

Well Name: KYLE FEDERAL 24 28 34 WA	Well Location: T24S / R28E / SEC 34 / SWSE /	County or Parish/State:
Well Number: 14H	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	Well Status: Unapproved Application for Permit to Drill	Operator: MARATHON OIL PERMIAN LLC

Notice of Intent

Sundry ID: 2767259

Type of Submission: Notice of Intent

Date Sundry Submitted: 12/21/2023

Date proposed operation will begin: 01/03/2024

Type of Action: APD Change

Time Sundry Submitted: 07:27

**Procedure Description:** Marathon Oil respectfully requests approval to change the BHL, Formation target, TVD, well name, and drill plan for the approved Kyle Federal 24-28-34 WA 14H well as follows: New Well Name: Pierogi BS Federal Com 552H Approved Pool: Purple Sage; Wolfcamp (Gas) Proposed Pool: Willow Lake; Bone Spring - TVD @ 9040' Approved BHL: 330' FNL 330' FEL, Sec. 34, 24S, 28E Proposed BHL: 100' FNL 330' FEL, Sec. 22, 24S, 28E Casing Design Change: Approved Casing & Cement Design: Surface Csg: 17.5" hole, 13.375", 54.5# J55, STC csg set @ 450'. Tail: 469 sx Class C Int 1 Csg: 12.25" hole, 9.625", 40#, J55, LTC csg set @ 2620'. Lead: 507 sx Class C, 360 sx Class C Int 2 Csg: 8.75" hole, 7", 29#, P110, BTC csg set @ 10290'. Lead: 651 sx Class C, 195 sx Class H Prod Liner: 6.125" hole, 4.5", 13.5#, P110, BTC liner set @ 9990-14649'. Tail: 468 sx Class H Proposed Casing & Cement Design: Surface Csg: 17.5" hole, 13.375, 54.5#, J55, STC csg set @ 500'. Lead: 166 sx Class C, Tail: 99 sx Class C Int Csg: 12.25" hole, 9.625", 40#, P110HC, BTC csg set @ 8574'. Lead: 1464 sx Class C, Tail 147 sx Class C Prod Csg: 8.75" hole, 5.5", 23#, P110HC, TLW csg se @ 24941'. Tail: 3173 sx Class H Please see attached C102, drill plan for casing and cement design changes, and directional plan for review. No additional disturbance requested by this sundry.

NOI Attachments

- Procedure Description
- Pierogi\_BS\_Federal\_Com\_552H\_Drill\_Plan\_20231221192545.pdf
  - Pierogi\_BS\_Federal\_Com\_552H\_Dir\_Plan\_20231221192535.pdf
  - Pierogi\_BS\_Federal\_Com\_552H\_AC\_20231221192525.pdf
  - C102\_Pierogi\_BS\_Fed\_Com\_552H\_20231221192514.pdf

<b>Well Name:</b> KYLE FEDERAL 24 28 34 WA	<b>Well Location:</b> T24S / R28E / SEC 34 / SWSE /	<b>County or Parish/State:</b>
<b>Well Number:</b> 14H	<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>Well Status:</b> Unapproved Application for Permit to Drill	<b>Operator:</b> MARATHON OIL PERMIAN LLC

Conditions of Approval

Specialist Review

Kyle\_Fed\_24\_28\_34\_TB\_14H\_COA\_20240123135701.pdf

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

<b>Operator Electronic Signature:</b> TERRI STATHEM	<b>Signed on:</b> DEC 22, 2023 09:22 AM
<b>Name:</b> MARATHON OIL PERMIAN LLC	
<b>Title:</b> Regulatory Compliance Manager	
<b>Street Address:</b> 990 TOWN & COUNTRY BLVD	
<b>City:</b> HOUSTON	<b>State:</b> TX
<b>Phone:</b> (713) 296-2113	
<b>Email address:</b> TSTATHEM@MARATHONOIL.COM	

Field

<b>Representative Name:</b>		
<b>Street Address:</b>		
<b>City:</b>	<b>State:</b>	<b>Zip:</b>
<b>Phone:</b>		
<b>Email address:</b>		

BLM Point of Contact

<b>BLM POC Name:</b> ZOTA M STEVENS	<b>BLM POC Title:</b> Petroleum Engineer
<b>BLM POC Phone:</b> 5752345998	<b>BLM POC Email Address:</b> ZSTEVENS@BLM.GOV
<b>Disposition:</b> Approved	<b>Disposition Date:</b> 01/23/2024
<b>Signature:</b> Zota Stevens	

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.***

5. Lease Serial No.	
6. If Indian, Allottee or Tribe Name	
7. If Unit of CA/Agreement, Name and/or No.	
8. Well Name and No.	
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				
<input 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 type="checkbox"/> Other	
	<input 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 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

### Additional Remarks

Surface Csg: 17.5 hole, 13.375, 54.5# J55, STC csg set @ 450. Tail: 469 sx Class C  
Int 1 Csg: 12.25 hole, 9.625, 40#, J55, LTC csg set @ 2620. Lead: 507 sx Class C, 360 sx Class C  
Int 2 Csg: 8.75 hole, 7, 29#, P110, BTC csg set @ 10290. Lead: 651 sx Class C, 195 sx Class H  
Prod Liner: 6.125 hole, 4.5, 13.5#, P110, BTC liner set @ 9990-14649. Tail: 468 sx Class H

#### Proposed Casing & Cement Design:

Surface Csg: 17.5 hole, 13.375, 54.5#, J55, STC csg set @ 500. Lead: 166 sx Class C, Tail: 99 sx Class C  
Int Csg: 12.25 hole, 9.625, 40#, P110HC, BTC csg set @ 8574. Lead: 1464 sx Class C, Tail 147 sx Class C  
Prod Csg: 8.75 hole, 5.5, 23#, P110HC, TLW csg se @ 24941. Tail: 3173 sx Class H

Please see attached C102, drill plan for casing and cement design changes, and directional plan for review. No additional disturbance requested by this sundry.

### 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: NENE / 330 FNL / 330 FEL / TWSP: 24S / RANGE: 28E / SECTION: 34 / LAT: 32.1803896 / LONG: -104.0676736 ( TVD: 9742 feet, MD: 14649 feet )

MARATHON OIL PERMIAN, LLC.  
**DRILLING AND OPERATIONS PLAN**



WELL NAME & NUMBER: **PIEROGI BS FEDERAL COM 552H**  
LOCATION: SECTION **34** TOWNSHIP **24S** RANGE **28E**  
**EDDY** COUNTY, **NEW MEXICO**

**Section 1: GEOLOGICAL FORMATIONS**

Name of Surface Formation: Permian  
Elevation: 2999 feet

Estimated Tops of Important Geological Markers:

