

Form 3160-3
(June 2015)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 20185. Lease Serial No.
NMNM143617

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No.
RICK VAUGHN BS FED COM

503H

9. API Well No.

30-015-55644

10. Field and Pool, or Exploratory
RED BLUFF/BONE SPRING, SOUTH11. Sec., T. R. M. or Blk. and Survey or Area
SEC 7/T26S/R29E/NMP1a. Type of work: ☒ DRILL ☐ REENTER
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other
1c. Type of Completion: ☐ Hydraulic Fracturing ☒ Single Zone ☐ Multiple Zone2. Name of Operator
MARATHON OIL PERMIAN LLC3a. Address
990 TOWN & COUNTRY BLVD, HOUSTON, TX 770243b. Phone No. (include area code)
(713) 296-2113

4. Location of Well (Report location clearly and in accordance with any State requirements. *)

At surface SESW / 88 FSL / 1494 FWL / LAT 32.0501274 / LONG -104.0273121

At proposed prod. zone NENW / 100 FNL / 2145 FWL / LAT 32.0786698 / LONG -104.0251969

14. Distance in miles and direction from nearest town or post office*
16 miles12. County or Parish
EDDY13. State
NM15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any)
100 feet

16. No of acres in lease

17. Spacing Unit dedicated to this well
638.018. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft.
25 feet19. Proposed Depth
8362 feet / 18575 feet20. BLM/BIA Bond No. in file
FED: NMB00155521. Elevations (Show whether DF, KDB, RT, GL, etc.)
2912 feet22. Approximate date work will start*
07/31/202423. Estimated duration
35 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).

4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature
(Electronic Submission)Name (Printed/Typed)
NICOLE LEE / Ph: (713) 929-6600Date
08/02/2023Title
Regulatory Compliance RepresentativeApproved by (Signature)
(Electronic Submission)Name (Printed/Typed)
CODY LAYTON / Ph: (575) 234-5959Date
09/25/2024Title
Assistant Field Manager Lands & MineralsOffice
Carlsbad Field Office

Application approval 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.

Conditions of approval, if any, are attached.

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.

(Continued on page 2)

*(Instructions on page 2)



INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws 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, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: 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 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., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

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

The BLM connects this information to a new evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. 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 Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

0. SHL: SESW / 88 FSL / 1494 FWL / TWSP: 26S / RANGE: 29E / SECTION: 7 / LAT: 32.0501274 / LONG: -104.0273121 (TVD: 0 feet, MD: 0 feet)

PPP: SESW / 0 FSL / 2145 FWL / TWSP: 26S / RANGE: 29E / SECTION: 6 / LAT: 32.0643975 / LONG: -104.0252039 (TVD: 8362 feet, MD: 13383 feet)

PPP: NESW / 1317 FSL / 2145 FWL / TWSP: 26S / RANGE: 29E / SECTION: 6 / LAT: 32.0680181 / LONG: -104.0252021 (TVD: 8362 feet, MD: 14700 feet)

PPP: SESW / 100 FSL / 2145 FWL / TWSP: 26S / RANGE: 29E / SECTION: 7 / LAT: 32.0501544 / LONG: -104.0252109 (TVD: 8362 feet, MD: 8679 feet)

BHL: NENW / 100 FNL / 2145 FWL / TWSP: 26S / RANGE: 29E / SECTION: 6 / LAT: 32.0786698 / LONG: -104.0251969 (TVD: 8362 feet, MD: 18575 feet)

BLM Point of Contact

Name: JORDAN NAVARRETTE

Title: LIE

Phone: (575) 234-5972

Email: jnavarrette@blm.gov

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Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

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U.S. Department of the Interior
Bureau of Land Management

Application for Permit to Drill

APD Package Report

Date Printed: 10/10/2024 06:28 PM

APD ID: 10400092314

Well Status: AAPD

APD Received Date: 08/02/2023 10:14 AM

Well Name: RICK VAUGHN BS FED COM

Operator: MARATHON OIL PERMIAN LLC

Well Number: 503H

APD Package Report Contents

- Form 3160-3
- Operator Certification Report
- Application Report
- Application Attachments
 - Well Plat: 2 file(s)
- Drilling Plan Report
- Drilling Plan Attachments
 - Blowout Prevention Choke Diagram Attachment: 2 file(s)
 - Blowout Prevention BOP Diagram Attachment: 1 file(s)
 - Casing Design Assumptions and Worksheet(s): 3 file(s)
 - Hydrogen sulfide drilling operations plan: 1 file(s)
 - Proposed horizontal/directional/multi-lateral plan submission: 1 file(s)
 - Other Facets: 3 file(s)
 - Other Variances: 6 file(s)
- SUPO Report
- SUPO Attachments
 - Existing Road Map: 1 file(s)
 - Attach Well map: 1 file(s)
 - Production Facilities map: 1 file(s)
 - Water source and transportation map: 1 file(s)
 - Construction Materials source location attachment: 1 file(s)
 - Well Site Layout Diagram: 2 file(s)
- PWD Report
- PWD Attachments
 - None
- Bond Report
- Bond Attachments

-- None

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

Form C-102 Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number	² Pool Code	³ Pool Name
	51010	RED BLUFF, BONE SPRING, SOUTH
⁴ Property Code	⁵ Property Name	⁶ Well Number
	RICK VAUGHN BS FED COM	503H
⁷ OGBID No.	⁸ Operator Name	⁹ Elevation
372098	MARATHON OIL PERMIAN LLC	2912'

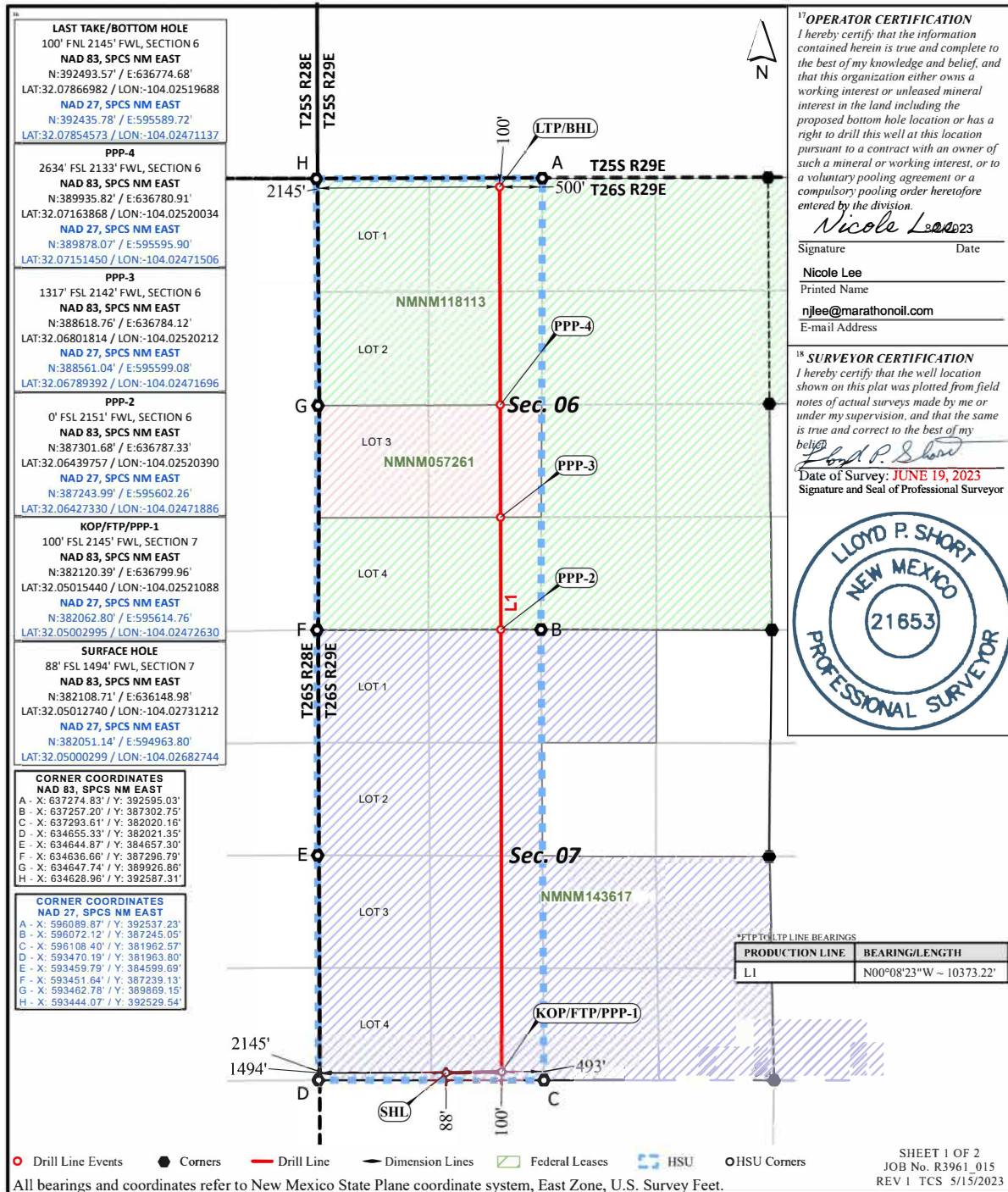
¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	7	26S	29E		88	FSL	1494	FWL	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
C	6	26S	29E		100	FNL	2145	FWL	EDDY
¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.						
638.40									

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.



**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Marathon Oil Company
LEASE NO.:	NMNM 143617
COUNTY:	Eddy County, New Mexico

Wells:

Rick Vaughn BS Fed Com 501H

Surface Hole Location: 88' FSL & 1394' FWL, Section 7, T. 26 S., R. 29 E.

Bottom Hole Location: 100' FNL & 495' FWL, Section 6, T. 26 S, R 29 E.

Rick Vaughn BS Fed Com 502H

Surface Hole Location: 88' FSL & 1444' FWL, Section 7, T. 26 S., R. 29 E.

Bottom Hole Location: 100' FNL & 1320' FWL, Section 6, T. 26 S, R 29 E.

Rick Vaughn BS Fed Com 503H

Surface Hole Location: 88' FSL & 1494' FWL, Section 7, T. 26 S., R. 29 E.

Bottom Hole Location: 100' FNL & 495' FWL, Section 6, T. 26 S, R 29 E.

Rick Vaughn WC Fed Com 811H

Surface Hole Location: 88' FSL & 1419' FWL, Section 7, T. 26 S., R. 29 E.

Bottom Hole Location: 330' FNL & 660' FWL, Section 6, T. 26 S, R 29 E.

Rick Vaughn WC Fed Com 812H

Surface Hole Location: 88' FSL & 1469' FWL, Section 7, T. 26 S., R. 29 E.

Bottom Hole Location: 330' FNL & 1980' FWL, Section 6, T. 26 S, R 29 E.

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

☐ **General Provisions**

☐ **Permit Expiration**

☐ **Archaeology, Paleontology, and Historical Sites**

☐ **Noxious Weeds**

☒ **Special Requirements**

Cave/Karst

Special Status Plant Species

Texas Hornshell Mussel

☐ **Construction**

Notification

Topsoil

Closed Loop System

Federal Mineral Material Pits

Well Pads

Roads

☐ **Road Section Diagram**

☒ **Production (Post Drilling)**

Well Structures & Facilities

☐ **Interim Reclamation**

☐ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 6 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or

any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Watershed:

The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The topsoil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control.

Cave/Karst:

Construction Mitigation

In order to mitigate the impacts from construction activities on cave and karst resources, the following Conditions of Approval will apply to this APD or project:

General Construction:

- No blasting
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction, and no additional construction shall occur until clearance has been issued by the Authorized Officer.
- All linear surface disturbance activities will avoid sinkholes and other karst features to lessen the possibility of encountering near surface voids during construction, minimize changes to runoff, and prevent untimely leaks and spills from entering the karst drainage system.

- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

Pad Construction:

- The pad will be constructed and leveled by adding the necessary fill and caliche – no blasting.
- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.
- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised (i.e. an access road crossing the berm cannot be lower than the berm height).
- Following a rain event, all fluids will vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

Drilling Mitigation

Federal regulations and standard Conditions of Approval applied to all APDs require that adequate measures are taken to prevent contamination to the environment. Due to the extreme sensitivity of the cave and karst resources in this project area, the following additional Conditions of Approval will be added to this APD.

To prevent cave and karst resource contamination the following will be required:

- Closed loop system using steel tanks - all fluids and cuttings will be hauled off-site and disposed of properly at an authorized site
- Rotary drilling with fresh water where cave or karst features are expected to prevent contamination of freshwater aquifers.
- Directional drilling is only allowed at depths greater than 100 feet below the cave occurrence zone to prevent additional impacts resulting from directional drilling.
- Lost circulation zones will be logged and reported in the drilling report so BLM can assess the situation and work with the operator on corrective actions.
- Additional drilling, casing, and cementing procedures to protect cave zones and fresh water aquifers. See drilling COAs.

Production Mitigation

In order to mitigate the impacts from production activities and due to the nature of karst terrane, the following Conditions of Approval will apply to this APD:

- Tank battery locations and facilities will be bermed and lined with a 20 mil thick permanent liner that has a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.
- Development and implementation of a leak detection system to provide an early alert to operators when a leak has occurred.

- Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Residual and Cumulative Mitigation

The operator will perform annual pressure monitoring on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be taken to correct the problem to the BLM's approval.

Plugging and Abandonment Mitigation

Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Wildlife:**Texas Hornshell mussel (*Popenaias popeii*)-Federally Endangered**

Oil and Gas Zone D - CCA Boundary requirements.

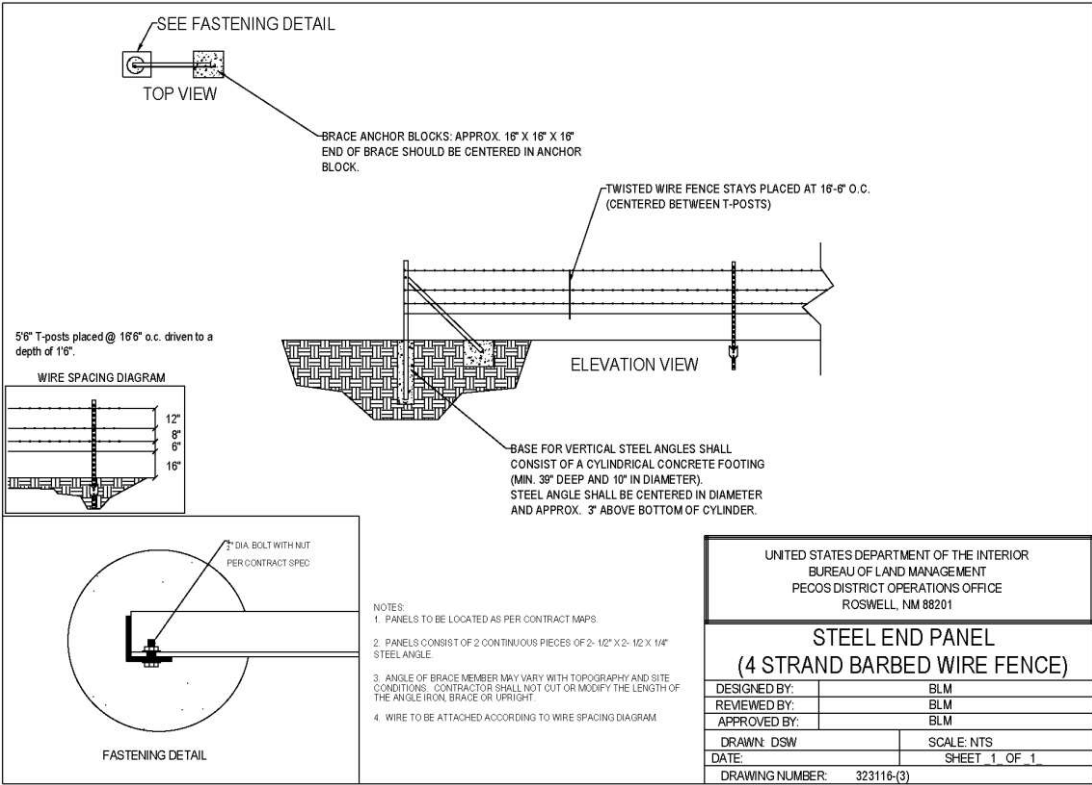
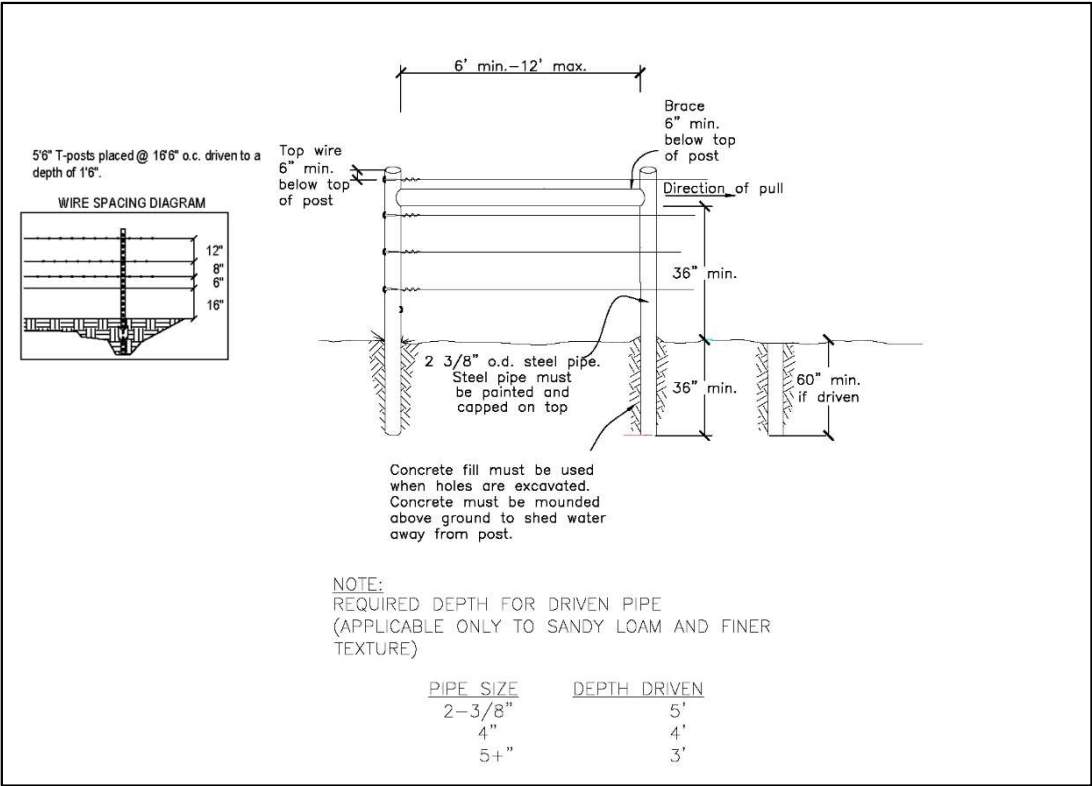
- Implement erosion control measures in accordance with the Reasonable and Prudent Practices for Stabilization ("RAPPS")
- Comply with SPCC requirements in accordance with 40 CFR Part 112;
- Comply with the United States Army Corp of Engineers (USACE) Nationwide 12 General Permit, where applicable;
- Utilize technologies (like underground borings for pipelines), where feasible;
- Educate personnel, agents, contractors, and subcontractors about the requirements of conservation measures, COAs, Stips and provide direction in accordance with the Permit.

