

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: SWNW / 1701 FNL / 913 FWL / TWSP: 24S / RANGE: 28E / SECTION: 23 / LAT: 32.2060289 / LONG: -104.0640153 (TVD: 0 feet, MD: 0 feet)

PPP: NENE / 995 FNL / 1319 FEL / TWSP: 24S / RANGE: 28E / SECTION: 24 / LAT: 32.2076722 / LONG: -104.0364775 (TVD: 8327 feet, MD: 17417 feet)

PPP: NWNW / 979 FNL / 0 FWL / TWSP: 24S / RANGE: 28E / SECTION: 24 / LAT: 32.2078091 / LONG: -104.0492796 (TVD: 8257 feet, MD: 13457 feet)

PPP: NWNW / 1000 FNL / 100 FWL / TWSP: 24S / RANGE: 28E / SECTION: 23 / LAT: 32.2079931 / LONG: -104.0666892 (TVD: 7627 feet, MD: 7768 feet)

BHL: NENE / 1000 FNL / 100 FEL / TWSP: 24S / RANGE: 28E / SECTION: 24 / LAT: 32.2076298 / LONG: -104.032537 (TVD: 8348 feet, MD: 18636 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 30-015-49146	² Pool Code 42780	³ Pool Name MALAGA; BONE SPRING
⁴ Property Code 331849	⁵ Property Name FIDDLE FIRE FED COM	⁶ Well Number 301H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 2992'

¹⁰ Surface Location

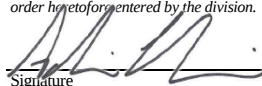
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	23	24S	28E		1701	NORTH	913	WEST	EDDY

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
A	24	24S	28E		1000	NORTH	100	EAST	EDDY

¹² Dedicated Acres 640.0	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.

Defining Well SECTION 10 SECTION 15	SURFACE HOLE LOCATION 1701' FNL 913' FWL, SECTION 23 NAD 83, SPCS NM EAST X:624635.79' / Y:438791.83' LAT:32.20602891N / LON:104.06401528W NAD 27, SPCS NM EAST X:583452.16' / Y:438733.27' LAT:32.20590697N / LON:104.06352394W	KICK OFF POINT/FIRST TAKE POINT 1000' FNL 100' FWL, SECTION 23 NAD 83, SPCS NM EAST X:623806.99' / Y:439504.31' LAT:32.20799311N / LON:104.06668921W NAD 27, SPCS NM EAST X:582623.39' / Y:439445.74' LAT:32.20787123N / LON:104.06619769W	SEC. 7 SEC. 18	N 	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.  Signature _____ Date 2/9/2023 Adrian Covarrubias Printed Name E-mail Address _____
	LAST TAKE POINT/BOTTOM HOLE LOCATION 1000' FNL 100' FWL, SECTION 24 NAD 83, SPCS NM EAST X:634370.23' / Y:439400.05' LAT:32.20762988N / LON:104.03253699W NAD 27, SPCS NM EAST X:593186.42' / Y:439341.35' LAT:32.20750748N / LON:104.03204692W	CORNER COORDINATES NAD 83, SPCS NM EAST A - X: 634482.03' / Y: 437741.73' B - X: 629179.23' / Y: 437761.72' C - X: 623742.74' / Y: 437828.38' D - X: 623685.59' / Y: 440506.10' E - X: 629199.00' / Y: 440429.80' F - X: 634463.12' / Y: 440399.53'	CORNER COORDINATES NAD 27, SPCS NM EAST A - X: 593298.18' / Y: 437683.06' B - X: 587995.49' / Y: 437703.12' C - X: 582559.10' / Y: 437769.85' D - X: 582502.01' / Y: 440447.52' E - X: 588015.32' / Y: 440371.15' F - X: 593279.34' / Y: 440340.81'		

Distances/areas relative to NAD 83 Combined Scale Factor: 0.99977572 Convergence Angle: 00°08'09.701916"

MarathonOil

Corporation.

Company: Marathon Oil

Well: Fiddle Fire Fed Com 301H

County: Eddy County, New Mexico (NAD 27)

