0.00	8,231.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
8,400.00	0.00	0.00	8,331.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
8,500.00	0.00	0.00	8,431.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
8,600.00	0.00	0.00	8,531.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
8,700.00	0.00	0.00	8,631.72	-192.53	-786.29	-184.42	0.00	0.00	0.00

Company: Marathon Oil
Project: Lea County, NM
Site: Cave Lion 5 Federal
Well: WXY #6H
Wellbore: OH
Design: Prelim Plan C

Local Co-ordinate Reference: Well WXY #6H
TVD Reference: Well @ 3289.50usft (GL: 3263' + KB: 26.5' (H&P480))
MD Reference: Well @ 3289.50usft (GL: 3263' + KB: 26.5' (H&P480))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,800.00	0.00	0.00	8,731.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
8,900.00	0.00	0.00	8,831.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
9,000.00	0.00	0.00	8,931.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
9,100.00	0.00	0.00	9,031.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
9,200.00	0.00	0.00	9,131.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
9,300.00	0.00	0.00	9,231.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
9,400.00	0.00	0.00	9,331.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
9,500.00	0.00	0.00	9,431.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
9,600.00	0.00	0.00	9,531.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
9,700.00	0.00	0.00	9,631.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
9,800.00	0.00	0.00	9,731.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
9,900.00	0.00	0.00	9,831.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
10,000.00	0.00	0.00	9,931.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
10,100.00	0.00	0.00	10,031.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
10,200.00	0.00	0.00	10,131.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
10,300.00	0.00	0.00	10,231.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
10,400.00	0.00	0.00	10,331.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
10,500.00	0.00	0.00	10,431.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
10,600.00	0.00	0.00	10,531.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
10,700.00	0.00	0.00	10,631.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
10,800.00	0.00	0.00	10,731.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
10,900.00	0.00	0.00	10,831.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
11,000.00	0.00	0.00	10,931.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
11,100.00	0.00	0.00	11,031.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
11,200.00	0.00	0.00	11,131.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
11,300.00	0.00	0.00	11,231.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
11,400.00	0.00	0.00	11,331.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
11,500.00	0.00	0.00	11,431.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
11,600.00	0.00	0.00	11,531.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
11,700.00	0.00	0.00	11,631.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
11,800.00	0.00	0.00	11,731.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
11,900.00	0.00	0.00	11,831.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
12,000.00	0.00	0.00	11,931.72	-192.53	-786.29	-184.42	0.00	0.00	0.00
12,062.28	0.00	0.00	11,994.00	-192.53	-786.29	-184.42	0.00	0.00	0.00
[CaveLionWXY#6H]FTP									
12,100.00	3.77	359.41	12,031.70	-191.29	-786.30	-183.18	10.00	10.00	0.00
12,150.00	8.77	359.41	12,081.38	-185.83	-786.36	-177.72	10.00	10.00	0.00
12,200.00	13.77	359.41	12,130.40	-176.06	-786.46	-167.95	10.00	10.00	0.00
12,250.00	18.77	359.41	12,178.38	-162.05	-786.61	-153.94	10.00	10.00	0.00
12,300.00	23.77	359.41	12,224.96	-143.92	-786.79	-135.81	10.00	10.00	0.00
12,350.00	28.77	359.41	12,269.78	-121.80	-787.02	-113.69	10.00	10.00	0.00
12,400.00	33.77	359.41	12,312.50	-95.85	-787.29	-87.74	10.00	10.00	0.00

Company: Marathon Oil
Project: Lea County, NM
Site: Cave Lion 5 Federal
Well: WXY #6H
Wellbore: OH
Design: Prelim Plan C

