Form 3160-3
(June 2015)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM138837

6. If Indian, Allotee or Tribe Name:

1a. Type of work: ☑ DRILL ☐ REENTER

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

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

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

8. Lease Name and Well No.: HEGEMON 21 WB FEDERAL 24H

2. Name of Operator: MARATHON OIL PERMIAN LLC

9. API Well No: 30-015-53914

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

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

10. Field and Pool, or Exploratory: PURPLE SAGE/BONE SPRING (OIL)

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

At surface: NWNW / 475 FNL / 693 FWL / LAT 32.0198587 / LONG -103.9956906

At proposed prod. zone: NENW / 330 FNL / 1374 FWL / LAT 32.0346062 / LONG -103.9937952

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 28/T26S/R29E/NMP

14. Distance in miles and direction from nearest town or post office*: 27 miles

12. County or Parish: EDDY

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 475 feet

16. No of acres in lease:

17. Spacing Unit dedicated to this well: 320.0

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 2000 feet

19. Proposed Depth: 10072 feet / 14710 feet

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

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 2897 feet

22. Approximate date work will start*: 05/31/2020

23. Estimated duration: 29 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)*: MELISSA SZUDERA / Ph: (713) 929-6600

Date: 08/15/2019

Title: REGULATORY COMPLIANCE REPRESENTATIVE

Approved by *(Signature)*: (Electronic Submission)

Name *(Printed/Typed)*: CODY LAYTON / Ph: (575) 234-5959

Date: 05/23/2023

Title: Assistant Field Manager Lands & Minerals

Office: Carlsbad Field Office

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

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

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 05/23/2023

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-015-53914	98220	PURPLE SAGE; WOLFCAMP (GAS)

[4] Property Code	[5] Property Name	[6] Well Number
334186	HEGEMON 21 WB FEDERAL	24H

[7] OGRID No.	[8] Operator Name	[9] Elevation
372098	MARATHON OIL PERMIAN LLC	2897'

[10] Surface Location

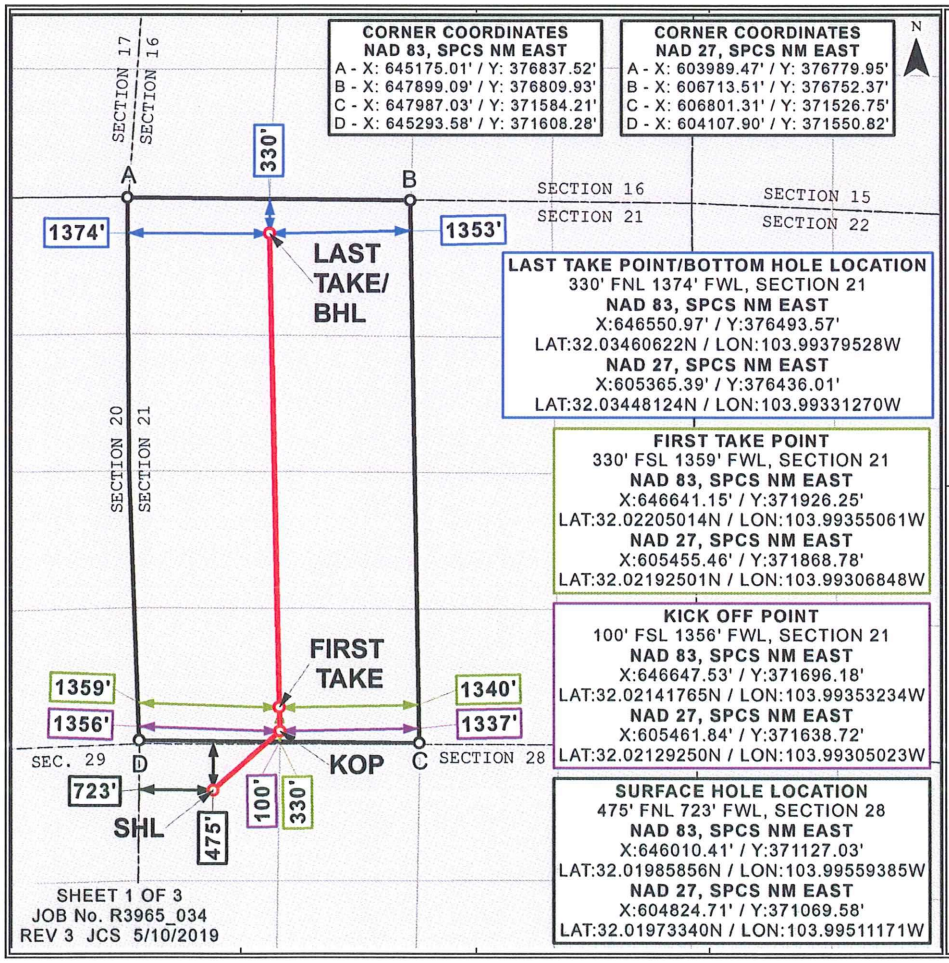
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	28	26S	29E		475	NORTH	723	WEST	EDDY

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	21	26S	29E		330	NORTH	1374	WEST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
320.0			

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.



[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.

Signature — Date: 07/22/2019

MELISSA SZUDERA
Printed Name

mszudera@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.

MAY 20, 2019
Date of Survey

Signature and Seal of Professional Surveyor:

LLOYD P. SHORT NEW MEXICO 21653 PROFESSIONAL SURVEYOR

Certificate Number
LLOYD P. SHORT 21653

Distances/areas relative to NAD 83 Combined Scale Factor: 0.99978647 Convergence: 00°10'35.69608"

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

NATURAL GAS MANAGEMENT PLAN

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

Section 1 – Plan Description

Effective May 25, 2021

I. Operator: MARATHON OIL PERMIAN, LLC. **OGRID:** 372098 **Date:** 06 / 12 / 2023

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.
If Other, please describe:

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

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
See Attached						

IV. Central Delivery Point Name: Blue Steel WD Fee 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
See Attached						

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

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

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

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

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

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

IX. Anticipated Natural Gas Production:

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

X. Natural Gas Gathering System (NGGS):

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

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

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

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

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

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

Section 3 - Certifications

Effective May 25, 2021

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

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

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

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

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

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

Section 4 - Notices

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

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

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

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

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

Signature:	*Thomas Moore*
Printed Name:	Thomas Moore
Title:	Regulatory and Land Technician
E-mail Address:	tmoore@marathonoil.com
Date:	6/13/2023
Phone:	

OIL CONSERVATION DIVISION **(Only applicable when submitted as a standalone form)**	
Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

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.