Formation	TVD (ft)	MD (ft)	Elevation (ft SS)	Lithologies	Mineral Resources	Producing Formation?
Rustler		27	2999	Anhydrite	Brine	No
Salado	681	708	2318	Salt/Anhydrite	Brine	No
Castile	949	976	2050	Salt/Anhydrite	Brine	No
Base of Salt (BX)	2465	2492	534	Salt/Anhydrite	Brine	No
Lamar	2605	2632	394	Sandstone/Shale	None	No
Bell Canyon	2659	2686	340	Sandstone	Oil	No
Cherry Canyon	3496	3523	-497	Sandstone	Oil	No
Brushy Canyon	4724	4751	-1725	Sandstone	Oil	No
Bone Spring Lime	6323	6350	-3324	Limestone	None	No
Upper Avalon Shale	6600	6627	-3601	Shale	Oil	Yes
1st Bone Spring Sand	7235	7262	-4236	Sandstone	Oil	Yes
2nd Bone Spring Carbonate	7556	7583	-4557	Limestone/Shale	None	No
2nd Bone Spring Sand	8043	8070	-5044	Sandstone	Oil	Yes
3rd Bone Spring Carbonate	8346	8373	-5347	Limestone	Oil	No
3rd Bone Spring Sand	9168	9195	-6169	Sandstone	Oil	Yes
Wolfcamp	9537	9564	-6538	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp A	9667	9694	-6668	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp B	9946	9973	-6947	Sandstone/Shale/Carbonates	Natural Gas / Oil	No
Wolfcamp C	10231	10258	-7232	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp D	10748	10775	-7749	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Strawn	11807	11834	-8808	Carbonates/Sands/Clays	Natural Gas	Possible

**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 Stacking before drilling the intermediate hole, 10,000psi for the BOP Stacking before drilling the production hole. Testing will be conducted by an independent service company per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the Equipment Description above. If the system is upgraded all the components installed will be functional and tested.  
Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. 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	500	0	527	2999	2472	54.5	J55	BTC	5.22	1.81	BUOY	4.52	BUOY	4.52
Intermediate	12.25	9.625	0	8574	0	8367	2999	-5368	40	P110HC	BTC	1.20	1.42	BUOY	2.44	BUOY	2.44
Production	8.75	5.5	0	24941	0	9040	2999	-6041	23	P110HC	TLW	2.53	1.26	BUOY	2.22	BUOY	2.22

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Safety Factors will Meet or Exceed

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

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

Section 4: CEMENT PROGRAM

String Type	Lead/Tail	Top MD	Bottom MD	Quantity (sks)	Yield (ft³/sks)	Density (ppg)	Slurry Volume (ft³)	Excess (%)	Cement Type	Additives
Surface	Lead	0	350	166	2.12	12.5	353	25	Class C	Extender,Accelerator,LCM
Surface	Tail	350	500	99	1.32	14.8	130	25	Class C	Accelerator
Intermediate	Lead	0	8074	1464	2.18	12.4	3192	25	Class C	Extender,Accelerator,LCM
Intermediate	Tail	8074	8574	147	1.33	14.8	196	25	Class C	Retarder
Production	Tail	8274	24941	3173	1.68	13	5331	25	Class H	Retarder, Extender, Fluid Loss, Suspension Agent

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

Pilot Hole? No  
Pilot Hole Depth: N/A  
KOP Depth: N/A

Plugging Procedure for Pilot Hole: N/A

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



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	500	Water Based Mud	8.4	8.8
500	8574	Brine or Oil Based Mud	9.2	10.2
8574	24941	Oil Based Mud	10.5	12.5

Section 6: TESTING, LOGGING, CORING

List of production tests including testing procedures, equipment and safety measures:  
GR from TD to surface (horizontal well - vertical portion of hole)

List of open and cased hole logs run in the well:  
GR while drilling from Intermediate casing shoe to TD.

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

Section 7: ANTICIPATED PRESSURE

Anticipated Bottom Hole Pressure: 5876 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.



DRILL PLAN CHANGE REGISTER

PIEROGI BS FEDERAL COM 552H  
SECTION 34, TOWNSHIP 24S, RANGE 28E  
EDDY COUNTY, NEW MEXICO

Original Document Date: Tuesday, December 19, 2023  
Prepared By: Anthony Monaco  
Submitted By: Adrian Covarrubias

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

Summary of Revisions:

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

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

Summary of Revisions:

Section	Description

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

Summary of Revisions:

Section	Description

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

Summary of Revisions:

Section	Description









## **Marathon Oil**

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

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**12 December, 2023**





# MS Directional Planning Report



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

<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 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

Well	Pierogi BS Federal Com 552H					
Well Position	+N/-S	0.00 usft	Northing:	425,141.91 usft	Latitude:	32° 10' 6.824 N
	+E/-W	0.00 usft	Easting:	580,858.43 usft	Longitude:	104° 4' 19.259 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,999.00 usft
Grid Convergence:	0.139 °					

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM2023	12/31/2023	6.617	59.733	47,386.00

<b>Design</b>	Design #1				
<b>Audit Notes:</b>					
<b>Version:</b>		<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	359.21	

<b>Plan Survey Tool Program</b>	<b>Date</b>	12/12/2023			
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	24,941.32	Design #1 (Wellbore #1)	MWD+IFR1+FDIR	
				OWSG MWD + IFR1 + FDIR	



# MS Directional Planning Report



<b>Database:</b>	EDM 5000.15 Conroe DB	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Company:</b>	Marathon Oil	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi Federal Com (302H, 502H, 552H)	<b>North Reference:</b>	Grid
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	
2,249.79	15.00	116.39	2,241.26	-43.36	87.40	2.00	2.00	0.00	116.386	
7,837.56	15.00	116.39	7,638.74	-685.90	1,382.60	0.00	0.00	0.00	0.000	
8,587.36	0.00	0.00	8,380.00	-729.26	1,470.00	2.00	-2.00	0.00	180.000	
8,674.40	0.00	0.00	8,467.04	-729.26	1,470.00	0.00	0.00	0.00	0.000	
9,574.40	90.00	4.80	9,040.00	-158.31	1,517.94	10.00	10.00	0.00	4.800	
9,843.90	90.00	359.41	9,040.00	110.91	1,527.84	2.00	0.00	-2.00	-90.000	
14,324.86	90.00	359.41	9,040.00	4,591.63	1,481.70	0.00	0.00	0.00	0.000	PI-1_Pierogi 552H
14,325.49	90.00	359.42	9,040.00	4,592.26	1,481.69	2.00	0.00	2.00	90.000	
19,682.99	90.00	359.42	9,040.00	9,949.49	1,427.71	0.00	0.00	0.00	0.000	PI-2_Pierogi 552H
19,715.58	90.00	358.77	9,040.00	9,982.08	1,427.20	2.00	0.00	-2.00	-90.000	
21,022.50	90.00	358.77	9,040.00	11,288.70	1,399.16	0.00	0.00	0.00	0.000	PPP-3_Pierogi 552
21,022.90	90.00	358.78	9,040.00	11,289.09	1,399.15	2.00	0.00	2.00	90.000	
24,941.32	90.00	358.78	9,040.00	15,206.63	1,315.63	0.00	0.00	0.00	0.000	LTP/PBHL_Pierogi



