

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 20185. Lease Serial No.
NMNM16102

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No.
CHAOS WC FEDERAL COM

703H

9. API Well No.
30-015-5580310. Field and Pool, or Exploratory
PURPLE SAGE/(WOLFCAMP) GAS11. Sec., T. R. M. or Blk. and Survey or Area
SEC 34/T22S/R28E/1PM1a. Type of work: ☒ DRILL ☐ REENTER
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other
1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☒ Multiple Zone2. Name of Operator
MARATHON OIL PERMIAN LLC3a. Address
990 TOWN & COUNTRY BLVD, HOUSTON, TX 770243b. Phone No. (include area code)
(713) 296-21134. Location of Well (Report location clearly and in accordance with any State requirements. *)
At surface NESE / 1497 FSL / 726 FEL / LAT 32.346074 / LONG -104.0690036
At proposed prod. zone NWSW / 2310 FSL / 330 FWL / LAT 32.3481218 / LONG -104.116705914. Distance in miles and direction from nearest town or post office*
20 miles12. County or Parish
EDDY13. State
NM15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any) 330 feet

16. No of acres in lease

17. Spacing Unit dedicated to this well
1920.018. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft. 25 feet19. Proposed Depth
9614 feet / 24855 feet20. BLM/BIA Bond No. in file
FED: NMB00155521. Elevations (Show whether DF, KDB, RT, GL, etc.)
3052 feet22. Approximate date work will start*
03/31/202523. 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
(Electronic Submission)Name (Printed/Typed)
TERRI STATHEM / Ph: (713) 929-6600Date
08/01/2024Title
Regulatory Compliance ManagerApproved by (Signature)
(Electronic Submission)Name (Printed/Typed)
CODY LAYTON / Ph: (575) 234-5959Date
11/22/2024Title
Assistant Field Manager Lands & MineralsOffice
Carlsbad Field Office

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)



INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

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

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

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

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

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

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

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

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

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

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

The BLM connects this information to a new evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

0. SHL: NESE / 1497 FSL / 726 FEL / TWSP: 22S / RANGE: 28E / SECTION: 34 / LAT: 32.346074 / LONG: -104.0690036 (TVD: 0 feet, MD: 0 feet)
PPP: NESE / 2310 FSL / 330 FEL / TWSP: 22S / RANGE: 28E / SECTION: 34 / LAT: 32.3483102 / LONG: -104.0677914 (TVD: 9164 feet, MD: 9286 feet)
PPP: NESW / 2302 FSL / 2664 FEL / TWSP: 22S / RANGE: 28E / SECTION: 34 / LAT: 32.3482823 / LONG: -104.0753509 (TVD: 9614 feet, MD: 12100 feet)
PPP: NWSE / 2299 FSL / 1283 FEL / TWSP: 22S / RANGE: 28E / SECTION: 33 / LAT: 32.3482341 / LONG: -104.0881412 (TVD: 9614 feet, MD: 16000 feet)
PPP: NESE / 2306 FSL / 0 FEL / TWSP: 22S / RANGE: 28E / SECTION: 33 / LAT: 32.3482499 / LONG: -104.0839877 (TVD: 9614 feet, MD: 14700 feet)
PPP: NESW / 2291 FSL / 2565 FEL / TWSP: 22S / RANGE: 28E / SECTION: 33 / LAT: 32.3482182 / LONG: -104.0922947 (TVD: 9614 feet, MD: 17300 feet)
BHL: NWSW / 2310 FSL / 330 FWL / TWSP: 22S / RANGE: 28E / SECTION: 32 / LAT: 32.3481218 / LONG: -104.1167059 (TVD: 9614 feet, MD: 24855 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.

CONFIDENTIAL



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

Application for Permit to Drill

APD Package Report

Date Printed: 11/22/2024 02:59 PM

APD ID: 10400100120

Well Status: AAPD

APD Received Date: 08/01/2024 09:52 AM

Well Name: CHAOS WC FEDERAL COM

Operator: MARATHON OIL PERMIAN LLC

Well Number: 703H

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): 5 file(s)
 - Hydrogen sulfide drilling operations plan: 1 file(s)
 - Proposed horizontal/directional/multi-lateral plan submission: 1 file(s)
 - Other Facets: 3 file(s)
 - Other Variances: 6 file(s)
- SUPO Report
- SUPO Attachments
 - Existing Road Map: 1 file(s)
 - Attach Well map: 1 file(s)
 - Production Facilities map: 1 file(s)
 - Water source and transportation map: 1 file(s)
 - Construction Materials source location attachment: 1 file(s)
 - Well Site Layout Diagram: 2 file(s)
 - Recontouring attachment: 2 file(s)
 - Other SUPO 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 30-015-55803	² Pool Code 98220	³ Pool Name PUPRLE SAGE; WOLFCAMP (GAS)
⁴ Property Code 336080	⁵ Property Name CHAOS WC FEDERAL COM	⁶ Well Number 703H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 3052'

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
I	34	22S	28E		1497'	SOUTH	726'	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
L	32	22S	28E		2310'	SOUTH	330'	WEST	EDDY
¹² Dedicated Acres 1,920.00	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.						

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

¹⁶

LTP/BHL
FSL 2310' FWL 330', SECTION 32
NAD 83, SPCS NM EAST
X:608234.51' / Y:490446.31'
LAT:32.34812188 / LON:-104.11670597
NAD 27, SPCS NM EAST
X:567052.36' / Y:490386.76'
LAT:32.34800199 / LON:-104.11620785

PPP-5
FSL 2291' FEL 2565', SECTION 33
NAD 83, SPCS NM EAST
X:615772.92' / Y:490547.46'
LAT:32.34821822 / LON:-104.09229471
NAD 27, SPCS NM EAST
X:574590.68' / Y:490473.82'
LAT:32.34809797 / LON:-104.09179748

PPP-4
FSL 2299' FEL 1283', SECTION 33
NAD 83, SPCS NM EAST
X:617055.54' / Y:490506.17'
LAT:32.34823414 / LON:-104.08814127
NAD 27, SPCS NM EAST
X:575873.28' / Y:490446.52'
LAT:32.34811385 / LON:-104.08764418

PPP-3
FSL 2306' FEL 330', SECTION 33
NAD 83, SPCS NM EAST
X:618338.17' / Y:490514.87'
LAT:32.34824993 / LON:-104.08398779
NAD 27, SPCS NM EAST
X:577155.89' / Y:490455.20'
LAT:32.34812957 / LON:-104.08349086

PPP-2
FSL 2302' FEL 2664', SECTION 34
NAD 83, SPCS NM EAST
X:621005.29' / Y:490532.97'
LAT:32.34828231 / LON:-104.07535099
NAD 27, SPCS NM EAST
X:579822.98' / Y:490473.27'
LAT:32.34816183 / LON:-104.07485436

FTP/PPP-1
FSL 2310' FEL 330', SECTION 34
NAD 83, SPCS NM EAST
X:623339.77' / Y:490548.81'
LAT:32.34831017 / LON:-104.06779137
NAD 27, SPCS NM EAST
X:582157.43' / Y:490489.08'
LAT:32.34818958 / LON:-104.06729500

SHL
FSL 1497' FEL 726', SECTION 34
NAD 83, SPCS NM EAST
X:622967.40' / Y:489734.40'
LAT:32.34607403 / LON:-104.06900369
NAD 27, SPCS NM EAST
X:581785.04' / Y:489674.70'
LAT:32.34595344 / LON:-104.06850735

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.

Adrian Covarrubias 7/28/2024
Signature Date
Adrian Covarrubias
Printed Name
acovarrubias@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: JUNE 26, 2024
Signature and Seal of Professional Surveyor

*FTP TO LTP LINE BEARINGS

PRODUCTION LINE	BEARING/LENGTH
L1	S 89°36'40" W ~ 15105.61'

CORNER COORDINATES
NAD 83, SPCS NM EAST
A - X: 623580.49' / Y: 493520.23'
B - X: 623658.98' / 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: 615253.53' / Y: 488203.58'
G - X: 607921.17' / Y: 488191.88'
H - X: 607883.07' / Y: 493420.58'
I - X: 613107.71' / Y: 493427.62'
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: 493480.43'
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: 568738.97' / Y: 488072.40'
H - X: 566701.00' / Y: 493360.96'
I - X: 577192.58' / Y: 493437.94'
J - X: 577142.89' / Y: 493430.79'
K - X: 579770.56' / Y: 493445.61'

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

Distances are rounded to 0.1' and 0.01' measurements. Combined Scale Factor: 0.99977221 and a Convergence Angle: 0.11741667°

SHEET 1 OF 2
JOB No. R4099_005
REV 2 ANC 6/14/2024

Released to Imaging: 12/8/2024 9:34:39 AM

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR’S NAME:	Marathon Oil Permian, LLC
LEASE NO.:	NMNM 016102
COUNTY:	Eddy County, New Mexico

Wells:

Chaos WC Federal Com 703H
Surface Hole Location: 1497’ FSL & 726’ FEL, Section 34, T. 22 S., R. 28 E.
Bottom Hole Location: 2310’ FSL & 330’ FWL, Section 32, T. 22 S., R. 28 E.

Chaos WC Federal Com 704H
Surface Hole Location: 1518’ FSL & 747’ FEL, Section 34, T. 22 S., R. 28 E.
Bottom Hole Location: 990’ FSL & 330’ 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.

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

2.2.4. 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.

2.2.5. 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 SPECIAL STATUS PLANT SPECIES

2.4 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).

2.5.2 VRM III Facility Requirement

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).

2. CONSTRUCTION REQUIREMENTS

3.1 CONSTRUCTION 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 enclosure 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 enclosure fencing design, refer to BLM's Oil and Gas Gold Book, Enclosure 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 ACCESS 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 fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) 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

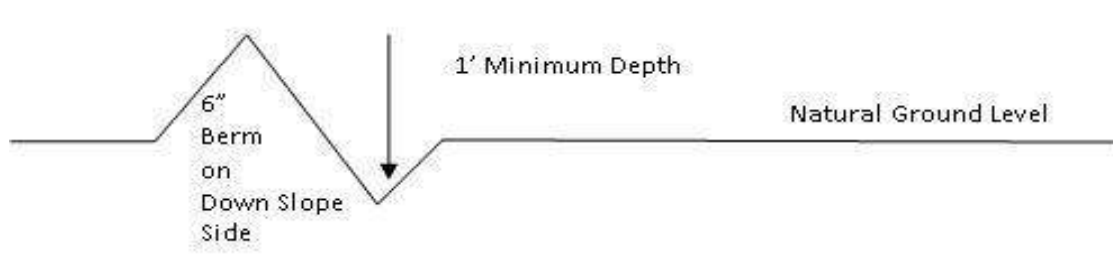
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

3.7.6 Drainage

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

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

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

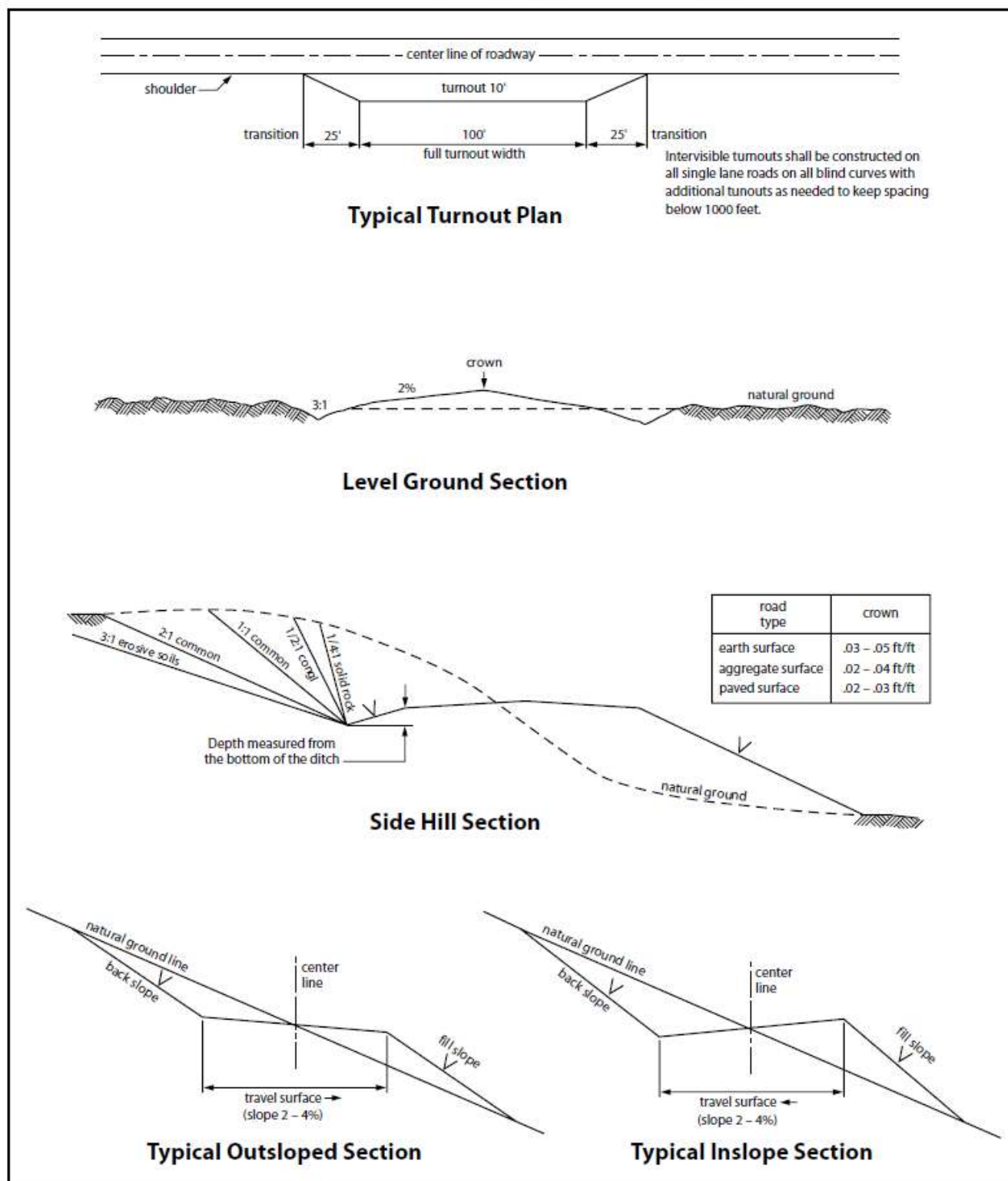


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

4.1 RANGLAND 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.

3. 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.

