

Well Name: CROSSBOW WC FED COM	Well Location: T23S / R27E / SEC 8 / NENE / 32.3232475 / -104.2048884	County or Parish/State: EDDY / NM
Well Number: 704H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMNM91071	Unit or CA Name:	Unit or CA Number:
US Well Number: 3001548715	Well Status: Drilling Well	Operator: MARATHON OIL PERMIAN LLC

Notice of Intent

Sundry ID: 2727272

Type of Submission: Notice of Intent **Type of Action:** APD Change

Date Sundry Submitted: 04/25/2023 **Time Sundry Submitted:** 06:33

Date proposed operation will begin: 04/22/2023

Procedure Description: Marathon Oil Permian LLC Requests to make the following Changes to the Approved APD Well Name Change: From: CROSSBOW 8 WXY FED COM 14H To: CROSSBOW WC FED COM 704H SHL change: From: 1266 FNL and 347 FEL To: 1266 FNL and 456 FEL Dedicated Acreage change: From: 638.16 acres To: 1275.84 acres Please see attached updated C-102, approved & proposed well pad diagram, drill plan and directional plan. No new disturbance.

NOI Attachments

Procedure Description

BLM_Sub___Crossbow_WC_Fed_Com_704H_4.24.2023_20230425063244.pdf

Received by OCD: 9/7/2023 8:28:58 AM

Page 2 of 22

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Lease Number: NMNM91071	Unit or CA Name:	Unit or CA Number:
US Well Number: 3001548715	Well Status: Drilling Well	Operator: MARATHON OIL PERMIAN LLC

Operator

I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: NICOLE LEE	Signed on: MAY 02, 2023 10:07 AM
Name: MARATHON OIL PERMIAN LLC	
Title: Regulatory Compliance Representative	
Street Address: 990 TOWN & COUNTRY BLVD	
City: HOUSTON	State: TX
Phone: (713) 929-6600	
Email address: NJLEE@MARATHONOIL.COM	

Field

Representative Name:		
Street Address:		
City:	State:	Zip:
Phone:		
Email address:		

BLM Point of Contact

BLM POC Name: CHRISTOPHER WALLS	BLM POC Title: Petroleum Engineer
BLM POC Phone: 5752342234	BLM POC Email Address: cwalls@blm.gov
Disposition: Approved	Disposition Date: 05/04/2023
Signature: Chris Walls	

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021

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

SUBMIT IN TRIPLICATE - Other instructions on page 2		5. Lease Serial No.
1. Type of Well ☐ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name
2. Name of Operator		7. If Unit of CA/Agreement, Name and/or No.
3a. Address	3b. Phone No. (include area code)	8. Well Name and No.
4. Location of Well (Footage, Sec., T.,R.,M., or Survey Description)		9. API Well No.
		10. Field and Pool or Exploratory Area
		11. Country or Parish, State

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	
	☐ 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 recompleate 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 perfonned 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 recompletion 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 detennined that the site is ready for final inspection.)

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)		
	Title	
Signature	Date	

THE SPACE FOR FEDERAL OR STATE OFFICE USE		
Approved by	Title	Date
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	

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)

GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area or regional procedures and practices, are either shown below, will be issued by or may be obtained from the local Federal office.

SPECIFIC INSTRUCTIONS

Item 4 - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

Item 13: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. If the proposal will involve **hydraulic fracturing operations**, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.

PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c) and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.

ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.

EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

Response to this request is mandatory.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

Additional Information

Location of Well

0. SHL: NENE / 1266 FNL / 347 FEL / TWSP: 23S / RANGE: 27E / SECTION: 8 / LAT: 32.3232475 / LONG: -104.2048884 (TVD: 0 feet, MD: 0 feet)

PPP: NENE / 330 FNL / 330 FEL / TWSP: 23S / RANGE: 27E / SECTION: 8 / LAT: 32.3258222 / LONG: -104.2047528 (TVD: 8635 feet, MD: 8718 feet)

PPP: NENW / 330 FNL / 1278 FWL / TWSP: 23S / RANGE: 27E / SECTION: 7 / LAT: 32.3256899 / LONG: -104.2335469 (TVD: 8934 feet, MD: 13805 feet)

BHL: LOT 1 / 660 FNL / 330 FWL / TWSP: 23S / RANGE: 27E / SECTION: 7 / LAT: 32.3256699 / LONG: -104.2366149 (TVD: 8839 feet, MD: 18771 feet)

CONFIDENTIAL

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 98220	³ Pool Name PURPLE SAGE; WOLFCAMP GAS
⁴ Property Code	⁵ Property Name CROSSBOW WC FED COM	⁶ Well Number 704H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 3171'

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
A	8	23S	27E		1266	NORTH	456	EAST	EDDY

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
L 1	7	23S	27E		660	NORTH	330	WEST	EDDY

¹² Dedicated Acres 1275.84	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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.

CORNER COORDINATES NAD 83, SPCS NM EAST A - X: 576067.11' / Y: 482596.20' B - X: 578729.17' / Y: 482610.00' C - X: 581392.87' / Y: 482621.61' D - X: 581420.97' / Y: 477316.49' E - X: 578797.24' / Y: 477303.91' F - X: 576149.45' / Y: 477299.91' G - X: 570884.96' / Y: 477243.10' H - X: 570879.74' / Y: 479890.39' I - X: 570883.00' / Y: 482551.56'	CORNER COORDINATES NAD 27, SPCS NM EAST A - X: 534885.23' / Y: 482537.25' B - X: 537547.25' / Y: 482551.01' C - X: 540210.92' / Y: 482562.59' D - X: 540238.91' / Y: 477257.61' E - X: 537615.22' / Y: 477245.06' F - X: 534967.46' / Y: 477241.09' G - X: 529703.05' / Y: 477184.35' H - X: 529697.88' / Y: 479831.57' I - X: 529701.19' / Y: 482492.66'	SURFACE HOLE LOCATION 1266' FNL 456' FEL, SECTION 8 NAD 83, SPCS NM EAST X: 580943.58' / Y: 481353.45' LAT: 32.32324778N / LON: 104.20511503W NAD 27, SPCS NM EAST X: 539761.61' / Y: 481294.47' LAT: 32.32312897N / LON: 104.20461447W	¹⁷ OPERATOR CERTIFICATION 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>Nicole Lee</i> 4/24/2023 Signature Date Nicole Lee Printed Name njlee@marathonoil.com E-mail Address
			¹⁸ SURVEYOR CERTIFICATION 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. APRIL 24, 2023 Date of Survey Signature and Seal of Professional Surveyor: <i>Lloyd P. Short</i> LLOYD P. SHORT 21653 Certificate Number
LAST TAKE POINT/BOTTOM HOLE LOCATION 660' FNL 330' FWL, SECTION 7 NAD 83, SPCS NM EAST X: 571212.19' / Y: 481894.37' LAT: 32.32476275N / LON: 104.23661720W NAD 27, SPCS NM EAST X: 530030.37' / Y: 481835.48' LAT: 32.32464441N / LON: 104.23611544W			FIRST TAKE POINT 660' FNL 330' FEL, SECTION 8 NAD 83, SPCS NM EAST X: 581066.37' / Y: 481960.18' LAT: 32.32491518N / LON: 104.20471517W NAD 27, SPCS NM EAST X: 539884.41' / Y: 481901.18' LAT: 32.32479638N / LON: 104.20421458W

Distances/areas relative to NAD 83 Combined Scale Factor: 0.99976256 Convergence Angle: 00°03'50.20794"

☐ Horizontal Spacing Unit

Updated/Proposed **WELL PAD PLAT**

CROSSBOW FEDERAL 23-27-8

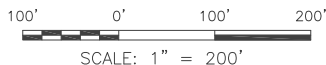
SEC. 8 TWP. 23-S RGE. 27-E

SURVEY: N.M.P.M.

COUNTY: EDDY

OPERATOR: MARATHON OIL PERMIAN LLC

U.S.G.S. TOPOGRAPHIC MAP: OTIS, N.M.