# MS Directional Planning Report



<b>Database:</b>	EDM 5000.15 Conroe DB	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Company:</b>	Marathon Oil	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi Federal Com (302H, 502H, 552H)	<b>North Reference:</b>	Grid
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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
<b>KOP, 2.00°/100' Build</b>									
1,600.00	2.00	116.39	1,599.98	-0.78	1.56	-0.80	2.00	2.00	0.00
1,700.00	4.00	116.39	1,699.84	-3.10	6.25	-3.19	2.00	2.00	0.00
1,800.00	6.00	116.39	1,799.45	-6.97	14.06	-7.17	2.00	2.00	0.00
1,900.00	8.00	116.39	1,898.70	-12.39	24.98	-12.73	2.00	2.00	0.00
2,000.00	10.00	116.39	1,997.47	-19.34	38.99	-19.88	2.00	2.00	0.00
2,100.00	12.00	116.39	2,095.62	-27.82	56.08	-28.59	2.00	2.00	0.00
2,200.00	14.00	116.39	2,193.06	-37.82	76.23	-38.87	2.00	2.00	0.00
2,249.79	15.00	116.39	2,241.26	-43.36	87.40	-44.56	2.00	2.00	0.00
<b>Begin 15.00° Tangent</b>									
2,300.00	15.00	116.39	2,289.76	-49.13	99.04	-50.49	0.00	0.00	0.00
2,400.00	15.00	116.39	2,386.35	-60.63	122.21	-62.31	0.00	0.00	0.00
2,500.00	15.00	116.39	2,482.95	-72.13	145.39	-74.13	0.00	0.00	0.00
2,600.00	15.00	116.39	2,579.54	-83.63	168.57	-85.94	0.00	0.00	0.00
2,700.00	15.00	116.39	2,676.14	-95.13	191.75	-97.76	0.00	0.00	0.00
2,800.00	15.00	116.39	2,772.73	-106.63	214.93	-109.58	0.00	0.00	0.00
2,900.00	15.00	116.39	2,869.33	-118.13	238.11	-121.40	0.00	0.00	0.00
3,000.00	15.00	116.39	2,965.92	-129.62	261.29	-133.22	0.00	0.00	0.00
3,100.00	15.00	116.39	3,062.52	-141.12	284.47	-145.03	0.00	0.00	0.00
3,200.00	15.00	116.39	3,159.11	-152.62	307.65	-156.85	0.00	0.00	0.00
3,300.00	15.00	116.39	3,255.70	-164.12	330.83	-168.67	0.00	0.00	0.00
3,400.00	15.00	116.39	3,352.30	-175.62	354.01	-180.49	0.00	0.00	0.00
3,500.00	15.00	116.39	3,448.89	-187.12	377.19	-192.30	0.00	0.00	0.00
3,600.00	15.00	116.39	3,545.49	-198.62	400.37	-204.12	0.00	0.00	0.00
3,700.00	15.00	116.39	3,642.08	-210.12	423.55	-215.94	0.00	0.00	0.00
3,800.00	15.00	116.39	3,738.68	-221.62	446.72	-227.76	0.00	0.00	0.00
3,900.00	15.00	116.39	3,835.27	-233.12	469.90	-239.57	0.00	0.00	0.00
4,000.00	15.00	116.39	3,931.87	-244.62	493.08	-251.39	0.00	0.00	0.00
4,100.00	15.00	116.39	4,028.46	-256.12	516.26	-263.21	0.00	0.00	0.00
4,200.00	15.00	116.39	4,125.05	-267.61	539.44	-275.03	0.00	0.00	0.00
4,300.00	15.00	116.39	4,221.65	-279.11	562.62	-286.84	0.00	0.00	0.00
4,400.00	15.00	116.39	4,318.24	-290.61	585.80	-298.66	0.00	0.00	0.00
4,500.00	15.00	116.39	4,414.84	-302.11	608.98	-310.48	0.00	0.00	0.00
4,600.00	15.00	116.39	4,511.43	-313.61	632.16	-322.30	0.00	0.00	0.00
4,700.00	15.00	116.39	4,608.03	-325.11	655.34	-334.11	0.00	0.00	0.00
4,800.00	15.00	116.39	4,704.62	-336.61	678.52	-345.93	0.00	0.00	0.00
4,900.00	15.00	116.39	4,801.22	-348.11	701.70	-357.75	0.00	0.00	0.00
5,000.00	15.00	116.39	4,897.81	-359.61	724.88	-369.57	0.00	0.00	0.00



# MS Directional Planning Report



<b>Database:</b>	EDM 5000.15 Conroe DB	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Company:</b>	Marathon Oil	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi Federal Com (302H, 502H, 552H)	<b>North Reference:</b>	Grid
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	116.39	4,994.40	-371.11	748.06	-381.39	0.00	0.00	0.00
5,200.00	15.00	116.39	5,091.00	-382.61	771.23	-393.20	0.00	0.00	0.00
5,300.00	15.00	116.39	5,187.59	-394.10	794.41	-405.02	0.00	0.00	0.00
5,400.00	15.00	116.39	5,284.19	-405.60	817.59	-416.84	0.00	0.00	0.00
5,500.00	15.00	116.39	5,380.78	-417.10	840.77	-428.66	0.00	0.00	0.00
5,600.00	15.00	116.39	5,477.38	-428.60	863.95	-440.47	0.00	0.00	0.00
5,700.00	15.00	116.39	5,573.97	-440.10	887.13	-452.29	0.00	0.00	0.00
5,800.00	15.00	116.39	5,670.57	-451.60	910.31	-464.11	0.00	0.00	0.00
5,900.00	15.00	116.39	5,767.16	-463.10	933.49	-475.93	0.00	0.00	0.00
6,000.00	15.00	116.39	5,863.75	-474.60	956.67	-487.74	0.00	0.00	0.00
6,100.00	15.00	116.39	5,960.35	-486.10	979.85	-499.56	0.00	0.00	0.00
6,200.00	15.00	116.39	6,056.94	-497.60	1,003.03	-511.38	0.00	0.00	0.00
6,300.00	15.00	116.39	6,153.54	-509.10	1,026.21	-523.20	0.00	0.00	0.00
6,400.00	15.00	116.39	6,250.13	-520.60	1,049.39	-535.01	0.00	0.00	0.00
6,500.00	15.00	116.39	6,346.73	-532.09	1,072.56	-546.83	0.00	0.00	0.00
6,600.00	15.00	116.39	6,443.32	-543.59	1,095.74	-558.65	0.00	0.00	0.00
6,700.00	15.00	116.39	6,539.92	-555.09	1,118.92	-570.47	0.00	0.00	0.00
6,800.00	15.00	116.39	6,636.51	-566.59	1,142.10	-582.28	0.00	0.00	0.00
6,900.00	15.00	116.39	6,733.10	-578.09	1,165.28	-594.10	0.00	0.00	0.00
7,000.00	15.00	116.39	6,829.70	-589.59	1,188.46	-605.92	0.00	0.00	0.00
7,100.00	15.00	116.39	6,926.29	-601.09	1,211.64	-617.74	0.00	0.00	0.00
7,200.00	15.00	116.39	7,022.89	-612.59	1,234.82	-629.56	0.00	0.00	0.00
7,300.00	15.00	116.39	7,119.48	-624.09	1,258.00	-641.37	0.00	0.00	0.00
7,400.00	15.00	116.39	7,216.08	-635.59	1,281.18	-653.19	0.00	0.00	0.00
7,500.00	15.00	116.39	7,312.67	-647.09	1,304.36	-665.01	0.00	0.00	0.00
7,600.00	15.00	116.39	7,409.27	-658.58	1,327.54	-676.83	0.00	0.00	0.00
7,700.00	15.00	116.39	7,505.86	-670.08	1,350.72	-688.64	0.00	0.00	0.00
7,800.00	15.00	116.39	7,602.46	-681.58	1,373.90	-700.46	0.00	0.00	0.00
7,837.56	15.00	116.39	7,638.74	-685.90	1,382.60	-704.90	0.00	0.00	0.00
<b>Begin 2.00°/100' Drop</b>									
7,900.00	13.75	116.39	7,699.22	-692.79	1,396.48	-711.98	2.00	-2.00	0.00
8,000.00	11.75	116.39	7,796.75	-702.59	1,416.25	-722.05	2.00	-2.00	0.00
8,100.00	9.75	116.39	7,894.99	-710.88	1,432.95	-730.57	2.00	-2.00	0.00
8,200.00	7.75	116.39	7,993.82	-717.64	1,446.58	-737.52	2.00	-2.00	0.00
8,300.00	5.75	116.39	8,093.13	-722.86	1,457.10	-742.88	2.00	-2.00	0.00
8,400.00	3.75	116.39	8,192.78	-726.54	1,464.51	-746.66	2.00	-2.00	0.00
8,500.00	1.75	116.39	8,292.66	-728.67	1,468.81	-748.85	2.00	-2.00	0.00
8,587.36	0.00	0.00	8,380.00	-729.26	1,470.00	-749.46	2.00	-2.00	-133.23
<b>Begin Vertical Hold</b>									
8,600.00	0.00	0.00	8,392.65	-729.26	1,470.00	-749.46	0.00	0.00	0.00
8,674.40	0.00	0.00	8,467.04	-729.26	1,470.00	-749.46	0.00	0.00	0.00
<b>KOP, 10.00°/100' Build</b>									
8,700.00	2.56	4.80	8,492.64	-728.69	1,470.05	-748.89	10.00	10.00	0.00
8,750.00	7.56	4.80	8,542.43	-724.30	1,470.42	-744.50	10.00	10.00	0.00
8,800.00	12.56	4.80	8,591.64	-715.60	1,471.15	-735.81	10.00	10.00	0.00
8,850.00	17.56	4.80	8,639.91	-702.65	1,472.23	-722.89	10.00	10.00	0.00
8,900.00	22.56	4.80	8,686.86	-685.57	1,473.67	-705.82	10.00	10.00	0.00
8,950.00	27.56	4.80	8,732.14	-664.47	1,475.44	-684.75	10.00	10.00	0.00
9,000.00	32.56	4.80	8,775.40	-639.52	1,477.54	-659.83	10.00	10.00	0.00
9,050.00	37.56	4.80	8,816.31	-610.91	1,479.94	-631.26	10.00	10.00	0.00
9,100.00	42.56	4.80	8,854.57	-578.85	1,482.63	-599.24	10.00	10.00	0.00
9,150.00	47.56	4.80	8,889.88	-543.59	1,485.59	-564.03	10.00	10.00	0.00
9,200.00	52.56	4.80	8,921.97	-505.41	1,488.80	-525.88	10.00	10.00	0.00