4. 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/permittee 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:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegass (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 703H
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	☒ Contingency Cement Squeeze	☐ EchoMeter	☐ Primary Cement Squeeze
Special Requirements	☐ Water Disposal	☒ COM	☐ Unit
Special Requirements	☐ Batch Sundry		
Special Requirements Variance	☒ Break Testing	☒ Offline Cementing	☐ Casing Clearance

A. HYDROGEN SULFIDE

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

B. CASING

Primary Casing Design:

- The **13-3/8** inch surface casing shall be set at approximately **350** feet. *BLM Geology Note: The operator proposes to set surface casing at 293', BLM accepts 350 feet weathered-Rustler formation gypsum/anhydrite/ red clay, managing the BLM identified groundwater zones. Salado formation 400' approximate and a salt formation. (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface.*

- a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The **9-5/8** inch intermediate casing shall be set at approximately **9011 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 **24,855** feet. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **13-3/8** inch surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M) psi. Variance is approved to use a 5000 (5M) Annular which shall be tested to 3500 (70% Working Pressure) psi.**
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

- e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in Onshore Order 1 and 43 CFR part 3170 Subpart 3172.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

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

BOPE Break Testing Variance

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

Offline Cementing

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

GENERAL REQUIREMENTS

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

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

Contact Eddy County Petroleum Engineering Inspection Staff:

Email or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220; [BLM NM CFO DrillingNotifications@BLM.GOV](mailto:BLM_NM_CFO_DrillingNotifications@BLM.GOV); (575) 361-2822

Contact Lea County Petroleum Engineering Inspection Staff:

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - i. Notify the BLM when moving in and removing the Spudder Rig.
 - ii. Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - iii. BOP/BOPE test to be conducted per **43 CFR 3172** as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. For intervals in which cement to surface is required, cement to surface should be verified with a visual check and density or pH check to differentiate cement from spacer and drilling mud. The results should be documented in the driller's log and daily reports.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends of both lead and tail cement, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-Q potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

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

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - i. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - ii. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - iii. Manufacturer representative shall install the test plug for the initial BOP test.
 - iv. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.
 - v. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - i. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - ii. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)
 - iii. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR 3172** with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - iv. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
 - v. The results of the test shall be reported to the appropriate BLM office.

- vi. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- vii. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- viii. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per **43 CFR 3172**.

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

KPI 10/30/2024



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

Operator Certification Data Report

11/22/2024

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: 08/01/2024

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:



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

Application Data

11/22/2024

APD ID: 10400100120

Submission Date: 08/01/2024

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

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: CHAOS WC FEDERAL COM

Well Number: 703H

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - General

APD ID: 10400100120

Tie to previous NOS? N

Submission Date: 08/01/2024

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: NMNM16102

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: 703H

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:** 703H**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_C102_Chaos_703H_20240728143047.pdf

A2_Payment_Chaos_703H_20240801095210.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	1497	FSL	726	FEL	22S	28E	34	Aliquot NESE	32.346074	-104.0690036	EDD Y	NEW MEXICO	FIRST PRIN	F	NMNM 16102	3052	0	0	Y
KOP Leg #1	2310	FSL	330	FEL	22S	28E	34	Aliquot NESE	32.3483102	-104.0677914	EDD Y	NEW MEXICO	FIRST PRIN	F	NMNM 16102	-6112	9286	9164	Y

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: CHAOS WC FEDERAL COM

Well Number: 703H

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	2310	FSL	330	FEL	22S	28E	34	Aliquot NESE	32.3483102	-104.0677914	EDD Y	NEW MEXICO	FIRST PRIN	F	NMNM 16102	-6112	9286	9164	Y
PPP Leg #1-2	2302	FSL	2664	FEL	22S	28E	34	Aliquot NESW	32.3482823	-104.0753509	EDD Y	NEW MEXICO	FIRST PRIN	F	NMNM 16331	-6562	12100	9614	Y
PPP Leg #1-3	2306	FSL	0	FEL	22S	28E	33	Aliquot NESE	32.3482499	-104.0839877	EDD Y	NEW MEXICO	FIRST PRIN	F	NMNM 33278	-6562	14700	9614	Y
PPP Leg #1-4	2299	FSL	1283	FEL	22S	28E	33	Aliquot NWSE	32.3482341	-104.0881412	EDD Y	NEW MEXICO	FIRST PRIN	F	NMNM 19842A	-6562	16000	9614	Y
PPP Leg #1-5	2291	FSL	2565	FEL	22S	28E	33	Aliquot NESW	32.3482182	-104.0922947	EDD Y	NEW MEXICO	FIRST PRIN	F	NMNM 19186	-6562	17300	9614	Y
EXIT Leg #1	2310	FSL	330	FWL	22S	28E	32	Aliquot NESE	32.3481218	-104.1167059	EDD Y	NEW MEXICO	FIRST PRIN	F	FEE	-6562	20000	9614	Y
BHL Leg #1	2310	FSL	330	FWL	22S	28E	32	Aliquot NWSW	32.3481218	-104.1167059	EDD Y	NEW MEXICO	FIRST PRIN	S	STATE	-6562	24855	9614	Y



Drilling Plan Data Report

11/22/2024

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

APD ID: 10400100120

Submission Date: 08/01/2024

Operator Name: MARATHON OIL PERMIAN LLC

Highlighted data
reflects the most
recent changes

Well Name: CHAOS WC FEDERAL COM

Well Number: 703H

Well Type: OIL WELL

Well Work Type: Drill

[Show Final Text](#)

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
14549050	RUSTLER	3073	196	223	ANHYDRITE	USEABLE WATER	N
14549051	SALADO	2669	404	431	ANHYDRITE, SALT	NONE	N
14549052	CASTILE	1878	1195	1222	ANHYDRITE, SALT	NONE	N
14549053	LAMAR	451	2622	2649	SANDSTONE, SHALE	NONE	N
14549061	BELL CANYON	406	2667	2694	SANDSTONE	OIL	N
14549054	CHERRY CANYON	-428	3501	3528	SANDSTONE	OIL	N
14549055	BRUSHY CANYON	-1653	4726	4753	SANDSTONE	OIL	N
14549056	BONE SPRING LIME	-3086	6159	6186	LIMESTONE	NONE	N
14549057	BONE SPRING 1ST	-4127	7200	7227	SANDSTONE	OIL	N
14549058	BONE SPRING 2ND	-4373	7446	7473	LIMESTONE, SHALE	OIL	N
14549059	BONE SPRING 3RD	-5226	8299	8326	LIMESTONE	OIL	Y
14549060	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:** 703H

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_Flex_Hose_20240728144529.pdf

D8_MRO_Choke_Manifold_20240728144537.pdf

BOP Diagram Attachment:

D8_MRO_10M_BOP_20240728144544.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	266	3052	2786	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	9133	0	9011	0	-5959	9133	P-110	40	BUTT	1.2	1.42	BUOY	2.44	BUOY	2.44
3	PRODUCTION	8.75	5.5	NEW	API	N	0	24855	0	9614	2919	-6562	24855	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:** 703H**Casing Attachments**

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

D3_Chaos_703H_Csg_Assump_20240801093537.pdf

5.500_23.00_Benteler_P110_CY_TLW_CDS_20231114175718_20240801093553.pdf

Casing ID: 2 **String** INTERMEDIATE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**D3_Chaos_703H_Csg_Assump_20240801093631.pdf

Casing ID: 3 **String** PRODUCTION**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

D3_Chaos_703H_Csg_Assump_20240801093732.pdf

5.500_23.00_Benteler_P110_CY_TLW_CDS_20231114175718_20240801093745.pdf

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: CHAOS WC FEDERAL COM

Well Number: 703H

Section 4 - Cement

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	140	25	Class C	Extender, Accelerator, LCM
SURFACE	Tail		143	293	99	1.32	14.8	130	25	Class C	Accelerator
INTERMEDIATE	Lead		0	8633	1559	2.18	12.4	3398	25	ClassC	Extender, Accelerator LCM
INTERMEDIATE	Tail		8633	9133	147	1.33	14.8	196	25	Class C	retarder
PRODUCTION	Lead		8833	2485 5	3052	1.68	13	5127	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							

Operator Name: MARATHON OIL PERMIAN LLC**Well Name:** CHAOS WC FEDERAL COM**Well Number:** 703H

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
293	9691	OIL-BASED MUD	9.2	10.2							
9691	25473	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: 4573

Anticipated Bottom Hole Temperature(F): 195

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

Describe:

Contingency Plans geohazards description:

Contingency Plans geohazards

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations

D6_Chaos_703H_H2S_Plan_20240728144447.pdf

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: CHAOS WC FEDERAL COM

Well Number: 703H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

D8_Chaos_703H_Dir_Plan_20241104062406.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

D8_Chaos_S_Rig_Layout_20240728144650.pdf

D8_Chaos_703H_Drill_Plan_20240801094031.pdf

D8_NGMP_Chaos_South_20240801094043.pdf

Other Variance attachment:

D8_MRO_BOP_Break_Test_Variance_20240321210046.pdf

D8_MRO_Well_Control_Plan_20240321210010.pdf

D8_MRO_Wellhead_Diagram_20240321210021.pdf

D8_MRO_Variance_Offline_Cementing_Surf_n_Inter_20240728144737.pdf

D8_MRO_Variance_Request_Batch_Drill_n_Spudder_20240728144905.pdf

D8_MRO_Variance_Request__Int_Cement_20240728144923.pdf



HELMERICH & PAYNE
INTERNATIONAL DRILLING CO.

CHOKE LINE SYSTEM
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PROPRIETARY

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LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD

HYDROSTATIC TESTING REPORT

LTTY/QR-5.7.1-28

No: 230826004

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



LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD

CERTIFICATE OF QUALITY

LTTY/QR-5.7.1-19B

№: LT2023-126-001

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

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



LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD

CERTIFICATE OF CONFORMANCE

№:LT230826013

Product Name: Choke And Kill Hose

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

Serial Number: 7660131~7660142

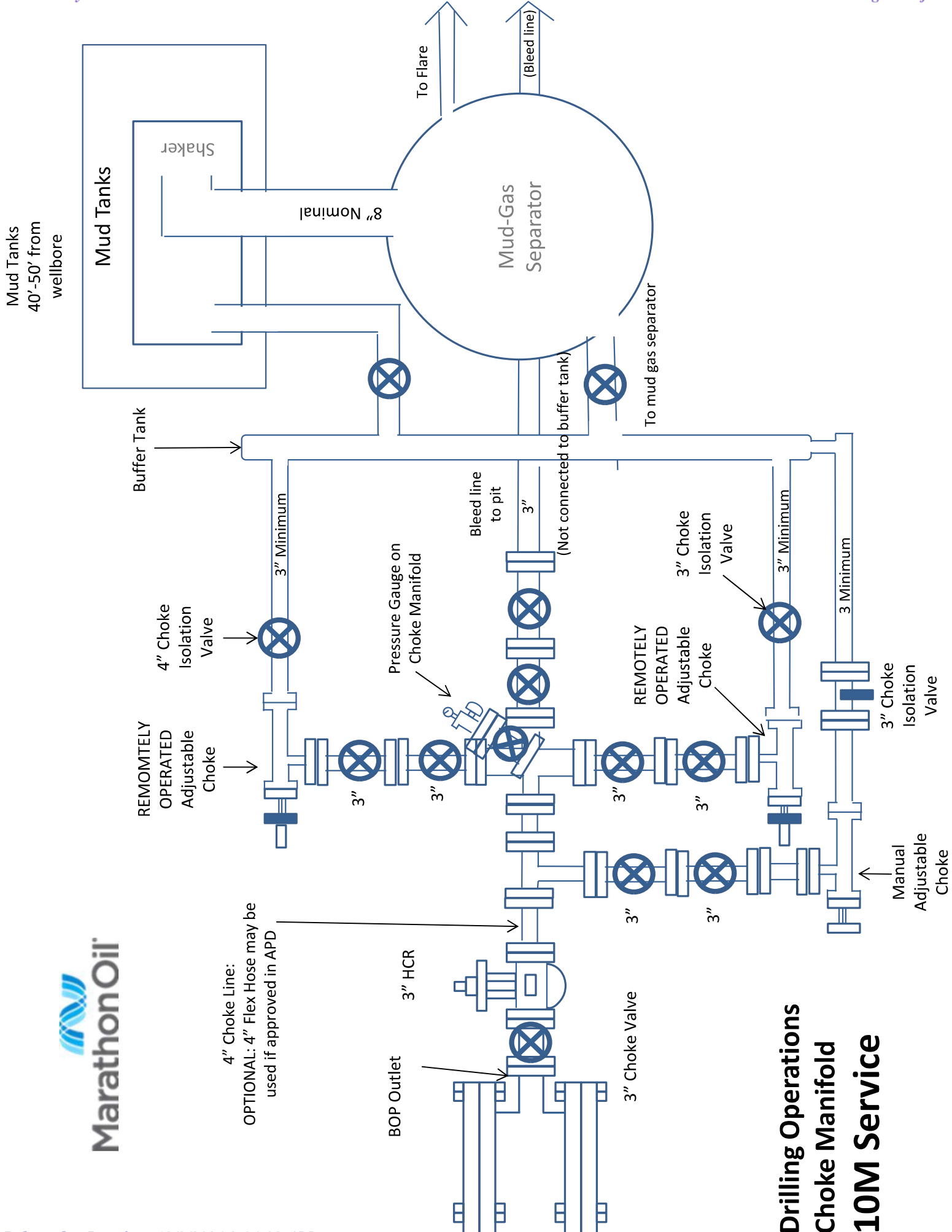
End Connections: 4-1/16"×10000psi Integral flange for sour gas service

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

QC Manager:

Jiaolong Chen

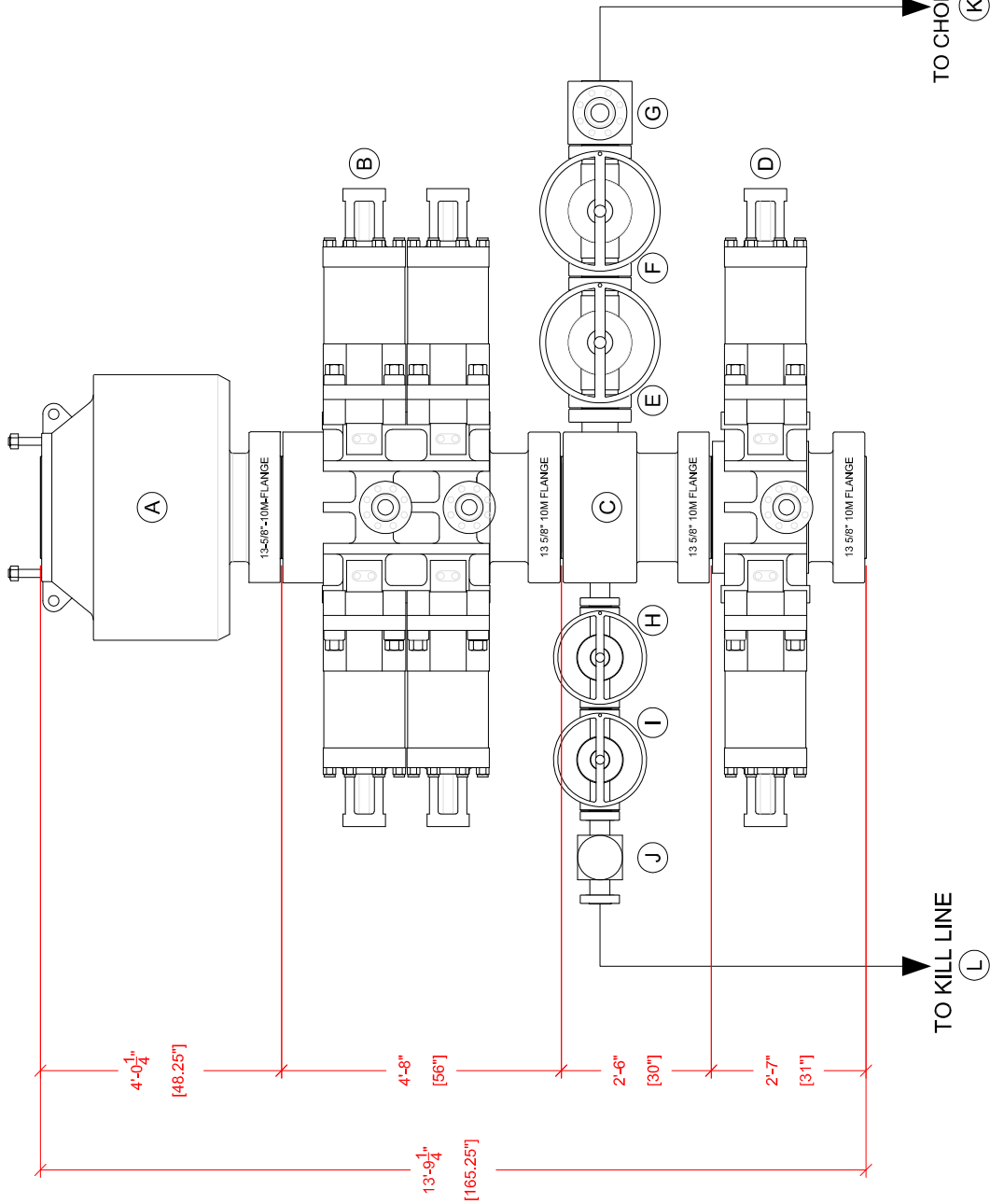
Date:Aug 26, 2023



**Drilling Operations
Choke Manifold
10M Service**



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



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TOLERANCE UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES		CUSTOMER INFO: FILE: R-170_BOP_MARATHON.dwg DWG BY: IJA CHK BY: APP BY:	
DECIMAL CONCENTRICITY X.XX X.XXX ANGLES ± .5 DEGREES	DIMENSION ± .01 ± .06 ± .010	TITLE: RIG 170 BOP STACK-UP	
BY	REVISION	SCALE: NTS	
SYM	DATE	SIZE B	



