

Form 3160-5  
(June 2019)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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.

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

5. Lease Serial No. NMNM17222

6. If Indian, Allottee or Tribe Name

7. If Unit of CA/Agreement, Name and/or No.

8. Well Name and No. PIEROGI BS FED COM/552H

9. API Well No. 3001548310

10. Field and Pool or Exploratory Area

11. Country or Parish, State EDDY/NM

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well  
☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator MARATHON OIL PERMIAN LLC

3a. Address 990 TOWN & COUNTRY BLVD, HOUSTON, TX3b. Phone No. (include area code) (713) 296-2113

4. Location of Well (Footage, Sec., T.,R.,M., or Survey Description) SEC 34/T24S/R28E/NMP

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

TYPE OF SUBMISSION	TYPE OF ACTION				
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off	
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity	
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other	
	<input checked="" type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon		
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> 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 recompleation 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.)

Marathon Oil Permian respectfully requests approval for deviated well path greater than 50' from the approved well path.  
Please see EOW directional plan & as drilled C102.  
As drilled TD: 24597'  
BHL change to: 147' FNL & 586' FEL. Sec. 22 24S 28E

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed) TERRI STATHEM / Ph: (713) 296-2113	Title Regulatory Compliance Manager
Signature (Electronic Submission)	Date 06/13/2024

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by KEITH P IMMATTY / Ph: (575) 988-4722 / Accepted	Title ENGINEER	Date 06/17/2024
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 CARLSBAD	

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: SWSE / 786 FSL / 1859 FEL / TWSP: 24S / RANGE: 28E / SECTION: 34 / LAT: 32.1686845 / LONG: -104.072507 ( TVD: 0 feet, MD: 0 feet )

PPP: SESE / 1343 FSL / 330 FEL / TWSP: 24S / RANGE: 28E / SECTION: 34 / LAT: 32.170224 / LONG: -104.0675801 ( TVD: 9742 feet, MD: 10945 feet )

PPP: SESE / 330 FSL / 330 FEL / TWSP: 24S / RANGE: 28E / SECTION: 34 / LAT: 32.16744 / LONG: -104.0675545 ( TVD: 9742 feet, MD: 10282 feet )

BHL: SWSE / 100 FNL / 330 FEL / TWSP: 24S / RANGE: 28E / SECTION: 22 / LAT: 32.1803896 / LONG: -104.0676736 ( TVD: 9040 feet, MD: 14649 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 AS-DRILLED PLAT

<sup>1</sup> API Number 30-015-48310	<sup>2</sup> Pool Code 64450	<sup>3</sup> Pool Name WILLOW LAKE; BONE SPRING
<sup>4</sup> Property Code 335341	<sup>5</sup> Property Name PIEROGI BS FEDERAL COM	<sup>6</sup> Well Number 552H
<sup>7</sup> OGRID No. 372098	<sup>8</sup> Operator Name MARATHON OIL PERMIAN LLC	<sup>9</sup> Elevation 2999'

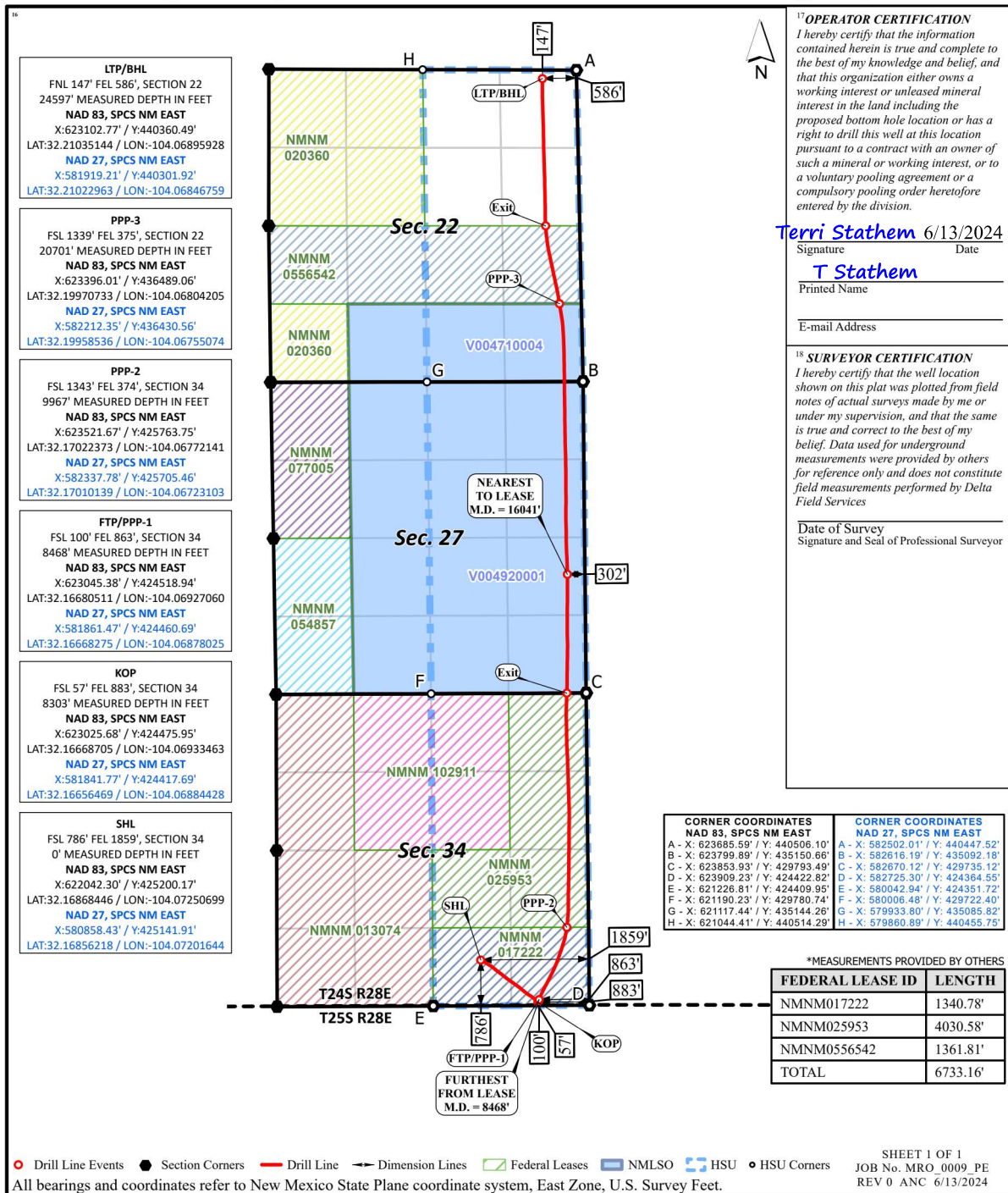
<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	34	24S	28E		786'	SOUTH	1859'	EAST	EDDY

<sup>11</sup> 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	22	24S	28E		147'	NORTH	586'	EAST	EDDY
<sup>12</sup> Dedicated Acres 960.00	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.						