# MS Directional Planning Report



<b>Database:</b>	EDM 5000.15 Conroe DB	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Company:</b>	Marathon Oil	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi Federal Com (302H, 502H, 552H)	<b>North Reference:</b>	Grid
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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)
9,250.00	57.56	4.80	8,950.59	-464.57	1,492.23	-485.10	10.00	10.00	0.00
9,300.00	62.56	4.80	8,975.54	-421.41	1,495.85	-442.00	10.00	10.00	0.00
9,350.00	67.56	4.80	8,996.62	-376.25	1,499.64	-396.89	10.00	10.00	0.00
9,400.00	72.56	4.80	9,013.66	-329.43	1,503.58	-350.12	10.00	10.00	0.00
9,450.00	77.56	4.80	9,026.55	-281.30	1,507.62	-302.06	10.00	10.00	0.00
9,500.00	82.56	4.80	9,035.18	-232.24	1,511.74	-253.06	10.00	10.00	0.00
9,550.00	87.56	4.80	9,039.48	-182.62	1,515.90	-203.50	10.00	10.00	0.00
9,574.40	90.00	4.80	9,040.00	-158.31	1,517.94	-179.22	10.00	10.00	0.00
Begin 90.00° Lateral									
9,600.00	90.00	4.29	9,040.00	-132.79	1,519.97	-153.73	2.00	0.00	-2.00
9,700.00	90.00	2.29	9,040.00	-32.96	1,525.71	-53.99	2.00	0.00	-2.00
9,800.00	90.00	0.29	9,040.00	67.01	1,527.96	45.94	2.00	0.00	-2.00
9,843.90	90.00	359.41	9,040.00	110.91	1,527.84	89.83	2.00	0.00	-2.00
Hold 90.00° Inc, 359.41° Azm									
9,900.00	90.00	359.41	9,040.00	167.01	1,527.26	145.93	0.00	0.00	0.00
10,000.00	90.00	359.41	9,040.00	267.00	1,526.23	245.93	0.00	0.00	0.00
10,100.00	90.00	359.41	9,040.00	367.00	1,525.20	345.93	0.00	0.00	0.00
10,200.00	90.00	359.41	9,040.00	466.99	1,524.17	445.93	0.00	0.00	0.00
10,300.00	90.00	359.41	9,040.00	566.99	1,523.14	545.93	0.00	0.00	0.00
10,400.00	90.00	359.41	9,040.00	666.98	1,522.11	645.93	0.00	0.00	0.00
10,500.00	90.00	359.41	9,040.00	766.98	1,521.08	745.93	0.00	0.00	0.00
10,600.00	90.00	359.41	9,040.00	866.97	1,520.05	845.93	0.00	0.00	0.00
10,700.00	90.00	359.41	9,040.00	966.97	1,519.02	945.93	0.00	0.00	0.00
10,800.00	90.00	359.41	9,040.00	1,066.96	1,517.99	1,045.93	0.00	0.00	0.00
10,900.00	90.00	359.41	9,040.00	1,166.95	1,516.96	1,145.93	0.00	0.00	0.00
11,000.00	90.00	359.41	9,040.00	1,266.95	1,515.94	1,245.93	0.00	0.00	0.00
11,100.00	90.00	359.41	9,040.00	1,366.94	1,514.91	1,345.93	0.00	0.00	0.00
11,200.00	90.00	359.41	9,040.00	1,466.94	1,513.88	1,445.93	0.00	0.00	0.00
11,300.00	90.00	359.41	9,040.00	1,566.93	1,512.85	1,545.93	0.00	0.00	0.00
11,400.00	90.00	359.41	9,040.00	1,666.93	1,511.82	1,645.93	0.00	0.00	0.00
11,500.00	90.00	359.41	9,040.00	1,766.92	1,510.79	1,745.92	0.00	0.00	0.00
11,600.00	90.00	359.41	9,040.00	1,866.92	1,509.76	1,845.92	0.00	0.00	0.00
11,700.00	90.00	359.41	9,040.00	1,966.91	1,508.73	1,945.92	0.00	0.00	0.00
11,800.00	90.00	359.41	9,040.00	2,066.91	1,507.70	2,045.92	0.00	0.00	0.00
11,900.00	90.00	359.41	9,040.00	2,166.90	1,506.67	2,145.92	0.00	0.00	0.00
12,000.00	90.00	359.41	9,040.00	2,266.90	1,505.64	2,245.92	0.00	0.00	0.00
12,100.00	90.00	359.41	9,040.00	2,366.89	1,504.61	2,345.92	0.00	0.00	0.00
12,200.00	90.00	359.41	9,040.00	2,466.89	1,503.58	2,445.92	0.00	0.00	0.00
12,300.00	90.00	359.41	9,040.00	2,566.88	1,502.55	2,545.92	0.00	0.00	0.00
12,400.00	90.00	359.41	9,040.00	2,666.88	1,501.52	2,645.92	0.00	0.00	0.00
12,500.00	90.00	359.41	9,040.00	2,766.87	1,500.49	2,745.92	0.00	0.00	0.00
12,600.00	90.00	359.41	9,040.00	2,866.86	1,499.46	2,845.92	0.00	0.00	0.00
12,700.00	90.00	359.41	9,040.00	2,966.86	1,498.43	2,945.92	0.00	0.00	0.00
12,800.00	90.00	359.41	9,040.00	3,066.85	1,497.40	3,045.92	0.00	0.00	0.00
12,900.00	90.00	359.41	9,040.00	3,166.85	1,496.37	3,145.92	0.00	0.00	0.00
13,000.00	90.00	359.41	9,040.00	3,266.84	1,495.34	3,245.92	0.00	0.00	0.00
13,100.00	90.00	359.41	9,040.00	3,366.84	1,494.31	3,345.92	0.00	0.00	0.00
13,200.00	90.00	359.41	9,040.00	3,466.83	1,493.28	3,445.91	0.00	0.00	0.00
13,300.00	90.00	359.41	9,040.00	3,566.83	1,492.25	3,545.91	0.00	0.00	0.00
13,400.00	90.00	359.41	9,040.00	3,666.82	1,491.22	3,645.91	0.00	0.00	0.00
13,500.00	90.00	359.41	9,040.00	3,766.82	1,490.19	3,745.91	0.00	0.00	0.00
13,600.00	90.00	359.41	9,040.00	3,866.81	1,489.16	3,845.91	0.00	0.00	0.00
13,700.00	90.00	359.41	9,040.00	3,966.81	1,488.13	3,945.91	0.00	0.00	0.00
13,800.00	90.00	359.41	9,040.00	4,066.80	1,487.10	4,045.91	0.00	0.00	0.00