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





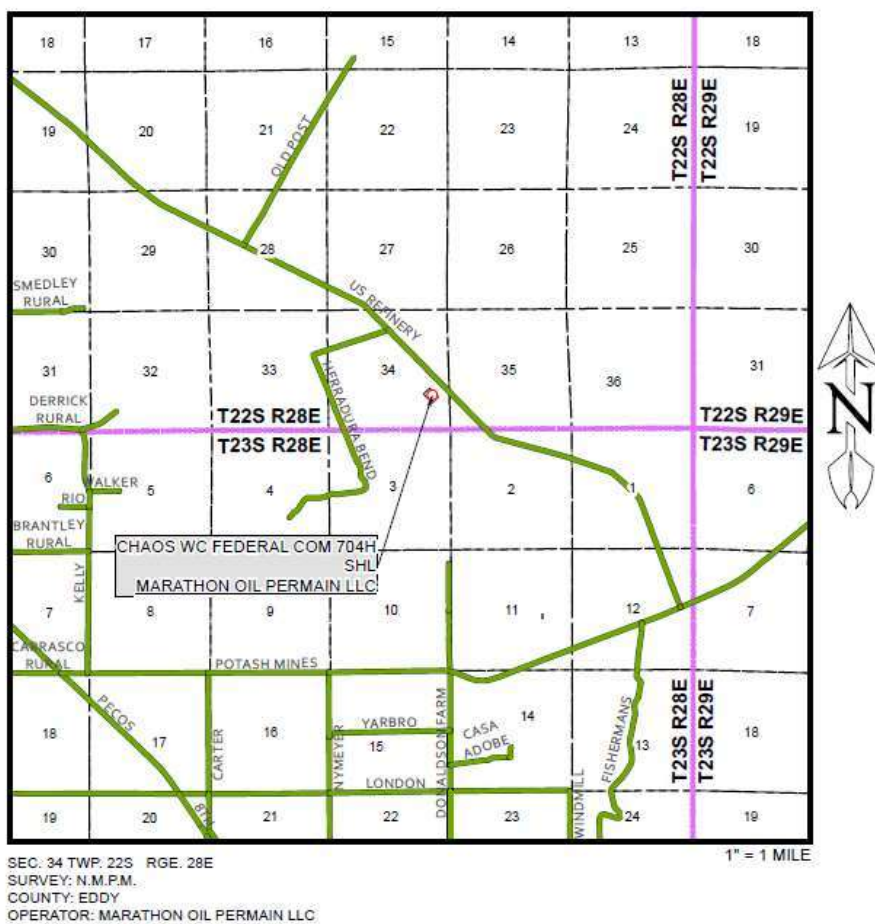
**Hydrogen Sulfide (H₂S)
Contingency Plan**

**Chaos WC Federal Com 703H
1497' FSL 726' FEL Sec. 24-22S-28E, Eddy County, NM**

**Chaos WC Federal Com 704H
1518' FSL 747' FEL Sec. 24-22S-28E, Eddy County, NM**

Marathon Oil Permian, LLC
Chaos WC Federal Com 703H & 704H

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



Escape

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

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

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

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

Ignition of Gas Source

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

Characteristics of H₂ S and SO₂

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

Contacting Authorities

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

Marathon Oil Permian, LLC

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE (H₂S) TRAINING

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

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

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

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

II. HYDROGEN SULFIDE TRAINING

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

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

- Auxiliary equipment may include if applicable: annular preventer and rotating head.
 - Mud/Gas Separator
- Protective equipment for essential personnel:
 - 30-minute SCBA units located at briefing areas, as indicated on well site diagram, with escape units available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.
 - Fire extinguishers are located at various locations around the rig. First Aid supplies are located in the top doghouse and the rig manger's office.
- H2S detection and monitoring equipment:
 - Portable H2S monitors positioned on location for best coverage and response. These units have warning lights which activate when H2S levels reach 10 ppm and audible sirens which activate at 15 ppm.Sensor locations:
 - Bell nipple
 - Rig floor
 - Cellar
 - Possum Belly/Shale shaker
 - Choke manifold
- Visual warning systems:
 - Wind direction indicators as shown on well site diagram
 - Caution/Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.
- Mud program:
 - The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

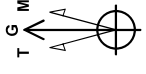
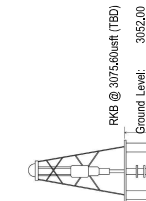
- Metallurgy:
 - All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H₂S trim.
 - All elastomers used for packing and seals shall be H₂S trim.
- Communication:
 - Company personnel have/use cellular telephones in the field.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

EMERGENCY & MEDICAL FACILITIES

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

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

Project: Eddy County, NM (NAD27-NME)
Site: Chaos WC Federal Com 703H
Well: Chaos WC Federal Com 703H
Wellbore: OH
Design: Permit Plan 1
Rig: TBD



PHOENIX
TECHNOLOGY SERVICES

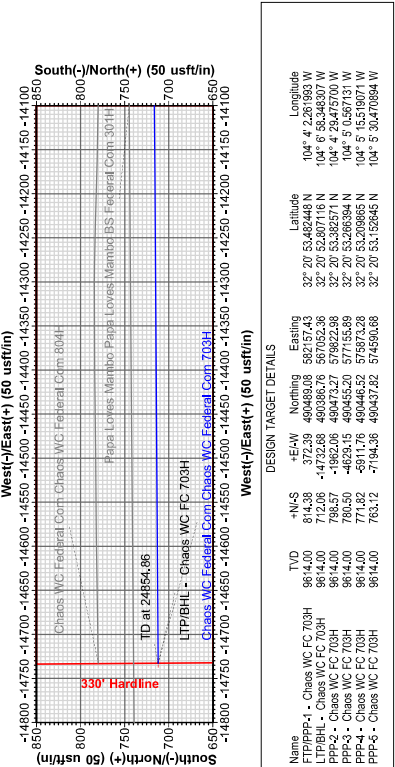
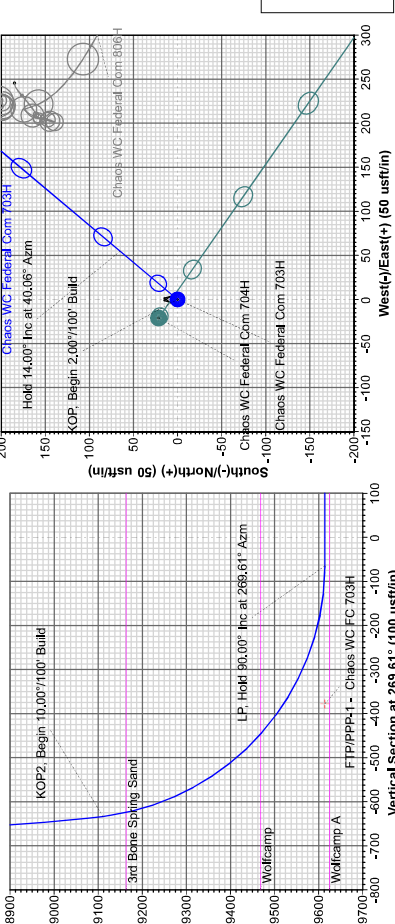
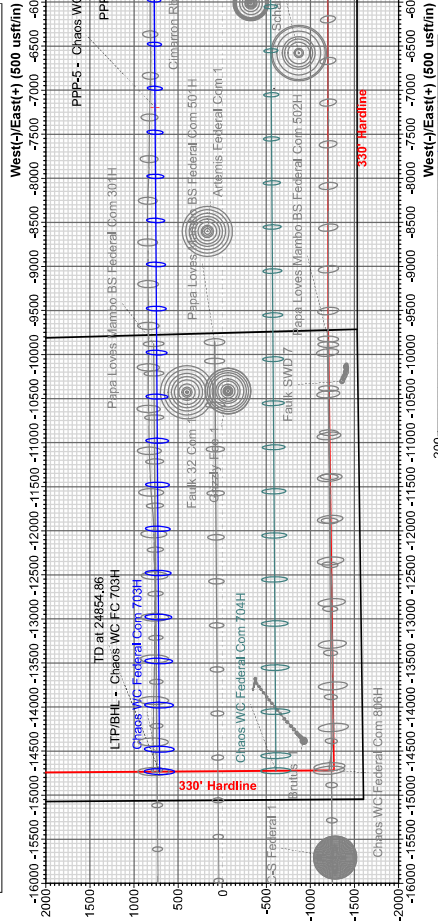
WELL DETAILS

	N-S	E-W	North	East	Ground Level	Latitude	Longitude
	0.00	0.00	489674.70	581785.04	3052.00	32° 20' 45.424111 N	104° 4' 6.28512 W

SECTION DETAILS

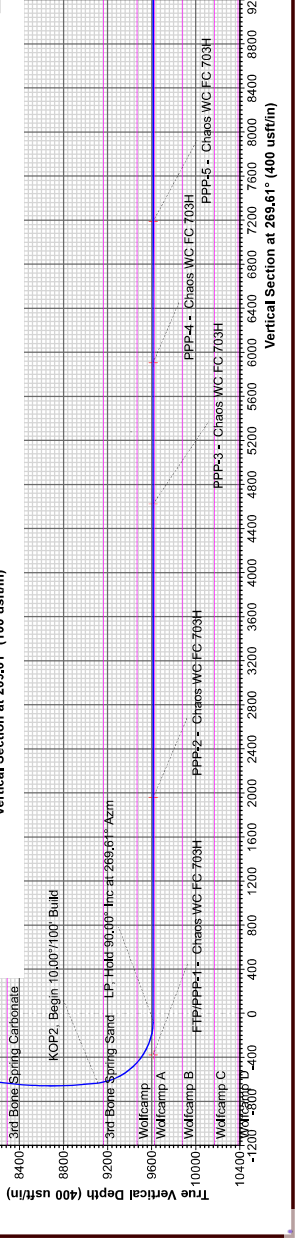
Sec	MD	Inc	Azi	N-S	E-W	TVD	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2.00°/100' Build
2	3985.00	14.00	40.06	4688.05	85.13	54.78	Hold 14.00° Inc at 40.06° Azm
3	4895.00	14.00	40.06	4688.05	85.13	54.78	Begin 2.00°/100' Drop
4	8285.04	14.00	40.06	8155.93	726.93	61.12	Hold 14.00° Inc at 40.06° Azm
5	9232.86	7.00	289.61	9110.87	816.82	62.75	KOP2 Begin 10.00°/100' Build
6	10062.86	9.00	289.61	9614.00	812.75	53.88	LP Hold 90.00° Inc at 289.61° Azm
7	24854.86	9.00	289.61	9614.00	712.06	47.92	TD at 24854.86

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Zone Name: New Mexico East 3001
Local Origin: Well Chaos WC Federal Com 703H Grid North
Latitude: 32° 20' 45.424111 N
Longitude: 104° 4' 6.28512 W
Grid East: 581785.04
Grid North: 581785.04
Scale Factor: 1.000
Geometric Model: MVHD
Magnetic Declination: 6.546°
Magnetic Date: 1983-01-01
Dip Angle from Horizontal: 59.921°
Magnetic Field Strength: 47342.331073861 T
To convert a Magnetic Direction to a Grid Direction, Add 6.546°
To convert a Magnetic Direction to a True Direction, Subtract 0.142°



DESIGN TARGET DETAILS

Name	+E-W	+N-S	TVD	East	North	Longitude
PPP-1 - Chaos WC FC 703H	914.38	914.38	9614.00	582757.43	22° 20' 53.42418 N	104° 4' 2.26199 W
LTP/BHL - Chaos WC FC 703H	-177.239	-177.239	9614.00	582757.43	22° 20' 53.42418 N	104° 4' 2.26199 W
PPP-2 - Chaos WC FC 703H	798.57	798.57	9614.00	582757.43	22° 20' 53.42418 N	104° 4' 2.26199 W
PPP-3 - Chaos WC FC 703H	798.57	798.57	9614.00	582757.43	22° 20' 53.42418 N	104° 4' 2.26199 W
PPP-4 - Chaos WC FC 703H	798.57	798.57	9614.00	582757.43	22° 20' 53.42418 N	104° 4' 2.26199 W
PPP-5 - Chaos WC FC 703H	798.57	798.57	9614.00	582757.43	22° 20' 53.42418 N	104° 4' 2.26199 W
PPP-6 - Chaos WC FC 703H	798.57	798.57	9614.00	582757.43	22° 20' 53.42418 N	104° 4' 2.26199 W





Marathon Oil Permian LLC

**Eddy County, NM (NAD27-NME)
Chaos WC Federal Com
Chaos WC Federal Com 703H**

OH

Plan: Permit Plan 1

Standard Planning Report

08 July, 2024





Phoenix
Planning Report



Database:	USAEDMDB	Local Co-ordinate Reference:	Well Chaos WC Federal Com 703H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3075.60usft (TBD)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3075.60usft (TBD)
Site:	Chaos WC Federal Com	North Reference:	Grid
Well:	Chaos WC Federal Com 703H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Permit Plan 1		

Project	Eddy County, NM (NAD27-NME)		
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		
Site Position:		Northing:	489,881.05 usft
From:	Map	Easting:	582,009.63 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 20' 47.468964 N
		Longitude:	104° 4' 4.002511 W

Well	Chaos WC Federal Com 703H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty		0.00 usft	Wellhead Elevation:
Grid Convergence:		0.142 °	Ground Level:
			3,052.00 usft

Wellbore	OH		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	9/08/24	6.687	59.921	47,342.33107386

Design	Permit Plan 1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			269.61

Plan Survey Tool Program	Date 7/08/24		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name
1	0.00	24,854.86 Permit Plan 1 (OH)	A008Mc_MWD+IFR1+MS_
			MWD+IFR1+MSA
			Remarks

