

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 <i>Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.</i>		5. Lease Serial No. NMNM17222
		6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2		7. If Unit of CA/Agreement, Name and/or No.
1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		8. Well Name and No. PIEROGI BS FEDERAL COM/502H
2. Name of Operator MARATHON OIL PERMIAN LLC		9. API Well No. 3001548476
3a. Address 990 TOWN & COUNTRY BLVD, HOUSTON, TX	3b. Phone No. (include area code) (713) 296-2113	10. Field and Pool or Exploratory Area WILLOW LAKE WEST/BONE SPRING
4. Location of Well (Footage, Sec., T.,R.,M., or Survey Description) SEC 34/T24S/R28E/NMP		11. Country or Parish, State EDDY/NM

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: 24068'

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 / 816 FSL / 1859 FEL / TWSP: 24S / RANGE: 28E / SECTION: 34 / LAT: 32.168602 / LONG: -104.0725072 (TVD: 0 feet, MD: 0 feet)

PPP: SESE / 1343 FSL / 400 FEL / TWSP: 24S / RANGE: 28E / SECTION: 34 / LAT: 32.1702236 / LONG: -104.0678063 (TVD: 9535 feet, MD: 10782 feet)

PPP: SESE / 100 FSL / 400 FEL / TWSP: 24S / RANGE: 28E / SECTION: 34 / LAT: 32.1668074 / LONG: -104.0677749 (TVD: 9535 feet, MD: 10057 feet)

BHL: NWNNE / 100 FNL / 1620 FEL / TWSP: 24S / RANGE: 28E / SECTION: 34 / LAT: 32.1810214 / LONG: -104.0679057 (TVD: 9535 feet, MD: 14657 feet)

CONFIDENTIAL

Well Name: PIEROGI BS FEDERAL COM	Well Location: T24S / R28E / SEC 34 / SWSE / 32.168602 / -104.0725072	County or Parish/State: EDDY / NM
Well Number: 502H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM17222	Unit or CA Name:	Unit or CA Number:
US Well Number: 3001548476	Operator: MARATHON OIL PERMIAN LLC	

Notice of Intent

Sundry ID: 2795409

Type of Submission: Notice of Intent

Type of Action: Drilling Operations

Date Sundry Submitted: 06/13/2024

Time Sundry Submitted: 04:45

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: 24068'

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

Pierogi_BS_Fed_Com_502H_EOW_Dir_Survey_20240613164331.pdf

C102_Pierogi_BS_Fed_Com_502H_AD_20240613163943.pdf

Well Name: PIERCE-134 FEDERAL COM	Well Location: T24S / R28E / SEC 34 / SWSE / 32.168602 / -104.0725072	County or Parish/State: EDDY / NM
Well Number: 502H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM17222	Unit or CA Name:	Unit or CA Number:
US Well Number: 3001548476	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 04:45 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

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

¹ API Number 30-015-48476	² Pool Code 64450	³ Pool Name WILLOW LAKE; BONE SPRINGS
⁴ Property Code 355341	⁵ Property Name PIEROGI BS FEDERAL COM	⁶ Well Number 502H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 2999'

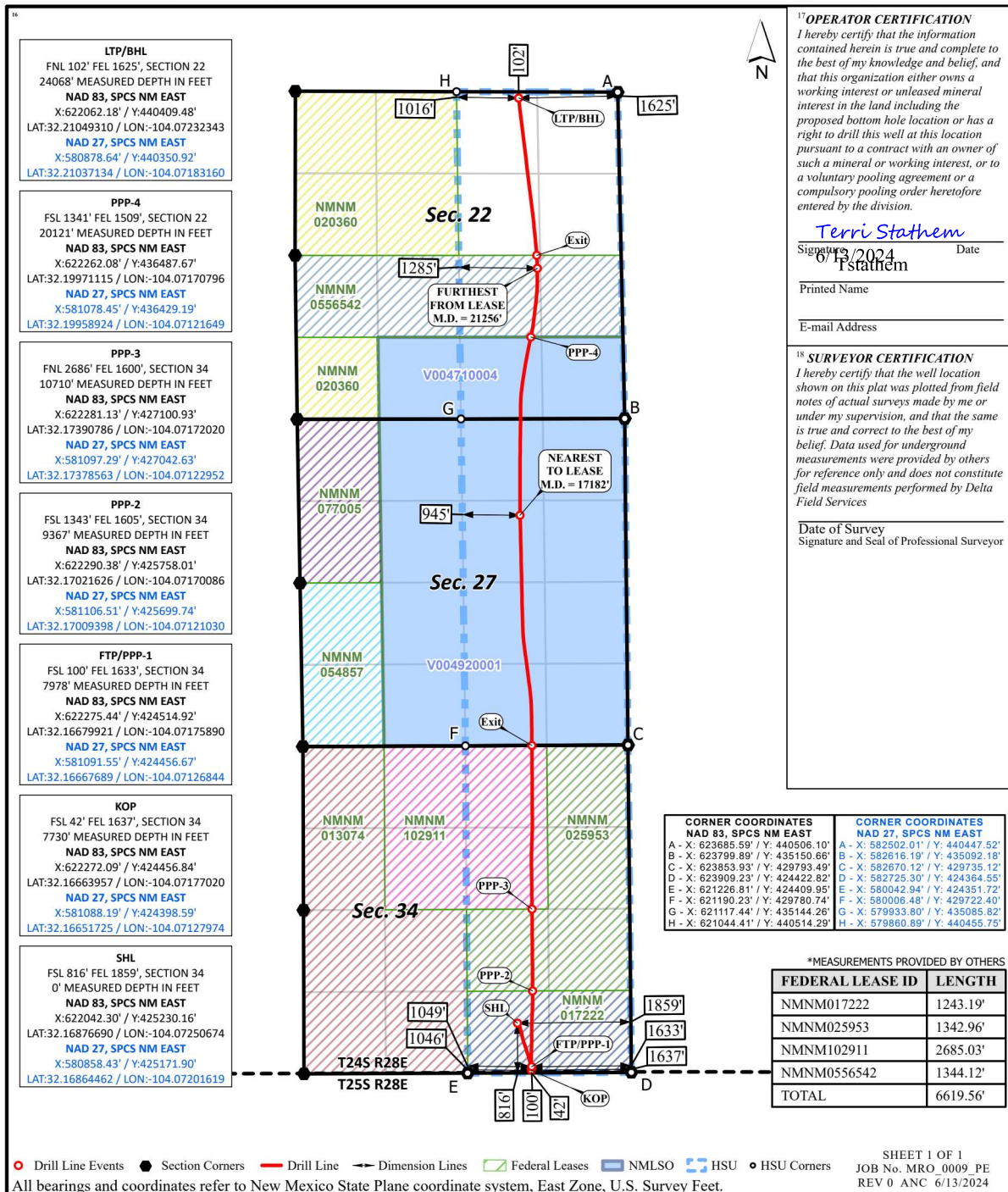
¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	34	24S	28E		816'	SOUTH	1859'	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
B	22	24S	28E		102'	NORTH	1625'	EAST	EDDY
¹² Dedicated Acres 960.00	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.						