Rig: Cactus 171

Wellbore: Wellbore #1

Design: Design #1

Date: 18:26, February 04 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: Fiddle Fire Fed Com 301H						
+N/-S	GL @	2992.00	WELL @	3015.50usft (Cactus 171)		
0.00	+E/-W	0.00	Northing	583452.16	Easting	Latitude
		438733.27				32° 12' 21.265 N
						104° 3' 48.686 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
2249.81	0.00	0.00	2241.28	0.00	0.00	0.00	313.153	-71.84	Begin 15.00° Tangent
5886.09	15.00	313.15	5753.72	66.73	-71.18	2.00	0.000	-764.62	Begin 2.00°/100' Drop
6635.90	0.00	0.00	6495.00	777.00	-828.77	2.00	180.000	-836.46	Begin Vertical Hold
6877.90	0.00	0.00	6737.00	777.00	-828.77	0.00	0.000	-836.46	Begin 10.00°/100' Build
7767.90	89.00	95.90	7309.87	719.13	-268.79	10.00	95.900	-275.93	Begin 89.00° Lateral, Begin 2°/100' Turn
8034.61	89.00	90.57	7314.53	704.10	-2.65	2.00	-90.066	-9.65	Hold 89.00° Inc, 90.57° Azm
17773.48	89.00	90.57	7484.80	608.08	9734.26	0.00	0.000	9727.73	PBHL

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
KOP v1_F.F.F.C. 301H	6737.00	777.00	-828.77	439510.27	582623.39	32° 12' 28.975 N	104° 3' 58.310 W
LTP/PBHL_F.F.F.C. 301H	7484.80	608.08	9734.26	439341.35	593186.42	32° 12' 27.027 N	104° 1' 55.369 W

SURVEY PROGRAM			
Depth From	Depth To	Survey/Plan	Tool
0.00	17773.48	Design #1 (Wellbore #1)	MWD+HRGM

Target Line: 7315' TVD @ 0° VS; 89.0° INC

The figure consists of four main schematic plots and a summary box:

- Top Left Plot:** A depth profile showing True Vertical Depth (400 usft/in) on the y-axis (0 to 8000) versus West(-)/East(+) (400 usft/in) on the x-axis (-800 to 800). It shows the wellbore path from the surface down to the PBHL, with labels for 'Begin 2.00°/100' Build', 'Begin 15.00° Tangent', and 'Begin 2.00°/100' Drop'.
- Top Right Plot:** A lateral view showing South(-)/North(+) (400 usft/in) on the y-axis (-1200 to 2000) versus West(-)/East(+) (400 usft/in) on the x-axis (-2400 to 10400). It shows the lateral path of the wellbore, including a 'Lease Line' and 'Fiddle Fire Fed Com 302H'.
- Bottom Left Plot:** A vertical section at 90.57° showing True Vertical Depth (400 usft/in) on the y-axis (100 to 8000) versus West(-)/East(+) (100 usft/in) on the x-axis (-1000 to 1000). It shows the vertical profile of the wellbore, including a 'Lease Line' and 'Fiddle Fire Fed Com 301H'.
- Bottom Right Plot:** A lateral view showing South(-)/North(+) (50 usft/in) on the y-axis (400 to 800) versus West(-)/East(+) (50 usft/in) on the x-axis (9300 to 9900). It shows the lateral path of the wellbore, including a 'Lease Line' and 'Fiddle Fire Fed Com 301H'.

Summary Box:

- Azimuths to Grid North:** True North: -0.14°, Magnetic North: 6.56°
- Magnetic Field:** Strength: 47495.1nT, Dip Angle: 59.82°, Date: 2/4/2023, Model: HDGM2023
- Conversion Instructions:**
 - To convert a Magnetic Direction to a Grid Direction, Add 6.556°
 - To convert a Magnetic Direction to a True Direction, Add 6.700° East
 - To convert a True Direction to a Grid Direction, Subtract 0.144°

Marathon Oil
Fiddle Fire Fed Com 301H
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
Fiddle Fire Fed Com 301H
Cactus 171



Marathon Oil

**Eddy County, New Mexico (NAD 27)
Fiddle Fire Fed Com (#301H & 302H)
Fiddle Fire Fed Com 301H**

Wellbore #1

Plan: Design #1

Standard Planning Report

04 February, 2023





MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Fiddle Fire Fed Com 301H
Company:	Marathon Oil	TVD Reference:	WELL @ 3015.50usft (Cactus 171)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3015.50usft (Cactus 171)
Site:	Fiddle Fire Fed Com (#301H & 302H)	North Reference:	Grid
Well:	Fiddle Fire Fed Com 301H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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	Fiddle Fire Fed Com (#301H & 302H)		
Site Position:		Northing:	438,733.27 usft
From:	Map	Easting:	583,452.16 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 12' 21.265 N
		Longitude:	104° 3' 48.686 W

Well	Fiddle Fire Fed Com 301H					
Well Position	+N/-S	0.00 usft	Northing:	438,733.27 usft	Latitude:	32° 12' 21.265 N
	+E/-W	0.00 usft	Easting:	583,452.16 usft	Longitude:	104° 3' 48.686 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,992.00 usft
Grid Convergence:		0.144 °				

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2023	2/4/2023	6.700	59.817	47,495.10