SECTION 8,
T-23-S, R-27-E

NAD 83			
A	E:(X)581293.58 N:(Y)481633.51	LAT:32.32401646 LON:-104.20398088	
B	E:(X)581293.59 N:(Y)481133.48	LAT:32.32264195 LON:-104.20398280	
C	E:(X)580703.59 N:(Y)481133.48	LAT:32.32264389 LON:-104.20589281	
D	E:(X)580703.58 N:(Y)481633.51	LAT:32.32401841 LON:-104.20589092	

NAD 27			
A	E:(X)540111.61 N:(Y)481574.51	LAT:32.32389765 LON:-104.20348034	
B	E:(X)540111.61 N:(Y)481074.50	LAT:32.32252313 LON:-104.20348230	
C	E:(X)539521.62 N:(Y)481074.50	LAT:32.32252510 LON:-104.20539224	
D	E:(X)539521.62 N:(Y)481574.52	LAT:32.32389962 LON:-104.20539031	

LINE	BEARING	DISTANCE
L1	S 00°00'07" E	500.03'
L2	S 89°59'59" W	590.00'
L3	N 00°00'07" W	500.03'
L4	N 89°59'59" E	590.00'

ARCH LIMITS

N 05°44'18" E
993.07'100' X 590'
TANK BATTERY SITEPROPOSED WELL
PAD AREA
6.77 ACRESSECTION 8 PROP. LEASE ROAD TOTAL =
100.94 FEET (6.12 RODS) 0.15 AC.5/8" IRON ROD W/CAP FND.
FOR NE COR. OF SEC. 8SECTION 8 PROP. LEASE ROAD
TOTAL = 84.42 FEET
(5.12 RODS) 0.13 AC.SECTION 9,
T-23-S, R-27-E

EXISTING WATERLINE

EXISTING OVERHEAD
POWER LINE

A tract of land being 6.77 acres. Said tract being located in Section 8, Township 23 South, Range 27 East, New Mexico Principal Meridian, Eddy County, New Mexico.

Being more particularly described by metes and bounds as follows:

BEGINNING at a point from which a 5/8 inch iron rod with cap found for the Northeast corner of said Section 8 bears N 05°44'18" E a distance of 993.07 feet.

THENCE

S 00°00'07" E a distance of 500.03 feet to the Southeast corner of this tract, and
S 89°59'59" W a distance of 590.00 feet to the Southwest corner of this tract, and
N 00°00'07" W a distance of 500.03 feet to the Northwest corner of this tract, and
N 89°59'59" E a distance of 590.00 feet to the **PLACE OF BEGINNING**.

The total area of the herein described tract containing 6.77 acres of land.

All bearings and coordinates refer to NAD 83, New Mexico State Plane Coordinate System, East Zone, U.S. Survey Feet. (All bearings, distances, coordinates and areas are based on grid measurements utilizing a combined scale factor of 0.99976256 and a convergence angle of 0.06394665°.)

Title information furnished by Marathon Oil Permian LLC.

Reference accompanying Certificate of Survey prepared in conjunction with this legal description for easement.

STATE OF NEW MEXICO
COUNTY OF EDDY

I, David W. Myers, New Mexico Professional Surveyor No. 11403, do hereby certify that this easement survey plat and the actual survey on the ground upon which it is based were performed by me or under my direct supervision; that I am responsible for this survey; that this survey meets the minimum standards for surveying in New Mexico; and that it is true and correct to the best of my knowledge and belief. I further certify that this survey is not a land division or subdivision as defined in the New Mexico Subdivision Act and that this instrument is an easement survey plat crossing an existing tract or tracts.

APRIL 24, 2023

DAVID W. MYERS 11403



LEGEND P.O.B. POINT OF BEGINNING

--- EXISTING NAMED ROAD
--- PROPOSED ROAD
--- SURFACE SITE EDGE
--- EXIST. PIPELINE

⊕ MONUMENT ● QUARTER SPLIT

--- EXISTING LEASE ROAD
--- ARCH LIMITS
--- FENCE
--- SECTION/TOWNSHIP/RANGE LINE
--- DITCH
--- PROPOSED LEASE ROAD EASEMENT
--- EDGE OF ROAD

--- EXISTING LEASE ROAD
--- ARCH LIMITS
--- FENCE
--- SECTION/TOWNSHIP/RANGE LINE
--- DITCH
--- PROPOSED LEASE ROAD EASEMENT
--- EDGE OF ROAD

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--- DITCH
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--- EDGE OF ROAD

--- EXISTING LEASE ROAD
--- ARCH LIMITS
--- FENCE
--- SECTION/TOWNSHIP/RANGE LINE
--- DITCH
--- PROPOSED LEASE ROAD EASEMENT
--- EDGE OF ROAD

R3795_008

PLAT FOR A SURFACE SITE ON THE PROPERTY OF

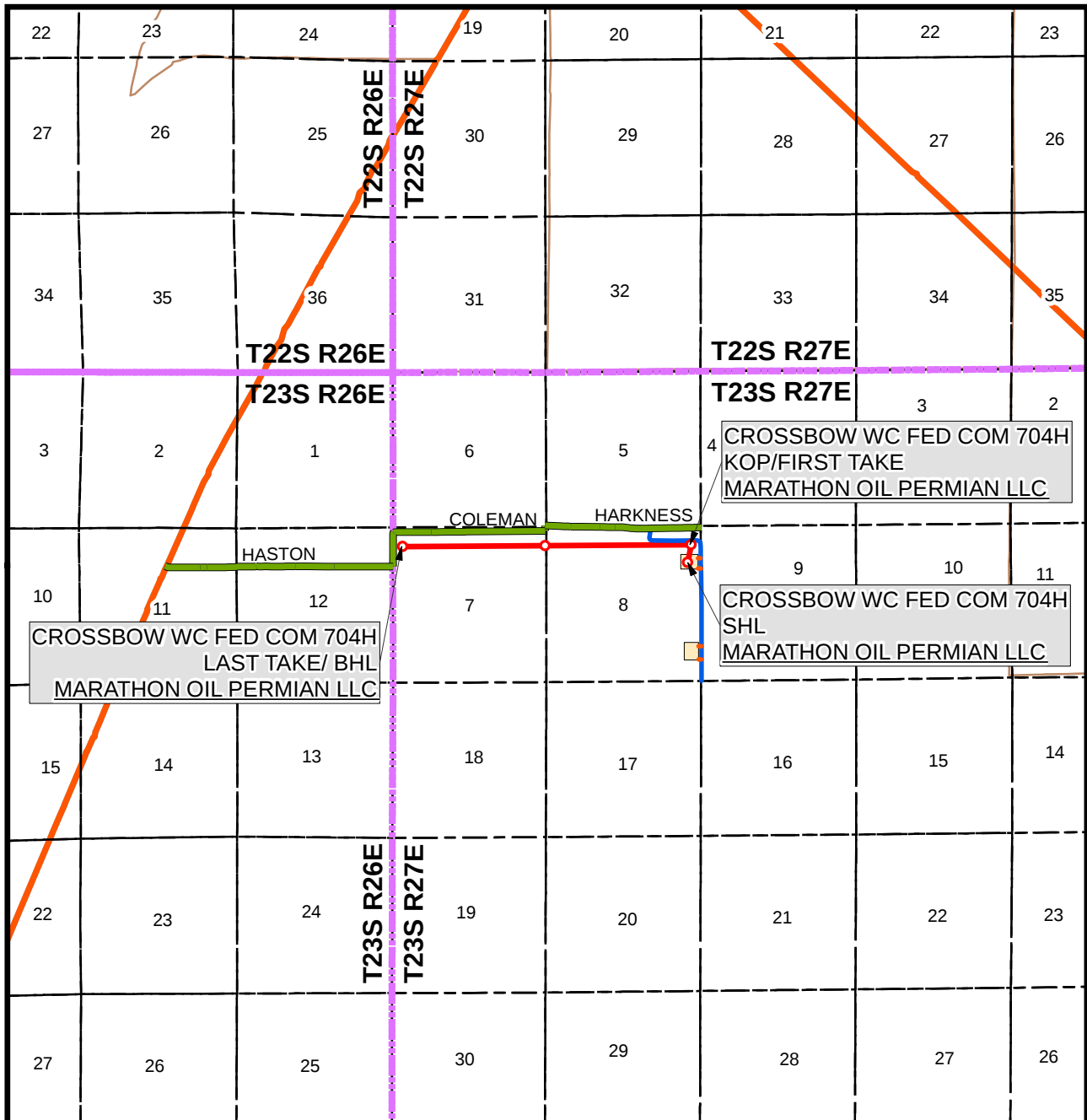
E BAR Z, LLC

EDDY COUNTY, NEW MEXICO

1	04/12/2023	UPDATED WELLS	ASG	MWS
REV.	DATE	DESCRIPTION	BY	CHKD
SHEET 1 OF 1			510 TRENTON ST.	
DRAWN BY: JCS			WEST MONROE, LA 71291	
DATE: 02/08/2023			(318) 323-6900	
CHECKED BY: MWS				

