Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM19842B

6. If Indian, Allotee or Tribe Name:

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☑ Multiple Zone

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

8. Lease Name and Well No.: CHAOS WC FEDERAL COM 801H

2. Name of Operator: MARATHON OIL PERMIAN LLC

9. API Well No.: 30-015-55631

3a. Address: 990 TOWN & COUNTRY BLVD, HOUSTON, TX 77024

3b. Phone No. *(include area code)*: (713) 296-2113

10. Field and Pool, or Exploratory: PURPLE SAGE/(WOLFCAMP) GAS

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

At surface: NENE / 900 FNL / 526 FEL / LAT 32.3539993 / LONG -104.0686113

At proposed prod. zone: NWNW / 330 FNL / 330 FWL / LAT 32.3517778 / LONG -104.1167282

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 34/T22S/R28E/1PM

14. Distance in miles and direction from nearest town or post office*: 20 miles

12. County or Parish: EDDY

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 330 feet

16. No of acres in lease:

17. Spacing Unit dedicated to this well: 1920.0

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 25 feet

19. Proposed Depth: 10290 feet / 25431 feet

20. BLM/BIA Bond No. in file: FED: NMB001555

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3071 feet

22. Approximate date work will start*: 03/31/2025

23. Estimated duration: 30 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	Name *(Printed/Typed)*	Date
(Electronic Submission)	TERRI STATHEM / Ph: (713) 929-6600	03/22/2024

Title: Regulatory Compliance Manager

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	CODY LAYTON / Ph: (575) 234-5959	09/25/2024

Title	Office
Assistant Field Manager Lands & Minerals	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.

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 09/25/2024

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 wen, 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 directionany 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 wen 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 win 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 conects this information to anow 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 Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

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Approval Date: 09/25/2024

Additional Operator Remarks

Location of Well

0. SHL: NENE / 900 FNL / 526 FEL / TWSP: 22S / RANGE: 28E / SECTION: 34 / LAT: 32.3539993 / LONG: -104.0686113 (TVD: 0 feet, MD: 0 feet)

PPP: NENE / 333 FNL / 330 FEL / TWSP: 22S / RANGE: 28E / SECTION: 34 / LAT: 32.3555665 / LONG: -104.0680273 (TVD: 9717 feet, MD: 9778 feet)

PPP: NENE / 333 FNL / 0 FEL / TWSP: 22S / RANGE: 28E / SECTION: 33 / LAT: 32.3555152 / LONG: -104.0840072 (TVD: 10290 feet, MD: 14895 feet)

BHL: NWNW / 330 FNL / 330 FWL / TWSP: 22S / RANGE: 28E / SECTION: 32 / LAT: 32.3517778 / LONG: -104.1167282 (TVD: 10290 feet, MD: 25431 feet)

BLM Point of Contact

Name: PAMELLA HERNANDEZ
Title: LIE
Phone: (575) 234-5954
Email: PHERNANDEZ@BLM.GOV

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.

AFMSS

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

Application for Permit to Drill

APD Package Report

Date Printed: 09/30/2024 12:32 PM

APD ID:	10400097638	Well Status:	AAPD
APD Received Date:	03/22/2024 02:27 PM	Well Name:	CHAOS WC FEDERAL COM
Operator:	MARATHON OIL PERMIAN LLC	Well Number:	801H

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): 4 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: 5 file(s)

- SUPO Report
- SUPO Attachments
  -- Existing Road Map: 1 file(s)
  -- New Road Map: 1 file(s)
  -- Attach Well map: 1 file(s)
  -- Production Facilities map: 2 file(s)
  -- Water source and transportation map: 1 file(s)
  -- Construction Materials source location attachment: 1 file(s)
  -- Well Site Layout Diagram: 1 file(s)
  -- Recontouring attachment: 1 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
	98220	PURPLE SAGE; WOLFCAMP (GAS)

[4] Property Code	[5] Property Name	[6] Well Number
	CHAOS WC FEDERAL COM	801H

[7] OGRID No.	[8] Operator Name	[9] Elevation
372098	MARATHON OIL PERMIAN LLC	3071'

[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
A	34	22S	28E		900'	NORTH	526'	EAST	EDDY

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	32	22S	28E		330'	NORTH	330'	WEST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
1,920.00			

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.

[16]

CORNER COORDINATES
NAD 83, SPCS NM EAST
A - X: 623580.49' / Y: 493520.23'
B - X: 623659.98' / Y: 490884.16'
C - X: 623738.32' / Y: 488240.10'
D - X: 621045.95' / Y: 488231.32'
E - X: 618378.75' / Y: 488208.65'
F - X: 613253.53' / Y: 488203.58'
G - X: 607921.17' / Y: 488131.88'
H - X: 607883.07' / Y: 493420.58'
I - X: 613107.71' / Y: 493497.62'
J - X: 618325.09' / Y: 493490.53'
K - X: 620952.79' / Y: 493505.38'

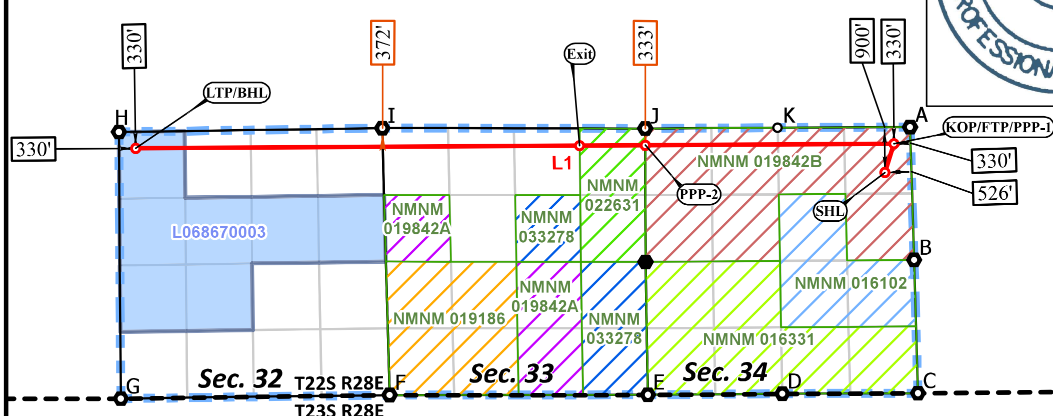
CORNER COORDINATES
NAD 27, SPCS NM EAST
A - X: 582398.22' / Y: 493460.43'
B - X: 582477.64' / Y: 490824.42'
C - X: 582555.91' / Y: 488180.43'
D - X: 579863.58' / Y: 488171.68'
E - X: 577196.42' / Y: 488149.04'
F - X: 572071.26' / Y: 488144.03'
G - X: 566738.97' / Y: 488072.40'
H - X: 566701.00' / Y: 493360.96'
I - X: 571925.58' / Y: 493437.94'
J - X: 577142.89' / Y: 493430.79'
K - X: 579770.56' / Y: 493445.61'

PPP-2
FNL 333' FEL 0', SECTION 33
NAD 83, SPCS NM EAST
X:618326.01' / Y:493157.92'
LAT:32.35551529 / LON:-104.08400725
NAD 27, SPCS NM EAST
X:577143.80' / Y:493098.19'
LAT:32.35539499 / LON:-104.08351005

KOP/FTP/PPP-1
FNL 330' FEL 330', SECTION 34
NAD 83, SPCS NM EAST
X:623260.35' / Y:493188.42'
LAT:32.35556651 / LON:-104.06802737
NAD 27, SPCS NM EAST
X:582078.07' / Y:493128.63'
LAT:32.35544599 / LON:-104.06753075

LTP/BHL
FNL 330' FWL 330', SECTION 32
NAD 83, SPCS NM EAST
X:608215.42' / Y:493095.44'
LAT:32.35540402 / LON:-104.11675042
NAD 27, SPCS NM EAST
X:567033.34' / Y:493035.83'
LAT:32.35528417 / LON:-104.11625206

SHL
FNL 900' FEL 526', SECTION 34
NAD 83, SPCS NM EAST
X:623081.42' / Y:492617.84'
LAT:32.35399932 / LON:-104.06861138
NAD 27, SPCS NM EAST
X:581899.14' / Y:492558.07'
LAT:32.35387879 / LON:-104.06811479



*FTP TO LTP LINE BEARINGS

PRODUCTION LINE	BEARING/LENGTH
L1	S 89°38'45" W ~ 15045.21'

○ Drill Line Events ● Section Corners — Drill Line ←→ Dimension Lines ▭ Federal Leases ▭ NMSLO ▭ HSU ∘ HSU Corners

All bearings and coordinates refer to New Mexico State Plane Coordinate System, East Zone, U.S. Survey Feet.
Distances/areas relative to NAD 83 grid measurements. Combined Scale Factor: 0.99977431 and a Convergence Angle: 0.14739167°

SHEET 1 OF 2
JOB No. R4099_002
REV 1 GM 2/7/2024

[17] *OPERATOR CERTIFICATION*
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Terri Stathem 2/29/2024
Signature Date

Terri Stathem
Printed Name

Tstathem@marathonoil.com
E-mail Address

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

Lloyd P. Short
Date of Survey: FEBRUARY 26, 2024
Signature and Seal of Professional Surveyor

LLOYD P. SHORT
NEW MEXICO
21653
PROFESSIONAL SURVEYOR

PECOS DISTRICT

SURFACE USE

CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Marathon Oil Permian, LLC
LEASE NO.:	NMNM 019842B, NMNM 116102, NMNM 022631, NMNM033278, NMNM 019842A
COUNTY:	Eddy County, New Mexico

Wells:

Chaos WC Federal Com 701H

Surface Hole Location: 890 feet from north line (FNL) and
497 feet from east line (FEL), Section 34, T. 22 S., R. 28 E.
Bottom Hole Location: 330 feet from north line (FNL) and
330 feet from west line (FWL), Section 32, T. 22 S, R 28 E.

Chaos WC Federal Com 702H

Surface Hole Location: 881 feet from north line (FNL) and
468 feet from east line (FEL), Section 34, T. 22 S., R. 28 E.
Bottom Hole Location: 1649 feet from north line (FNL) and
330 feet from west line (FWL), Section 32, T. 22 S, R 28 E.

Chaos WC Federal Com 801H

Surface Hole Location: 661 feet from north line (FNL) and
596 feet from east line (FEL), Section 34, T. 22 S., R. 28 E.
Bottom Hole Location: 330 feet from north line (FNL) and
330 feet from west line (FWL), Section 32, T. 22 S, R 28 E.

Chaos WC Federal Com 802H

Surface Hole Location: 652 feet from north line (FNL) and
568 feet from east line (FEL), Section 34, T. 22 S., R. 28 E.
Bottom Hole Location: 660 feet from north line (FNL) and
330 feet from west line (FWL), Section 32, T. 22 S, R 28 E.

Approval Date: 09/25/2024

Chaos WC Federal Com 803H

Surface Hole Location: 634 feet from north line (FNL) and
510 feet from east line (FEL), Section 34, T. 22 S., R. 28 E.

Bottom Hole Location: 1649 feet from north line (FNL) and
330 feet from west line (FWL), Section 32, T. 22 S, R 28 E.

Chaos WC Federal Com 805H

Surface Hole Location: 643 feet from north line (FNL) and
539 feet from east line (FEL), Section 34, T. 22 S., R. 28 E.

Bottom Hole Location: 1980 feet from north line (FNL) and
330 feet from west line (FWL), Section 32, T. 22 S, R 28 E.

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1. GENERAL PROVISIONS

The failure of the operator to comply with these requirements may result in the assessment of liquidated damages or penalties pursuant to 43 CFR 3163.1 or 3163.2. A copy of these conditions of approval shall be present on the location during construction, drilling and reclamation activity. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

1.1. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural resource (historic or prehistoric site or object) discovered by the operator, or any person working on the operator's behalf, on the public or federal land shall be immediately reported to the Authorized Officer. The operator shall suspend all operations in the immediate area (within 100ft) 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, in conjunction with a BLM Cultural Resource Specialist, to determine appropriate actions to prevent the loss of significant scientific values. The operator shall 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 operator.

Traditional Cultural Properties (TCPs) are protected by NHPA as codified in 36 CFR 800 for possessing traditional, religious, and cultural significance tied to a certain group of individuals. Though there are currently no designated TCPs within the project area or within a mile of the project area, but it is possible for a TCP to be designated after the approval of this project. **If a TCP is designated in the project area after the project's approval, the BLM Authorized Officer will notify the operator of the following conditions and the duration for which these conditions are required.**

1. Temporary halting of all construction, drilling, and production activities to lower noise.
2. Temporary shut-off of all artificial lights at night.

The operator is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA), specifically NAGPRA Subpart B regarding discoveries, to protect human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered during project work. 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 a BLM-CFO Authorized Officer will be notified immediately. The BLM will then be required to be notified, in writing, within 24 hours of the discovery. The written notification should include the geographic location by county and state, the contents of the discovery, and the steps taken to protect said discovery. You must also include any potential threats to the discovery and a conformation that all activity within 100ft of the discovery has ceased and work will not resume until written certification is issued. All work on the entire project must halt for a minimum of 3 days and work cannot resume until an Authorized Officer grants permission to do so.

Any paleontological resource discovered by the operator, or any person working on the operator's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. The operator 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 operator.

1.2. RANGELAND RESOURCES

1.2.1. **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.

1.2.2. **Fence Requirement**

Where entry granted across a fence line, the fence must be 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 notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

1.2.3. **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.

1.3. NOXIOUS WEEDS

If noxious weeds were NOT found during onsite:

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, New Mexico Department of Agriculture, and BLM requirements and policies.

1.3.1 African Rue (Peganum harmala)

Spraying: The spraying of African Rue must be completed by a licensed or certified applicator. In order to attempt to kill or remove African Rue the proper mix of chemical is needed. The mix consists of 2% Arsenal (Imazapyr) and 2% Roundup (Glyphosate) along with a nonionic surfactant. Any other chemicals or combinations shall be approved by the BLM Noxious Weeds Coordinator prior to treatment. African Rue shall be sprayed in connection to any dirt working activities or disturbances to the site being sprayed. Spraying of African Rue shall be done on immature plants at initial growth through flowering and mature plants between budding and flowering stages. Spraying shall not be conducted after flowering when plant is fruiting. This will ensure optimal intake of chemical and decrease chances of developing herbicide resistance. After spraying, the operator or necessary parties must contact the Carlsbad Field Office to inspect the effectiveness of the application treatment to the plant species. No ground disturbing activities can take place until the inspection by the authorized officer is complete. The operator may contact the Environmental Protection Department or the BLM Noxious Weed Coordinator at (575) 234-5972 or BLM_NM_CFO_NoxiousWeeds@blm.gov.

Management Practices: In addition to spraying for African Rue, good management practices should be followed. All equipment should be washed off using a power washer in a designated containment area. The containment area shall be bermed to allow for containment of the seed to prevent it from entering any open areas of the nearby landscape. The containment area shall be excavated near or adjacent to the well pad at a depth of three feet and just large enough to get equipment inside it to be washed off. This will allow all seeds to be in a centrally located area that can be treated at a later date if the need arises.

1.4. LIGHT POLLUTION

1.4.1. **Downfacing**

All permanent lighting will be pointed straight down at the ground in order to prevent light spill beyond the edge of approved surface disturbance.

1.4.2. **Shielding**

All permanent lighting will use full cutoff luminaires, which are fully shielded (i.e., not emitting direct or indirect light above an imaginary horizontal plane passing through the lowest part of the light source).

1.4.3. **Lighting Color**

Lighting shall be 3,500 Kelvin or less (Warm White) except during drilling, completion, and workover operations. No bluish-white lighting shall be used in permanent outdoor lighting.

2. SPECIAL REQUIREMENTS

2.1. 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.

2.1.1. **Tank Battery**

Tank battery locations will be lined and bermed. A 20-mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Secondary containment holding capacity must be large enough to contain 1 ½ times the content of the largest tank or 24-hourproduction, whichever is greater (displaced volume from all tanks within the berms MUST be subtracted from total volume of containment in calculating holding capacity). Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

2.1.2. **Electric Line(s)**

Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole must not be placed in drainages, playas, wetlands, riparian areas, or floodplains and must span across the features at a distance away that does not promote further erosion.

2.2. CAVE/KARST

2.2.1. **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.
- This is a sensitive area and all spills or leaks will be reported to the BLM immediately for their immediate and proper treatment, as defined in NTL 3A for Major Undesirable Events.

2.2.2. **Pad Construction**

- The pad will be constructed and leveled by adding the necessary fill and caliche. No blasting will be used for any construction or leveling activities.

- 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 be vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

2.2.3. **Road Construction**

- Turnout ditches and drainage leadoffs will not be constructed in such a manner as to alter the natural flow of water into or out of cave or karst features.
- Special restoration stipulations or realignment may be required if subsurface features are discovered during construction.