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





<b>Well Name:</b> PIEROGI BS FED COM	<b>Well Location:</b> T24S / R28E / SEC 34 / SWSE / 32.1686845 / -104.072507	<b>County or Parish/State:</b> EDDY / NM
<b>Well Number:</b> 552H	<b>Type of Well:</b> CONVENTIONAL GAS WELL	<b>Allottee or Tribe Name:</b>
<b>Lease Number:</b> NMNM17222	<b>Unit or CA Name:</b>	<b>Unit or CA Number:</b>
<b>US Well Number:</b> 3001548310	<b>Operator:</b> MARATHON OIL PERMIAN LLC	

### Notice of Intent

**Sundry ID:** 2795408

**Type of Submission:** Notice of Intent

**Type of Action:** Drilling Operations

**Date Sundry Submitted:** 06/13/2024

**Time Sundry Submitted:** 04:36

**Date proposed operation will begin:** 06/13/2024

**Procedure Description:** Marathon Oil Permian respectfully requests approval for deviated well path greater than 50' from the approved well path. Please see EOW directional plan & as drilled C102. As drilled TD: 24597' BHL change to: 147' FNL & 586' FEL. Sec. 22 24S 28E

### Surface Disturbance

**Is any additional surface disturbance proposed?:** No

### NOI Attachments

#### Procedure Description

C102\_Pierogi\_BS\_FEd\_Com\_552H\_AD\_20240613163242.pdf

Pierogi\_BS\_FEd\_Com\_552H\_EOW\_Dir\_Plan\_20240613163241.pdf

Well Name: PIERCE-134 FED COM      Well Location: T24S / R28E / SEC 34 / SWSE / 32.1686845 / -104.072507      County or Parish/State: EDDY / NM

Well Number: 552H      Type of Well: CONVENTIONAL GAS WELL      Allottee or Tribe Name:

Lease Number: NMNM17222      Unit or CA Name:      Unit or CA Number:

US Well Number: 3001548310      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: TERRI STATHEM

Signed on: JUN 13, 2024 04:35 PM

Name: MARATHON OIL PERMIAN LLC

Title: Regulatory Compliance Manager

Street Address: 990 TOWN & COUNTRY BLVD

City: HOUSTON

State: TX

Phone: (713) 296-2113

Email address: TSTATHEM@MARATHONOIL.COM

### Field

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:

### BLM Point of Contact

BLM POC Name: KEITH P IMMATTY

BLM POC Title: ENGINEER

BLM POC Phone: 5759884722

BLM POC Email Address: KIMMATTY@BLM.GOV

Disposition: Accepted

Disposition Date: 06/16/2024

Signature: Keith Immatty

DESIGN TARGET DETAILS

Name	KOP v.s. Pierogi 552H
LTP/PBHL v.s. Pierogi 552H	
PH-1 v.s. Pierogi 552H	
PH-2 v.s. Pierogi 552H	
TVD	8172.04
+N-S	-730.07
+E-W	1000.00
Northing	424411.84
Eastings	581858.43
Longitude	104° 4' 7.645 W
Latitude	32° 9' 59.575 N
Wellbore	581858.43 32° 9' 59.575 N
Wellbore	581858.43 32° 9' 59.575 N
Wellbore	581858.43 32° 9' 59.575 N
Wellbore	581858.43 32° 9' 59.575 N



To convert a Magnetic Direction to a Grid Direction, Add 6.48°  
To convert a Magnetic Direction to a True Direction, Add 6.50° East  
To convert a True Direction to a Grid Direction, Subtract 0.13°

WELL DETAILS: Pierogi BS Federal Com 552H

GL @ 2999.00	WELL @ 3022.50ft (Precision 580)
Northing	425141.31
Eastings	580655.43
Longitude	104° 4' 19.259 W
Latitude	32° 10' 6.824 N
Wellbore	580655.43 32° 10' 6.824 N
Wellbore	580655.43 32° 10' 6.824 N
Wellbore	580655.43 32° 10' 6.824 N
Wellbore	580655.43 32° 10' 6.824 N

SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	MD	Inc	Azi	TVD	+N-S	+E-W
425.00	2.10	93.61	424.85	2.36	6.80	0.00	0.00	0.00	0.00	0.00	0.00
575.00	2.10	93.61	574.75	2.01	12.29	0.00	0.00	0.00	0.00	0.00	0.00
680.00	0.00	0.00	679.73	1.89	14.21	0.00	180.00	0.00	0.00	0.00	0.00
1500.27	0.00	0.00	1500.00	1.89	14.21	0.00	0.00	0.00	0.00	0.00	0.00
3580.27	7.00	126.59	3586.23	-10.84	31.35	2.00	126.586	-11.27	0.00	0.00	0.00
3930.18	14.00	126.60	3910.07	-174.48	251.81	2.00	0.022	-177.94	0.00	0.00	0.00
7431.11	14.00	126.60	7307.03	-679.35	931.70	0.00	0.00	-692.13	0.00	0.00	0.00
8303.06	0.00	0.00	8303.00	-730.07	1000.00	0.00	0.00	-743.79	0.00	0.00	0.00
10494.81	90.00	25.25	10494.81	-211.86	1244.41	10.00	25.250	-228.99	0.00	0.00	0.00
14047.20	90.00	359.41	14047.20	1517.97	1481.70	0.00	0.00	1018.40	0.00	0.00	0.00
14059.51	90.00	359.66	14059.51	1481.60	2.00	89.993	453.08	0.00	0.00	0.00	0.00
19405.15	90.00	359.66	19405.15	1450.00	0.00	0.00	9928.55	0.00	0.00	0.00	0.00
19976.72	90.00	359.66	19976.72	10520.96	1446.62	0.00	0.00	10550.01	0.00	0.00	0.00
21076.72	90.00	343.16	21076.72	11604.95	1282.89	1.50	-90.000	11586.16	0.00	0.00	0.00
22118.85	90.00	358.79	22118.85	11604.95	1119.94	1.50	90.000	12614.35	0.00	0.00	0.00
24695.83	90.00	358.79	24695.83	15207.40	1065.61	0.00	0.00	15191.26	0.00	0.00	0.00