Section III Wells

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
HEGEMON 21 WA FEDERAL 22H		D-28-26S-29E	475 FNL 663 FNL	2700	5200	4900
HEGEMON 21 WA FEDERAL 25H		D-28-26S-29E	475 FNL 663 FNL	2700	5200	4900
HEGEMON 21 WA FEDERAL 30H		D-28-26S-29E	475 FNL 663 FNL	2700	5200	4900
Hegemon 21 WA Federal 16H		D-28-26S-29E	475 FNL 663 FNL	2700	5200	4900
Hegemon 21 WB Federal 21H		D-28-26S-29E	475 FNL 663 FNL	2700	5200	4900
Hegemon 21 WB Federal 24H		D-28-26S-29E	475 FNL 663 FNL	2700	5200	4900
Hegemon 21 WB Federal 29H		D-28-26S-29E	475 FNL 663 FNL	2700	5200	4900
Hegemon 21 WD Federal 18H		D-28-26S-29E	475 FNL 663 FNL	2700	5200	4900
Hegemon 21 WD Federal 23H		D-28-26S-29E	475 FNL 663 FNL	2700	5200	4900
Hegemon 21 WD Federal 26H		D-28-26S-29E	475 FNL 663 FNL	2700	5200	4900
Hegemon 21 WD Federal 31H		D-28-26S-29E	475 FNL 663 FNL	2700	5200	4900

Section V Inticipated Schedule

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
HEGEMON 21 WA FEDERAL 22H		1/20/2025	2/20/2025	8/20/2025	9/25/2025	9/25/2025
HEGEMON 21 WA FEDERAL 25H		2/20/2025	3/20/2025	9/20/2025	10/25/2025	10/25/2025
HEGEMON 21 WA FEDERAL 30H		3/20/2025	4/20/2025	10/20/2025	11/25/2025	11/25/2025
Hegemon 21 WA Federal 16H		4/20/2025	5/20/2025	11/20/2025	12/25/2025	12/25/2025
Hegemon 21 WB Federal 21H		5/20/2025	6/20/2025	12/20/2025	1/25/2026	1/25/2026
Hegemon 21 WB Federal 24H		6/20/2025	7/20/2025	1/20/2026	2/25/2026	2/25/2026
Hegemon 21 WB Federal 29H		7/20/2025	8/20/2025	2/20/2026	3/25/2026	3/25/2026
Hegemon 21 WD Federal 18H		8/20/2025	9/20/2025	3/20/2026	4/25/2026	4/25/2026
Hegemon 21 WD Federal 23H		9/20/2025	10/20/2025	4/20/2026	5/25/2026	5/25/2026
Hegemon 21 WD Federal 26H		10/20/2025	11/20/2025	5/20/2026	6/25/2026	6/25/2026
Hegemon 21 WD Federal 31H		11/20/2025	12/20/2025	6/20/2026	7/25/2026	7/25/2026

AFMSS

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

Drilling Plan Data Report
06/07/2023

APD ID: 10400045853 **Submission Date:** 08/15/2019

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: HEGEMON 21 WB FEDERAL **Well Number:** 24H

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical	Measured Depth	Lithologies	Mineral Resources	Producing Formatio
514698	RUSTLER	2539	358	358	ANHYDRITE, DOLOMITE	OTHER : Brine	N
514699	CASTILE	1568	971	971	DOLOMITE, SALT	OTHER : BRINE	N
514700	BASE OF SALT	-34	2573	2580	LIMESTONE, SANDSTONE	OTHER : BRINE	N
514701	LAMAR	-136	2675	2683	SANDSTONE, SHALE	NONE	N
514702	DELAWARE	-165	2704	2713	SANDSTONE, SHALE	OIL	N
514703	BONE SPRING	-3968	6507	6575	OTHER, SANDSTONE : CARBONATE	OIL	N
514704	WOLFCAMP	-7133	9672	9746	OTHER, SANDSTONE, SHALE : CARBONATES	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 15000

Equipment: 13 5/8 5M Annular and BOP Stack will be installed and tested for the 12 1/4", 8 3/4", and 6 1/8" sections. Check and kill valve will meet or exceed minimum BOP requirements.
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 50% of the working pressure (5,000) by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table 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.

Choke Diagram Attachment:

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: HEGEMON 21 WB FEDERAL **Well Number:** 24H

DRILL_2_CHOKE___22H_25H_30H_21H_24H_29H___5M_10M.TWO_CHOKE_MANIFOLD.BLM.r1_20201104092536.pdf

DRILL_2_CHOKE___22H_25H_30H_21H_24H_29H___Choke_Line_Flex_III_Rig_20201104092536.pdf

DRILL_2_CHOKE___22H_25H_30H_21H_24H_29H___Contitech_Hose_SN_663393_20201104092537.pdf

DRILL_2_CHOKE___22H_25H_30H_21H_24H_29H___Choke_Line_Test_Chart_SN_63393_20201104092537.pdf

BOP Diagram Attachment:

DRILL_2_BOP___22H_25H_30H_21H_24H_29H___Marathon_Permian___Drilling_Well_Control_Plan_06_05_2018_20201104092608.pdf

DRILL_2_BOP___22H_25H_30H_21H_24H_29H___5M_Flex.BOPE_x_5M_ANNULAR.BLM.r1_20201104092608.pdf

DRILL_2_BOP___22H_25H_30H_21H_24H_29H_WH_TH_DESIGN_1B__5K_10K_7in__20201104092608.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	370	0	370	2897	2527	370	J-55	54.5	ST&C	5.52	2.5	BUOY	2.5	BUOY	2.5
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	2700	0	2691	2901	206	2700	J-55	36	LT&C	1.74	1.15	BUOY	2.19	BUOY	2.19
3	INTERMEDIATE	8.75	7.0	NEW	API	N	0	10490	0	10085	2901	-7188	10490	P-110	29	BUTT	2.21	1.18	BUOY	1.9	BUOY	1.9
4	PRODUCTION	6.125	4.5	NEW	API	N	10190	14710	10011	10072	-7114	-7175	4520	P-110	13.5	BUTT	1.33	1.56	BUOY	1.88	BUOY	1.88

Casing Attachments

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: HEGEMON 21 WB FEDERAL **Well Number:** 24H

Casing Attachments

Casing ID: 1 **String** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

DRILL_3___22H_25H_30H_21H_24H_29H____Malaga_WC_3_String___Liner___Surface_20190813083022.pdf

Casing ID: 2 **String** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

DRILL_3___22H_25H_30H_21H_24H_29H____Malaga_WC_3_String___Liner___Intermediate_20190813083049.pdf

Casing ID: 3 **String** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

DRILL_3___22H_25H_30H_21H_24H_29H___Malaga_WC_3_String___Liner___Intermediate_II_20190813083138.pdf

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: HEGEMON 21 WB FEDERAL **Well Number:** 24H

Casing Attachments

Casing ID: 4 **String** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

DRILL_3___22H_25H_30H_21H_24H_29H____Malaga_WC_3_String___Liner___Liner_20190813083219.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	0	0	1.73	13.5	0	0	Class C	LCM
SURFACE	Tail		0	370	386	14.8	1.33	514	100	CLASS C	N/A
PRODUCTION	Lead		0	0	0	0	0	0	0	N/A, TAIL ONLY.	N/A, TAIL ONLY.
PRODUCTION	Tail		10190	14710	454	14.5	1.22	553	30	CLASS H	RETARDER, EXTENDER, FLUID LOSS, DISPERSANT.
INTERMEDIATE	Lead		0	1700	422	2.21	12.8	932	75	CLASS C	EXTENDER, ACCELERATOR.
INTERMEDIATE	Tail		1700	2700	353	14.8	1.33	470	50	CLASS C	RETARDER
INTERMEDIATE	Lead		2400	9400	557	3.21	11	1789	70	CLASS C	VISCOSIFIER, RETARDER
INTERMEDIATE	Tail		9400	10490	185	13.8	1.15	213	30	CLASS H	EXTENDER, FLUID LOSS, DISPERSANT.

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: HEGEMON 21 WB FEDERAL **Well Number:** 24H

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	370	WATER-BASED MUD	8.4	8.8							
370	2700	OTHER : BRINE	9.9	10.2							
2700	10490	OTHER : CUT BRINE	8.8	9.8							
10490	14710	OIL-BASED MUD	10.5	12.5							

Section 6 - Test, Logging, Coring

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

None planned.