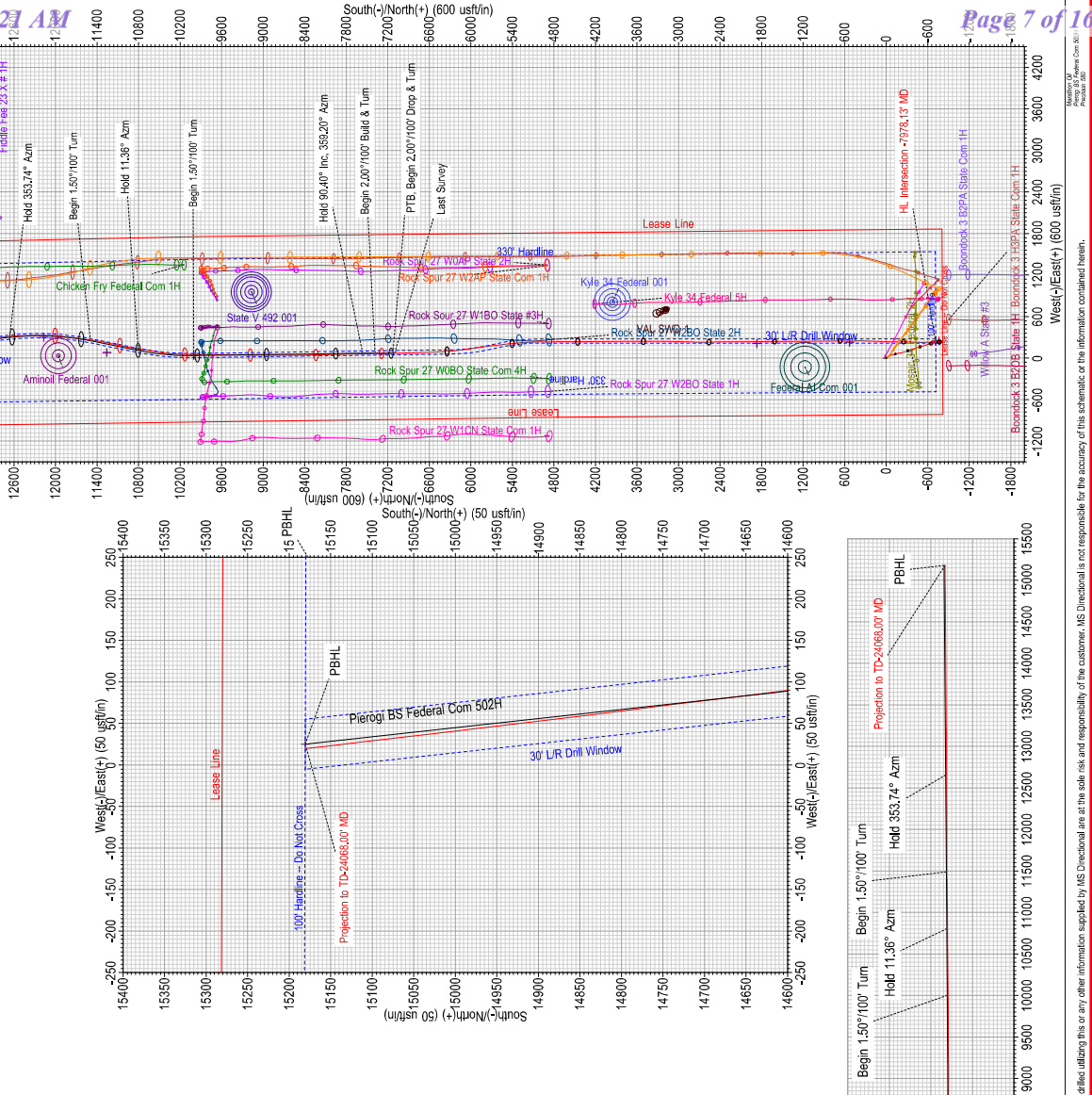
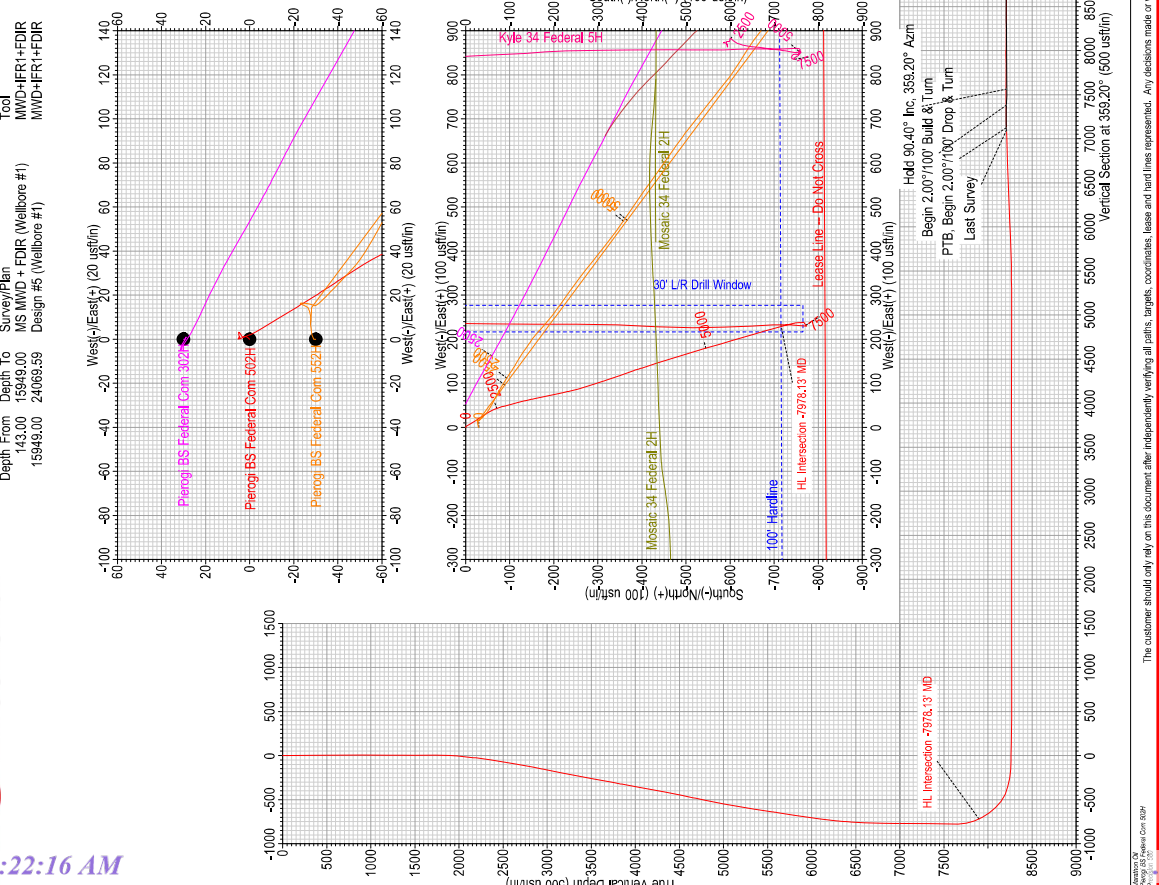
No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