Range:**Cattleguards**

Where a permanent cattleguard is approved, an appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

Fence Requirement

Where entry granted across a fence line, the fence must be H-braced or angle iron braced and tied off on both sides of the passageway prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall consult the private surface landowner or the grazing allotment holder prior to cutting any fence(s).



Livestock Watering Requirement

Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must

notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

Texas Hornshell Mussel:

Oil and Gas and Associated Infrastructure Mitigation Measures for Zone D – CCA Boundary Requirements:

- Provide CEHMM with the permit, lease grant, or other authorization form BLM, if applicable.
- Provide CEHMM with plats or other electronic media describing the new surface disturbance for the project.

VRM IV:

Above-ground structures including meter housing that are not subject to safety requirements are painted a flat non-reflective paint color, Shale Green from the BLM Standard Environmental Color Chart (CC-001: June 2008).

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed twenty (20) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

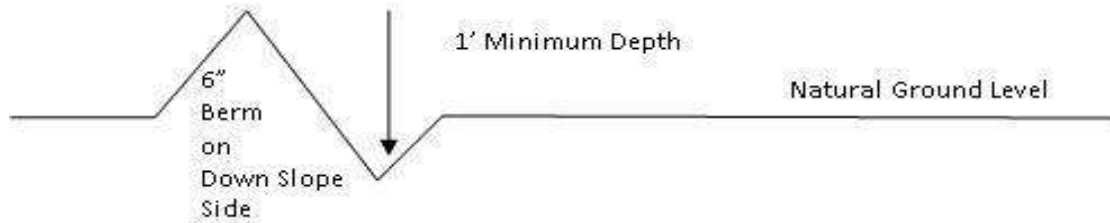
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

- Construction Steps
1. Salvage topsoil

2. Construct road

3. Redistribute topsoil

4. Revegetate slopes

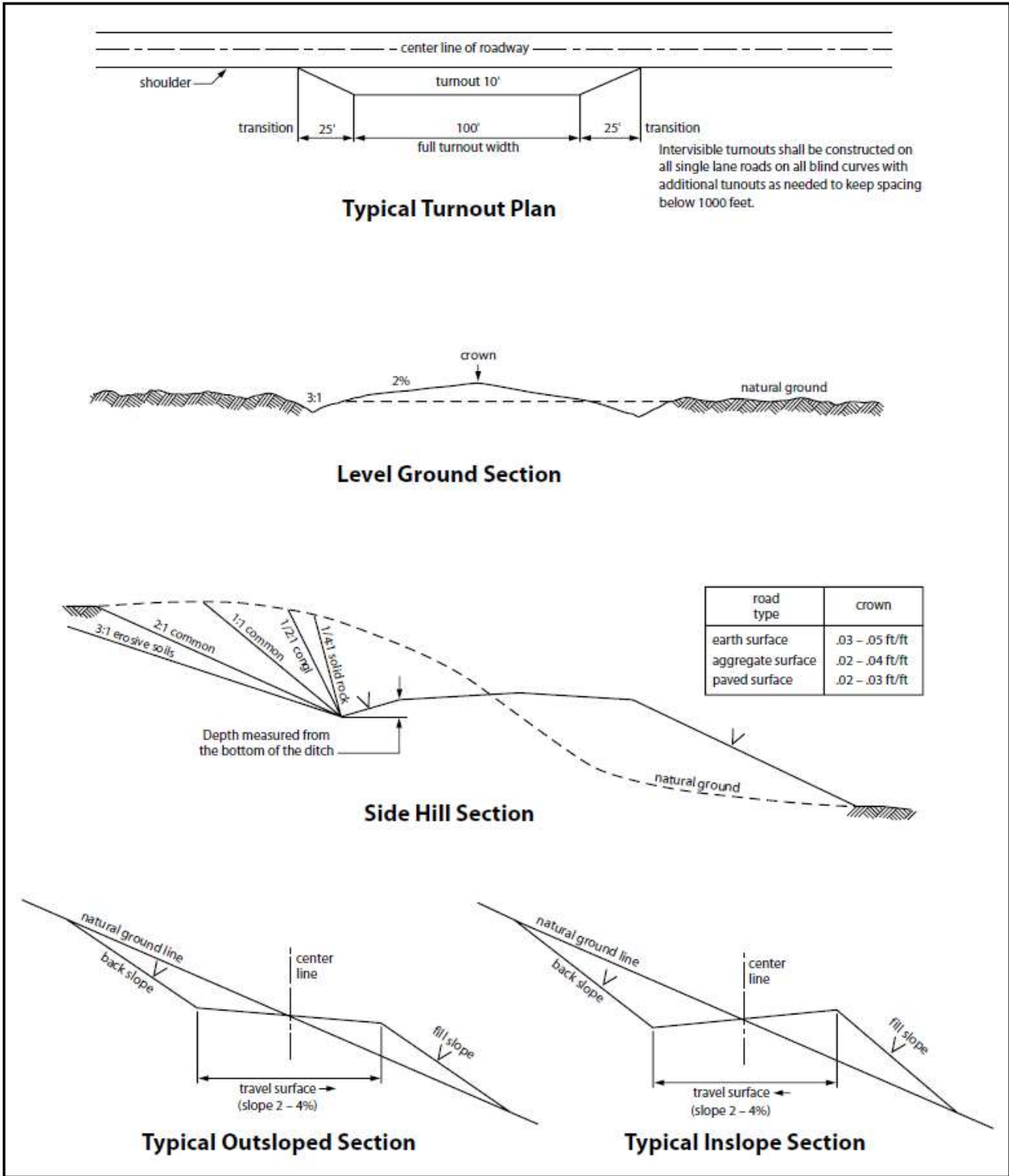


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture 3, for Shallow Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass (<i>Setaria macrostachya</i>)	1.0
Green Sprangletop (<i>Leptochloa dubia</i>)	2.0
Sideoats Grama (<i>Bouteloua curtipendula</i>)	5.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MARATHON OIL PERMIAN LLC
WELL NAME & NO.:	RICK VAUGHN BS FEDERAL COM 503H
LOCATION:	Section 7, T.26 S., R.29 E.
COUNTY:	Eddy County, New Mexico

COA

H2S	☒ Yes	☐ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☐ Low	☐ Medium	☒ High
Cave/Karst Potential	☐ Critical		
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	☐ Both
Wellhead Variance	☐ Diverter		
Other	☐ 4 String	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Pilot Hole	☐ Open Annulus
Cementing	☒ Contingency Cement Squeeze	☐ EchoMeter	☐ Primary Cement Squeeze
Special Requirements	☐ Water Disposal	☒ COM	☐ Unit
Special Requirements	☐ Batch Sundry		
Special Requirements Variance	☒ Break Testing	☒ Offline Cementing	☐ Casing Clearance

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated AT SPUD. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

Primary Casing Design:

- The **13-3/8** inch surface casing shall be set at approximately **350** feet. *BLM Geology Note: The operator proposes to set surface casing at 293', BLM accepts 350 feet weathered-Rustler formation gypsum/anhydrite/ red clay, managing the BLM identified groundwater zones. Salado formation 400' approximate and a salt formation. (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.
2. The **9-5/8** inch intermediate casing shall be set at approximately **7784** feet TVD. **Keep casing minimum half full during run for collapse SF.** The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Option 1 (Single Stage):

- 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 or potash.**

Option 2(Bradenhead for Contingency Only:)

Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage, contingent upon no returns to surface.

- a. First stage should allow for injection down the annulus
- b. Second stage:
 - Operator will perform bradenhead squeeze and top-out. Cement to surface. If cement does not reach surface, the appropriate BLM office shall be notified.

Operator has proposed to pump down 13-3/8" X 9-5/8" annulus. Operator must top out cement after the bradenhead squeeze and verify cement to surface. Operator can also check TOC with Echo-meter. CBL must be run from TD of the 9-5/8" casing to surface if confidence is lacking on the quality of the bradenhead squeeze cement job. Submit results to BLM.

If cement does not tie-back into the previous casing shoe, a third stage remediation BH may be performed. The appropriate BLM office shall be notified.

Bradenhead squeeze in the production interval is only as an edge case remediation measure and is NOT approved in this COA. If production cement job experiences losses and a bradenhead squeeze is needed for tie-back, BLM Engineering should be notified prior to job with volumes and planned wellbore schematic. CBL will be needed when this occurs.

If cement does not reach surface, the next casing string must come to surface.

Operator must use a limited flush fluid volume of 1 bbl following backside cementing procedures.

- ❖ 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 **5-1/2** inch production casing shall be set at approximately **18,574** feet. 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.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

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 **13-3/8** inch surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M) psi. Variance is approved to use a 5000 (5M) Annular which shall be tested to 3500 (70% Working Pressure) 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 OOGO2.III.A.2.i 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 Onshore Order 1 and 43 CFR part 3170 Subpart 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.

(Note: For a minimum 5M BOPE or less (Utilizing a 10M BOPE system)

BOPE Break Testing Variance

- BOPE Break Testing is ONLY permitted for 5M BOPE or less. **(Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP)**
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- Variance only pertains to the intermediate hole-sections and no deeper than the Bone Springs formation.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer **(575-706-2779)** prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required. (200' TVD tolerance between intermediate shoes is allowable).
- The BLM is to be contacted (575-689-5981 Lea County) 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at 21-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per 43 CFR part 3170 Subpart 3172.
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

Offline Cementing

Offline cementing approved for surface and intermediate intervals. Contact the BLM PETs prior to the commencement of any offline cementing procedure.

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)

Contact Eddy County Petroleum Engineering Inspection Staff:

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

Contact Lea County Petroleum Engineering Inspection Staff:

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
 - i. Notify the BLM when moving in and removing the Spudder Rig.
 - ii. Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - iii. BOP/BOPE test to be conducted per **43 CFR 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. For intervals in which cement to surface is required, cement to surface should be verified with a visual check and density or pH check to differentiate cement from spacer and drilling mud. The results should be documented in the driller's log and daily reports.

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 of both lead and tail cement, 2) until cement has been in place at least 8 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-Q 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 3172**.
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:
 - i. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - ii. 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.
 - iii. Manufacturer representative shall install the test plug for the initial BOP test.
 - iv. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.
 - v. 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.
 - i. 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).
 - ii. 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.)
 - iii. 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 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 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - iv. 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.
 - v. The results of the test shall be reported to the appropriate BLM office.

- vi. 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.
- vii. 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.
- viii. 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 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.

KPI 9/11/2024



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Operator Certification Data Report

10/10/2024

Operator

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME:

Signed on: 08/02/2023

Title:

Street Address:

City:

State:

Zip:

Phone:

Email address:

Field

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Application Data

10/10/2024

APD ID: 10400092314

Submission Date: 08/02/2023

Highlighted data
reflects the most
recent changes
[Show Final Text](#)

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: RICK VAUGHN BS FED COM

Well Number: 503H

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400092314

Tie to previous NOS? N

Submission Date: 08/02/2023

BLM Office: Carlsbad

User: NICOLE LEE

Title: Regulatory Compliance
Representative

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM143617

Lease Acres:

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? Y

Permitting Agent? NO

APD Operator: MARATHON OIL PERMIAN LLC

Operator letter of

Operator Info

Operator Organization Name: MARATHON OIL PERMIAN LLC

Operator Address: 990 TOWN & COUNTRY BLVD

Zip: 77024

Operator PO Box:

Operator City: HOUSTON

State: TX

Operator Phone: (713)929-6600

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: RICK VAUGHN BS FED COM

Well Number: 503H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: RED BLUFF

Pool Name: BONE SPRING,
SOUTH

Operator Name: MARATHON OIL PERMIAN LLC**Well Name:** RICK VAUGHN BS FED COM**Well Number:** 503H**Is the proposed well in an area containing other mineral resources?** NATURAL GAS,OIL**Is the proposed well in a Helium production area?** N**Use Existing Well Pad?** Y**New surface disturbance?** Y**Type of Well Pad:** MULTIPLE WELL**Multiple Well Pad Name:** Rick
Vaughn Fed Com**Number:** 361-1**Well Class:** HORIZONTAL**Number of Legs:** 1**Well Work Type:** Drill**Well Type:** OIL WELL**Describe Well Type:****Well sub-Type:** INFILL**Describe sub-type:****Distance to town:** 16 Miles**Distance to nearest well:** 25 FT**Distance to lease line:** 100 FT**Reservoir well spacing assigned acres Measurement:** 638 Acres**Well plat:** A2_RV_503H_Pay_receipt_20230802101045.pdf

A2_C102_Rick_Vaughn_BS_Fed_Com_503H_20230804134437.pdf

Well work start Date: 07/31/2024**Duration:** 35 DAYS**Section 3 - Well Location Table****Survey Type:** RECTANGULAR**Describe Survey Type:****Datum:** NAD83**Vertical Datum:** NAVD88**Survey number:** 21653**Reference Datum:** GROUND LEVEL

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this
SHL Leg #1	88	FSL	1494	FWL	26S	29E	7	Aliquot SESW	32.0501274	-104.0273121	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 143617	2912	0	0	Y
KOP Leg #1	100	FSL	2145	FWL	26S	29E	7	Aliquot SESW	32.0501544	-104.0252109	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 143617	-5450	8679	8362	Y

Operator Name: MARATHON OIL PERMIAN LLC**Well Name:** RICK VAUGHN BS FED COM**Well Number:** 503H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this
PPP Leg #1-1	100	FSL	2145	FWL	26S	29E	7	Aliquot SESW	32.0501544	-104.0252109	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 143617	-5450	8679	8362	Y
PPP Leg #1-2	0	FSL	2145	FWL	26S	29E	6	Aliquot SESW	32.0643975	-104.0252039	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 118113	-5450	13383	8362	Y
PPP Leg #1-3	1317	FSL	2145	FWL	26S	29E	6	Aliquot NESW	32.0680181	-104.0252021	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 57261	-5450	14700	8362	Y
EXIT Leg #1	100	FNL	2145	FWL	26S	29E	6	Aliquot NENE	32.0786698	-104.0251969	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 118113	-5450	18575	8362	Y
BHL Leg #1	100	FNL	2145	FWL	26S	29E	6	Aliquot NENW	32.0786698	-104.0251969	EDD Y	NEW MEXICO	NEW MEXICO	F	NMNM 118113	-5450	18575	8362	Y



Drilling Plan Data Report

10/10/2024

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

APD ID: 10400092314

Submission Date: 08/02/2023

Operator Name: MARATHON OIL PERMIAN LLC

Highlighted data
reflects the most
recent changes

Well Name: RICK VAUGHN BS FED COM

Well Number: 503H

Well Type: OIL WELL

Well Work Type: Drill

[Show Final Text](#)

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
14214577	RUSTLER	2912	309	309	ANHYDRITE	OTHER : brine	N
14214578	SALADO	2406	506	506	ANHYDRITE, SALT	OTHER : brine	N
14214579	CASTILE	1950	962	962	ANHYDRITE, SALT	OTHER : brine	N
14214580	BASE OF SALT	392	2520	2520	ANHYDRITE, SALT	OTHER : brine	N
14214581	LAMAR	218	2694	2694	SANDSTONE, SHALE	NONE	N
14214582	BELL CANYON	192	2720	2720	SANDSTONE	OIL	N
14214583	CHERRY CANYON	-780	3692	3692	SANDSTONE	OIL	N
14214584	BRUSHY CANYON	-1896	4808	4808	SANDSTONE	OIL	N
14214585	BONE SPRING	-4446	7358	7358	SANDSTONE	OIL	Y

Section 2 - Blowout Prevention

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 50% WP for Annular and 10,000 psi for BOP Stack. Testing will be conducted by an independent service company per 43 CFR 3162 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 43 CFR 3162. 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

Operator Name: MARATHON OIL PERMIAN LLC**Well Name:** RICK VAUGHN BS FED COM**Well Number:** 503H

shoe shall be performed. A multibowl wellhead is being used. The BOP will be tested per 43 CFR 3162 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.

Choke Diagram Attachment:

D2_Rick_Vaughn_Choke_Manifold_10M_20230802093345.pdf

D8_MRO_Flex_Hose_20240806114111.pdf

BOP Diagram Attachment:

D2_Rick_Vaughn_BOP_Diagram_10M_20230802093353.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	350	0	350	2912	2562	350	J-55	54.5	BUTT	5.22	1.81	BUOY	4.52	BUOY	4.52
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	7829	0	7784	2912	-4872	7829	P-110	40	BUTT	1.2	1.42	BUOY	2.44	BUOY	2.44
3	PRODUCTION	8.75	5.5	NEW	API	N	0	18574	0	8362	2912	-5450	18574	P-110	23	OTHER - TLW	2.53	1.26	BUOY	2.22	BUOY	2.22

Casing Attachments**Casing ID:** 1 **String** SURFACE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

D3_RV_503H_Csg_Assumptions_20230802093742.pdf

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: RICK VAUGHN BS FED COM

Well Number: 503H

Casing Attachments

Casing ID: 2 String INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

D3_RV_503H_Csg_Assumptions_20230802093908.pdf

Casing ID: 3 String PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

D3_RV_503H_Csg_Assumptions_20230802094010.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	0	0	0	0	0	0	N/A	N/A
PRODUCTION	Tail		7529	1857 4	2116	1.68	13	3556	25	CLASS H	RETARDER, EXTENDER, FLUID LOSS, SUSPENSION AGENT
SURFACE	Lead		0	200	105	2.12	12.5	222	25	CLASS C	EXTENDER, ACCELERATOR, LCM
SURFACE	Tail		200	350	99	1.32	14.8	130	25	CLASS C	ACCELERATOR

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: RICK VAUGHN BS FED COM

Well Number: 503H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Lead		0	7329	1326	2.18	12.4	2891	25	CLASS C	EXTENDER, ACCELERATOR, LCM
INTERMEDIATE	Tail		7329	7829	147	1.33	14.8	196	25	CLASS C	RETARDER

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

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

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	350	WATER-BASED MUD	8.4	8.8							
350	7829	OTHER : BRINE OR OIL BASED MUD	9.2	10.2							
7829	18574	OIL-BASED MUD	10.5	12.5							

Operator Name: MARATHON OIL PERMIAN LLC**Well Name:** RICK VAUGHN BS FED COM**Well Number:** 503H

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

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

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

GAMMA RAY LOG, COMPENSATED NEUTRON LOG, DIRECTIONAL SURVEY,

Coring operation description for the well:

Run gamma-ray (GR), 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 - Pressure

Anticipated Bottom Hole Pressure: 5435**Anticipated Surface Pressure:** 3595**Anticipated Bottom Hole Temperature(F):** 195**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** NO**Describe:****Contingency Plans geohazards description:****Contingency Plans geohazards****Hydrogen Sulfide drilling operations plan required?** YES**Hydrogen sulfide drilling operations**

D6_RV_503H_H2S_plan_20230802094916.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

D8_RV_503H_Directional_Plan_20230802094951.pdf

Other proposed operations facets description:**Other proposed operations facets attachment:**

D8_RV_503H_Drill_Plan_20230802095003.pdf

D8_Rick_Vaughn_Rig_Layout_20230802095003.pdf

D8_Rick_Vaughn_NGMP_20230802095005.pdf

Other Variance attachment:

D8_MRO_Variance_Offline_Cementing_Surf_n_Inter_20240806113958.pdf

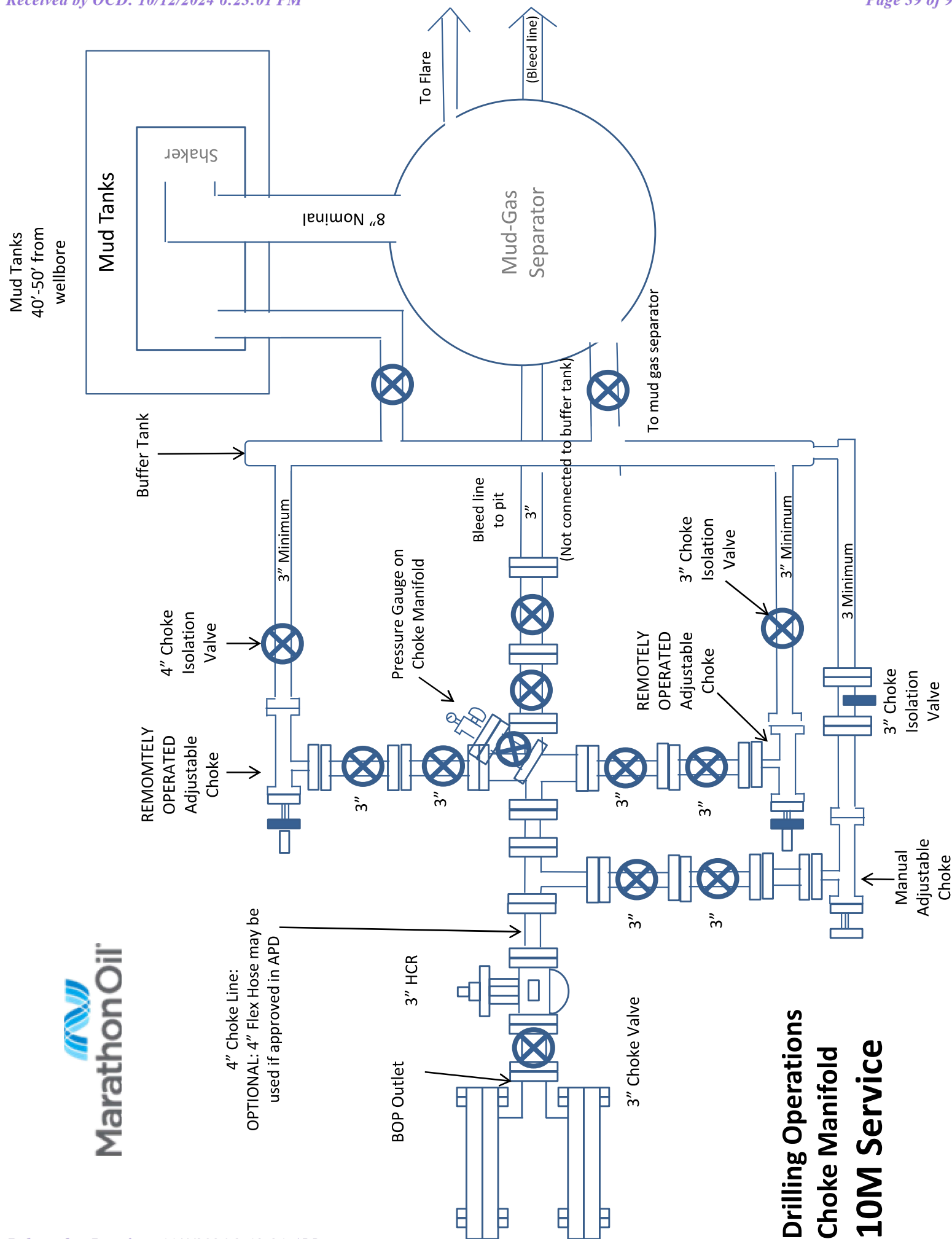
D8_MRO_Variance_Request_Int_Cement_20240806114007.pdf

D8_MRO_Variance_Request_Batch_Drill_n_Spudder_20240806114015.pdf

D8_MRO_Variance_Request_BOP_Break_Test_20240806114026.pdf

D8_MRO_Well_Control_Plan_20240806114034.pdf

D8_MRO_Wellhead_Diagram_20240806114046.pdf





HELMERICH & PAYNE
INTERNATIONAL DRILLING CO.

CHOKE LINE SYSTEM
FLEXRIG3

[illegible]

PROPRIETARY

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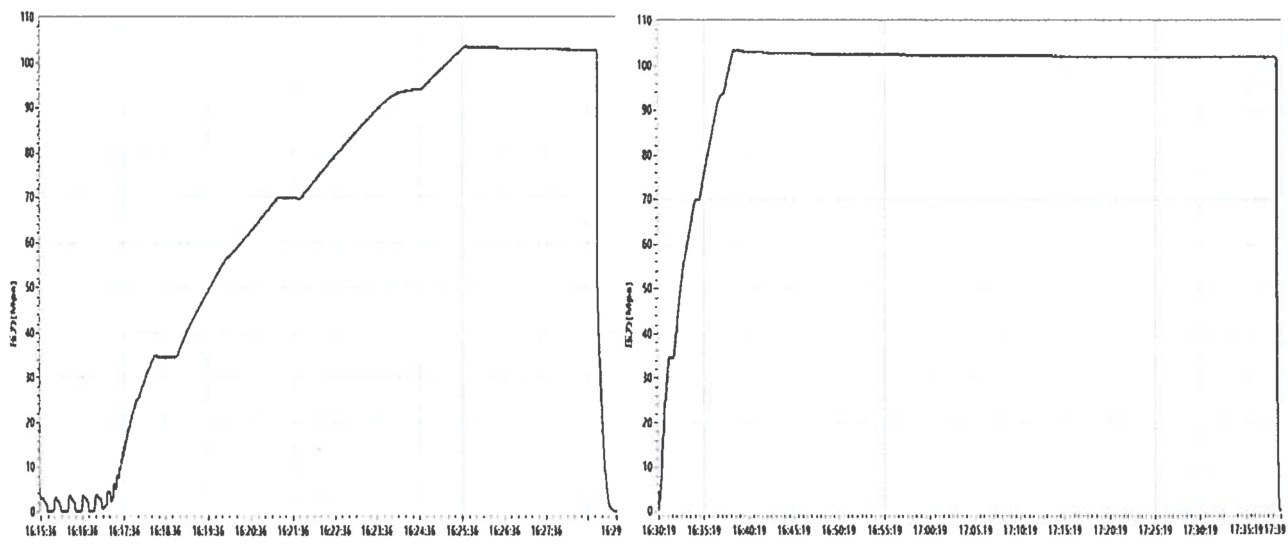


LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD

HYDROSTATIC TESTING REPORT

LTTY/QR-5.7.1-28

No: 230826004

Product Name	Choke And Kill Hose		Standard	API Spec 16C 3 rd edition	
Product Specification	3"×10000psi×35ft (10.67m)		Serial Number	7660134	
Inspection Equipment	MTU-BS-1600-3200-E		Test medium	Water	
Inspection Department	Q.C. Department		Inspection Date	2023.08.17	
Rate of length change					
Standard requirements		At working pressure ,the rate of length change should not more than ±2%			
Testing result		10000psi (69.0MPa) ,Rate of length change 0.9%			
Hydrostatic testing					
Standard requirements		At 1.5 times working pressure, the initial pressure-holding period of not less than three minutes, the second pressure-holding period of not less than one hour, no leaks.			
Testing result		15000psi (103.5MPa), 3 min for the first time, 60 min for the second time, no leakage			
Graph of pressure testing:					
					
Conclusion		The inspected items meet standard requirements of API Spec 16C 3 rd edition			
Approver	Jiaolong Chen	Auditor	Huiling Dong	Inspector	Zhansheng Wang



LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD

CERTIFICATE OF QUALITY

LTTY/QR-5.7.1-19B

№: LT2023-126-001

Customer Name	Austin Hose		
Product Name	Choke And Kill Hose		
Product Specification	3"×10000psi×35ft (10.67m)	Quantity	12PCS
Serial Number	7660131~7660142	FSL	FSL3
Temperature Range	-29℃~+121℃	Standard	API Spec 16C 3 rd edition
Inspection Department	Q.C. Department	Inspection date	2023.08.26

Inspection Items		Inspection results			
Appearance Checking		In accordance with API Spec 16C 3 rd edition			
Size and Lengths		In accordance with API Spec 16C 3 rd edition			
Dimensions and Tolerances		In accordance with API Spec 16C 3 rd edition			
End Connections: 4-1/16"×10000psi Integral flange for sour gas service		In accordance with API Spec 6A 21 st edition			
End Connections: 4-1/16"×10000psi Integral flange for sour gas service		In accordance with API Spec 17D 3 rd edition			
Hydrostatic Testing		In accordance with API Spec 16C 3 rd edition			
product Marking		In accordance with API Spec 16C 3 rd edition			
Inspection conclusion		The inspected items meet standard requirements of API Spec 16C 3 rd edition			
Remarks					
Approver	Jiaolong Chen	Auditor	Huiling Dong	Inspector	Zhansheng Wang



LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD
CERTIFICATE OF CONFORMANCE

№:LT230826013

Product Name: Choke And Kill Hose

Product Specification: 3"×10000psi×35ft(10.67m)

Serial Number: 7660131~7660142

End Connections: 4-1/16"×10000psi Integral flange for sour gas service

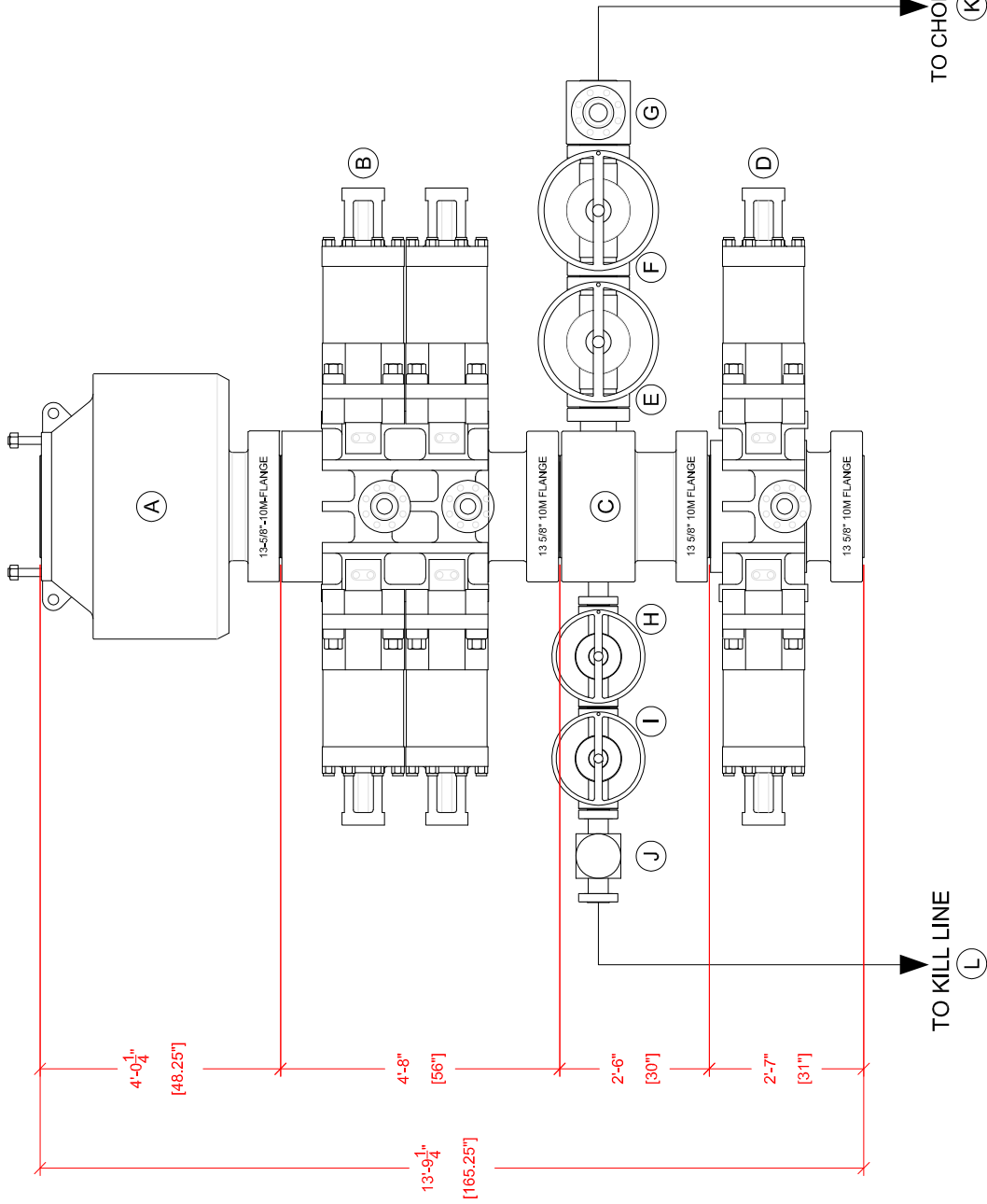
The Choke And Kill Hose assembly was produced by LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD . in Aug 2023, and inspected by LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD. according to API Spec 16C 3rd edition on Aug 26, 2023. The overall condition is good. This is to certify that the Choke And Kill Hose complies with all current standards and specifications for API Spec 16C 3rd edition .

QC Manager:

Jiaolong Chen

Date:Aug 26, 2023

BOP INFORMATION			
ITEM	DESCRIPTION	MAKE	MODEL
A	ANNULAR BOP	CAMERON	13 5/8" 5M T90
B	DOUBLE RAM BOP	CAMERON	13 5/8" 10M U
C	MUD CROSS	CAMERON	13 5/8" 10M
D	SINGLE RAM BOP	CAMERON	13 5/8" 10M U
E	WING VALVE	CAMERON	4 1/2" 10M FLS MANUAL
F	HCR VALVE	CAMERON	4 1/2" 10M HCR
G	CHOKE BLOCK	CAMERON	4 1/2" 10M
H	KILL VALVE	CAMERON	2 1/2" 10M FLS MANUAL
I	KILL VALVE	CAMERON	2 1/2" 10M FLS MANUAL
J	CHECK VALVE	CAMERON	2 1/2" 10M "R" CHECK
K	CHOKE LINE	GATES	4 1/2" 10M FR
L	KILL LINE	GATES	2 1/2" 10M FR
M			



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**Drilling Co., L.L.C.**
Oklahoma City, OK, U.S.A.
Tel: 405-577-5347 Fax: 405-577-5006

TITLE:
RIG 170
BOP STACK-UP
CAC170-A005

CUSTOMER INFO:			
FILE:	R-170_BOP_MARATHON.dwg	TITLE:	
DWG BY:	IJA	DWG DATE:	7/13/2021
CHK BY:		CHK DATE:	
APP BY:		APP DATE:	

TOLERANCE UNLESS OTHERWISE SPECIFIED			
DIMENSIONS IN INCHES			
DECIMAL	DIMENSION	CONCENTRICITY	
.1	F.I.R.	±.1	
.06	F.I.R.	±.06	
.03	F.I.R.	±.03	
.010	F.I.R.	±.010	
ANGLES	± .5 DEGREES		
ACAD FILE:	CAC170-A-005-00-RO	BY	
DATE		REVISION	
SYM		SCALE:	NTS

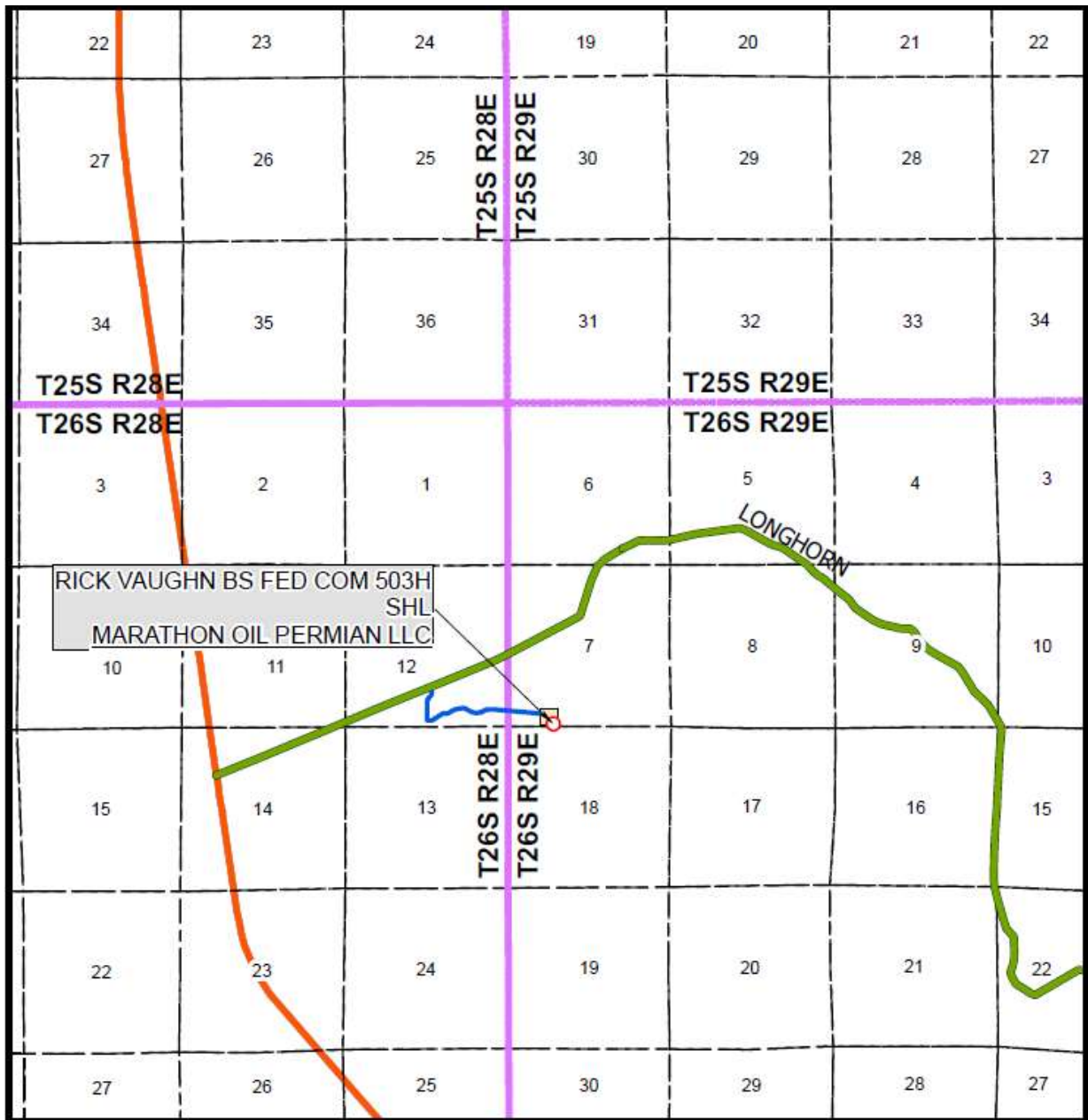


**Hydrogen Sulfide (H₂S)
Contingency Plan**

**Rick Vaughn BS Fed Com 503H
88' FSL & 1494' FWL Sec. 7 T-26S R-29E
Eddy County NM**

Marathon Oil Permian, LLC
Rick Vaughn BS Fed Com 503H

This is an open drilling site. H2S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H2S, including warning signs, wind indicators and H2S monitor.



Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road. Crews should then block the entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. There are no homes or buildings in or near the ROE.

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H₂S, the first responder(s) must

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H₂S monitors and air packs in order to control the release.
- Use the "buddy system" to ensure no injuries occur during the response
- Take precautions to avoid personal injury during this operation.
- Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- Have received training in the
 - Detection of H₂S, and
 - Measures for protection against the gas,
 - Equipment used for protection and emergency response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H₂ S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	2.21 Air = 1	2 ppm	N/A	1000 ppm

Contacting Authorities

Marathon Oil Permian, LLC personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. Marathon Oil Permian LLC response must be in coordination with the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER)

Marathon Oil Permian, LLC

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H₂S) TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

- The hazards and characteristics of hydrogen sulfide (H₂S)
- The proper use and maintenance of personal protective equipment and life support systems.
- The proper use of H₂S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
- The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

- The effects of H₂S metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
- Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
- The contents and requirements of the H₂S Drilling Operations Plan.
- There will be weekly H₂S and well control drills for all personnel in each crew.

II. HYDROGEN SULFIDE TRAINING

Note: All H₂S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H₂S.

- Well Control Equipment
 - Flare line
 - Choke manifold - Remotely Operated
 - Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit

- Auxiliary equipment may include if applicable: annular preventer and rotating head.
 - Mud/Gas Separator
- Protective equipment for essential personnel:
 - 30-minute SCBA units located at briefing areas, as indicated on well site diagram, with escape units available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.
 - Fire extinguishers are located at various locations around the rig. First Aid supplies are located in the top doghouse and the rig manger's office.
- H2S detection and monitoring equipment:
 - Portable H2S monitors positioned on location for best coverage and response. These units have warning lights which activate when H2S levels reach 10 ppm and audible sirens which activate at 15 ppm.

Sensor locations:

 - Bell nipple
 - Rig floor
 - Cellar
 - Possum Belly/Shale shaker
 - Choke manifold
- Visual warning systems:
 - Wind direction indicators as shown on well site diagram
 - Caution/Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.
- Mud program:
 - The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

- Metallurgy:
 - All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H2S trim.
 - All elastomers used for packing and seals shall be H2S trim.
- Communication:
 - Company personnel have/use cellular telephones in the field.
 - Land line (telephone) communications at Office
- Well testing:
 - Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safety and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H2S environment will use the closed chamber method of testing.
 - There will be no drill stem testing.

EMERGENCY & MEDICAL FACILITIES

Marathon Oil Corporation Emergency Numbers			
Anders Storaune	Drilling Manager	astoraune@marathonoil.com	713-296-2985
Allen Livingston	Drilling Superintendent	alivingston@marathonoil.com	832-680-2348
Joshua Love	Drilling Superintendent	jlove@marathonoil.com	405-657-6126
Steve Donley	Drilling Engineer	sdonley@marathonoil.com	405-593-4331
Court Nelson	Drilling Engineer	cnelson1@marathonoil.com	406-565-0604
Scott Schmidt	Drilling Engineer	sschmidt1@marathonoil.com	405-249-6843
John Burt	HES Supervisor	jburt@marathonoil.com	713-296-2903
Unit Rig 409	Company Man	unit409@marathonoil.com	
Precision Rig 580	Company Man	precision580@marathonoil.com	
Cactus Rig 169	Company Man	cactus169@marathonoil.com	
Cactus Rig 170	Company Man	cactus170@marathonoil.com	
Cactus Rig 171	Company Man	cactus171@marathonoil.com	

Emergency Services Area Numbers: Or Call 911			
Sheriff (Eddy County, NM)	575-887-7551	New Mexico Poison Control	800-222-1222
Sheriff (Lea County, NM)	575-396-3611	Border Patrol (Las Cruces, NM)	575-528-6600
New Mexico State Police	575-392-5580/5588	Energy Minerals & Natural Resources Dept.	575-748-1283
Carlsbad Medical Center	575-887-4100	Environmental Health Dept.	505-476-8600
Lea Regional Medical Center	575-492-5000	OSHA (Santa Fe, NM)	505-827-2855
Police (Carlsbad, NM)	575-885-2111		
Police (Hobbs, NM)	575-392-9265		
Fire (Carlsbad, NM)	575-885-3124		
Fire (Hobbs, NM)	575-397-9308		
Ambulance Service	911	TOTAL SAFETY H2S - SAFETY SERVICES For Life Flight 1 st dial 911, nearest helicopter will be determined	432-561-5049



Marathon Oil

Eddy County, New Mexico (NAD 27)

Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad

Rick Vaughn BS Fed Com 503H

Wellbore #1

Plan: Design #1

Standard Planning Report

07 July, 2023





MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Site Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad
Company:	Marathon Oil	TVD Reference:	WELL @ 2939.00usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 2939.00usft (Precision 580)
Site:	Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad	North Reference:	Grid
Well:	Rick Vaughn BS Fed Com 503H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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

Site	Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad		
Site Position:		Northing:	382,050.94 usft
From:	Map	Easting:	594,863.88 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 3' 0.012 N
		Longitude:	104° 1' 37.740 W

Well	Rick Vaughn BS Fed Com 503H					
Well Position	+N/-S	0.20 usft	Northing:	382,051.14 usft	Latitude:	32° 3' 0.011 N
	+E/-W	99.92 usft	Easting:	594,963.80 usft	Longitude:	104° 1' 36.579 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	2,912.00 usft
Grid Convergence:	0.163 °					

Wellbore	Wellbore #1		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2023	8/8/2023	6.483	59.533	47,356.20

Design	Design #1		
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Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.20	99.92	359.86	

Plan Survey Tool Program		Date 7/7/2023			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	18,574.63	Design #1 (Wellbore #1)	MWD+IFR1+FDIR	
				OWSG MWD + IFR1 + FDIR	



MS Directional
Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Site Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad
Company:	Marathon Oil	TVD Reference:	WELL @ 2939.00usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 2939.00usft (Precision 580)
Site:	Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad	North Reference:	Grid
Well:	Rick Vaughn BS Fed Com 503H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Sections											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target	
0.00	0.00	0.00	0.00	0.20	99.92	0.00	0.00	0.00	0.000		
1,500.00	0.00	0.00	1,500.00	0.20	99.92	0.00	0.00	0.00	0.000		
1,903.12	8.06	88.97	1,901.79	0.71	128.23	2.00	2.00	0.00	88.974		
6,141.43	8.06	88.97	6,098.21	11.35	722.57	0.00	0.00	0.00	0.000		
6,544.55	0.00	0.00	6,500.00	11.86	750.88	2.00	-2.00	0.00	180.000		
7,929.09	0.00	0.00	7,884.54	11.86	750.88	0.00	0.00	0.00	0.000		
8,679.09	90.00	359.86	8,362.00	489.32	749.73	12.00	12.00	0.00	359.862		
18,574.63	90.00	359.86	8,362.00	10,384.84	725.84	0.00	0.00	0.00	0.000	LTP/PBHL _ 503H	



MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Site Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad
Company:	Marathon Oil	TVD Reference:	WELL @ 2939.00usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 2939.00usft (Precision 580)
Site:	Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad	North Reference:	Grid
Well:	Rick Vaughn BS Fed Com 503H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.20	99.92	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.20	99.92	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.20	99.92	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.20	99.92	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.20	99.92	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.20	99.92	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.20	99.92	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.20	99.92	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.20	99.92	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.20	99.92	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.20	99.92	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.20	99.92	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.20	99.92	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.20	99.92	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.20	99.92	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.20	99.92	0.00	0.00	0.00	0.00
KOP, 2.00°/100' Build									
1,600.00	2.00	88.97	1,599.98	0.23	101.66	0.03	2.00	2.00	0.00
1,700.00	4.00	88.97	1,699.84	0.32	106.90	0.11	2.00	2.00	0.00
1,800.00	6.00	88.97	1,799.45	0.48	115.61	0.24	2.00	2.00	0.00
1,903.12	8.06	88.97	1,901.79	0.71	128.23	0.44	2.00	2.00	0.00
Begin 8.06° Tangent									
2,000.00	8.06	88.97	1,997.71	0.95	141.82	0.65	0.00	0.00	0.00
2,100.00	8.06	88.97	2,096.73	1.20	155.84	0.86	0.00	0.00	0.00
2,200.00	8.06	88.97	2,195.74	1.45	169.86	1.08	0.00	0.00	0.00
2,300.00	8.06	88.97	2,294.75	1.70	183.89	1.30	0.00	0.00	0.00
2,400.00	8.06	88.97	2,393.76	1.96	197.91	1.52	0.00	0.00	0.00
2,500.00	8.06	88.97	2,492.77	2.21	211.93	1.73	0.00	0.00	0.00
2,600.00	8.06	88.97	2,591.78	2.46	225.95	1.95	0.00	0.00	0.00
2,700.00	8.06	88.97	2,690.79	2.71	239.98	2.17	0.00	0.00	0.00
2,800.00	8.06	88.97	2,789.81	2.96	254.00	2.38	0.00	0.00	0.00
2,900.00	8.06	88.97	2,888.82	3.21	268.02	2.60	0.00	0.00	0.00
3,000.00	8.06	88.97	2,987.83	3.46	282.05	2.82	0.00	0.00	0.00
3,100.00	8.06	88.97	3,086.84	3.71	296.07	3.03	0.00	0.00	0.00
3,200.00	8.06	88.97	3,185.85	3.96	310.09	3.25	0.00	0.00	0.00
3,300.00	8.06	88.97	3,284.86	4.22	324.12	3.47	0.00	0.00	0.00
3,400.00	8.06	88.97	3,383.88	4.47	338.14	3.68	0.00	0.00	0.00
3,500.00	8.06	88.97	3,482.89	4.72	352.16	3.90	0.00	0.00	0.00
3,600.00	8.06	88.97	3,581.90	4.97	366.18	4.12	0.00	0.00	0.00
3,700.00	8.06	88.97	3,680.91	5.22	380.21	4.34	0.00	0.00	0.00
3,800.00	8.06	88.97	3,779.92	5.47	394.23	4.55	0.00	0.00	0.00
3,900.00	8.06	88.97	3,878.93	5.72	408.25	4.77	0.00	0.00	0.00
4,000.00	8.06	88.97	3,977.95	5.97	422.28	4.99	0.00	0.00	0.00
4,100.00	8.06	88.97	4,076.96	6.23	436.30	5.20	0.00	0.00	0.00
4,200.00	8.06	88.97	4,175.97	6.48	450.32	5.42	0.00	0.00	0.00
4,300.00	8.06	88.97	4,274.98	6.73	464.35	5.64	0.00	0.00	0.00
4,400.00	8.06	88.97	4,373.99	6.98	478.37	5.85	0.00	0.00	0.00
4,500.00	8.06	88.97	4,473.00	7.23	492.39	6.07	0.00	0.00	0.00
4,600.00	8.06	88.97	4,572.01	7.48	506.41	6.29	0.00	0.00	0.00
4,700.00	8.06	88.97	4,671.03	7.73	520.44	6.50	0.00	0.00	0.00
4,800.00	8.06	88.97	4,770.04	7.98	534.46	6.72	0.00	0.00	0.00
4,900.00	8.06	88.97	4,869.05	8.23	548.48	6.94	0.00	0.00	0.00



MS Directional Planning Report



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Company:	Marathon Oil	TVD Reference:	WELL @ 2939.00usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 2939.00usft (Precision 580)
Site:	Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad	North Reference:	Grid
Well:	Rick Vaughn BS Fed Com 503H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,000.00	8.06	88.97	4,968.06	8.49	562.51	7.16	0.00	0.00	0.00
5,100.00	8.06	88.97	5,067.07	8.74	576.53	7.37	0.00	0.00	0.00
5,200.00	8.06	88.97	5,166.08	8.99	590.55	7.59	0.00	0.00	0.00
5,300.00	8.06	88.97	5,265.10	9.24	604.58	7.81	0.00	0.00	0.00
5,400.00	8.06	88.97	5,364.11	9.49	618.60	8.02	0.00	0.00	0.00
5,500.00	8.06	88.97	5,463.12	9.74	632.62	8.24	0.00	0.00	0.00
5,600.00	8.06	88.97	5,562.13	9.99	646.64	8.46	0.00	0.00	0.00
5,700.00	8.06	88.97	5,661.14	10.24	660.67	8.67	0.00	0.00	0.00
5,800.00	8.06	88.97	5,760.15	10.50	674.69	8.89	0.00	0.00	0.00
5,900.00	8.06	88.97	5,859.17	10.75	688.71	9.11	0.00	0.00	0.00
6,000.00	8.06	88.97	5,958.18	11.00	702.74	9.32	0.00	0.00	0.00
6,100.00	8.06	88.97	6,057.19	11.25	716.76	9.54	0.00	0.00	0.00
6,141.43	8.06	88.97	6,098.21	11.35	722.57	9.63	0.00	0.00	0.00
Begin 2.00°/100' Drop									
6,200.00	6.89	88.97	6,156.28	11.49	730.19	9.75	2.00	-2.00	0.00
6,300.00	4.89	88.97	6,255.75	11.67	740.45	9.91	2.00	-2.00	0.00
6,400.00	2.89	88.97	6,355.51	11.79	747.23	10.01	2.00	-2.00	0.00
6,500.00	0.89	88.97	6,455.45	11.85	750.53	10.06	2.00	-2.00	0.00
6,544.55	0.00	0.00	6,500.00	11.86	750.88	10.07	2.00	-2.00	0.00
Begin Vertical Hold									
6,600.00	0.00	0.00	6,555.45	11.86	750.88	10.07	0.00	0.00	0.00
6,700.00	0.00	0.00	6,655.45	11.86	750.88	10.07	0.00	0.00	0.00
6,800.00	0.00	0.00	6,755.45	11.86	750.88	10.07	0.00	0.00	0.00
6,900.00	0.00	0.00	6,855.45	11.86	750.88	10.07	0.00	0.00	0.00
7,000.00	0.00	0.00	6,955.45	11.86	750.88	10.07	0.00	0.00	0.00
7,100.00	0.00	0.00	7,055.45	11.86	750.88	10.07	0.00	0.00	0.00
7,200.00	0.00	0.00	7,155.45	11.86	750.88	10.07	0.00	0.00	0.00
7,300.00	0.00	0.00	7,255.45	11.86	750.88	10.07	0.00	0.00	0.00
7,400.00	0.00	0.00	7,355.45	11.86	750.88	10.07	0.00	0.00	0.00
7,500.00	0.00	0.00	7,455.45	11.86	750.88	10.07	0.00	0.00	0.00
7,600.00	0.00	0.00	7,555.45	11.86	750.88	10.07	0.00	0.00	0.00
7,700.00	0.00	0.00	7,655.45	11.86	750.88	10.07	0.00	0.00	0.00
7,800.00	0.00	0.00	7,755.45	11.86	750.88	10.07	0.00	0.00	0.00
7,900.00	0.00	0.00	7,855.45	11.86	750.88	10.07	0.00	0.00	0.00
7,929.09	0.00	0.00	7,884.54	11.86	750.88	10.07	0.00	0.00	0.00
KOP, 12.00°/100' Build									
7,950.00	2.51	359.86	7,905.44	12.32	750.88	10.53	12.00	12.00	0.00
7,975.00	5.51	359.86	7,930.38	14.07	750.87	12.28	12.00	12.00	0.00
8,000.00	8.51	359.86	7,955.19	17.12	750.87	15.33	12.00	12.00	0.00
8,025.00	11.51	359.86	7,979.81	21.46	750.86	19.67	12.00	12.00	0.00
8,050.00	14.51	359.86	8,004.16	27.09	750.84	25.30	12.00	12.00	0.00
8,075.00	17.51	359.86	8,028.19	33.98	750.83	32.19	12.00	12.00	0.00
8,100.00	20.51	359.86	8,051.82	42.13	750.81	40.33	12.00	12.00	0.00
8,125.00	23.51	359.86	8,075.00	51.49	750.78	49.70	12.00	12.00	0.00
8,150.00	26.51	359.86	8,097.65	62.06	750.76	60.27	12.00	12.00	0.00
8,175.00	29.51	359.86	8,119.72	73.80	750.73	72.01	12.00	12.00	0.00
8,200.00	32.51	359.86	8,141.15	86.68	750.70	84.89	12.00	12.00	0.00
8,225.00	35.51	359.86	8,161.87	100.66	750.67	98.87	12.00	12.00	0.00
8,250.00	38.51	359.86	8,181.83	115.71	750.63	113.92	12.00	12.00	0.00
8,275.00	41.51	359.86	8,200.97	131.78	750.59	129.99	12.00	12.00	0.00
8,300.00	44.51	359.86	8,219.25	148.83	750.55	147.04	12.00	12.00	0.00
8,325.00	47.51	359.86	8,236.61	166.81	750.51	165.02	12.00	12.00	0.00