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

GAMMA RAY LOG,

Coring operation description for the well:

None Planned.

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: HEGEMON 21 WB FEDERAL **Well Number:** 24H

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6555 **Anticipated Surface Pressure:** 4339

Anticipated Bottom Hole Temperature(F): 195

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

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations

DRILL_7___22H_25H_30H_21H_24H_29H___H2S_Contiengency_Plan_Summary_20190813083700.pdf

DRILL_7___22H_25H_30H_21H_24H_29H___Hegemon_21_Fed___H2S_Contingency_Plan_05_2019_20190813083711.pdf

DRILL_7___22H_25H_30H_21H_24H_29H___Pad_Flex_III_Rev1_20190813083721.pdf

DRILL_7___GCP___22H_25H_30H_21H_24H_29H___HEGEMON_21_FED_20190813083734.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

DRILL_8_PD___Marathon_Hegemon21WB24H_PrelimA_36x48WM_20200902132855.pdf

DRILL_8_PD___Marathon_Hegemon21WB24H_PrelimA_WPReport_20200902132913.pdf

DRILL_8_PD_update_HEGEMON_21_WB_FED_24H___DRILL_PLAN_rev1_20201012175513.pdf

DRILL_8_PD_updated_HEGEMON_Surface_Lease_Ownership_Map_20201012175602.pdf

Other proposed operations facets description:

- 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.

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.
- No abnormal temperatures or pressures are anticipated. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.
- No losses are anticipated at this time.
- All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well.
- Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

NOTE: SECTION 4 (CEMENT) THE TAIL YIELD AND DENSITY KEEP SWAPPING IN THE AFMSS

Operator Name: MARATHON OIL PERMIAN LLC

Well Name: HEGEMON 21 WB FEDERAL **Well Number:** 24H

PROGRAM WHEN I NAVIGATE PAST THE PAGE. PLEASE SEE ATTACHED DRILL PLAN FOR CEMENT DETAILS.

Other proposed operations facets attachment:

DRILL_8_OF___22H_25H_30H_21H_24H_29H___Batch_Drilling_Plan_and_Surface_Rig_Request_20190813083755.pdf

Other Variance attachment:

- **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.

the working pressure listed in the table 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.

Y	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.
Y	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.
N	Are anchors required by manufacturer?
Y	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.

3. CASING PROGRAM

String Type	Hole Size	Csg Size	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Weight (lbs/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
Surface	17 1/2	13 3/8	0	370	0	370	2897	2527	54.5	J55	STC	5.52	2.5	2.5
Intermediate I	12 1/4	9 5/8	0	2700	0	2691	2897	206	36	J55	LTC	1.74	1.15	2.19
Intermediate II	8 3/4	7	0	10490	0	10085	2897	-7188	29	P110	BTC	2.21	1.18	1.9
Production Liner	6 1/8	4 1/2	10190	14710	10011	10072	-7114	-7175	13.5	P110	BTC	1.33	1.56	1.88

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

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N

MARATHON OIL PERMIAN LLC
DRILLING AND OPERATIONS PLAN
WELL NAME / NUMBER: HEGEMON 21 WB FEDERAL 24H
STATE: NEW MEXICO **COUNTY:** EDDY

Application Data Report

3. WELL LOCATION TABLE

Traverse Segment	Latitude NAD83	Longitude NAD83	Elevation (ft SS)	MD (RKB)	TVD (RKB)	Lease Serial	NS Foot	NS Indicator	EW Foot	EW Indicator	TWSP	Range	Section	Aliquot/Lot	Lease Type
SHL	32.01985877	-103.9956906	2897	0	0	NMNM138607	475	FNL	693	FWL	26S	29E	28	NWNW	P
KOP	32.02142894	-103.9946301	-6616	9585	9513	NMNM138837	100	FSL	1017	FWL	26S	29E	21	SWSW	F
FTP	32.02206144	-103.9946483	-7079	10124	9976	NMNM138837	330	FSL	1019	FWL	26S	29E	21	SWSW	F
BHL	32.03460622	-103.99379528	-7175	14710	10072	NMNM138837	330	FNL	1374	FWL	26S	29E	21	NENW	F

Drilling Plan Data Report

1. GEOLOGIC FORMATIONS

Formation	True Vertical Depth (ft)	Measured Depth (ft)	Lithologies	Mineral Resources
Rustler	358.0	358.0	Salt/Anhydrite	BRINE
Castile	971.0	971.0	Salt/Anhydrite	BRINE
Base of Salt	2573.0	2579.8	Limy Sands	BRINE
Lamar	2675.0	2683.4	Sand/Shales	NONE
Delaware	2704.0	2712.8	Sands/Shale	OIL
Bone Spring	6507.0	6574.5	Sands/Carbonates	OIL
Wolfcamp	9672.0	9746.3	Carbonates/Shales/Sands	OIL

2. BLOWOUT PREVENTION

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12 ¼"	13 5/8	5000	Annular	x	50% of working pressure
			BOP Stack	x	5000
8 ¾"	13 5/8	5000	Annular	x	50% of working pressure
			BOP Stack	x	5000
6 1/8"	13 5/8	5000	Annular	x	50% of working pressure
			BOP Stack	x	5000

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to

If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

4. CEMENT

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity (sks)	Yield (ft3/sks)	Density (ppg)	Slurry Volume (ft3)	Excess (%)	Cement Type	Additives
Surface	Lead	--	0	0	0	1.73	13.5	0	100	Class C	LCM
Surface	Tail	--	0	370	386	1.33	14.8	514	100	Class C	N/A
Intermediate I	Lead	--	0	1700	422	2.21	12.8	932	75	Class C	Extender, Accelerator
Intermediate I	Tail	--	1700	2700	353	1.33	14.8	470	50	Class C	Retarder
Intermediate II	Lead	--	2400	9400	557	3.21	11	1789	70	Class C	Viscosifier, Retarder
Intermediate II	Tail	--	9400	10490	185	1.15	13.8	213	30	Class H	Extender, Fluid Loss, Dispersant
Production Liner	Tail	--	10190	14710	454	1.22	14.5	553	30	Class H	Retarder, Extender, Fluid Loss, Dispersant

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 depth: N/A TVD/MD
KOP: N/A TVD/MD

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

Attach plugging procedure for pilot hole: N/A

5. CIRCULATING MEDIUM

Top Depth	Bottom Depth	Mud Type	Min. Weight (ppg)	Max. Weight (ppg)
0	370	Water Based Mud	8.4	8.8
370	2700	Brine	9.9	10.2
2700	10490	Cut Brine	8.8	9.8
10490	14710	Oil Based mud	10.5	12.5

Losses or gains in the mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times.

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 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:
No coring is planned at this time.

Mud Logger: None.
DST's: None.
Open Hole Logs: GR while drilling from Intermediate casing shoe to TD.

7. PRESSURE

ANTICIPATED BOTTOM HOLE PRESSURE: 6,555 psi

ANTICIPATED BOTTOM HOLE TEMPERATURE: 195°F

ANTICIPATED ABNORMAL PRESSURE: N

ANTICIPATED ABNORMAL TEMPERATURE: N

POTENTIAL HAZARDS:

A. 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.

B. No abnormal temperatures or pressures are anticipated. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

C. No losses are anticipated at this time.

D. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well.

E. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

8. OTHER

If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

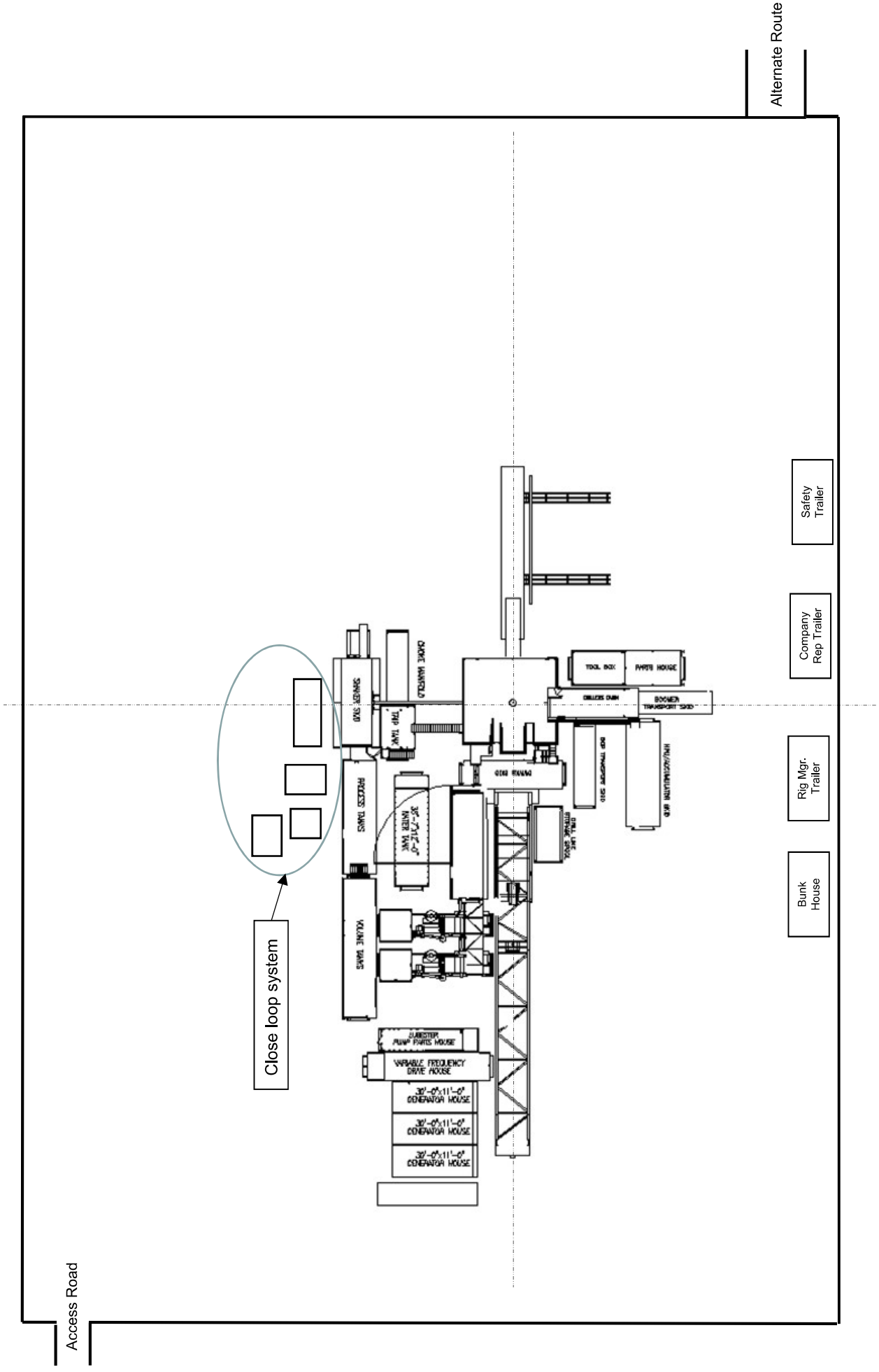
Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

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

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.
ZS 051121

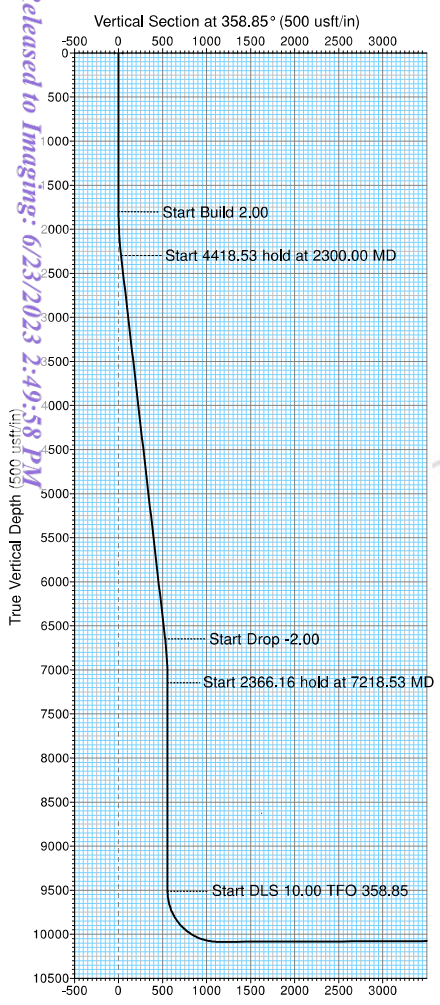
MARATHON OIL - FLEX III PAD (Closed Loop System)



Marathon Oil Corporation

Marathon Oil
Eddy County, NM
Hegemon 21 FED (21-22-24-25-29-30)
WB #24H
Prelim Plan A
GL: 2897' + KB: 27' (PD582)

PRODIRECTIONAL



US State Plane 1927 (Exact solution)
NAD 1927 (NADCON CONUS)
Clarke 1866
New Mexico East 3001
Mean Sea Level

RKB Elevation: Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))

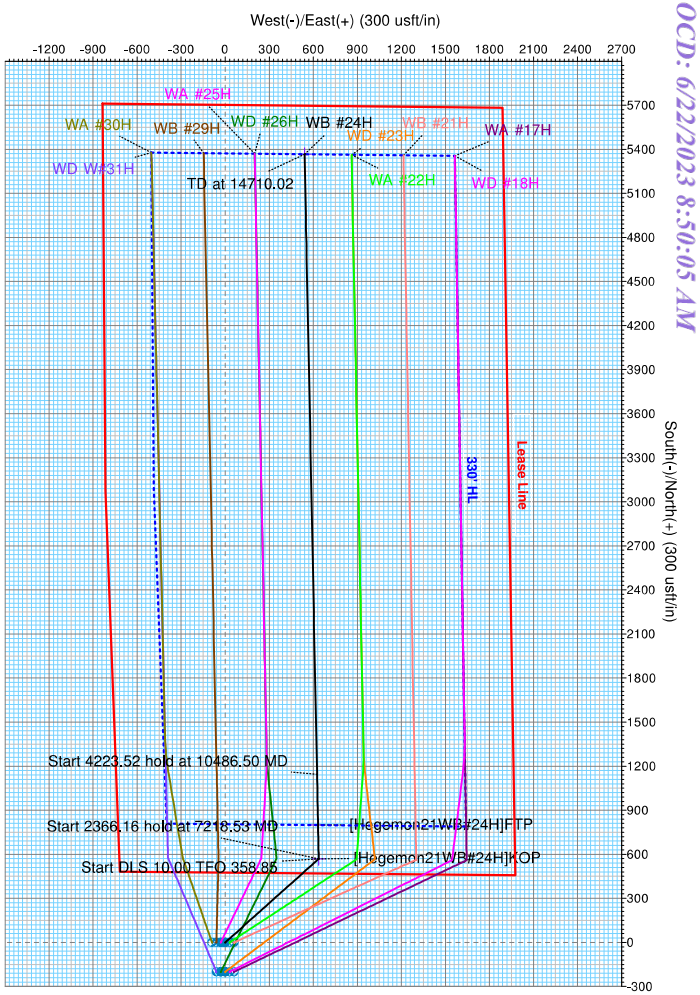
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	371069.58	604824.71	32.019733	-103.995112	