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	
3,995.00	0.00	0.00	3,995.00	0.00	0.00	0.00	0.00	0.00	0.000	
4,695.00	14.00	40.06	4,688.05	65.13	54.76	2.00	2.00	0.00	40.057	
8,269.04	14.00	40.06	8,155.93	726.93	611.20	0.00	0.00	0.00	0.000	
9,232.86	7.00	269.61	9,110.87	816.62	627.65	2.00	-0.73	-13.53	-163.684	
10,062.86	90.00	269.61	9,614.00	812.75	58.98	10.00	10.00	0.00	0.000	
24,854.86	90.00	269.61	9,614.00	712.06	-14,732.68	0.00	0.00	0.00	0.000	LTP/BHL - Chaos v



Phoenix Planning Report



Database:	USAEDMDB	Local Co-ordinate Reference:	Well Chaos WC Federal Com 703H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3075.60usft (TBD)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3075.60usft (TBD)
Site:	Chaos WC Federal Com	North Reference:	Grid
Well:	Chaos WC Federal Com 703H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Permit Plan 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
186.60	0.00	0.00	186.60	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
394.60	0.00	0.00	394.60	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
1,185.60	0.00	0.00	1,185.60	0.00	0.00	0.00	0.00	0.00	0.00
Castile									
2,376.60	0.00	0.00	2,376.60	0.00	0.00	0.00	0.00	0.00	0.00
Base of Salt (BX)									
2,612.60	0.00	0.00	2,612.60	0.00	0.00	0.00	0.00	0.00	0.00
Lamar									
2,657.60	0.00	0.00	2,657.60	0.00	0.00	0.00	0.00	0.00	0.00
Bell Canyon									
3,491.60	0.00	0.00	3,491.60	0.00	0.00	0.00	0.00	0.00	0.00
Cherry Canyon									
3,995.00	0.00	0.00	3,995.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 2.00°/100' Build									
4,000.00	0.10	40.06	4,000.00	0.00	0.00	0.00	2.00	2.00	0.00
4,100.00	2.10	40.06	4,099.98	1.47	1.24	-1.25	2.00	2.00	0.00
4,200.00	4.10	40.06	4,199.83	5.61	4.72	-4.76	2.00	2.00	0.00
4,300.00	6.10	40.06	4,299.42	12.42	10.44	-10.52	2.00	2.00	0.00
4,400.00	8.10	40.06	4,398.65	21.88	18.39	-18.54	2.00	2.00	0.00
4,500.00	10.10	40.06	4,497.39	33.98	28.57	-28.80	2.00	2.00	0.00
4,600.00	12.10	40.06	4,595.51	48.72	40.96	-41.29	2.00	2.00	0.00
4,695.00	14.00	40.06	4,688.05	65.13	54.76	-55.21	2.00	2.00	0.00
Hold 14.00° Inc at 40.06° Azm									
4,700.00	14.00	40.06	4,692.91	66.06	55.54	-55.99	0.00	0.00	0.00
4,724.42	14.00	40.06	4,716.60	70.58	59.34	-59.82	0.00	0.00	0.00
Brushy Canyon									
4,800.00	14.00	40.06	4,789.94	84.58	71.11	-71.68	0.00	0.00	0.00
4,900.00	14.00	40.06	4,886.97	103.09	86.68	-87.38	0.00	0.00	0.00
5,000.00	14.00	40.06	4,984.00	121.61	102.25	-103.07	0.00	0.00	0.00
5,100.00	14.00	40.06	5,081.03	140.13	117.82	-118.77	0.00	0.00	0.00
5,200.00	14.00	40.06	5,178.05	158.64	133.39	-134.46	0.00	0.00	0.00
5,300.00	14.00	40.06	5,275.08	177.16	148.95	-150.16	0.00	0.00	0.00
5,400.00	14.00	40.06	5,372.11	195.68	164.52	-165.85	0.00	0.00	0.00
5,500.00	14.00	40.06	5,469.14	214.19	180.09	-181.55	0.00	0.00	0.00
5,600.00	14.00	40.06	5,566.17	232.71	195.66	-197.24	0.00	0.00	0.00
5,700.00	14.00	40.06	5,663.20	251.23	211.23	-212.93	0.00	0.00	0.00
5,800.00	14.00	40.06	5,760.23	269.74	226.80	-228.63	0.00	0.00	0.00
5,900.00	14.00	40.06	5,857.26	288.26	242.37	-244.32	0.00	0.00	0.00
6,000.00	14.00	40.06	5,954.29	306.78	257.94	-260.02	0.00	0.00	0.00
6,100.00	14.00	40.06	6,051.32	325.30	273.50	-275.71	0.00	0.00	0.00
6,200.00	14.00	40.06	6,148.35	343.81	289.07	-291.41	0.00	0.00	0.00
6,201.29	14.00	40.06	6,149.60	344.05	289.27	-291.61	0.00	0.00	0.00
Bone Spring Lime									
6,251.79	14.00	40.06	6,198.60	353.40	297.14	-299.53	0.00	0.00	0.00
Upper Avalon Shale									
6,300.00	14.00	40.06	6,245.38	362.33	304.64	-307.10	0.00	0.00	0.00
6,400.00	14.00	40.06	6,342.41	380.85	320.21	-322.80	0.00	0.00	0.00
6,500.00	14.00	40.06	6,439.44	399.36	335.78	-338.49	0.00	0.00	0.00
6,600.00	14.00	40.06	6,536.47	417.88	351.35	-354.18	0.00	0.00	0.00



Phoenix Planning Report



Database:	USAEDMDB	Local Co-ordinate Reference:	Well Chaos WC Federal Com 703H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3075.60usft (TBD)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3075.60usft (TBD)
Site:	Chaos WC Federal Com	North Reference:	Grid
Well:	Chaos WC Federal Com 703H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Permit Plan 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)
6,700.00	14.00	40.06	6,633.50	436.40	366.92	-369.88	0.00	0.00	0.00
6,800.00	14.00	40.06	6,730.53	454.91	382.49	-385.57	0.00	0.00	0.00
6,900.00	14.00	40.06	6,827.56	473.43	398.05	-401.27	0.00	0.00	0.00
7,000.00	14.00	40.06	6,924.59	491.95	413.62	-416.96	0.00	0.00	0.00
7,100.00	14.00	40.06	7,021.62	510.46	429.19	-432.66	0.00	0.00	0.00
7,200.00	14.00	40.06	7,118.65	528.98	444.76	-448.35	0.00	0.00	0.00
7,274.16	14.00	40.06	7,190.60	542.71	456.31	-459.99	0.00	0.00	0.00
1st Bone Spring Sand									
7,300.00	14.00	40.06	7,215.68	547.50	460.33	-464.05	0.00	0.00	0.00
7,400.00	14.00	40.06	7,312.71	566.02	475.90	-479.74	0.00	0.00	0.00
7,500.00	14.00	40.06	7,409.73	584.53	491.47	-495.43	0.00	0.00	0.00
7,527.69	14.00	40.06	7,436.60	589.66	495.78	-499.78	0.00	0.00	0.00
2nd Bone Spring Carbonate									
7,600.00	14.00	40.06	7,506.76	603.05	507.04	-511.13	0.00	0.00	0.00
7,700.00	14.00	40.06	7,603.79	621.57	522.61	-526.82	0.00	0.00	0.00
7,800.00	14.00	40.06	7,700.82	640.08	538.17	-542.52	0.00	0.00	0.00
7,900.00	14.00	40.06	7,797.85	658.60	553.74	-558.21	0.00	0.00	0.00
8,000.00	14.00	40.06	7,894.88	677.12	569.31	-573.91	0.00	0.00	0.00
8,029.60	14.00	40.06	7,923.60	682.60	573.92	-578.55	0.00	0.00	0.00
2nd Bone Spring Sand									
8,100.00	14.00	40.06	7,991.91	695.63	584.88	-589.60	0.00	0.00	0.00
8,200.00	14.00	40.06	8,088.94	714.15	600.45	-605.30	0.00	0.00	0.00
8,269.04	14.00	40.06	8,155.93	726.93	611.20	-616.13	0.00	0.00	0.00
Begin 2.00°/100' Drop									
8,300.00	13.41	39.31	8,186.01	732.58	615.88	-620.85	2.00	-1.92	-2.42
8,400.00	11.51	36.37	8,283.65	749.58	629.14	-634.23	2.00	-1.90	-2.94
8,406.07	11.40	36.16	8,289.60	750.55	629.85	-634.95	2.00	-1.88	-3.45
3rd Bone Spring Carbonate									
8,500.00	9.65	32.30	8,381.95	764.70	639.54	-644.73	2.00	-1.86	-4.11
8,600.00	7.87	26.37	8,480.78	777.92	647.06	-652.34	2.00	-1.79	-5.93
8,700.00	6.21	17.15	8,580.03	789.22	651.69	-657.05	2.00	-1.66	-9.22
8,800.00	4.82	2.02	8,679.57	798.59	653.44	-658.86	2.00	-1.39	-15.13
8,900.00	3.99	338.06	8,779.28	806.01	652.28	-657.76	2.00	-0.83	-23.96
9,000.00	4.07	309.29	8,879.04	811.48	648.24	-653.75	2.00	0.08	-28.76
9,100.00	5.02	286.81	8,978.73	814.99	641.31	-646.84	2.00	0.95	-22.49
9,200.00	6.46	272.87	9,078.24	816.54	631.50	-637.04	2.00	1.45	-13.94
9,232.86	7.00	269.61	9,110.87	816.62	627.65	-633.20	2.00	1.63	-9.91
KOP2, Begin 10.00°/100' Build									
9,286.37	12.35	269.61	9,163.60	816.55	618.66	-624.20	10.00	10.00	0.00
3rd Bone Spring Sand									
9,300.00	13.71	269.61	9,176.88	816.53	615.59	-621.13	10.00	10.00	0.00
9,400.00	23.71	269.61	9,271.47	816.32	583.54	-589.09	10.00	10.00	0.00
9,500.00	33.71	269.61	9,359.06	815.99	535.56	-541.10	10.00	10.00	0.00
9,600.00	43.71	269.61	9,436.99	815.56	473.10	-478.64	10.00	10.00	0.00
9,645.51	48.26	269.61	9,468.60	815.34	440.38	-445.92	10.00	10.00	0.00
Wolfcamp									
9,700.00	53.71	269.61	9,502.89	815.05	398.05	-403.59	10.00	10.00	0.00
9,800.00	63.71	269.61	9,554.75	814.47	312.71	-318.24	10.00	10.00	0.00
9,900.00	73.71	269.61	9,591.01	813.84	219.65	-225.18	10.00	10.00	0.00
10,000.00	83.71	269.61	9,610.56	813.17	121.71	-127.24	10.00	10.00	0.00
10,062.86	90.00	269.61	9,614.00	812.75	58.98	-64.51	10.00	10.00	0.00
LP, Hold 90.00° Inc at 269.61° Azm									
10,100.00	90.00	269.61	9,614.00	812.49	21.84	-27.37	0.00	0.00	0.00



Phoenix Planning Report



Database:	USAEDMDB	Local Co-ordinate Reference:	Well Chaos WC Federal Com 703H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3075.60usft (TBD)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3075.60usft (TBD)
Site:	Chaos WC Federal Com	North Reference:	Grid
Well:	Chaos WC Federal Com 703H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Permit Plan 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)
10,200.00	90.00	269.61	9,614.00	811.81	-78.16	72.63	0.00	0.00	0.00
10,300.00	90.00	269.61	9,614.00	811.13	-178.16	172.63	0.00	0.00	0.00
10,400.00	90.00	269.61	9,614.00	810.45	-278.16	272.63	0.00	0.00	0.00
10,500.00	90.00	269.61	9,614.00	809.77	-378.15	372.63	0.00	0.00	0.00
10,600.00	90.00	269.61	9,614.00	809.09	-478.15	472.63	0.00	0.00	0.00
10,700.00	90.00	269.61	9,614.00	808.41	-578.15	572.63	0.00	0.00	0.00
10,800.00	90.00	269.61	9,614.00	807.73	-678.15	672.63	0.00	0.00	0.00
10,900.00	90.00	269.61	9,614.00	807.05	-778.14	772.63	0.00	0.00	0.00
11,000.00	90.00	269.61	9,614.00	806.37	-878.14	872.63	0.00	0.00	0.00
11,100.00	90.00	269.61	9,614.00	805.69	-978.14	972.63	0.00	0.00	0.00
11,200.00	90.00	269.61	9,614.00	805.00	-1,078.14	1,072.63	0.00	0.00	0.00
11,300.00	90.00	269.61	9,614.00	804.32	-1,178.13	1,172.63	0.00	0.00	0.00
11,400.00	90.00	269.61	9,614.00	803.64	-1,278.13	1,272.63	0.00	0.00	0.00
11,500.00	90.00	269.61	9,614.00	802.96	-1,378.13	1,372.63	0.00	0.00	0.00
11,600.00	90.00	269.61	9,614.00	802.28	-1,478.13	1,472.63	0.00	0.00	0.00
11,700.00	90.00	269.61	9,614.00	801.60	-1,578.13	1,572.63	0.00	0.00	0.00
11,800.00	90.00	269.61	9,614.00	800.92	-1,678.12	1,672.63	0.00	0.00	0.00
11,900.00	90.00	269.61	9,614.00	800.24	-1,778.12	1,772.63	0.00	0.00	0.00
12,000.00	90.00	269.61	9,614.00	799.56	-1,878.12	1,872.63	0.00	0.00	0.00
12,100.00	90.00	269.61	9,614.00	798.88	-1,978.12	1,972.63	0.00	0.00	0.00
12,200.00	90.00	269.61	9,614.00	798.20	-2,078.11	2,072.63	0.00	0.00	0.00
12,300.00	90.00	269.61	9,614.00	797.52	-2,178.11	2,172.63	0.00	0.00	0.00
12,400.00	90.00	269.61	9,614.00	796.84	-2,278.11	2,272.63	0.00	0.00	0.00
12,500.00	90.00	269.61	9,614.00	796.16	-2,378.11	2,372.63	0.00	0.00	0.00
12,600.00	90.00	269.61	9,614.00	795.48	-2,478.10	2,472.63	0.00	0.00	0.00
12,700.00	90.00	269.61	9,614.00	794.79	-2,578.10	2,572.63	0.00	0.00	0.00
12,800.00	90.00	269.61	9,614.00	794.11	-2,678.10	2,672.63	0.00	0.00	0.00
12,900.00	90.00	269.61	9,614.00	793.43	-2,778.10	2,772.63	0.00	0.00	0.00
13,000.00	90.00	269.61	9,614.00	792.75	-2,878.10	2,872.63	0.00	0.00	0.00
13,100.00	90.00	269.61	9,614.00	792.07	-2,978.09	2,972.63	0.00	0.00	0.00
13,200.00	90.00	269.61	9,614.00	791.39	-3,078.09	3,072.63	0.00	0.00	0.00
13,300.00	90.00	269.61	9,614.00	790.71	-3,178.09	3,172.63	0.00	0.00	0.00
13,400.00	90.00	269.61	9,614.00	790.03	-3,278.09	3,272.63	0.00	0.00	0.00
13,500.00	90.00	269.61	9,614.00	789.35	-3,378.08	3,372.63	0.00	0.00	0.00
13,600.00	90.00	269.61	9,614.00	788.67	-3,478.08	3,472.63	0.00	0.00	0.00
13,700.00	90.00	269.61	9,614.00	787.99	-3,578.08	3,572.63	0.00	0.00	0.00
13,800.00	90.00	269.61	9,614.00	787.31	-3,678.08	3,672.63	0.00	0.00	0.00
13,900.00	90.00	269.61	9,614.00	786.63	-3,778.07	3,772.63	0.00	0.00	0.00
14,000.00	90.00	269.61	9,614.00	785.95	-3,878.07	3,872.63	0.00	0.00	0.00
14,100.00	90.00	269.61	9,614.00	785.27	-3,978.07	3,972.63	0.00	0.00	0.00
14,200.00	90.00	269.61	9,614.00	784.58	-4,078.07	4,072.63	0.00	0.00	0.00
14,300.00	90.00	269.61	9,614.00	783.90	-4,178.07	4,172.63	0.00	0.00	0.00
14,400.00	90.00	269.61	9,614.00	783.22	-4,278.06	4,272.63	0.00	0.00	0.00
14,500.00	90.00	269.61	9,614.00	782.54	-4,378.06	4,372.63	0.00	0.00	0.00
14,600.00	90.00	269.61	9,614.00	781.86	-4,478.06	4,472.63	0.00	0.00	0.00
14,700.00	90.00	269.61	9,614.00	781.18	-4,578.06	4,572.63	0.00	0.00	0.00
14,800.00	90.00	269.61	9,614.00	780.50	-4,678.05	4,672.63	0.00	0.00	0.00
14,900.00	90.00	269.61	9,614.00	779.82	-4,778.05	4,772.63	0.00	0.00	0.00
15,000.00	90.00	269.61	9,614.00	779.14	-4,878.05	4,872.63	0.00	0.00	0.00
15,100.00	90.00	269.61	9,614.00	778.46	-4,978.05	4,972.63	0.00	0.00	0.00
15,200.00	90.00	269.61	9,614.00	777.78	-5,078.04	5,072.63	0.00	0.00	0.00
15,300.00	90.00	269.61	9,614.00	777.10	-5,178.04	5,172.63	0.00	0.00	0.00
15,400.00	90.00	269.61	9,614.00	776.42	-5,278.04	5,272.63	0.00	0.00	0.00
15,500.00	90.00	269.61	9,614.00	775.74	-5,378.04	5,372.63	0.00	0.00	0.00



