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

Form C-101
August 1, 2011

Permit 352635

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address	2. OGRID Number
MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024	372098
	3. API Number 30-025-52328

4. Property Code	5. Property Name	6. Well No.
335052	HEFEWEIZEN STATE COM	301H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
A	30	19S	35E	A	247	N	1303	E	Lea

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
O	31	19S	35E	O	100	S	1650	E	Lea

9. Pool Information

WC-025 G-08 S203506D;BONE SPRING	97983

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
New Well	OIL		State	3786
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
N	20554	Bone Spring		1/4/2024
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ **We will be using a closed-loop system in lieu of lined pits**

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.5	13.375	54.5	1918	846	0
Int1	12.25	9.625	40	9142	1754	0
Prod	8.75	5.5	23	20553	2242	8842

Casing/Cement Program: Additional Comments

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	5000	5000	CAMERON
Double Ram	10000	10000	CAMERON
Pipe	10000	10000	CAMERON
Blind	10000	10000	CAMERON

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. **I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒, if applicable.** Signature:		**OIL CONSERVATION DIVISION**	
Printed Name:	Electronically filed by Terri T Stathem	Approved By:	Paul F Kautz
Title:	Regulatory Compliance Manger	Title:	Geologist
Email Address:	tstathem@marathonoil.com	Approved Date:	12/19/2023 Expiration Date: 12/19/2025
Date:	12/13/2023 Phone: 713-296-2113	Conditions of Approval Attached	

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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

[4] Property Code	[5] Property Name	[6] Well Number
	HEFEWEIZEN STATE COM	301H

[7] OGRID No.	[8] Operator Name	[9] Elevation
372098	MARATHON OIL PERMIAN, LLC	3786'

[10] Surface Location

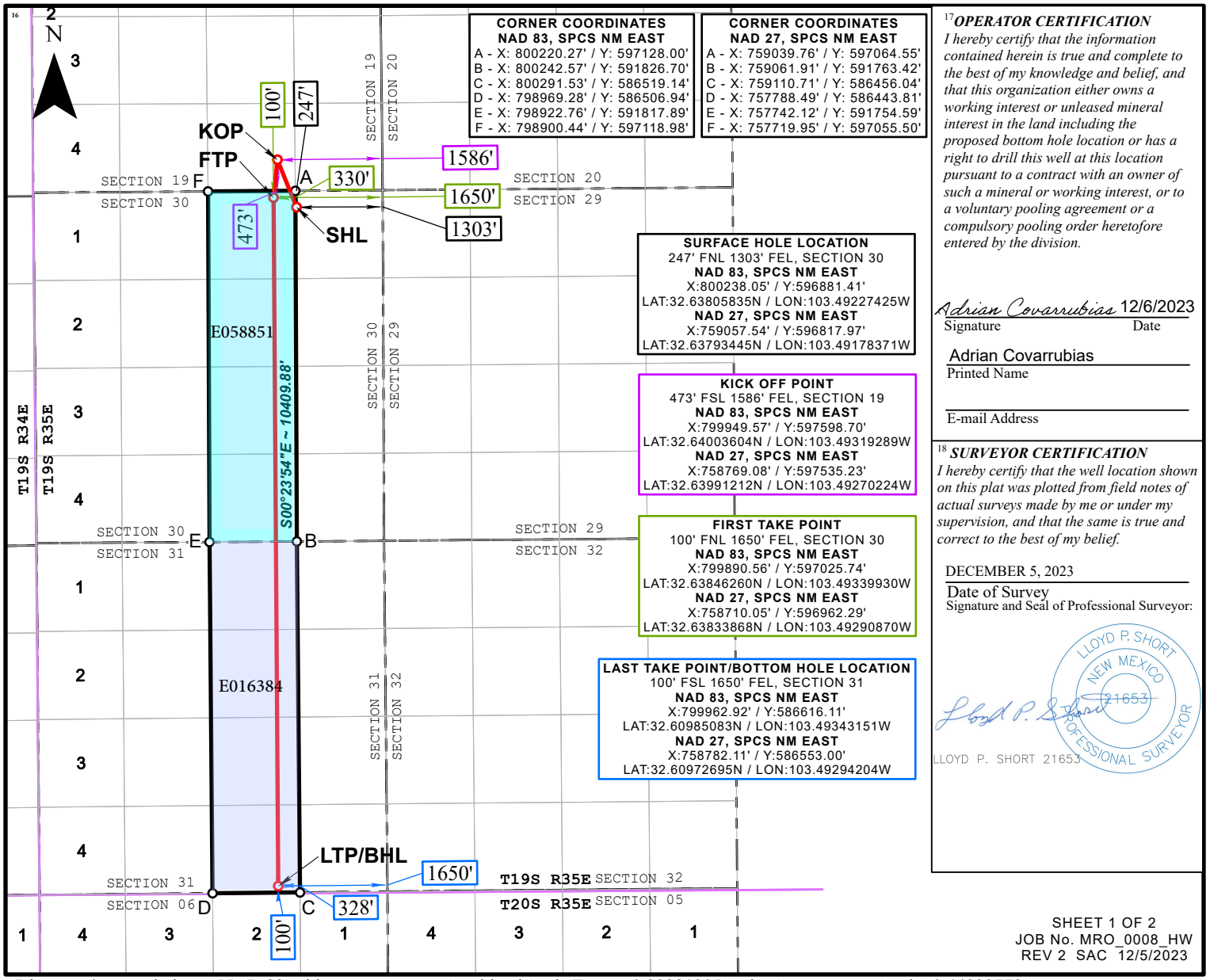
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	30	19S	35E		247	NORTH	1303	EAST	LEA