2.2.4. **Buried Pipeline/Cable Construction**

- Rerouting of the buried line(s) may be required if a subsurface void is encountered during construction to minimize the potential subsidence/collapse of the feature(s) as well as the possibility of leaks/spills entering the karst drainage system.

2.2.5. **Powerline Construction**

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems.
- Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- Special restoration stipulations or realignment may be required if subsurface voids are encountered.

2.2.6. **Surface Flowlines Installation**

- Flowlines will be routed around sinkholes and other karst features to minimize the possibility of leaks/spills from entering the karst drainage system.

2.2.7. **Production Mitigation**

- 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. Secondary containment holding capacity must be large enough to contain 1 ½ times the content of the largest tank or 24-hour production, whichever is greater (displaced volume from all tanks within the berms MUST be subtracted from total volume of containment in calculating holding capacity).

- Implementation of a leak detection system to provide an early alert to operators when a leak has occurred.
- Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

2.2.8. **Residual and Cumulative Mitigation**

The operator will perform annual pressure monitoring on all casing annuli. If the test results indicate a casing failure has occurred, contact a BLM Engineer immediately, and take remedial action to correct the problem.

2.2.9. **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.

2.3 VISUAL RESOURCE MANAGEMENT

2.5.1 **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).

3. CONSTRUCTION REQUIRENMENTS

3.1 CONSTRCUTION NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at BLM_NM_CFO_Construction_Reclamation@blm.gov 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 COAs on the well site and they shall be made available upon request by the Authorized Officer.

3.2 TOPSOIL

The operator shall strip the topsoil (the A horizon) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. No more than the top 6 inches of topsoil shall be removed. 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 (the B horizon and below) 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.

3.3 CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No reserve pits will be used for drill cuttings. The operator shall properly dispose of drilling contents at an authorized disposal site.

3.4 FEDERAL MINERAL 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.

3.5 WELL PAD & SURFACING

Any surfacing material used to surface the well pad will be removed at the time of interim and final reclamation.

3.6 EXCLOSURE FENCING (CELLARS & PITS)

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 well cellar 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.)

The operator will also install and maintain mesh netting for all open well cellars to prevent access to smaller wildlife before and after drilling operations until the well cellar is free of fluids and the operator. Use a maximum netting mesh size of 1 ½ inches. The netting must not have holes or gaps.

3.7 ON LEASE ACESS ROAD

3.7.1 **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.

3.7.2 **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 will 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.

3.7.3 **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.

3.7.4 **Ditching**

Ditching shall be required on both sides of the road.

3.7.5 **Turnouts**

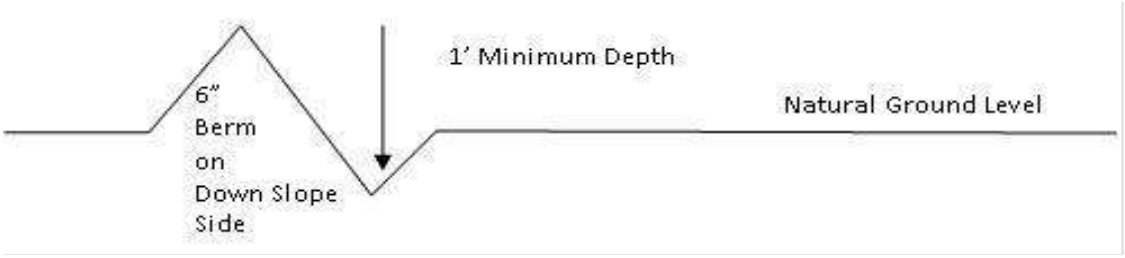
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

3.7.6 **Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, leadoff 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:

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

3.7.7 **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

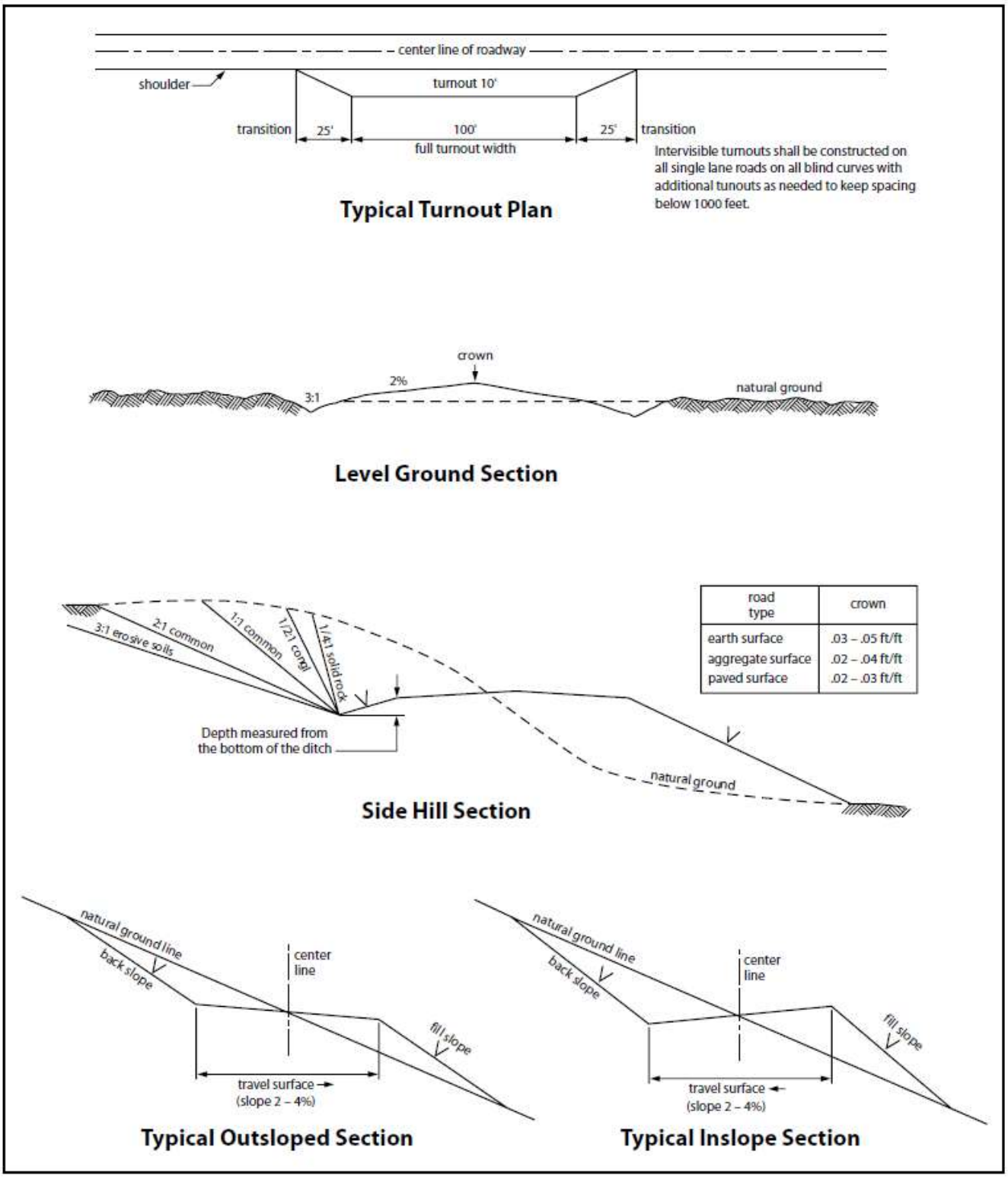


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

4.1 OVERHEAD ELECTRIC LINES

A copy of the APD and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Operator agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The operator shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this APD.
2. The operator shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the operator shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the powerline corridor or on facilities authorized under this powerline corridor. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The operator agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Powerline corridor(unless the release or threatened release is wholly unrelated to the operator's activity on the powerline corridor), or resulting from the activity of the Operator on the powerline corridor. This agreement applies without regard to whether a release is caused by the operator, its agent, or unrelated third parties.
4. There will be no clearing or blading of the powerline corridor unless otherwise agreed to in writing by the Authorized Officer.
5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The operator shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this powerline corridor, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the operator without liability or expense to the United States.
6. Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.
7. The operator shall minimize disturbance to existing fences and other improvements on public lands. The operator is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The operator will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

8. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.
9. Upon cancellation, relinquishment, or expiration of this APD, the operator shall comply with those abandonment procedures as prescribed by the Authorized Officer.
10. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this APD, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.
11. Special Stipulations:
    - For reclamation remove poles, lines, transformer, etc. and dispose of properly. Fill in any holes from the poles removed.
12. Karst stipulations for overhead electric lines
    - Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems. Larger powerlines will adjust their pole spacing to avoid cave and karst features.
    - The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction.
    - No further construction will be done until clearance has been issued by the Authorized Officer.
    - Special restoration stipulations or realignment may be required.

4.2 RANGELAND MITIGATION FOR PIPELINES

4.5.1 **Fence Requirement**

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

4.5.2 **Cattleguards**

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at road-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.

4.5.3 **Livestock Watering Requirement**

Structures that provide water to livestock, such as windmills, pipelines, drinking troughs, and earthen reservoirs, will be avoided by moving the proposed action.

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 operator if any damage occurs to structures that provide water to livestock.

- Livestock operators will be contacted, and adequate crossing facilities will be provided as needed to ensure livestock are not prevented from reaching water sources because of the open trench.

- Wildlife and livestock trails will remain open and passable by adding soft plugs (areas where the trench is excavated and replaced with minimal compaction) during the construction phase. Soft plugs with ramps on either side will be left at all well-defined livestock and wildlife trails along the open trench to allow passage across the trench and provide a means of escape for livestock and wildlife that may enter the trench.
- Trenches will be backfilled as soon as feasible to minimize the amount of open trench. The Operator will avoid leaving trenches open overnight to the extent possible and open trenches that cannot be backfilled immediately will have escape ramps (wooden) placed at no more than 2,500 feet intervals and sloped no more than 45 degrees.

5. PRODUCTION (POST DRILLING)

5.1 WELL STRUCTURES & FACILITIES

5.1.1 **Placement of Production Facilities**

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

5.1.2 **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.

5.1.3. 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.

5.1.4. 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.

5.1.5. 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.

6. RECLAMATION

Stipulations required by the Authorized Officer on specific actions may differ from the following general guidelines

6.1 ROAD AND SITE RECLAMATION

Any roads constructed during the life of the well will have the caliche removed or linear burial. If contaminants are indicated then testing will be required for chlorides and applicable contaminate anomalies for final disposal determination (disposed of in a manner approved by the Authorized Officer within Federal, State and Local statutes, regulations, and ordinances) and seeded to the specifications in sections 6.5 and 6.6.

6.2 EROSION CONTROL

Install erosion control berms, windrows, and hummocks. Windrows must be level and constructed perpendicular to down-slope drainage; steeper slopes will require greater windrow density. Topsoil between windrows must be ripped to a depth of at least 12”, unless bedrock is encountered. Any large boulders pulled up during ripping must be deep-buried on location. Ripping must be perpendicular to down-slope. The surface must be left rough in order to catch and contain rainfall on-site. Any trenches resulting from erosion cause by run-off shall be addressed immediately.

6.3 INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations must 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 must work with BLM surface protection specialists (BLM_NM_CFO_Construction_Reclamation@blm.gov) to devise the best strategies to reduce the size of the location. Interim reclamation must allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche and any other surface material is required. 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 in section 6.6.

Upon completion of interim reclamation, the operator shall submit a Sundry Notice, Subsequent Report of Reclamation (Form 3160-5).

6.4 FINAL ABANDONMENT & RECLAMATION

Prior to surface abandonment, the operator shall submit a Notice of Intent Sundry Notice and reclamation plan.

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 will 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. After earthwork and seeding is completed, the operator is required to submit a Sundry Notice, Subsequent Report of Reclamation.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (BLM_NM_CFO_Construction_Reclamation@blm.gov).

6.5 SEEDING TECHNIQUES

Seeds shall be hydro-seeded, mechanically drilled, or broadcast, with the broadcast-seeded area raked, ripped or dragged to aid in covering the seed. The seed mixture shall be evenly and uniformly planted over the disturbed area.

6.6 SOIL SPECIFIC SEED MIXTURE

The lessee/permitee 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 land application will be accomplished by mechanical planting 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 tend to drop the bottom of the drill and are planted first; the operator 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 BLM or Soil Conservation

District 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 or until several months of precipitation have occurred, enabling a full four months of growth, with one or more seed generations being established.

Seed Mixture 2, for Sandy Site

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

Species	lb/acre
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*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.:	CHAOS WC FED COM 801H
LOCATION:	Section 34, T.22 S., R.28 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	[x] Contingency Cement Squeeze	[ ] EchoMeter	[ ] Primary Cement Squeeze
Special Requirements	[ ] Water Disposal	[x] COM	[ ] Unit
Special Requirements	[ ] Batch Sundry		
Special Requirements Variance	[x] Break Testing	[x] 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:

1. 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 **9617** 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 **25,430** 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**; (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

 Approval Date: 09/25/2024

AFMSS

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

Operator Certification Data Report

09/30/2024

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: TERRI STATHEM **Signed on:** 03/21/2024

Title: Regulatory Compliance Manager

Street Address: 990 TOWN & COUNTRY BLVD

City: HOUSTON **State:** TX **Zip:** 77024

Phone: (713)296-2113

Email address: TSTATHEM@MARATHONOIL.COM

Field

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

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

Application Data
09/30/2024

APD ID: 10400097638
Submission Date: 03/22/2024
Operator Name: MARATHON OIL PERMIAN LLC
Well Name: CHAOS WC FEDERAL COM
Well Number: 801H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes
Show Final Text

Section 1 - General

APD ID: 10400097638
Tie to previous NOS? N
Submission Date: 03/22/2024
BLM Office: Carlsbad
User: TERRI STATHEM
Title: Regulatory Compliance Manager
Federal/Indian APD: FED
Is the first lease penetrated for production Federal or Indian? FED
Lease number: NMNM19842B
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: CHAOS WC FEDERAL COM
Well Number: 801H
Well API Number:
Field/Pool or Exploratory? Field and Pool
Field Name: PURPLE SAGE
Pool Name: (WOLFCAMP) GAS

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: CHAOS WC FEDERAL COM **Well Number:** 801H

Is the proposed well in an area containing other mineral resources? NATURAL GAS

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** N **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** Chaos North Pad **Number:** 1

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: EXPLORATORY (WILDCAT)

Describe sub-type:

Distance to town: 20 Miles **Distance to nearest well:** 25 FT **Distance to lease line:** 330 FT

Reservoir well spacing assigned acres Measurement: 1920 Acres

Well plat: A2_Chaos_FC_801H_C102_20240321203723.pdf

A2_Chaos_FC_801H_payment_receipt_20240321212542.pdf

Well work start Date: 03/31/2025 **Duration:** 30 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	900	FNL	526	FEL	22S	28E	34	Aliquot NENE	32.3539993	-104.0686113	EDDY	NEW MEXICO	FIRST PRIN	F	NMNM 19842B	3071	0	0	Y
KOP Leg #1	330	FNL	330	FEL	22S	28E	34	Aliquot NENE	32.3555665	-104.0680273	EDDY	NEW MEXICO	FIRST PRIN	F	NMNM 19842B	-6646	9778	9717	Y

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: CHAOS WC FEDERAL COM **Well Number:** 801H

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	333	FNL	330	FEL	22S	28E	34	Aliquot NENE	32.3555665	-104.0680273	EDDY	NEW MEXICO	FIRST PRIN	F	NMNM 19842B	-6646	9778	9717	Y
PPP Leg #1-2	333	FNL	0	FEL	22S	28E	33	Aliquot NENE	32.3555152	-104.0840072	EDDY	NEW MEXICO	FIRST PRIN	F	NMNM 22631	-7219	14895	10290	Y
EXIT Leg #1	330	FNL	330	FWL	22S	28E	32	Aliquot NWNW	32.3517779	-104.1167283	EDDY	NEW MEXICO	FIRST PRIN	S	STATE	-7219	25431	10290	Y
BHL Leg #1	330	FNL	330	FWL	22S	28E	32	Aliquot NWNW	32.3517778	-104.1167282	EDDY	NEW MEXICO	FIRST PRIN	S	STATE	-7219	25431	10290	Y

AFMSS

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

Drilling Plan Data Report
09/30/2024

APD ID: 10400097638
Submission Date: 03/22/2024
Operator Name: MARATHON OIL PERMIAN LLC
Well Name: CHAOS WC FEDERAL COM
Well Number: 801H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
14214490	RUSTLER	3073	196	223	ANHYDRITE	USEABLE WATER	N
14214491	SALADO	2669	404	431	ANHYDRITE, SALT	NONE	N
14214492	CASTILE	1878	1195	1222	ANHYDRITE, SALT	NONE	N
14214493	LAMAR	451	2622	2649	SANDSTONE, SHALE	NONE	N
14214501	BELL CANYON	406	2667	2694	SANDSTONE	OIL	N
14214494	CHERRY CANYON	-428	3501	3528	SANDSTONE	OIL	N
14214495	BRUSHY CANYON	-1653	4726	4753	SANDSTONE	OIL	N
14214496	BONE SPRING LIME	-3086	6159	6186	LIMESTONE	NONE	N
14214497	BONE SPRING 1ST	-4127	7200	7227	SANDSTONE	OIL	N
14214498	BONE SPRING 2ND	-4373	7446	7473	LIMESTONE, SHALE	OIL	N
14214499	BONE SPRING 3RD	-5226	8299	8326	LIMESTONE	OIL	Y
14214500	WOLFCAMP	-6405	9478	9505	SANDSTONE, SHALE	NATURAL GAS, 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. Marathon requests a 5M annular variance for the 10M BOP system. Please see attached procedure.