Phoenix Planning Report



Database:	USAEDMDB	Local Co-ordinate Reference:	Well Chaos WC Federal Com 703H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3075.60usft (TBD)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3075.60usft (TBD)
Site:	Chaos WC Federal Com	North Reference:	Grid
Well:	Chaos WC Federal Com 703H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Permit Plan 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)
15,600.00	90.00	269.61	9,614.00	775.06	-5,478.04	5,472.63	0.00	0.00	0.00
15,700.00	90.00	269.61	9,614.00	774.37	-5,578.03	5,572.63	0.00	0.00	0.00
15,800.00	90.00	269.61	9,614.00	773.69	-5,678.03	5,672.63	0.00	0.00	0.00
15,900.00	90.00	269.61	9,614.00	773.01	-5,778.03	5,772.63	0.00	0.00	0.00
16,000.00	90.00	269.61	9,614.00	772.33	-5,878.03	5,872.63	0.00	0.00	0.00
16,100.00	90.00	269.61	9,614.00	771.65	-5,978.02	5,972.63	0.00	0.00	0.00
16,200.00	90.00	269.61	9,614.00	770.97	-6,078.02	6,072.63	0.00	0.00	0.00
16,300.00	90.00	269.61	9,614.00	770.29	-6,178.02	6,172.63	0.00	0.00	0.00
16,400.00	90.00	269.61	9,614.00	769.61	-6,278.02	6,272.63	0.00	0.00	0.00
16,500.00	90.00	269.61	9,614.00	768.93	-6,378.01	6,372.63	0.00	0.00	0.00
16,600.00	90.00	269.61	9,614.00	768.25	-6,478.01	6,472.63	0.00	0.00	0.00
16,700.00	90.00	269.61	9,614.00	767.57	-6,578.01	6,572.63	0.00	0.00	0.00
16,800.00	90.00	269.61	9,614.00	766.89	-6,678.01	6,672.63	0.00	0.00	0.00
16,900.00	90.00	269.61	9,614.00	766.21	-6,778.01	6,772.63	0.00	0.00	0.00
17,000.00	90.00	269.61	9,614.00	765.53	-6,878.00	6,872.63	0.00	0.00	0.00
17,100.00	90.00	269.61	9,614.00	764.85	-6,978.00	6,972.63	0.00	0.00	0.00
17,200.00	90.00	269.61	9,614.00	764.16	-7,078.00	7,072.63	0.00	0.00	0.00
17,300.00	90.00	269.61	9,614.00	763.48	-7,178.00	7,172.63	0.00	0.00	0.00
17,400.00	90.00	269.61	9,614.00	762.80	-7,277.99	7,272.63	0.00	0.00	0.00
17,500.00	90.00	269.61	9,614.00	762.12	-7,377.99	7,372.63	0.00	0.00	0.00
17,600.00	90.00	269.61	9,614.00	761.44	-7,477.99	7,472.63	0.00	0.00	0.00
17,700.00	90.00	269.61	9,614.00	760.76	-7,577.99	7,572.63	0.00	0.00	0.00
17,800.00	90.00	269.61	9,614.00	760.08	-7,677.98	7,672.63	0.00	0.00	0.00
17,900.00	90.00	269.61	9,614.00	759.40	-7,777.98	7,772.63	0.00	0.00	0.00
18,000.00	90.00	269.61	9,614.00	758.72	-7,877.98	7,872.63	0.00	0.00	0.00
18,100.00	90.00	269.61	9,614.00	758.04	-7,977.98	7,972.63	0.00	0.00	0.00
18,200.00	90.00	269.61	9,614.00	757.36	-8,077.97	8,072.63	0.00	0.00	0.00
18,300.00	90.00	269.61	9,614.00	756.68	-8,177.97	8,172.63	0.00	0.00	0.00
18,400.00	90.00	269.61	9,614.00	756.00	-8,277.97	8,272.63	0.00	0.00	0.00
18,500.00	90.00	269.61	9,614.00	755.32	-8,377.97	8,372.63	0.00	0.00	0.00
18,600.00	90.00	269.61	9,614.00	754.64	-8,477.97	8,472.63	0.00	0.00	0.00
18,700.00	90.00	269.61	9,614.00	753.95	-8,577.96	8,572.63	0.00	0.00	0.00
18,800.00	90.00	269.61	9,614.00	753.27	-8,677.96	8,672.63	0.00	0.00	0.00
18,900.00	90.00	269.61	9,614.00	752.59	-8,777.96	8,772.63	0.00	0.00	0.00
19,000.00	90.00	269.61	9,614.00	751.91	-8,877.96	8,872.63	0.00	0.00	0.00
19,100.00	90.00	269.61	9,614.00	751.23	-8,977.95	8,972.63	0.00	0.00	0.00
19,200.00	90.00	269.61	9,614.00	750.55	-9,077.95	9,072.63	0.00	0.00	0.00
19,300.00	90.00	269.61	9,614.00	749.87	-9,177.95	9,172.63	0.00	0.00	0.00
19,400.00	90.00	269.61	9,614.00	749.19	-9,277.95	9,272.63	0.00	0.00	0.00
19,500.00	90.00	269.61	9,614.00	748.51	-9,377.94	9,372.63	0.00	0.00	0.00
19,600.00	90.00	269.61	9,614.00	747.83	-9,477.94	9,472.63	0.00	0.00	0.00
19,700.00	90.00	269.61	9,614.00	747.15	-9,577.94	9,572.63	0.00	0.00	0.00
19,800.00	90.00	269.61	9,614.00	746.47	-9,677.94	9,672.63	0.00	0.00	0.00
19,900.00	90.00	269.61	9,614.00	745.79	-9,777.94	9,772.63	0.00	0.00	0.00
20,000.00	90.00	269.61	9,614.00	745.11	-9,877.93	9,872.63	0.00	0.00	0.00
20,100.00	90.00	269.61	9,614.00	744.43	-9,977.93	9,972.63	0.00	0.00	0.00
20,200.00	90.00	269.61	9,614.00	743.74	-10,077.93	10,072.63	0.00	0.00	0.00
20,300.00	90.00	269.61	9,614.00	743.06	-10,177.93	10,172.63	0.00	0.00	0.00
20,400.00	90.00	269.61	9,614.00	742.38	-10,277.92	10,272.63	0.00	0.00	0.00
20,500.00	90.00	269.61	9,614.00	741.70	-10,377.92	10,372.63	0.00	0.00	0.00
20,600.00	90.00	269.61	9,614.00	741.02	-10,477.92	10,472.63	0.00	0.00	0.00
20,700.00	90.00	269.61	9,614.00	740.34	-10,577.92	10,572.63	0.00	0.00	0.00
20,800.00	90.00	269.61	9,614.00	739.66	-10,677.91	10,672.63	0.00	0.00	0.00
20,900.00	90.00	269.61	9,614.00	738.98	-10,777.91	10,772.63	0.00	0.00	0.00



Phoenix Planning Report



Database:	USAEDMDB	Local Co-ordinate Reference:	Well Chaos WC Federal Com 703H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3075.60usft (TBD)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3075.60usft (TBD)
Site:	Chaos WC Federal Com	North Reference:	Grid
Well:	Chaos WC Federal Com 703H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Permit Plan 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)
21,000.00	90.00	269.61	9,614.00	738.30	-10,877.91	10,872.63	0.00	0.00	0.00
21,100.00	90.00	269.61	9,614.00	737.62	-10,977.91	10,972.63	0.00	0.00	0.00
21,200.00	90.00	269.61	9,614.00	736.94	-11,077.91	11,072.63	0.00	0.00	0.00
21,300.00	90.00	269.61	9,614.00	736.26	-11,177.90	11,172.63	0.00	0.00	0.00
21,400.00	90.00	269.61	9,614.00	735.58	-11,277.90	11,272.63	0.00	0.00	0.00
21,500.00	90.00	269.61	9,614.00	734.90	-11,377.90	11,372.63	0.00	0.00	0.00
21,600.00	90.00	269.61	9,614.00	734.21	-11,477.90	11,472.63	0.00	0.00	0.00
21,700.00	90.00	269.61	9,614.00	733.53	-11,577.89	11,572.63	0.00	0.00	0.00
21,800.00	90.00	269.61	9,614.00	732.85	-11,677.89	11,672.63	0.00	0.00	0.00
21,900.00	90.00	269.61	9,614.00	732.17	-11,777.89	11,772.63	0.00	0.00	0.00
22,000.00	90.00	269.61	9,614.00	731.49	-11,877.89	11,872.63	0.00	0.00	0.00
22,100.00	90.00	269.61	9,614.00	730.81	-11,977.88	11,972.63	0.00	0.00	0.00
22,200.00	90.00	269.61	9,614.00	730.13	-12,077.88	12,072.63	0.00	0.00	0.00
22,300.00	90.00	269.61	9,614.00	729.45	-12,177.88	12,172.63	0.00	0.00	0.00
22,400.00	90.00	269.61	9,614.00	728.77	-12,277.88	12,272.63	0.00	0.00	0.00
22,500.00	90.00	269.61	9,614.00	728.09	-12,377.88	12,372.63	0.00	0.00	0.00
22,600.00	90.00	269.61	9,614.00	727.41	-12,477.87	12,472.63	0.00	0.00	0.00
22,700.00	90.00	269.61	9,614.00	726.73	-12,577.87	12,572.63	0.00	0.00	0.00
22,800.00	90.00	269.61	9,614.00	726.05	-12,677.87	12,672.63	0.00	0.00	0.00
22,900.00	90.00	269.61	9,614.00	725.37	-12,777.87	12,772.63	0.00	0.00	0.00
23,000.00	90.00	269.61	9,614.00	724.69	-12,877.86	12,872.63	0.00	0.00	0.00
23,100.00	90.00	269.61	9,614.00	724.00	-12,977.86	12,972.63	0.00	0.00	0.00
23,200.00	90.00	269.61	9,614.00	723.32	-13,077.86	13,072.63	0.00	0.00	0.00
23,300.00	90.00	269.61	9,614.00	722.64	-13,177.86	13,172.63	0.00	0.00	0.00
23,400.00	90.00	269.61	9,614.00	721.96	-13,277.85	13,272.63	0.00	0.00	0.00
23,500.00	90.00	269.61	9,614.00	721.28	-13,377.85	13,372.63	0.00	0.00	0.00
23,600.00	90.00	269.61	9,614.00	720.60	-13,477.85	13,472.63	0.00	0.00	0.00
23,700.00	90.00	269.61	9,614.00	719.92	-13,577.85	13,572.63	0.00	0.00	0.00
23,800.00	90.00	269.61	9,614.00	719.24	-13,677.85	13,672.63	0.00	0.00	0.00
23,900.00	90.00	269.61	9,614.00	718.56	-13,777.84	13,772.63	0.00	0.00	0.00
24,000.00	90.00	269.61	9,614.00	717.88	-13,877.84	13,872.63	0.00	0.00	0.00
24,100.00	90.00	269.61	9,614.00	717.20	-13,977.84	13,972.63	0.00	0.00	0.00
24,200.00	90.00	269.61	9,614.00	716.52	-14,077.84	14,072.63	0.00	0.00	0.00
24,300.00	90.00	269.61	9,614.00	715.84	-14,177.83	14,172.63	0.00	0.00	0.00
24,400.00	90.00	269.61	9,614.00	715.16	-14,277.83	14,272.63	0.00	0.00	0.00
24,500.00	90.00	269.61	9,614.00	714.48	-14,377.83	14,372.63	0.00	0.00	0.00
24,600.00	90.00	269.61	9,614.00	713.79	-14,477.83	14,472.63	0.00	0.00	0.00
24,700.00	90.00	269.61	9,614.00	713.11	-14,577.82	14,572.63	0.00	0.00	0.00
24,800.00	90.00	269.61	9,614.00	712.43	-14,677.82	14,672.63	0.00	0.00	0.00
24,854.86	90.00	269.61	9,614.00	712.06	-14,732.68	14,727.49	0.00	0.00	0.00
TD at 24854.86									



Phoenix Planning Report



Database:	USAEDMDB	Local Co-ordinate Reference:	Well Chaos WC Federal Com 703H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3075.60usft (TBD)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3075.60usft (TBD)
Site:	Chaos WC Federal Com	North Reference:	Grid
Well:	Chaos WC Federal Com 703H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Permit Plan 1		

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
PPP-2 - Chaos WC F - plan misses target center by 0.42usft at 12083.95usft MD (9614.00 TVD, 798.99 N, -1962.06 E) - Point	0.00	0.00	9,614.00	798.57	-1,962.06	490,473.27	579,822.98	32° 20' 53.382571 N 04° 4' 29.475700 W	
PPP-5 - Chaos WC F - plan misses target center by 0.25usft at 17316.37usft MD (9614.00 TVD, 763.37 N, -7194.36 E) - Point	0.00	0.00	9,614.00	763.12	-7,194.36	490,437.82	574,590.68	32° 20' 53.152645 N 04° 5' 30.470895 W	
LTP/BHL - Chaos WC - plan hits target center - Point	0.00	0.00	9,614.00	712.06	-14,732.68	490,386.76	567,052.36	32° 20' 52.807116 N 04° 6' 58.348307 W	
PPP-3 - Chaos WC F - plan misses target center by 0.33usft at 14751.10usft MD (9614.00 TVD, 780.83 N, -4629.15 E) - Point	0.00	0.00	9,614.00	780.50	-4,629.15	490,455.20	577,155.89	32° 20' 53.266395 N 104° 5' 0.567131 W	
PPP-4 - Chaos WC F - plan misses target center by 0.28usft at 16033.74usft MD (9614.00 TVD, 772.10 N, -5911.76 E) - Point	0.00	0.00	9,614.00	771.82	-5,911.76	490,446.52	575,873.28	32° 20' 53.209865 N 04° 5' 15.519072 W	
FTP/PPP-1 - Chaos \ - plan misses target center by 80.22usft at 9779.74usft MD (9545.46 TVD, 814.59 N, 330.71 E) - Point	0.00	0.00	9,614.00	814.38	372.39	490,489.08	582,157.43	32° 20' 53.482448 N 104° 4' 2.261993 W	