Marathon Oil Corporation

Company: Marathon Oil

Well: Pierogi BS Federal Com 552H

County: Eddy County, New Mexico (NAD 27)

Rig: Precision 580

Wellbore: Wellbore #5

Design #: Design #1

Date: 8/16, May 17 2024

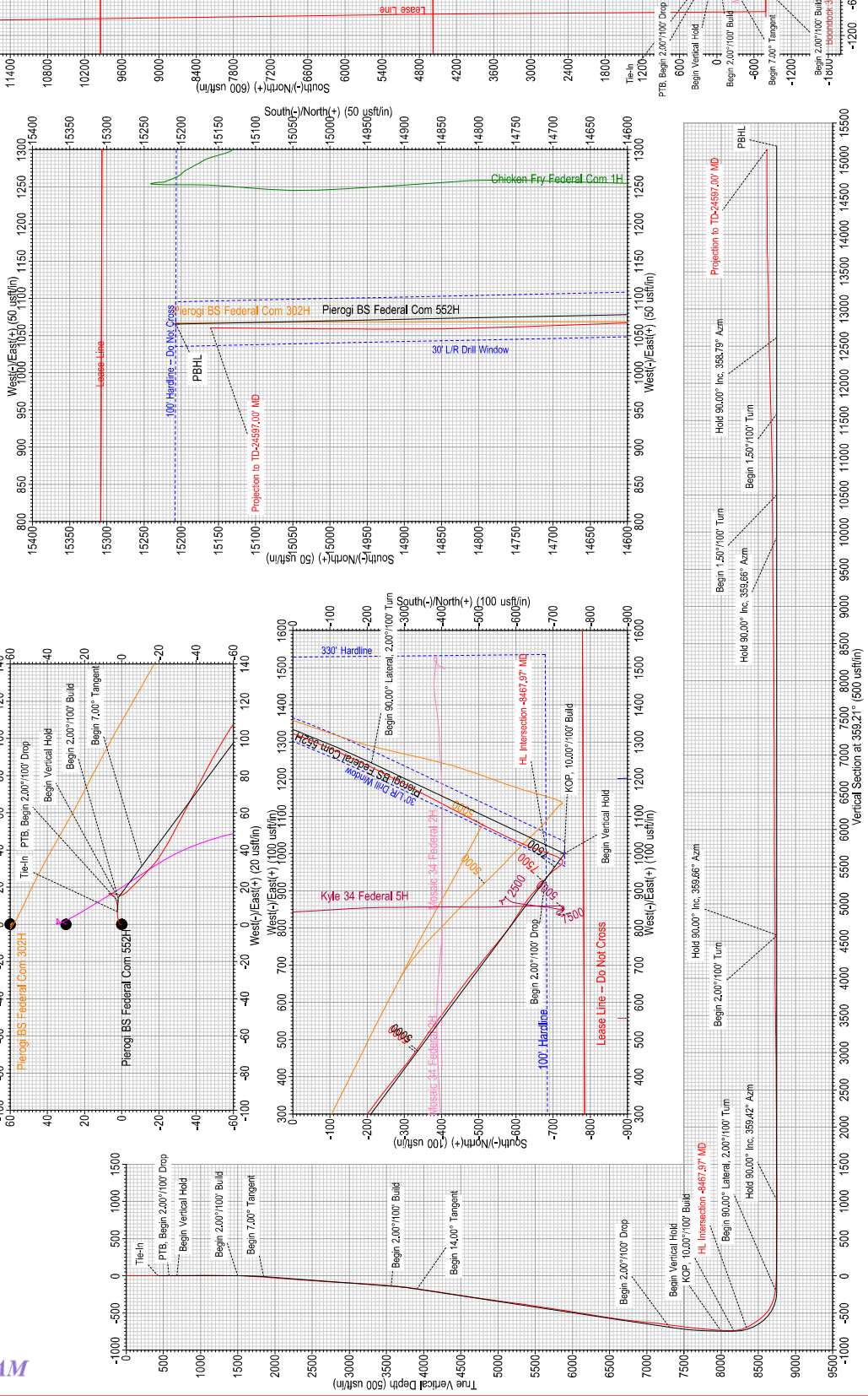
Geodetic System: US State Plane 1927 (Exact solution)

Datum: NAD 1927 (NADCON CONUS)

Ellipsoid: Clarke 1866

Zone: New Mexico East 3001

System Datum: Mean Sea Level



The customer should rely only on this document after independently verifying all paths, targets, coordinates, lease and hard lines represented. Any decisions made or wells drilled, along 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**

**Eddy County, New Mexico (NAD 27)  
Pierogi BS Federal Com (302H, 502H, 552H)  
Pierogi BS Federal Com 552H**

**Wellbore #1**

**Design: Surveys**

## **Standard Survey Report**

**17 May, 2024**







# MS Directional Survey Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi BS Federal Com (302H, 502H, 552H)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.15 Conroe DB

<b>Project</b>	Eddy County, New Mexico (NAD 27)		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	New Mexico East 3001		

<b>Site</b>	Pierogi BS Federal Com (302H, 502H, 552H)		
<b>Site Position:</b>		<b>Northing:</b>	425,201.89 usft
<b>From:</b>	Map	<b>Easting:</b>	580,858.43 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	32° 10' 7.417 N
		<b>Longitude:</b>	104° 4' 19.257 W

<b>Well</b>	Pierogi BS Federal Com 552H		
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>	usft
<b>Grid Convergence:</b>	0.139 °	<b>Ground Level:</b>	2,999.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IFR	3/10/2024	6.613	59.734	47,383.70
	IFR	5/6/2024	6.600	59.729	47,366.20

Design		Surveys			
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	359.21	

Survey Program		Date 5/17/2024		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
143.00	24,597.00	MS MWD + FDIR (Wellbore #1)	MWD+IFR1+FDIR	OWSG MWD + IFR1 + FDIR Correction

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
143.00	0.24	10.35	143.00	0.29	0.05	0.29	0.17	0.17	0.00	
232.00	0.58	355.94	232.00	0.93	0.06	0.93	0.40	0.38	-16.19	
319.00	2.95	77.03	318.96	1.87	2.21	1.84	3.35	2.72	93.21	
425.00	2.10	93.61	424.85	2.36	6.80	2.27	1.05	-0.80	15.64	
524.00	1.64	84.19	523.80	2.39	10.02	2.25	0.56	-0.46	-9.52	
619.00	1.84	73.67	618.76	2.95	12.84	2.78	0.40	0.21	-11.07	
714.00	0.61	44.76	713.73	3.74	14.66	3.54	1.41	-1.29	-30.43	
809.00	1.07	25.35	808.72	4.90	15.39	4.69	0.56	0.48	-20.43	