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: CHAOS WC FEDERAL COM **Well Number:** 801H

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 3172 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 3172. 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. A multibowl wellhead is being used. The BOP will be tested per 43 CFR 3172 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:

D8_MRO_Choke_Manifold_20240321204938.pdf

MRO_Flex_Hose_20240725055926.pdf

BOP Diagram Attachment:

D2_MRO_10M_BOP_20240321205019.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	293	0	293	3073	2780	293	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	9678	0	9678	0	-6605	9678	P-110	40	BUTT	1.2	1.42	BUOY	2.44	BUOY	2.44
3	PRODUCTION	8.75	5.5	NEW	API	N	0	25430	0	25430	2919	-22357	25430	P-110	23	OTHER - TLW	2.53	1.26	BUOY	2.22	BUOY	2.22

Casing Attachments

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: CHAOS WC FEDERAL COM **Well Number:** 801H

Casing Attachments

Casing ID: 1 **String** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

D3_chaos_FC_801_Casing_Assump_20240321205125.pdf

Casing ID: 2 **String** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

D3_chaos_FC_801_Casing_Assump_20240321205214.pdf

Casing ID: 3 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

D3_chaos_FC_801_Casing_Assump_20240321205255.pdf

5.500_23.00_Benteler_P110_CY_TLW_CDS_20231114175718_20240321205333.pdf

Section 4 - Cement

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: CHAOS WC FEDERAL COM **Well Number:** 801H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	143	82	2.12	12.5	173	25	Class C	Extender, Accelerator, LCM
SURFACE	Tail		143	293	99	1.32	14.8	130	25	Class C	Accelerator
INTERMEDIATE	Lead		0	9178	1657	2.18	12.4	3611	25	ClassC	Extender, Accelerator LCM
INTERMEDIATE	Tail		9178	9678	147	1.33	14.8	196	25	Class C	retarder
PRODUCTION	Lead		9378	25430	3058	1.68	13	5137	25	Class H	Retarder, exender, fluid loss, suspension agent

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: 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 (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	293	WATER-BASED MUD	8.4	8.8							
293	9678	OIL-BASED MUD	9.2	10.2							

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: CHAOS WC FEDERAL COM **Well Number:** 801H

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
9678	25430	OIL-BASED MUD	10.5	12.5							

Section 6 - Test, Logging, Coring

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

GR from TD to Surface (horizontal well - vertical portion of well)

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

GAMMA RAY LOG,MEASUREMENT WHILE DRILLING,DIRECTIONAL SURVEY,

Coring operation description for the well:

NA

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6689 **Anticipated Surface Pressure:** 4425

Anticipated Bottom Hole Temperature(F): 195

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations

D7_Chaos_FC_H2S_Plan_20240321205813.pdf

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: CHAOS WC FEDERAL COM **Well Number:** 801H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

D8_chaos_FC_801_Dir_Plan_20240321205847.pdf

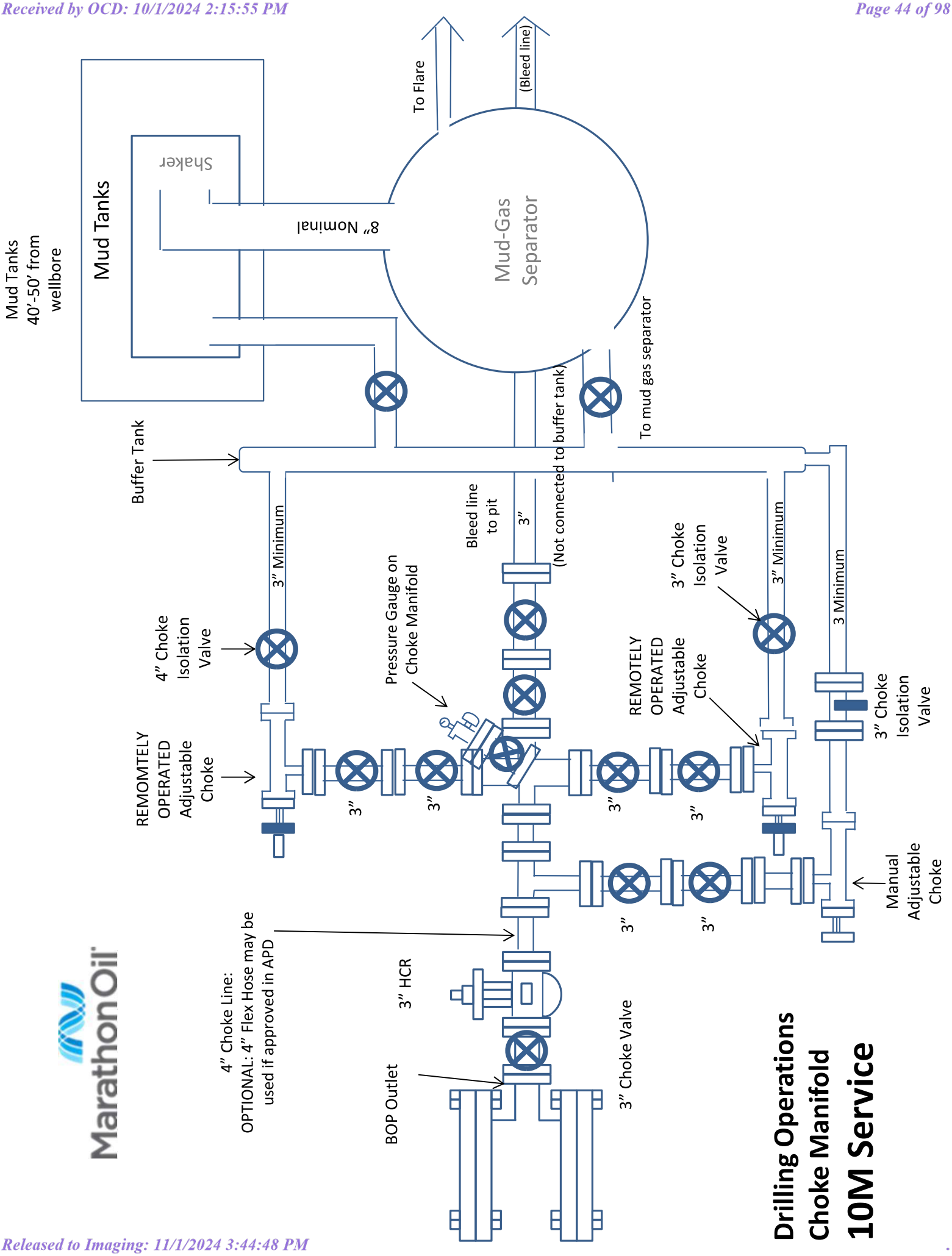
Other proposed operations facets description:

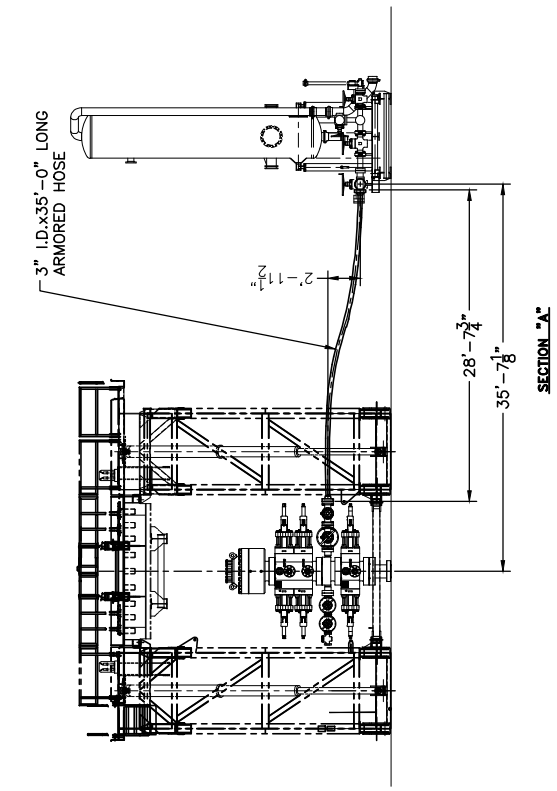
Other proposed operations facets attachment:

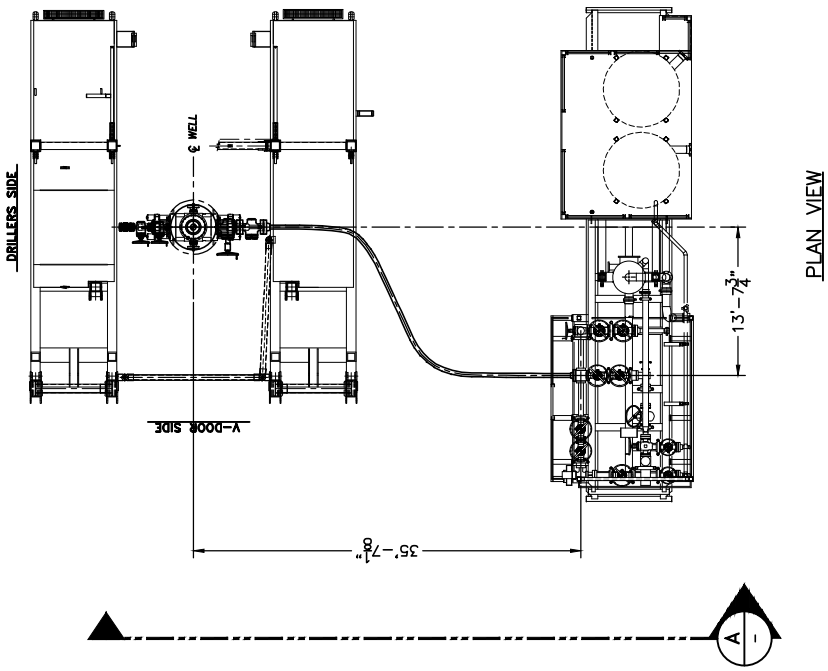
D8_Chaos_FC_801H_Drill_Plan_20240321205902.pdf
D8_Chaos_FC_801H_Rig_Layout_20240321205910.pdf
D8_NGMP_Chaos_North_20240321210042.pdf

Other Variance attachment:

D8_MRO_Variance_Request_20240321210000.pdf
D8_MRO_Well_Control_Plan_20240321210010.pdf
D8_MRO_Wellhead_Diagram_20240321210021.pdf
D8_MRO_BOP_Break_Test_Variance_20240321210046.pdf
D8_MRO_Cement_Variance_Request_20240321210055.pdf


Mud Tanks
40'-50' from wellbore
Mud Tanks
Shaker
8" Nominal
Mud-Gas Separator
To Flare
(Bleed line)
To mud gas separator
(Not connected to buffer tank)
Buffer Tank
3" Minimum
4" Choke Isolation Valve
REMOMTELY OPERATED Adjustable Choke
Pressure Gauge on Choke Manifold
Bleed line to pit
3"
3" Choke Isolation Valve
REMOTELY OPERATED Adjustable Choke
3 Minimum
3" Choke Isolation Valve
Manual Adjustable Choke
4" Choke Line:
OPTIONAL: 4" Flex Hose may be used if approved in APD
3" HCR
BOP Outlet
3" Choke Valve
MarathonOil
Drilling Operations
Choke Manifold
10M Service





PLAN VIEW

ISSUED FOR FABRICATION
December-19-2007
DRAFTSMAN
ENGINEER

HELMERICH & PAYNE INTERNATIONAL DRILLING CO.

TITLE: CHOKE LINE SYSTEM FLEXRIG3

CUSTOMER:

PROJECT:

DRAWN: JBG | DATE: 4-10-07 | DWG. NO: 210-P1-07 | REV: A

SCALE: 3/16"=1' | SHEET: 2 OF 3

REV	DATE	DESCRIPTION	BY
A	12/19/07	REMOVED SHEET TOTAL CALLOUT	JAV

ENGINEERING APPROVAL | DATE

LETONE

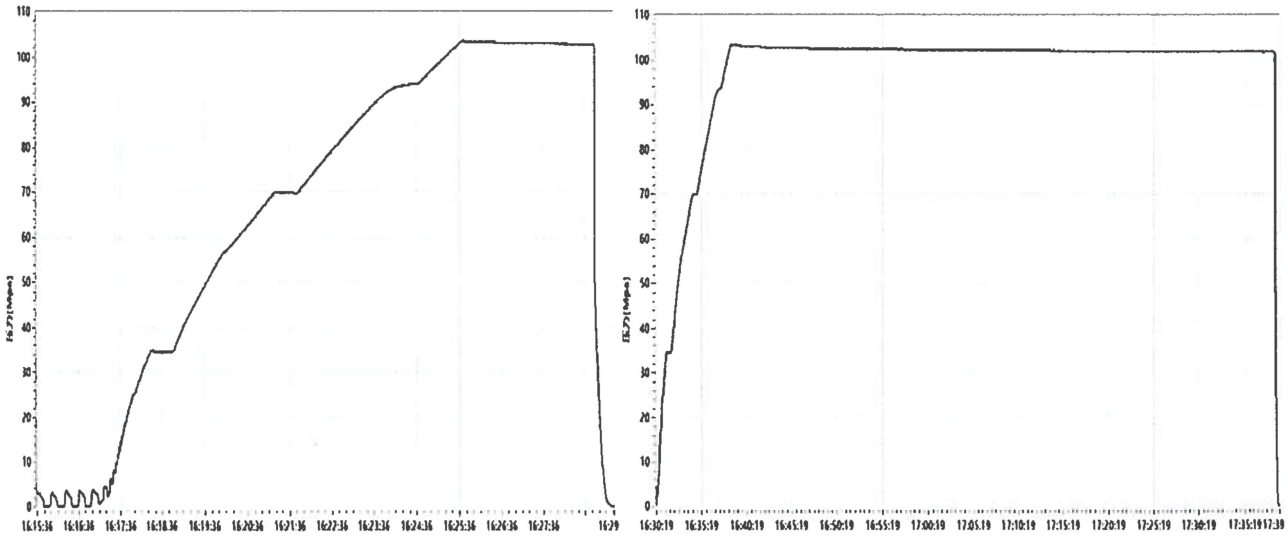
LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD

HYDROSTATIC TESTING REPORT

LTYY/QR-5.7.1-28 №: 230826004

Product Name	Choke And Kill Hose	Standard	API Spec 16C 3rd 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 3rd edition				
Approver	Jiaolong Chen	Auditor	Hliqing Dong	Inspector	Zhansheng Wang

LETONE

LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD

CERTIFICATE OF QUALITY

LTYY/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 3rd edition
Inspection Department	Q.C. Department	Inspection date	2023.08.26