# MS Directional Planning Report



<b>Database:</b>	EDM 5000.15 Conroe DB	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Company:</b>	Marathon Oil	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi Federal Com (302H, 502H, 552H)	<b>North Reference:</b>	Grid
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	90.00	359.41	9,040.00	4,166.80	1,486.07	4,145.91	0.00	0.00	0.00
14,000.00	90.00	359.41	9,040.00	4,266.79	1,485.05	4,245.91	0.00	0.00	0.00
14,100.00	90.00	359.41	9,040.00	4,366.79	1,484.02	4,345.91	0.00	0.00	0.00
14,200.00	90.00	359.41	9,040.00	4,466.78	1,482.99	4,445.91	0.00	0.00	0.00
14,300.00	90.00	359.41	9,040.00	4,566.77	1,481.96	4,545.91	0.00	0.00	0.00
14,324.86	90.00	359.41	9,040.00	4,591.63	1,481.70	4,570.76	0.00	0.00	0.00
Begin 2.00°/100' Turn									
14,325.49	90.00	359.42	9,040.00	4,592.26	1,481.69	4,571.40	2.00	0.00	2.00
Hold 90.00° Inc, 359.42° Azm									
14,400.00	90.00	359.42	9,040.00	4,666.77	1,480.94	4,645.91	0.00	0.00	0.00
14,500.00	90.00	359.42	9,040.00	4,766.76	1,479.94	4,745.91	0.00	0.00	0.00
14,600.00	90.00	359.42	9,040.00	4,866.76	1,478.93	4,845.91	0.00	0.00	0.00
14,700.00	90.00	359.42	9,040.00	4,966.75	1,477.92	4,945.91	0.00	0.00	0.00
14,800.00	90.00	359.42	9,040.00	5,066.75	1,476.91	5,045.90	0.00	0.00	0.00
14,900.00	90.00	359.42	9,040.00	5,166.74	1,475.90	5,145.90	0.00	0.00	0.00
15,000.00	90.00	359.42	9,040.00	5,266.74	1,474.90	5,245.90	0.00	0.00	0.00
15,100.00	90.00	359.42	9,040.00	5,366.73	1,473.89	5,345.90	0.00	0.00	0.00
15,200.00	90.00	359.42	9,040.00	5,466.73	1,472.88	5,445.90	0.00	0.00	0.00
15,300.00	90.00	359.42	9,040.00	5,566.72	1,471.87	5,545.90	0.00	0.00	0.00
15,400.00	90.00	359.42	9,040.00	5,666.72	1,470.87	5,645.90	0.00	0.00	0.00
15,500.00	90.00	359.42	9,040.00	5,766.71	1,469.86	5,745.90	0.00	0.00	0.00
15,600.00	90.00	359.42	9,040.00	5,866.71	1,468.85	5,845.90	0.00	0.00	0.00
15,700.00	90.00	359.42	9,040.00	5,966.70	1,467.84	5,945.90	0.00	0.00	0.00
15,800.00	90.00	359.42	9,040.00	6,066.70	1,466.84	6,045.90	0.00	0.00	0.00
15,900.00	90.00	359.42	9,040.00	6,166.69	1,465.83	6,145.90	0.00	0.00	0.00
16,000.00	90.00	359.42	9,040.00	6,266.69	1,464.82	6,245.90	0.00	0.00	0.00
16,100.00	90.00	359.42	9,040.00	6,366.68	1,463.81	6,345.90	0.00	0.00	0.00
16,200.00	90.00	359.42	9,040.00	6,466.68	1,462.81	6,445.89	0.00	0.00	0.00
16,300.00	90.00	359.42	9,040.00	6,566.67	1,461.80	6,545.89	0.00	0.00	0.00
16,400.00	90.00	359.42	9,040.00	6,666.67	1,460.79	6,645.89	0.00	0.00	0.00
16,500.00	90.00	359.42	9,040.00	6,766.66	1,459.78	6,745.89	0.00	0.00	0.00
16,600.00	90.00	359.42	9,040.00	6,866.66	1,458.78	6,845.89	0.00	0.00	0.00
16,700.00	90.00	359.42	9,040.00	6,966.65	1,457.77	6,945.89	0.00	0.00	0.00
16,800.00	90.00	359.42	9,040.00	7,066.65	1,456.76	7,045.89	0.00	0.00	0.00
16,900.00	90.00	359.42	9,040.00	7,166.64	1,455.75	7,145.89	0.00	0.00	0.00
17,000.00	90.00	359.42	9,040.00	7,266.64	1,454.74	7,245.89	0.00	0.00	0.00
17,100.00	90.00	359.42	9,040.00	7,366.63	1,453.74	7,345.89	0.00	0.00	0.00
17,200.00	90.00	359.42	9,040.00	7,466.63	1,452.73	7,445.89	0.00	0.00	0.00
17,300.00	90.00	359.42	9,040.00	7,566.62	1,451.72	7,545.89	0.00	0.00	0.00
17,400.00	90.00	359.42	9,040.00	7,666.62	1,450.71	7,645.89	0.00	0.00	0.00
17,500.00	90.00	359.42	9,040.00	7,766.61	1,449.71	7,745.89	0.00	0.00	0.00
17,600.00	90.00	359.42	9,040.00	7,866.61	1,448.70	7,845.89	0.00	0.00	0.00
17,700.00	90.00	359.42	9,040.00	7,966.60	1,447.69	7,945.88	0.00	0.00	0.00
17,800.00	90.00	359.42	9,040.00	8,066.60	1,446.68	8,045.88	0.00	0.00	0.00
17,900.00	90.00	359.42	9,040.00	8,166.59	1,445.68	8,145.88	0.00	0.00	0.00
18,000.00	90.00	359.42	9,040.00	8,266.59	1,444.67	8,245.88	0.00	0.00	0.00
18,100.00	90.00	359.42	9,040.00	8,366.58	1,443.66	8,345.88	0.00	0.00	0.00
18,200.00	90.00	359.42	9,040.00	8,466.58	1,442.65	8,445.88	0.00	0.00	0.00
18,300.00	90.00	359.42	9,040.00	8,566.57	1,441.65	8,545.88	0.00	0.00	0.00
18,400.00	90.00	359.42	9,040.00	8,666.57	1,440.64	8,645.88	0.00	0.00	0.00
18,500.00	90.00	359.42	9,040.00	8,766.56	1,439.63	8,745.88	0.00	0.00	0.00
18,600.00	90.00	359.42	9,040.00	8,866.56	1,438.62	8,845.88	0.00	0.00	0.00
18,700.00	90.00	359.42	9,040.00	8,966.55	1,437.61	8,945.88	0.00	0.00	0.00