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
186.60	186.60	Rustler		0.000	269.61
394.60	394.60	Salado		0.000	269.61
1,185.60	1,185.60	Castile		0.000	269.61
2,376.60	2,376.60	Base of Salt (BX)		0.000	269.61
2,612.60	2,612.60	Lamar		0.000	269.61
2,657.60	2,657.60	Bell Canyon		0.000	269.61
3,491.60	3,491.60	Cherry Canyon		0.000	269.61
4,724.42	4,716.60	Brushy Canyon		0.000	269.61
6,201.29	6,149.60	Bone Spring Lime		0.000	269.61
6,251.79	6,198.60	Upper Avalon Shale		0.000	269.61
7,274.16	7,190.60	1st Bone Spring Sand		0.000	269.61
7,527.69	7,436.60	2nd Bone Spring Carbonate		0.000	269.61
8,029.60	7,923.60	2nd Bone Spring Sand		0.000	269.61
8,406.07	8,289.60	3rd Bone Spring Carbonate		0.000	269.61
9,286.37	9,163.60	3rd Bone Spring Sand		0.000	269.61
9,645.51	9,468.60	Wolfcamp		0.000	269.61



Phoenix
Planning Report



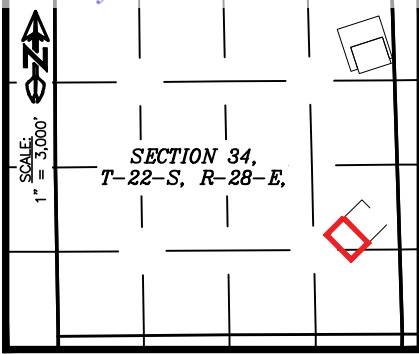
Database:	USAEDMDB	Local Co-ordinate Reference:	Well Chaos WC Federal Com 703H
Company:	Marathon Oil Permian LLC	TVD Reference:	RKB @ 3075.60usft (TBD)
Project:	Eddy County, NM (NAD27-NME)	MD Reference:	RKB @ 3075.60usft (TBD)
Site:	Chaos WC Federal Com	North Reference:	Grid
Well:	Chaos WC Federal Com 703H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Permit Plan 1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,995.00	3,995.00	0.00	0.00	KOP, Begin 2.00°/100' Build
4,695.00	4,688.05	65.13	54.76	Hold 14.00° Inc at 40.06° Azm
8,269.04	8,155.93	726.93	611.20	Begin 2.00°/100' Drop
9,232.86	9,110.87	816.62	627.65	KOP2, Begin 10.00°/100' Build
10,062.86	9,614.00	812.75	58.98	LP, Hold 90.00° Inc at 269.61° Azm
24,854.86	9,614.00	712.06	-14,732.68	TD at 24854.86

RIG LAYOUT

CHAOS FEDERAL COM
SEC. 34, TWP. 22-S, RGE. 28-E
SURVEY: N.M.P.M.

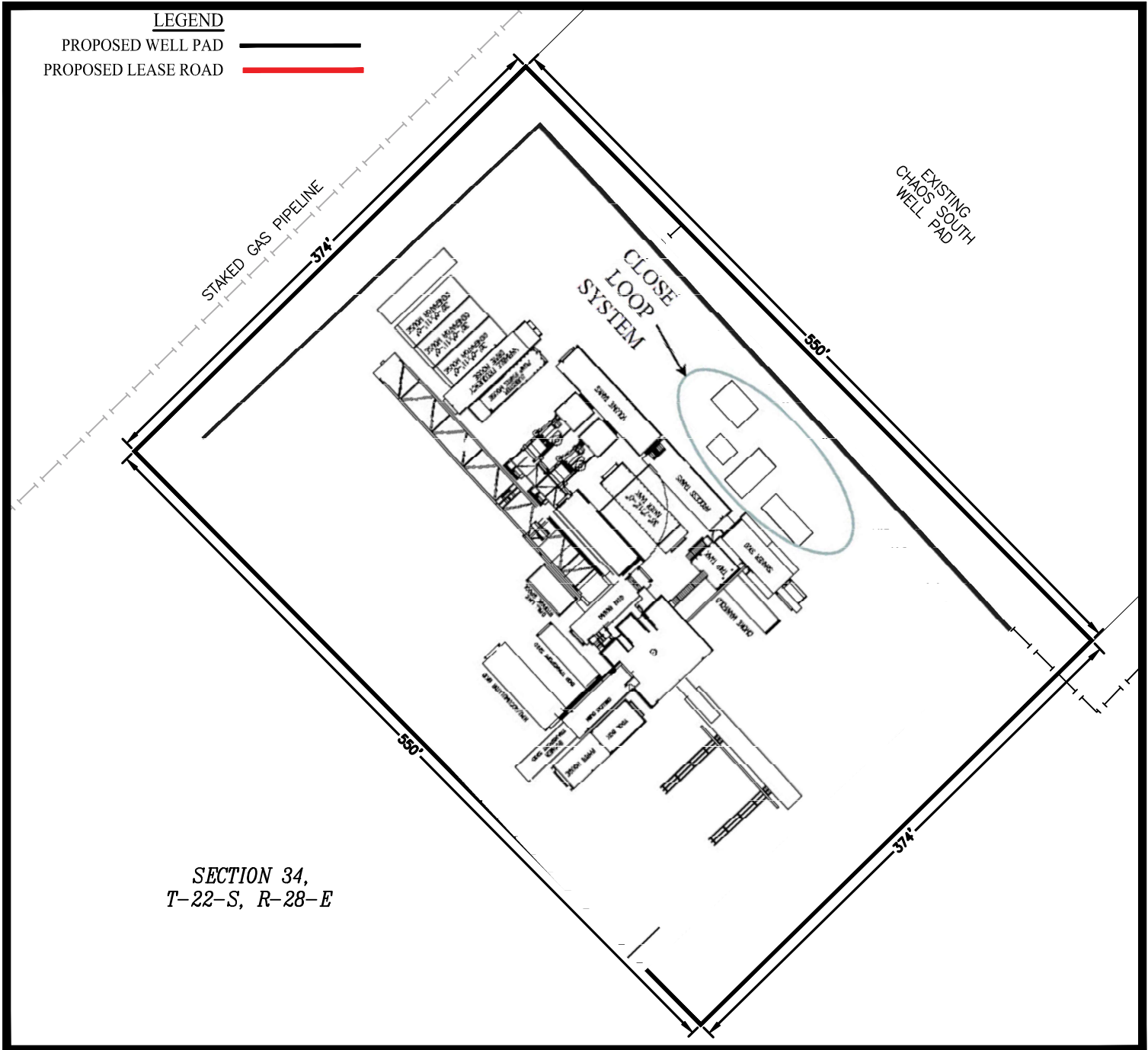
COUNTY: EDDY
OPERATOR: MARATHON OIL PERMIAN LLC
U.S.G.S. TOPOGRAPHIC MAP: LOVING, N.M.



50' 0' 50' 100'
SCALE: 1" = 100'

LEGEND

PROPOSED WELL PAD ———
PROPOSED LEASE ROAD ———



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.

1	04/10/2024	ANC
REV.	DATE	BY

SHEET 4 OF 5

PREPARED BY:
DELTA FIELD SERVICES, LLC
510 TRENTON ST.
WEST MONROE, LA 71291
318-323-6900 OFFICE
JOB No. R4099_005

MARATHON OIL PERMIAN, LLC.
DRILLING AND OPERATIONS PLAN



WELL NAME & NUMBER:

CHAOS WC FEDERAL COM 703H

LOCATION:

SECTION **34** TOWNSHIP **22S** RANGE **28E**
EDDY COUNTY, **NEW MEXICO**

Section 1:**GEOLOGICAL FORMATIONS**

Name of Surface Formation: Permian
 Elevation: 3052 feet

Estimated Tops of Important Geological Markers:

Formation	TVD (ft)	MD (ft)	Elevation (ft SS)	Lithologies	Mineral Resources	Producing Formation?
Rustler	196	223	2856	Anhydrite	Brine	No
Salado	404	431	2648	Salt/Anhydrite	Brine	No
Castile	1195	1222	1857	Salt/Anhydrite	Brine	No
Base of Salt (BX)	2386	2413	666	Salt/Anhydrite	Brine	No
Lamar	2622	2649	430	Sandstone/Shale	None	No
Bell Canyon	2667	2694	385	Sandstone	Oil	No
Cherry Canyon	3501	3528	-449	Sandstone	Oil	No
Brushy Canyon	4726	4753	-1674	Sandstone	Oil	No
Bone Spring Lime	6159	6186	-3107	Limestone	None	No
Upper Avalon Shale	6208	6235	-3156	Shale	Oil	Yes
1st Bone Spring Sand	7200	7227	-4148	Sandstone	Oil	Yes
2nd Bone Spring Carbonate	7446	7473	-4394	Limestone/Shale	None	No
2nd Bone Spring Sand	7933	7960	-4881	Sandstone	Oil	Yes
3rd Bone Spring Carbonate	8299	8326	-5247	Limestone	Oil	No
3rd Bone Spring Sand	9173	9200	-6121	Sandstone	Oil	Yes
Wolfcamp	9478	9505	-6426	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp A	9634	9661	-6582	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp B	9887	9914	-6835	Sandstone/Shale/Carbonates	Natural Gas / Oil	No
Wolfcamp C	10180	10207	-7128	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp D	10393	10420	-7341	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Strawn	11214	11241	-8162	Carbonates/Sands/Clays	Natural Gas	Possible

Section 2:**BLOWOUT PREVENTER TESTING PROCEDURE**

Pressure Rating (PSI): 10M
Rating Depth: 10000
Equipment: 13 5/8 BOP Annular (5,000 psi WP) and BOP Stack (10,000 psi WP) will be installed and tested before drilling all holes.

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

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

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

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

Marathon Oil Permian LLC.

Drilling & Operations Plan - Page 2 of 3

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	3052	2786	54.5	J55	BTC	5.22	1.81	BUOY	4.52	BUOY	4.52
Intermediate	12.25	9.625	0	9133	0	9011	3052	-5959	40	P110HC	BTC	1.20	1.42	BUOY	2.44	BUOY	2.44
Production	8.75	5.5	0	24855	0	9614	3052	-6562	23	P110HC	TLW	2.53	1.26	BUOY	2.22	BUOY	2.22

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

Safety Factors will Meet or Exceed

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

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

Section 4: CEMENT PROGRAM

String Type	Lead/Tail	Top MD	Bottom MD	Quantity (sks)	Yield (ft³/sks)	Density (ppg)	Slurry Volume (ft³)	Excess (%)	Cement Type	Additives
Surface	Lead	0	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	8633	1559	2.18	12.4	3398	25	Class C	Extender,Accelerator,LCM
Intermediate	Tail	8633	9133	147	1.33	14.8	196	25	Class C	Retarder
Production	Tail	8833	24855	3052	1.68	13	5127	25	Class H	Retarder, Extender, Fluid Loss, Suspension Agent

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

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

Plugging Procedure for Pilot Hole: N/A

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

Section 5:

CIRCULATING MEDIUM

Mud System Type: Closed
Will an air or gas system be used? No

Describe what will be on location to control well or mitigate other conditions:
The necessary mud products for additional weight and fluid loss control will be on location at all times.

Describe the mud monitoring system utilized:
Losses or gains in the mud system will be monitored visually/manually as well as with an electronic PVT.

Circulating Medium Table:

Top Depth	Bottom Depth	Mud Type	Min. Weight (ppg)	Max Weight (ppg)
0	293	Water Based Mud	8.4	8.8
293	9133	Brine or Oil Based Mud	9.2	10.2
9133	24855	Oil Based Mud	10.5	12.5

Section 6:

TESTING, LOGGING, CORING

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

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

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

Section 7:

ANTICIPATED PRESSURE

Anticipated Bottom Hole Pressure: 6249 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.

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

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

Section 1 – Plan Description**Effective May 25, 2021****I. Operator:** Marathon Oil Permian LLC **OGRID:** 972098 **Date:** 8 / 1 / 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
Chaos WC Fed Com 703H		I, 34-22S-28E	1497'S 726' E	1800	2800	5800
Chaos WC Fed Com 704H		I, 34-22S-28E	1518'S 747'E	1500	2400	4900

IV. Central Delivery Point Name: Chaos 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
Chaos WC Fed Com 703H		1/23/2025	3/1/2025	6/1/2025	7/1/2025	7/1/2025
Chaos WC Fed Com 704H		1/23/2025	3/1/2025	6/1/2025	7/1/2025	7/1/2025

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.

CONFIDENTIAL**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.

CONFIDENTIAL

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

Signature:	<i>Terri Stathem</i>
Printed Name:	Terri Stathem
Title:	Manager Regulatory Compliance
E-mail Address:	tstathem@marathonoil.com
Date:	8/1/2024
Phone:	713-817-0224
OIL CONSERVATION DIVISION (Only applicable when submitted as a standalone form)	
Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

CONFIDENTIAL**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.

CONFIDENTIAL**◆ 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.