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

Approver	Jiaolong Chen	Auditor	Hliqing Dong	Inspector	Zhansheng Wang

LETONE

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

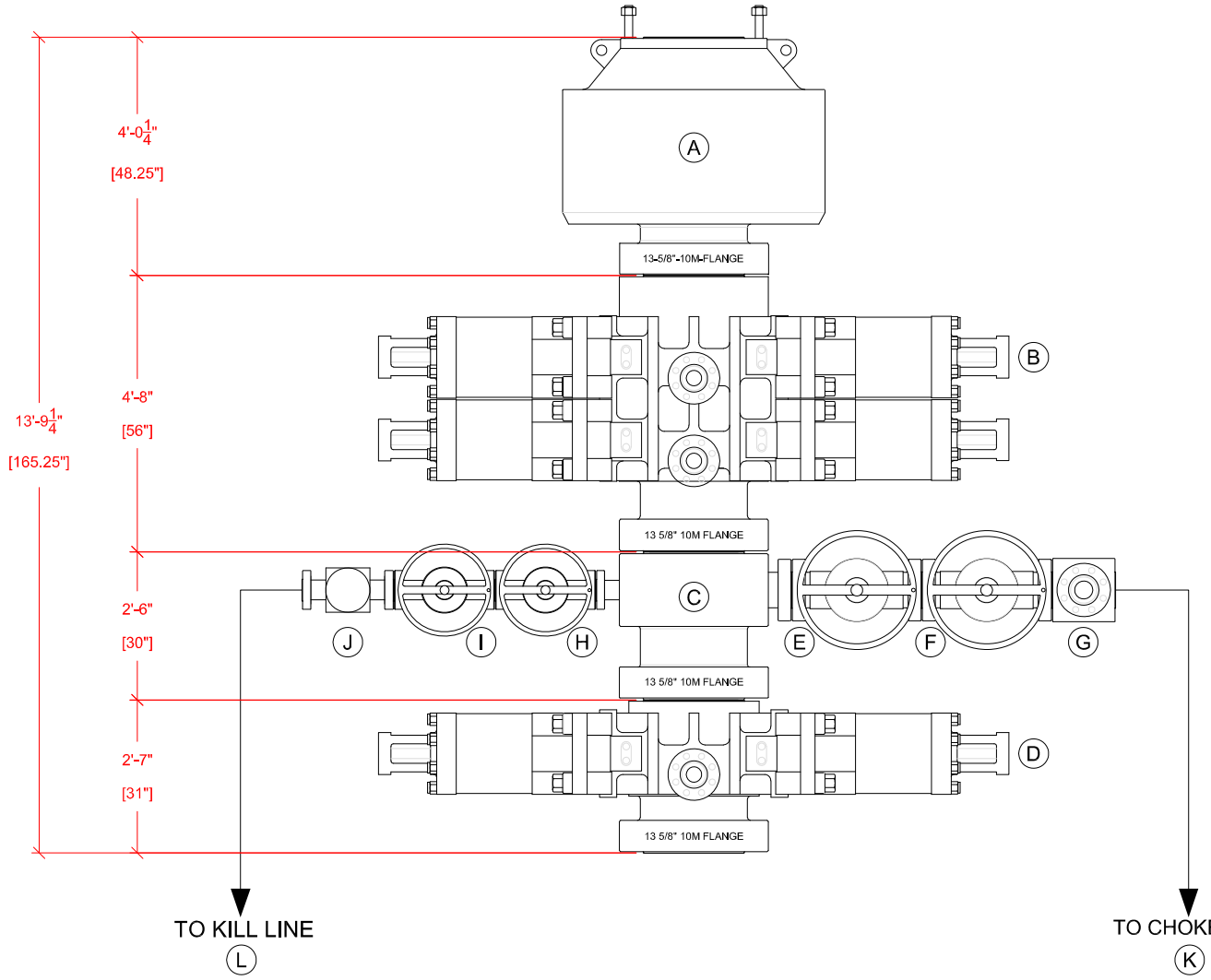
End Connections: 4-1/16″×10000psi Integral flange for sour gas service

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 1/16" 10M FLS MANUAL
F	HCR VALVE	CAMERON	4 1/16" 10M HCR
G	CHOKE BLOCK	CAMERON	4 1/16" 10M
H	KILL VALVE	CAMERON	2 1/16" 10M FLS MANUAL
I	KILL VALVE	CAMERON	2 1/16" 10M FLS MANUAL
J	CHECK VALVE	CAMERON	2 1/16" 10M "R" CHECK
K	CHOKE LINE	GATES	4 1/16" 10M FR
L	KILL LINE	GATES	2 1/16" 10M FR
M			



SYM	DATE	REVISION	BY

TOLERANCE UNLESS OTHERWISE SPECIFIED
DIMENSIONS IN INCHES

DECIMAL DIMENSION		
CONCENTRICITY		
X.X	± .1	.1 F.I.R.
X.XX	± .06	.06 F.I.R.
X.XXX	± .010	.010 F.I.R.

ANGLES ± .5 DEGREES

ACAD FILE: CAC170-A-005-00-RO

CUSTOMER INFO:

FILE: R-170_BOP_MARATHON.dwg

DWG BY	IJA	7/13/2021
CHK BY		
APP BY		

SCALE: NTS

CACTUS Drilling Co., L.L.C.
Oklahoma City, OK, U.S.A.
Tel: 405-577-5347 Fax: 405-577-9306

TITLE:
RIG 170
BOP STACK-UP

SIZE B | CAC170-A005 | SHEET 1

TEC-LOCK WEDGE

5.500" 23 LB/FT (.415"Wall)
BENTELER P110 CY

Pipe Body Data

Nominal OD:	5.500	in
Nominal Wall:	.415	in
Nominal Weight:	23.00	lb/ft
Plain End Weight:	22.56	lb/ft
Material Grade:	P110 CY	
Mill/Specification:	BENTELER	
Yield Strength:	125,000	psi
Tensile Strength:	130,000	psi
Nominal ID:	4.670	in
API Drift Diameter:	4.545	in
Special Drift Diameter:	None	in
RBW:	87.5 %	
Body Yield:	829,000	lbf
Burst:	16,510	psi
Collapse:	16,910	psi

Connection Data

Standard OD:	5.950	in
Pin Bored ID:	4.670	in
Critical Section Area:	6.457	in^2
Tensile Efficiency:	97.4 %	
Compressive Efficiency:	100 %	
Longitudinal Yield Strength:	807,000	lbf
Compressive Limit:	829,000	lbf
Internal Pressure Rating:	16,510	psi
External Pressure Rating:	16,910	psi
Maximum Bend:	101.5	°/100ft

Operational Data

Minimum Makeup Torque:	16,400	ft*lbf
Optimum Makeup Torque:	20,500	ft*lbf
Maximum Makeup Torque:	44,300	ft*lbf
Minimum Yield:	49,200	ft*lbf
Makeup Loss:	5.97	in

Notes

Operational Torque is equivalent to the Maximum Make-Up Torque

Generated on Mar 12, 2019

HUNTING

990 Town & Country Boulevard
Houston, Tx 77024

Hydrogen Sulfide (H_2S)
Contingency Plan

Chaos WC Federal Com 801H
900' FNL & 526' FEL Sec. 34 T-22S R-28E

Chaos WC Federal Com 803H
872' FNL & 440' FEL Sec. 34 T-22S R-28E

Eddy County NM

Marathon Oil Permian, LLC
Chaos WC Federal Com 801H & 803H

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_2S	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 1st dial 911, nearest helicopter will be determined	432-561-5049

Marathon Oil Corporation

Company: Marathon Oil
Well: Chaos WC Federal Com 801H
County: Eddy County, New Mexico (NAD 27)
Rig: Precision 580
Wellbore: Wellbore #1
Design: Design #1
Date: 16:34, February 26 2024

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

WELL DETAILS: Chaos WC Federal Com 801H

+N/-S	+E/-W	GL @ 3071.00 Northing	WELL @ 3094.50usft (Precision 580) Easting	Latitude	Longitude
0.00	0.00	492558.07	581899.14	32° 21' 13.964 N	104° 4' 5.213 W

SECTION DETAILS

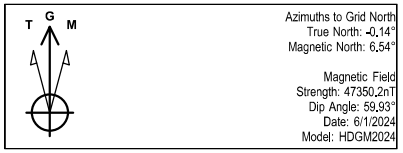
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.000	0.00	KOP, 2.00°/100' Build
2000.21	10.00	38.73	1997.67	33.98	27.26	2.00	38.734	-27.46	Begin 10.00° Tangent
5721.45	10.00	38.73	5662.33	538.25	431.74	0.00	0.000	-435.02	Begin 2.00°/100' Drop
6221.66	0.00	0.00	6160.00	572.23	459.00	2.00	180.000	-462.49	Begin Vertical Hold
9778.70	0.00	0.00	9717.04	572.23	459.00	0.00	0.000	-462.49	KOP, 10.00°/100' Build
10678.70	90.00	269.65	10290.00	568.70	-113.95	10.00	269.647	110.47	Begin 90.00° Lateral
25430.83	90.00	269.65	10290.00	477.76	-14865.80	0.00	0.000	14862.60	PBHL

DESIGN TARGET DETAILS

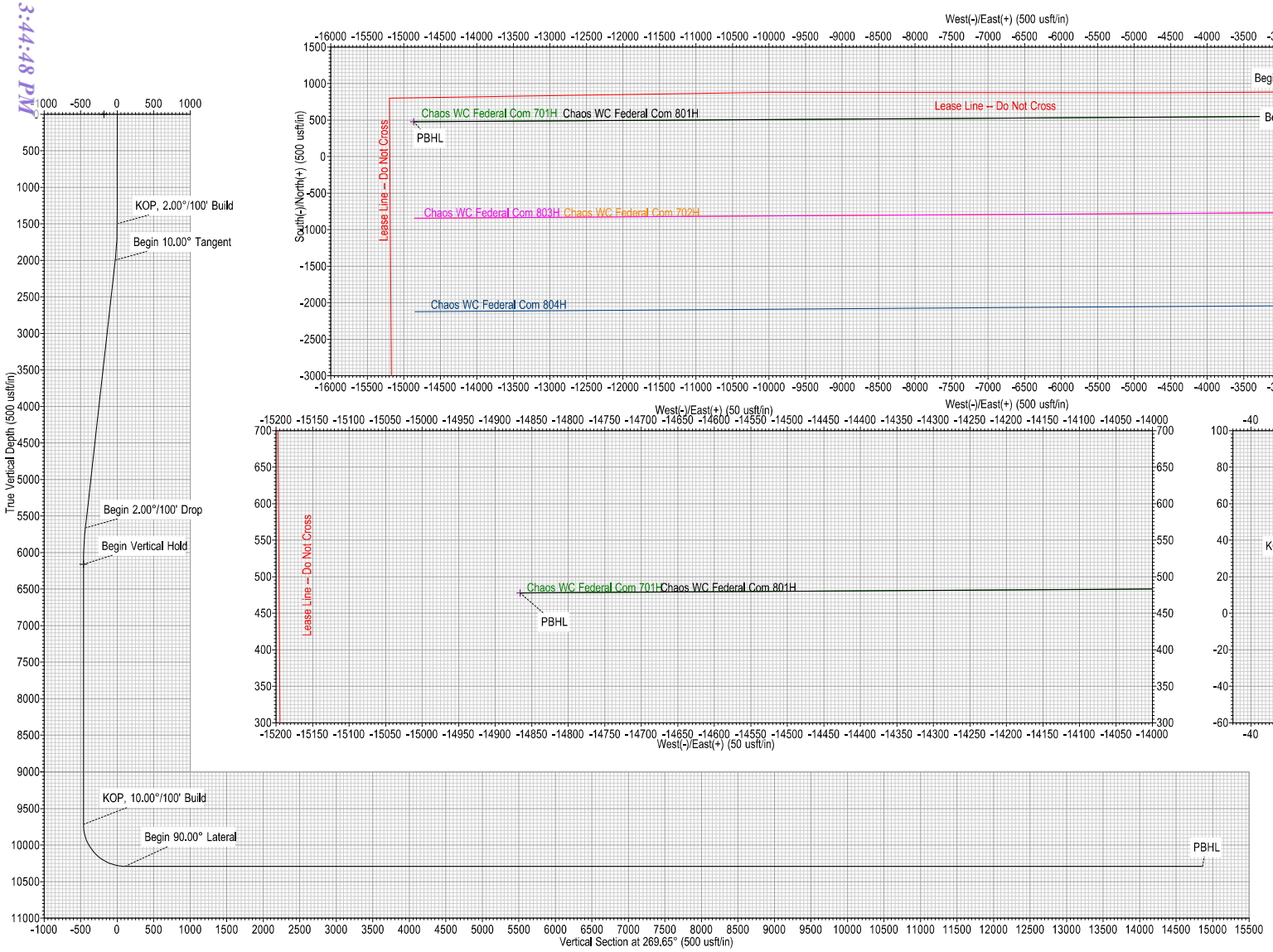
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
KOP/FTP/PBHL_Chaos WC Fed Com 801H	0.00	570.56	178.93	493128.63	582078.07	32° 21' 19.606 N	104° 4' 3.111 W
LTP/PBHL_Chaos WC Fed Com 801H	10290.00	477.76	-14865.80	493035.83	567033.34	32° 21' 19.023 N	104° 6' 58.507 W
Vert_Chaos WC Fed Com 801H	6160.00	572.23	459.00	493130.30	582358.14	32° 21' 19.615 N	104° 3' 59.846 W

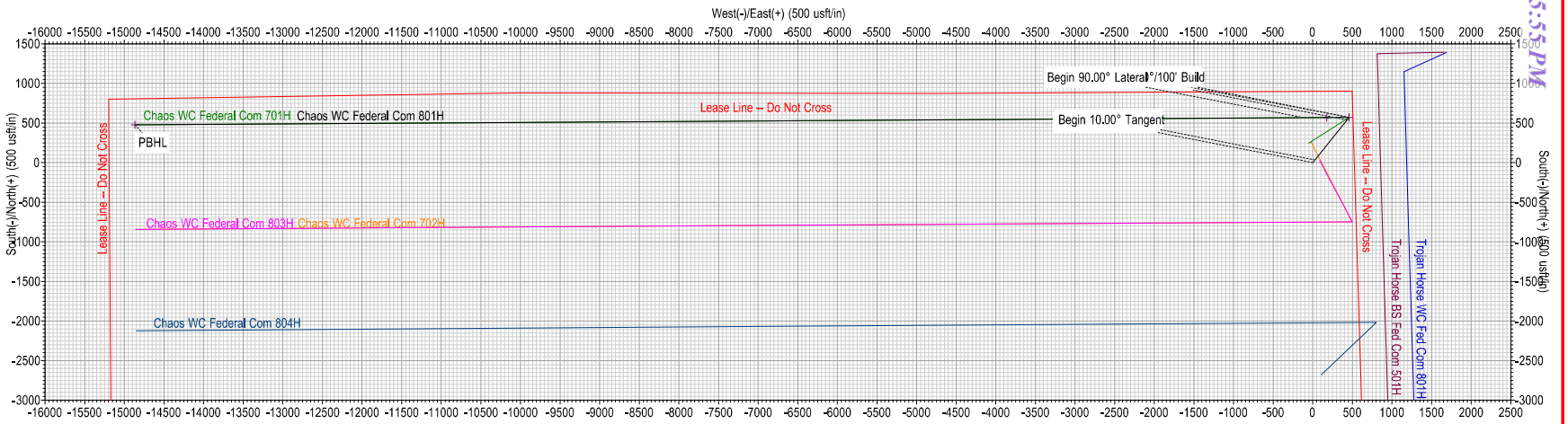
SURVEY PROGRAM

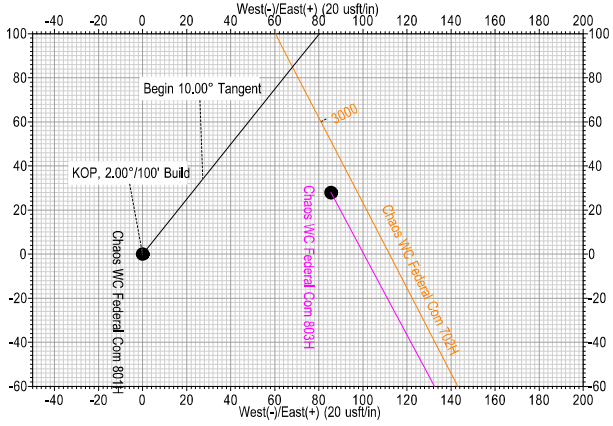
Depth From	Depth To	Survey/Plan	Tool
0.00	25430.83	Design #1 (Wellbore #1)	MWD+IFR1+FDIR



To convert a Magnetic Direction to a Grid Direction, Add 6.541°
To convert a Magnetic Direction to a True Direction, Add 6.683° East
To convert a True Direction to a Grid Direction, Subtract 0.142°







MS Directional

Marathon Oil

Eddy County, New Mexico (NAD 27)
Chaos WC Federal Com (701H, 702H, 801H, 803H)
Chaos WC Federal Com 801H

Wellbore #1

Plan: Design #1

Standard Planning Report

26 February, 2024

Marathon Oil Corporation

MS Directional
Planning Report

MS Directional

Database:	EDM 5000.15 Conroe DB	**Local Co-ordinate Reference:**	Well Chaos WC Federal Com 801H
Company:	Marathon Oil	**TVD Reference:**	WELL @ 3094.50usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	**MD Reference:**	WELL @ 3094.50usft (Precision 580)
Site:	Chaos WC Federal Com (701H, 702H, 801H, 803H)	**North Reference:**	Grid
Well:	Chaos WC Federal Com 801H	**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 Chaos WC Federal Com (701H, 702H, 801H, 803H)

Site Position:		**Northing:**	492,805.03 usft	**Latitude:**	32° 21' 16.409 N
From:	Map	**Easting:**	581,850.07 usft	**Longitude:**	104° 4' 5.778 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "		