WELL DETAILS: Pierogi BS Federal Com 502H									
GL @ 2999.00			WELL @ 3022.50 (Precision 580)		SECTION DETAILS				
+N-S	0.00	0.00	Northing	Eastings	Latitude	Longitude			
			425171.90	500859.43	32° 10' 7.121" N	104° 4' 19.258" W			
MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSecd	Annotation
15949.00	91.88	358.65	8209.11	7100.20	71.33	0.00	0.00	7088.52	Last Survey
15977.00	91.88	358.65	8208.19	7128.18	70.67	0.00	0.00	7126.50	PTB, Begin 2.00°/100' Drop & Turn
16237.00	87.37	1.24	8209.89	7388.08	70.42	2.00	150.126	7386.38	
16413.27	90.40	359.20	8213.32	7564.29	71.09	2.07	-33.979	7562.56	Hold 90.40° Inc. 359.20° Azm
18850.77	90.40	359.20	8196.30	10001.49	37.06	0.00	0.00	10000.00	Begin 1.50°/100' Turn
19661.43	90.40	11.36	8190.64	10807.18	111.52	1.50	90.000	10805.49	Hold 11.36° Azm
20361.47	90.40	11.36	8185.75	11493.49	249.40	0.00	0.00	11488.89	Hold 11.36° Azm
21536.02	90.40	353.74	8177.53	12662.23	301.47	1.50	-89.952	12656.79	Begin 1.50°/100' Turn
24089.81	90.40	353.74	8160.03	15180.66	25.27	0.00	0.00	15178.83	Hold 353.74° Azm
									PBHL

DESIGN TARGET DETAILS									
Name	10000VS v5_Pierogi 502H	10000VS v5_Pierogi 502H	10000VS v5_Pierogi 502H	10000VS v5_Pierogi 502H	10000VS v5_Pierogi 502H	10000VS v5_Pierogi 502H	10000VS v5_Pierogi 502H	10000VS v5_Pierogi 502H	10000VS v5_Pierogi 502H
GL	2999.00	2999.00	2999.00	2999.00	2999.00	2999.00	2999.00	2999.00	2999.00
WELL	3022.50 (Precision 580)	3022.50 (Precision 580)	3022.50 (Precision 580)	3022.50 (Precision 580)	3022.50 (Precision 580)	3022.50 (Precision 580)	3022.50 (Precision 580)	3022.50 (Precision 580)	3022.50 (Precision 580)
Longitude	104° 4' 19.258" W	104° 4' 19.258" W	104° 4' 19.258" W	104° 4' 19.258" W	104° 4' 19.258" W	104° 4' 19.258" W	104° 4' 19.258" W	104° 4' 19.258" W	104° 4' 19.258" W
Latitude	32° 10' 7.121" N	32° 10' 7.121" N	32° 10' 7.121" N	32° 10' 7.121" N	32° 10' 7.121" N	32° 10' 7.121" N	32° 10' 7.121" N	32° 10' 7.121" N	32° 10' 7.121" N
East	580858.43	580858.43	580858.43	580858.43	580858.43	580858.43	580858.43	580858.43	580858.43
North	425171.90	425171.90	425171.90	425171.90	425171.90	425171.90	425171.90	425171.90	425171.90
Easting	580858.43	580858.43	580858.43	580858.43	580858.43	580858.43	580858.43	580858.43	580858.43
Northing	425171.90	425171.90	425171.90	425171.90	425171.90	425171.90	425171.90	425171.90	425171.90
+N-S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
+E-W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TVD	8160.03	8160.03	8160.03	8160.03	8160.03	8160.03	8160.03	8160.03	8160.03
Azimuth	353.74°	353.74°	353.74°	353.74°	353.74°	353.74°	353.74°	353.74°	353.74°
Strength	47369.01	47369.01	47369.01	47369.01	47369.01	47369.01	47369.01	47369.01	47369.01
Dip Angle	92.73°	92.73°	92.73°	92.73°	92.73°	92.73°	92.73°	92.73°	92.73°
Date	4/27/2024	4/27/2024	4/27/2024	4/27/2024	4/27/2024	4/27/2024	4/27/2024	4/27/2024	4/27/2024
Model	IFR	IFR	IFR	IFR	IFR	IFR	IFR	IFR	IFR

To convert a Magnetic Direction to a Grid Direction, Add 6.463°
To convert a Magnetic Direction to a True Direction, Add 6.602° East
To convert a True Direction to a Grid Direction, Subtract 0.139°





Marathon Oil

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

Wellbore #1

Design: Surveys

Standard Survey Report

06 May, 2024





MS Directional Survey Report



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

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

Well	Pierogi BS Federal Com 502H		
Well Position	+N/-S	0.00 usft	Northing: 425,171.90 usft
	+E/-W	0.00 usft	Easting: 580,858.43 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
Grid Convergence:	0.139 °	Ground Level:	2,999.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IFR	3/10/2024	6.613	59.735	47,383.70
	IFR	4/27/2024	6.602	59.730	47,369.00

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	359.20	

Survey Program		Date	5/6/2024		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
143.00	24,068.00	MS MWD + FDIR (Wellbore #1)	MWD+IFR1+FDIR	OWSG MWD + IFR1 + FDIR Correction	