# MS Directional Planning Report



<b>Database:</b>	EDM 5000.15 Conroe DB	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Company:</b>	Marathon Oil	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi Federal Com (302H, 502H, 552H)	<b>North Reference:</b>	Grid
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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)
18,800.00	90.00	359.42	9,040.00	9,066.55	1,436.61	9,045.88	0.00	0.00	0.00
18,900.00	90.00	359.42	9,040.00	9,166.54	1,435.60	9,145.88	0.00	0.00	0.00
19,000.00	90.00	359.42	9,040.00	9,266.54	1,434.59	9,245.88	0.00	0.00	0.00
19,100.00	90.00	359.42	9,040.00	9,366.53	1,433.58	9,345.87	0.00	0.00	0.00
19,200.00	90.00	359.42	9,040.00	9,466.53	1,432.58	9,445.87	0.00	0.00	0.00
19,300.00	90.00	359.42	9,040.00	9,566.52	1,431.57	9,545.87	0.00	0.00	0.00
19,400.00	90.00	359.42	9,040.00	9,666.52	1,430.56	9,645.87	0.00	0.00	0.00
19,500.00	90.00	359.42	9,040.00	9,766.51	1,429.55	9,745.87	0.00	0.00	0.00
19,600.00	90.00	359.42	9,040.00	9,866.51	1,428.55	9,845.87	0.00	0.00	0.00
19,682.99	90.00	359.42	9,040.00	9,949.49	1,427.71	9,928.86	0.00	0.00	0.00
Begin 2.00°/100' Turn									
19,700.00	90.00	359.08	9,040.00	9,966.50	1,427.49	9,945.87	2.00	0.00	-2.00
19,715.58	90.00	358.77	9,040.00	9,982.08	1,427.20	9,961.45	2.00	0.00	-2.00
Hold 90.00° Inc, 358.77° Azm									
19,800.00	90.00	358.77	9,040.00	10,066.48	1,425.39	10,045.87	0.00	0.00	0.00
19,900.00	90.00	358.77	9,040.00	10,166.45	1,423.24	10,145.87	0.00	0.00	0.00
20,000.00	90.00	358.77	9,040.00	10,266.43	1,421.09	10,245.86	0.00	0.00	0.00
20,100.00	90.00	358.77	9,040.00	10,366.41	1,418.95	10,345.86	0.00	0.00	0.00
20,200.00	90.00	358.77	9,040.00	10,466.39	1,416.80	10,445.86	0.00	0.00	0.00
20,300.00	90.00	358.77	9,040.00	10,566.36	1,414.66	10,545.85	0.00	0.00	0.00
20,400.00	90.00	358.77	9,040.00	10,666.34	1,412.51	10,645.85	0.00	0.00	0.00
20,500.00	90.00	358.77	9,040.00	10,766.32	1,410.37	10,745.85	0.00	0.00	0.00
20,600.00	90.00	358.77	9,040.00	10,866.29	1,408.22	10,845.84	0.00	0.00	0.00
20,700.00	90.00	358.77	9,040.00	10,966.27	1,406.08	10,945.84	0.00	0.00	0.00
20,800.00	90.00	358.77	9,040.00	11,066.25	1,403.93	11,045.84	0.00	0.00	0.00
20,900.00	90.00	358.77	9,040.00	11,166.22	1,401.79	11,145.84	0.00	0.00	0.00
21,000.00	90.00	358.77	9,040.00	11,266.20	1,399.64	11,245.83	0.00	0.00	0.00
21,022.50	90.00	358.77	9,040.00	11,288.70	1,399.16	11,268.34	0.00	0.00	0.00
21,022.90	90.00	358.78	9,040.00	11,289.09	1,399.15	11,268.73	2.00	0.00	2.00
Hold 90.00° Inc, 358.78° Azm									
21,100.00	90.00	358.78	9,040.00	11,366.18	1,397.51	11,345.83	0.00	0.00	0.00
21,200.00	90.00	358.78	9,040.00	11,466.16	1,395.38	11,445.83	0.00	0.00	0.00
21,300.00	90.00	358.78	9,040.00	11,566.13	1,393.25	11,545.82	0.00	0.00	0.00
21,400.00	90.00	358.78	9,040.00	11,666.11	1,391.11	11,645.82	0.00	0.00	0.00
21,500.00	90.00	358.78	9,040.00	11,766.09	1,388.98	11,745.82	0.00	0.00	0.00
21,600.00	90.00	358.78	9,040.00	11,866.07	1,386.85	11,845.82	0.00	0.00	0.00
21,700.00	90.00	358.78	9,040.00	11,966.04	1,384.72	11,945.81	0.00	0.00	0.00
21,800.00	90.00	358.78	9,040.00	12,066.02	1,382.59	12,045.81	0.00	0.00	0.00
21,900.00	90.00	358.78	9,040.00	12,166.00	1,380.46	12,145.81	0.00	0.00	0.00
22,000.00	90.00	358.78	9,040.00	12,265.97	1,378.32	12,245.80	0.00	0.00	0.00
22,100.00	90.00	358.78	9,040.00	12,365.95	1,376.19	12,345.80	0.00	0.00	0.00
22,200.00	90.00	358.78	9,040.00	12,465.93	1,374.06	12,445.80	0.00	0.00	0.00
22,300.00	90.00	358.78	9,040.00	12,565.91	1,371.93	12,545.80	0.00	0.00	0.00
22,400.00	90.00	358.78	9,040.00	12,665.88	1,369.80	12,645.79	0.00	0.00	0.00
22,500.00	90.00	358.78	9,040.00	12,765.86	1,367.67	12,745.79	0.00	0.00	0.00
22,600.00	90.00	358.78	9,040.00	12,865.84	1,365.54	12,845.79	0.00	0.00	0.00
22,700.00	90.00	358.78	9,040.00	12,965.82	1,363.40	12,945.78	0.00	0.00	0.00
22,800.00	90.00	358.78	9,040.00	13,065.79	1,361.27	13,045.78	0.00	0.00	0.00
22,900.00	90.00	358.78	9,040.00	13,165.77	1,359.14	13,145.78	0.00	0.00	0.00
23,000.00	90.00	358.78	9,040.00	13,265.75	1,357.01	13,245.78	0.00	0.00	0.00
23,100.00	90.00	358.78	9,040.00	13,365.72	1,354.88	13,345.77	0.00	0.00	0.00
23,200.00	90.00	358.78	9,040.00	13,465.70	1,352.75	13,445.77	0.00	0.00	0.00
23,300.00	90.00	358.78	9,040.00	13,565.68	1,350.61	13,545.77	0.00	0.00	0.00