510 TRENTON ST.
WEST MONROE, LA 71291
(318) 323-6900

PUBLIC ACCESS ROAD MAP



SEC. 8 TWP. 23-S RGE. 27-E
 SURVEY: N.M.P.M.
 COUNTY: EDDY
 OPERATOR: MARATHON OIL PERMIAN LLC
 DESCRIPTION: 1266' FNL & 456' FEL
 ELEVATION: 3171'
 LEASE: CROSSBOW FED COM
 U.S.G.S. TOPOGRAPHIC MAP: OTIS, NM.

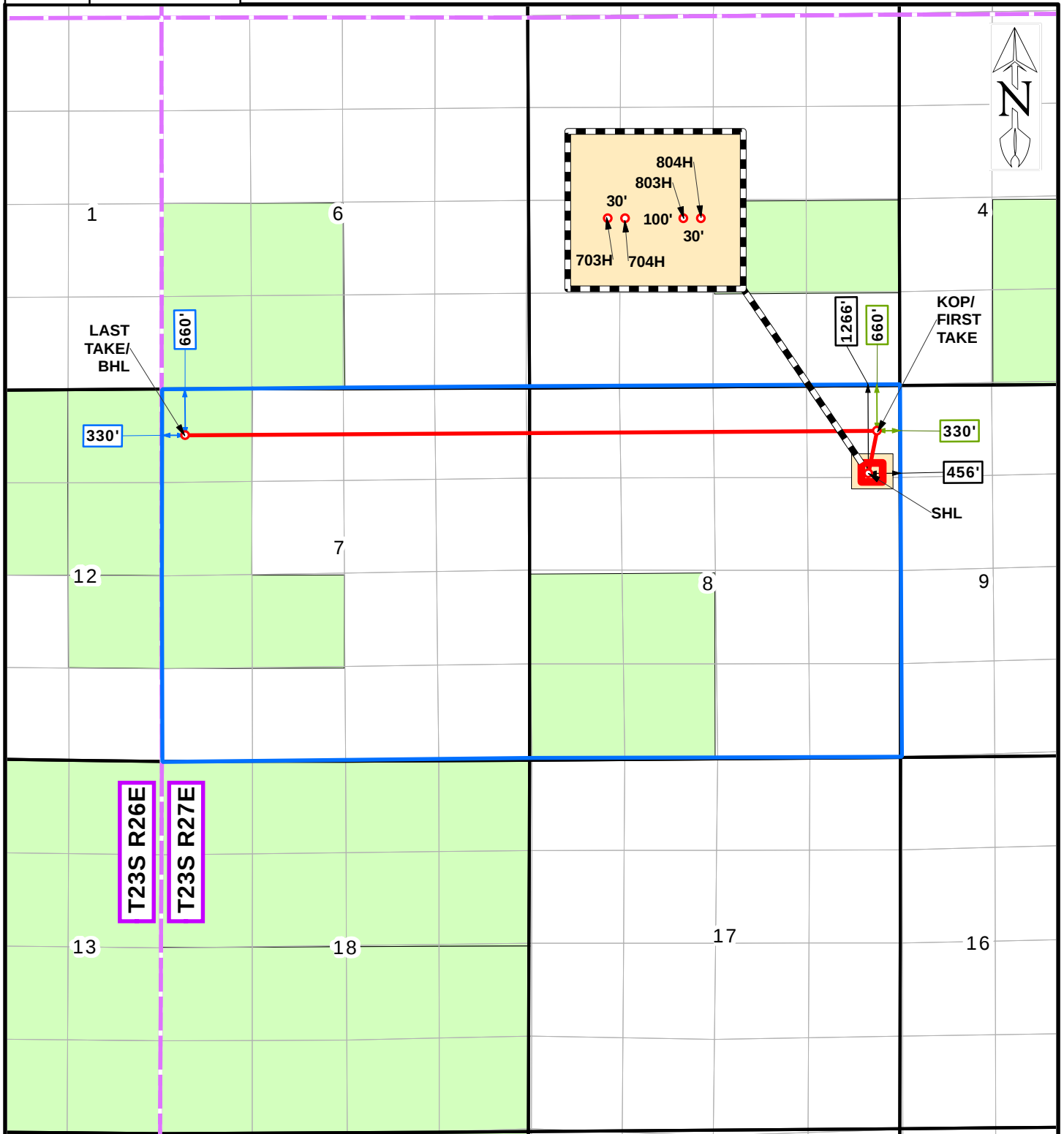
1" = 1 MILE



SHEET 2 OF 3

PREPARED BY:
 R-SQUARED GLOBAL, LLC
 510 TRENTON ST.
 WEST MONROE, LA 71291
 318-323-6900 OFFICE
 JOB No. R3795_011

JOB No. R3795_008 SECTIONS 7, 8, T-23-S, R-27-E, N.M.P.M., EDDY COUNTY, NEW MEXICO



1,000 0 1,000 2,000

1 inch = 2,000 feet

LEGEND

- SUBJECT WELL / DRILL LINE
- SURVEY/SECTION LINE
- LEASE LINE
- OTHER WELLS / DRILL LINES
- TOWNSHIP / RANGE LINE
- BLM LEASE
- DRILL LINE HOLES



WELL NAME

CROSSBOW WC
FED COM 704H

3	04/21/2023	UPDATED HSU	TCS	MWS
REV.	DATE	DESCRIPTION	BY	CHKD
SHEET 3 OF 3		510 TRENTON ST. WEST MONROE, LA 71291 (318) 323-6900		
DRAWN BY: TCS				
DATE DRAWN: 4/21/2023				
CHECKED BY: MWS				

MarathonOil

Corporation.

Company: Marathon Oil

Well: Crossbow WC Fed Com 704H

County: Eddy County, New Mexico (NAD 27)

Rig: Cactus 171

Wellbore: Wellbore #1

Design: Design #3

Date: 15:52, April 19 2023

Geodetic System: US State Plane 1927 (Exact solution)

Datum: NAD 1927 (NADCON CONUS)

Ellipsoid: Clarke 1866

Zone: New Mexico East 3001

System Datum: Mean Sea Level

WELL DETAILS: Crossbow WC Fed Com 704H									
		GL @ 3170.00		WELL @ 3193.50usft (Cactus 171)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude				
0.00	0.00	481294.47	539761.61	32° 19' 23.264 N	104° 12' 16.612 W				
SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.000	0.00	Begin 2.00°/100' Build
1874.78	7.50	11.44	1873.71	23.99	4.86	2.00	11.442	-5.02	Begin 7.50° Tangent
6244.70	7.50	11.44	6206.29	582.72	117.94	0.00	0.000	-121.81	Begin 2.00°/100' Drop
6619.48	0.00	0.00	6580.00	606.71	122.80	2.00	180.000	-126.82	Begin Vertical Hold
8478.65	0.00	0.00	8439.17	606.71	122.80	0.00	0.000	-126.82	Begin 10.00°/100' Build
9388.65	91.00	269.62	9012.04	602.82	-460.14	10.00	269.618	456.14	Begin 91.00° Lateral
18661.36	91.00	269.62	8850.21	541.01	-9731.24	0.00	0.000	9727.44	PBHL