SECTION DETAILS

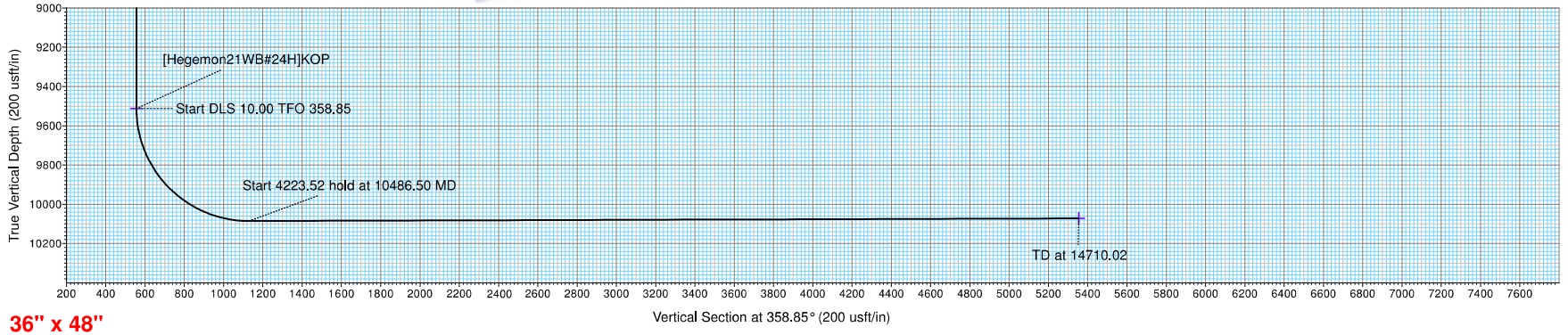
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00
3	2300.00	10.00	48.23	2297.47	28.99	32.46	2.00	28.34
4	6718.53	10.00	48.23	6648.87	540.15	604.67	0.00	527.90
5	7218.53	0.00	0.00	7146.34	569.14	637.13	2.00	556.24
6	9584.70	0.00	0.00	9512.50	569.14	637.13	0.00	556.24
7	10486.50	90.18	358.85	10085.45	1143.78	625.58	10.00	1131.00
8	14710.02	90.18	358.85	10072.18	5366.43	540.68	0.00	5354.50

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting
[Hegemon21WB#24H]FTP	0.00	799.20	630.75	371868.78	605455.46
[Hegemon21WB#24H]KOP	9512.50	569.14	637.13	371638.72	605461.84
[Hegemon21WB#24H]LTP/BHL	10072.18	5366.43	540.68	376436.01	605365.39



Target: 10089' TVD @ 0' VS :: 90.18° INC



Azimuths to Grid North
True North: -0.18°
Magnetic North: 6.67°

Magnetic Field
Strength: 47799.8snT
Dip Angle: 59.65°
Date: 5/16/2019
Model: HDGM

Azimuth Corrections

Total Magnetic Corr. (M to G): 6.67°

Declination (M to T): 6.85° East

36" x 48"

Marathon Oil

Professional Directional
Planning Report

PRODIRECTIONAL

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well WB #24H
Company:	Marathon Oil	**TVD Reference:**	Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))
Project:	Eddy County, NM	**MD Reference:**	Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))
Site:	Hegemon 21 FED (21-22-24-25-29-30)	**North Reference:**	Grid
Well:	WB #24H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan A		

Project	Eddy County, NM		
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	Hegemon 21 FED (21-22-24-25-29-30)				
Site Position:		**Northing:**	371,069.56 usft	**Latitude:**	32.019733
From:	Map	**Easting:**	604,884.79 usft	**Longitude:**	-103.994918
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.18 °

Well	WB #24H				
Well Position	**+N/-S**	0.02 usft	**Northing:**	371,069.58 usft	**Latitude:**	32.019733
	+E/-W	-60.08 usft	**Easting:**	604,824.71 usft	**Longitude:**	-103.995112
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	2,897.00 usft

Wellbore	OH				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	5/16/2019	6.85	59.65	47,799.80

Design	Prelim Plan A			
Audit Notes:				
Version:	**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.00	0.00	0.00	358.85

Plan Survey Tool Program **Date** 5/17/2019

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	1,850.00	Prelim Plan A (OH)	MWD+HDGM OWSG MWD + HRGM	
2	1,850.00	5,000.00	Prelim Plan A (OH)	MWD+HDGM OWSG MWD + HRGM	
3	5,000.00	10,000.00	Prelim Plan A (OH)	MWD+HDGM OWSG MWD + HRGM	
4	10,000.00	14,710.02	Prelim Plan A (OH)	MWD+HDGM OWSG MWD + HRGM	

Marathon Oil

Professional Directional
Planning Report

PRODIRECTIONAL

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well WB #24H
Company:	Marathon Oil	**TVD Reference:**	Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))
Project:	Eddy County, NM	**MD Reference:**	Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))
Site:	Hegemon 21 FED (21-22-24-25-29-30)	**North Reference:**	Grid
Well:	WB #24H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan A		

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	0.00	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,300.00	10.00	48.23	2,297.47	28.99	32.46	2.00	2.00	0.00	48.23	
6,718.53	10.00	48.23	6,648.87	540.15	604.67	0.00	0.00	0.00	0.00	
7,218.53	0.00	0.00	7,146.34	569.14	637.13	2.00	-2.00	0.00	180.00	
9,584.70	0.00	0.00	9,512.50	569.14	637.13	0.00	0.00	0.00	0.00	[Hegemon21WB#24H
10,486.50	90.18	358.85	10,085.46	1,143.78	625.58	10.00	10.00	-0.13	358.85	
14,710.02	90.18	358.85	10,072.18	5,366.43	540.68	0.00	0.00	0.00	0.00	[Hegemon21WB#24H

Marathon Oil

Professional Directional

Planning Report

PRODIRECTIONAL

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well WB #24H
Company:	Marathon Oil	**TVD Reference:**	Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))
Project:	Eddy County, NM	**MD Reference:**	Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))
Site:	Hegemon 21 FED (21-22-24-25-29-30)	**North Reference:**	Grid
Well:	WB #24H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan A		