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	
143.00	0.81	38.20	143.00	0.79	0.63	0.79	0.57	0.57	0.00	
232.00	0.61	21.66	231.99	1.73	1.19	1.71	0.32	-0.22	-18.58	
319.00	0.16	315.24	318.99	2.25	1.27	2.23	0.65	-0.52	-76.34	
410.00	0.51	344.38	409.98	2.73	1.08	2.71	0.42	0.38	32.02	
525.00	0.61	52.64	524.98	3.59	1.42	3.57	0.55	0.09	59.36	
619.00	1.12	58.22	618.97	4.38	2.60	4.34	0.55	0.54	5.94	
714.00	0.35	292.65	713.96	4.98	3.12	4.93	1.43	-0.81	-132.18	
809.00	0.57	249.01	808.96	4.92	2.42	4.89	0.42	0.23	-45.94	



MS Directional Survey Report



Company:	Marathon Oil	Local Co-ordinate Reference:	Well Pierogi BS Federal Com 502H
Project:	Eddy County, New Mexico (NAD 27)	TVD Reference:	WELL @ 3022.50usft (Precision 580)
Site:	Pierogi BS Federal Com (302H, 502H, 552H)	MD Reference:	WELL @ 3022.50usft (Precision 580)
Well:	Pierogi BS Federal Com 502H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	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	0.50	269.28	903.96	4.75	1.56	4.72	0.21	-0.07	21.34
999.00	0.36	254.49	998.95	4.66	0.86	4.65	0.19	-0.15	-15.57
1,094.00	0.18	208.01	1,093.95	4.45	0.50	4.44	0.28	-0.19	-48.93
1,187.00	0.17	38.85	1,186.95	4.43	0.52	4.42	0.37	-0.01	-181.89
1,282.00	0.22	83.75	1,281.95	4.56	0.79	4.55	0.16	0.05	47.26
1,377.00	0.09	3.74	1,376.95	4.65	0.97	4.64	0.23	-0.14	-84.22
1,473.00	0.14	291.94	1,472.95	4.77	0.87	4.76	0.15	0.05	-74.79
1,541.00	0.02	38.04	1,540.95	4.81	0.80	4.80	0.22	-0.18	156.03
1,636.00	0.29	299.32	1,635.95	4.94	0.60	4.93	0.31	0.28	-103.92
1,731.00	0.31	306.21	1,730.95	5.21	0.18	5.21	0.04	0.02	7.25
1,826.00	1.45	165.73	1,825.94	4.20	0.27	4.19	1.79	1.20	-147.87
1,921.00	4.08	155.10	1,920.82	-0.03	1.99	-0.06	2.81	2.77	-11.19
2,015.00	6.69	148.79	2,014.40	-7.75	6.24	-7.84	2.84	2.78	-6.71
2,110.00	6.47	148.24	2,108.78	-17.03	11.92	-17.20	0.24	-0.23	-0.58
2,205.00	8.00	148.77	2,203.02	-27.24	18.17	-27.49	1.61	1.61	0.56
2,300.00	9.06	145.82	2,296.96	-39.08	25.80	-39.44	1.21	1.12	-3.11
2,394.00	10.25	148.58	2,389.63	-52.34	34.32	-52.81	1.36	1.27	2.94
2,489.00	10.50	158.69	2,483.09	-67.62	41.87	-68.20	1.93	0.26	10.64
2,584.00	10.05	164.78	2,576.57	-83.68	47.19	-84.33	1.24	-0.47	6.41
2,679.00	10.30	166.23	2,670.07	-99.93	51.39	-100.64	0.38	0.26	1.53
2,773.00	10.61	165.49	2,762.51	-116.47	55.56	-117.23	0.36	0.33	-0.79
2,868.00	10.61	165.53	2,855.89	-133.40	59.93	-134.23	0.01	0.00	0.04
2,963.00	11.56	167.93	2,949.11	-151.18	64.11	-152.06	1.11	1.00	2.53
3,057.00	11.75	168.40	3,041.18	-169.77	68.00	-170.70	0.23	0.20	0.50
3,152.00	11.67	167.99	3,134.20	-188.64	71.95	-189.63	0.12	-0.08	-0.43
3,247.00	11.48	167.71	3,227.27	-207.27	75.96	-208.32	0.21	-0.20	-0.29
3,342.00	11.25	168.00	3,320.40	-225.58	79.90	-226.67	0.25	-0.24	0.31
3,437.00	10.64	166.72	3,413.67	-243.18	83.84	-244.32	0.69	-0.64	-1.35
3,532.00	10.66	163.83	3,507.04	-260.15	88.30	-261.36	0.56	0.02	-3.04
3,626.00	10.63	162.08	3,599.42	-276.75	93.39	-278.03	0.35	-0.03	-1.86
3,721.00	11.11	162.12	3,692.72	-293.80	98.90	-295.15	0.51	0.51	0.04
3,816.00	11.55	162.27	3,785.87	-311.57	104.60	-313.00	0.46	0.46	0.16
3,911.00	11.02	161.42	3,879.03	-329.23	110.39	-330.74	0.58	-0.56	-0.89
4,006.00	10.71	161.06	3,972.33	-346.19	116.15	-347.78	0.33	-0.33	-0.38
4,101.00	10.27	160.30	4,065.74	-362.51	121.87	-364.18	0.49	-0.46	-0.80
4,195.00	10.80	159.97	4,158.15	-378.68	127.71	-380.42	0.57	0.56	-0.35
4,290.00	10.95	162.74	4,251.45	-395.65	133.44	-397.48	0.57	0.16	2.92
4,385.00	10.84	160.98	4,344.73	-412.72	139.03	-414.62	0.37	-0.12	-1.85
4,480.00	12.14	162.10	4,437.83	-430.67	145.01	-432.65	1.39	1.37	1.18
4,574.00	12.72	162.56	4,529.63	-449.95	151.15	-452.01	0.63	0.62	0.49
4,669.00	12.41	163.13	4,622.35	-469.69	157.24	-471.84	0.35	-0.33	0.60
4,764.00	12.26	163.97	4,715.16	-489.16	162.99	-491.39	0.25	-0.16	0.88
4,858.00	11.91	163.02	4,807.07	-508.03	168.58	-510.33	0.43	-0.37	-1.01