# MS Directional Survey Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi BS Federal Com (302H, 502H, 552H)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.15 Conroe DB

## 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)
904.00	1.07	28.64	903.71	6.48	16.20	6.26	0.06	0.00	3.46
998.00	0.45	168.54	997.70	6.89	16.69	6.66	1.54	-0.66	148.83
1,093.00	1.07	181.75	1,092.69	5.64	16.74	5.41	0.67	0.65	13.91
1,188.00	0.83	198.56	1,187.68	4.10	16.49	3.87	0.38	-0.25	17.69
1,283.00	0.86	192.77	1,282.67	2.75	16.12	2.53	0.10	0.03	-6.09
1,378.00	0.46	187.72	1,377.66	1.68	15.91	1.46	0.43	-0.42	-5.32
1,472.00	0.61	209.42	1,471.66	0.87	15.61	0.66	0.27	0.16	23.09
1,541.00	1.47	157.57	1,540.65	-0.27	15.77	-0.49	1.73	1.25	-75.14
1,635.00	4.45	136.61	1,634.52	-4.03	18.74	-4.29	3.32	3.17	-22.30
1,825.00	5.38	133.07	1,823.82	-15.47	30.31	-15.89	0.51	0.49	-1.86
1,920.00	6.75	122.77	1,918.28	-21.54	38.25	-22.06	1.84	1.44	-10.84
2,015.00	8.38	117.53	2,012.46	-27.76	49.09	-28.43	1.86	1.72	-5.52
2,110.00	8.20	117.62	2,106.46	-34.10	61.23	-34.94	0.19	-0.19	0.09
2,204.00	8.38	117.93	2,199.48	-40.42	73.22	-41.42	0.20	0.19	0.33
2,299.00	8.64	117.17	2,293.43	-46.92	85.69	-48.09	0.30	0.27	-0.80
2,394.00	8.56	121.82	2,387.37	-53.90	98.04	-55.25	0.74	-0.08	4.89
2,489.00	7.53	122.54	2,481.43	-60.98	109.30	-62.48	1.09	-1.08	0.76
2,583.00	6.88	123.17	2,574.69	-67.37	119.20	-69.01	0.70	-0.69	0.67
2,678.00	6.40	122.67	2,669.05	-73.34	128.42	-75.11	0.51	-0.51	-0.53
2,773.00	6.62	122.88	2,763.44	-79.17	137.48	-81.06	0.23	0.23	0.22
2,868.00	6.43	121.27	2,857.82	-84.91	146.62	-86.92	0.28	-0.20	-1.69
2,962.00	6.15	120.97	2,951.26	-90.23	155.44	-92.37	0.30	-0.30	-0.32
3,057.00	6.28	121.34	3,045.70	-95.55	164.24	-97.81	0.14	0.14	0.39
3,152.00	6.26	128.28	3,140.13	-101.46	172.75	-103.84	0.80	-0.02	7.31
3,247.00	6.18	125.62	3,234.57	-107.65	180.97	-110.14	0.31	-0.08	-2.80
3,342.00	6.23	121.78	3,329.02	-113.34	189.51	-115.95	0.44	0.05	-4.04
3,437.00	6.67	124.02	3,423.42	-119.14	198.46	-121.87	0.53	0.46	2.36
3,531.00	8.12	130.43	3,516.63	-126.50	208.04	-129.36	1.77	1.54	6.82
3,626.00	8.15	131.82	3,610.68	-135.35	218.17	-138.34	0.21	0.03	1.46
3,721.00	9.25	130.23	3,704.58	-144.77	229.01	-147.91	1.19	1.16	-1.67
3,816.00	11.15	130.15	3,798.08	-155.62	241.86	-158.94	2.00	2.00	-0.08
3,911.00	12.81	128.80	3,891.00	-168.15	257.09	-171.67	1.77	1.75	-1.42
4,005.00	14.17	126.30	3,982.41	-181.49	274.49	-185.25	1.57	1.45	-2.66
4,100.00	13.79	126.62	4,074.60	-195.13	292.95	-199.15	0.41	-0.40	0.34
4,195.00	13.55	126.84	4,166.90	-208.55	310.94	-212.82	0.26	-0.25	0.23
4,290.00	13.02	126.52	4,259.36	-221.59	328.45	-226.10	0.56	-0.56	-0.34
4,384.00	13.82	127.32	4,350.79	-234.70	345.89	-239.45	0.87	0.85	0.85
4,479.00	14.09	128.28	4,442.99	-248.74	363.99	-253.74	0.37	0.28	1.01
4,574.00	13.69	128.98	4,535.21	-262.98	381.80	-268.22	0.46	-0.42	0.74
4,669.00	13.36	129.19	4,627.58	-276.99	399.05	-282.46	0.35	-0.35	0.22
4,763.00	13.04	129.10	4,719.09	-290.54	415.70	-296.24	0.34	-0.34	-0.10
4,858.00	12.46	128.11	4,811.75	-303.62	432.08	-309.55	0.65	-0.61	-1.04
4,953.00	13.22	125.71	4,904.38	-316.29	448.96	-322.45	0.98	0.80	-2.53



# MS Directional Survey Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi BS Federal Com (302H, 502H, 552H)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.15 Conroe DB