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
[Hegemon21WB#24H]FTP									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	2.00	48.23	1,899.98	1.16	1.30	1.14	2.00	2.00	0.00
2,000.00	4.00	48.23	1,999.84	4.65	5.20	4.54	2.00	2.00	0.00
2,100.00	6.00	48.23	2,099.45	10.45	11.70	10.22	2.00	2.00	0.00
2,200.00	8.00	48.23	2,198.70	18.57	20.79	18.15	2.00	2.00	0.00
2,300.00	10.00	48.23	2,297.47	28.99	32.46	28.34	2.00	2.00	0.00
2,400.00	10.00	48.23	2,395.95	40.56	45.41	39.64	0.00	0.00	0.00
2,500.00	10.00	48.23	2,494.43	52.13	58.36	50.95	0.00	0.00	0.00
2,600.00	10.00	48.23	2,592.91	63.70	71.31	62.26	0.00	0.00	0.00
2,700.00	10.00	48.23	2,691.39	75.27	84.26	73.56	0.00	0.00	0.00
2,800.00	10.00	48.23	2,789.87	86.84	97.21	84.87	0.00	0.00	0.00
2,900.00	10.00	48.23	2,888.35	98.40	110.16	96.17	0.00	0.00	0.00
3,000.00	10.00	48.23	2,986.83	109.97	123.11	107.48	0.00	0.00	0.00
3,100.00	10.00	48.23	3,085.31	121.54	136.06	118.79	0.00	0.00	0.00
3,200.00	10.00	48.23	3,183.79	133.11	149.01	130.09	0.00	0.00	0.00
3,300.00	10.00	48.23	3,282.27	144.68	161.96	141.40	0.00	0.00	0.00
3,400.00	10.00	48.23	3,380.75	156.25	174.91	152.70	0.00	0.00	0.00
3,500.00	10.00	48.23	3,479.23	167.81	187.86	164.01	0.00	0.00	0.00
3,600.00	10.00	48.23	3,577.72	179.38	200.81	175.32	0.00	0.00	0.00
3,700.00	10.00	48.23	3,676.20	190.95	213.76	186.62	0.00	0.00	0.00
3,800.00	10.00	48.23	3,774.68	202.52	226.71	197.93	0.00	0.00	0.00
3,900.00	10.00	48.23	3,873.16	214.09	239.66	209.23	0.00	0.00	0.00
4,000.00	10.00	48.23	3,971.64	225.66	252.61	220.54	0.00	0.00	0.00
4,100.00	10.00	48.23	4,070.12	237.22	265.56	231.85	0.00	0.00	0.00
4,200.00	10.00	48.23	4,168.60	248.79	278.51	243.15	0.00	0.00	0.00
4,300.00	10.00	48.23	4,267.08	260.36	291.46	254.46	0.00	0.00	0.00
4,400.00	10.00	48.23	4,365.56	271.93	304.41	265.77	0.00	0.00	0.00
4,500.00	10.00	48.23	4,464.04	283.50	317.36	277.07	0.00	0.00	0.00
4,600.00	10.00	48.23	4,562.52	295.07	330.32	288.38	0.00	0.00	0.00
4,700.00	10.00	48.23	4,661.00	306.63	343.27	299.68	0.00	0.00	0.00
4,800.00	10.00	48.23	4,759.48	318.20	356.22	310.99	0.00	0.00	0.00
4,900.00	10.00	48.23	4,857.97	329.77	369.17	322.30	0.00	0.00	0.00
5,000.00	10.00	48.23	4,956.45	341.34	382.12	333.60	0.00	0.00	0.00

Marathon Oil

Professional Directional

Planning Report

PRODIRECTIONAL

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well WB #24H
Company:	Marathon Oil	**TVD Reference:**	Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))
Project:	Eddy County, NM	**MD Reference:**	Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))
Site:	Hegemon 21 FED (21-22-24-25-29-30)	**North Reference:**	Grid
Well:	WB #24H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan A		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,100.00	10.00	48.23	5,054.93	352.91	395.07	344.91	0.00	0.00	0.00
5,200.00	10.00	48.23	5,153.41	364.48	408.02	356.21	0.00	0.00	0.00
5,300.00	10.00	48.23	5,251.89	376.04	420.97	367.52	0.00	0.00	0.00
5,400.00	10.00	48.23	5,350.37	387.61	433.92	378.83	0.00	0.00	0.00
5,500.00	10.00	48.23	5,448.85	399.18	446.87	390.13	0.00	0.00	0.00
5,600.00	10.00	48.23	5,547.33	410.75	459.82	401.44	0.00	0.00	0.00
5,700.00	10.00	48.23	5,645.81	422.32	472.77	412.74	0.00	0.00	0.00
5,800.00	10.00	48.23	5,744.29	433.89	485.72	424.05	0.00	0.00	0.00
5,900.00	10.00	48.23	5,842.77	445.45	498.67	435.36	0.00	0.00	0.00
6,000.00	10.00	48.23	5,941.25	457.02	511.62	446.66	0.00	0.00	0.00
6,100.00	10.00	48.23	6,039.73	468.59	524.57	457.97	0.00	0.00	0.00
6,200.00	10.00	48.23	6,138.22	480.16	537.52	469.28	0.00	0.00	0.00
6,300.00	10.00	48.23	6,236.70	491.73	550.47	480.58	0.00	0.00	0.00
6,400.00	10.00	48.23	6,335.18	503.30	563.42	491.89	0.00	0.00	0.00
6,500.00	10.00	48.23	6,433.66	514.86	576.37	503.19	0.00	0.00	0.00
6,600.00	10.00	48.23	6,532.14	526.43	589.32	514.50	0.00	0.00	0.00
6,700.00	10.00	48.23	6,630.62	538.00	602.27	525.81	0.00	0.00	0.00
6,718.53	10.00	48.23	6,648.87	540.15	604.67	527.90	0.00	0.00	0.00
6,800.00	8.37	48.23	6,729.29	548.81	614.37	536.37	2.00	-2.00	0.00
6,900.00	6.37	48.23	6,828.46	557.35	623.94	544.72	2.00	-2.00	0.00
7,000.00	4.37	48.23	6,928.02	563.59	630.92	550.81	2.00	-2.00	0.00
7,100.00	2.37	48.23	7,027.84	567.51	635.30	554.64	2.00	-2.00	0.00
7,200.00	0.37	48.23	7,127.80	569.10	637.09	556.20	2.00	-2.00	0.00
7,218.53	0.00	0.00	7,146.34	569.14	637.13	556.24	2.00	-2.00	0.00
7,300.00	0.00	0.00	7,227.80	569.14	637.13	556.24	0.00	0.00	0.00
7,400.00	0.00	0.00	7,327.80	569.14	637.13	556.24	0.00	0.00	0.00
7,500.00	0.00	0.00	7,427.80	569.14	637.13	556.24	0.00	0.00	0.00
7,600.00	0.00	0.00	7,527.80	569.14	637.13	556.24	0.00	0.00	0.00
7,700.00	0.00	0.00	7,627.80	569.14	637.13	556.24	0.00	0.00	0.00
7,800.00	0.00	0.00	7,727.80	569.14	637.13	556.24	0.00	0.00	0.00
7,900.00	0.00	0.00	7,827.80	569.14	637.13	556.24	0.00	0.00	0.00
8,000.00	0.00	0.00	7,927.80	569.14	637.13	556.24	0.00	0.00	0.00
8,100.00	0.00	0.00	8,027.80	569.14	637.13	556.24	0.00	0.00	0.00
8,200.00	0.00	0.00	8,127.80	569.14	637.13	556.24	0.00	0.00	0.00
8,300.00	0.00	0.00	8,227.80	569.14	637.13	556.24	0.00	0.00	0.00
8,400.00	0.00	0.00	8,327.80	569.14	637.13	556.24	0.00	0.00	0.00
8,500.00	0.00	0.00	8,427.80	569.14	637.13	556.24	0.00	0.00	0.00
8,600.00	0.00	0.00	8,527.80	569.14	637.13	556.24	0.00	0.00	0.00
8,700.00	0.00	0.00	8,627.80	569.14	637.13	556.24	0.00	0.00	0.00
8,800.00	0.00	0.00	8,727.80	569.14	637.13	556.24	0.00	0.00	0.00
8,900.00	0.00	0.00	8,827.80	569.14	637.13	556.24	0.00	0.00	0.00
9,000.00	0.00	0.00	8,927.80	569.14	637.13	556.24	0.00	0.00	0.00
9,100.00	0.00	0.00	9,027.80	569.14	637.13	556.24	0.00	0.00	0.00
9,200.00	0.00	0.00	9,127.80	569.14	637.13	556.24	0.00	0.00	0.00
9,300.00	0.00	0.00	9,227.80	569.14	637.13	556.24	0.00	0.00	0.00
9,400.00	0.00	0.00	9,327.80	569.14	637.13	556.24	0.00	0.00	0.00
9,500.00	0.00	0.00	9,427.80	569.14	637.13	556.24	0.00	0.00	0.00
9,584.70	0.00	0.00	9,512.50	569.14	637.13	556.24	0.00	0.00	0.00
[Hegemon21WB#24H]KOP									
9,600.00	1.53	358.85	9,527.80	569.34	637.13	556.44	10.00	10.00	0.00
9,650.00	6.53	358.85	9,577.66	572.86	637.06	559.96	10.00	10.00	0.00
9,700.00	11.53	358.85	9,627.03	580.70	636.90	567.80	10.00	10.00	0.00