# MS Directional Planning Report



<b>Database:</b>	EDM 5000.15 Conroe DB	<b>Local Co-ordinate Reference:</b>	Well Pierogi BS Federal Com 552H
<b>Company:</b>	Marathon Oil	<b>TVD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Project:</b>	Eddy County, New Mexico (NAD 27)	<b>MD Reference:</b>	WELL @ 3022.50usft (Precision 580)
<b>Site:</b>	Pierogi Federal Com (302H, 502H, 552H)	<b>North Reference:</b>	Grid
<b>Well:</b>	Pierogi BS Federal Com 552H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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)
23,400.00	90.00	358.78	9,040.00	13,665.66	1,348.48	13,645.76	0.00	0.00	0.00
23,500.00	90.00	358.78	9,040.00	13,765.63	1,346.35	13,745.76	0.00	0.00	0.00
23,600.00	90.00	358.78	9,040.00	13,865.61	1,344.22	13,845.76	0.00	0.00	0.00
23,700.00	90.00	358.78	9,040.00	13,965.59	1,342.09	13,945.76	0.00	0.00	0.00
23,800.00	90.00	358.78	9,040.00	14,065.57	1,339.96	14,045.75	0.00	0.00	0.00
23,900.00	90.00	358.78	9,040.00	14,165.54	1,337.83	14,145.75	0.00	0.00	0.00
24,000.00	90.00	358.78	9,040.00	14,265.52	1,335.69	14,245.75	0.00	0.00	0.00
24,100.00	90.00	358.78	9,040.00	14,365.50	1,333.56	14,345.75	0.00	0.00	0.00
24,200.00	90.00	358.78	9,040.00	14,465.47	1,331.43	14,445.74	0.00	0.00	0.00
24,300.00	90.00	358.78	9,040.00	14,565.45	1,329.30	14,545.74	0.00	0.00	0.00
24,400.00	90.00	358.78	9,040.00	14,665.43	1,327.17	14,645.74	0.00	0.00	0.00
24,500.00	90.00	358.78	9,040.00	14,765.41	1,325.04	14,745.73	0.00	0.00	0.00
24,600.00	90.00	358.78	9,040.00	14,865.38	1,322.91	14,845.73	0.00	0.00	0.00
24,700.00	90.00	358.78	9,040.00	14,965.36	1,320.77	14,945.73	0.00	0.00	0.00
24,800.00	90.00	358.78	9,040.00	15,065.34	1,318.64	15,045.73	0.00	0.00	0.00
24,900.00	90.00	358.78	9,040.00	15,165.32	1,316.51	15,145.72	0.00	0.00	0.00
24,941.32	90.00	358.78	9,040.00	15,206.63	1,315.63	15,187.05	0.00	0.00	0.00
PBHL									

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/FTP_Pierogi 552 - plan misses target center by 1679.22usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	-678.94	1,535.85	424,462.97	582,394.28	32° 10' 0.068 N	104° 4' 1.410 W
PI-2_Pierogi 552H - plan hits target center - Point	0.00	0.00	9,040.00	9,949.49	1,427.71	435,091.40	582,286.14	32° 11' 45.253 N	104° 4' 2.362 W
PPP-2_Pierogi 552H - plan misses target center by 0.03usft at 10296.76usft MD (9040.00 TVD, 563.75 N, 1523.18 E) - Point	0.00	0.00	9,040.00	563.75	1,523.21	425,705.66	582,381.64	32° 10' 12.366 N	104° 4' 1.521 W
PPP-3_Pierogi 552H - plan hits target center - Point	0.00	0.00	9,040.00	11,288.70	1,399.16	436,430.61	582,257.59	32° 11' 58.507 N	104° 4' 2.656 W
PI-1_Pierogi 552H - plan hits target center - Point	0.00	0.00	9,040.00	4,591.63	1,481.70	429,733.54	582,340.13	32° 10' 52.228 N	104° 4' 1.888 W
LTP/PBHL_Pierogi 55 - plan hits target center - Point	0.00	0.00	9,040.00	15,206.63	1,315.63	440,348.54	582,174.06	32° 12' 37.282 N	104° 4' 3.516 W



# MS Directional Planning Report



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

## 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	KOP, 2.00°/100' Build
2,249.79	2,241.26	-43.36	87.40	Begin 15.00° Tangent
7,837.56	7,638.74	-685.90	1,382.60	Begin 2.00°/100' Drop
8,587.36	8,380.00	-729.26	1,470.00	Begin Vertical Hold
8,674.40	8,467.04	-729.26	1,470.00	KOP, 10.00°/100' Build
9,574.40	9,040.00	-158.31	1,517.94	Begin 90.00° Lateral
9,843.90	9,040.00	110.91	1,527.84	Hold 90.00° Inc, 359.41° Azm
14,324.86	9,040.00	4,591.63	1,481.70	Begin 2.00°/100' Turn
14,325.49	9,040.00	4,592.26	1,481.69	Hold 90.00° Inc, 359.42° Azm
19,682.99	9,040.00	9,949.49	1,427.71	Begin 2.00°/100' Turn
19,715.58	9,040.00	9,982.08	1,427.20	Hold 90.00° Inc, 358.77° Azm
21,022.90	9,040.00	11,289.09	1,399.15	Hold 90.00° Inc, 358.78° Azm
24,941.32	9,040.00	15,206.63	1,315.63	PBHL



State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

AMENDED REPORT

<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	<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'

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

UL or lot no. <b>A</b>	Section <b>22</b>	Township <b>24S</b>	Range <b>28E</b>	Lot Idn	Feet from the <b>100'</b>	North/South line <b>NORTH</b>	Feet from the <b>330'</b>	East/West line <b>EAST</b>	County <b>EDDY</b>
<sup>12</sup> Dedicated Acres <b>960.00</b>		<sup>13</sup> Joint or Infill		<sup>14</sup> Consolidation Code		<sup>15</sup> Order No.			