MS Directional Survey Report



Company:	Marathon Oil	Local Co-ordinate Reference:	Well Pierogi BS Federal Com 502H
Project:	Eddy County, New Mexico (NAD 27)	TVD Reference:	WELL @ 3022.50usft (Precision 580)
Site:	Pierogi BS Federal Com (302H, 502H, 552H)	MD Reference:	WELL @ 3022.50usft (Precision 580)
Well:	Pierogi BS Federal Com 502H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	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)
4,953.00	11.40	163.11	4,900.11	-526.39	174.17	-528.77	0.54	-0.54	0.09
5,048.00	10.74	163.93	4,993.35	-543.88	179.35	-546.33	0.71	-0.69	0.86
5,143.00	10.14	164.33	5,086.77	-560.43	184.06	-562.95	0.64	-0.63	0.42
5,238.00	9.66	163.47	5,180.36	-576.13	188.59	-578.70	0.53	-0.51	-0.91
5,332.00	9.86	163.32	5,273.00	-591.40	193.14	-594.04	0.21	0.21	-0.16
5,427.00	9.59	164.14	5,366.63	-606.80	197.64	-609.50	0.32	-0.28	0.86
5,522.00	9.08	163.77	5,460.37	-621.61	201.89	-624.37	0.54	-0.54	-0.39
5,617.00	8.57	163.14	5,554.25	-635.58	206.04	-638.40	0.55	-0.54	-0.66
5,712.00	9.21	163.31	5,648.11	-649.64	210.28	-652.51	0.67	0.67	0.18
5,806.00	9.36	164.71	5,740.88	-664.22	214.45	-667.15	0.29	0.16	1.49
5,901.00	8.93	163.90	5,834.67	-678.75	218.54	-681.74	0.47	-0.45	-0.85
5,996.00	8.28	164.30	5,928.60	-692.42	222.43	-695.46	0.69	-0.68	0.42
6,091.00	8.04	164.99	6,022.64	-705.43	226.00	-708.51	0.27	-0.25	0.73
6,186.00	7.41	164.12	6,116.77	-717.73	229.40	-720.87	0.67	-0.66	-0.92
6,280.00	6.03	165.86	6,210.13	-728.35	232.27	-731.52	1.48	-1.47	1.85
6,375.00	5.75	166.27	6,304.62	-737.81	234.61	-741.02	0.30	-0.29	0.43
6,470.00	4.98	168.67	6,399.21	-746.48	236.55	-749.71	0.84	-0.81	2.53
6,565.00	3.83	174.84	6,493.93	-753.68	237.65	-756.93	1.31	-1.21	6.49
6,660.00	2.26	179.81	6,588.79	-758.72	237.94	-761.97	1.67	-1.65	5.23
6,754.00	1.73	181.87	6,682.73	-761.99	237.90	-765.24	0.57	-0.56	2.19
6,849.00	1.30	172.60	6,777.70	-764.49	237.99	-767.74	0.52	-0.45	-9.76
6,943.00	1.07	173.54	6,871.68	-766.42	238.23	-769.67	0.25	-0.24	1.00
7,038.00	0.52	226.96	6,966.67	-767.60	238.01	-770.84	0.91	-0.58	56.23
7,133.00	0.85	245.65	7,061.66	-768.18	237.06	-771.42	0.42	0.35	19.67
7,228.00	0.83	238.13	7,156.65	-768.83	235.83	-772.05	0.12	-0.02	-7.92
7,322.00	0.77	235.32	7,250.64	-769.55	234.73	-772.76	0.08	-0.06	-2.99
7,417.00	0.87	231.41	7,345.63	-770.37	233.64	-773.55	0.12	0.11	-4.12
7,512.00	0.82	228.58	7,440.62	-771.27	232.57	-774.44	0.07	-0.05	-2.98
7,604.00	1.09	233.95	7,532.61	-772.22	231.37	-775.37	0.31	0.29	5.84
7,733.00	0.67	236.84	7,661.60	-773.35	229.75	-776.48	0.33	-0.33	2.24
7,828.00	12.51	8.28	7,755.87	-763.43	230.77	-766.58	13.65	12.46	138.36
7,922.00	20.32	2.50	7,845.97	-737.01	232.95	-740.19	8.48	8.31	-6.15
7,978.13	25.46	358.89	7,897.67	-715.19	233.14	-718.38	9.49	9.16	-6.43
HL Intersection -7978.13' MD									
8,017.00	29.06	357.10	7,932.21	-697.40	232.50	-700.58	9.49	9.26	-4.60
8,112.00	35.28	356.67	8,012.59	-646.92	229.74	-650.07	6.55	6.55	-0.45
8,207.00	43.57	358.68	8,085.91	-586.70	227.38	-589.82	8.83	8.73	2.12
8,302.00	52.84	359.62	8,149.16	-515.96	226.38	-519.07	9.79	9.76	0.99
8,396.00	67.57	2.99	8,195.75	-434.65	228.41	-437.80	15.97	15.67	3.59
8,491.00	75.21	2.33	8,226.04	-344.78	232.57	-348.00	8.07	8.04	-0.69
8,586.00	81.20	359.64	8,245.46	-251.85	234.14	-255.10	6.89	6.31	-2.83
8,681.00	85.85	0.09	8,256.17	-157.49	233.92	-160.74	4.92	4.89	0.47
8,776.00	88.98	0.96	8,260.45	-62.60	234.79	-65.87	3.42	3.29	0.92
8,839.00	89.11	0.87	8,261.50	0.38	235.80	-2.91	0.25	0.21	-0.14