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)	
5,048.00	13.13	126.15	4,996.88	-328.99	466.50	-335.39	0.14	-0.09	0.46	
5,142.00	12.88	124.00	5,088.46	-341.15	483.80	-347.79	0.58	-0.27	-2.29	
5,237.00	13.38	125.71	5,180.98	-353.49	501.51	-360.37	0.67	0.53	1.80	
5,332.00	13.59	125.00	5,273.36	-366.30	519.57	-373.43	0.28	0.22	-0.75	
5,427.00	14.25	125.92	5,365.57	-379.57	538.19	-386.95	0.73	0.69	0.97	
5,521.00	13.93	127.18	5,456.74	-393.19	556.57	-400.83	0.47	-0.34	1.34	
5,616.00	13.36	125.73	5,549.06	-406.51	574.59	-414.39	0.70	-0.60	-1.53	
5,711.00	14.11	125.83	5,641.35	-419.70	592.89	-427.83	0.79	0.79	0.11	
5,806.00	14.39	126.02	5,733.42	-433.42	611.83	-441.81	0.30	0.29	0.20	
5,901.00	14.05	125.97	5,825.51	-447.13	630.71	-455.79	0.36	-0.36	-0.05	
5,996.00	14.05	126.33	5,917.67	-460.74	649.33	-469.65	0.09	0.00	0.38	
6,090.00	14.42	129.42	6,008.78	-474.93	667.56	-484.09	0.90	0.39	3.29	
6,185.00	13.91	129.03	6,100.90	-489.63	685.57	-499.04	0.55	-0.54	-0.41	
6,280.00	14.35	129.13	6,193.02	-504.25	703.57	-513.91	0.46	0.46	0.11	
6,375.00	14.60	127.96	6,285.01	-519.05	722.15	-528.96	0.40	0.26	-1.23	
6,470.00	14.19	129.72	6,377.02	-533.85	740.54	-544.01	0.63	-0.43	1.85	
6,564.00	13.27	129.23	6,468.34	-548.04	757.76	-558.44	0.99	-0.98	-0.52	
6,659.00	13.06	129.26	6,560.84	-561.73	774.52	-572.35	0.22	-0.22	0.03	
6,754.00	13.13	126.99	6,653.37	-575.01	791.45	-585.87	0.55	0.07	-2.39	
6,848.00	11.80	123.74	6,745.15	-586.78	807.97	-597.86	1.60	-1.41	-3.46	
6,943.00	11.02	122.60	6,838.27	-597.06	823.70	-608.36	0.85	-0.82	-1.20	
7,038.00	10.30	122.88	6,931.63	-606.57	838.48	-618.07	0.76	-0.76	0.29	
7,133.00	9.81	121.55	7,025.18	-615.41	852.51	-627.11	0.57	-0.52	-1.40	
7,227.00	10.70	124.45	7,117.67	-624.54	866.53	-636.43	1.09	0.95	3.09	
7,322.00	11.94	127.83	7,210.82	-635.56	881.56	-647.65	1.48	1.31	3.56	
7,416.00	12.03	131.15	7,302.78	-647.97	896.62	-660.27	0.74	0.10	3.53	
7,511.00	11.11	130.12	7,395.85	-660.38	911.08	-672.88	0.99	-0.97	-1.08	
7,606.00	9.91	131.07	7,489.25	-671.65	924.24	-684.33	1.28	-1.26	1.00	
7,692.00	9.81	131.42	7,573.98	-681.36	935.31	-694.19	0.14	-0.12	0.41	
7,825.00	8.04	138.08	7,705.37	-695.77	950.02	-708.81	1.54	-1.33	5.01	
7,920.00	7.25	144.57	7,799.52	-705.60	957.94	-718.74	1.23	-0.83	6.83	
8,015.00	5.32	143.11	7,893.95	-714.01	964.06	-727.23	2.04	-2.03	-1.54	
8,110.00	5.19	137.98	7,988.55	-720.72	969.58	-734.02	0.51	-0.14	-5.40	
8,205.00	4.35	118.25	8,083.23	-725.62	975.63	-739.00	1.93	-0.88	-20.77	
8,299.00	5.88	60.03	8,176.91	-724.90	982.94	-738.39	5.48	1.63	-61.94	
8,394.00	18.31	23.84	8,269.71	-708.74	993.24	-722.37	14.72	13.08	-38.09	
8,467.97	26.11	18.03	8,338.15	-682.60	1,002.99	-696.36	10.94	10.54	-7.86	
HL Intersection -8467.97' MD										
8,489.00	28.35	16.93	8,356.85	-673.42	1,005.88	-687.22	10.94	10.67	-5.21	
8,584.00	34.85	22.01	8,437.74	-626.62	1,022.64	-640.66	7.39	6.84	5.35	
8,679.00	40.16	25.50	8,513.08	-573.76	1,046.02	-588.13	6.02	5.59	3.67	
8,773.00	48.29	27.47	8,580.39	-515.17	1,075.30	-529.95	8.77	8.65	2.10	
8,868.00	58.76	27.51	8,636.78	-447.50	1,110.52	-462.77	11.02	11.02	0.04	
8,963.00	67.97	27.77	8,679.33	-372.35	1,149.88	-388.17	9.70	9.69	0.27	



# MS Directional Survey Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi BS Federal Com (302H, 502H, 552H)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.15 Conroe DB