Design	Design #1				
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	90.57	

Plan Survey Tool Program	Date	2/4/2023			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	17,773.48	Design #1 (Wellbore #1)	MWD+HRGM	
				OWSG MWD + HRGM	



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Fiddle Fire Fed Com 301H
Company:	Marathon Oil	TVD Reference:	WELL @ 3015.50usft (Cactus 171)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3015.50usft (Cactus 171)
Site:	Fiddle Fire Fed Com (#301H & 302H)	North Reference:	Grid
Well:	Fiddle Fire Fed Com 301H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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	
2,249.81	15.00	313.15	2,241.28	66.73	-71.18	2.00	2.00	0.00	313.153	
5,886.09	15.00	313.15	5,753.72	710.27	-757.59	0.00	0.00	0.00	0.000	
6,635.90	0.00	0.00	6,495.00	777.00	-828.77	2.00	-2.00	0.00	180.000	
6,877.90	0.00	0.00	6,737.00	777.00	-828.77	0.00	0.00	0.00	0.000	
7,767.90	89.00	95.90	7,309.87	719.13	-268.79	10.00	10.00	0.00	95.900	
8,034.61	89.00	90.57	7,314.53	704.10	-2.65	2.00	0.00	-2.00	-90.066	
17,773.48	89.00	90.57	7,484.80	608.08	9,734.26	0.00	0.00	0.00	0.000	LTP/PBHL_F.F.F.C.



MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Fiddle Fire Fed Com 301H
Company:	Marathon Oil	TVD Reference:	WELL @ 3015.50usft (Cactus 171)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3015.50usft (Cactus 171)
Site:	Fiddle Fire Fed Com (#301H & 302H)	North Reference:	Grid
Well:	Fiddle Fire Fed Com 301H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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	313.15	1,599.98	1.19	-1.27	-1.28	2.00	2.00	0.00
1,700.00	4.00	313.15	1,699.84	4.77	-5.09	-5.14	2.00	2.00	0.00
1,800.00	6.00	313.15	1,799.45	10.73	-11.45	-11.56	2.00	2.00	0.00
1,900.00	8.00	313.15	1,898.70	19.07	-20.34	-20.53	2.00	2.00	0.00
2,000.00	10.00	313.15	1,997.47	29.77	-31.75	-32.05	2.00	2.00	0.00
2,100.00	12.00	313.15	2,095.62	42.82	-45.67	-46.09	2.00	2.00	0.00
2,200.00	14.00	313.15	2,193.06	58.20	-62.08	-62.66	2.00	2.00	0.00
2,249.81	15.00	313.15	2,241.28	66.73	-71.18	-71.84	2.00	2.00	0.00
Begin 15.00° Tangent									
2,300.00	15.00	313.15	2,289.76	75.61	-80.65	-81.40	0.00	0.00	0.00
2,400.00	15.00	313.15	2,386.35	93.31	-99.53	-100.45	0.00	0.00	0.00
2,500.00	15.00	313.15	2,482.95	111.01	-118.40	-119.50	0.00	0.00	0.00
2,600.00	15.00	313.15	2,579.54	128.71	-137.28	-138.56	0.00	0.00	0.00
2,700.00	15.00	313.15	2,676.14	146.40	-156.16	-157.61	0.00	0.00	0.00
2,800.00	15.00	313.15	2,772.73	164.10	-175.04	-176.66	0.00	0.00	0.00
2,900.00	15.00	313.15	2,869.32	181.80	-193.91	-195.71	0.00	0.00	0.00
3,000.00	15.00	313.15	2,965.92	199.50	-212.79	-214.76	0.00	0.00	0.00
3,100.00	15.00	313.15	3,062.51	217.19	-231.67	-233.82	0.00	0.00	0.00
3,200.00	15.00	313.15	3,159.11	234.89	-250.54	-252.87	0.00	0.00	0.00
3,300.00	15.00	313.15	3,255.70	252.59	-269.42	-271.92	0.00	0.00	0.00
3,400.00	15.00	313.15	3,352.30	270.29	-288.30	-290.97	0.00	0.00	0.00
3,500.00	15.00	313.15	3,448.89	287.99	-307.17	-310.02	0.00	0.00	0.00
3,600.00	15.00	313.15	3,545.48	305.68	-326.05	-329.08	0.00	0.00	0.00
3,700.00	15.00	313.15	3,642.08	323.38	-344.93	-348.13	0.00	0.00	0.00
3,800.00	15.00	313.15	3,738.67	341.08	-363.80	-367.18	0.00	0.00	0.00
3,900.00	15.00	313.15	3,835.27	358.78	-382.68	-386.23	0.00	0.00	0.00
4,000.00	15.00	313.15	3,931.86	376.47	-401.56	-405.28	0.00	0.00	0.00
4,100.00	15.00	313.15	4,028.46	394.17	-420.43	-424.34	0.00	0.00	0.00
4,200.00	15.00	313.15	4,125.05	411.87	-439.31	-443.39	0.00	0.00	0.00
4,300.00	15.00	313.15	4,221.64	429.57	-458.19	-462.44	0.00	0.00	0.00
4,400.00	15.00	313.15	4,318.24	447.26	-477.07	-481.49	0.00	0.00	0.00
4,500.00	15.00	313.15	4,414.83	464.96	-495.94	-500.54	0.00	0.00	0.00
4,600.00	15.00	313.15	4,511.43	482.66	-514.82	-519.60	0.00	0.00	0.00
4,700.00	15.00	313.15	4,608.02	500.36	-533.70	-538.65	0.00	0.00	0.00
4,800.00	15.00	313.15	4,704.62	518.06	-552.57	-557.70	0.00	0.00	0.00
4,900.00	15.00	313.15	4,801.21	535.75	-571.45	-576.75	0.00	0.00	0.00
5,000.00	15.00	313.15	4,897.80	553.45	-590.33	-595.80	0.00	0.00	0.00



MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Fiddle Fire Fed Com 301H
Company:	Marathon Oil	TVD Reference:	WELL @ 3015.50usft (Cactus 171)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3015.50usft (Cactus 171)
Site:	Fiddle Fire Fed Com (#301H & 302H)	North Reference:	Grid
Well:	Fiddle Fire Fed Com 301H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
5,100.00	15.00	313.15	4,994.40	571.15	-609.20	-614.85	0.00	0.00	0.00
5,200.00	15.00	313.15	5,090.99	588.85	-628.08	-633.91	0.00	0.00	0.00
5,300.00	15.00	313.15	5,187.59	606.54	-646.96	-652.96	0.00	0.00	0.00
5,400.00	15.00	313.15	5,284.18	624.24	-665.83	-672.01	0.00	0.00	0.00
5,500.00	15.00	313.15	5,380.78	641.94	-684.71	-691.06	0.00	0.00	0.00
5,600.00	15.00	313.15	5,477.37	659.64	-703.59	-710.11	0.00	0.00	0.00
5,700.00	15.00	313.15	5,573.96	677.33	-722.46	-729.17	0.00	0.00	0.00
5,800.00	15.00	313.15	5,670.56	695.03	-741.34	-748.22	0.00	0.00	0.00
5,886.09	15.00	313.15	5,753.72	710.27	-757.59	-764.62	0.00	0.00	0.00
Begin 2.00°/100' Drop									
5,900.00	14.72	313.15	5,767.16	712.71	-760.19	-767.25	2.00	-2.00	0.00
6,000.00	12.72	313.15	5,864.30	728.93	-777.49	-784.71	2.00	-2.00	0.00
6,100.00	10.72	313.15	5,962.22	742.82	-792.31	-799.66	2.00	-2.00	0.00
6,200.00	8.72	313.15	6,060.78	754.36	-804.62	-812.09	2.00	-2.00	0.00
6,300.00	6.72	313.15	6,159.86	763.55	-814.42	-821.98	2.00	-2.00	0.00
6,400.00	4.72	313.15	6,259.36	770.36	-821.69	-829.31	2.00	-2.00	0.00
6,500.00	2.72	313.15	6,359.15	774.80	-826.42	-834.09	2.00	-2.00	0.00
6,600.00	0.72	313.15	6,459.10	776.85	-828.61	-836.29	2.00	-2.00	0.00
6,635.90	0.00	0.00	6,495.00	777.00	-828.77	-836.46	2.00	-2.00	0.00
Begin Vertical Hold									
6,700.00	0.00	0.00	6,559.10	777.00	-828.77	-836.46	0.00	0.00	0.00
6,800.00	0.00	0.00	6,659.10	777.00	-828.77	-836.46	0.00	0.00	0.00
6,877.90	0.00	0.00	6,737.00	777.00	-828.77	-836.46	0.00	0.00	0.00
Begin 10.00°/100' Build									
6,900.00	2.21	95.90	6,759.09	776.96	-828.35	-836.03	10.00	10.00	0.00
6,950.00	7.21	95.90	6,808.91	776.53	-824.26	-831.95	10.00	10.00	0.00
7,000.00	12.21	95.90	6,858.17	775.67	-815.88	-823.55	10.00	10.00	0.00
7,050.00	17.21	95.90	6,906.52	774.36	-803.25	-810.92	10.00	10.00	0.00
7,100.00	22.21	95.90	6,953.58	772.63	-786.49	-794.13	10.00	10.00	0.00
7,150.00	27.21	95.90	6,998.98	770.48	-765.70	-773.33	10.00	10.00	0.00
7,200.00	32.21	95.90	7,042.40	767.94	-741.06	-748.66	10.00	10.00	0.00
7,250.00	37.21	95.90	7,083.49	765.01	-712.75	-720.33	10.00	10.00	0.00
7,300.00	42.21	95.90	7,121.94	761.73	-680.98	-688.53	10.00	10.00	0.00
7,350.00	47.21	95.90	7,157.46	758.11	-646.01	-653.52	10.00	10.00	0.00
7,400.00	52.21	95.90	7,189.78	754.19	-608.08	-615.55	10.00	10.00	0.00
7,450.00	57.21	95.90	7,218.66	750.00	-567.50	-574.93	10.00	10.00	0.00
7,500.00	62.21	95.90	7,243.87	745.56	-524.57	-531.96	10.00	10.00	0.00
7,550.00	67.21	95.90	7,265.23	740.92	-479.61	-486.96	10.00	10.00	0.00
7,600.00	72.21	95.90	7,282.56	736.10	-432.98	-440.28	10.00	10.00	0.00
7,650.00	77.21	95.90	7,295.74	731.14	-385.02	-392.27	10.00	10.00	0.00
7,700.00	82.21	95.90	7,304.67	726.09	-336.10	-343.31	10.00	10.00	0.00
7,750.00	87.21	95.90	7,309.28	720.97	-286.59	-293.75	10.00	10.00	0.00
7,767.90	89.00	95.90	7,309.87	719.13	-268.79	-275.93	10.00	10.00	0.00
Begin 89.00° Lateral, Begin 2°/100' Turn									
7,800.00	89.00	95.26	7,310.43	716.01	-236.86	-243.97	2.00	0.00	-2.00
7,900.00	89.00	93.26	7,312.18	708.59	-137.15	-144.19	2.00	0.00	-2.00
8,000.00	89.00	91.26	7,313.93	704.65	-37.25	-44.26	2.00	0.00	-2.00
8,034.61	89.00	90.57	7,314.53	704.10	-2.65	-9.65	2.00	0.00	-2.00
Hold 89.00° Inc, 90.57° Azm									
8,100.00	89.00	90.57	7,315.68	703.46	62.73	55.73	0.00	0.00	0.00
8,200.00	89.00	90.57	7,317.42	702.47	162.71	155.71	0.00	0.00	0.00
8,300.00	89.00	90.57	7,319.17	701.48	262.69	255.70	0.00	0.00	0.00
8,400.00	89.00	90.57	7,320.92	700.50	362.67	355.68	0.00	0.00	0.00



MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Fiddle Fire Fed Com 301H
Company:	Marathon Oil	TVD Reference:	WELL @ 3015.50usft (Cactus 171)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3015.50usft (Cactus 171)
Site:	Fiddle Fire Fed Com (#301H & 302H)	North Reference:	Grid
Well:	Fiddle Fire Fed Com 301H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
8,500.00	89.00	90.57	7,322.67	699.51	462.65	455.66	0.00	0.00	0.00
8,600.00	89.00	90.57	7,324.42	698.53	562.63	555.65	0.00	0.00	0.00
8,700.00	89.00	90.57	7,326.17	697.54	662.61	655.63	0.00	0.00	0.00
8,800.00	89.00	90.57	7,327.91	696.55	762.59	755.62	0.00	0.00	0.00
8,900.00	89.00	90.57	7,329.66	695.57	862.57	855.60	0.00	0.00	0.00
9,000.00	89.00	90.57	7,331.41	694.58	962.55	955.59	0.00	0.00	0.00
9,100.00	89.00	90.57	7,333.16	693.60	1,062.53	1,055.57	0.00	0.00	0.00
9,200.00	89.00	90.57	7,334.91	692.61	1,162.51	1,155.56	0.00	0.00	0.00
9,300.00	89.00	90.57	7,336.66	691.62	1,262.49	1,255.54	0.00	0.00	0.00
9,400.00	89.00	90.57	7,338.40	690.64	1,362.47	1,355.53	0.00	0.00	0.00
9,500.00	89.00	90.57	7,340.15	689.65	1,462.45	1,455.51	0.00	0.00	0.00
9,600.00	89.00	90.57	7,341.90	688.67	1,562.43	1,555.50	0.00	0.00	0.00
9,700.00	89.00	90.57	7,343.65	687.68	1,662.40	1,655.48	0.00	0.00	0.00
9,800.00	89.00	90.57	7,345.40	686.69	1,762.38	1,755.47	0.00	0.00	0.00
9,900.00	89.00	90.57	7,347.15	685.71	1,862.36	1,855.45	0.00	0.00	0.00
10,000.00	89.00	90.57	7,348.89	684.72	1,962.34	1,955.44	0.00	0.00	0.00
10,100.00	89.00	90.57	7,350.64	683.74	2,062.32	2,055.42	0.00	0.00	0.00
10,200.00	89.00	90.57	7,352.39	682.75	2,162.30	2,155.41	0.00	0.00	0.00
10,300.00	89.00	90.57	7,354.14	681.77	2,262.28	2,255.39	0.00	0.00	0.00
10,400.00	89.00	90.57	7,355.89	680.78	2,362.26	2,355.37	0.00	0.00	0.00
10,500.00	89.00	90.57	7,357.64	679.79	2,462.24	2,455.36	0.00	0.00	0.00
10,600.00	89.00	90.57	7,359.38	678.81	2,562.22	2,555.34	0.00	0.00	0.00
10,700.00	89.00	90.57	7,361.13	677.82	2,662.20	2,655.33	0.00	0.00	0.00
10,800.00	89.00	90.57	7,362.88	676.84	2,762.18	2,755.31	0.00	0.00	0.00
10,900.00	89.00	90.57	7,364.63	675.85	2,862.16	2,855.30	0.00	0.00	0.00