MS Directional Planning Report



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Company:	Marathon Oil	TVD Reference:	WELL @ 2939.00usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 2939.00usft (Precision 580)
Site:	Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad	North Reference:	Grid
Well:	Rick Vaughn BS Fed Com 503H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,350.00	50.51	359.86	8,253.01	185.68	750.46	183.89	12.00	12.00	0.00
8,375.00	53.51	359.86	8,268.40	205.38	750.41	203.59	12.00	12.00	0.00
8,400.00	56.51	359.86	8,282.73	225.86	750.36	224.07	12.00	12.00	0.00
8,425.00	59.51	359.86	8,295.97	247.06	750.31	245.27	12.00	12.00	0.00
8,450.00	62.51	359.86	8,308.09	268.93	750.26	267.14	12.00	12.00	0.00
8,475.00	65.51	359.86	8,319.04	291.40	750.21	289.61	12.00	12.00	0.00
8,500.00	68.51	359.86	8,328.81	314.41	750.15	312.62	12.00	12.00	0.00
8,525.00	71.51	359.86	8,337.35	337.90	750.09	336.11	12.00	12.00	0.00
8,550.00	74.51	359.86	8,344.66	361.81	750.04	360.02	12.00	12.00	0.00
8,575.00	77.51	359.86	8,350.70	386.06	749.98	384.27	12.00	12.00	0.00
8,600.00	80.51	359.86	8,355.47	410.60	749.92	408.81	12.00	12.00	0.00
8,625.00	83.51	359.86	8,358.94	435.35	749.86	433.56	12.00	12.00	0.00
8,650.00	86.51	359.86	8,361.11	460.26	749.80	458.47	12.00	12.00	0.00
8,675.00	89.51	359.86	8,361.98	485.24	749.74	483.45	12.00	12.00	0.00
8,679.09	90.00	359.86	8,362.00	489.32	749.73	487.53	12.00	12.00	0.00
Begin 90.00° Lateral									
8,700.00	90.00	359.86	8,362.00	510.24	749.68	508.45	0.00	0.00	0.00
8,800.00	90.00	359.86	8,362.00	610.24	749.44	608.45	0.00	0.00	0.00
8,900.00	90.00	359.86	8,362.00	710.24	749.19	708.45	0.00	0.00	0.00
9,000.00	90.00	359.86	8,362.00	810.24	748.95	808.45	0.00	0.00	0.00
9,100.00	90.00	359.86	8,362.00	910.24	748.71	908.45	0.00	0.00	0.00
9,200.00	90.00	359.86	8,362.00	1,010.24	748.47	1,008.45	0.00	0.00	0.00
9,300.00	90.00	359.86	8,362.00	1,110.24	748.23	1,108.45	0.00	0.00	0.00
9,400.00	90.00	359.86	8,362.00	1,210.24	747.99	1,208.45	0.00	0.00	0.00
9,500.00	90.00	359.86	8,362.00	1,310.24	747.75	1,308.45	0.00	0.00	0.00
9,600.00	90.00	359.86	8,362.00	1,410.24	747.50	1,408.45	0.00	0.00	0.00
9,700.00	90.00	359.86	8,362.00	1,510.23	747.26	1,508.45	0.00	0.00	0.00
9,800.00	90.00	359.86	8,362.00	1,610.23	747.02	1,608.45	0.00	0.00	0.00
9,900.00	90.00	359.86	8,362.00	1,710.23	746.78	1,708.45	0.00	0.00	0.00
10,000.00	90.00	359.86	8,362.00	1,810.23	746.54	1,808.45	0.00	0.00	0.00
10,100.00	90.00	359.86	8,362.00	1,910.23	746.30	1,908.45	0.00	0.00	0.00
10,200.00	90.00	359.86	8,362.00	2,010.23	746.06	2,008.45	0.00	0.00	0.00
10,300.00	90.00	359.86	8,362.00	2,110.23	745.81	2,108.45	0.00	0.00	0.00
10,400.00	90.00	359.86	8,362.00	2,210.23	745.57	2,208.45	0.00	0.00	0.00
10,500.00	90.00	359.86	8,362.00	2,310.23	745.33	2,308.45	0.00	0.00	0.00
10,600.00	90.00	359.86	8,362.00	2,410.23	745.09	2,408.45	0.00	0.00	0.00
10,700.00	90.00	359.86	8,362.00	2,510.23	744.85	2,508.45	0.00	0.00	0.00
10,800.00	90.00	359.86	8,362.00	2,610.23	744.61	2,608.45	0.00	0.00	0.00
10,900.00	90.00	359.86	8,362.00	2,710.23	744.37	2,708.45	0.00	0.00	0.00
11,000.00	90.00	359.86	8,362.00	2,810.23	744.12	2,808.45	0.00	0.00	0.00
11,100.00	90.00	359.86	8,362.00	2,910.23	743.88	2,908.45	0.00	0.00	0.00
11,200.00	90.00	359.86	8,362.00	3,010.23	743.64	3,008.45	0.00	0.00	0.00
11,300.00	90.00	359.86	8,362.00	3,110.23	743.40	3,108.45	0.00	0.00	0.00
11,400.00	90.00	359.86	8,362.00	3,210.23	743.16	3,208.45	0.00	0.00	0.00
11,500.00	90.00	359.86	8,362.00	3,310.23	742.92	3,308.45	0.00	0.00	0.00
11,600.00	90.00	359.86	8,362.00	3,410.23	742.68	3,408.45	0.00	0.00	0.00
11,700.00	90.00	359.86	8,362.00	3,510.23	742.44	3,508.45	0.00	0.00	0.00
11,800.00	90.00	359.86	8,362.00	3,610.23	742.19	3,608.45	0.00	0.00	0.00
11,900.00	90.00	359.86	8,362.00	3,710.23	741.95	3,708.45	0.00	0.00	0.00
12,000.00	90.00	359.86	8,362.00	3,810.23	741.71	3,808.45	0.00	0.00	0.00
12,100.00	90.00	359.86	8,362.00	3,910.23	741.47	3,908.45	0.00	0.00	0.00
12,200.00	90.00	359.86	8,362.00	4,010.23	741.23	4,008.45	0.00	0.00	0.00



MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Site Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad
Company:	Marathon Oil	TVD Reference:	WELL @ 2939.00usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 2939.00usft (Precision 580)
Site:	Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad	North Reference:	Grid
Well:	Rick Vaughn BS Fed Com 503H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,300.00	90.00	359.86	8,362.00	4,110.23	740.99	4,108.45	0.00	0.00	0.00
12,400.00	90.00	359.86	8,362.00	4,210.23	740.75	4,208.45	0.00	0.00	0.00
12,500.00	90.00	359.86	8,362.00	4,310.23	740.50	4,308.45	0.00	0.00	0.00
12,600.00	90.00	359.86	8,362.00	4,410.23	740.26	4,408.45	0.00	0.00	0.00
12,700.00	90.00	359.86	8,362.00	4,510.23	740.02	4,508.45	0.00	0.00	0.00
12,800.00	90.00	359.86	8,362.00	4,610.23	739.78	4,608.45	0.00	0.00	0.00
12,900.00	90.00	359.86	8,362.00	4,710.23	739.54	4,708.45	0.00	0.00	0.00
13,000.00	90.00	359.86	8,362.00	4,810.23	739.30	4,808.45	0.00	0.00	0.00
13,100.00	90.00	359.86	8,362.00	4,910.23	739.06	4,908.45	0.00	0.00	0.00
13,200.00	90.00	359.86	8,362.00	5,010.22	738.81	5,008.45	0.00	0.00	0.00
13,300.00	90.00	359.86	8,362.00	5,110.22	738.57	5,108.45	0.00	0.00	0.00
13,382.83	90.00	359.86	8,362.00	5,193.05	738.37	5,191.28	0.00	0.00	0.00
Pass PPP-2 _ 13382.83' MD									
13,400.00	90.00	359.86	8,362.00	5,210.22	738.33	5,208.45	0.00	0.00	0.00
13,500.00	90.00	359.86	8,362.00	5,310.22	738.09	5,308.45	0.00	0.00	0.00
13,600.00	90.00	359.86	8,362.00	5,410.22	737.85	5,408.45	0.00	0.00	0.00
13,700.00	90.00	359.86	8,362.00	5,510.22	737.61	5,508.45	0.00	0.00	0.00
13,800.00	90.00	359.86	8,362.00	5,610.22	737.37	5,608.45	0.00	0.00	0.00
13,900.00	90.00	359.86	8,362.00	5,710.22	737.12	5,708.45	0.00	0.00	0.00
14,000.00	90.00	359.86	8,362.00	5,810.22	736.88	5,808.45	0.00	0.00	0.00
14,100.00	90.00	359.86	8,362.00	5,910.22	736.64	5,908.45	0.00	0.00	0.00
14,200.00	90.00	359.86	8,362.00	6,010.22	736.40	6,008.45	0.00	0.00	0.00
14,300.00	90.00	359.86	8,362.00	6,110.22	736.16	6,108.45	0.00	0.00	0.00
14,400.00	90.00	359.86	8,362.00	6,210.22	735.92	6,208.45	0.00	0.00	0.00
14,500.00	90.00	359.86	8,362.00	6,310.22	735.68	6,308.45	0.00	0.00	0.00
14,600.00	90.00	359.86	8,362.00	6,410.22	735.43	6,408.45	0.00	0.00	0.00
14,699.88	90.00	359.86	8,362.00	6,510.10	735.19	6,508.33	0.00	0.00	0.00
Pass PPP-3 _ 14699.88' MD									
14,700.00	90.00	359.86	8,362.00	6,510.22	735.19	6,508.45	0.00	0.00	0.00
14,800.00	90.00	359.86	8,362.00	6,610.22	734.95	6,608.45	0.00	0.00	0.00
14,900.00	90.00	359.86	8,362.00	6,710.22	734.71	6,708.45	0.00	0.00	0.00
15,000.00	90.00	359.86	8,362.00	6,810.22	734.47	6,808.45	0.00	0.00	0.00
15,100.00	90.00	359.86	8,362.00	6,910.22	734.23	6,908.45	0.00	0.00	0.00
15,200.00	90.00	359.86	8,362.00	7,010.22	733.99	7,008.45	0.00	0.00	0.00
15,300.00	90.00	359.86	8,362.00	7,110.22	733.74	7,108.45	0.00	0.00	0.00
15,400.00	90.00	359.86	8,362.00	7,210.22	733.50	7,208.45	0.00	0.00	0.00
15,500.00	90.00	359.86	8,362.00	7,310.22	733.26	7,308.45	0.00	0.00	0.00
15,600.00	90.00	359.86	8,362.00	7,410.22	733.02	7,408.45	0.00	0.00	0.00
15,700.00	90.00	359.86	8,362.00	7,510.22	732.78	7,508.45	0.00	0.00	0.00
15,800.00	90.00	359.86	8,362.00	7,610.22	732.54	7,608.45	0.00	0.00	0.00
15,900.00	90.00	359.86	8,362.00	7,710.22	732.30	7,708.45	0.00	0.00	0.00
16,000.00	90.00	359.86	8,362.00	7,810.22	732.06	7,808.45	0.00	0.00	0.00
16,016.91	90.00	359.86	8,362.00	7,827.13	732.01	7,825.36	0.00	0.00	0.00
Pass PPP-4 _ 16016.91' MD									
16,100.00	90.00	359.86	8,362.00	7,910.22	731.81	7,908.45	0.00	0.00	0.00
16,200.00	90.00	359.86	8,362.00	8,010.22	731.57	8,008.45	0.00	0.00	0.00
16,300.00	90.00	359.86	8,362.00	8,110.22	731.33	8,108.45	0.00	0.00	0.00
16,400.00	90.00	359.86	8,362.00	8,210.22	731.09	8,208.45	0.00	0.00	0.00
16,500.00	90.00	359.86	8,362.00	8,310.22	730.85	8,308.45	0.00	0.00	0.00
16,600.00	90.00	359.86	8,362.00	8,410.21	730.61	8,408.45	0.00	0.00	0.00
16,700.00	90.00	359.86	8,362.00	8,510.21	730.37	8,508.45	0.00	0.00	0.00
16,800.00	90.00	359.86	8,362.00	8,610.21	730.12	8,608.45	0.00	0.00	0.00



MS Directional Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Site Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad
Company:	Marathon Oil	TVD Reference:	WELL @ 2939.00usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 2939.00usft (Precision 580)
Site:	Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad	North Reference:	Grid
Well:	Rick Vaughn BS Fed Com 503H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,900.00	90.00	359.86	8,362.00	8,710.21	729.88	8,708.45	0.00	0.00	0.00
17,000.00	90.00	359.86	8,362.00	8,810.21	729.64	8,808.45	0.00	0.00	0.00
17,100.00	90.00	359.86	8,362.00	8,910.21	729.40	8,908.45	0.00	0.00	0.00
17,200.00	90.00	359.86	8,362.00	9,010.21	729.16	9,008.45	0.00	0.00	0.00
17,300.00	90.00	359.86	8,362.00	9,110.21	728.92	9,108.45	0.00	0.00	0.00
17,400.00	90.00	359.86	8,362.00	9,210.21	728.68	9,208.45	0.00	0.00	0.00
17,500.00	90.00	359.86	8,362.00	9,310.21	728.43	9,308.45	0.00	0.00	0.00
17,600.00	90.00	359.86	8,362.00	9,410.21	728.19	9,408.45	0.00	0.00	0.00
17,700.00	90.00	359.86	8,362.00	9,510.21	727.95	9,508.45	0.00	0.00	0.00
17,800.00	90.00	359.86	8,362.00	9,610.21	727.71	9,608.45	0.00	0.00	0.00
17,900.00	90.00	359.86	8,362.00	9,710.21	727.47	9,708.45	0.00	0.00	0.00
18,000.00	90.00	359.86	8,362.00	9,810.21	727.23	9,808.45	0.00	0.00	0.00
18,100.00	90.00	359.86	8,362.00	9,910.21	726.99	9,908.45	0.00	0.00	0.00
18,200.00	90.00	359.86	8,362.00	10,010.21	726.74	10,008.45	0.00	0.00	0.00
18,300.00	90.00	359.86	8,362.00	10,110.21	726.50	10,108.45	0.00	0.00	0.00
18,400.00	90.00	359.86	8,362.00	10,210.21	726.26	10,208.45	0.00	0.00	0.00
18,500.00	90.00	359.86	8,362.00	10,310.21	726.02	10,308.45	0.00	0.00	0.00
18,574.63	90.00	359.86	8,362.00	10,384.84	725.84	10,383.08	0.00	0.00	0.00
PBHL									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP/FTP/PPP-1 - hit/miss target - Shape	0.00	0.01	0.00	11.86	750.88	382,062.80	595,614.76	32° 3' 0.108 N	104° 1' 29.015 W
- plan misses target center by 651.06usft at 0.00usft MD (0.00 TVD, 0.20 N, 99.92 E)									
- Point									
PPP-2 _ 503H - plan misses target center by 0.01usft at 13382.83usft MD (8362.00 TVD, 5193.05 N, 738.37 E)	0.00	0.00	8,362.00	5,193.05	738.38	387,243.99	595,602.26	32° 3' 51.384 N	104° 1' 28.988 W
- Point									
PPP-4 _ 503H - plan misses target center by 0.01usft at 16016.91usft MD (8362.00 TVD, 7827.13 N, 732.01 E)	0.00	0.00	8,362.00	7,827.13	732.02	389,878.07	595,595.90	32° 4' 17.452 N	104° 1' 28.974 W
- Point									
LTP/PBHL _ 503H - plan hits target center	0.00	0.00	8,362.00	10,384.84	725.84	392,435.78	595,589.72	32° 4' 42.765 N	104° 1' 28.961 W
- Point									
PPP-3 _ 503H - plan misses target center by 0.01usft at 14699.88usft MD (8362.00 TVD, 6510.10 N, 735.19 E)	0.00	0.00	8,362.00	6,510.10	735.20	388,561.04	595,599.08	32° 4' 4.418 N	104° 1' 28.981 W
- Point									



MS Directional
Planning Report



Database:	EDM 5000.15 Conroe DB	Local Co-ordinate Reference:	Site Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad
Company:	Marathon Oil	TVD Reference:	WELL @ 2939.00usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 2939.00usft (Precision 580)
Site:	Rick Vaughn (501H, 502H, 503H, 811H, 812H) Pad	North Reference:	Grid
Well:	Rick Vaughn BS Fed Com 503H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	0.20	99.92	KOP, 2.00°/100' Build	
1,903.12	1,901.79	0.71	128.23	Begin 8.06° Tangent	
6,141.43	6,098.21	11.35	722.57	Begin 2.00°/100' Drop	
6,544.55	6,500.00	11.86	750.88	Begin Vertical Hold	
7,929.09	7,884.54	11.86	750.88	KOP, 12.00°/100' Build	
8,679.09	8,362.00	489.32	749.73	Begin 90.00° Lateral	
13,382.83	8,362.00	5,193.05	738.37	Pass PPP-2 _ 13382.83' MD	
14,699.88	8,362.00	6,510.10	735.19	Pass PPP-3 _ 14699.88' MD	
16,016.91	8,362.00	7,827.13	732.01	Pass PPP-4 _ 16016.91' MD	
18,574.63	8,362.00	10,384.84	725.84	PBHL	

MARATHON OIL PERMIAN, LLC.

DRILLING AND OPERATIONS PLAN



WELL NAME & NUMBER: RICK VAUGHN BS FED COM 503H

LOCATION: SECTION 7 TOWNSHIP 26S RANGE 29E

EDDY COUNTY, NEW MEXICO

Section 1:

GEOLOGICAL FORMATIONS

Name of Surface Formation: Permian

Elevation: 2912 feet

Estimated Tops of Important Geological Markers:

Formation	TVD (ft)	MD (ft)	Elevation (ft SS)	Lithologies	Mineral Resources	Producing Formation?
Rustler	309	309	2603	Anhydrite	Brine	No
Salado	506	506	2406	Salt/Anhydrite	Brine	No
Castile	962	962	1950	Salt/Anhydrite	Brine	No
Base of Salt (BX)	2520	2520	392	Salt/Anhydrite	Brine	No
Lamar	2694	2694	218	Sandstone/Shale	None	No
Bell Canyon	2720	2720	192	Sandstone	Oil	No
Cherry Canyon	3692	3692	-780	Sandstone	Oil	No
Brushy Canyon	4808	4808	-1896	Sandstone	Oil	No
Bone Spring Lime	6352	6352	-3440	Limestone	None	No
Upper Avalon Shale	6387	6387	-3475	Shale	Oil	Yes
1st Bone Spring Sand	7358	7358	-4446	Sandstone	Oil	Yes
2nd Bone Spring Carbonate	7615	7615	-4703	Limestone/Shale	None	No
2nd Bone Spring Sand	8166	8166	-5254	Sandstone	Oil	Yes
3rd Bone Spring Carbonate	8512	8512	-5600	Limestone	Oil	No
3rd Bone Spring Sand	9183	9183	-6271	Sandstone	Oil	Yes
Wolfcamp	9546	9546	-6634	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp A	9650	9650	-6738	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp B	9944	9944	-7032	Sandstone/Shale/Carbonates	Natural Gas / Oil	No
Wolfcamp C	10241	10241	-7329	Sandstone/Shale/Carbonates	Natural Gas / Oil	No
Wolfcamp D	10835	10835	-7923	Sandstone/Shale/Carbonates	Natural Gas / Oil	No

Section 2:

BLOWOUT PREVENTER TESTING PROCEDURE

Pressure Rating (PSI): 10M

Rating Depth: 10000

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

Requesting Variance? Yes

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

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

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

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

Marathon Oil Permian LLC.

Drilling & Operations Plan - Page 2 of 4

Section 3: CASING PROGRAM

String Type	Hole Size	Casing Size	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Weight (lbs/ft)	Grade	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
Surface	17.5	13.375	0	350	0	350	2912	2562	54.5	J55	BTC	5.22	1.81	BUOY	4.52	BUOY	4.52
Intermediate	12.25	9.625	0	7829	0	7784	2912	-4872	40	P110HC	BTC	1.20	1.42	BUOY	2.44	BUOY	2.44
Production	8.75	5.5	0	18574	0	8362	2912	-5450	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	200	105	2.12	12.5	222	25	Class C	Extender,Accelerator,LCM
Surface	Tail	200	350	99	1.32	14.8	130	25	Class C	Accelerator
Intermediate	Lead	0	7329	1326	2.18	12.4	2891	25	Class C	Extender,Accelerator,LCM
Intermediate	Tail	7329	7829	147	1.33	14.8	196	25	Class C	Retarder
Production	Tail	7529	18574	2116	1.68	13	3556	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	350	Water Based Mud	8.4	8.8
350	7829	Brine or Oil Based Mud	9.2	10.2
7829	18574	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: 5435 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.