## 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)
9,058.00	75.87	27.73	8,708.79	-292.50	1,191.89	-308.90	8.32	8.32	-0.04
9,153.00	82.99	25.27	8,726.21	-208.97	1,233.51	-225.96	7.91	7.49	-2.59
9,248.00	85.54	24.52	8,735.70	-123.24	1,273.30	-140.78	2.80	2.68	-0.79
9,342.00	89.32	21.02	8,739.91	-36.68	1,309.62	-54.73	5.48	4.02	-3.72
9,437.00	87.60	17.76	8,742.47	52.89	1,341.15	34.39	3.88	-1.81	-3.43
9,594.00	89.58	19.33	8,746.33	201.68	1,391.06	182.48	1.61	1.26	1.00
9,689.00	89.27	17.32	8,747.28	291.85	1,420.93	272.23	2.14	-0.33	-2.12
9,784.00	89.76	13.20	8,748.09	383.48	1,445.93	363.51	4.37	0.52	-4.34
9,878.00	89.93	10.56	8,748.34	475.46	1,465.28	455.21	2.81	0.18	-2.81
9,973.00	89.85	7.62	8,748.52	569.25	1,480.28	548.79	3.10	-0.08	-3.09
10,068.00	89.98	5.57	8,748.67	663.62	1,491.19	643.00	2.16	0.14	-2.16
10,163.00	89.93	3.94	8,748.74	758.29	1,499.07	737.55	1.72	-0.05	-1.72
10,257.00	89.27	2.10	8,749.40	852.15	1,504.02	831.33	2.08	-0.70	-1.96
10,352.00	90.02	0.45	8,749.99	947.12	1,506.13	926.27	1.91	0.79	-1.74
10,447.00	90.73	359.64	8,749.36	1,042.12	1,506.21	1,021.25	1.13	0.75	-0.85
10,542.00	90.68	0.39	8,748.19	1,137.11	1,506.23	1,116.24	0.79	-0.05	0.79
10,637.00	90.68	0.93	8,747.07	1,232.10	1,507.33	1,211.20	0.57	0.00	0.57
10,731.00	90.64	1.82	8,745.98	1,326.06	1,509.58	1,305.12	0.95	-0.04	0.95
10,826.00	90.55	1.05	8,745.00	1,421.03	1,511.96	1,400.05	0.82	-0.09	-0.81
10,921.00	90.55	0.68	8,744.09	1,516.01	1,513.40	1,495.00	0.39	0.00	-0.39
11,016.00	90.68	0.16	8,743.07	1,611.00	1,514.09	1,589.97	0.56	0.14	-0.55
11,111.00	90.02	359.87	8,742.49	1,706.00	1,514.12	1,684.96	0.76	-0.69	-0.31
11,206.00	90.07	1.39	8,742.41	1,800.99	1,515.16	1,779.93	1.60	0.05	1.60
11,300.00	90.02	0.35	8,742.34	1,894.98	1,516.59	1,873.89	1.11	-0.05	-1.11
11,395.00	89.93	359.64	8,742.38	1,989.98	1,516.58	1,968.88	0.75	-0.09	-0.75
11,490.00	90.15	0.28	8,742.31	2,084.98	1,516.51	2,063.87	0.71	0.23	0.67
11,585.00	90.20	0.61	8,742.02	2,179.98	1,517.25	2,158.85	0.35	0.05	0.35
11,680.00	90.15	0.64	8,741.73	2,274.97	1,518.29	2,253.82	0.06	-0.05	0.03
11,775.00	90.02	0.69	8,741.59	2,369.96	1,519.39	2,348.79	0.15	-0.14	0.05
11,870.00	90.20	0.79	8,741.41	2,464.96	1,520.62	2,443.76	0.22	0.19	0.11
11,964.00	90.20	358.32	8,741.08	2,558.94	1,519.89	2,537.75	2.63	0.00	-2.63
12,059.00	90.20	359.44	8,740.75	2,653.92	1,518.03	2,632.74	1.18	0.00	1.18
12,154.00	90.07	357.21	8,740.53	2,748.88	1,515.25	2,727.72	2.35	-0.14	-2.35
12,249.00	90.73	357.37	8,739.86	2,843.77	1,510.76	2,822.67	0.71	0.69	0.17
12,344.00	90.81	358.55	8,738.59	2,938.70	1,507.38	2,917.64	1.24	0.08	1.24
12,438.00	90.77	357.66	8,737.29	3,032.64	1,504.27	3,011.61	0.95	-0.04	-0.95
12,533.00	90.64	358.81	8,736.12	3,127.58	1,501.35	3,106.59	1.22	-0.14	1.21
12,628.00	90.55	357.73	8,735.13	3,222.53	1,498.48	3,201.57	1.14	-0.09	-1.14
12,723.00	92.26	359.29	8,732.80	3,317.47	1,496.01	3,296.52	2.44	1.80	1.64
12,818.00	90.24	357.56	8,730.73	3,412.40	1,493.40	3,391.48	2.80	-2.13	-1.82
12,912.00	90.51	357.04	8,730.12	3,506.29	1,488.97	3,485.43	0.62	0.29	-0.55
13,007.00	90.42	356.69	8,729.35	3,601.15	1,483.78	3,580.35	0.38	-0.09	-0.37
13,102.00	90.55	357.65	8,728.54	3,696.03	1,479.09	3,675.28	1.02	0.14	1.01





# MS Directional Survey Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi BS Federal Com (302H, 502H, 552H)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.15 Conroe DB

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)
13,197.00	90.46	359.47	8,727.70	3,790.99	1,476.70	3,770.27	1.92	-0.09	1.92
13,292.00	90.87	359.85	8,726.60	3,885.98	1,476.13	3,865.26	0.59	0.43	0.40
13,386.00	90.20	358.67	8,725.72	3,979.97	1,474.92	3,959.25	1.44	-0.71	-1.26
13,481.00	89.93	358.50	8,725.62	4,074.94	1,472.57	4,054.25	0.34	-0.28	-0.18
13,576.00	89.99	358.24	8,725.68	4,169.90	1,469.87	4,149.24	0.28	0.06	-0.27
13,671.00	90.02	0.49	8,725.67	4,264.89	1,468.82	4,244.23	2.37	0.03	2.37
13,766.00	89.89	1.90	8,725.75	4,359.86	1,470.80	4,339.17	1.49	-0.14	1.48
13,860.00	90.25	2.62	8,725.63	4,453.79	1,474.51	4,433.04	0.86	0.38	0.77
13,955.00	90.12	2.55	8,725.33	4,548.69	1,478.79	4,527.87	0.16	-0.14	-0.07
14,050.00	89.99	1.55	8,725.24	4,643.63	1,482.19	4,622.75	1.06	-0.14	-1.05
14,145.00	89.94	0.34	8,725.29	4,738.62	1,483.76	4,717.71	1.27	-0.05	-1.27
14,240.00	90.43	0.49	8,724.99	4,833.61	1,484.44	4,812.69	0.54	0.52	0.16
14,335.00	90.52	0.64	8,724.20	4,928.60	1,485.38	4,907.66	0.18	0.09	0.16
14,429.00	90.65	0.83	8,723.24	5,022.59	1,486.59	5,001.62	0.24	0.14	0.20
14,524.00	90.87	0.83	8,721.98	5,117.57	1,487.96	5,096.57	0.23	0.23	0.00
14,619.00	90.96	0.00	8,720.46	5,212.56	1,488.65	5,191.54	0.88	0.09	-0.87
14,714.00	90.56	1.74	8,719.20	5,307.53	1,490.09	5,286.48	1.88	-0.42	1.83
14,809.00	90.08	0.17	8,718.67	5,402.52	1,491.68	5,381.44	1.73	-0.51	-1.65
14,903.00	89.86	358.02	8,718.72	5,496.50	1,490.19	5,475.43	2.30	-0.23	-2.29
14,998.00	90.47	359.00	8,718.45	5,591.46	1,487.72	5,570.42	1.22	0.64	1.03
15,093.00	90.21	359.82	8,717.88	5,686.46	1,486.74	5,665.42	0.91	-0.27	0.86
15,188.00	90.34	0.71	8,717.43	5,781.45	1,487.18	5,760.40	0.95	0.14	0.94
15,282.00	90.20	359.48	8,716.98	5,875.45	1,487.34	5,854.39	1.32	-0.15	-1.31
15,377.00	90.37	0.31	8,716.51	5,970.45	1,487.17	5,949.38	0.89	0.18	0.87
15,472.00	90.07	359.96	8,716.15	6,065.45	1,487.39	6,044.36	0.49	-0.32	-0.37
15,567.00	89.67	1.40	8,716.36	6,160.44	1,488.52	6,139.33	1.57	-0.42	1.52
15,662.00	90.37	0.99	8,716.33	6,255.42	1,490.50	6,234.27	0.85	0.74	-0.43
15,757.00	90.24	0.05	8,715.82	6,350.41	1,491.36	6,329.24	1.00	-0.14	-0.99
15,851.00	90.20	359.25	8,715.46	6,444.41	1,490.79	6,423.24	0.85	-0.04	-0.85
15,946.00	90.20	359.56	8,715.13	6,539.40	1,489.80	6,518.24	0.33	0.00	0.33
16,041.00	90.02	359.25	8,714.95	6,634.40	1,488.81	6,613.24	0.38	-0.19	-0.33
16,136.00	90.02	358.10	8,714.92	6,729.37	1,486.62	6,708.23	1.21	0.00	-1.21
16,231.00	90.02	358.37	8,714.88	6,824.32	1,483.69	6,803.22	0.28	0.00	0.28
16,325.00	89.71	356.99	8,715.10	6,918.24	1,479.88	6,897.18	1.50	-0.33	-1.47
16,420.00	89.41	357.05	8,715.83	7,013.11	1,474.95	6,992.11	0.32	-0.32	0.06
16,515.00	90.68	357.95	8,715.76	7,108.02	1,470.80	7,087.06	1.64	1.34	0.95
16,610.00	90.77	359.25	8,714.56	7,202.98	1,468.48	7,182.05	1.37	0.09	1.37
16,704.00	91.25	0.04	8,712.90	7,296.96	1,467.90	7,276.03	0.98	0.51	0.84
16,799.00	90.51	359.63	8,711.44	7,391.95	1,467.63	7,371.01	0.89	-0.78	-0.43
16,894.00	90.02	357.81	8,711.00	7,486.92	1,465.50	7,466.00	1.98	-0.52	-1.92
16,989.00	90.15	358.90	8,710.86	7,581.88	1,462.78	7,560.99	1.16	0.14	1.15
17,083.00	90.07	0.17	8,710.68	7,675.88	1,462.01	7,654.99	1.35	-0.09	1.35
17,178.00	90.24	2.18	8,710.42	7,770.85	1,463.96	7,749.93	2.12	0.18	2.12