MS Directional Survey Report



Company:	Marathon Oil	Local Co-ordinate Reference:	Well Pierogi BS Federal Com 502H
Project:	Eddy County, New Mexico (NAD 27)	TVD Reference:	WELL @ 3022.50usft (Precision 580)
Site:	Pierogi BS Federal Com (302H, 502H, 552H)	MD Reference:	WELL @ 3022.50usft (Precision 580)
Well:	Pierogi BS Federal Com 502H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	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)
8,934.00	88.92	3.56	8,263.13	95.29	239.47	91.94	2.84	-0.20	2.83
9,029.00	89.06	1.52	8,264.81	190.18	243.68	186.76	2.15	0.15	-2.15
9,124.00	89.11	2.26	8,266.33	285.11	246.81	281.64	0.78	0.05	0.78
9,219.00	89.15	0.19	8,267.77	380.08	248.84	376.56	2.18	0.04	-2.18
9,313.00	89.42	359.20	8,268.94	474.07	248.34	470.55	1.09	0.29	-1.05
9,408.00	89.93	0.23	8,269.48	569.06	247.87	565.54	1.21	0.54	1.08
9,503.00	89.98	0.20	8,269.56	664.06	248.23	660.53	0.06	0.05	-0.03
9,598.00	90.07	359.64	8,269.51	759.06	248.09	755.52	0.60	0.09	-0.59
9,693.00	90.07	359.02	8,269.40	854.05	246.98	850.52	0.65	0.00	-0.65
9,787.00	90.02	359.74	8,269.32	948.05	245.97	944.52	0.77	-0.05	0.77
9,882.00	89.98	359.41	8,269.32	1,043.04	245.26	1,039.52	0.35	-0.04	-0.35
9,977.00	89.98	359.74	8,269.36	1,138.04	244.56	1,134.52	0.35	0.00	0.35
10,072.00	90.07	359.87	8,269.32	1,233.04	244.23	1,229.51	0.17	0.09	0.14
10,166.00	89.93	359.16	8,269.32	1,327.04	243.44	1,323.51	0.77	-0.15	-0.76
10,261.00	90.07	359.71	8,269.32	1,422.03	242.50	1,418.51	0.60	0.15	0.58
10,356.00	90.02	359.27	8,269.24	1,517.03	241.66	1,513.51	0.47	-0.05	-0.46
10,450.00	90.07	359.81	8,269.17	1,611.02	240.90	1,607.50	0.58	0.05	0.57
10,545.00	90.02	359.69	8,269.09	1,706.02	240.49	1,702.50	0.14	-0.05	-0.13
10,640.00	90.02	359.27	8,269.06	1,801.02	239.62	1,797.50	0.44	0.00	-0.44
10,735.00	90.02	359.42	8,269.03	1,896.01	238.54	1,892.50	0.16	0.00	0.16
10,830.00	90.07	358.81	8,268.95	1,991.00	237.07	1,987.50	0.64	0.05	-0.64
10,925.00	90.11	359.97	8,268.80	2,085.99	236.06	2,082.49	1.22	0.04	1.22
11,019.00	90.11	359.31	8,268.62	2,179.99	235.47	2,176.49	0.70	0.00	-0.70
11,114.00	89.98	359.19	8,268.55	2,274.98	234.22	2,271.49	0.19	-0.14	-0.13
11,209.00	90.11	359.87	8,268.47	2,369.98	233.45	2,366.49	0.73	0.14	0.72
11,304.00	90.07	359.59	8,268.32	2,464.98	233.00	2,461.48	0.30	-0.04	-0.29
11,399.00	90.02	357.32	8,268.25	2,559.94	230.44	2,556.47	2.39	-0.05	-2.39
11,494.00	90.15	0.04	8,268.11	2,654.90	228.25	2,651.46	2.87	0.14	2.86
11,588.00	90.15	2.08	8,267.86	2,748.88	229.99	2,745.40	2.17	0.00	2.17
11,683.00	89.98	1.63	8,267.75	2,843.83	233.06	2,840.30	0.51	-0.18	-0.47
11,778.00	90.02	1.69	8,267.75	2,938.79	235.81	2,935.21	0.08	0.04	0.06
11,873.00	90.02	1.87	8,267.72	3,033.75	238.77	3,030.12	0.19	0.00	0.19
11,968.00	90.02	2.07	8,267.69	3,128.69	242.03	3,125.01	0.21	0.00	0.21
12,063.00	90.11	0.31	8,267.58	3,223.67	244.00	3,219.94	1.86	0.09	-1.85
12,158.00	89.98	359.22	8,267.51	3,318.66	243.61	3,314.94	1.16	-0.14	-1.15
12,252.00	90.29	0.29	8,267.28	3,412.66	243.21	3,408.93	1.19	0.33	1.14
12,347.00	90.11	358.77	8,266.95	3,507.65	242.43	3,503.93	1.61	-0.19	-1.60
12,442.00	90.20	0.14	8,266.70	3,602.65	241.53	3,598.92	1.45	0.09	1.44
12,537.00	89.98	359.51	8,266.55	3,697.65	241.24	3,693.92	0.70	-0.23	-0.66
12,631.00	90.11	0.12	8,266.47	3,791.65	240.94	3,787.91	0.66	0.14	0.65
12,726.00	89.89	359.94	8,266.47	3,886.64	240.99	3,882.90	0.30	-0.23	-0.19
12,821.00	90.15	359.94	8,266.44	3,981.64	240.89	3,977.89	0.27	0.27	0.00
12,916.00	90.02	358.95	8,266.30	4,076.64	239.97	4,072.89	1.05	-0.14	-1.04



MS Directional Survey Report



Company:	Marathon Oil	Local Co-ordinate Reference:	Well Pierogi BS Federal Com 502H
Project:	Eddy County, New Mexico (NAD 27)	TVD Reference:	WELL @ 3022.50usft (Precision 580)
Site:	Pierogi BS Federal Com (302H, 502H, 552H)	MD Reference:	WELL @ 3022.50usft (Precision 580)
Well:	Pierogi BS Federal Com 502H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	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)
13,011.00	90.15	359.35	8,266.16	4,171.63	238.56	4,167.89	0.44	0.14	0.42
13,105.00	90.15	359.88	8,265.91	4,265.63	237.92	4,261.89	0.56	0.00	0.56
13,200.00	90.08	359.76	8,265.72	4,360.62	237.63	4,356.88	0.15	-0.07	-0.13
13,295.00	89.94	359.74	8,265.70	4,455.62	237.21	4,451.88	0.15	-0.15	-0.02
13,390.00	89.64	359.91	8,266.05	4,550.62	236.92	4,546.87	0.36	-0.32	0.18
13,485.00	89.59	359.85	8,266.69	4,645.62	236.72	4,641.86	0.08	-0.05	-0.06
13,579.00	89.55	359.22	8,267.40	4,739.61	235.96	4,735.86	0.67	-0.04	-0.67
13,674.00	89.64	359.01	8,268.07	4,834.60	234.49	4,830.86	0.24	0.09	-0.22
13,769.00	89.94	359.69	8,268.42	4,929.59	233.42	4,925.85	0.78	0.32	0.72
13,864.00	90.12	357.93	8,268.37	5,024.57	231.44	5,020.85	1.86	0.19	-1.85
13,959.00	90.24	359.50	8,268.07	5,119.54	229.31	5,115.84	1.66	0.13	1.65
14,054.00	90.34	356.57	8,267.59	5,214.47	226.05	5,210.81	3.09	0.11	-3.08
14,148.00	90.25	355.77	8,267.10	5,308.26	219.78	5,304.68	0.86	-0.10	-0.85
14,243.00	90.60	354.96	8,266.40	5,402.95	212.10	5,399.46	0.93	0.37	-0.85
14,338.00	90.78	352.93	8,265.25	5,497.41	202.08	5,494.05	2.15	0.19	-2.14
14,433.00	90.52	352.64	8,264.18	5,591.65	190.15	5,588.45	0.41	-0.27	-0.31
14,528.00	91.61	352.29	8,262.41	5,685.81	177.69	5,682.77	1.21	1.15	-0.37
14,623.00	92.49	352.69	8,259.01	5,779.93	165.29	5,777.06	1.02	0.93	0.42
14,717.00	92.63	352.53	8,254.81	5,873.06	153.21	5,870.35	0.23	0.15	-0.17
14,812.00	92.58	352.63	8,250.50	5,967.17	140.95	5,964.62	0.12	-0.05	0.11
14,907.00	92.14	352.82	8,246.58	6,061.32	128.93	6,058.93	0.50	-0.46	0.20
15,002.00	92.05	351.99	8,243.11	6,155.42	116.38	6,153.20	0.88	-0.09	-0.87
15,096.00	92.05	354.49	8,239.75	6,248.70	105.33	6,246.62	2.66	0.00	2.66
15,191.00	91.92	354.69	8,236.46	6,343.22	96.38	6,341.26	0.25	-0.14	0.21
15,286.00	92.10	357.70	8,233.12	6,437.94	90.08	6,436.06	3.17	0.19	3.17
15,381.00	92.14	357.49	8,229.61	6,532.80	86.09	6,530.96	0.22	0.04	-0.22
15,476.00	92.01	358.74	8,226.17	6,627.68	82.97	6,625.88	1.32	-0.14	1.32
15,570.00	92.10	357.31	8,222.80	6,721.56	79.73	6,719.79	1.52	0.10	-1.52
15,665.00	92.01	359.71	8,219.39	6,816.46	77.26	6,814.72	2.53	-0.09	2.53
15,760.00	92.27	359.03	8,215.84	6,911.39	76.22	6,909.65	0.77	0.27	-0.72
15,855.00	92.01	358.19	8,212.30	7,006.29	73.92	7,004.58	0.93	-0.27	-0.88
15,949.00	91.88	358.65	8,209.11	7,100.20	71.33	7,098.52	0.51	-0.14	0.49
16,044.00	91.04	0.01	8,206.69	7,195.16	70.22	7,193.48	1.68	-0.88	1.43
16,139.00	90.30	358.03	8,205.57	7,290.14	68.59	7,288.47	2.22	-0.78	-2.08
16,234.00	90.08	359.31	8,205.26	7,385.11	66.39	7,383.46	1.37	-0.23	1.35
16,329.00	89.99	358.56	8,205.20	7,480.09	64.62	7,478.46	0.80	-0.09	-0.79
16,424.00	90.03	357.75	8,205.19	7,575.04	61.56	7,573.44	0.85	0.04	-0.85
16,518.00	90.21	359.84	8,204.99	7,669.02	59.59	7,667.44	2.23	0.19	2.22
16,613.00	90.12	358.29	8,204.71	7,764.00	58.04	7,762.43	1.63	-0.09	-1.63
16,708.00	90.08	358.70	8,204.55	7,858.97	55.54	7,857.43	0.43	-0.04	0.43
16,803.00	90.03	358.19	8,204.46	7,953.93	52.96	7,952.42	0.54	-0.05	-0.54
16,897.00	89.72	359.09	8,204.66	8,047.90	50.73	8,046.41	1.01	-0.33	0.96
16,992.00	89.50	358.49	8,205.31	8,142.88	48.73	8,141.41	0.67	-0.23	-0.63