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP_Crossbow 704H	0.00	606.71	122.80	481901.18	539884.41	32° 19' 29.267 N	104° 12' 15.172 W
KOP v3_Crossbow 704H	8439.17	606.71	122.80	481901.18	539884.41	32° 19' 29.267 N	104° 12' 15.172 W
LTP/PBHL v3_Crossbow 704H	8850.21	541.01	-9731.24	481835.48	530030.37	32° 19' 28.720 N	104° 14' 10.016 W
SURVEY PROGRAM							
Depth From	Depth To	Survey/Plan		Tool			
0.00	18661.36	Design #3 (Wellbore #1)		MWD+IFR1+FDIR			

Target Line: 9,020 TVD@0°VS, 91.0 INC. 10/10

This figure shows the main wellbore path from the surface to the bottom hole. The vertical axis represents True Vertical Depth (400 usf/in) from 0 to 9200. The horizontal axis represents West(-)/East(+) distance (400 usf/in) from -800 to 10400. Key annotations include: 'Begin 2.00°/100' Build' at ~1500' depth, 'Begin 7.50° Tangent' at ~1875' depth, 'Begin 2.00°/100' Drop' at ~6245' depth, 'Begin Vertical Hold' at ~6620' depth, 'Begin 10.00°/100' Build' at ~8479' depth, and 'Begin 91.00° Lateral' at ~9389' depth. The path ends at the Bottom Hole Location (PBHL) at a depth of 8850.21'.

This plan view plot shows the wellbore path in the horizontal plane. The axes are West(-)/East(+) (400 usf/in) from -10800 to 800 and South(-)/North(+) (400 usf/in) from -2000 to 1200. It includes a red 'Lease Line' rectangle, blue dashed '330' Hard Line' rectangles, and a magenta line for 'Crossbow WC Fed Com 703H'. The wellbore path is shown as a series of points with connecting lines, including a 'PBHL' point at approximately (-9600, 500).

This inset plan view plot provides a detailed view of the wellbore path near the Bottom Hole Location (PBHL). The axes are West(-)/East(+) (50 usf/in) from -9850 to -9250 and South(-)/North(+) (50 usf/in) from 400 to 800. It shows the wellbore path as a series of points and lines, with a '330' Hard Line' indicated by a blue dashed line.

This inset plan view plot shows a detailed view of the wellbore path near the Bottom Hole Location (PBHL). The axes are West(-)/East(+) (100 usf/in) from -1000 to 1000 and South(-)/North(+) (100 usf/in) from -100 to 900. It includes a red 'Lease Line' rectangle, blue dashed '330' Hard Line' rectangles, and a magenta line for 'Crossbow WC Fed Com 703H'. The wellbore path is shown as a series of points with connecting lines, including a 'PBHL' point at approximately (100, 500).

T

G

M

Azimuths to Grid North

True North: -0.07°

Magnetic North: 6.78°

Magnetic Field

Strength: 47474.8nT

Dip Angle: 59.92°

Date: 4/19/2023

Model: HDGM2023

To convert a Magnetic Direction to a Grid Direction, Add 6.781°

To convert a Magnetic Direction to a True Direction, Add 6.850° East

To convert a True Direction to a Grid Direction, Subtract 0.069°

Marathon Oil
Crossbow WC Fed Com 704H
Cactus 171

The customer should only rely on this document after independently verifying all paths, targets, coordinates, lease and hard lines represented. Any decisions made or wells drilled utilizing this or any other information supplied by MS Directional are at the sole risk and responsibility of the customer. MS Directional is not responsible for the accuracy of this schematic or the information contained herein.

Marathon Oil
Crossbow WC Fed Com 704H
Cactus 171



Marathon Oil

**Eddy County, New Mexico (NAD 27)
Crossbow WC Fed Com (703H, 704H)
Crossbow WC Fed Com 704H**

Wellbore #1

Plan: Design #3

Standard Planning Report

19 April, 2023





MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Crossbow WC Fed Com 704H
Company:	Marathon Oil	TVD Reference:	WELL @ 3193.50usft (Cactus 171)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3193.50usft (Cactus 171)
Site:	Crossbow WC Fed Com (703H, 704H)	North Reference:	Grid
Well:	Crossbow WC Fed Com 704H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

Project	Eddy County, New Mexico (NAD 27)		
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	Crossbow WC Fed Com (703H, 704H)		
Site Position:		Northing:	481,294.48 usft
From:	Map	Easting:	539,731.60 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 19' 23.265 N
		Longitude:	104° 12' 16.962 W

Well	Crossbow WC Fed Com 704H		
Well Position	+N/-S	0.00 usft	Northing: 481,294.47 usft
	+E/-W	0.00 usft	Easting: 539,761.61 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
Grid Convergence:	0.069 °	Ground Level:	3,170.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2023	4/19/2023	6.850	59.917	47,474.80

Design	Design #3				
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	269.62	

Plan Survey Tool Program	Date	4/19/2023			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	18,661.36	Design #3 (Wellbore #1)	MWD+IFR1+FDIR	
				OWSG MWD + IFR1 + FDIR	

Plan Sections											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000		
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.000		
1,874.78	7.50	11.44	1,873.71	23.99	4.86	2.00	2.00	0.00	11.442		
6,244.70	7.50	11.44	6,206.29	582.72	117.94	0.00	0.00	0.00	0.000		
6,619.48	0.00	0.00	6,580.00	606.71	122.80	2.00	-2.00	0.00	180.000		
8,478.65	0.00	0.00	8,439.17	606.71	122.80	0.00	0.00	0.00	0.000		
9,388.65	91.00	269.62	9,012.04	602.82	-460.14	10.00	10.00	0.00	269.618		
18,661.36	91.00	269.62	8,850.21	541.01	-9,731.24	0.00	0.00	0.00	0.000	LTP/PBHL v3_Cros	



MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Crossbow WC Fed Com 704H
Company:	Marathon Oil	TVD Reference:	WELL @ 3193.50usft (Cactus 171)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3193.50usft (Cactus 171)
Site:	Crossbow WC Fed Com (703H, 704H)	North Reference:	Grid
Well:	Crossbow WC Fed Com 704H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