# MS Directional Survey Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi BS Federal Com (302H, 502H, 552H)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.15 Conroe DB

## 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)
17,273.00	90.24	359.17	8,710.03	7,865.83	1,465.08	7,844.89	3.17	0.00	-3.17
17,368.00	90.33	0.39	8,709.55	7,960.83	1,464.72	7,939.88	1.29	0.09	1.28
17,463.00	90.02	358.45	8,709.26	8,055.82	1,463.75	8,034.87	2.07	-0.33	-2.04
17,557.00	90.33	0.35	8,708.98	8,149.81	1,462.77	8,128.87	2.05	0.33	2.02
17,652.00	90.68	0.55	8,708.14	8,244.80	1,463.52	8,223.84	0.42	0.37	0.21
17,747.00	90.68	359.21	8,707.01	8,339.79	1,463.32	8,318.83	1.41	0.00	-1.41
17,842.00	90.73	359.11	8,705.84	8,434.78	1,461.92	8,413.82	0.12	0.05	-0.11
17,937.00	90.59	359.74	8,704.75	8,529.76	1,460.97	8,508.81	0.68	-0.15	0.66
18,031.00	90.81	357.90	8,703.60	8,623.73	1,459.04	8,602.80	1.97	0.23	-1.96
18,126.00	90.73	359.10	8,702.32	8,718.69	1,456.55	8,697.78	1.27	-0.08	1.26
18,221.00	90.64	357.45	8,701.19	8,813.64	1,453.69	8,792.76	1.74	-0.09	-1.74
18,316.00	90.73	359.76	8,700.05	8,908.60	1,451.38	8,887.74	2.43	0.09	2.43
18,410.00	90.46	357.72	8,699.07	9,002.56	1,449.31	8,981.72	2.19	-0.29	-2.17
18,505.00	90.99	359.25	8,697.87	9,097.52	1,446.80	9,076.71	1.70	0.56	1.61
18,600.00	90.73	0.27	8,696.45	9,192.51	1,446.40	9,171.69	1.11	-0.27	1.07
18,695.00	90.55	358.57	8,695.39	9,287.49	1,445.44	9,266.68	1.80	-0.19	-1.79
18,789.00	90.81	359.56	8,694.27	9,381.47	1,443.91	9,360.67	1.09	0.28	1.05
18,884.00	90.59	359.32	8,693.11	9,476.46	1,442.98	9,455.66	0.34	-0.23	-0.25
18,979.00	89.98	359.91	8,692.64	9,571.46	1,442.34	9,550.66	0.89	-0.64	0.62
19,073.00	90.24	358.54	8,692.46	9,665.44	1,441.07	9,644.66	1.48	0.28	-1.46
19,168.00	90.42	359.60	8,691.91	9,760.43	1,439.53	9,739.65	1.13	0.19	1.12
19,263.00	90.29	359.60	8,691.32	9,855.42	1,438.86	9,834.65	0.14	-0.14	0.00
19,358.00	90.15	359.61	8,690.96	9,950.42	1,438.21	9,929.65	0.15	-0.15	0.01
19,452.00	90.24	359.75	8,690.64	10,044.42	1,437.68	10,023.64	0.18	0.10	0.15
19,547.00	90.11	358.50	8,690.35	10,139.41	1,436.23	10,118.64	1.32	-0.14	-1.32
19,642.00	90.29	359.37	8,690.01	10,234.39	1,434.47	10,213.64	0.94	0.19	0.92
19,737.00	90.29	358.78	8,689.53	10,329.37	1,432.93	10,308.64	0.62	0.00	-0.62
19,831.00	89.41	359.85	8,689.78	10,423.37	1,431.81	10,402.63	1.47	-0.94	1.14
19,926.00	89.58	356.89	8,690.62	10,518.31	1,429.11	10,497.61	3.12	0.18	-3.12
20,021.00	89.89	359.14	8,691.06	10,613.25	1,425.82	10,592.58	2.39	0.33	2.37
20,116.00	90.15	357.50	8,691.02	10,708.20	1,423.03	10,687.57	1.75	0.27	-1.73
20,211.00	91.30	356.47	8,689.82	10,803.06	1,418.04	10,782.48	1.63	1.21	-1.08
20,305.00	91.21	354.81	8,687.76	10,896.76	1,410.89	10,876.28	1.77	-0.10	-1.77
20,400.00	91.43	352.21	8,685.57	10,991.12	1,400.16	10,970.77	2.75	0.23	-2.74
20,495.00	91.30	351.90	8,683.31	11,085.18	1,387.03	11,065.01	0.35	-0.14	-0.33
20,590.00	91.96	349.81	8,680.61	11,178.93	1,371.94	11,158.95	2.31	0.69	-2.20
20,684.00	91.26	351.29	8,677.97	11,271.62	1,356.51	11,251.84	1.74	-0.74	1.57
20,779.00	91.43	350.28	8,675.74	11,365.36	1,341.30	11,345.79	1.08	0.18	-1.06
20,874.00	91.39	349.83	8,673.40	11,458.91	1,324.90	11,439.55	0.48	-0.04	-0.47
20,969.00	91.31	347.48	8,671.16	11,552.02	1,306.22	11,532.91	2.47	-0.08	-2.47
21,063.00	91.31	347.96	8,669.01	11,643.84	1,286.23	11,625.00	0.51	0.00	0.51
21,158.00	90.87	347.60	8,667.20	11,736.67	1,266.13	11,718.10	0.60	-0.46	-0.38
21,253.00	91.04	347.70	8,665.62	11,829.46	1,245.81	11,811.16	0.21	0.18	0.11
21,347.00	91.08	348.02	8,663.88	11,921.35	1,226.05	11,903.31	0.34	0.04	0.34