BOP Break Test Variance Request

Executive Summary

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

BOP Break Test Variance Request

Background

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

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

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



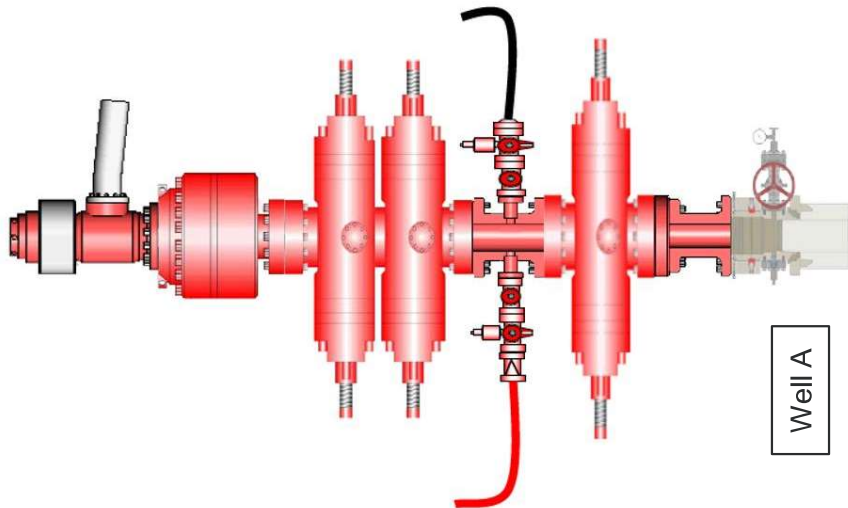
Procedures

Procedural Steps

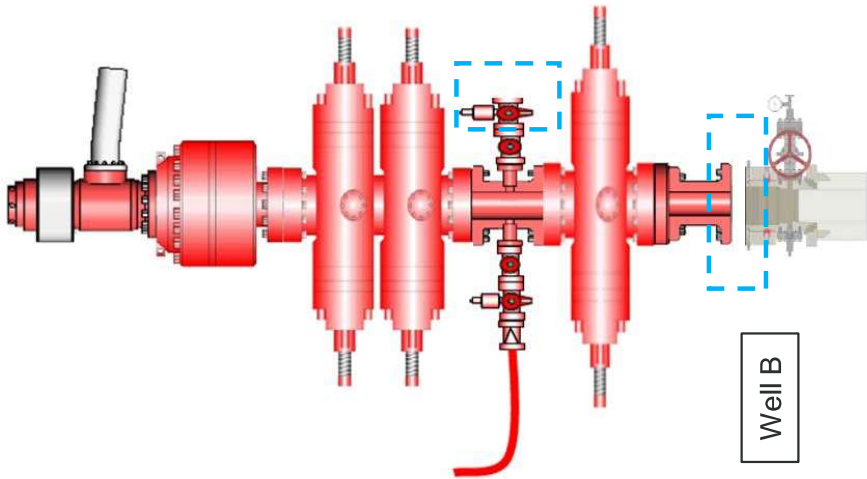
1. Marathon will use this document for break testing plan for New Mexico Delaware Basin.
2. Marathon will perform BOP break testing on well pads where multiple intermediate sections can be drilled and cased within the 21 day test window and will meet the following criteria:
 - a) A full BOP test will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

Sequence Diagram

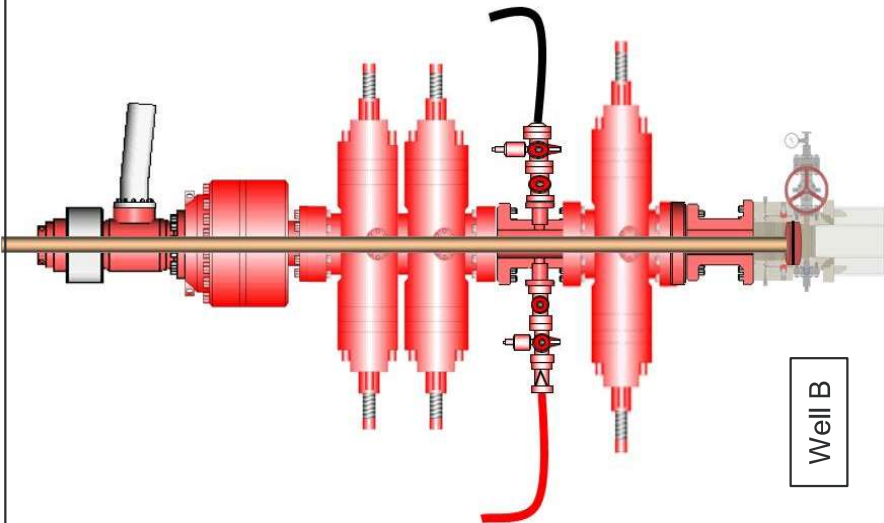
Well A: BOP installed on Well A



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

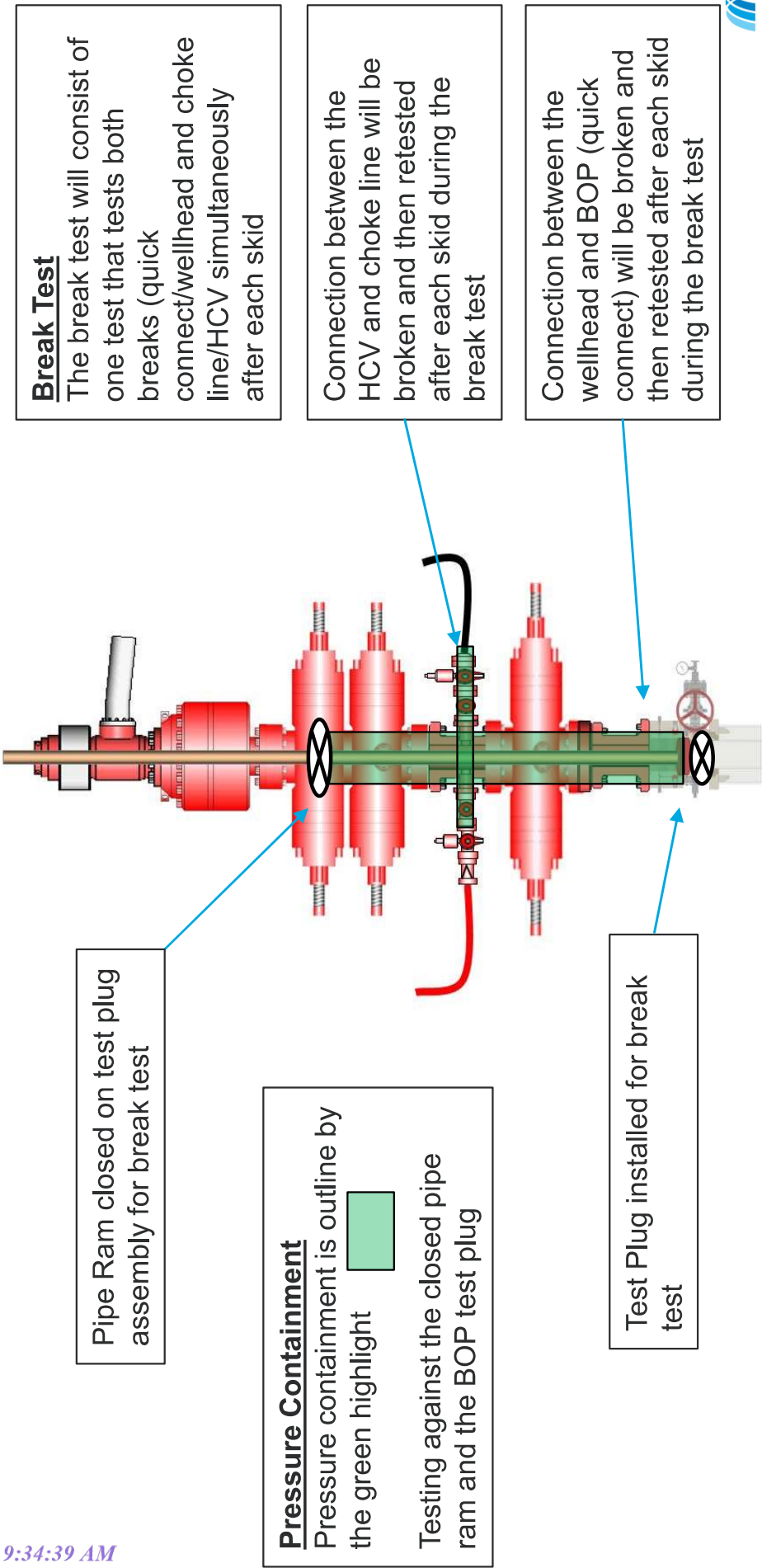


Well B: Quick connect and choke line
reconnected. Test plug installed.



Procedures

Diagram



Summary

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

1. DRILLING WELL CONTROL PLAN

1.1 WELL CONTROL - CERTIFICATIONS

Required IADC/IWCF Well Control Certifications Supervisor Level:

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

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

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

Well Control-Position/Roles

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

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

(Well Control-Positions/Roles Continued)

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

1.2 WELL CONTROL-COMPONENT AND PREVENTER COMPATIBILITY CHECKLIST

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

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

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

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

1.3 WELL CONTROL-BOP TESTING

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

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

1.4 WELL CONTROL - DRILLS

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

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

1.5 WELL CONTROL – MONITORING

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

Well Control-Monitoring (Continued)

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

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

1.6 WELL CONTROL – SHUT IN

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

2. SHUT-IN PROCEDURES:

2.1 PROCEDURE WHILE DRILLING

- Sound alarm (alert crew)

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

2.2 PROCEDURE WHILE TRIPPING

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

Procedure While Tripping (Continued)

- Time
- Kick Volume
- Pipe depth

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

2.3 PROCEDURE WHILE RUNNING CASING

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

2.4 PROCEDURE WITH NO PIPE IN HOLE (OPEN HOLE)

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

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

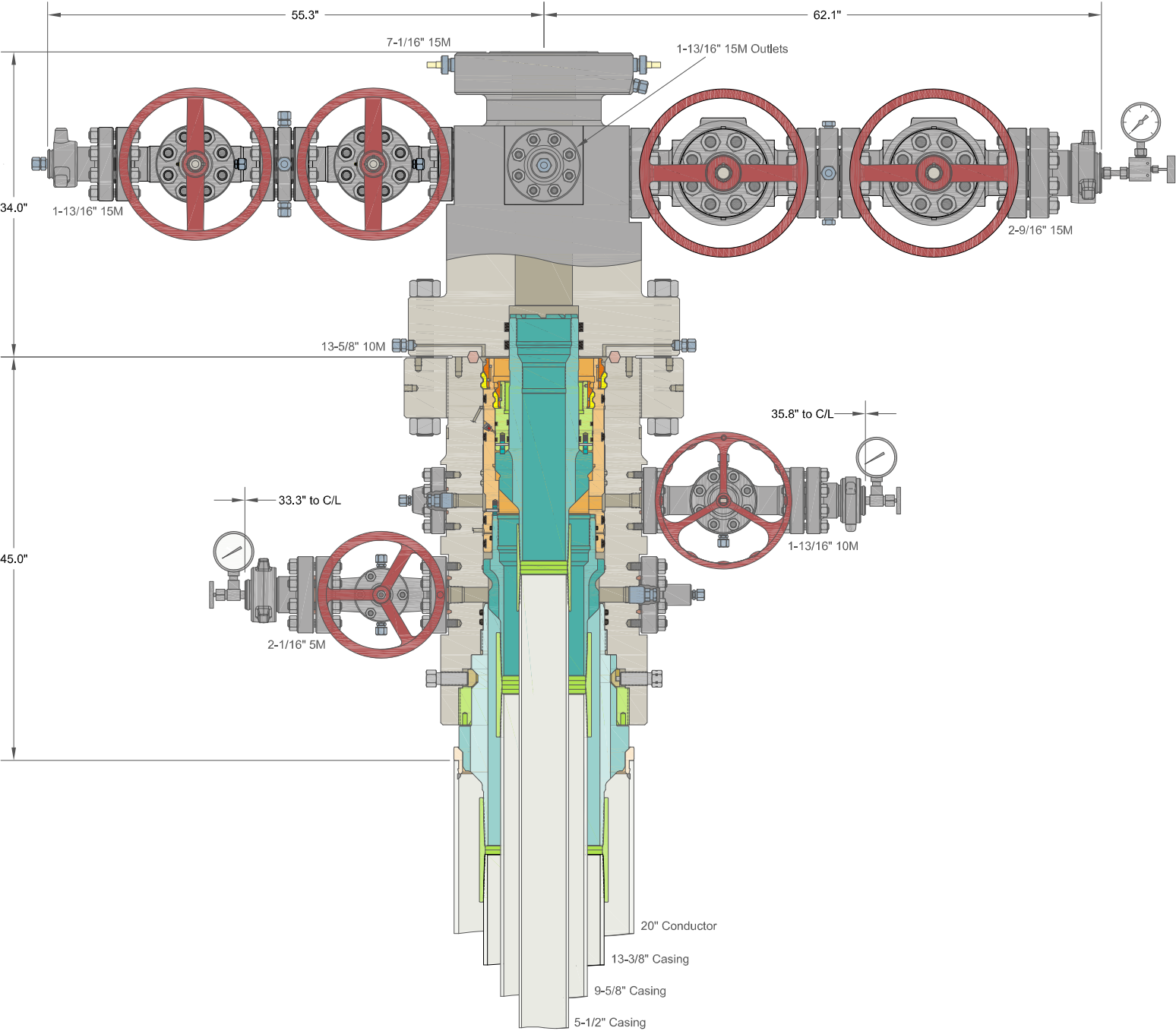
2.5 PROCEDURE WHILE PULLING BHA THRU STACK

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

Procedures While Pulling BHA thru Stack (Continued)

- Time
- Regroup and identify forward plan

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



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ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC

MARATHON OIL & GAS

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

DRAWN	DLE	20OCT21
APPRV		
DRAWING NO.	HBE0000621	

OFFLINE CEMENTING



SURFACE OFFLINE CEMENT JOB

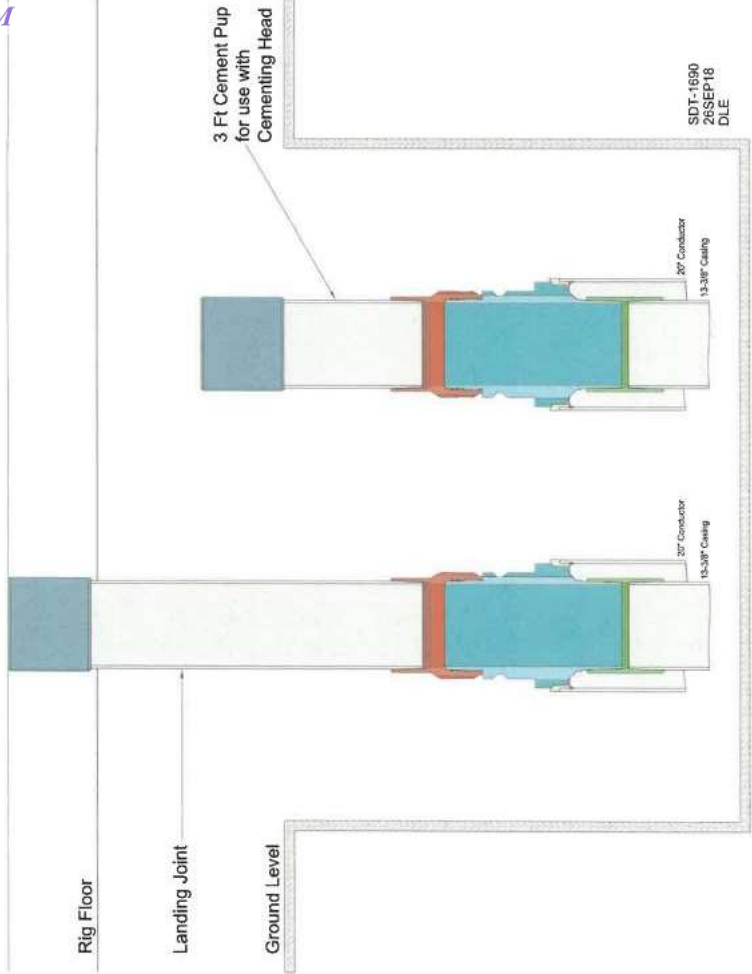


Offline Surface Cement Job

Procedure

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

CFL Off-Line Cementing Tool

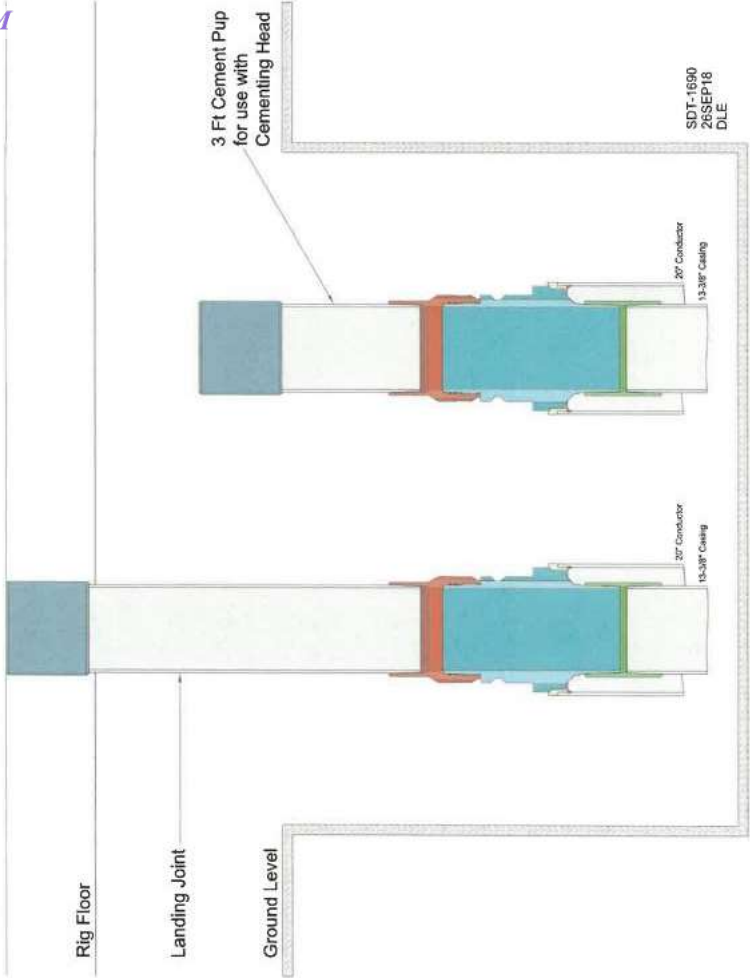


Offline Surface Cement Job

Requirements

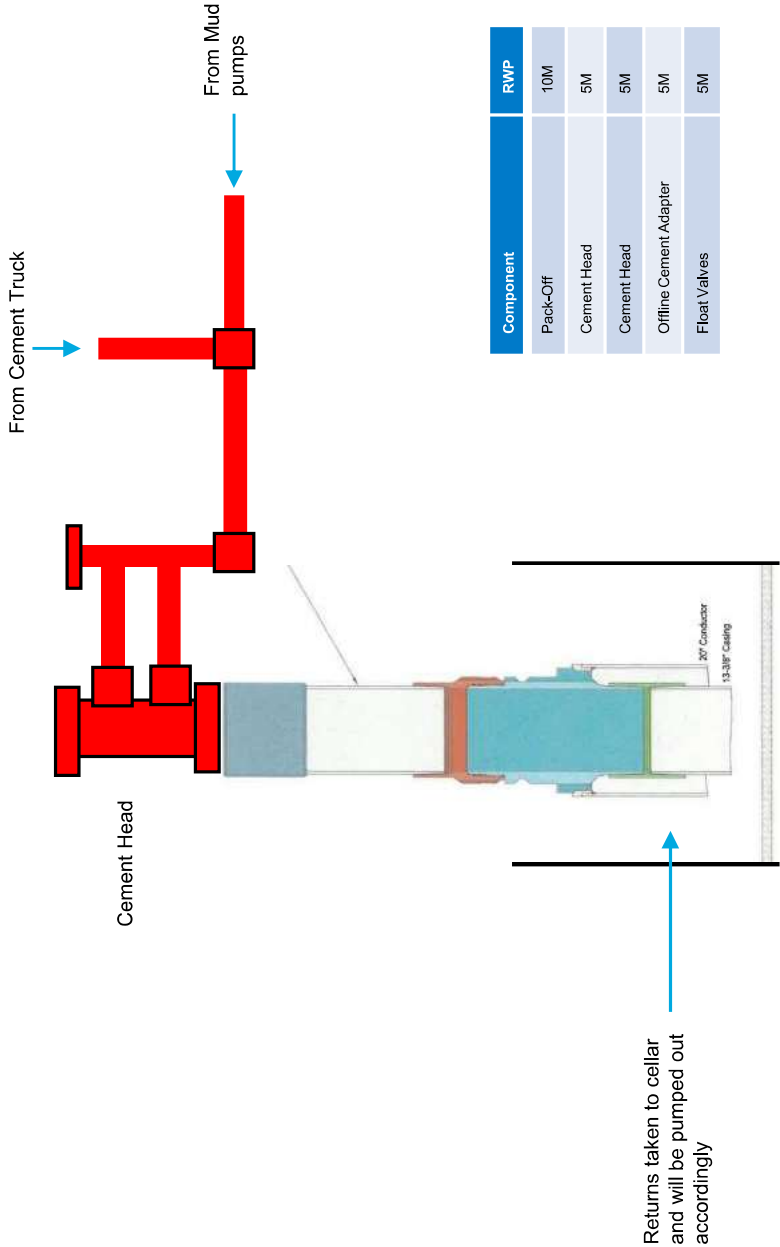
- 1. Confirm well is static and overbalanced
- 2. No wellbore instability
- 3. Successful casing run
- 4. Floats holding
- 5. No observed H2S during drilling
- 6. Cement job will be performed within 24hrs of moving off well

CFL Off-Line Cementing Tool



Offline Surface Cement Job

Diagram and P&ID





INTERMEDIATE OFFLINE CEMENT JOB

Offline Intermediate Cement Job

Procedure

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



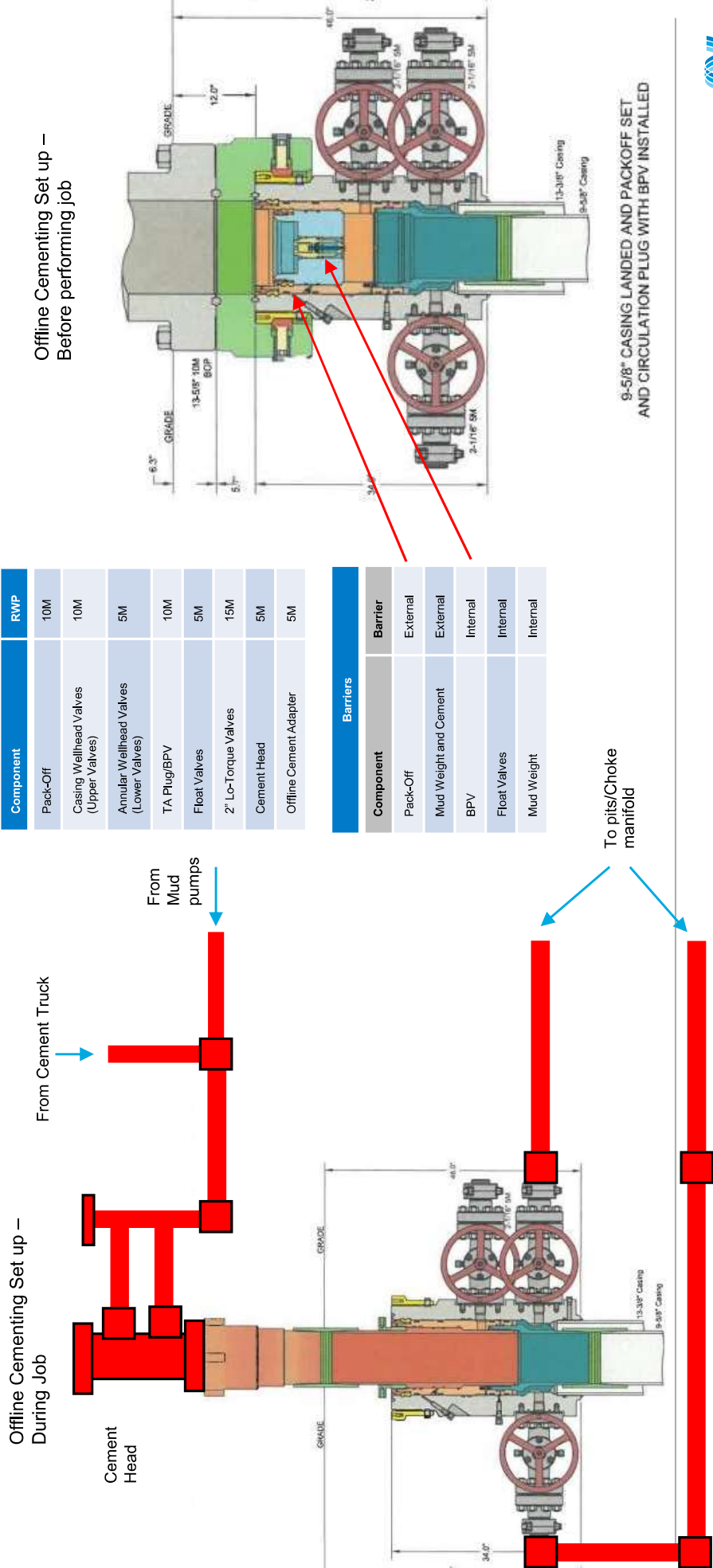
Offline Intermediate Cement Job

Requirements

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

Offline Intermediate Cement Job

Diagram and P&ID



Batch Drilling Plan

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

Request for Surface Rig

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



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.



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

Bond Info Data
11/22/2024

APD ID: 10400100120	Submission Date: 08/01/2024
Operator Name: MARATHON OIL PERMIAN LLC	
Well Name: CHAOS WC FEDERAL COM	Well Number: 703H
Well Type: OIL WELL	Well Work Type: Drill

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

Bond

Federal/Indian APD: FED

BLM Bond number: NMB001555

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information

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

WELL LOCATION INFORMATION

API Number 30-015-55803	Pool Code 98220	Pool Name Purple Sage; Wolfcamp (Gas)
Property Code 336080	Property Name Chaos WC Federal Com	Well Number 703H
OGRID No. 372098	Operator Name Marathon Oil Permian LLC	Ground Level Elevation 3052
Surface Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal		Mineral Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal

Surface Location

UL I	Section 34	Township 22S	Range 28E	Lot	Ft. from N/S 1497' S	Ft. from F/W 726' E	Latitude 32.346074	Longitude -104.069003	County Eddy
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Bottom Hole Location

UL I	Section 32	Township 22S	Range 28E	Lot	Ft. from N/S 2310' S	Ft. from F/W 330' W	Latitude 32.348122	Longitude -104.116706	County Eddy
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Dedicated Acres 1920	Infill or Defining Well INFILL	Defining Well API 504H	Overlapping Spacing Unit (YIN) Y	Consolidation Code C
Order Numbers. R-22673			Well setbacks are under Common Ownership: ☒ Yes ☐ No	

Kick Off Point (KOP)

UL I	Section 34	Township 22S	Range 28E	Lot	Ft. from N/S 2310' S	Ft. from F/W 330' E	Latitude 32.34831	Longitude -104.06779	County Eddy
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First Take Point (FTP)

UL I	Section 34	Township 22S	Range 28E	Lot	Ft. from N/S 2310' S	Ft. from F/W 330' E	Latitude 32.34831	Longitude -104.06779	County Eddy
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Last Take Point (LTP)

UL L	Section 21	Township 22S	Range 28E	Lot	Ft. from N/S 2310' S	Ft. from F/W 330' W	Latitude 32.348122	Longitude -104.116706	County Eddy
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Unitized Area or Area of Uniform Interest YES - COM AGREEMENT	Spacing Unit Type ☒ Horizontal ☐ Vertical	Ground Floor Elevation: 3052
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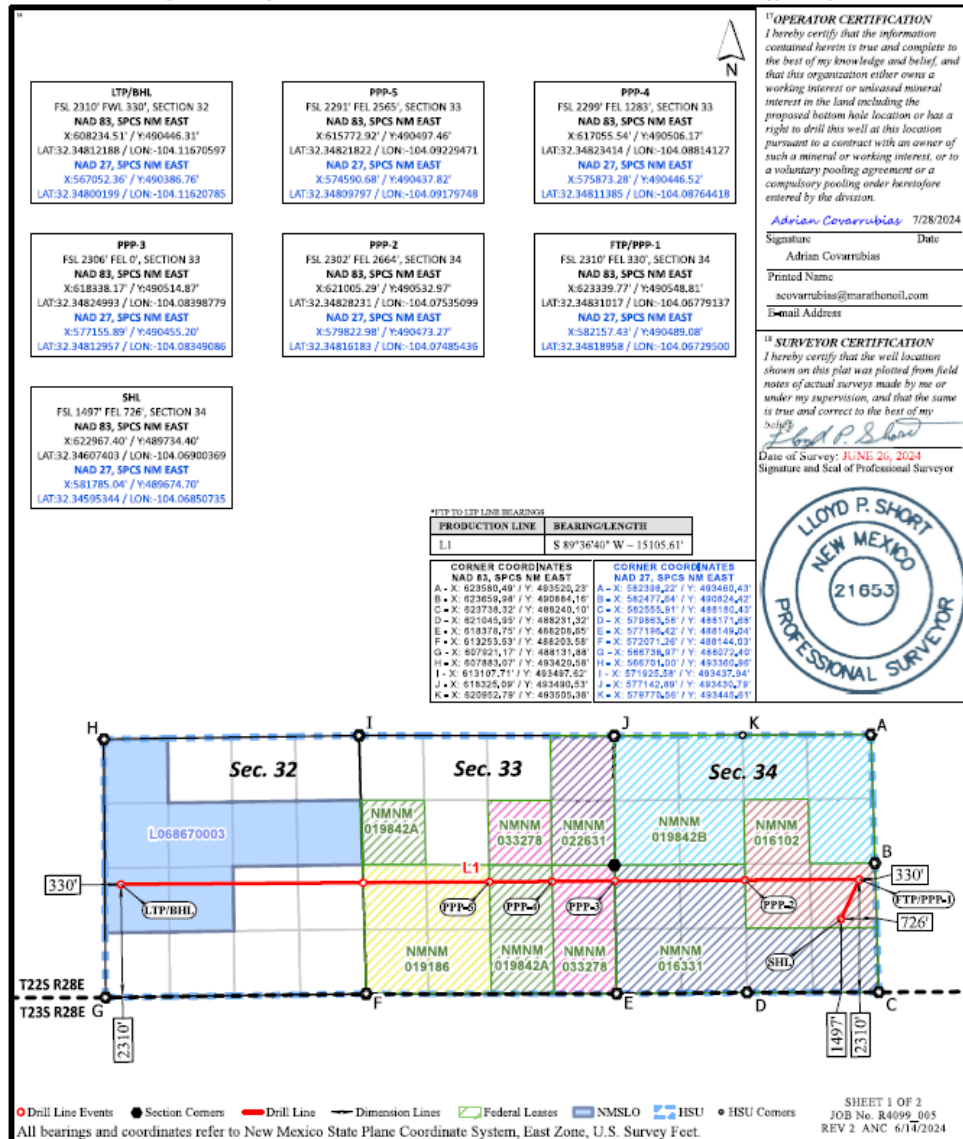
OPERATOR CERTIFICATIONS <i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and, if the well is a vertical or directional well, that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of a working interest or unleased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i> <i>If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.</i> 11/24/2024 Signature _____ Date _____ TERRI STATHEM Printed Name TSTATHEM@MARATHONOIL.COM Email Address	SURVEYOR CERTIFICATIONS <i>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief</i> Signature and Seal of Professional Surveyor _____ Certificate Number _____ Date of Survey _____
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Note: No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

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

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

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



Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
<https://www.emnrd.nm.gov/oed/contact-us>

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

CONDITIONS

Action 406522

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 406522
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
stathemt22	Cement is required to circulate on both surface and intermediate1 strings of casing.	11/25/2024
stathemt22	If cement does not circulate on any string, a Cement Bond Log (CBL) is required for that string of casing.	11/25/2024
ward.rikala	Notify the OCD 24 hours prior to casing & cement.	12/8/2024
ward.rikala	File As Drilled C-102 and a directional Survey with C-104 completion packet.	12/8/2024
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.	12/8/2024
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.	12/8/2024