State of New Mexico
Energy, Minerals and Natural Resources DepartmentSubmit Electronically
Via E-permittingOil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505**NATURAL GAS MANAGEMENT PLAN**

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description**Effective May 25, 2021****I. Operator:** Marathon Oil Permian LLC **OGRID:** 372098 **Date:** 8 / 1 / 2023**II. Type:** ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Rick Vaughn BS Fed Com 501H		7-26S-29E	88 FSL 1394 FWL	2000	5500	6000
Rick Vaughn BS Fed Com 502H		7-26S-29E	88 FSL 1444 FWL	2000	5500	6000
Rick Vaughn BS Fed Com 503H		7-26S-29E	88 FSL 1494 FWL	2000	5500	6000
Rick Vaughn WC Fed Com 811H		7-26S-29E	88 FSL 1419 FWL	2000	5500	6000
Rick Vaughn WC Fed Com 812H		7-26S-29E	88 FSL 1469 FWL	2000	5500	6000

IV. Central Delivery Point Name: Rick Vaughn CTB [See 19.15.27.9(D)(1) NMAC]**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Rick Vaughn BS Fed Com 501H		8/1/2024	9/5/2024	10/5/2024	11/5/2024	12/5/2024
Rick Vaughn BS Fed Com 502H		8/1/2024	9/5/2024	10/5/2024	11/5/2024	12/5/2024
Rick Vaughn BS Fed Com 503H		8/1/2024	9/5/2024	10/5/2024	11/5/2024	12/5/2024
Rick Vaughn WC Fed Com 811H		8/1/2024	9/5/2024	10/5/2024	11/5/2024	12/5/2024
Rick Vaughn WC Fed Com 812H		8/1/2024	9/5/2024	10/5/2024	11/5/2024	12/5/2024

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan
EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☐ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☐ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

If Operator checks this box, Operator will select one of the following:

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: <i>Nicole Lee</i>
Printed Name: Nicole Lee
Title: Regulatory Compliance Representative
E-mail Address: njlee@marathonoil.com
Date: 7/11/2023
Phone: 832-370-2579
OIL CONSERVATION DIVISION (Only applicable when submitted as a standalone form)
Approved By:
Title:
Approval Date:
Conditions of Approval:

OFFLINE CEMENTING



SURFACE OFFLINE CEMENT JOB

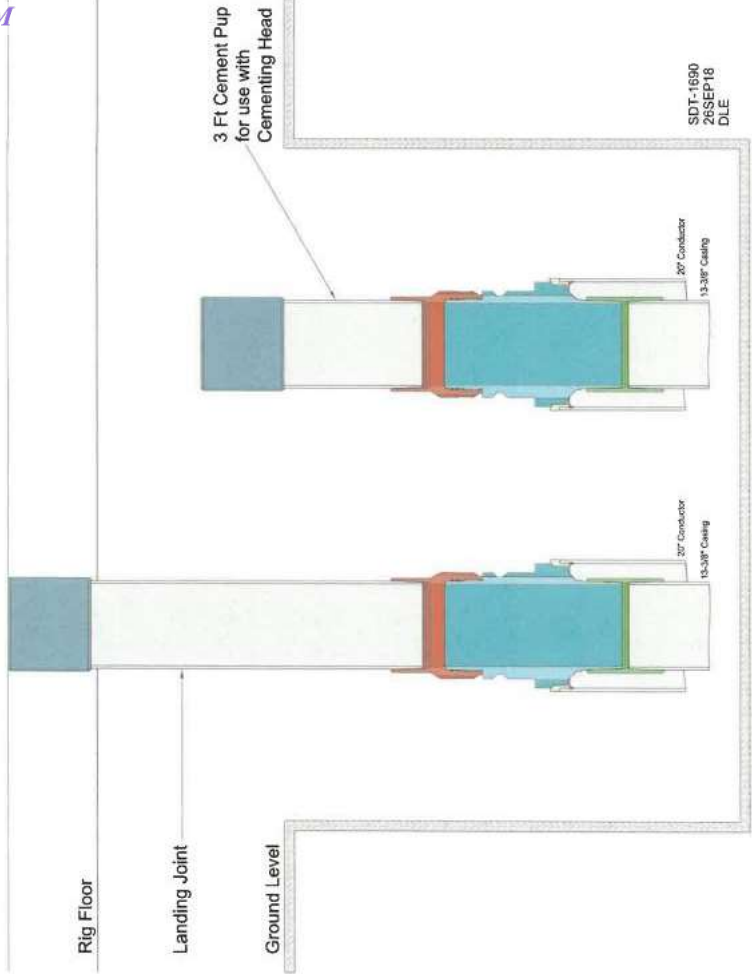


Offline Surface Cement Job

Procedure

1. Run casing per normal operations
 - a) Perform negative test and confirm integrity of float equipment
2. Land surface casing fluted mandrel hanger with the rig (left on picture)
3. Fill pipe with kill weight fluid and confirm well is static
4. Remove the landing joint and skid the rig over
5. After rig has skidded over, install short pup joint (right on picture)
6. Install cement head and cement through the pup joint, taking returns in the cellar
7. After cement remove the cement head and short pup
8. Install the wellhead on to the mandrel hanger and test (not shown in picture)

CFL Off-Line Cementing Tool

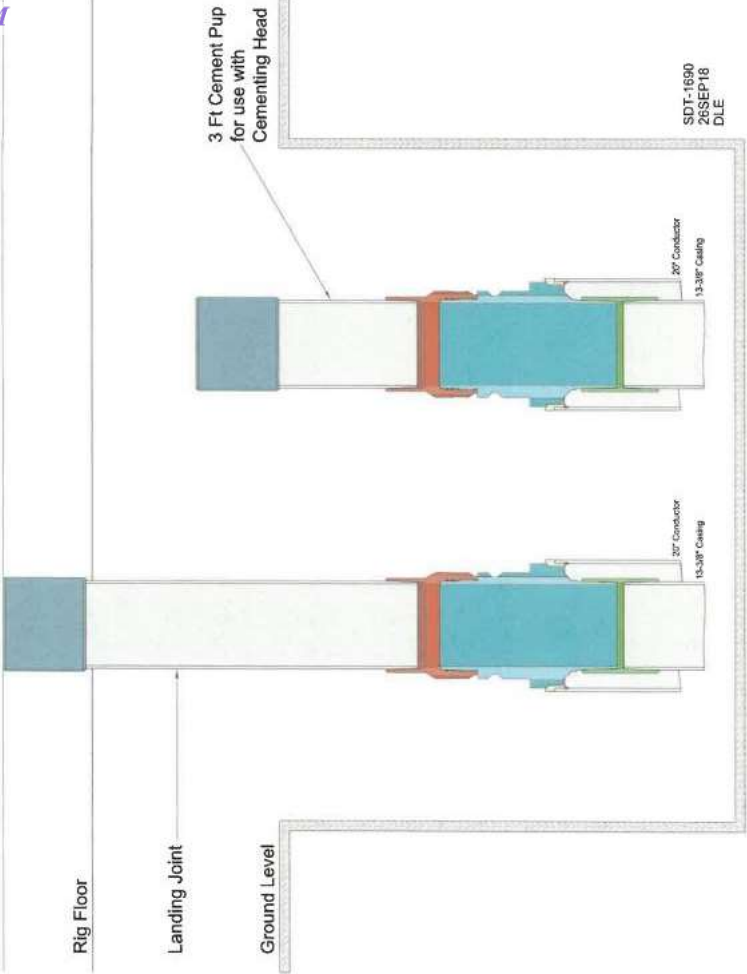


Offline Surface Cement Job

Requirements

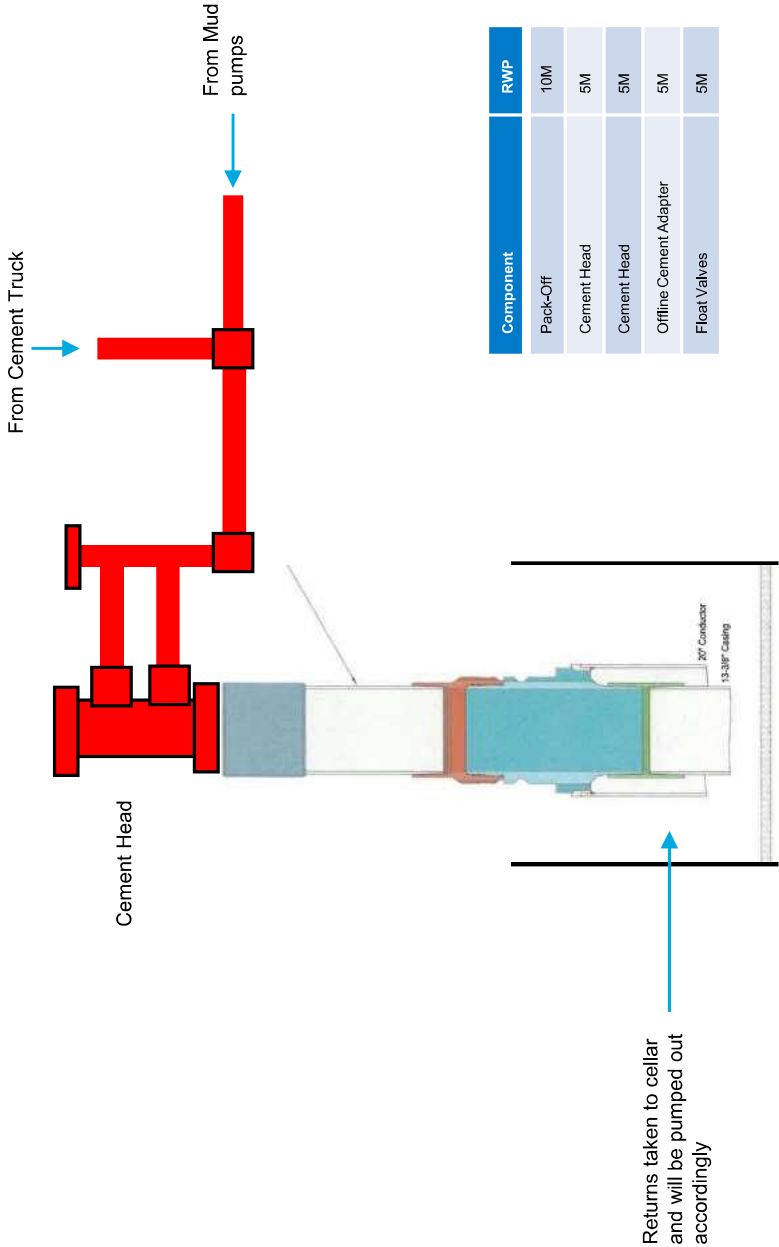
- 1. Confirm well is static and overbalanced
- 2. No wellbore instability
- 3. Successful casing run
- 4. Floats holding
- 5. No observed H2S during drilling
- 6. Cement job will be performed within 24hrs of moving off well

CFL Off-Line Cementing Tool



Offline Surface Cement Job

Diagram and P&ID





INTERMEDIATE OFFLINE CEMENT JOB

Offline Intermediate Cement Job

Procedure

1. Run casing per normal operations
 - a) Perform negative test and confirm integrity of float equipment
2. Land out with production casing mandrel hanger; circulate
 - a) Confirm no blockage of float equipment and perform flow check to confirm well is static
3. Fill pipe with kill weight fluid and confirm well is static
4. Remove landing joint
5. Install intermediate casing Pack off and perform pressure test to confirm integrity. Wellhead components and valves are 5,000psi
 - a) Note: Both internal(floats) and external(packoff) barriers are confirmed
 - b) If any barriers fail to test then cementing operations will be performed online
6. Install circulation plug w/BPV installed to secure the well (ID and OD of the wellbore are secured)
7. Remove BOP and skid to the next well
8. After rig has skidded over, remove circulation plug w/ BPV
9. Install Offline cement tool and test
10. Circulate bottoms up with cement truck
 - a) If gas is observed, well can be shut in and returns routed through gas buster to handle gas
11. Perform cement job taking returns from annulus wellhead valve/s
12. Confirm well is static and floats are holding
13. Remove cement equipment and install a TA CAP

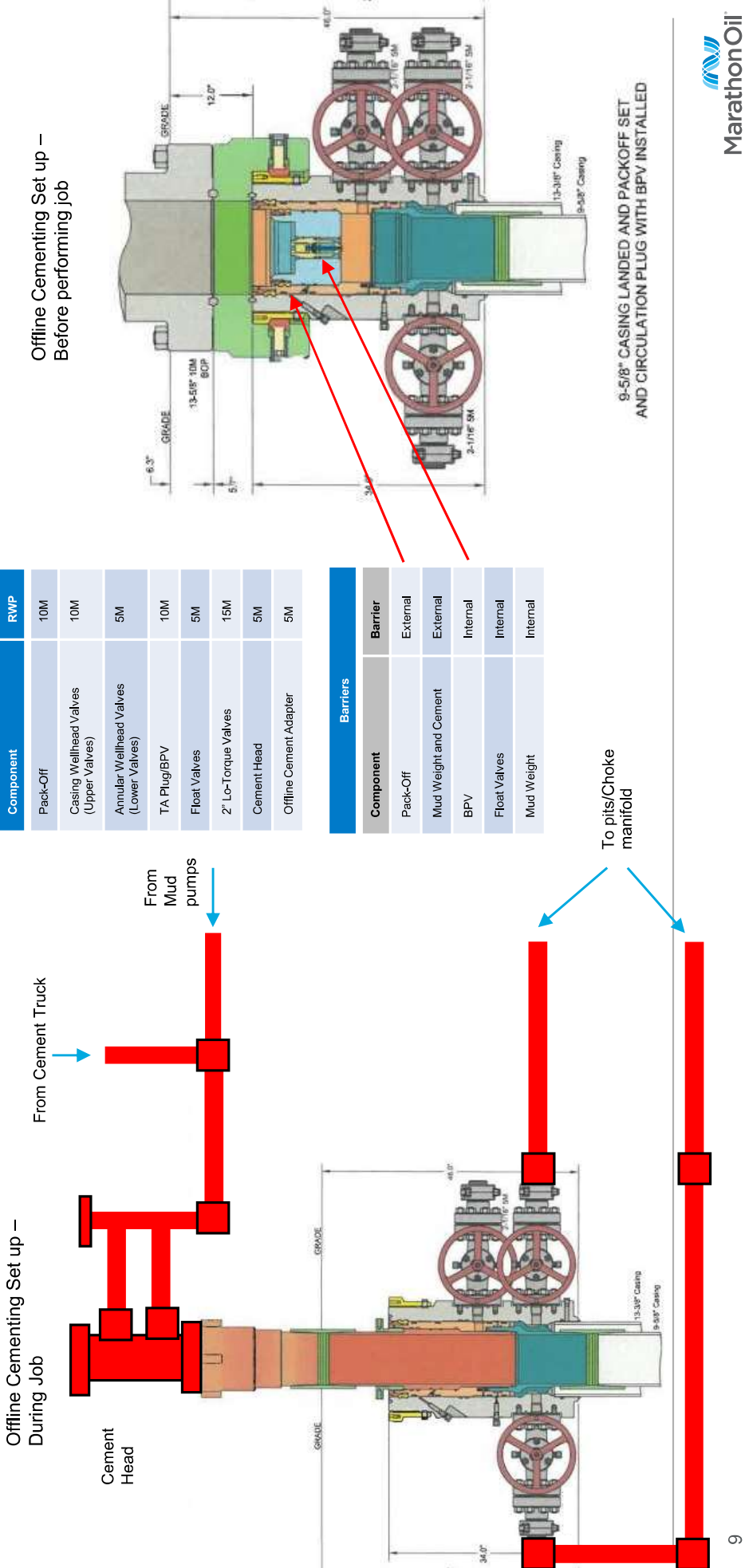
Offline Intermediate Cement Job

Requirements

1. Confirm well is static and overbalanced
2. No wellbore instability
3. Successful casing run
4. Floats holding
5. No observed H2S during drilling
6. Cement job will be performed with 24hrs of moving off well
7. If planning to drillout next well prior to cement job then 3rd party well control equipment and choke system must be in place for offline well
8. Have 3rd party cementing manifolds in place (3rd party well control equipment)

Offline Intermediate Cement Job

Diagram and P&ID





Cement Variance Request

Marathon Oil Permian requests to pump a two stage cement job on the 9 5/8" intermediate casing in the event the primary stage is not circulated to surface.

If cement is not circulated to surface on the primary cement job, the second stage will be performed as a bradenhead squeeze until cement reaches surface.

Following the first stage, we will ensure the cement job was cemented properly and the well is static with floats holding. We will also ensure there is no pressure on the csg annulus as with all other casing strings where batch drilling operations occur. Before moving off the rig the TA cap will be installed as per standard batch drilling ops.

If there are indications that there are gaps in cement coverage after the bradenhead squeeze, a CBL will be run to identify where the gaps are. After the bradenhead squeeze, the lines will NOT be washed into the annulus. The annulus will be topped off approximately an hour after the bradenhead job with cement and verified circulated to surface. If confidence is lacking on the TOC, an echo meter or CBL will be run to verify TOC. BLM Engineer will be notified of such issues.

Batch Drilling Plan

- Marathon Oil Permian LLC. respectfully requests the option to “batch” drill sections of a well with intentions of returning to the well for later completion.
- When it is determined that the use of a “batch” drilling process to increase overall efficiency and reduce rig time on location, the following steps will be utilized to ensure compliant well control before releasing drilling rig during the batch process.
- Succeeding a successful cement job, fluid levels will be monitored in both the annulus and casing string to be verified static.
- A mandrel hanger packoff will be ran and installed in the multi-bowl wellhead isolating and creating a barrier on the annulus. This packoff will be tested to 5,000 PSI validating the seals.
- At this point the well is secure and the drilling adapter will be removed from the wellhead.
- A 13-5/8” 5M temporary abandonment cap will be installed on the wellhead by stud and nut flange. The seals of the TA cap will then be pressure tested to 5,000 PSI.
- The drilling rig will skid to the next well on the pad to continue the batch drilling process.
- When returning to the well with the TA cap, the TA cap will be removed and the BOP will be nipped up on the wellhead.
- A BOP test will then be conducted according to Onshore Order #2 and drilling operations will resume on the subject well.

Request for Surface Rig

- Marathon Oil Permian LLC. Requests the option to contract a surface rig to drill, set surface casing and cement on the subject well. If the timing between rigs is such that Marathon Oil Permian LLC. would not be able to preset the surface section, the primary drilling rig will drill the well in its entirety per the APD.

BOP Break Test Variance Request

Executive Summary

- Request for a Variance allowing break testing of the blowout preventer equipment. Marathon requests to only test broken pressure seals on the BOP and function test BOP when skidding between wells on a pad
- Currently CFR Title 43 Part 3170 states that a test shall be performed “whenever any seal subject to test pressure is broken” and BLM interprets this as requiring a full BOP test
- API 53 states that for pad drilling operations, ONLY the connections that have a pressure seal broken are required to be tested
- Marathon feels break testing meets and or exceeds CFR Title 43 and API 53 required standards and is good drilling practice. It also may reduce wear and tear on BOP components.