MS Directional Survey Report



Company:	Marathon Oil	Local Co-ordinate Reference:	Well Pierogi BS Federal Com 502H
Project:	Eddy County, New Mexico (NAD 27)	TVD Reference:	WELL @ 3022.50usft (Precision 580)
Site:	Pierogi BS Federal Com (302H, 502H, 552H)	MD Reference:	WELL @ 3022.50usft (Precision 580)
Well:	Pierogi BS Federal Com 502H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	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)
17,087.00	89.28	357.05	8,206.32	8,237.80	45.03	8,236.37	1.53	-0.23	-1.52
17,182.00	89.59	359.37	8,207.26	8,332.74	42.06	8,331.34	2.46	0.33	2.44
17,277.00	89.59	0.11	8,207.94	8,427.74	41.63	8,426.34	0.78	0.00	0.78
17,371.00	89.50	0.07	8,208.68	8,521.74	41.78	8,520.32	0.10	-0.10	-0.04
17,466.00	89.55	0.18	8,209.47	8,616.73	41.99	8,615.31	0.13	0.05	0.12
17,561.00	89.64	359.83	8,210.14	8,711.73	41.99	8,710.29	0.38	0.09	-0.37
17,656.00	89.86	359.88	8,210.56	8,806.73	41.75	8,805.29	0.24	0.23	0.05
17,751.00	88.98	0.31	8,211.52	8,901.72	41.91	8,900.27	1.03	-0.93	0.45
17,845.00	89.99	359.37	8,212.36	8,995.72	41.65	8,994.26	1.47	1.07	-1.00
17,940.00	89.77	1.15	8,212.56	9,090.71	42.08	9,089.24	1.89	-0.23	1.87
18,035.00	90.34	359.92	8,212.47	9,185.70	42.97	9,184.21	1.43	0.60	-1.29
18,130.00	90.34	1.80	8,211.91	9,280.69	44.39	9,279.16	1.98	0.00	1.98
18,224.00	90.38	0.06	8,211.32	9,374.67	45.92	9,373.11	1.85	0.04	-1.85
18,319.00	89.99	0.50	8,211.01	9,469.67	46.38	9,468.10	0.62	-0.41	0.46
18,414.00	90.03	0.64	8,210.99	9,564.66	47.33	9,563.07	0.15	0.04	0.15
18,509.00	90.21	359.68	8,210.80	9,659.66	47.59	9,658.05	1.03	0.19	-1.01
18,603.00	90.08	2.25	8,210.56	9,753.64	49.18	9,752.00	2.74	-0.14	2.73
18,698.00	90.34	359.51	8,210.21	9,848.62	50.64	9,846.95	2.90	0.27	-2.88
18,793.00	90.82	1.98	8,209.25	9,943.60	51.87	9,941.90	2.65	0.51	2.60
18,887.00	90.47	358.83	8,208.19	10,037.58	52.53	10,035.87	3.37	-0.37	-3.35
18,982.00	90.74	1.46	8,207.19	10,132.56	52.77	10,130.84	2.78	0.28	2.77
19,077.00	90.56	2.18	8,206.11	10,227.51	55.79	10,225.73	0.78	-0.19	0.76
19,171.00	90.52	4.59	8,205.22	10,321.33	61.34	10,319.47	2.56	-0.04	2.56
19,266.00	90.65	7.20	8,204.25	10,415.82	71.10	10,413.81	2.75	0.14	2.75
19,361.00	90.65	8.57	8,203.17	10,509.91	84.13	10,507.71	1.44	0.00	1.44
19,456.00	90.65	9.53	8,202.10	10,603.72	99.07	10,601.31	1.01	0.00	1.01
19,551.00	90.47	8.76	8,201.17	10,697.51	114.17	10,694.87	0.83	-0.19	-0.81
19,645.00	90.60	8.80	8,200.29	10,790.40	128.52	10,787.56	0.14	0.14	0.04
19,740.00	90.30	10.01	8,199.54	10,884.12	144.04	10,881.05	1.31	-0.32	1.27
19,835.00	90.43	11.85	8,198.94	10,977.39	162.05	10,974.06	1.94	0.14	1.94
19,930.00	90.52	11.57	8,198.15	11,070.41	181.33	11,066.80	0.31	0.09	-0.29
20,025.00	90.69	11.61	8,197.15	11,163.47	200.42	11,159.58	0.18	0.18	0.04
20,119.00	90.52	11.65	8,196.16	11,255.53	219.36	11,251.38	0.19	-0.18	0.04
20,214.00	90.91	12.13	8,194.97	11,348.49	238.94	11,344.05	0.65	0.41	0.51
20,309.00	91.09	8.42	8,193.31	11,441.93	255.88	11,437.25	3.91	0.19	-3.91
20,404.00	90.03	6.51	8,192.38	11,536.12	268.22	11,531.25	2.30	-1.12	-2.01
20,498.00	90.03	6.61	8,192.33	11,629.50	278.96	11,624.48	0.11	0.00	0.11
20,593.00	89.99	7.05	8,192.32	11,723.83	290.25	11,718.63	0.47	-0.04	0.46
20,688.00	89.90	6.96	8,192.41	11,818.12	301.84	11,812.75	0.13	-0.09	-0.09
20,783.00	90.12	6.25	8,192.39	11,912.49	312.77	11,906.96	0.78	0.23	-0.75
20,877.00	90.21	4.47	8,192.12	12,006.07	321.55	12,000.41	1.90	0.10	-1.89
20,972.00	90.56	1.15	8,191.48	12,100.94	326.20	12,095.21	3.51	0.37	-3.49
21,067.00	89.81	0.14	8,191.18	12,195.94	327.27	12,190.18	1.32	-0.79	-1.06
21,161.00	90.34	359.91	8,191.05	12,289.94	327.31	12,284.17	0.61	0.56	-0.24