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
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	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin 2.00°/100' Build									
1,600.00	2.00	11.44	1,599.98	1.71	0.35	-0.36	2.00	2.00	0.00
1,700.00	4.00	11.44	1,699.84	6.84	1.38	-1.43	2.00	2.00	0.00
1,800.00	6.00	11.44	1,799.45	15.38	3.11	-3.22	2.00	2.00	0.00
1,874.78	7.50	11.44	1,873.71	23.99	4.86	-5.02	2.00	2.00	0.00
Begin 7.50° Tangent									
1,900.00	7.50	11.44	1,898.72	27.22	5.51	-5.69	0.00	0.00	0.00
2,000.00	7.50	11.44	1,997.86	40.00	8.10	-8.36	0.00	0.00	0.00
2,100.00	7.50	11.44	2,097.01	52.79	10.68	-11.03	0.00	0.00	0.00
2,200.00	7.50	11.44	2,196.15	65.57	13.27	-13.71	0.00	0.00	0.00
2,300.00	7.50	11.44	2,295.30	78.36	15.86	-16.38	0.00	0.00	0.00
2,400.00	7.50	11.44	2,394.44	91.15	18.45	-19.05	0.00	0.00	0.00
2,500.00	7.50	11.44	2,493.59	103.93	21.04	-21.72	0.00	0.00	0.00
2,600.00	7.50	11.44	2,592.73	116.72	23.62	-24.40	0.00	0.00	0.00
2,700.00	7.50	11.44	2,691.88	129.50	26.21	-27.07	0.00	0.00	0.00
2,800.00	7.50	11.44	2,791.03	142.29	28.80	-29.74	0.00	0.00	0.00
2,900.00	7.50	11.44	2,890.17	155.07	31.39	-32.42	0.00	0.00	0.00
3,000.00	7.50	11.44	2,989.32	167.86	33.98	-35.09	0.00	0.00	0.00
3,100.00	7.50	11.44	3,088.46	180.65	36.56	-37.76	0.00	0.00	0.00
3,200.00	7.50	11.44	3,187.61	193.43	39.15	-40.43	0.00	0.00	0.00
3,300.00	7.50	11.44	3,286.75	206.22	41.74	-43.11	0.00	0.00	0.00
3,400.00	7.50	11.44	3,385.90	219.00	44.33	-45.78	0.00	0.00	0.00
3,500.00	7.50	11.44	3,485.04	231.79	46.91	-48.45	0.00	0.00	0.00
3,600.00	7.50	11.44	3,584.19	244.57	49.50	-51.12	0.00	0.00	0.00
3,700.00	7.50	11.44	3,683.34	257.36	52.09	-53.80	0.00	0.00	0.00
3,800.00	7.50	11.44	3,782.48	270.15	54.68	-56.47	0.00	0.00	0.00
3,900.00	7.50	11.44	3,881.63	282.93	57.27	-59.14	0.00	0.00	0.00
4,000.00	7.50	11.44	3,980.77	295.72	59.85	-61.81	0.00	0.00	0.00
4,100.00	7.50	11.44	4,079.92	308.50	62.44	-64.49	0.00	0.00	0.00
4,200.00	7.50	11.44	4,179.06	321.29	65.03	-67.16	0.00	0.00	0.00
4,300.00	7.50	11.44	4,278.21	334.07	67.62	-69.83	0.00	0.00	0.00
4,400.00	7.50	11.44	4,377.35	346.86	70.21	-72.50	0.00	0.00	0.00
4,500.00	7.50	11.44	4,476.50	359.65	72.79	-75.18	0.00	0.00	0.00
4,600.00	7.50	11.44	4,575.64	372.43	75.38	-77.85	0.00	0.00	0.00
4,700.00	7.50	11.44	4,674.79	385.22	77.97	-80.52	0.00	0.00	0.00
4,800.00	7.50	11.44	4,773.94	398.00	80.56	-83.19	0.00	0.00	0.00
4,900.00	7.50	11.44	4,873.08	410.79	83.14	-85.87	0.00	0.00	0.00



MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Crossbow WC Fed Com 704H
Company:	Marathon Oil	TVD Reference:	WELL @ 3193.50usft (Cactus 171)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3193.50usft (Cactus 171)
Site:	Crossbow WC Fed Com (703H, 704H)	North Reference:	Grid
Well:	Crossbow WC Fed Com 704H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

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)
5,000.00	7.50	11.44	4,972.23	423.57	85.73	-88.54	0.00	0.00	0.00
5,100.00	7.50	11.44	5,071.37	436.36	88.32	-91.21	0.00	0.00	0.00
5,200.00	7.50	11.44	5,170.52	449.15	90.91	-93.89	0.00	0.00	0.00
5,300.00	7.50	11.44	5,269.66	461.93	93.50	-96.56	0.00	0.00	0.00
5,400.00	7.50	11.44	5,368.81	474.72	96.08	-99.23	0.00	0.00	0.00
5,500.00	7.50	11.44	5,467.95	487.50	98.67	-101.90	0.00	0.00	0.00
5,600.00	7.50	11.44	5,567.10	500.29	101.26	-104.58	0.00	0.00	0.00
5,700.00	7.50	11.44	5,666.25	513.07	103.85	-107.25	0.00	0.00	0.00
5,800.00	7.50	11.44	5,765.39	525.86	106.44	-109.92	0.00	0.00	0.00
5,900.00	7.50	11.44	5,864.54	538.64	109.02	-112.59	0.00	0.00	0.00
6,000.00	7.50	11.44	5,963.68	551.43	111.61	-115.27	0.00	0.00	0.00
6,100.00	7.50	11.44	6,062.83	564.22	114.20	-117.94	0.00	0.00	0.00
6,200.00	7.50	11.44	6,161.97	577.00	116.79	-120.61	0.00	0.00	0.00
6,244.70	7.50	11.44	6,206.29	582.72	117.94	-121.81	0.00	0.00	0.00
Begin 2.00°/100' Drop									
6,300.00	6.39	11.44	6,261.18	589.27	119.27	-123.18	2.00	-2.00	0.00
6,400.00	4.39	11.44	6,360.74	598.47	121.13	-125.10	2.00	-2.00	0.00
6,500.00	2.39	11.44	6,460.56	604.27	122.31	-126.31	2.00	-2.00	0.00
6,600.00	0.39	11.44	6,560.52	606.65	122.79	-126.81	2.00	-2.00	0.00
6,619.48	0.00	0.00	6,580.00	606.71	122.80	-126.82	2.00	-2.00	-58.75
Begin Vertical Hold									
6,700.00	0.00	0.00	6,660.52	606.71	122.80	-126.82	0.00	0.00	0.00
6,800.00	0.00	0.00	6,760.52	606.71	122.80	-126.82	0.00	0.00	0.00
6,900.00	0.00	0.00	6,860.52	606.71	122.80	-126.82	0.00	0.00	0.00
7,000.00	0.00	0.00	6,960.52	606.71	122.80	-126.82	0.00	0.00	0.00
7,100.00	0.00	0.00	7,060.52	606.71	122.80	-126.82	0.00	0.00	0.00
7,200.00	0.00	0.00	7,160.52	606.71	122.80	-126.82	0.00	0.00	0.00
7,300.00	0.00	0.00	7,260.52	606.71	122.80	-126.82	0.00	0.00	0.00
7,400.00	0.00	0.00	7,360.52	606.71	122.80	-126.82	0.00	0.00	0.00
7,500.00	0.00	0.00	7,460.52	606.71	122.80	-126.82	0.00	0.00	0.00
7,600.00	0.00	0.00	7,560.52	606.71	122.80	-126.82	0.00	0.00	0.00
7,700.00	0.00	0.00	7,660.52	606.71	122.80	-126.82	0.00	0.00	0.00
7,800.00	0.00	0.00	7,760.52	606.71	122.80	-126.82	0.00	0.00	0.00
7,900.00	0.00	0.00	7,860.52	606.71	122.80	-126.82	0.00	0.00	0.00
8,000.00	0.00	0.00	7,960.52	606.71	122.80	-126.82	0.00	0.00	0.00
8,100.00	0.00	0.00	8,060.52	606.71	122.80	-126.82	0.00	0.00	0.00
8,200.00	0.00	0.00	8,160.52	606.71	122.80	-126.82	0.00	0.00	0.00
8,300.00	0.00	0.00	8,260.52	606.71	122.80	-126.82	0.00	0.00	0.00
8,400.00	0.00	0.00	8,360.52	606.71	122.80	-126.82	0.00	0.00	0.00
8,478.65	0.00	0.00	8,439.17	606.71	122.80	-126.82	0.00	0.00	0.00
Begin 10.00°/100' Build									
8,500.00	2.14	269.62	8,460.52	606.71	122.40	-126.42	10.00	10.00	0.00
8,550.00	7.14	269.62	8,510.34	606.68	118.36	-122.38	10.00	10.00	0.00
8,600.00	12.14	269.62	8,559.62	606.62	110.00	-114.02	10.00	10.00	0.00
8,650.00	17.14	269.62	8,607.98	606.54	97.37	-101.39	10.00	10.00	0.00
8,700.00	22.14	269.62	8,655.06	606.43	80.57	-84.59	10.00	10.00	0.00
8,750.00	27.14	269.62	8,700.49	606.29	59.74	-63.76	10.00	10.00	0.00
8,800.00	32.14	269.62	8,743.94	606.12	35.02	-39.04	10.00	10.00	0.00
8,850.00	37.14	269.62	8,785.06	605.94	6.61	-10.63	10.00	10.00	0.00
8,900.00	42.14	269.62	8,823.56	605.72	-25.27	21.25	10.00	10.00	0.00
8,950.00	47.14	269.62	8,859.13	605.49	-60.39	56.37	10.00	10.00	0.00
9,000.00	52.14	269.62	8,891.50	605.23	-98.47	94.46	10.00	10.00	0.00
9,050.00	57.14	269.62	8,920.43	604.96	-139.23	135.22	10.00	10.00	0.00