BOP Break Test Variance Request

Background

- API Standard 53, “Well Control Equipment Systems for Drilling Wells 5th addition, Dec 2018, Annex C Table C.4) states “ For pad drilling operations, moving from one wellhead to another within the 21days, pressure testing is required for pressure – containing and pressure controlling connection when the integrity of a pressure seal is broken.
- Marathon’s rigs utilize quick connects to allow the release of the BOP from wellhead to wellhead without breaking any BOP stack components. This technology allows for break testing
- BLM has previously approved this variance of break testing for other operators in the area

Table C.4—Initial Pressure Testing, Surface BOP Stacks

Component to be Pressure Tested	Pressure Test—Low Pressure ^{ac} psig (MPa)	Pressure Test—High Pressure ^{ac}	
		Change Out of Component, Elastomer, or Ring Gasket	No Change Out of Component, Elastomer, or Ring Gasket
Annular preventer ^b	250 to 350 (1.72 to 2.41)	RWP of annular preventer	MASP or 70% annular RWP, whichever is lower.
Fixed pipe, variable bore, blind, and BSR preventers ^{bd}	250 to 350 (1.72 to 2.41)	RWP of ram preventer or wellhead system, whichever is lower	ITP
Choke and kill line and BOP side outlet valves below ram preventers (both sides)	250 to 350 (1.72 to 2.41)	RWP of side outlet valve or wellhead system, whichever is lower	ITP
Choke manifold—upstream of chokes ^e	250 to 350 (1.72 to 2.41)	RWP of ram preventers or wellhead system, whichever is lower	ITP
Choke manifold—downstream of chokes ^e	250 to 350 (1.72 to 2.41)	RWP of valve(s), line(s), or MASP for the well program, whichever is lower	
Kelly, kelly valves, drill pipe safety valves, IBOPs	250 to 350 (1.72 to 2.41)	MASP for the well program	
^a Pressure test evaluation periods shall be a minimum of five minutes. No visible leaks. The pressure shall remain stable during the evaluation period. The pressure shall not decrease below the intended test pressure.			
^b Annular(s) and VBR(s) shall be pressure tested on the largest and smallest OD drill pipe to be used in well program.			
^c For pad drilling operations, moving from one wellhead to another within the 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken.			
^d For surface offshore operations, the ram BOPs shall be pressure tested with the ram locks engaged and the closing and locking pressure vented during the initial test. For land operations, the ram BOPs shall be pressure tested with the ram locks engaged and the closing and locking pressure vented at commissioning and annually.			
^e Adjustable chokes are not required to be full sealing devices. Pressure testing against a closed choke is not required.			



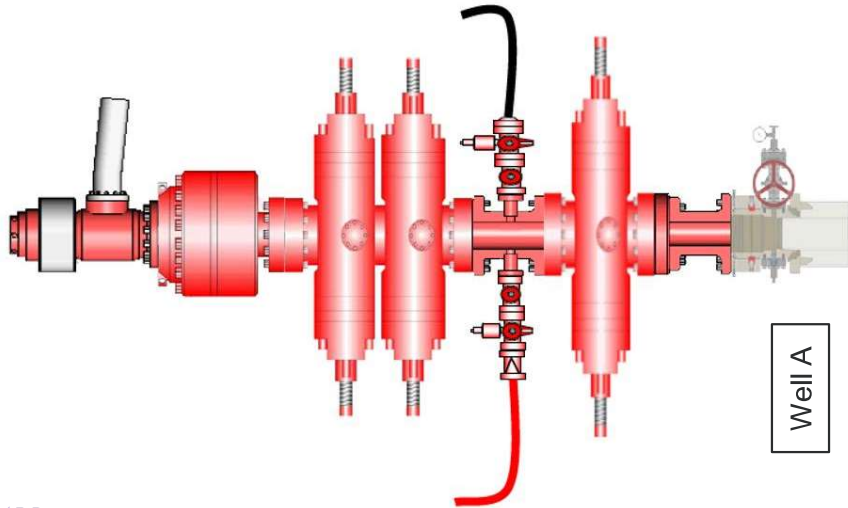
Procedures

Procedural Steps

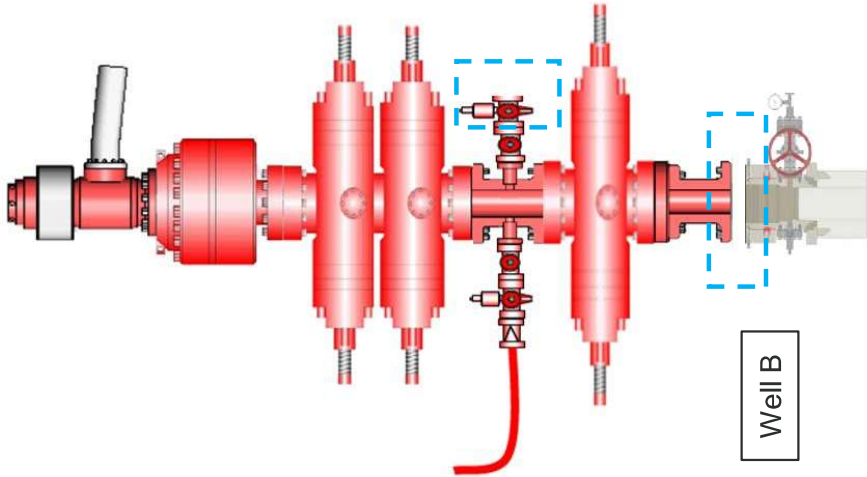
1. Marathon will use this document for break testing plan for New Mexico Delaware Basin.
2. Marathon will perform BOP break testing on well pads where multiple intermediate sections can be drilled and cased within the 21 day test window and will meet the following criteria:
 - a) A full BOP test will be conducted on the first well on the pad
 - b) The deepest intermediate well on the pad will be drilled first
 - c) A Full BOP test will be required prior to drilling any production hole
3. After completing the first full BOP test and drilling the intermediate section, two breaks will be performed on the BOP.
 - a) BOP quick connect and wellhead
 - b) HCV and Choke line connection
4. The BOP will be lifted from well A to well B
5. The two connections stated above will be reconnected
6. Test plug will be installed into wellhead utilizing drillpipe or test joint
7. Shell test will be performed against the upper pipe rams and testing the two breaks consisting of the following tests
 - a) 250psi low test and high test performed to 5,000 (well and sundry specific)
8. Function test will then be performed on the lower pipe rams, blind rams, and annular (performed each trip or every 7 days - whichever is more frequent)
9. This process will be repeated for other wells on the pad while being in the 21 day BOP test window

Sequence Diagram

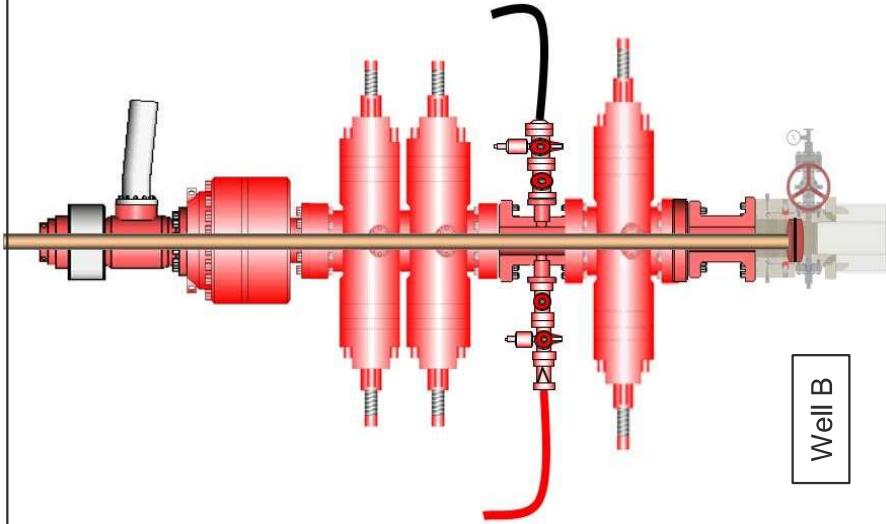
Well A: BOP installed on Well A



BOP picked up and moved from Well A to Well B.
Disconnected at the **quick connect** and the **choke**
line valve

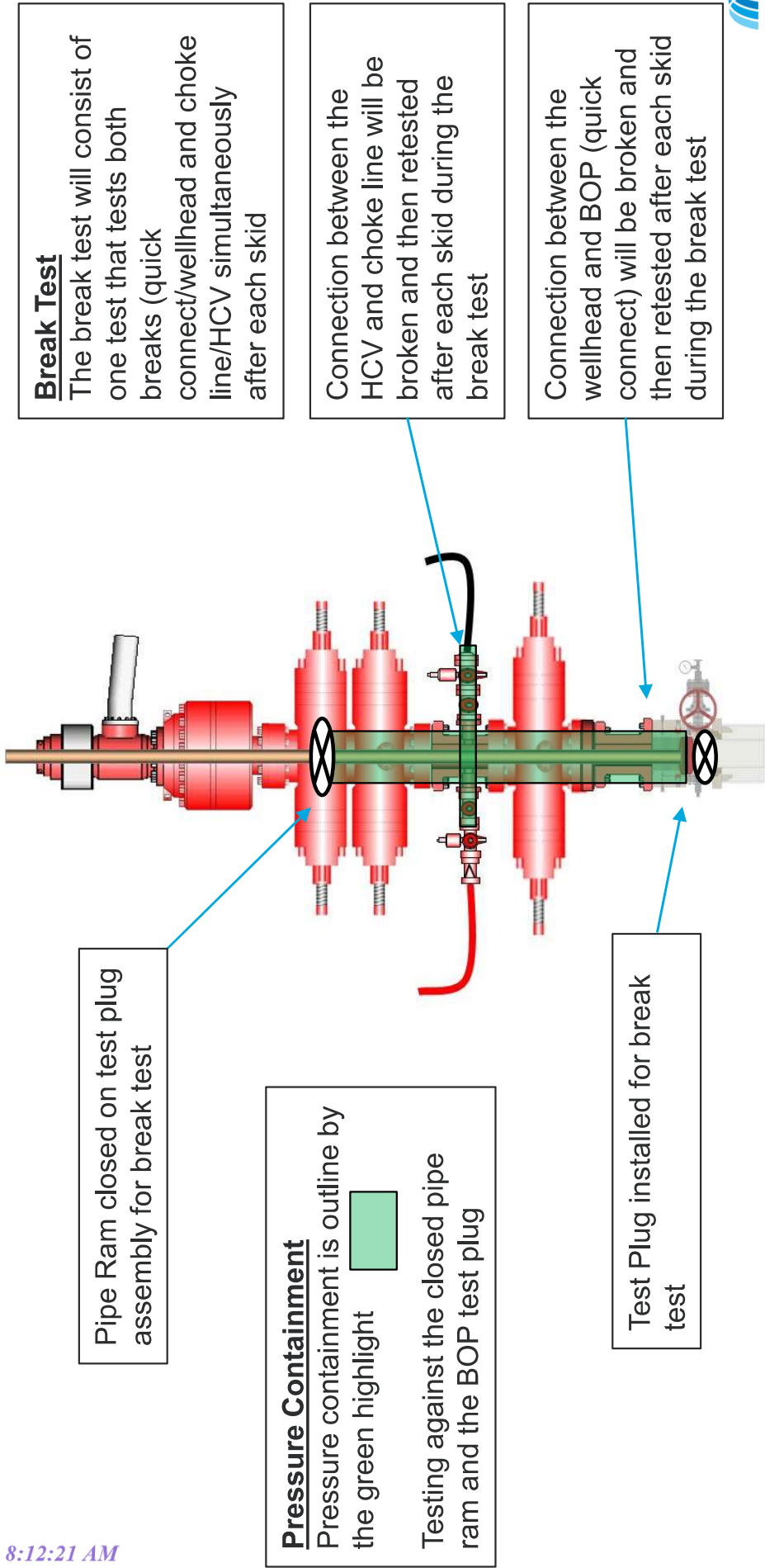


Well B: Quick connect and choke line
reconnected. Test plug installed.



Procedures

Diagram



Summary

- A variance is requested to only test the broken pressure seals on the BOP equipment when moving from wellhead to wellhead. This is in full compliance with API Standard 53
- Marathon will meet the following criteria when break testing:
 - Time of last BOP test was less than 21 days
 - A full BOP test was conducted on the first well on the pad
 - The first intermediate hole section on the pad will be the deepest intermediate hole section.
 - Break testing will not occur on intermediate sections of over 5000 psi MASP

1. DRILLING WELL CONTROL PLAN

1.1 WELL CONTROL - CERTIFICATIONS

Required IADC/IWCF Well Control Certifications Supervisor Level:

Any personnel who supervises or operates the BOP must possess a valid current IADC training certification and photo identification. This would include the onsite drilling supervisor, tool pusher/rig manager, driller, and any personnel that will be acting in these capacities. Another example of this may be a wireline or snubbing crew rigged up on the rig to assist the rig, the operator of each system must also have a valid control certification for their level of operation.

BLM recognizes IADC training as the industry approved accredited training. Online self-certifications will not be acceptable. Enforcement actions for the lack of a valid Supervisory Level certificate shall be prompt action to correct the deficiency. **Enforcement actions include but are not limited to immediate replacement of personnel lacking certifications, drilling operations being shut down or installment of a 10M annular.**

IADC Driller Level for all Drillers and general knowledge for the Assistant Driller, Derrick Hands, Floor Hands and Motor Hands is recognized by the BLM; however, a Driller Level certification will need to be presented only if acting in a temporary Driller Level certification capacity.

Well Control-Position/Roles

IADC Well control training and certification is targeted toward each role, e.g., Supervisor Level toward those who direct, Driller Level to those who act, Introductory to those who need to know.

- **Supervisor Level**
 - Specifies and has oversight that the correct actions are carried out
 - Role is to supervise well control equipment, training, testing, and well control events
 - Directs the testing of BOP and other well control equipment
 - Regularly direct well control crew drills
 - Land based rigs – usually runs the choke during a well kill operation
 - Due to role on the rig, training and certification is targeted more toward management of well control and managing an influx out of the well
- **Driller Level**
 - Performs an action to prevent or respond to well control accident
 - Role is to monitor the well via electronic devices while drilling and detect unplanned influxes
 - Assist with the testing of BOP and other well control equipment
 - Regularly assist with well control crew drills
 - When influx is detected, responsible to close the BOP
 - Due to role on the rig, training and certification is targeted more toward monitoring and shutting the well in (closing the BOP) when an influx is detected

(Well Control-Positions/Roles Continued)

- **Derrick Hand, Assistant Driller Introductory Level**
 - Role is to assist Driller with kick detection by physically monitoring the well at the mixing pits/tanks
 - Regularly record mud weights/viscosity for analysis by the Supervisor level and mud engineer so pre-influx signs can be detected
 - Mix required kill fluids as directed by Supervisor or Driller
 - Due to role on the rig, training and certification is targeted more toward monitoring for influxes, either via mud samples or visual signs on the pits/tanks
- **Motorman, Floor Hand Introductory Level**
 - Role is to assist the Supervisor, Driller, or Derrick Hand with detecting influxes
 - Be certain all valves are aligned for proper well control as directed by Supervisor
 - Perform Supervisor or Driller assigned tasks during a well control event
 - Due to role on the rig, training and certification is targeted more toward monitoring for influxes

1.2 WELL CONTROL-COMPONENT AND PREVENTER COMPATIBILITY CHECKLIST

The table below, which covers the drilling and casing of the 10M Stack portion of the well, outlines the tubulars and the compatible preventers in use. This table, combined with the mud program, documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

- Example 6-1/8" Production hole section, 10M requirement

Component	OD	Preventer	RWP
Drill pipe	4"	Upper and Lower 3.5-5.5" VBRs	10M
HWDP	4"	Upper and Lower 3.5-5.5" VBRs	10M
Drill collars and MWD tools	4.75-5"	Upper and Lower 3.5-5.5" VBRs	10M
Mud Motor	4.75-5.25"	Upper and Lower 3.5-5.5" VBRs	10M
Production casing	4.5"	Upper and Lower 3.5-5.5" VBRs	10M
ALL	0-13-5/8"	Annular	5M
Open-hole	-	Blind Rams	10M

- VBR = Variable Bore Ram. Compatible range listed in chart.

1.3 WELL CONTROL-BOP TESTING

BOP Test will be completed per Onshore Oil and Gas Order #2 Well Control requirements. The 5M Annular Preventer on a required 10M BOP stack will be tested to 70 % of rated working

pressure including a 10 minute low pressure test. Pressure shall be maintained at least 10 minutes.

1.4 WELL CONTROL - DRILLS

The following drills are conducted and recorded in the Daily Drilling Report and the Contractor's reporting system while engaged in drilling operations:

Type	Frequency	Objective	Comments
Shallow gas kick drill - drilling	Once per well with crew on tour	Response training to a shallow gas influx	To be done prior to drilling surface hole if shallow gas is noted
Kick drill - drilling	Once per week per crew	Response training to an influx while drilling (bit on bottom)	Only one kick drill per week per crew is required, alternating between drilling and tripping.
Kick drill - tripping	Once per week per crew	Response training to an influx while tripping (bit off bottom). Practice stabbing TIW valve	

1.5 WELL CONTROL – MONITORING

- Drilling operations which utilize static fluid levels in the wellbore as the active barrier element, a means of accurately monitoring fill-up and displacement volumes during trips are available to the driller and operator. A recirculating trip tank is installed and equipped with a volume indicator easily read from the driller's / operator's position. This data is recorded on a calibrated chart recorder or digitally. The actual volumes are compared to the calculated volumes.
- The On-Site Supervisor ensures hole-filling and pit monitoring procedures are established and documented for every rig operation.
- The well is kept full of fluid with a known density and monitored at all times even when out of the hole.
- Flow checks are a minimum of 15 minutes.
- A flow check is made:
 - In the event of a drilling break.
 - After indications of down hole gains or losses.
 - Prior to all trips out of the hole.
 - After pulling into the casing shoe.
 - Before the BHA enters the BOP stack.
 - If trip displacement is incorrect.

Well Control-Monitoring (Continued)

- Prior to dropping a survey instrument.
- Prior to dropping a core ball.

- After a well kill operation.
- When the mud density is reduced in the well.
- Flow checks may be made at any time at the sole discretion of the driller or his designate. The Onsite Supervisor ensures that personnel are aware of this authority and the authority to close the well in immediately without further consultation.
- Record slow circulating rates (SCR) after each crew change, bit trip, and 500' of new hole drilled and after any variance greater than 0.2 ppg in MW. Slow pump rate recordings should include return flow percent, TVD, MD & pressure. SCR's will be done on all pumps at 30, 40 & 50 SPM. Pressures will be recorded at the choke panel. SCR will be recorded in the IADC daily report and ORB Wellview daily report
- Drilling blind (i.e. without returns) is permissible only in known lithology where the absence of hydrocarbons has been predetermined and written approval of the Drilling Manager.
- All open hole logs to be run with pack-off or lubricator.
- The Drilling Contractor has a fully working pit level totalizer / monitoring system with read out for the driller and an audible alarm set to 10 BBL gain / loss volume. Systems are selectable to enable monitoring of all pits in use. Pit volumes are monitored at all times, especially when transferring fluids. Both systems data is recorded on a calibrated chart recorder or electronically.
- The Drilling Contractor has a fully working return mud flow indicator with drillers display and an audible alarm, and is adjustable to record any variance in return volumes.

1.6 WELL CONTROL – SHUT IN

- The “hard shut in” method (i.e. against a closed choke using either an annular or ram type preventer) is the Company standard.
- The HCR(s) or failsafe valves are left closed during drilling to prevent any erosion and buildup of solids. The adjustable choke should also be left closed.
- The rig specific shut in procedure, the BOP configuration along with space-out position for the tool joints is posted in the Driller's control cabin or doghouse.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Manager.
- During a well kill by circulation, constant bottom hole pressure is maintained throughout.
- Kill sheets are maintained by the Driller and posted in the Driller's control cabin or doghouse. The sheet is updated at a minimum every 500 feet.