MS Directional Survey Report



Company:	Marathon Oil	Local Co-ordinate Reference:	Well Pierogi BS Federal Com 502H
Project:	Eddy County, New Mexico (NAD 27)	TVD Reference:	WELL @ 3022.50usft (Precision 580)
Site:	Pierogi BS Federal Com (302H, 502H, 552H)	MD Reference:	WELL @ 3022.50usft (Precision 580)
Well:	Pierogi BS Federal Com 502H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Surveys	Database:	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)
21,256.00	90.25	359.37	8,190.56	12,384.93	326.72	12,379.16	0.58	-0.09	-0.57
21,351.00	90.34	357.10	8,190.07	12,479.88	323.79	12,474.14	2.39	0.09	-2.39
21,446.00	90.12	356.18	8,189.69	12,574.71	318.22	12,569.05	1.00	-0.23	-0.97
21,541.00	90.25	355.79	8,189.39	12,669.48	311.57	12,663.90	0.43	0.14	-0.41
21,635.00	89.99	353.87	8,189.19	12,763.09	303.10	12,757.62	2.06	-0.28	-2.04
21,730.00	90.03	354.64	8,189.17	12,857.62	293.59	12,852.26	0.81	0.04	0.81
21,825.00	90.38	353.72	8,188.83	12,952.12	283.96	12,946.90	1.04	0.37	-0.97
21,920.00	90.34	355.26	8,188.24	13,046.68	274.84	13,041.57	1.62	-0.04	1.62
22,014.00	90.43	354.49	8,187.60	13,140.30	266.44	13,135.30	0.82	0.10	-0.82
22,109.00	90.91	352.34	8,186.49	13,234.66	255.55	13,229.80	2.32	0.51	-2.26
22,204.00	90.47	353.57	8,185.35	13,328.94	243.90	13,324.23	1.37	-0.46	1.29
22,299.00	90.43	351.92	8,184.60	13,423.17	231.90	13,418.62	1.74	-0.04	-1.74
22,393.00	90.56	353.41	8,183.79	13,516.39	219.90	13,512.01	1.59	0.14	1.59
22,488.00	90.60	352.97	8,182.83	13,610.72	208.64	13,606.48	0.47	0.04	-0.46
22,583.00	90.30	352.88	8,182.08	13,704.99	196.94	13,700.91	0.33	-0.32	-0.09
22,678.00	90.47	353.63	8,181.44	13,799.33	185.78	13,795.39	0.81	0.18	0.79
22,773.00	90.56	352.40	8,180.59	13,893.62	174.23	13,889.83	1.30	0.09	-1.29
22,867.00	90.52	353.75	8,179.70	13,986.93	162.89	13,983.29	1.44	-0.04	1.44
22,962.00	90.52	353.38	8,178.84	14,081.33	152.25	14,077.83	0.39	0.00	-0.39
23,057.00	90.38	353.03	8,178.10	14,175.66	141.01	14,172.31	0.40	-0.15	-0.37
23,152.00	90.52	353.91	8,177.35	14,270.04	130.20	14,266.83	0.94	0.15	0.93
23,246.00	90.47	352.26	8,176.54	14,363.35	118.89	14,360.29	1.76	-0.05	-1.76
23,341.00	90.47	353.28	8,175.76	14,457.59	106.93	14,454.68	1.07	0.00	1.07
23,436.00	90.43	352.92	8,175.01	14,551.90	95.52	14,549.14	0.38	-0.04	-0.38
23,531.00	90.60	353.33	8,174.16	14,646.21	84.15	14,643.61	0.47	0.18	0.43
23,625.00	90.47	352.83	8,173.28	14,739.52	72.82	14,737.07	0.55	-0.14	-0.53
23,720.00	90.52	352.72	8,172.46	14,833.76	60.88	14,831.47	0.13	0.05	-0.12
23,815.00	90.43	353.43	8,171.67	14,928.06	49.42	14,925.92	0.75	-0.09	0.75
23,910.00	90.52	353.22	8,170.89	15,022.42	38.38	15,020.42	0.24	0.09	-0.22
24,005.00	90.52	353.28	8,170.02	15,116.75	27.21	15,114.90	0.06	0.00	0.06
24,040.00	90.82	353.33	8,169.61	15,151.51	23.13	15,149.71	0.87	0.86	0.14
24,068.00	90.82	353.33	8,169.21	15,179.32	19.88	15,177.56	0.00	0.00	0.00
Projection to TD-24068.00' MD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,978.13	7,897.67	-715.19	233.14	HL Intersection -7978.13' MD
24,068.00	8,169.21	15,179.32	19.88	Projection to TD-24068.00' MD

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 354631

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 354631
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

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