MS Directional Planning Report



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Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3193.50usft (Cactus 171)
Site:	Crossbow WC Fed Com (703H, 704H)	North Reference:	Grid
Well:	Crossbow WC Fed Com 704H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

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)
9,100.00	62.14	269.62	8,945.70	604.68	-182.36	178.34	10.00	10.00	0.00
9,150.00	67.14	269.62	8,967.11	604.37	-227.52	223.51	10.00	10.00	0.00
9,200.00	72.14	269.62	8,984.50	604.06	-274.38	270.37	10.00	10.00	0.00
9,250.00	77.14	269.62	8,997.75	603.74	-322.58	318.57	10.00	10.00	0.00
9,300.00	82.14	269.62	9,006.74	603.41	-371.75	367.74	10.00	10.00	0.00
9,350.00	87.14	269.62	9,011.41	603.08	-421.51	417.50	10.00	10.00	0.00
9,388.65	91.00	269.62	9,012.04	602.82	-460.14	456.14	10.00	10.00	0.00
Begin 91.00° Lateral									
9,400.00	91.00	269.62	9,011.84	602.75	-471.49	467.49	0.00	0.00	0.00
9,500.00	91.00	269.62	9,010.10	602.08	-571.48	567.47	0.00	0.00	0.00
9,600.00	91.00	269.62	9,008.35	601.41	-671.46	667.46	0.00	0.00	0.00
9,700.00	91.00	269.62	9,006.61	600.75	-771.44	767.44	0.00	0.00	0.00
9,800.00	91.00	269.62	9,004.86	600.08	-871.42	867.43	0.00	0.00	0.00
9,900.00	91.00	269.62	9,003.12	599.41	-971.41	967.41	0.00	0.00	0.00
10,000.00	91.00	269.62	9,001.37	598.75	-1,071.39	1,067.40	0.00	0.00	0.00
10,100.00	91.00	269.62	8,999.63	598.08	-1,171.37	1,167.38	0.00	0.00	0.00
10,200.00	91.00	269.62	8,997.88	597.41	-1,271.35	1,267.36	0.00	0.00	0.00
10,300.00	91.00	269.62	8,996.14	596.75	-1,371.34	1,367.35	0.00	0.00	0.00
10,400.00	91.00	269.62	8,994.39	596.08	-1,471.32	1,467.33	0.00	0.00	0.00
10,500.00	91.00	269.62	8,992.65	595.41	-1,571.30	1,567.32	0.00	0.00	0.00
10,600.00	91.00	269.62	8,990.90	594.75	-1,671.29	1,667.30	0.00	0.00	0.00
10,700.00	91.00	269.62	8,989.16	594.08	-1,771.27	1,767.29	0.00	0.00	0.00
10,800.00	91.00	269.62	8,987.41	593.42	-1,871.25	1,867.27	0.00	0.00	0.00
10,900.00	91.00	269.62	8,985.66	592.75	-1,971.23	1,967.26	0.00	0.00	0.00
11,000.00	91.00	269.62	8,983.92	592.08	-2,071.22	2,067.24	0.00	0.00	0.00
11,100.00	91.00	269.62	8,982.17	591.42	-2,171.20	2,167.23	0.00	0.00	0.00
11,200.00	91.00	269.62	8,980.43	590.75	-2,271.18	2,267.21	0.00	0.00	0.00
11,300.00	91.00	269.62	8,978.68	590.08	-2,371.16	2,367.20	0.00	0.00	0.00
11,400.00	91.00	269.62	8,976.94	589.42	-2,471.15	2,467.18	0.00	0.00	0.00
11,500.00	91.00	269.62	8,975.19	588.75	-2,571.13	2,567.17	0.00	0.00	0.00
11,600.00	91.00	269.62	8,973.45	588.08	-2,671.11	2,667.15	0.00	0.00	0.00
11,700.00	91.00	269.62	8,971.70	587.42	-2,771.09	2,767.14	0.00	0.00	0.00
11,800.00	91.00	269.62	8,969.96	586.75	-2,871.08	2,867.12	0.00	0.00	0.00
11,900.00	91.00	269.62	8,968.21	586.08	-2,971.06	2,967.11	0.00	0.00	0.00
12,000.00	91.00	269.62	8,966.47	585.42	-3,071.04	3,067.09	0.00	0.00	0.00
12,100.00	91.00	269.62	8,964.72	584.75	-3,171.02	3,167.08	0.00	0.00	0.00
12,200.00	91.00	269.62	8,962.98	584.08	-3,271.01	3,267.06	0.00	0.00	0.00
12,300.00	91.00	269.62	8,961.23	583.42	-3,370.99	3,367.04	0.00	0.00	0.00
12,400.00	91.00	269.62	8,959.49	582.75	-3,470.97	3,467.03	0.00	0.00	0.00
12,500.00	91.00	269.62	8,957.74	582.08	-3,570.95	3,567.01	0.00	0.00	0.00
12,600.00	91.00	269.62	8,956.00	581.42	-3,670.94	3,667.00	0.00	0.00	0.00
12,700.00	91.00	269.62	8,954.25	580.75	-3,770.92	3,766.98	0.00	0.00	0.00
12,800.00	91.00	269.62	8,952.51	580.08	-3,870.90	3,866.97	0.00	0.00	0.00
12,900.00	91.00	269.62	8,950.76	579.42	-3,970.88	3,966.95	0.00	0.00	0.00
13,000.00	91.00	269.62	8,949.01	578.75	-4,070.87	4,066.94	0.00	0.00	0.00
13,100.00	91.00	269.62	8,947.27	578.08	-4,170.85	4,166.92	0.00	0.00	0.00
13,200.00	91.00	269.62	8,945.52	577.42	-4,270.83	4,266.91	0.00	0.00	0.00
13,300.00	91.00	269.62	8,943.78	576.75	-4,370.81	4,366.89	0.00	0.00	0.00
13,400.00	91.00	269.62	8,942.03	576.08	-4,470.80	4,466.88	0.00	0.00	0.00
13,500.00	91.00	269.62	8,940.29	575.42	-4,570.78	4,566.86	0.00	0.00	0.00
13,600.00	91.00	269.62	8,938.54	574.75	-4,670.76	4,666.85	0.00	0.00	0.00
13,700.00	91.00	269.62	8,936.80	574.08	-4,770.74	4,766.83	0.00	0.00	0.00
13,800.00	91.00	269.62	8,935.05	573.42	-4,870.73	4,866.82	0.00	0.00	0.00
13,900.00	91.00	269.62	8,933.31	572.75	-4,970.71	4,966.80	0.00	0.00	0.00



MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Crossbow WC Fed Com 704H
Company:	Marathon Oil	TVD Reference:	WELL @ 3193.50usft (Cactus 171)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3193.50usft (Cactus 171)
Site:	Crossbow WC Fed Com (703H, 704H)	North Reference:	Grid
Well:	Crossbow WC Fed Com 704H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