2. SHUT-IN PROCEDURES:

2.1 PROCEDURE WHILE DRILLING

- Sound alarm (alert crew)

- Space out drill string – Stop rotating, pick the drill string up off bottom, and space out to ensure no tool joint is located in the BOP element selected for initial closure.
- Shut down pumps (stop pumps and observe well.)
- Shut-in Well - If flow is suspected or confirmed, close uppermost applicable BOP element. (HCR and choke will already be in the closed position.)
 - **Note:** Either the uppermost pipe ram or annular preventer can be used.
- Confirm shut-in
- Notify toolpusher/company representative
- Gather all relevant data required:
 - SIDPP and SICP
 - Hole Depth and Hole TVD
 - Pit gain
 - Time
 - Kick Volume
 - Pipe depth
 - MW in, MW out
 - SPR's (Slow Pump Rate's)
- Regroup and identify forward plan (let well stabilize, update kill sheet, inventory mud additives and mud volumes on location)
- Company Representative, Drilling Superintendent, Drilling Engineer and Drilling Manager will discuss well control kill method to be utilized. A verbal Risk Assessment and preferred kill method will be finalized. Initial Risk Assessment will be finalized within 1 hour of initial shut in.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Contractor PIC.
- Recheck all pressures and fluid volume on accumulator unit
- If pressure has built or is anticipated during the kill to reach 1,000 psi or greater, the annular preventer will not be used as the primary pressure control device and operations will swap to the upper BOP pipe ram.

2.2 PROCEDURE WHILE TRIPPING

- Sound alarm (alert crew)
- Stab full opening safety valve in the drill string and close.
- Space out drill string (ensure no tool joint is located in the BOP element selected for initial closure).
- Shut down pumps (stop pumps and observe well.)
- Shut-in Well - If flow is suspected or confirmed, close uppermost applicable BOP element. (HCR and choke will already be in the closed position.)
 - **Note:** Either the uppermost pipe ram or annular preventer can be used.
- Confirm shut-in
- Notify tool pusher/company representative
- Gather all relevant data required:
 - SIDPP and SICP
 - Hole Depth and Hole TVD
 - Pit gain

Procedure While Tripping (Continued)

- Time
- Kick Volume
- Pipe depth

- MW in, MW out
 - SPR's (Slow Pump Rate's)
- Regroup and identify forward plan (let well stabilize, update kill sheet, inventory mud additives and mud volumes on location)
- Company Representative, Drilling Superintendent, Drilling Engineer and Drilling Manager will discuss well control kill method to be utilized. A verbal Risk Assessment and preferred kill method will be finalized. Initial Risk Assessment will be finalized within 1 hour of initial shut in.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Contractor PIC.
- Recheck all pressures and fluid volume on accumulator unit
- If pressure has built or is anticipated during the kill to reach 1,000 psi or greater, the annular preventer will not be used as the primary pressure control device and operations will swap to the upper BOP pipe ram.

2.3 PROCEDURE WHILE RUNNING CASING

- Sound alarm (alert crew)
- Stab crossover and full opening safety valve and close
- Space out casing (ensure no coupling is located in the BOP element selected for initial closure).
- Shut down pumps (stop pumps and observe well.)
- Shut-in Well - If flow is suspected or confirmed, close uppermost applicable BOP element. (HCR and choke will already be in the closed position.)
 - **Note:** Either the uppermost pipe ram or annular preventer can be used.
- Confirm shut-in
- Notify tool pusher/company representative
- Gather all relevant data required:
 - SIDPP and SICP
 - Hole Depth and Hole TVD
 - Pit gain
 - Time
 - Kick Volume
 - Pipe depth
 - MW in, MW out
 - SPR's (Slow Pump Rate's)
- Regroup and identify forward plan (let well stabilize, update kill sheet, inventory mud additives and mud volumes on location)
- Company Representative, Drilling Superintendent, Drilling Engineer and Drilling Manager will discuss well control kill method to be utilized. A verbal Risk Assessment and preferred kill method will be finalized. Initial Risk Assessment will be finalized within 1 hour of initial shut in.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Contractor PIC.
- Recheck all pressures and fluid volume on accumulator unit
- If pressure has built or is anticipated during the kill to reach 1,000 psi or greater, the annular preventer will not be used as the primary pressure control device and operations will swap to the upper BOP pipe ram.

2.4 PROCEDURE WITH NO PIPE IN HOLE (OPEN HOLE)

- Sound alarm (alert crew)
- Shut-in with blind rams or BSR. (HCR and choke will already be in the closed position.)
- Confirm shut-in

- Notify toolpusher/company representative
- Gather all relevant data required:
 - Shut-In Pressure
 - Hole Depth and Hole TVD
 - Pit gain
 - Time
 - Kick Volume
 - MW in, MW out
 - SPR's (Slow Pump Rate's)
- Regroup and identify forward plan (let well stabilize, update kill sheet, inventory mud additives and mud volumes on location)
- Company Representative, Drilling Superintendent, Drilling Engineer and Drilling Manager will discuss well control kill method to be utilized. A verbal Risk Assessment and preferred kill method will be finalized. Initial Risk Assessment will be finalized within 1 hour of initial shut in.
- No well kill operation commences until there is a plan agreed by the Superintendent, On-Site Supervisor and the Drilling Contractor PIC.
- Recheck all pressures and fluid volume on accumulator unit.

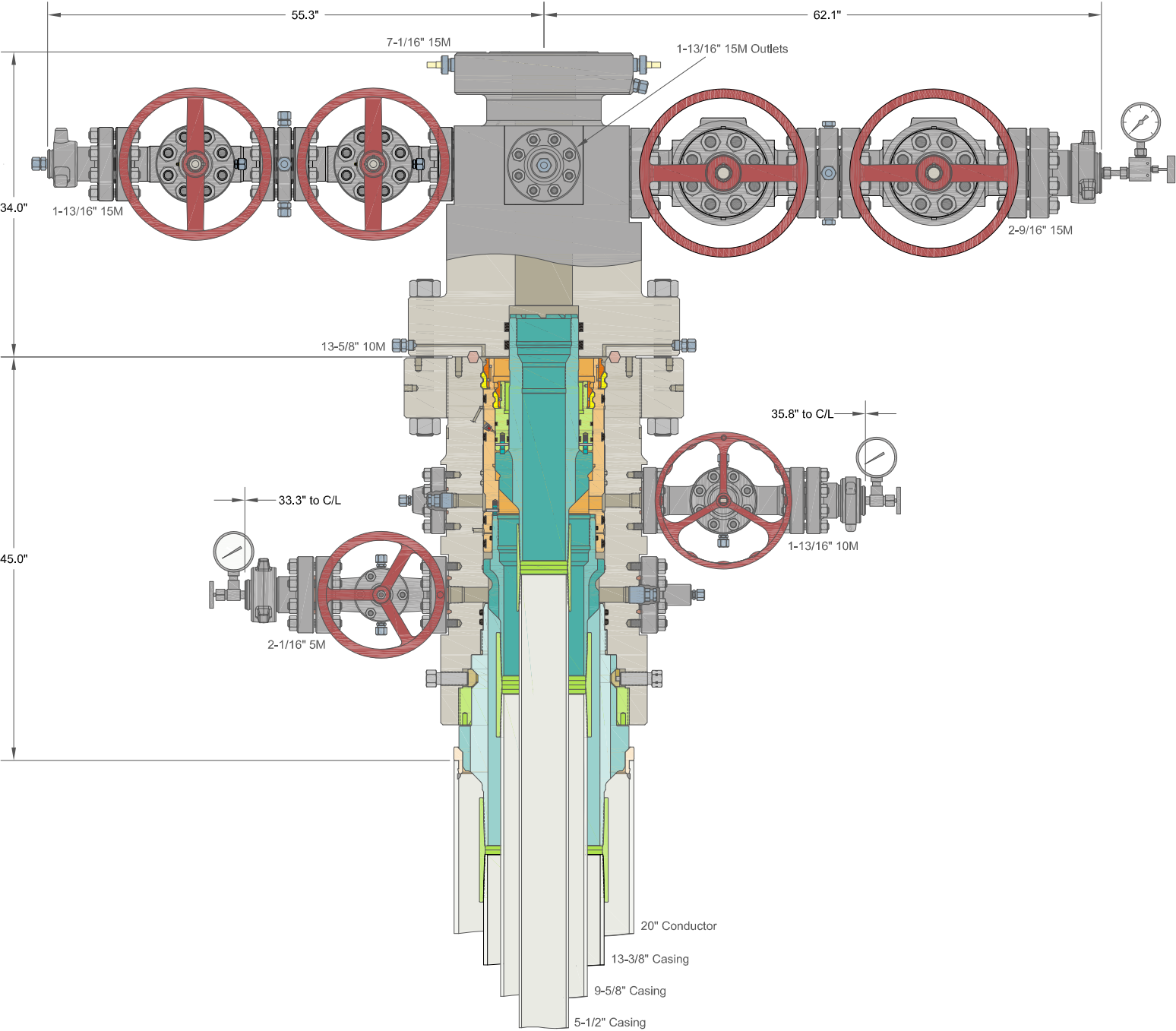
2.5 PROCEDURE WHILE PULLING BHA THRU STACK

- PRIOR to pulling last joint of drill pipe thru the stack.
- Perform flow check, if flowing.
- Sound alarm (alert crew).
- Stab full opening safety valve and close
- Space out drill string with tool joint just beneath the upper pipe ram.
- Shut-in using upper pipe ram. (HCR and choke will already be in the closed position).
- Confirm shut-in.
- Notify toolpusher/company representative
- Read and record the following:
 - SIDPP and SICP
 - Pit gain
 - Time
- Regroup and identify forward plan
- **With BHA in the stack and compatible ram preventer and pipe combo immediately available.**
 - Sound alarm (alert crew)
 - Stab crossover and full opening safety valve and close
 - Space out drill string with upset just beneath the compatible pipe ram.
 - Shut-in using compatible pipe ram. (HCR and choke will already be in the closed position.)
 - Confirm shut-in
 - Notify toolpusher/company representative
 - Read and record the following:
 - SIDPP and SICP
 - Pit gain

Procedures While Pulling BHA thru Stack (Continued)

- Time
- Regroup and identify forward plan

- **With BHA in the stack and NO compatible ram preventer and pipe combo immediately available.**
 - Sound alarm (alert crew)
 - If possible to pick up high enough, pull string clear of the stack and follow “Open Hole” scenario.
 - If impossible to pick up high enough to pull the string clear of the stack:
 - Stab crossover, make up one joint/stand of drill pipe, and full opening safety valve and close
 - Space out drill string with tool joint just beneath the upper pipe ram.
 - Shut-in using upper pipe ram. (HCR and choke will already be in the closed position.)
 - Confirm shut-in
 - Notify toolpusher/company representative
 - Read and record the following:
 - SIDPP and SICP
 - Pit gain
 - Time



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ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC

MARATHON OIL & GAS

20" x 13-3/8" x 9-5/8" x 5-1/2" MBU-3T-CFL-R-DBLO System
With 13-5/8" 10M x 7-1/16" 15M CTH-DBLHPS-SB Tubing Head
And 9-5/8" & 5-1/2" Mandrel Casing Hangers

DRAWN	DLE	20OCT21
APPRV		
DRAWING NO.	HBE0000621	



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data

10/10/2024

APD ID: 10400092314

Submission Date: 08/02/2023

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: RICK VAUGHN BS FED COM

Well Type: OIL WELL

Well Number: 503H

Well Work Type: Drill

Highlighted data
reflects the most
recent changes
[Show Final Text](#)

Bond

Federal/Indian APD: FED

BLM Bond number: NMB001555

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information

Santa Fe Main Office Phone: (505) 476-3441 Fax: (55) 476-3462 General Information Phone: (505) 629-6116 Online Phone Directory Visit: https://www.emnrd.nm.gov/ocd/contact-us/	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DMSION	C-102 Revised July 9, 2024 Submit Electronically via OCD Permitting
		Submittal Type: ☐ Initial Submittal ☒ Amended Report ☐ As Drilled

WELL LOCATION INFORMATION

API Number 30-015-55644	Pool Code 51010	Pool Name RED BLUFF; BONE SPRING, SOUTH
Property Code 336292	Property Name RICK VAUGHN BS FED COM	Well Number 503H
OGRID No. 372098	Operator Name MARATHON OIL PERMIAN LLC	Ground Level Elevation 2912
Surface Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal		Mineral Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal

Surface Location

UL N	Section 7	Township 26S	Range 29E	Lot	Ft. from N/S 88 S	Ft. from F/W 1494 W	Latitude 32.0501274	Longitude -104.027312	County EDDY
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Bottom Hole Location

UL C	Section 6	Township 26S	Range 29E	Lot	Ft. from N/S 100 N	Ft. from F/W 2145 W	Latitude 32.0786698	Longitude -104.025197	County EDDY
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Dedicated Acres 638.40	Infill or Defining Well INFILL	Defining Well API 502H	Overlapping Spacing Unit (YIN) Y	Consolidation Code C
Order Numbers.			Well setbacks are under Common Ownership: ☒ Yes ☐ No	

Kick Off Point (KOP)

UL N	Section 7	Township 26S	Range 29E	Lot	Ft. from N/S 100 S	Ft. from F/W 2145 W	Latitude 32.0501544	Longitude -104.025211	County EDDY
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First Take Point (FTP)

UL N	Section 7	Township 26S	Range 29E	Lot	Ft. from N/S 100 S	Ft. from F/W 2145 W	Latitude 32.0501544	Longitude -104.025211	County EDDY
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Last Take Point (LTP)

UL C	Section 6	Township 26S	Range 29E	Lot 1	Ft. from N/S 100 N	Ft. from F/W 2145 W	Latitude 32.0786698	Longitude -104.025197	County EDDY
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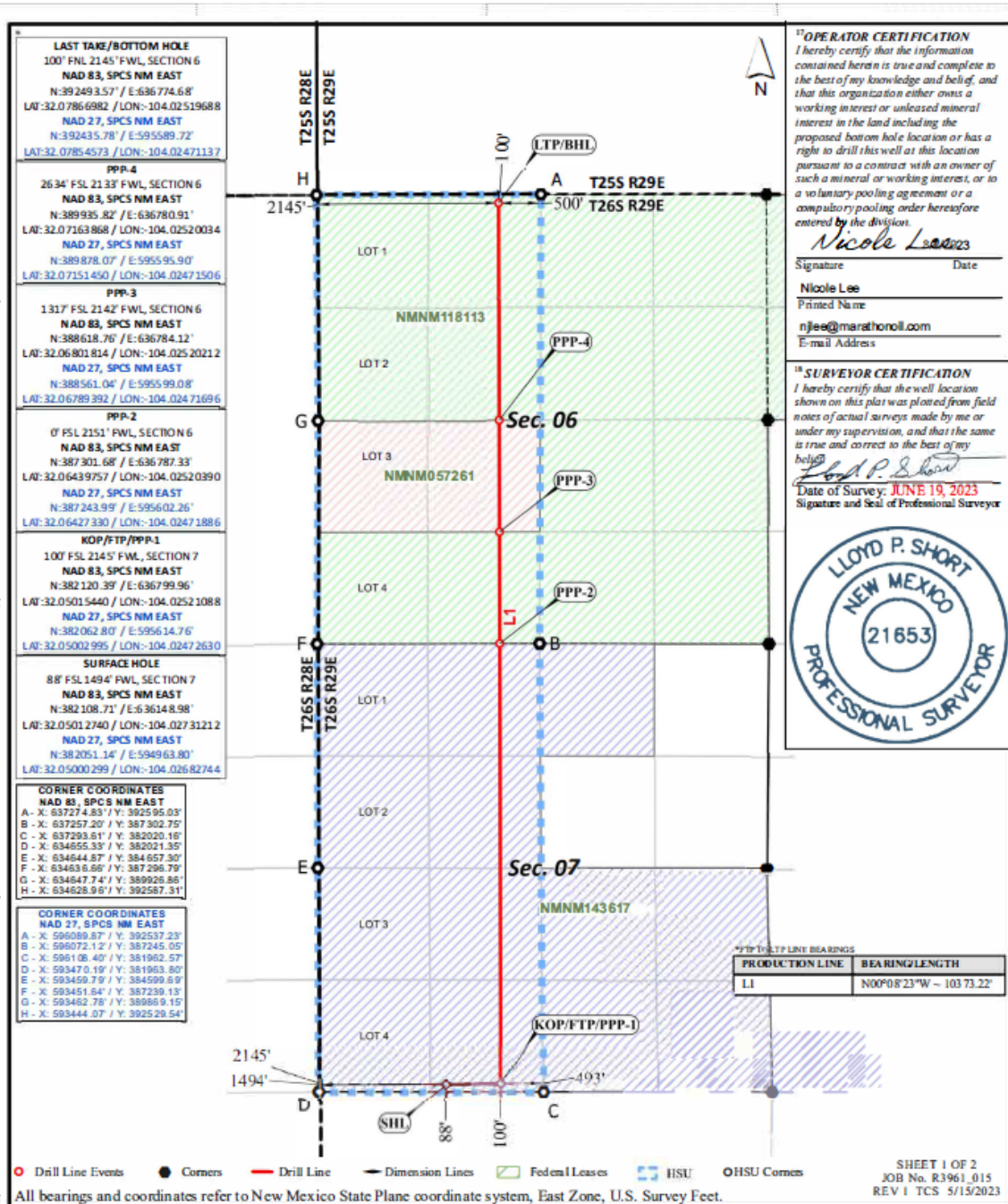
Unitized Area or Area of Uniform Interest Yes Com Agreement	Spacing Unit Type ☒ Horizontal ☐ Vertical	Ground Floor Elevation: 2912
--	--	---------------------------------

OPERATOR CERTIFICATIONS <i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and, if the well is a vertical or directional well, 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 a working interest or unleased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i> <i>If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.</i> Terri Statthem 10/12/2024 Signature Date TERRI STATHEM Printed Name TSTATHEM@MARATHON OIL.COM Email Address	SURVEYOR CERTIFICATIONS <i>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</i> Signature and Seal of Professional Surveyor Certificate Number Date of Survey
--	---

Note: 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.

This grid represents a standard section. You may superimpose a non-standard section, or larger area, over this grid. Operators must outline the dedicated acreage in a red box, clearly show the well surface location and bottom hole location, if it is directionally drilled, with the dimensions from the section lines in the cardinal directions. If this is a horizontal wellbore show on this plat the location of the First Take Point and Last Take Point, and the point within the Completed interval (other than the First Take Point or Last Take Point) that is closest to any outer boundary of the tract.

Surveyors shall use the latest United States government survey or dependent resurvey. Well locations will be in reference to the New Mexico Principal Meridian. If the land is not surveyed, contact the OCD Engineering Bureau. Independent subdivision surveys will not be acceptable.



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 392135

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 392135
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Notify the OCD 24 hours prior to casing & cement.	11/4/2024
ward.rikala	File As Drilled C-102 and a directional Survey with C-104 completion packet.	11/4/2024
ward.rikala	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string.	11/4/2024
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing.	11/4/2024
ward.rikala	If cement does not circulate on any string, a Cement Bond Log (CBL) is required for that string of casing.	11/4/2024
ward.rikala	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.	11/4/2024