11,000.00	89.00	90.57	7,366.38	674.86	2,962.14	2,955.28	0.00	0.00	0.00
11,100.00	89.00	90.57	7,368.13	673.88	3,062.12	3,055.27	0.00	0.00	0.00
11,200.00	89.00	90.57	7,369.87	672.89	3,162.10	3,155.25	0.00	0.00	0.00
11,300.00	89.00	90.57	7,371.62	671.91	3,262.08	3,255.24	0.00	0.00	0.00
11,400.00	89.00	90.57	7,373.37	670.92	3,362.06	3,355.22	0.00	0.00	0.00
11,500.00	89.00	90.57	7,375.12	669.93	3,462.04	3,455.21	0.00	0.00	0.00
11,600.00	89.00	90.57	7,376.87	668.95	3,562.02	3,555.19	0.00	0.00	0.00
11,700.00	89.00	90.57	7,378.62	667.96	3,662.00	3,655.18	0.00	0.00	0.00
11,800.00	89.00	90.57	7,380.36	666.98	3,761.98	3,755.16	0.00	0.00	0.00
11,900.00	89.00	90.57	7,382.11	665.99	3,861.96	3,855.15	0.00	0.00	0.00
12,000.00	89.00	90.57	7,383.86	665.00	3,961.94	3,955.13	0.00	0.00	0.00
12,100.00	89.00	90.57	7,385.61	664.02	4,061.92	4,055.11	0.00	0.00	0.00
12,200.00	89.00	90.57	7,387.36	663.03	4,161.90	4,155.10	0.00	0.00	0.00
12,300.00	89.00	90.57	7,389.11	662.05	4,261.88	4,255.08	0.00	0.00	0.00
12,400.00	89.00	90.57	7,390.85	661.06	4,361.86	4,355.07	0.00	0.00	0.00
12,500.00	89.00	90.57	7,392.60	660.07	4,461.84	4,455.05	0.00	0.00	0.00
12,600.00	89.00	90.57	7,394.35	659.09	4,561.82	4,555.04	0.00	0.00	0.00
12,700.00	89.00	90.57	7,396.10	658.10	4,661.80	4,655.02	0.00	0.00	0.00
12,800.00	89.00	90.57	7,397.85	657.12	4,761.78	4,755.01	0.00	0.00	0.00
12,900.00	89.00	90.57	7,399.60	656.13	4,861.76	4,854.99	0.00	0.00	0.00
13,000.00	89.00	90.57	7,401.34	655.14	4,961.74	4,954.98	0.00	0.00	0.00
13,100.00	89.00	90.57	7,403.09	654.16	5,061.72	5,054.96	0.00	0.00	0.00
13,200.00	89.00	90.57	7,404.84	653.17	5,161.70	5,154.95	0.00	0.00	0.00
13,300.00	89.00	90.57	7,406.59	652.19	5,261.68	5,254.93	0.00	0.00	0.00
13,400.00	89.00	90.57	7,408.34	651.20	5,361.66	5,354.92	0.00	0.00	0.00
13,500.00	89.00	90.57	7,410.09	650.21	5,461.64	5,454.90	0.00	0.00	0.00
13,600.00	89.00	90.57	7,411.83	649.23	5,561.62	5,554.89	0.00	0.00	0.00
13,700.00	89.00	90.57	7,413.58	648.24	5,661.60	5,654.87	0.00	0.00	0.00
13,800.00	89.00	90.57	7,415.33	647.26	5,761.58	5,754.85	0.00	0.00	0.00