Well Chaos WC Federal Com 801H

Well Position	**+N/-S**	0.00 usft	**Northing:**	492,558.07 usft	**Latitude:**	32° 21' 13.964 N
	+E/-W	0.00 usft	**Easting:**	581,899.14 usft	**Longitude:**	104° 4' 5.213 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,071.00 usft
Grid Convergence:		0.142 °				

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2024	6/1/2024	6.683	59.933	47,350.20

Design Design #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	269.65

Plan Survey Tool Program **Date** 2/26/2024

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	25,430.83	Design #1 (Wellbore #1)	MWD+IFR1+FDIR OWSG MWD + IFR1 + FDIF	

Marathon Oil Corporation

MS Directional
Planning Report

MS Directional

Database:	EDM 5000.15 Conroe DB	**Local Co-ordinate Reference:**	Well Chaos WC Federal Com 801H
Company:	Marathon Oil	**TVD Reference:**	WELL @ 3094.50usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	**MD Reference:**	WELL @ 3094.50usft (Precision 580)
Site:	Chaos WC Federal Com (701H, 702H, 801H, 803H)	**North Reference:**	Grid
Well:	Chaos WC Federal Com 801H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.000	
2,000.21	10.00	38.73	1,997.67	33.98	27.26	2.00	2.00	0.00	38.734	
5,721.45	10.00	38.73	5,662.33	538.25	431.74	0.00	0.00	0.00	0.000	
6,221.66	0.00	0.00	6,160.00	572.23	459.00	2.00	-2.00	0.00	180.000	Vert_Chaos WC Fe
9,778.70	0.00	0.00	9,717.04	572.23	459.00	0.00	0.00	0.00	0.000	
10,678.70	90.00	269.65	10,290.00	568.70	-113.95	10.00	10.00	0.00	269.647	
25,430.83	90.00	269.65	10,290.00	477.76	-14,865.80	0.00	0.00	0.00	0.000	LTP/PBHL_Chaos \

Marathon Oil Corporation

MS Directional
Planning Report

MS Directional

Database:	EDM 5000.15 Conroe DB	**Local Co-ordinate Reference:**	Well Chaos WC Federal Com 801H
Company:	Marathon Oil	**TVD Reference:**	WELL @ 3094.50usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	**MD Reference:**	WELL @ 3094.50usft (Precision 580)
Site:	Chaos WC Federal Com (701H, 702H, 801H, 803H)	**North Reference:**	Grid
Well:	Chaos WC Federal Com 801H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, 2.00°/100' Build									
1,600.00	2.00	38.73	1,599.98	1.36	1.09	-1.10	2.00	2.00	0.00
1,700.00	4.00	38.73	1,699.84	5.44	4.37	-4.40	2.00	2.00	0.00
1,800.00	6.00	38.73	1,799.45	12.24	9.82	-9.89	2.00	2.00	0.00
1,900.00	8.00	38.73	1,898.70	21.75	17.44	-17.58	2.00	2.00	0.00
2,000.21	10.00	38.73	1,997.67	33.98	27.26	-27.46	2.00	2.00	0.00
Begin 10.00° Tangent									
2,100.00	10.00	38.73	2,095.94	47.50	38.10	-38.39	0.00	0.00	0.00
2,200.00	10.00	38.73	2,194.42	61.05	48.97	-49.34	0.00	0.00	0.00
2,300.00	10.00	38.73	2,292.90	74.60	59.84	-60.30	0.00	0.00	0.00
2,400.00	10.00	38.73	2,391.38	88.16	70.71	-71.25	0.00	0.00	0.00
2,500.00	10.00	38.73	2,489.86	101.71	81.58	-82.20	0.00	0.00	0.00
2,600.00	10.00	38.73	2,588.34	115.26	92.45	-93.15	0.00	0.00	0.00
2,700.00	10.00	38.73	2,686.82	128.81	103.32	-104.11	0.00	0.00	0.00
2,800.00	10.00	38.73	2,785.30	142.36	114.19	-115.06	0.00	0.00	0.00
2,900.00	10.00	38.73	2,883.78	155.91	125.06	-126.01	0.00	0.00	0.00
3,000.00	10.00	38.73	2,982.26	169.46	135.93	-136.96	0.00	0.00	0.00
3,100.00	10.00	38.73	3,080.74	183.01	146.80	-147.91	0.00	0.00	0.00
3,200.00	10.00	38.73	3,179.22	196.56	157.67	-158.87	0.00	0.00	0.00
3,300.00	10.00	38.73	3,277.70	210.12	168.54	-169.82	0.00	0.00	0.00
3,400.00	10.00	38.73	3,376.18	223.67	179.41	-180.77	0.00	0.00	0.00
3,500.00	10.00	38.73	3,474.66	237.22	190.28	-191.72	0.00	0.00	0.00
3,600.00	10.00	38.73	3,573.14	250.77	201.15	-202.68	0.00	0.00	0.00
3,700.00	10.00	38.73	3,671.62	264.32	212.02	-213.63	0.00	0.00	0.00
3,800.00	10.00	38.73	3,770.10	277.87	222.89	-224.58	0.00	0.00	0.00
3,900.00	10.00	38.73	3,868.58	291.42	233.76	-235.53	0.00	0.00	0.00
4,000.00	10.00	38.73	3,967.06	304.97	244.63	-246.49	0.00	0.00	0.00
4,100.00	10.00	38.73	4,065.54	318.53	255.50	-257.44	0.00	0.00	0.00
4,200.00	10.00	38.73	4,164.01	332.08	266.37	-268.39	0.00	0.00	0.00
4,300.00	10.00	38.73	4,262.49	345.63	277.24	-279.34	0.00	0.00	0.00
4,400.00	10.00	38.73	4,360.97	359.18	288.11	-290.30	0.00	0.00	0.00
4,500.00	10.00	38.73	4,459.45	372.73	298.98	-301.25	0.00	0.00	0.00
4,600.00	10.00	38.73	4,557.93	386.28	309.85	-312.20	0.00	0.00	0.00
4,700.00	10.00	38.73	4,656.41	399.83	320.72	-323.15	0.00	0.00	0.00
4,800.00	10.00	38.73	4,754.89	413.38	331.59	-334.10	0.00	0.00	0.00
4,900.00	10.00	38.73	4,853.37	426.94	342.46	-345.06	0.00	0.00	0.00
5,000.00	10.00	38.73	4,951.85	440.49	353.33	-356.01	0.00	0.00	0.00

Marathon Oil Corporation

MS Directional
Planning Report

MS Directional

Database:	EDM 5000.15 Conroe DB	**Local Co-ordinate Reference:**	Well Chaos WC Federal Com 801H
Company:	Marathon Oil	**TVD Reference:**	WELL @ 3094.50usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	**MD Reference:**	WELL @ 3094.50usft (Precision 580)
Site:	Chaos WC Federal Com (701H, 702H, 801H, 803H)	**North Reference:**	Grid
Well:	Chaos WC Federal Com 801H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.00	10.00	38.73	5,050.33	454.04	364.20	-366.96	0.00	0.00	0.00
5,200.00	10.00	38.73	5,148.81	467.59	375.06	-377.91	0.00	0.00	0.00
5,300.00	10.00	38.73	5,247.29	481.14	385.93	-388.87	0.00	0.00	0.00
5,400.00	10.00	38.73	5,345.77	494.69	396.80	-399.82	0.00	0.00	0.00
5,500.00	10.00	38.73	5,444.25	508.24	407.67	-410.77	0.00	0.00	0.00
5,600.00	10.00	38.73	5,542.73	521.79	418.54	-421.72	0.00	0.00	0.00
5,700.00	10.00	38.73	5,641.21	535.35	429.41	-432.68	0.00	0.00	0.00
5,721.45	10.00	38.73	5,662.33	538.25	431.74	-435.02	0.00	0.00	0.00
Begin 2.00°/100' Drop									
5,800.00	8.43	38.73	5,739.86	548.07	439.62	-442.96	2.00	-2.00	0.00
5,900.00	6.43	38.73	5,839.02	558.16	447.71	-451.11	2.00	-2.00	0.00
6,000.00	4.43	38.73	5,938.56	565.54	453.64	-457.08	2.00	-2.00	0.00
6,100.00	2.43	38.73	6,038.38	570.22	457.38	-460.86	2.00	-2.00	0.00
6,200.00	0.43	38.73	6,138.34	572.17	458.95	-462.44	2.00	-2.00	0.00
6,221.66	0.00	0.00	6,160.00	572.23	459.00	-462.49	2.00	-2.00	0.00
Begin Vertical Hold									
6,300.00	0.00	0.00	6,238.34	572.23	459.00	-462.49	0.00	0.00	0.00
6,400.00	0.00	0.00	6,338.34	572.23	459.00	-462.49	0.00	0.00	0.00
6,500.00	0.00	0.00	6,438.34	572.23	459.00	-462.49	0.00	0.00	0.00
6,600.00	0.00	0.00	6,538.34	572.23	459.00	-462.49	0.00	0.00	0.00
6,700.00	0.00	0.00	6,638.34	572.23	459.00	-462.49	0.00	0.00	0.00
6,800.00	0.00	0.00	6,738.34	572.23	459.00	-462.49	0.00	0.00	0.00
6,900.00	0.00	0.00	6,838.34	572.23	459.00	-462.49	0.00	0.00	0.00
7,000.00	0.00	0.00	6,938.34	572.23	459.00	-462.49	0.00	0.00	0.00
7,100.00	0.00	0.00	7,038.34	572.23	459.00	-462.49	0.00	0.00	0.00
7,200.00	0.00	0.00	7,138.34	572.23	459.00	-462.49	0.00	0.00	0.00
7,300.00	0.00	0.00	7,238.34	572.23	459.00	-462.49	0.00	0.00	0.00
7,400.00	0.00	0.00	7,338.34	572.23	459.00	-462.49	0.00	0.00	0.00
7,500.00	0.00	0.00	7,438.34	572.23	459.00	-462.49	0.00	0.00	0.00
7,600.00	0.00	0.00	7,538.34	572.23	459.00	-462.49	0.00	0.00	0.00
7,700.00	0.00	0.00	7,638.34	572.23	459.00	-462.49	0.00	0.00	0.00
7,800.00	0.00	0.00	7,738.34	572.23	459.00	-462.49	0.00	0.00	0.00
7,900.00	0.00	0.00	7,838.34	572.23	459.00	-462.49	0.00	0.00	0.00
8,000.00	0.00	0.00	7,938.34	572.23	459.00	-462.49	0.00	0.00	0.00
8,100.00	0.00	0.00	8,038.34	572.23	459.00	-462.49	0.00	0.00	0.00
8,200.00	0.00	0.00	8,138.34	572.23	459.00	-462.49	0.00	0.00	0.00
8,300.00	0.00	0.00	8,238.34	572.23	459.00	-462.49	0.00	0.00	0.00
8,400.00	0.00	0.00	8,338.34	572.23	459.00	-462.49	0.00	0.00	0.00
8,500.00	0.00	0.00	8,438.34	572.23	459.00	-462.49	0.00	0.00	0.00
8,600.00	0.00	0.00	8,538.34	572.23	459.00	-462.49	0.00	0.00	0.00
8,700.00	0.00	0.00	8,638.34	572.23	459.00	-462.49	0.00	0.00	0.00
8,800.00	0.00	0.00	8,738.34	572.23	459.00	-462.49	0.00	0.00	0.00
8,900.00	0.00	0.00	8,838.34	572.23	459.00	-462.49	0.00	0.00	0.00
9,000.00	0.00	0.00	8,938.34	572.23	459.00	-462.49	0.00	0.00	0.00
9,100.00	0.00	0.00	9,038.34	572.23	459.00	-462.49	0.00	0.00	0.00
9,200.00	0.00	0.00	9,138.34	572.23	459.00	-462.49	0.00	0.00	0.00
9,300.00	0.00	0.00	9,238.34	572.23	459.00	-462.49	0.00	0.00	0.00
9,400.00	0.00	0.00	9,338.34	572.23	459.00	-462.49	0.00	0.00	0.00
9,500.00	0.00	0.00	9,438.34	572.23	459.00	-462.49	0.00	0.00	0.00
9,600.00	0.00	0.00	9,538.34	572.23	459.00	-462.49	0.00	0.00	0.00
9,700.00	0.00	0.00	9,638.34	572.23	459.00	-462.49	0.00	0.00	0.00
9,778.70	0.00	0.00	9,717.04	572.23	459.00	-462.49	0.00	0.00	0.00
KOP, 10.00°/100' Build									

Marathon Oil Corporation

MS Directional
Planning Report

MS Directional

Database:	EDM 5000.15 Conroe DB	**Local Co-ordinate Reference:**	Well Chaos WC Federal Com 801H
Company:	Marathon Oil	**TVD Reference:**	WELL @ 3094.50usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	**MD Reference:**	WELL @ 3094.50usft (Precision 580)
Site:	Chaos WC Federal Com (701H, 702H, 801H, 803H)	**North Reference:**	Grid
Well:	Chaos WC Federal Com 801H	**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)
9,800.00	2.13	269.65	9,738.34	572.23	458.60	-462.09	10.00	10.00	0.00
9,850.00	7.13	269.65	9,788.16	572.20	454.57	-458.06	10.00	10.00	0.00
9,900.00	12.13	269.65	9,837.44	572.15	446.21	-449.69	10.00	10.00	0.00
9,950.00	17.13	269.65	9,885.80	572.07	433.58	-437.07	10.00	10.00	0.00
10,000.00	22.13	269.65	9,932.88	571.97	416.79	-420.28	10.00	10.00	0.00
10,050.00	27.13	269.65	9,978.32	571.84	395.96	-399.45	10.00	10.00	0.00
10,100.00	32.13	269.65	10,021.77	571.69	371.25	-374.73	10.00	10.00	0.00
10,150.00	37.13	269.65	10,062.90	571.51	342.84	-346.33	10.00	10.00	0.00
10,200.00	42.13	269.65	10,101.39	571.32	310.96	-314.45	10.00	10.00	0.00
10,250.00	47.13	269.65	10,136.96	571.10	275.85	-279.33	10.00	10.00	0.00
10,300.00	52.13	269.65	10,169.34	570.87	237.77	-241.25	10.00	10.00	0.00
10,350.00	57.13	269.65	10,198.27	570.61	197.01	-200.49	10.00	10.00	0.00
10,400.00	62.13	269.65	10,223.54	570.35	153.89	-157.37	10.00	10.00	0.00
10,450.00	67.13	269.65	10,244.96	570.07	108.72	-112.20	10.00	10.00	0.00
10,500.00	72.13	269.65	10,262.36	569.78	61.87	-65.35	10.00	10.00	0.00
10,550.00	77.13	269.65	10,275.61	569.48	13.67	-17.15	10.00	10.00	0.00
10,600.00	82.13	269.65	10,284.60	569.18	-35.50	32.02	10.00	10.00	0.00
10,650.00	87.13	269.65	10,289.28	568.87	-85.26	81.78	10.00	10.00	0.00
10,678.70	90.00	269.65	10,290.00	568.70	-113.95	110.47	10.00	10.00	0.00
Begin 90.00° Lateral									
10,700.00	90.00	269.65	10,290.00	568.57	-135.25	131.77	0.00	0.00	0.00
10,800.00	90.00	269.65	10,290.00	567.95	-235.25	231.77	0.00	0.00	0.00
10,900.00	90.00	269.65	10,290.00	567.33	-335.24	331.77	0.00	0.00	0.00
11,000.00	90.00	269.65	10,290.00	566.72	-435.24	431.77	0.00	0.00	0.00
11,100.00	90.00	269.65	10,290.00	566.10	-535.24	531.77	0.00	0.00	0.00
11,200.00	90.00	269.65	10,290.00	565.48	-635.24	631.77	0.00	0.00	0.00
11,300.00	90.00	269.65	10,290.00	564.87	-735.24	731.77	0.00	0.00	0.00
11,400.00	90.00	269.65	10,290.00	564.25	-835.23	831.77	0.00	0.00	0.00
11,500.00	90.00	269.65	10,290.00	563.64	-935.23	931.77	0.00	0.00	0.00
11,600.00	90.00	269.65	10,290.00	563.02	-1,035.23	1,031.77	0.00	0.00	0.00
11,700.00	90.00	269.65	10,290.00	562.40	-1,135.23	1,131.77	0.00	0.00	0.00
11,800.00	90.00	269.65	10,290.00	561.79	-1,235.23	1,231.77	0.00	0.00	0.00
11,900.00	90.00	269.65	10,290.00	561.17	-1,335.22	1,331.77	0.00	0.00	0.00
12,000.00	90.00	269.65	10,290.00	560.55	-1,435.22	1,431.77	0.00	0.00	0.00
12,100.00	90.00	269.65	10,290.00	559.94	-1,535.22	1,531.77	0.00	0.00	0.00
12,200.00	90.00	269.65	10,290.00	559.32	-1,635.22	1,631.77	0.00	0.00	0.00
12,300.00	90.00	269.65	10,290.00	558.70	-1,735.22	1,731.77	0.00	0.00	0.00
12,400.00	90.00	269.65	10,290.00	558.09	-1,835.22	1,831.77	0.00	0.00	0.00
12,500.00	90.00	269.65	10,290.00	557.47	-1,935.21	1,931.77	0.00	0.00	0.00
12,600.00	90.00	269.65	10,290.00	556.85	-2,035.21	2,031.77	0.00	0.00	0.00
12,700.00	90.00	269.65	10,290.00	556.24	-2,135.21	2,131.77	0.00	0.00	0.00
12,800.00	90.00	269.65	10,290.00	555.62	-2,235.21	2,231.77	0.00	0.00	0.00
12,900.00	90.00	269.65	10,290.00	555.01	-2,335.21	2,331.77	0.00	0.00	0.00
13,000.00	90.00	269.65	10,290.00	554.39	-2,435.20	2,431.77	0.00	0.00	0.00
13,100.00	90.00	269.65	10,290.00	553.77	-2,535.20	2,531.77	0.00	0.00	0.00
13,200.00	90.00	269.65	10,290.00	553.16	-2,635.20	2,631.77	0.00	0.00	0.00
13,300.00	90.00	269.65	10,290.00	552.54	-2,735.20	2,731.77	0.00	0.00	0.00
13,400.00	90.00	269.65	10,290.00	551.92	-2,835.20	2,831.77	0.00	0.00	0.00
13,500.00	90.00	269.65	10,290.00	551.31	-2,935.19	2,931.77	0.00	0.00	0.00
13,600.00	90.00	269.65	10,290.00	550.69	-3,035.19	3,031.77	0.00	0.00	0.00
13,700.00	90.00	269.65	10,290.00	550.07	-3,135.19	3,131.77	0.00	0.00	0.00
13,800.00	90.00	269.65	10,290.00	549.46	-3,235.19	3,231.77	0.00	0.00	0.00
13,900.00	90.00	269.65	10,290.00	548.84	-3,335.19	3,331.77	0.00	0.00	0.00