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)
14,000.00	91.00	269.62	8,931.56	572.08	-5,070.69	5,066.79	0.00	0.00	0.00
14,100.00	91.00	269.62	8,929.82	571.42	-5,170.67	5,166.77	0.00	0.00	0.00
14,200.00	91.00	269.62	8,928.07	570.75	-5,270.66	5,266.76	0.00	0.00	0.00
14,300.00	91.00	269.62	8,926.33	570.08	-5,370.64	5,366.74	0.00	0.00	0.00
14,400.00	91.00	269.62	8,924.58	569.42	-5,470.62	5,466.73	0.00	0.00	0.00
14,500.00	91.00	269.62	8,922.84	568.75	-5,570.60	5,566.71	0.00	0.00	0.00
14,600.00	91.00	269.62	8,921.09	568.08	-5,670.59	5,666.69	0.00	0.00	0.00
14,700.00	91.00	269.62	8,919.35	567.42	-5,770.57	5,766.68	0.00	0.00	0.00
14,800.00	91.00	269.62	8,917.60	566.75	-5,870.55	5,866.66	0.00	0.00	0.00
14,900.00	91.00	269.62	8,915.86	566.08	-5,970.53	5,966.65	0.00	0.00	0.00
15,000.00	91.00	269.62	8,914.11	565.42	-6,070.52	6,066.63	0.00	0.00	0.00
15,100.00	91.00	269.62	8,912.36	564.75	-6,170.50	6,166.62	0.00	0.00	0.00
15,200.00	91.00	269.62	8,910.62	564.08	-6,270.48	6,266.60	0.00	0.00	0.00
15,300.00	91.00	269.62	8,908.87	563.42	-6,370.46	6,366.59	0.00	0.00	0.00
15,400.00	91.00	269.62	8,907.13	562.75	-6,470.45	6,466.57	0.00	0.00	0.00
15,500.00	91.00	269.62	8,905.38	562.08	-6,570.43	6,566.56	0.00	0.00	0.00
15,600.00	91.00	269.62	8,903.64	561.42	-6,670.41	6,666.54	0.00	0.00	0.00
15,700.00	91.00	269.62	8,901.89	560.75	-6,770.40	6,766.53	0.00	0.00	0.00
15,800.00	91.00	269.62	8,900.15	560.08	-6,870.38	6,866.51	0.00	0.00	0.00
15,900.00	91.00	269.62	8,898.40	559.42	-6,970.36	6,966.50	0.00	0.00	0.00
16,000.00	91.00	269.62	8,896.66	558.75	-7,070.34	7,066.48	0.00	0.00	0.00
16,100.00	91.00	269.62	8,894.91	558.08	-7,170.33	7,166.47	0.00	0.00	0.00
16,200.00	91.00	269.62	8,893.17	557.42	-7,270.31	7,266.45	0.00	0.00	0.00
16,300.00	91.00	269.62	8,891.42	556.75	-7,370.29	7,366.44	0.00	0.00	0.00
16,400.00	91.00	269.62	8,889.68	556.08	-7,470.27	7,466.42	0.00	0.00	0.00
16,500.00	91.00	269.62	8,887.93	555.42	-7,570.26	7,566.41	0.00	0.00	0.00
16,600.00	91.00	269.62	8,886.19	554.75	-7,670.24	7,666.39	0.00	0.00	0.00
16,700.00	91.00	269.62	8,884.44	554.08	-7,770.22	7,766.37	0.00	0.00	0.00
16,800.00	91.00	269.62	8,882.70	553.42	-7,870.20	7,866.36	0.00	0.00	0.00
16,900.00	91.00	269.62	8,880.95	552.75	-7,970.19	7,966.34	0.00	0.00	0.00
17,000.00	91.00	269.62	8,879.20	552.08	-8,070.17	8,066.33	0.00	0.00	0.00
17,100.00	91.00	269.62	8,877.46	551.42	-8,170.15	8,166.31	0.00	0.00	0.00
17,200.00	91.00	269.62	8,875.71	550.75	-8,270.13	8,266.30	0.00	0.00	0.00
17,300.00	91.00	269.62	8,873.97	550.09	-8,370.12	8,366.28	0.00	0.00	0.00
17,400.00	91.00	269.62	8,872.22	549.42	-8,470.10	8,466.27	0.00	0.00	0.00
17,500.00	91.00	269.62	8,870.48	548.75	-8,570.08	8,566.25	0.00	0.00	0.00
17,600.00	91.00	269.62	8,868.73	548.09	-8,670.06	8,666.24	0.00	0.00	0.00
17,700.00	91.00	269.62	8,866.99	547.42	-8,770.05	8,766.22	0.00	0.00	0.00
17,800.00	91.00	269.62	8,865.24	546.75	-8,870.03	8,866.21	0.00	0.00	0.00
17,900.00	91.00	269.62	8,863.50	546.09	-8,970.01	8,966.19	0.00	0.00	0.00
18,000.00	91.00	269.62	8,861.75	545.42	-9,069.99	9,066.18	0.00	0.00	0.00
18,100.00	91.00	269.62	8,860.01	544.75	-9,169.98	9,166.16	0.00	0.00	0.00
18,200.00	91.00	269.62	8,858.26	544.09	-9,269.96	9,266.15	0.00	0.00	0.00
18,300.00	91.00	269.62	8,856.52	543.42	-9,369.94	9,366.13	0.00	0.00	0.00
18,400.00	91.00	269.62	8,854.77	542.75	-9,469.92	9,466.12	0.00	0.00	0.00
18,500.00	91.00	269.62	8,853.03	542.09	-9,569.91	9,566.10	0.00	0.00	0.00
18,600.00	91.00	269.62	8,851.28	541.42	-9,669.89	9,666.09	0.00	0.00	0.00
18,661.36	91.00	269.62	8,850.21	541.01	-9,731.24	9,727.44	0.00	0.00	0.00
PBHL									



MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Crossbow WC Fed Com 704H
Company:	Marathon Oil	TVD Reference:	WELL @ 3193.50usft (Cactus 171)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3193.50usft (Cactus 171)
Site:	Crossbow WC Fed Com (703H, 704H)	North Reference:	Grid
Well:	Crossbow WC Fed Com 704H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
FTP_Crossbow 704H	0.00	0.00	0.00	606.71	122.80	481,901.18	539,884.41	32° 19' 29.267 N	104° 12' 15.172 W
- plan misses target center by 619.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
KOP v3_Crossbow 7C	0.00	0.00	8,439.17	606.71	122.80	481,901.18	539,884.41	32° 19' 29.267 N	104° 12' 15.172 W
- plan hits target center									
- Point									
LTP/PBHL v3_Crossb	0.00	0.00	8,850.21	541.01	-9,731.24	481,835.48	530,030.37	32° 19' 28.720 N	104° 14' 10.016 W
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,500.00	1,500.00	0.00	0.00	Begin 2.00°/100' Build
1,874.78	1,873.71	23.99	4.86	Begin 7.50° Tangent
6,244.70	6,206.29	582.72	117.94	Begin 2.00°/100' Drop
6,619.48	6,580.00	606.71	122.80	Begin Vertical Hold
8,478.65	8,439.17	606.71	122.80	Begin 10.00°/100' Build
9,388.65	9,012.04	602.82	-460.14	Begin 91.00° Lateral
18,661.36	8,850.21	541.01	-9,731.24	PBHL

MARATHON OIL PERMIAN, LLC.
DRILLING AND OPERATIONS PLAN



WELL NAME & NUMBER:

CROSSBOW WC FED COM 704H

LOCATION:

SECTION **8**
EDDYTOWNSHIP **23S**
COUNTY,RANGE **27E**
NEW MEXICO**Section 1:****GEOLOGICAL FORMATIONS**

Name of Surface Formation:

Permian

Elevation:

3170 feet

Estimated Tops of Important Geological Markers:

Formation	TVD (ft)	MD (ft)	Elevation (ft SS)	Lithologies	Mineral Resources	Producing Formation?
Rustler	0	N/A	3170	Anhydrite	Brine	No
Salado	120	147	3050	Salt/Anhydrite	Brine	No
Castile	487	514	2683	Salt/Anhydrite	Brine	No
Base of Salt (BX)	1969	1996	1201	Salt/Anhydrite	Brine	No
Lamar	1969	1996	1201	Sandstone/Shale	None	No
Bell Canyon	2108	2135	1062	Sandstone	Oil	No
Cherry Canyon	2881	2908	289	Sandstone	Oil	No
Brushy Canyon	3910	3937	-740	Sandstone	Oil	No
Bone Spring Lime	5401	5428	-2231	Limestone	None	No
Upper Avalon Shale	5722	5749	-2552	Shale	Oil	Yes
1st Bone Spring Sand	6453	6480	-3283	Sandstone	Oil	Yes
2nd Bone Spring Carbonate	6680	6707	-3510	Limestone/Shale	None	No
2nd Bone Spring Sand	6930	6957	-3760	Sandstone	Oil	Yes
3rd Bone Spring Carbonate	7139	7166	-3969	Limestone	Oil	No
3rd Bone Spring Sand	8526	8553	-5356	Sandstone	Oil	Yes
Wolfcamp	8887	8914	-5717	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp A	9039	9066	-5869	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp B	9204	9231	-6034	Sandstone/Shale/Carbonates	Natural Gas / Oil	No
Wolfcamp C	9500	9527	-6330	Sandstone/Shale/Carbonates	Natural Gas / Oil	No
Wolfcamp D	9752	9779	-6582	Sandstone/Shale/Carbonates	Natural Gas / Oil	No

Section 2:**BLOWOUT PREVENTER TESTING PROCEDURE**

Pressure Rating (PSI):

10M

Rating Depth:

10000

Equipment:

13 5/8 BOP Annular (5,000 psi WP) and BOP Stack (10,000 psi WP) will be installed and tested before drilling all holes.