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**LAST TAKE/BOTTOM HOLE**  
FNL 100' FEL 330', SECTION 22  
**NAD 83, SPCS NM EAST**  
X:623357.62' / Y:440407.11'  
LAT:32.21047787 / LON:-104.06813490  
**NAD 27, SPCS NM EAST**  
X:582174.06' / Y:440348.54'  
LAT:32.21035605 / LON:-104.06764325

**PPP-3**  
FSL 1339' FEL 330', SECTION 22  
**NAD 83, SPCS NM EAST**  
X:623441.24' / Y:436489.11'  
LAT:32.19970717 / LON:-104.06789581  
**NAD 27, SPCS NM EAST**  
X:582257.59' / Y:436430.61'  
LAT:32.19958521 / LON:-104.06740450

**PI-2**  
FSL 0' FEL 330', SECTION 22  
**NAD 83, SPCS NM EAST**  
X:623469.83' / Y:435149.87'  
LAT:32.19602555 / LON:-104.06781410  
**NAD 27, SPCS NM EAST**  
X:582286.14' / Y:435091.40'  
LAT:32.19590354 / LON:-104.06732290

**PI-1**  
FNL 0' FEL 330', SECTION 27  
**NAD 83, SPCS NM EAST**  
X:623523.93' / Y:429791.91'  
LAT:32.18129672 / LON:-104.06768198  
**NAD 27, SPCS NM EAST**  
X:582340.13' / Y:429733.54'  
LAT:32.18117452 / LON:-104.06708970

**PPP-2**  
FSL 1343' FEL 330', SECTION 34  
**NAD 83, SPCS NM EAST**  
X:623565.53' / Y:425763.95'  
LAT:32.17022399 / LON:-104.06757968  
**NAD 27, SPCS NM EAST**  
X:582381.64' / Y:425705.66'  
LAT:32.17010165 / LON:-104.06708929

**KOP/FTP**  
FSL 100' FEL 330', SECTION 34  
**NAD 83, SPCS NM EAST**  
X:623578.20' / Y:424521.23'  
LAT:32.16680779 / LON:-104.06754864  
**NAD 27, SPCS NM EAST**  
X:582394.28' / Y:424462.97'  
LAT:32.16668541 / LON:-104.06705837

**SURFACE HOLE**  
FSL 786' FEL 1859', SECTION 34  
**NAD 83, SPCS NM EAST**  
X:622042.30' / Y:425200.17'  
LAT:32.16868446 / LON:-104.07250699  
**NAD 27, SPCS NM EAST**  
X:580858.43' / Y:425141.91'  
LAT:32.16856218 / LON:-104.07201644

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**SURVEYOR 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.

**TStathem** 12/20/2023  
Signature Date  
TStathem  
Printed Name  
Tstathem@marathonoil.com  
E-mail Address

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**SURVEYOR CERTIFICATION**  
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

**Lloyd P. Short**  
Date of Survey: **DECEMBER 1, 2023**  
Signature and Seal of Professional Surveyor

**LLOYD P. SHORT**  
NEW MEXICO  
21653  
PROFESSIONAL SURVEYOR

PRODUCTION LINE	BEARING/LENGTH
L1	N00°35'24"W ~ 5270.96'
L2	N00°34'43"W ~ 5358.23'
L3	N01°13'22"W ~ 5258.44'

CORNER COORDINATES NAD 83, SPCS NM EAST	CORNER COORDINATES NAD 27, SPCS NM EAST
A - X: 623685.59' / Y: 440506.10'	A - X: 582502.01' / Y: 440447.52'
B - X: 623799.89' / Y: 435150.66'	B - X: 582616.19' / Y: 435092.18'
C - X: 623853.93' / Y: 429793.49'	C - X: 582670.12' / Y: 429735.12'
D - X: 623909.23' / Y: 424422.82'	D - X: 582725.30' / Y: 424364.55'
E - X: 621226.81' / Y: 424409.95'	E - X: 580042.94' / Y: 424351.72'
F - X: 621190.23' / Y: 429780.74'	F - X: 580006.48' / Y: 429722.40'
G - X: 621117.44' / Y: 435144.26'	G - X: 579933.80' / Y: 435085.82'
H - X: 621044.41' / Y: 440514.29'	H - X: 579860.89' / Y: 440455.75'

● Drill Line Events    ● Section Corners    — Drill Line    ↔ Dimension Lines    Federal Leases    NMSLO    HSU    ● HSU Corners

All bearings and coordinates refer to New Mexico State Plane coordinate system, East Zone, U.S. Survey Feet.

SHEET 1 OF 2  
JOB No. MRO 0009 PE  
REV 1 TCS 11/14/2023

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	Marathon Oil
<b>LEASE NO.:</b>	NMNM17222
<b>LOCATION:</b>	Section 34, T.24 S, R.28 E., NMPM
<b>COUNTY:</b>	Eddy County, New Mexico
<b>WELL NAME &amp; NO.:</b>	Kyle Fed 24 28 34 TB 14H
<b>SURFACE HOLE FOOTAGE:</b>	786'/S & 1859'/E
<b>BOTTOM HOLE FOOTAGE:</b>	100'/N & 330'/E

*Changes approved through engineering via **Sundry 2767259** on 1-23-2024. Any previous COAs not addressed within the updated COAs still apply.*

COA

<b>H<sub>2</sub>S</b>	<input type="radio"/> Yes	<input checked="" type="radio"/> No		
<b>Potash / WIPP</b>	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P	<input type="checkbox"/> WIPP
<b>Cave / Karst</b>	<input type="radio"/> Low	<input type="radio"/> Medium	<input checked="" type="radio"/> High	<input type="radio"/> Critical
<b>Wellhead</b>	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both	<input type="radio"/> Diverter
<b>Cementing</b>	<input type="checkbox"/> Primary Squeeze	<input type="checkbox"/> Cont. Squeeze	<input type="checkbox"/> EchoMeter	<input type="checkbox"/> DV Tool
<b>Special Req</b>	<input type="checkbox"/> Break Testing	<input type="checkbox"/> Water Disposal	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> Unit
<b>Variance</b>	<input checked="" type="checkbox"/> Flex Hose	<input type="checkbox"/> Casing Clearance	<input type="checkbox"/> Pilot Hole	<input type="checkbox"/> Capitan Reef
<b>Variance</b>	<input type="checkbox"/> Four-String	<input type="checkbox"/> Offline Cementing	<input checked="" type="checkbox"/> Fluid-Filled	<input type="checkbox"/> Open Annulus
<input type="checkbox"/> <b>Batch APD / Sundry</b>				

### A. HYDROGEN SULFIDE

Hydrogen Sulfide (H<sub>2</sub>S) monitors shall be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area must meet all requirements from **43 CFR 3176**, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

### B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **450** feet (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8**



**hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

**Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.**

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

- Cement to surface. If cement does not circulate see B.1.a, c-d above.

**Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

- ❖ In High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

**C. PRESSURE CONTROL**

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).
2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the casing shoe shall be **5000 (5M)** psi.
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
  - e. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172 must be followed.

**D. SPECIAL REQUIREMENT (S)****Communitization Agreement**

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in 43 CFR 3171 and 3172.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

**GENERAL REQUIREMENTS**

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ Eddy County

Email **or** call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, [BLM\\_NM\\_CFO\\_DrillingNotifications@BLM.GOV](mailto:BLM_NM_CFO_DrillingNotifications@BLM.GOV)  
(575) 361-2822

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,  
(575) 689-5981

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after

- installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
- b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per **43 CFR part 3170 Subpart 3172** as soon as 2nd Rig is rigged up on well.
  2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
  3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

#### A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for

details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. 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. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

**B. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in **43 CFR part 3170 Subpart 3172 and API STD 53 Sec. 5.3**.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. Whenever any seal subject to test pressure is broken, all the tests in **43 CFR part 3170 Subpart 3172** must be followed.
  - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
  - b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)
  - c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR part 3170 Subpart 3172** with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per **43 CFR part 3170 Subpart 3172**.

#### C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

#### D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**ZS 1/23/2024**

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

CONDITIONS  
  
Action 315342

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 315342
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	All original COA's still apply. Additionally, if cement is not circulated to surface during cementing operations, then a CBL is required.	3/12/2024