Marathon Oil Corporation

MS Directional
Planning Report

MS Directional

Database:	EDM 5000.15 Conroe DB	**Local Co-ordinate Reference:**	Well Chaos WC Federal Com 801H
Company:	Marathon Oil	**TVD Reference:**	WELL @ 3094.50usft (Precision 580)
Project:	Eddy County, New Mexico (NAD 27)	**MD Reference:**	WELL @ 3094.50usft (Precision 580)
Site:	Chaos WC Federal Com (701H, 702H, 801H, 803H)	**North Reference:**	Grid
Well:	Chaos WC Federal Com 801H	**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)
14,000.00	90.00	269.65	10,290.00	548.22	-3,435.18	3,431.77	0.00	0.00	0.00
14,100.00	90.00	269.65	10,290.00	547.61	-3,535.18	3,531.77	0.00	0.00	0.00
14,200.00	90.00	269.65	10,290.00	546.99	-3,635.18	3,631.77	0.00	0.00	0.00
14,300.00	90.00	269.65	10,290.00	546.37	-3,735.18	3,731.77	0.00	0.00	0.00
14,400.00	90.00	269.65	10,290.00	545.76	-3,835.18	3,831.77	0.00	0.00	0.00
14,500.00	90.00	269.65	10,290.00	545.14	-3,935.18	3,931.77	0.00	0.00	0.00
14,600.00	90.00	269.65	10,290.00	544.53	-4,035.17	4,031.77	0.00	0.00	0.00
14,700.00	90.00	269.65	10,290.00	543.91	-4,135.17	4,131.77	0.00	0.00	0.00
14,800.00	90.00	269.65	10,290.00	543.29	-4,235.17	4,231.77	0.00	0.00	0.00
14,900.00	90.00	269.65	10,290.00	542.68	-4,335.17	4,331.77	0.00	0.00	0.00
15,000.00	90.00	269.65	10,290.00	542.06	-4,435.17	4,431.77	0.00	0.00	0.00
15,100.00	90.00	269.65	10,290.00	541.44	-4,535.16	4,531.77	0.00	0.00	0.00
15,200.00	90.00	269.65	10,290.00	540.83	-4,635.16	4,631.77	0.00	0.00	0.00
15,300.00	90.00	269.65	10,290.00	540.21	-4,735.16	4,731.77	0.00	0.00	0.00
15,400.00	90.00	269.65	10,290.00	539.59	-4,835.16	4,831.77	0.00	0.00	0.00
15,500.00	90.00	269.65	10,290.00	538.98	-4,935.16	4,931.77	0.00	0.00	0.00
15,600.00	90.00	269.65	10,290.00	538.36	-5,035.15	5,031.77	0.00	0.00	0.00
15,700.00	90.00	269.65	10,290.00	537.74	-5,135.15	5,131.77	0.00	0.00	0.00
15,800.00	90.00	269.65	10,290.00	537.13	-5,235.15	5,231.77	0.00	0.00	0.00
15,900.00	90.00	269.65	10,290.00	536.51	-5,335.15	5,331.77	0.00	0.00	0.00
16,000.00	90.00	269.65	10,290.00	535.90	-5,435.15	5,431.77	0.00	0.00	0.00
16,100.00	90.00	269.65	10,290.00	535.28	-5,535.14	5,531.77	0.00	0.00	0.00
16,200.00	90.00	269.65	10,290.00	534.66	-5,635.14	5,631.77	0.00	0.00	0.00
16,300.00	90.00	269.65	10,290.00	534.05	-5,735.14	5,731.77	0.00	0.00	0.00
16,400.00	90.00	269.65	10,290.00	533.43	-5,835.14	5,831.77	0.00	0.00	0.00
16,500.00	90.00	269.65	10,290.00	532.81	-5,935.14	5,931.77	0.00	0.00	0.00
16,600.00	90.00	269.65	10,290.00	532.20	-6,035.14	6,031.77	0.00	0.00	0.00
16,700.00	90.00	269.65	10,290.00	531.58	-6,135.13	6,131.77	0.00	0.00	0.00
16,800.00	90.00	269.65	10,290.00	530.96	-6,235.13	6,231.77	0.00	0.00	0.00
16,900.00	90.00	269.65	10,290.00	530.35	-6,335.13	6,331.77	0.00	0.00	0.00
17,000.00	90.00	269.65	10,290.00	529.73	-6,435.13	6,431.77	0.00	0.00	0.00
17,100.00	90.00	269.65	10,290.00	529.11	-6,535.13	6,531.77	0.00	0.00	0.00
17,200.00	90.00	269.65	10,290.00	528.50	-6,635.12	6,631.77	0.00	0.00	0.00
17,300.00	90.00	269.65	10,290.00	527.88	-6,735.12	6,731.77	0.00	0.00	0.00
17,400.00	90.00	269.65	10,290.00	527.27	-6,835.12	6,831.77	0.00	0.00	0.00
17,500.00	90.00	269.65	10,290.00	526.65	-6,935.12	6,931.77	0.00	0.00	0.00
17,600.00	90.00	269.65	10,290.00	526.03	-7,035.12	7,031.77	0.00	0.00	0.00
17,700.00	90.00	269.65	10,290.00	525.42	-7,135.11	7,131.77	0.00	0.00	0.00
17,800.00	90.00	269.65	10,290.00	524.80	-7,235.11	7,231.77	0.00	0.00	0.00
17,900.00	90.00	269.65	10,290.00	524.18	-7,335.11	7,331.77	0.00	0.00	0.00
18,000.00	90.00	269.65	10,290.00	523.57	-7,435.11	7,431.77	0.00	0.00	0.00
18,100.00	90.00	269.65	10,290.00	522.95	-7,535.11	7,531.77	0.00	0.00	0.00
18,200.00	90.00	269.65	10,290.00	522.33	-7,635.11	7,631.77	0.00	0.00	0.00
18,300.00	90.00	269.65	10,290.00	521.72	-7,735.10	7,731.77	0.00	0.00	0.00
18,400.00	90.00	269.65	10,290.00	521.10	-7,835.10	7,831.77	0.00	0.00	0.00
18,500.00	90.00	269.65	10,290.00	520.48	-7,935.10	7,931.77	0.00	0.00	0.00
18,600.00	90.00	269.65	10,290.00	519.87	-8,035.10	8,031.77	0.00	0.00	0.00
18,700.00	90.00	269.65	10,290.00	519.25	-8,135.10	8,131.77	0.00	0.00	0.00
18,800.00	90.00	269.65	10,290.00	518.64	-8,235.09	8,231.77	0.00	0.00	0.00
18,900.00	90.00	269.65	10,290.00	518.02	-8,335.09	8,331.77	0.00	0.00	0.00
19,000.00	90.00	269.65	10,290.00	517.40	-8,435.09	8,431.77	0.00	0.00	0.00
19,100.00	90.00	269.65	10,290.00	516.79	-8,535.09	8,531.77	0.00	0.00	0.00
19,200.00	90.00	269.65	10,290.00	516.17	-8,635.09	8,631.77	0.00	0.00	0.00

Marathon Oil Corporation

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Site:	Chaos WC Federal Com (701H, 702H, 801H, 803H)	**North Reference:**	Grid
Well:	Chaos WC Federal Com 801H	**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)
19,300.00	90.00	269.65	10,290.00	515.55	-8,735.08	8,731.77	0.00	0.00	0.00
19,400.00	90.00	269.65	10,290.00	514.94	-8,835.08	8,831.77	0.00	0.00	0.00
19,500.00	90.00	269.65	10,290.00	514.32	-8,935.08	8,931.77	0.00	0.00	0.00
19,600.00	90.00	269.65	10,290.00	513.70	-9,035.08	9,031.77	0.00	0.00	0.00
19,700.00	90.00	269.65	10,290.00	513.09	-9,135.08	9,131.77	0.00	0.00	0.00
19,800.00	90.00	269.65	10,290.00	512.47	-9,235.07	9,231.77	0.00	0.00	0.00
19,900.00	90.00	269.65	10,290.00	511.85	-9,335.07	9,331.77	0.00	0.00	0.00
20,000.00	90.00	269.65	10,290.00	511.24	-9,435.07	9,431.77	0.00	0.00	0.00
20,100.00	90.00	269.65	10,290.00	510.62	-9,535.07	9,531.77	0.00	0.00	0.00
20,200.00	90.00	269.65	10,290.00	510.00	-9,635.07	9,631.77	0.00	0.00	0.00
20,300.00	90.00	269.65	10,290.00	509.39	-9,735.07	9,731.77	0.00	0.00	0.00
20,400.00	90.00	269.65	10,290.00	508.77	-9,835.06	9,831.77	0.00	0.00	0.00
20,500.00	90.00	269.65	10,290.00	508.16	-9,935.06	9,931.77	0.00	0.00	0.00
20,600.00	90.00	269.65	10,290.00	507.54	-10,035.06	10,031.77	0.00	0.00	0.00
20,700.00	90.00	269.65	10,290.00	506.92	-10,135.06	10,131.77	0.00	0.00	0.00
20,800.00	90.00	269.65	10,290.00	506.31	-10,235.06	10,231.77	0.00	0.00	0.00
20,900.00	90.00	269.65	10,290.00	505.69	-10,335.05	10,331.77	0.00	0.00	0.00
21,000.00	90.00	269.65	10,290.00	505.07	-10,435.05	10,431.77	0.00	0.00	0.00
21,100.00	90.00	269.65	10,290.00	504.46	-10,535.05	10,531.77	0.00	0.00	0.00
21,200.00	90.00	269.65	10,290.00	503.84	-10,635.05	10,631.77	0.00	0.00	0.00
21,300.00	90.00	269.65	10,290.00	503.22	-10,735.05	10,731.77	0.00	0.00	0.00
21,400.00	90.00	269.65	10,290.00	502.61	-10,835.04	10,831.77	0.00	0.00	0.00
21,500.00	90.00	269.65	10,290.00	501.99	-10,935.04	10,931.77	0.00	0.00	0.00
21,600.00	90.00	269.65	10,290.00	501.37	-11,035.04	11,031.77	0.00	0.00	0.00
21,700.00	90.00	269.65	10,290.00	500.76	-11,135.04	11,131.77	0.00	0.00	0.00
21,800.00	90.00	269.65	10,290.00	500.14	-11,235.04	11,231.77	0.00	0.00	0.00
21,900.00	90.00	269.65	10,290.00	499.53	-11,335.03	11,331.77	0.00	0.00	0.00
22,000.00	90.00	269.65	10,290.00	498.91	-11,435.03	11,431.77	0.00	0.00	0.00
22,100.00	90.00	269.65	10,290.00	498.29	-11,535.03	11,531.77	0.00	0.00	0.00
22,200.00	90.00	269.65	10,290.00	497.68	-11,635.03	11,631.77	0.00	0.00	0.00
22,300.00	90.00	269.65	10,290.00	497.06	-11,735.03	11,731.77	0.00	0.00	0.00
22,400.00	90.00	269.65	10,290.00	496.44	-11,835.03	11,831.77	0.00	0.00	0.00
22,500.00	90.00	269.65	10,290.00	495.83	-11,935.02	11,931.77	0.00	0.00	0.00
22,600.00	90.00	269.65	10,290.00	495.21	-12,035.02	12,031.77	0.00	0.00	0.00
22,700.00	90.00	269.65	10,290.00	494.59	-12,135.02	12,131.77	0.00	0.00	0.00
22,800.00	90.00	269.65	10,290.00	493.98	-12,235.02	12,231.77	0.00	0.00	0.00
22,900.00	90.00	269.65	10,290.00	493.36	-12,335.02	12,331.77	0.00	0.00	0.00
23,000.00	90.00	269.65	10,290.00	492.74	-12,435.01	12,431.77	0.00	0.00	0.00
23,100.00	90.00	269.65	10,290.00	492.13	-12,535.01	12,531.77	0.00	0.00	0.00
23,200.00	90.00	269.65	10,290.00	491.51	-12,635.01	12,631.77	0.00	0.00	0.00
23,300.00	90.00	269.65	10,290.00	490.90	-12,735.01	12,731.77	0.00	0.00	0.00
23,400.00	90.00	269.65	10,290.00	490.28	-12,835.01	12,831.77	0.00	0.00	0.00
23,500.00	90.00	269.65	10,290.00	489.66	-12,935.00	12,931.77	0.00	0.00	0.00
23,600.00	90.00	269.65	10,290.00	489.05	-13,035.00	13,031.77	0.00	0.00	0.00
23,700.00	90.00	269.65	10,290.00	488.43	-13,135.00	13,131.77	0.00	0.00	0.00
23,800.00	90.00	269.65	10,290.00	487.81	-13,235.00	13,231.77	0.00	0.00	0.00
23,900.00	90.00	269.65	10,290.00	487.20	-13,335.00	13,331.77	0.00	0.00	0.00
24,000.00	90.00	269.65	10,290.00	486.58	-13,435.00	13,431.77	0.00	0.00	0.00
24,100.00	90.00	269.65	10,290.00	485.96	-13,534.99	13,531.77	0.00	0.00	0.00
24,200.00	90.00	269.65	10,290.00	485.35	-13,634.99	13,631.77	0.00	0.00	0.00
24,300.00	90.00	269.65	10,290.00	484.73	-13,734.99	13,731.77	0.00	0.00	0.00
24,400.00	90.00	269.65	10,290.00	484.11	-13,834.99	13,831.77	0.00	0.00	0.00
24,500.00	90.00	269.65	10,290.00	483.50	-13,934.99	13,931.77	0.00	0.00	0.00

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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)
24,600.00	90.00	269.65	10,290.00	482.88	-14,034.98	14,031.77	0.00	0.00	0.00
24,700.00	90.00	269.65	10,290.00	482.27	-14,134.98	14,131.77	0.00	0.00	0.00
24,800.00	90.00	269.65	10,290.00	481.65	-14,234.98	14,231.77	0.00	0.00	0.00
24,900.00	90.00	269.65	10,290.00	481.03	-14,334.98	14,331.77	0.00	0.00	0.00
25,000.00	90.00	269.65	10,290.00	480.42	-14,434.98	14,431.77	0.00	0.00	0.00
25,100.00	90.00	269.65	10,290.00	479.80	-14,534.97	14,531.77	0.00	0.00	0.00
25,200.00	90.00	269.65	10,290.00	479.18	-14,634.97	14,631.77	0.00	0.00	0.00
25,300.00	90.00	269.65	10,290.00	478.57	-14,734.97	14,731.77	0.00	0.00	0.00
25,400.00	90.00	269.65	10,290.00	477.95	-14,834.97	14,831.77	0.00	0.00	0.00
25,430.82	90.00	269.65	10,290.00	477.76	-14,865.79	14,862.59	0.00	0.00	0.00
PBHL									
25,430.83	90.00	269.65	10,290.00	477.76	-14,865.80	14,862.60	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP/FTP/PBHL_Cha	0.00	0.00	0.00	570.56	178.93	493,128.63	582,078.07	32° 21' 19.606 N	104° 4' 3.111 W
- plan misses target center by 597.96usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
Vert_Chaos WC Fed (	0.00	0.00	6,160.00	572.23	459.00	493,130.30	582,358.14	32° 21' 19.615 N	104° 3' 59.846 W
- plan hits target center									
- Point									
LTP/PBHL_Chaos WC	0.00	0.00	10,290.00	477.76	-14,865.80	493,035.83	567,033.34	32° 21' 19.023 N	104° 6' 58.507 W
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,500.00	1,500.00	0.00	0.00	KOP, 2.00°/100' Build
2,000.21	1,997.67	33.98	27.26	Begin 10.00° Tangent
5,721.45	5,662.33	538.25	431.74	Begin 2.00°/100' Drop
6,221.66	6,160.00	572.23	459.00	Begin Vertical Hold
9,778.70	9,717.04	572.23	459.00	KOP, 10.00°/100' Build
10,678.70	10,290.00	568.70	-113.95	Begin 90.00° Lateral
25,430.82	10,290.00	477.76	-14,865.79	PBHL

MARATHON OIL PERMIAN, LLC.