Marathon Oil

Professional Directional

Planning Report

PRODIRECTIONAL

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well WB #24H
Company:	Marathon Oil	**TVD Reference:**	Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))
Project:	Eddy County, NM	**MD Reference:**	Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))
Site:	Hegemon 21 FED (21-22-24-25-29-30)	**North Reference:**	Grid
Well:	WB #24H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan A		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,750.00	16.53	358.85	9,675.52	592.82	636.65	579.92	10.00	10.00	0.00
9,800.00	21.53	358.85	9,722.77	609.11	636.33	596.22	10.00	10.00	0.00
9,850.00	26.53	358.85	9,768.42	629.46	635.92	616.57	10.00	10.00	0.00
9,900.00	31.53	358.85	9,812.13	653.71	635.43	640.83	10.00	10.00	0.00
9,950.00	36.53	358.85	9,853.55	681.68	634.87	668.80	10.00	10.00	0.00
10,000.00	41.53	358.85	9,892.38	713.15	634.23	700.28	10.00	10.00	0.00
10,050.00	46.53	358.85	9,928.32	747.88	633.54	735.02	10.00	10.00	0.00
10,100.00	51.53	358.85	9,961.09	785.62	632.78	772.76	10.00	10.00	0.00
10,150.00	56.53	358.85	9,990.45	826.06	631.96	813.21	10.00	10.00	0.00
10,200.00	61.53	358.85	10,016.17	868.91	631.10	856.07	10.00	10.00	0.00
10,250.00	66.53	358.85	10,038.06	913.84	630.20	901.01	10.00	10.00	0.00
10,300.00	71.53	358.85	10,055.95	960.50	629.26	947.68	10.00	10.00	0.00
10,350.00	76.53	358.85	10,069.70	1,008.55	628.30	995.74	10.00	10.00	0.00
10,400.00	81.53	358.85	10,079.21	1,057.61	627.31	1,044.81	10.00	10.00	0.00
10,450.00	86.53	358.85	10,084.41	1,107.31	626.31	1,094.52	10.00	10.00	0.00
10,486.50	90.18	358.85	10,085.46	1,143.78	625.58	1,131.00	10.00	10.00	0.00
10,500.00	90.18	358.85	10,085.41	1,157.28	625.31	1,144.50	0.00	0.00	0.00
10,600.00	90.18	358.85	10,085.10	1,257.26	623.30	1,244.50	0.00	0.00	0.00
10,700.00	90.18	358.85	10,084.78	1,357.24	621.29	1,344.50	0.00	0.00	0.00
10,800.00	90.18	358.85	10,084.47	1,457.22	619.28	1,444.50	0.00	0.00	0.00
10,900.00	90.18	358.85	10,084.16	1,557.20	617.26	1,544.50	0.00	0.00	0.00
11,000.00	90.18	358.85	10,083.84	1,657.18	615.25	1,644.50	0.00	0.00	0.00
11,100.00	90.18	358.85	10,083.53	1,757.16	613.24	1,744.50	0.00	0.00	0.00
11,200.00	90.18	358.85	10,083.21	1,857.14	611.23	1,844.50	0.00	0.00	0.00
11,300.00	90.18	358.85	10,082.90	1,957.12	609.22	1,944.50	0.00	0.00	0.00
11,400.00	90.18	358.85	10,082.58	2,057.10	607.21	2,044.49	0.00	0.00	0.00
11,500.00	90.18	358.85	10,082.27	2,157.08	605.20	2,144.49	0.00	0.00	0.00
11,600.00	90.18	358.85	10,081.96	2,257.05	603.19	2,244.49	0.00	0.00	0.00
11,700.00	90.18	358.85	10,081.64	2,357.03	601.18	2,344.49	0.00	0.00	0.00
11,800.00	90.18	358.85	10,081.33	2,457.01	599.17	2,444.49	0.00	0.00	0.00
11,900.00	90.18	358.85	10,081.01	2,556.99	597.16	2,544.49	0.00	0.00	0.00
12,000.00	90.18	358.85	10,080.70	2,656.97	595.15	2,644.49	0.00	0.00	0.00
12,100.00	90.18	358.85	10,080.38	2,756.95	593.14	2,744.49	0.00	0.00	0.00
12,200.00	90.18	358.85	10,080.07	2,856.93	591.13	2,844.49	0.00	0.00	0.00
12,300.00	90.18	358.85	10,079.76	2,956.91	589.12	2,944.49	0.00	0.00	0.00
12,400.00	90.18	358.85	10,079.44	3,056.89	587.11	3,044.49	0.00	0.00	0.00
12,500.00	90.18	358.85	10,079.13	3,156.87	585.10	3,144.49	0.00	0.00	0.00
12,600.00	90.18	358.85	10,078.81	3,256.85	583.09	3,244.49	0.00	0.00	0.00
12,700.00	90.18	358.85	10,078.50	3,356.83	581.08	3,344.49	0.00	0.00	0.00
12,800.00	90.18	358.85	10,078.18	3,456.81	579.07	3,444.49	0.00	0.00	0.00
12,900.00	90.18	358.85	10,077.87	3,556.79	577.06	3,544.49	0.00	0.00	0.00
13,000.00	90.18	358.85	10,077.55	3,656.76	575.05	3,644.49	0.00	0.00	0.00
13,100.00	90.18	358.85	10,077.24	3,756.74	573.04	3,744.49	0.00	0.00	0.00
13,200.00	90.18	358.85	10,076.93	3,856.72	571.03	3,844.49	0.00	0.00	0.00
13,300.00	90.18	358.85	10,076.61	3,956.70	569.02	3,944.49	0.00	0.00	0.00
13,400.00	90.18	358.85	10,076.30	4,056.68	567.01	4,044.49	0.00	0.00	0.00
13,500.00	90.18	358.85	10,075.98	4,156.66	565.00	4,144.48	0.00	0.00	0.00
13,600.00	90.18	358.85	10,075.67	4,256.64	562.99	4,244.48	0.00	0.00	0.00
13,700.00	90.18	358.85	10,075.35	4,356.62	560.98	4,344.48	0.00	0.00	0.00
13,800.00	90.18	358.85	10,075.04	4,456.60	558.97	4,444.48	0.00	0.00	0.00
13,900.00	90.18	358.85	10,074.73	4,556.58	556.96	4,544.48	0.00	0.00	0.00
14,000.00	90.18	358.85	10,074.41	4,656.56	554.95	4,644.48	0.00	0.00	0.00