Local Co-ordinate Reference: Well WXY #6H
TVD Reference: Well @ 3289.50usft (GL: 3263' + KB: 26.5' (H&P480))
MD Reference: Well @ 3289.50usft (GL: 3263' + KB: 26.5' (H&P480))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,450.00	38.77	359.41	12,352.80	-66.28	-787.60	-58.17	10.00	10.00	0.00
12,500.00	43.77	359.41	12,390.37	-33.31	-787.94	-25.20	10.00	10.00	0.00
12,550.00	48.77	359.41	12,424.92	2.81	-788.31	10.92	10.00	10.00	0.00
12,600.00	53.77	359.41	12,456.19	41.80	-788.72	49.92	10.00	10.00	0.00
12,650.00	58.77	359.41	12,483.94	83.37	-789.15	91.49	10.00	10.00	0.00
12,700.00	63.77	359.41	12,507.97	127.20	-789.60	135.32	10.00	10.00	0.00
12,750.00	68.77	359.41	12,528.08	172.95	-790.08	181.08	10.00	10.00	0.00
12,800.00	73.77	359.41	12,544.13	220.29	-790.57	228.42	10.00	10.00	0.00
12,850.00	78.77	359.41	12,555.99	268.84	-791.07	276.97	10.00	10.00	0.00
12,900.00	83.77	359.41	12,563.58	318.25	-791.58	326.38	10.00	10.00	0.00
12,950.00	88.77	359.41	12,566.83	368.12	-792.10	376.26	10.00	10.00	0.00
12,966.24	90.40	359.41	12,566.94	384.36	-792.27	392.49	10.00	10.00	0.00
13,000.00	90.40	359.41	12,566.71	418.12	-792.61	426.26	0.00	0.00	0.00
13,100.00	90.40	359.41	12,566.02	518.11	-793.65	526.25	0.00	0.00	0.00
13,200.00	90.40	359.41	12,565.33	618.10	-794.69	626.25	0.00	0.00	0.00
13,300.00	90.40	359.41	12,564.64	718.09	-795.72	726.25	0.00	0.00	0.00
13,400.00	90.40	359.41	12,563.95	818.09	-796.76	826.25	0.00	0.00	0.00
13,500.00	90.40	359.41	12,563.26	918.08	-797.79	926.24	0.00	0.00	0.00
13,600.00	90.40	359.41	12,562.56	1,018.07	-798.83	1,026.24	0.00	0.00	0.00
13,700.00	90.40	359.41	12,561.87	1,118.06	-799.86	1,126.24	0.00	0.00	0.00
13,800.00	90.40	359.41	12,561.18	1,218.05	-800.90	1,226.24	0.00	0.00	0.00
13,900.00	90.40	359.41	12,560.49	1,318.05	-801.94	1,326.23	0.00	0.00	0.00
14,000.00	90.40	359.41	12,559.80	1,418.04	-802.97	1,426.23	0.00	0.00	0.00
14,100.00	90.40	359.41	12,559.11	1,518.03	-804.01	1,526.23	0.00	0.00	0.00
14,200.00	90.40	359.41	12,558.42	1,618.02	-805.04	1,626.23	0.00	0.00	0.00
14,300.00	90.40	359.41	12,557.73	1,718.02	-806.08	1,726.23	0.00	0.00	0.00
14,400.00	90.40	359.41	12,557.03	1,818.01	-807.11	1,826.22	0.00	0.00	0.00
14,500.00	90.40	359.41	12,556.34	1,918.00	-808.15	1,926.22	0.00	0.00	0.00
14,600.00	90.40	359.41	12,555.65	2,017.99	-809.19	2,026.22	0.00	0.00	0.00
14,700.00	90.40	359.41	12,554.96	2,117.99	-810.22	2,126.22	0.00	0.00	0.00
14,800.00	90.40	359.41	12,554.27	2,217.98	-811.26	2,226.21	0.00	0.00	0.00
14,900.00	90.40	359.41	12,553.58	2,317.97	-812.29	2,326.21	0.00	0.00	0.00
15,000.00	90.40	359.41	12,552.89	2,417.96	-813.33	2,426.21	0.00	0.00	0.00
15,100.00	90.40	359.41	12,552.20	2,517.95	-814.36	2,526.21	0.00	0.00	0.00
15,200.00	90.40	359.41	12,551.51	2,617.95	-815.40	2,626.20	0.00	0.00	0.00
15,300.00	90.40	359.41	12,550.81	2,717.94	-816.44	2,726.20	0.00	0.00	0.00
15,400.00	90.40	359.41	12,550.12	2,817.93	-817.47	2,826.20	0.00	0.00	0.00
15,500.00	90.40	359.41	12,549.43	2,917.92	-818.51	2,926.20	0.00	0.00	0.00
15,600.00	90.40	359.41	12,548.74	3,017.92	-819.54	3,026.19	0.00	0.00	0.00
15,700.00	90.40	359.41	12,548.05	3,117.91	-820.58	3,126.19	0.00	0.00	0.00
15,800.00	90.40	359.41	12,547.36	3,217.90	-821.61	3,226.19	0.00	0.00	0.00
15,900.00	90.40	359.41	12,546.67	3,317.89	-822.65	3,326.19	0.00	0.00	0.00