DRILLING AND OPERATIONS PLAN

WELL NAME & NUMBER: **CHAOS WC FEDERAL COM 801H**

LOCATION: SECTION **34** TOWNSHIP **22S** RANGE **28E**

EDDY COUNTY, **NEW MEXICO**

Section 1: GEOLOGICAL FORMATIONS

Name of Surface Formation: Permian

Elevation: 3055 *feet*

Estimated Tops of Important Geological Markers:

Formation	TVD (ft)	MD (ft)	Elevation (ft SS)	Lithologies	Mineral Resources	Producing Formation?
Rustler	196	223	2859	Anhydrite	Brine	No
Salado	404	431	2651	Salt/Anhydrite	Brine	No
Castile	1195	1222	1860	Salt/Anhydrite	Brine	No
Base of Salt (BX)	2386	2413	669	Salt/Anhydrite	Brine	No
Lamar	2622	2649	433	Sandstone/Shale	None	No
Bell Canyon	2667	2694	388	Sandstone	Oil	No
Cherry Canyon	3501	3528	-446	Sandstone	Oil	No
Brushy Canyon	4726	4753	-1671	Sandstone	Oil	No
Bone Spring Lime	6159	6186	-3104	Limestone	None	No
Upper Avalon Shale	6208	6235	-3153	Shale	Oil	Yes
1st Bone Spring Sand	7200	7227	-4145	Sandstone	Oil	Yes
2nd Bone Spring Carbonate	7446	7473	-4391	Limestone/Shale	None	No
2nd Bone Spring Sand	7933	7960	-4878	Sandstone	Oil	Yes
3rd Bone Spring Carbonate	8299	8326	-5244	Limestone	Oil	No
3rd Bone Spring Sand	9173	9200	-6118	Sandstone	Oil	Yes
Wolfcamp	9478	9505	-6423	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp A	9634	9661	-6579	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp B	9887	9914	-6832	Sandstone/Shale/Carbonates	Natural Gas / Oil	No
Wolfcamp C	10180	10207	-7125	Sandstone/Shale/Carbonates	Natural Gas / Oil	No
Wolfcamp D	10393	10420	-7338	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 following: 1) Flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart. 2) Cement variance request is attached for review & approval. 3) BOP break test variance is attached for review and approval.

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

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock, full opening safety valve / inside BOP and choke lines and choke manifold. See attached schematics.

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

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	293	0	266	3055	2789	54.5	J55	BTC	5.22	1.81	BUOY	4.52	BUOY	4.52
Intermediate	12.25	9.625	0	9678	0	9617	3055	-6562	40	P110HC	BTC	1.20	1.42	BUOY	2.44	BUOY	2.44
Production	8.75	5.5	0	25430	0	10290	3055	-7235	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 (ft^3/sks)	Density (ppg)	Slurry Volume (ft^3)	Excess (%)	Cement Type	Additives
Surface	Lead	0	143	82	2.12	12.5	173	25	Class C	Extender,Accelerator,LCM
Surface	Tail	143	293	99	1.32	14.8	130	25	Class C	Accelerator
Intermediate	Lead	0	9178	1657	2.18	12.4	3611	25	Class C	Extender,Accelerator,LCM
Intermediate	Tail	9178	9678	147	1.33	14.8	196	25	Class C	Retarder
Production	Tail	9378	25430	3058	1.68	13	5137	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 Salado formation 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	293	Water Based Mud	8.4	8.8
293	9678	Brine or Oil Based Mud	9.2	10.2
9678	25430	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:
None

Section 7: ANTICIPATED PRESSURE

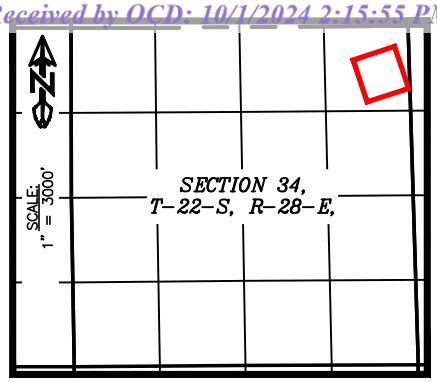
Anticipated Bottom Hole Pressure: **6689** PSI
Anticipated Bottom Hole Temperature: **195** ˚F
Anticipated Abnormal Pressure? **No**
Anticipated Abnormal Temperature? **No**

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

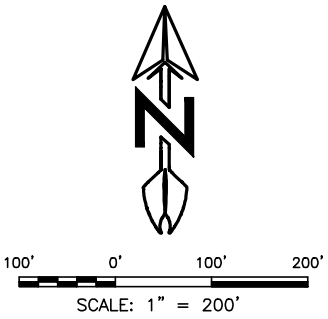
Auxiliary Well Control and Monitoring Equipment:
A Kelly cock will be in the drill string at all times. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor unobstructed and readily accessible at all times.
Hydrogen Sulfide detection equipment will be in 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.

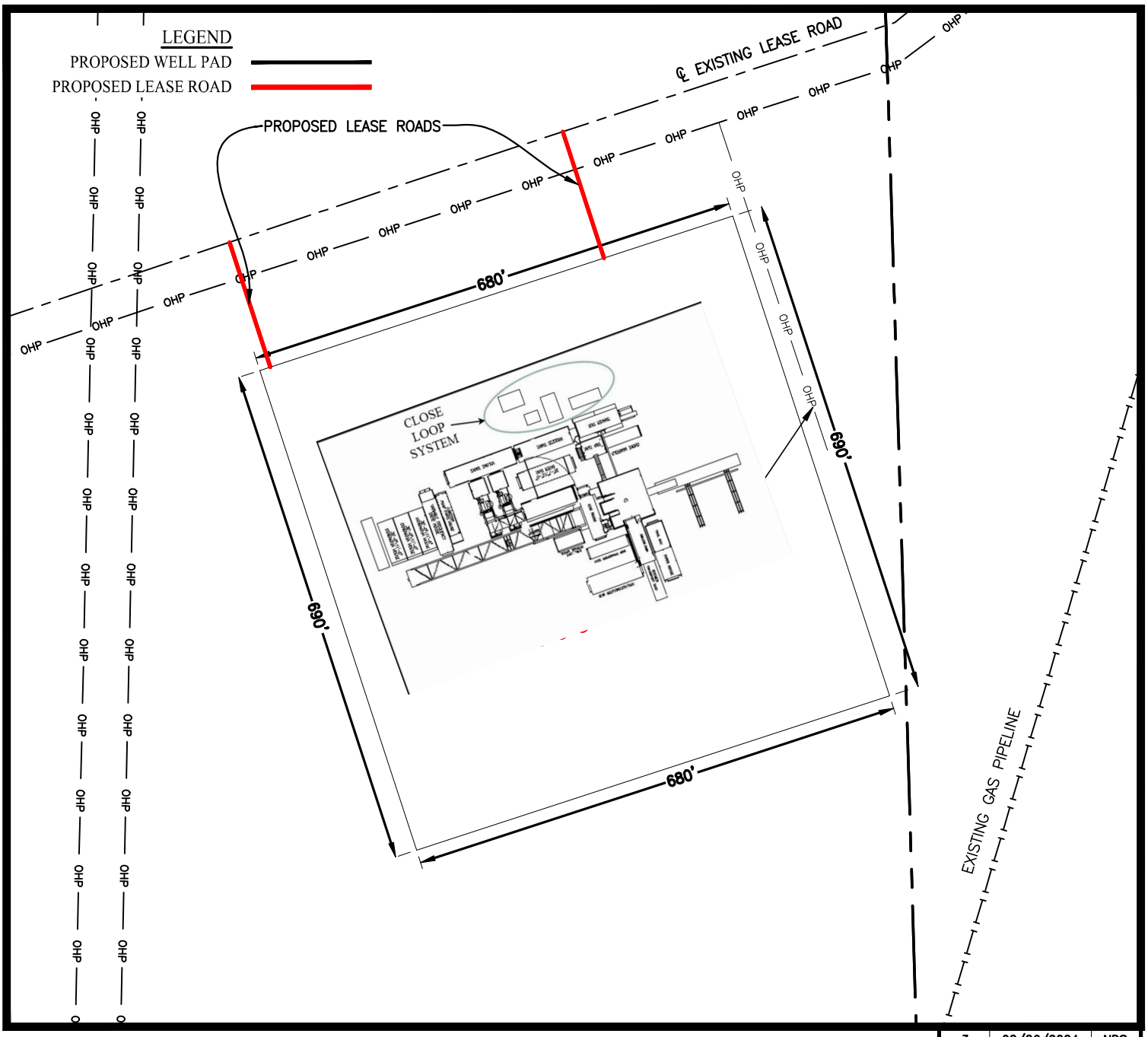
Anticipated Starting Date and Duration of Operations:
Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.



RIG LAYOUT

CHAOS FEDERAL COM
SEC. 34 TWP. 22-S RGE. 28-E
SURVEY: N.M.P.M.
COUNTY: EDDY
OPERATOR: MARATHON OIL PERMIAN LLC
U.S.G.S. TOPOGRAPHIC MAP: LOVING, N.M.





REV.	DATE	BY
3	02/26/2024	NDS

NOTE:
THIS IS NOT A BOUNDARY SURVEY, APPARENT PROPERTY CORNERS AND PROPERTY LINES ARE SHOWN FOR INFORMATION ONLY. BOUNDARY DATA SHOWN IS FROM STATE OF NEW MEXICO OIL CONSERVATION DIVISION FORM C-102 INCLUDED IN THIS SUBMITTAL.

PREPARED BY:
DELTA FIELD SERVICES, LLC
510 TRENTON ST.
WEST MONROE, LA 71291
318-323-6900 OFFICE
JOB No. R4099_002

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

Oil 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:** 972098 **Date:** 03 / 21 / 2024

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
Please see attached						

IV. Central Delivery Point Name: Chaos North 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
Please see attached						

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:	*Terri Stathem*
Printed Name:	Terri Stathem
Title:	Manager Regulatory Compliance
E-mail Address:	tstathem@marathonoil.com
Date:	3/21/2024
Phone:	713-817-0224

OIL CONSERVATION DIVISION
(Only applicable when submitted as a standalone form)

Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

III. Wells

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Chaos WC Federal Com 701H		A-34-22S-28E	652' FNL 568' FEL	2300	3400	3500
Chaos WC Federal Com 702H		A-34-22S-28E	643' FNL 539' FEL	2300	3400	3500
Chaos WC Federal Com 801H		A-34-22S-28E	900' FNL 526' FEL	2300	3400	3500
Chaos WC Federal Com 802H		A-34-22S-28E	890' FNL 497' FEL	1500	4200	2300
Chaos WC Federal Com 803H		A-34-22S-28E	872' FNL 440' FEL	1500	4200	2300
Chaos WC Federal Com 805H		A-34-22S-28E	881' FNL 468' FEL	1500	4200	2300

V. Anticipated Schedule

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Chaos WC Federal Com 701H		4/1/2025	5/15/2025	9/2/2025	11/15/2025	11/15/2025
Chaos WC Federal Com 702H		4/1/2025	5/15/2025	9/2/2025	11/15/2025	11/15/2025
Chaos WC Federal Com 801H		4/1/2025	5/15/2025	10/1/2025	11/15/2025	11/15/2025
Chaos WC Federal Com 802H		6/1/2025	7/15/2025	10/1/2025	11/15/2025	11/15/2025
Chaos WC Federal Com 803H		4/1/2025	5/15/2025	10/1/2025	11/15/2025	11/15/2025
Chaos WC Federal Com 805H		6/1/2025	7/15/2025	10/1/2025	11/15/2025	11/15/2025

APPENDIX

Section 1 - Parts VI, VII, and VIII

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

- Separation equipment is sized to allow for retention time and velocity to adequately separate oil, gas, and water at anticipated peak rates.
- All central tank battery equipment is designed to efficiently capture the remaining gas from the liquid phase.
- Valves and meters are designed to service without flow interruption or venting of gas.

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.

- **19.15.27.8 (A) – Venting and Flaring Of Natural Gas**
  - Marathon Oil Permian's field operations are designed with the goal of minimizing flaring and preventing venting of natural gas. If capturing the gas is not possible then the gas is combusted/flared using properly sized flares or combustors in accordance with state air permit rules.
- **19.15.27.8 (B) – Venting and Flaring During Drilling Operations**
  - A properly-sized flare stack will be located at a minimum 100' from the nearest surface hole location on the pad.
  - All natural gas produced during drilling operations will be flared. Venting will only occur if there is an equipment malfunction and/or to avoid risk of an immediate and substantial adverse impact on safety, public health, or the environment.
- **19.15.27.8 (C) – Venting and Flaring During Completion or Recompletion Operations**
  - During all phases of flowback, wells will flow through a sand separator, or other appropriate flowback separation equipment, and the well stream will be directed to a central tank battery (CTB) through properly sized flowlines.
  - The CTB will have properly sized separation equipment for maximum anticipated flow rates.
  - Multiple stages of separation will be used to separate gas from liquids. All gas will be routed to a sales outlet. Fluids will be routed to tanks equipped with a closed loop system that will recover any residual gas from the tanks and route such gas to a sales outlet.
- **19.15.27.8 (D) – Venting and Flaring During Production Operations**
  - During production, the well stream will be routed to the CTB where multiple stages of separation will separate gas from liquids. All gas will be routed to a sales outlet. Fluids will be routed to tanks equipped with a closed loop system that will recover any residual gas from the tanks and route such gas to a sales outlet, minimizing tank emissions.
  - Flares are equipped with auto-ignition systems and continuous pilot operations.
  - Automatic gauging equipment is installed on all tanks.
- **19.15.27.8 (E) – Performance Standards**
  - Production equipment will be designed to handle maximum anticipated rates and pressure.
  - Automatic gauging equipment is installed on all tanks to minimize venting.
  - All flared gas will be combusted in a flare stack that is properly sized and designed to ensure proper combustion.
  - Flares are equipped with continuous pilots and auto-ignitors along with remote monitoring of the pilot status.
  - Weekly AVOs and monthly LDAR inspections will be performed on all wells and facilities that produce more than 60 MCFD.
  - Gas/H2S detectors will be installed throughout the facilities and wellheads to detect leaks and enable timely repairs.

- **19.15.27.8 (F) – Measurement or Estimation of Vented and Flared Natural Gas**
  - All high pressure flared gas is measured by equipment conforming to API 14.10.
  - No meter bypasses are installed.
  - When metering is not practical due to low pressure/low rate, the vented or flared volume will be estimated through flare flow curves with the assistance of air emissions consultants, as necessary.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

- Marathon Oil Permian will use best management practices to vent as minimally as possible during well intervention operations and downhole well maintenance.
- All natural gas is routed into the gas gathering system and directed to one of Marathon Oil Permian's multiple gas sales outlets.
- All venting events will be recorded and all start-up, shutdown, maintenance logs will be kept for control equipment.
- All control equipment will be maintained to provide highest run-time possible.
- All procedures are drafted to keep venting and flaring to the absolute minimum.

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 nippled 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.