# MS Directional Survey Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi BS Federal Com (302H, 502H, 552H)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.15 Conroe DB

## 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)
21,442.00	91.87	348.00	8,661.44	12,014.24	1,206.32	11,996.47	0.83	0.83	-0.02
21,537.00	91.82	347.45	8,658.38	12,107.02	1,186.13	12,089.52	0.58	-0.05	-0.58
21,632.00	91.78	349.54	8,655.39	12,200.06	1,167.19	12,182.81	2.20	-0.04	2.20
21,727.00	91.91	350.75	8,652.33	12,293.61	1,150.94	12,276.57	1.28	0.14	1.27
21,822.00	91.69	352.63	8,649.35	12,387.56	1,137.22	12,370.70	1.99	-0.23	1.98
21,916.00	91.47	355.15	8,646.76	12,480.98	1,127.22	12,464.26	2.69	-0.23	2.68
22,011.00	90.73	355.25	8,644.93	12,575.63	1,119.27	12,559.00	0.79	-0.78	0.11
22,106.00	90.87	356.67	8,643.61	12,670.38	1,112.58	12,653.84	1.50	0.15	1.49
22,200.00	91.00	358.92	8,642.07	12,764.30	1,108.96	12,747.79	2.40	0.14	2.39
22,295.00	90.74	359.72	8,640.63	12,859.28	1,107.84	12,842.78	0.89	-0.27	0.84
22,390.00	90.78	359.09	8,639.37	12,954.26	1,106.85	12,937.77	0.66	0.04	-0.66
22,485.00	90.91	358.87	8,637.97	13,049.24	1,105.16	13,032.76	0.27	0.14	-0.23
22,579.00	91.22	359.50	8,636.22	13,143.21	1,103.82	13,126.74	0.75	0.33	0.67
22,674.00	91.22	358.63	8,634.20	13,238.18	1,102.27	13,221.72	0.92	0.00	-0.92
22,769.00	91.26	359.16	8,632.14	13,333.14	1,100.44	13,316.70	0.56	0.04	0.56
22,864.00	92.19	359.12	8,629.28	13,428.08	1,099.01	13,411.65	0.98	0.98	-0.04
22,959.00	90.47	358.19	8,627.08	13,523.03	1,096.79	13,506.62	2.06	-1.81	-0.98
23,053.00	92.27	357.62	8,624.83	13,616.93	1,093.35	13,600.56	2.01	1.91	-0.61
23,148.00	91.31	358.83	8,621.86	13,711.84	1,090.41	13,695.50	1.63	-1.01	1.27
23,243.00	90.43	357.49	8,620.42	13,806.77	1,087.36	13,790.47	1.69	-0.93	-1.41
23,338.00	90.25	358.48	8,619.86	13,901.71	1,084.02	13,885.44	1.06	-0.19	1.04
23,433.00	90.12	359.16	8,619.55	13,996.69	1,082.06	13,980.44	0.73	-0.14	0.72
23,527.00	90.30	359.22	8,619.21	14,090.68	1,080.73	14,074.44	0.20	0.19	0.06
23,622.00	90.30	357.79	8,618.71	14,185.65	1,078.26	14,169.43	1.51	0.00	-1.51
23,717.00	90.30	359.91	8,618.21	14,280.62	1,076.35	14,264.42	2.23	0.00	2.23
23,812.00	90.16	357.36	8,617.83	14,375.58	1,074.09	14,359.41	2.69	-0.15	-2.68
23,906.00	89.99	359.11	8,617.71	14,469.54	1,071.19	14,453.39	1.87	-0.18	1.86
24,001.00	90.30	357.48	8,617.47	14,564.49	1,068.36	14,548.37	1.75	0.33	-1.72
24,096.00	90.12	358.46	8,617.12	14,659.43	1,065.00	14,643.35	1.05	-0.19	1.03
24,191.00	90.12	357.57	8,616.92	14,754.37	1,061.71	14,738.33	0.94	0.00	-0.94
24,285.00	90.21	359.37	8,616.65	14,848.33	1,059.20	14,832.32	1.92	0.10	1.91
24,380.00	90.37	0.21	8,616.17	14,943.33	1,058.85	14,927.31	0.90	0.17	0.88
24,475.00	90.21	0.49	8,615.69	15,038.33	1,059.43	15,022.29	0.34	-0.17	0.29
24,597.00	90.21	0.49	8,615.24	15,160.32	1,060.47	15,144.26	0.00	0.00	0.00
Projection to TD-24597.00' MD									

## Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,467.97	8,338.15	-682.60	1,002.99	HL Intersection -8467.97' MD
24,597.00	8,615.24	15,160.32	1,060.47	Projection to TD-24597.00' MD



MS Directional  
Survey Report



<b>Company:</b>	Marathon Oil	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi BS Federal Com (302H, 502H, 552H)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Surveys	<b>Database:</b>	EDM 5000.15 Conroe DB



**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 354630

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 354630
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

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