Marathon Oil

Professional Directional
Planning Report

PRODIRECTIONAL

Database:	WellPlanner1	**Local Co-ordinate Reference:**	Well WB #24H
Company:	Marathon Oil	**TVD Reference:**	Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))
Project:	Eddy County, NM	**MD Reference:**	Well @ 2924.00usft (GL: 2897' + KB: 27' (PD582))
Site:	Hegemon 21 FED (21-22-24-25-29-30)	**North Reference:**	Grid
Well:	WB #24H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Prelim Plan A		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,100.00	90.18	358.85	10,074.10	4,756.54	552.94	4,744.48	0.00	0.00	0.00
14,200.00	90.18	358.85	10,073.78	4,856.52	550.93	4,844.48	0.00	0.00	0.00
14,300.00	90.18	358.85	10,073.47	4,956.50	548.92	4,944.48	0.00	0.00	0.00
14,400.00	90.18	358.85	10,073.15	5,056.48	546.91	5,044.48	0.00	0.00	0.00
14,500.00	90.18	358.85	10,072.84	5,156.45	544.90	5,144.48	0.00	0.00	0.00
14,600.00	90.18	358.85	10,072.53	5,256.43	542.89	5,244.48	0.00	0.00	0.00
14,700.00	90.18	358.85	10,072.21	5,356.41	540.88	5,344.48	0.00	0.00	0.00
14,710.02	90.18	358.85	10,072.18	5,366.43	540.68	5,354.50	0.00	0.00	0.00
[Hegemon21WB#24H]LTP/BHL									

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Marathon Oil**
LEASE NO.:	**NMNM138837**
LOCATION:	Section 28, T.26 S., R.29 E., NMPM
COUNTY:	Eddy County, New Mexico

WELL NAME & NO.:	**Hegemon 21 WB Fed 24H**
SURFACE HOLE FOOTAGE:	475'/N & 693'/W
BOTTOM HOLE FOOTAGE	330'/N & 1374'/W

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
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☐ COM	☐ Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware Group** formation. 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

1. The **13-3/8** inch surface casing shall be set at approximately **370** feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite and above the salt) 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**

 Approval Date: 05/23/2023

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 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:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.
  Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

3. The minimum required fill of cement behind the **7** inch production casing is:
   - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

4. The minimum required fill of cement behind the **4-1/2** inch production liner is:
   - Cement should tie-back **100 feet** into the previous casing. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
    e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

GENERAL REQUIREMENTS

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

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

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

    a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after

installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).

b. When the operator proposes to set surface casing with Spudder Rig
   - Notify the BLM when moving in and removing the Spudder Rig.
   - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
   - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity 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 intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

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

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE.

Other Well Information

1. **AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT**

   a. A Kelly cock will be in the drill string at all times.

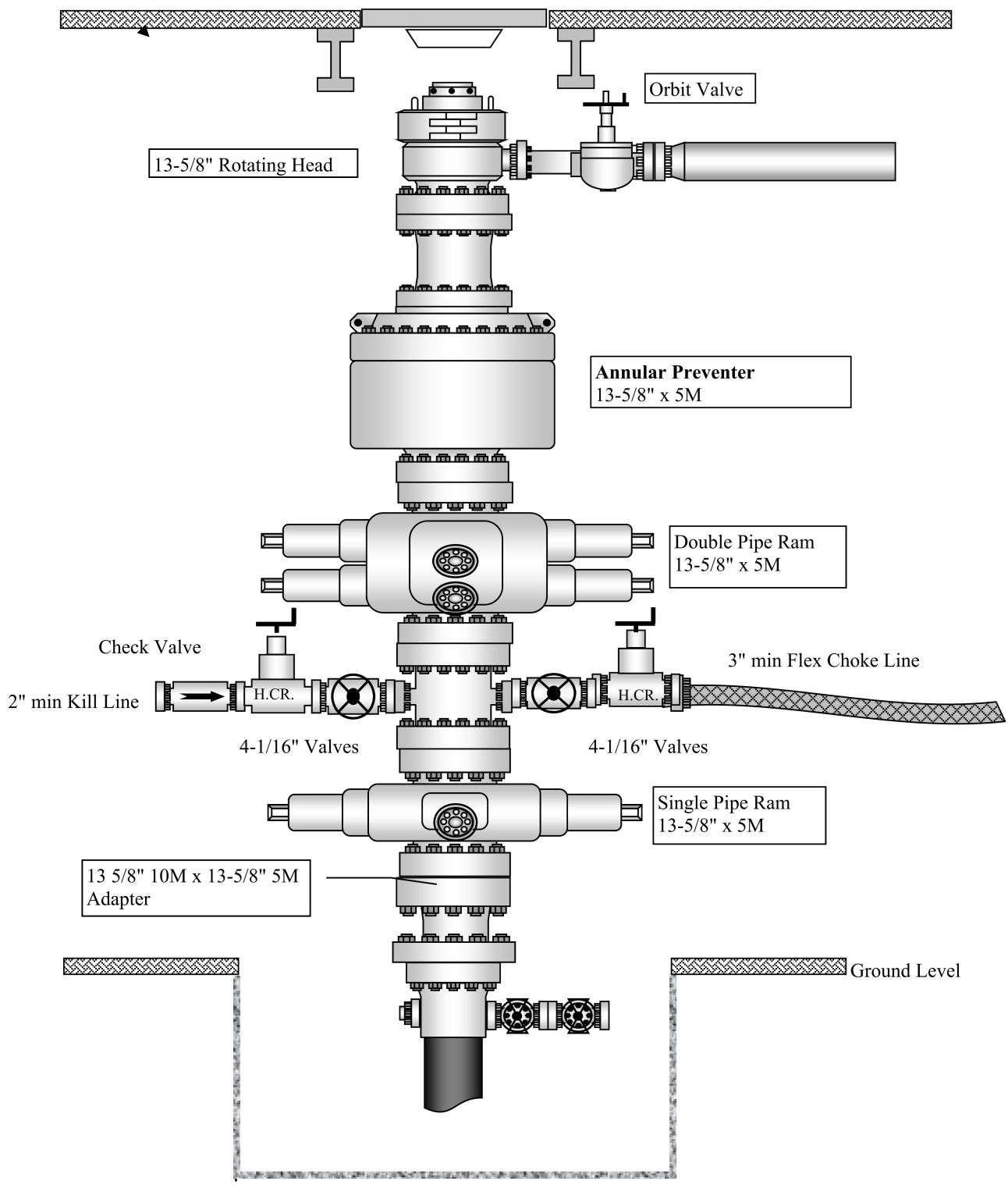
   b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor unobstructed and readily accessible at all times.

   c. 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**

2. **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.

Operator : **Marathon Oil**



District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 231519

CONDITIONS

Operator: MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	OGRID: 372098
	Action Number: 231519
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Notify OCD 24 hours prior to casing & cement	6/23/2023
ward.rikala	Will require a File As Drilled C-102 and a Directional Survey with the C-104	6/23/2023
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	6/23/2023
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing	6/23/2023
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	6/23/2023