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

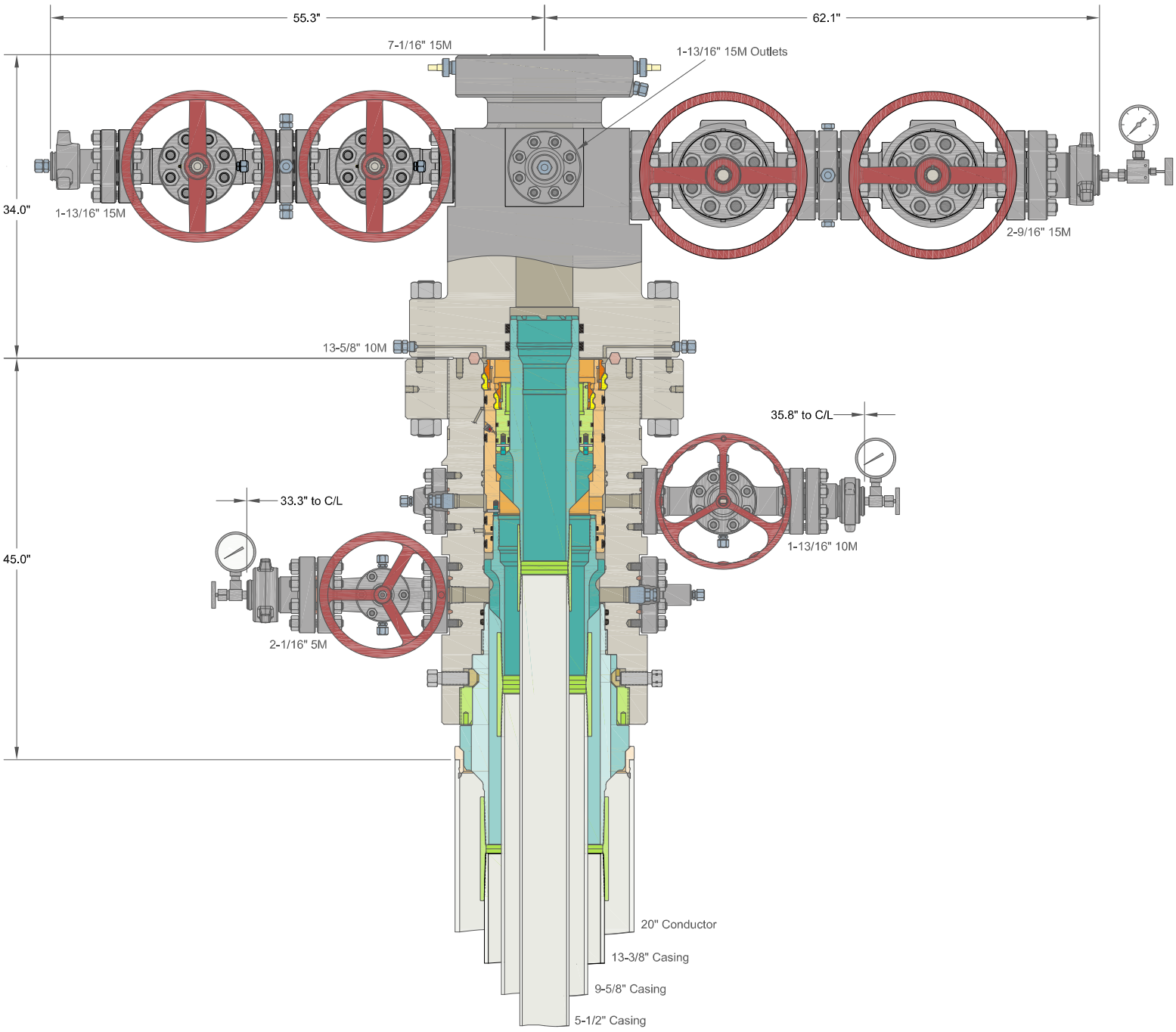
- PRIOR to pulling last joint of drill pipe thru the stack.
- Perform flow check, if flowing.
- Sound alarm (alert crew).
- Stab full opening safety valve and close
- Space out drill string with tool joint just beneath the upper pipe ram.
- Shut-in using upper pipe ram. (HCR and choke will already be 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



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	

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.

Marathon Oil

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.

Marathon Oil

Procedures

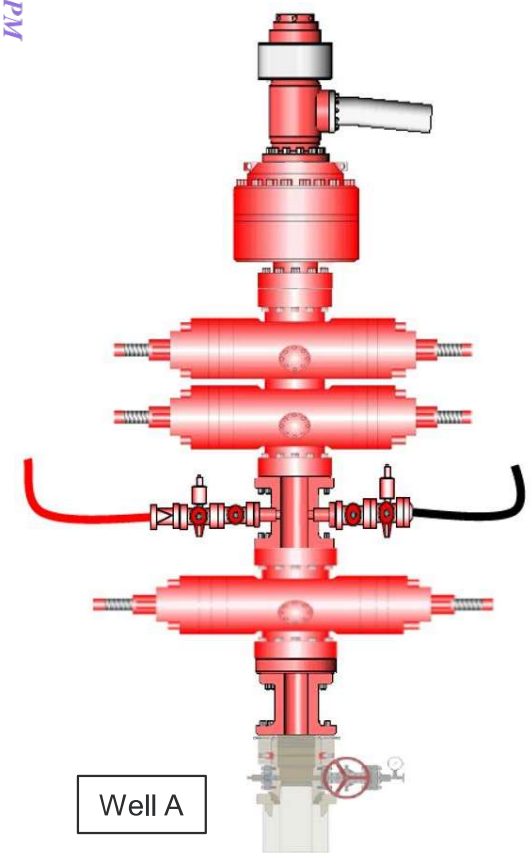
Procedural Steps

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

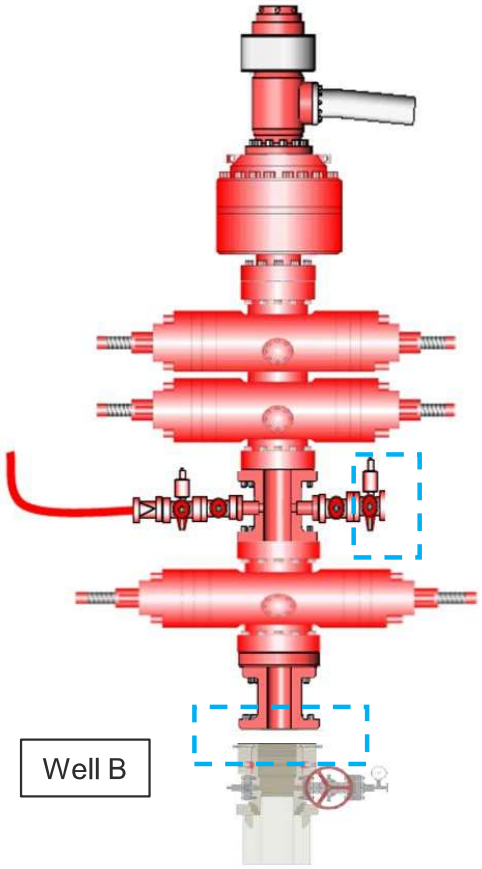
Diagram

Well A: BOP installed on Well A



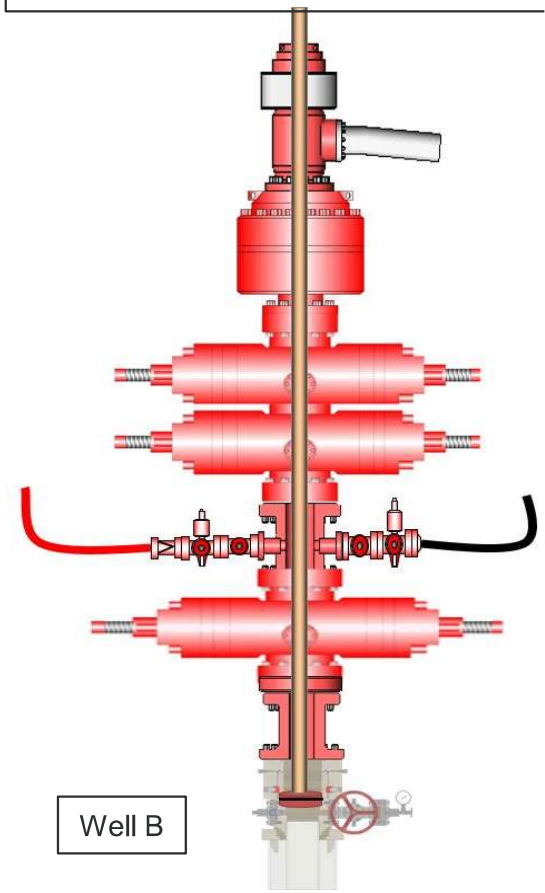
Well A

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



Well B

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



Well B

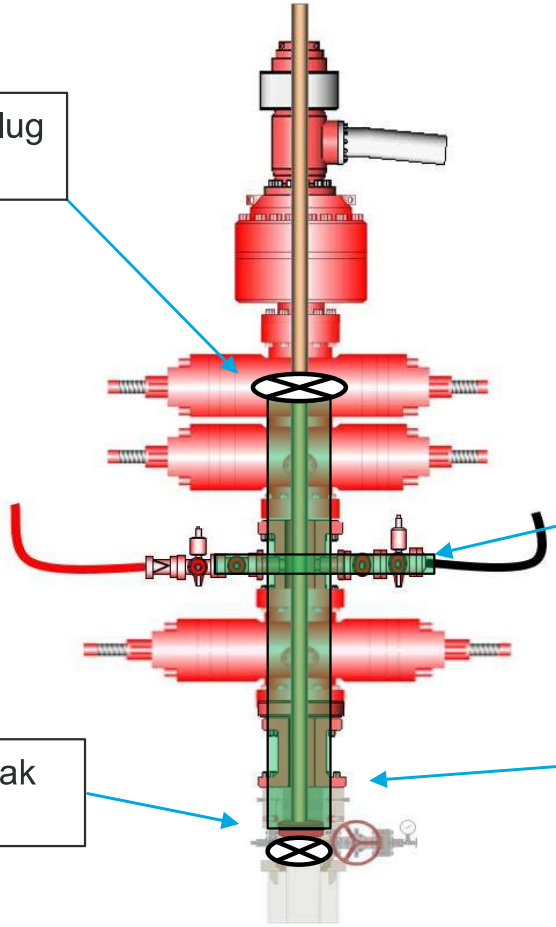
Procedures

Diagram

Pipe Ram closed on test plug assembly for break test

Pressure Containment
Pressure containment is outline by the green highlight

Testing against the closed pipe ram and the BOP test plug



Break Test
The break test will consist of one test that tests both breaks (quick connect/wellhead and choke line/HCV simultaneously after each skid

Connection between the HCV and choke line will be broken and then retested after each skid during the break test

Connection between the wellhead and BOP (quick connect) will be broken and then retested after each skid during the break test

Test Plug installed for break test

Marathon Oil

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

Marathon Oil

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.

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

APINumber	Pool Code	PoolName
	98220	PURPLE SAGE; WOLFCAMP (GAS)

Property Code	Property Name	Well Number
336080	CHAOS WC FEDERAL COM	801H

OGRIDNo.	Operator Name	Ground Level Elevation
372098	MARATHON OIL PERMIAN LLC	3071

Surface Owner: ☐ State ☐ Fee ☐ Tribal ☑ Federal | Mineral Owner: ☐ State ☐ Fee ☐ Tribal ☑ Federal

Surface Location

UL	Section	Township	Range	Lot	Ft. fromN/S	Ft. fromF/W	Latitude	Longitude	County
A	34	22S	28E		960 N	526 E	32.3539993	-104.068611	EDDY

Bottom Hole Location

UL	Section	Township	Range	Lot	Ft. fromN/S	Ft. fromF/W	Latitude	Longitude	County
D	32	22S	28E		330 N	330 W	32.3554040	-104.116750	EDDY

Dedicated Acres	Infill or Defining Well	Defining Well API	Overlapping Spacing Unit (YIN)	Consolidation Code
1920	INFILL	504H	Y	C

Order Numbers. R-22673 | Well setbacks are under Common Ownership: ☑ Yes ☐ No

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Ft. fromN/S	Ft. fromFJW	Latitude	Longitude	County
A	34	22S	28E		330 N	330 E	32.3555665	-104.06803	EDDY

First Take Point (FTP)

UL	Section	Township	Range	Lot	Ft. fromN/S	Ft. fromFJW	Latitude	Longitude	County
A	34	22S	28E		330 N	330 E	32.355665	-104.06803	EDDY

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Ft. fromN/S	Ft.fromF/W	Latitude	Longitude	County
D	32	22S	28E		330 N	330 W	32.3554040	-104.116750	EDDY

Unitized Area or Area of Uniform Interest	Spacing Unit Type	Ground Floor Elevation:
Yes Com Agreement	☑ Horizontal ☐ Vertical	3071

OPERATOR CERTIFICATIONS

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.

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.

Terri Stathem — 10/1/2024
Signature — Date

TERRI STATHEM
Printed Name

TSTATHEM@MARATHON OIL.COM
Email Address

SURVEYOR CERTIFICATIONS

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

Signature and Seal of Professional Smveyor

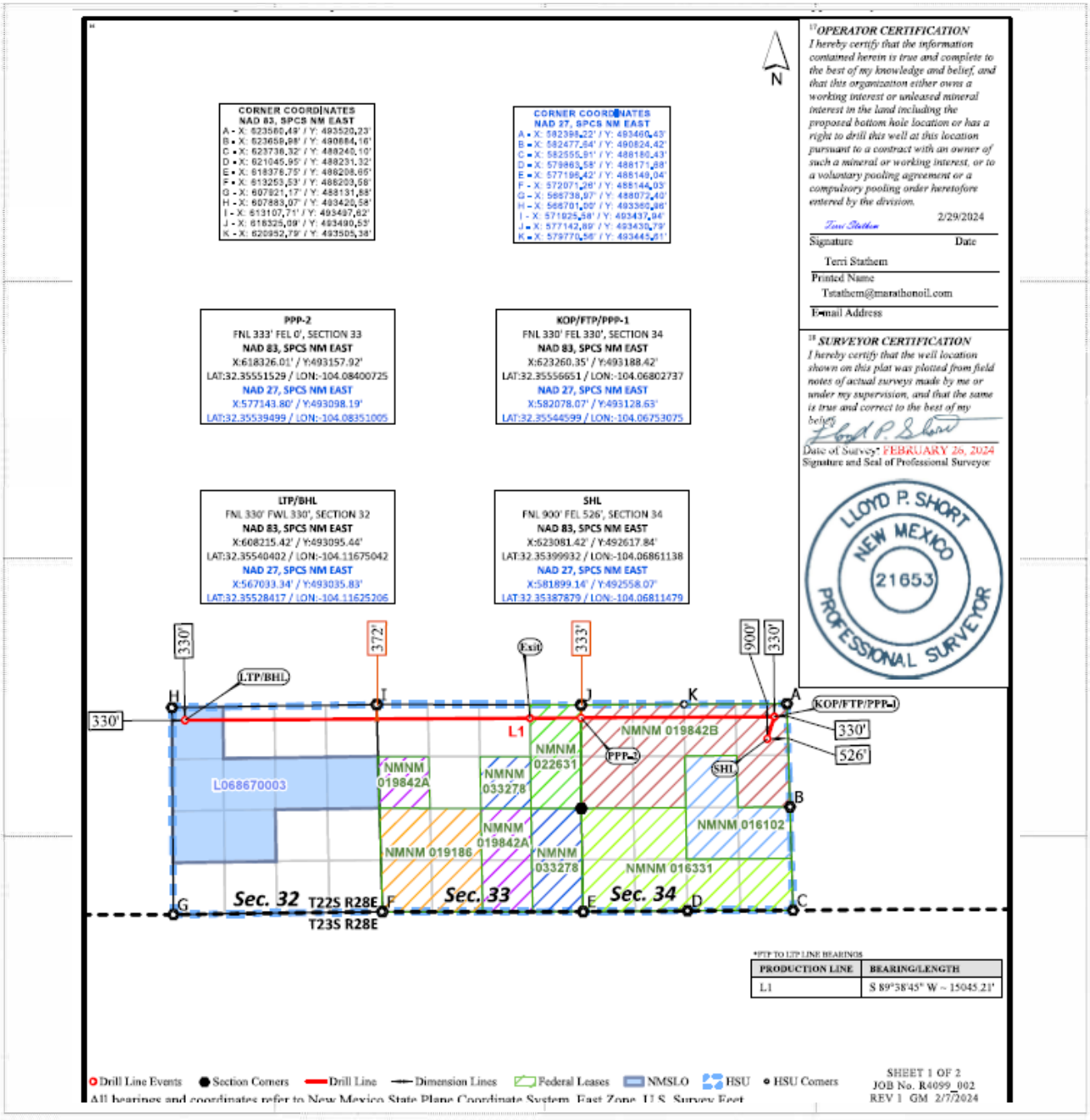
Certificate Number | Date of Smvey

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.

ACREAGE DEDICATION PLATS

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 388898

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 388898
	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.	11/1/2024
ward.rikala	File As Drilled C-102 and a directional Survey with C-104 completion packet.	11/1/2024
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.	11/1/2024
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing.	11/1/2024
ward.rikala	If cement does not circulate on any string, a Cement Bond Log (CBL) is required for that string of casing.	11/1/2024
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.	11/1/2024