Company: Marathon Oil
Project: Lea County, NM
Site: Cave Lion 5 Federal
Well: WXY #6H
Wellbore: OH
Design: Prelim Plan C

Local Co-ordinate Reference: Well WXY #6H
TVD Reference: Well @ 3289.50usft (GL: 3263' + KB: 26.5' (H&P480))
MD Reference: Well @ 3289.50usft (GL: 3263' + KB: 26.5' (H&P480))
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,000.00	90.40	359.41	12,545.98	3,417.88	-823.69	3,426.18	0.00	0.00	0.00
16,100.00	90.40	359.41	12,545.29	3,517.88	-824.72	3,526.18	0.00	0.00	0.00
16,200.00	90.40	359.41	12,544.59	3,617.87	-825.76	3,626.18	0.00	0.00	0.00
16,300.00	90.40	359.41	12,543.90	3,717.86	-826.79	3,726.18	0.00	0.00	0.00
16,400.00	90.40	359.41	12,543.21	3,817.85	-827.83	3,826.18	0.00	0.00	0.00
16,500.00	90.40	359.41	12,542.52	3,917.85	-828.86	3,926.17	0.00	0.00	0.00
16,600.00	90.40	359.41	12,541.83	4,017.84	-829.90	4,026.17	0.00	0.00	0.00
16,700.00	90.40	359.41	12,541.14	4,117.83	-830.94	4,126.17	0.00	0.00	0.00
16,800.00	90.40	359.41	12,540.45	4,217.82	-831.97	4,226.17	0.00	0.00	0.00
16,900.00	90.40	359.41	12,539.76	4,317.81	-833.01	4,326.16	0.00	0.00	0.00
17,000.00	90.40	359.41	12,539.07	4,417.81	-834.04	4,426.16	0.00	0.00	0.00
17,100.00	90.40	359.41	12,538.37	4,517.80	-835.08	4,526.16	0.00	0.00	0.00
17,200.00	90.40	359.41	12,537.68	4,617.79	-836.11	4,626.16	0.00	0.00	0.00
17,300.00	90.40	359.41	12,536.99	4,717.78	-837.15	4,726.15	0.00	0.00	0.00
17,400.00	90.40	359.41	12,536.30	4,817.78	-838.19	4,826.15	0.00	0.00	0.00
17,473.83	90.40	359.41	12,535.79	4,891.60	-838.95	4,899.98	0.00	0.00	0.00

[CaveLionWXY#6H]LTP/BHL

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
[CaveLionWXY#6H]FTP	0.00	0.00	11,994.00	-192.53	-786.29	388,724.56	790,878.46	32.065241	-103.394353
- plan hits target center									
- Point									
[CaveLionWXY#6H]LTP	0.00	0.00	12,535.79	4,891.60	-838.95	393,808.69	790,825.80	32.079217	-103.394380
- plan hits target center									
- Point									

Checked By: _____ Approved By: _____ Date: _____