Requesting Variance?

Yes

Variance Request:

A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.

Testing Procedure:

BOP/BOPE will be tested to 250 psi low and a high of 100% WP for the Annular and 5,000psi for the BOP Stack before drilling the intermediate hole, 10,000psi for the BOP Stacking before drilling the production hole. Testing will be conducted by an independent service company per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the Equipment Description above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams and Blind rams will be operationally checked on each trip out of the hole, but not to exceed more than once per day. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock, full opening safety valve / inside BOP and choke lines and choke manifold. See attached schematics.

Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i. A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. See attached schematic.

Marathon Oil Permian LLC.

Drilling & Operations Plan - Page 2 of 4

Section 3: CASING PROGRAM

String Type	Hole Size	Casing Size	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Weight (lbs/ft)	Grade	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
Surface	17.5	13.375	0	510	0	510	3170	2660	54.5	J55	BTC	5.22	1.81	BUOY	4.52	BUOY	4.52
Intermediate	12.25	9.625	0	8378	0	8339	3170	-5169	40	P110HC	BTC	1.20	1.42	BUOY	2.44	BUOY	2.44
Production	8.75	5.5	0	18661	0	8850	3170	-5680	23	P110EC	VAM Sprint TC	2.53	1.26	BUOY	2.22	BUOY	2.22
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h												Safety Factors will Meet or Exceed					

Casing Condition: New
Casing Standard: API
Tapered String? No

		Yes or No
Is casing new? If used, attach certification as required in Onshore Order #1.		Yes
Does casing meet API specifications? If no, attach casing specification sheet.		Yes
Is premium or uncommon casing planned? If yes attach casing specification sheet.		No
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).		Yes
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?		Yes
Is well located within Capitan Reef?		No
If yes, does production casing cement tie back a minimum of 50' above the Reef?		
Is proposed well within the designated four string boundary?		
Is well located in R-111-P and SOPA?		No
If yes, are the first three strings cemented to surface?		
Is the second string set 100' to 600' below the base of salt?		
Is well located in SOPA but not in R-111-P?		No
If yes, are the first 2 strings cemented to surface and third string cement tied back 500' into previous casing?		
Is well located in high Cave/Karst?		No
If yes, are there two strings cemented to surface?		
If yes, is there a contingency casing if lost circulation occurs?		
Is well located in critical Cave/Karst?		No
If yes, are there three strings cemented to surface?		

Section 4: CEMENT PROGRAM

String Type	Lead/Tail	Top MD	Bottom MD	Quantity (sks)	Yield (ft³/sks)	Density (ppg)	Slurry Volume (ft³)	Excess (%)	Cement Type	Additives
Surface	Lead	0	360	170	2.12	12.5	361	25	Class C	Extender,Accelerator,LCM
Surface	Tail	360	510	99	1.32	14.8	130	25	Class C	Accelerator
Intermediate	Lead	0	7878	1429	2.18	12.4	3116	25	Class C	Extender,Accelerator,LCM
Intermediate	Tail	7878	8378	147	1.33	14.8	196	25	Class C	Retarder
Production	Tail	8078	18661	2030	1.68	13	3410	25	Class H	Retarder, Extender, Fluid Loss, Suspension Agent

Stage tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. Stage tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Pilot Hole? No
Pilot Hole Depth: N/A
KOP Depth: N/A
Plugging Procedure for Pilot Hole: N/A

Plug Top	Plug Bottom	Excess (%)	Quantity (sx)	Density (ppg)	Yield (ft3/sks)	Water gal/sk	Slurry Description and Cement Type

Marathon Oil Permian LLC.

Drilling & Operations Plan - Page 3 of 4

Section 5:**CIRCULATING MEDIUM**

Mud System Type: Closed
Will an air or gas system be used? No

Describe what will be on location to control well or mitigate other conditions:

The necessary mud products for additional weight and fluid loss control will be on location at all times.

Describe the mud monitoring system utilized:

Losses or gains in the mud system will be monitored visually/manually as well as with an electronic PVT.

Circulating Medium Table:

Top Depth	Bottom Depth	Mud Type	Min. Weight (ppg)	Max Weight (ppg)
0	510	Water Based Mud	8.4	8.8
510	8378	Brine or Oil Based Mud	9.2	10.2
8378	18661	Oil Based Mud	10.5	12.5

Section 6:**TESTING, LOGGING, CORING****List of production tests including testing procedures, equipment and safety measures:**

GR from TD to surface (horizontal well - vertical portion of hole)

List of open and cased hole logs run in the well:

GR while drilling from Intermediate casing shoe to TD.

Coring operation description for the well:

Run gamma-ray (GR) and corrected neutron log (CNL) or analogous to surface for future development of the area, one per shared well pad not to exceed 200' radial distance.

Section 7:**ANTICIPATED PRESSURE**

Anticipated Bottom Hole Pressure: 5753 PSI
Anticipated Bottom Hole Temperature: 195 °F
Anticipated Abnormal Pressure? No
Anticipated Abnormal Temperature? No

Potential Hazards:

H2S detection equipment will be in operation after drilling out the surface casing shoe until the production casing has been cemented. Breathing equipment will be on location from drilling out the surface shoe until production casing is cemented. If H2S is encountered the operator will comply with Onshore Order #6. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. See attached H2S Contingency Plan.

Section 8:**OTHER INFORMATION****Auxiliary Well Control and Monitoring Equipment:**

A Kelly cock will be in the drill string at all times. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor unobstructed and readily accessible at all times.

Hydrogen Sulfide detection equipment will be in operation after drilling out the surface casing shoe until the production casing is cemented. Breathing equipment will be on location upon drilling the surface casing shoe until total depth is reached. If Hydrogen Sulfide is encountered, measured amounts and formations will be reported to the BLM.

Anticipated Starting Date and Duration of Operations:

Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.

Marathon Oil Permian LLC.

Drilling & Operations Plan - Page 4 of 4

DRILL PLAN CHANGE REGISTER

CROSSBOW WC FED COM 704H
SECTION 8, TOWNSHIP 23S, RANGE 27E
EDDY COUNTY, NEW MEXICO

Original Document Date: Thursday, April 20, 2023
Prepared By: Matt McGaugh
Submitted By: Nicole Lee

Revised Date:	Monday, October 18, 2021	Submittal Date:	Monday, November 1, 2021
Revised By:	Court Nelson (Drilling Engineer)	Submittal Type:	NOI Change to AAPD Sundry Notice
	Matt Baker (Geologist)	Submitted By:	Melissa Szudera

Summary of Revisions:

Section	Description
2 - Casing	Removed second intermediate string
4 - Cement	Removed second intermediate string
5 - Mud	Removed second intermediate string

Revised Date:		Submittal Date:	
Revised By:		Submittal Type:	
		Submitted By:	

Summary of Revisions:

Section	Description

Revised Date:		Submittal Date:	
Revised By:		Submittal Type:	
		Submitted By:	

Summary of Revisions:

Section	Description

Revised Date:		Submittal Date:	
Revised By:		Submittal Type:	
		Submitted By:	

Summary of Revisions:

Section	Description

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 Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 262956

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 262956
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	None	7/12/2024