MS Directional Planning Report



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Company:	Marathon Oil	TVD Reference:	WELL @ 3015.50usft (Cactus 171)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3015.50usft (Cactus 171)
Site:	Fiddle Fire Fed Com (#301H & 302H)	North Reference:	Grid
Well:	Fiddle Fire Fed Com 301H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
13,900.00	89.00	90.57	7,417.08	646.27	5,861.56	5,854.84	0.00	0.00	0.00
14,000.00	89.00	90.57	7,418.83	645.28	5,961.54	5,954.82	0.00	0.00	0.00
14,100.00	89.00	90.57	7,420.58	644.30	6,061.52	6,054.81	0.00	0.00	0.00
14,200.00	89.00	90.57	7,422.32	643.31	6,161.50	6,154.79	0.00	0.00	0.00
14,300.00	89.00	90.57	7,424.07	642.33	6,261.48	6,254.78	0.00	0.00	0.00
14,400.00	89.00	90.57	7,425.82	641.34	6,361.46	6,354.76	0.00	0.00	0.00
14,500.00	89.00	90.57	7,427.57	640.36	6,461.44	6,454.75	0.00	0.00	0.00
14,600.00	89.00	90.57	7,429.32	639.37	6,561.42	6,554.73	0.00	0.00	0.00
14,700.00	89.00	90.57	7,431.07	638.38	6,661.40	6,654.72	0.00	0.00	0.00
14,800.00	89.00	90.57	7,432.81	637.40	6,761.38	6,754.70	0.00	0.00	0.00
14,900.00	89.00	90.57	7,434.56	636.41	6,861.36	6,854.69	0.00	0.00	0.00
15,000.00	89.00	90.57	7,436.31	635.43	6,961.34	6,954.67	0.00	0.00	0.00
15,100.00	89.00	90.57	7,438.06	634.44	7,061.32	7,054.66	0.00	0.00	0.00
15,200.00	89.00	90.57	7,439.81	633.45	7,161.30	7,154.64	0.00	0.00	0.00
15,300.00	89.00	90.57	7,441.56	632.47	7,261.28	7,254.63	0.00	0.00	0.00
15,400.00	89.00	90.57	7,443.30	631.48	7,361.26	7,354.61	0.00	0.00	0.00
15,500.00	89.00	90.57	7,445.05	630.50	7,461.24	7,454.60	0.00	0.00	0.00
15,600.00	89.00	90.57	7,446.80	629.51	7,561.22	7,554.58	0.00	0.00	0.00
15,700.00	89.00	90.57	7,448.55	628.52	7,661.20	7,654.56	0.00	0.00	0.00
15,800.00	89.00	90.57	7,450.30	627.54	7,761.18	7,754.55	0.00	0.00	0.00
15,900.00	89.00	90.57	7,452.05	626.55	7,861.16	7,854.53	0.00	0.00	0.00
16,000.00	89.00	90.57	7,453.79	625.57	7,961.14	7,954.52	0.00	0.00	0.00
16,100.00	89.00	90.57	7,455.54	624.58	8,061.12	8,054.50	0.00	0.00	0.00
16,200.00	89.00	90.57	7,457.29	623.59	8,161.10	8,154.49	0.00	0.00	0.00
16,300.00	89.00	90.57	7,459.04	622.61	8,261.08	8,254.47	0.00	0.00	0.00
16,400.00	89.00	90.57	7,460.79	621.62	8,361.06	8,354.46	0.00	0.00	0.00
16,500.00	89.00	90.57	7,462.54	620.64	8,461.04	8,454.44	0.00	0.00	0.00
16,600.00	89.00	90.57	7,464.28	619.65	8,561.02	8,554.43	0.00	0.00	0.00
16,700.00	89.00	90.57	7,466.03	618.66	8,660.99	8,654.41	0.00	0.00	0.00
16,800.00	89.00	90.57	7,467.78	617.68	8,760.97	8,754.40	0.00	0.00	0.00
16,900.00	89.00	90.57	7,469.53	616.69	8,860.95	8,854.38	0.00	0.00	0.00
17,000.00	89.00	90.57	7,471.28	615.71	8,960.93	8,954.37	0.00	0.00	0.00
17,100.00	89.00	90.57	7,473.03	614.72	9,060.91	9,054.35	0.00	0.00	0.00
17,200.00	89.00	90.57	7,474.77	613.73	9,160.89	9,154.34	0.00	0.00	0.00
17,300.00	89.00	90.57	7,476.52	612.75	9,260.87	9,254.32	0.00	0.00	0.00
17,400.00	89.00	90.57	7,478.27	611.76	9,360.85	9,354.30	0.00	0.00	0.00
17,500.00	89.00	90.57	7,480.02	610.78	9,460.83	9,454.29	0.00	0.00	0.00
17,600.00	89.00	90.57	7,481.77	609.79	9,560.81	9,554.27	0.00	0.00	0.00
17,700.00	89.00	90.57	7,483.52	608.80	9,660.79	9,654.26	0.00	0.00	0.00
17,773.48	89.00	90.57	7,484.80	608.08	9,734.26	9,727.73	0.00	0.00	0.00
PBHL									



MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Well Fiddle Fire Fed Com 301H
Company:	Marathon Oil	TVD Reference:	WELL @ 3015.50usft (Cactus 171)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3015.50usft (Cactus 171)
Site:	Fiddle Fire Fed Com (#301H & 302H)	North Reference:	Grid
Well:	Fiddle Fire Fed Com 301H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP v1_F.F.F.C. 301H - plan hits target center - Point	0.00	0.00	6,737.00	777.00	-828.77	439,510.27	582,623.39	32° 12' 28.975 N	104° 3' 58.310 W
LTP/PBHL_F.F.F.C. 301H - plan hits target center - Point	0.00	0.00	7,484.80	608.08	9,734.26	439,341.35	593,186.42	32° 12' 27.027 N	104° 1' 55.369 W

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
2,249.81	2,241.28	66.73	-71.18	Begin 15.00° Tangent
5,886.09	5,753.72	710.27	-757.59	Begin 2.00°/100' Drop
6,635.90	6,495.00	777.00	-828.77	Begin Vertical Hold
6,877.90	6,737.00	777.00	-828.77	Begin 10.00°/100' Build
7,767.90	7,309.87	719.13	-268.79	Begin 89.00° Lateral, Begin 2°/100' Turn
8,034.61	7,314.53	704.10	-2.65	Hold 89.00° Inc, 90.57° Azm
17,773.48	7,484.80	608.08	9,734.26	PBHL

MARATHON OIL PERMIAN, LLC.
DRILLING AND OPERATIONS PLAN



WELL NAME & NUMBER: **Fiddle Fire Fed Com 301H**
LOCATION: SECTION **23 & 24** TOWNSHIP **24S** RANGE **28E**
Eddy COUNTY, **NEW MEXICO**

Section 1: GEOLOGICAL FORMATIONS

Name of Surface Formation: Permian
Elevation: 2992 feet

Estimated Tops of Important Geological Markers:

Formation	TVD (ft)	MD (ft)	Elevation (ft SS)	Lithologies	Mineral Resources	Producing Formation?
Salado	497	520.6	2495	Salt/Anhydrite	Brine	No
Castile	1052	1075.6	1940	Salt/Anhydrite	Brine	No
Base of Salt (BX)	2558	2581.6	434	Salt/Anhydrite	Brine	No
Lamar	2558	2581.6	434	Sandstone/Shale	None	No
Bell Canyon	2590	2613.6	402	Sandstone	Oil	No
Cherry Canyon	3446	3469.6	-454	Sandstone	Oil	No
Brushy Canyon	4715	4738.6	-1723	Sandstone	Oil	No
Bone Spring	6214	6237.6	-3222	Limestone	None	No
1st Bone Spring Sand	7157	7180.6	-4165	Sandstone	Oil	Yes
2nd Bone Spring Sand	7976	7999.6	-4984	Sandstone	Oil	Yes
3rd Bone Spring Sand	9063	9086.6	-6071	Sandstone	Oil	Yes
Wolfcamp	9410	9433.6	-6418	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes

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, and 5,000psi for the BOP Stack 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 too 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	546	0	522	2992	2470	54.5	J55	BTC	1.00	1.15	BUOY	1.30	BUOY	1.30
Intermediate	12.25	9.625	0	2597	0	2573	2992	419	40	P110HC	BTC	1.00	1.15	BUOY	1.30	BUOY	1.30
Production	8.75	5.5	0	17773	0	7485	2992	-4493	23	P110EC	TC	1.00	1.15	BUOY	1.30	BUOY	1.30
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	246	124	2.12	12.5	262	25	Class C	Extender, Accelerator, LCM
Surface	Tail	246	546	197	1.32	14.8	260	25	Class C	Accelerator
Intermediate	Lead	0	2097	392	2.18	12.4	855	25	Class C	Extender, Accelerator, LCM
Intermediate	Tail	2097	2597	147	1.33	14.8	196	25	Class C	Retarder
Production	Tail	2297	17773	2949	1.68	13	4955	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 **Plugging Procedure for Pilot Hole:** N/A
Pilot Hole Depth: N/A
KOP Depth: N/A

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

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	545.6	Water Based Mud	8.4	8.8
545.6	2596.6	Brine or Oil Based Mud	9.2	10.2
2596.6	17773.48	Brtine or Oil Based Mud	10	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: 4865 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.

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 250073

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 250073
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	All original COA's still apply.	1/9/2024