[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
O	31	19S	35E		100	SOUTH	1650	EAST	LEA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
320.00			

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



CORNER COORDINATES NAD 83, SPCS NM EAST
A - X: 800220.27' / Y: 597128.00'
B - X: 800242.57' / Y: 591826.70'
C - X: 800291.53' / Y: 586519.14'
D - X: 798969.28' / Y: 586506.94'
E - X: 798922.76' / Y: 591817.89'
F - X: 798900.44' / Y: 597118.98'

CORNER COORDINATES NAD 27, SPCS NM EAST
A - X: 759039.76' / Y: 597064.55'
B - X: 759061.91' / Y: 591763.42'
C - X: 759110.71' / Y: 586456.04'
D - X: 757788.49' / Y: 586443.81'
E - X: 757742.12' / Y: 591754.59'
F - X: 757719.95' / Y: 597055.50'

SURFACE HOLE LOCATION
247' FNL 1303' FEL, SECTION 30
NAD 83, SPCS NM EAST
X:800238.05' / Y:596881.41'
LAT:32.63805835N / LON:103.49227425W
NAD 27, SPCS NM EAST
X:759057.54' / Y:596817.97'
LAT:32.63793445N / LON:103.49178371W

KICK OFF POINT
473' FSL 1586' FEL, SECTION 19
NAD 83, SPCS NM EAST
X:799949.57' / Y:597598.70'
LAT:32.64003604N / LON:103.49319289W
NAD 27, SPCS NM EAST
X:758769.08' / Y:597535.23'
LAT:32.63991212N / LON:103.49270224W

FIRST TAKE POINT
100' FNL 1650' FEL, SECTION 30
NAD 83, SPCS NM EAST
X:799890.56' / Y:597025.74'
LAT:32.63846260N / LON:103.49339930W
NAD 27, SPCS NM EAST
X:758710.05' / Y:596962.29'
LAT:32.63833868N / LON:103.49290870W

LAST TAKE POINT/BOTTOM HOLE LOCATION
100' FSL 1650' FEL, SECTION 31
NAD 83, SPCS NM EAST
X:799962.92' / Y:586616.11'
LAT:32.60985083N / LON:103.49343151W
NAD 27, SPCS NM EAST
X:758782.11' / Y:586553.00'
LAT:32.60972695N / LON:103.49294204W

[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 12/6/2023
Signature Date

Adrian Covarrubias
Printed Name

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.

DECEMBER 5, 2023
Date of Survey
Signature and Seal of Professional Surveyor:

LLOYD P. SHORT NEW MEXICO 21653 PROFESSIONAL SURVEYOR

LLOYD P. SHORT 21653

SHEET 1 OF 2
JOB No. MRO_0008_HW
REV 2 SAC 12/5/2023

Distances/areas relative to NAD 83 grid measurements. Combined Scale Factor: 0.99981205 and a Convergence Angle: 0.44922778°

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

Form APD Conditions

Permit 352635

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address:	API Number:
MARATHON OIL PERMIAN LLC [372098] 990 Town & Country Blvd. Houston, TX 77024	30-025-52328
	Well: HEFEWEIZEN STATE COM #301H

OCD Reviewer	Condition
pkautz	Notify OCD 24 hours prior to casing & cement
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104
pkautz	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
pkautz	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
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing
pkautz	If cement does not circulate on any string, a CBL is required for that string of casing
pkautz	The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud

Marathon Oil Corporation

Project: Lea County, NM (NAD27 NME)
Site: Gong Worthy - Hefeweizen Pad
Well: Hefeweizen State Com 301H
Wellbore: OH
Design: Plan 2 11-14-23
Rig: Cactus 171

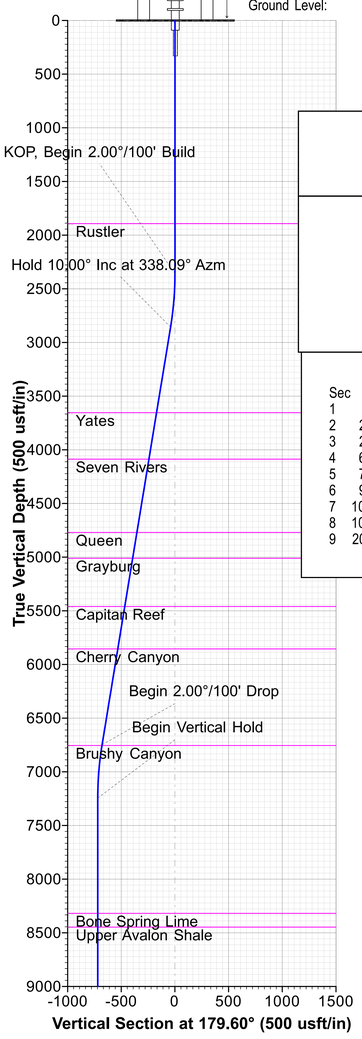
PHOENIX TECHNOLOGY SERVICES

T G M

Azimuths to Grid North
True North: -0.45°
Magnetic North: 5.69°

Magnetic Field
Strength: 47589.6nT
Dip Angle: 60.46°
Date: 12/26/2023
Model: MVHD

RKB @ 3809.60usft (Cactu
Ground Level: 3786.00



WELL DETAILS

3786.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	596817.97	759057.54	32° 38' 16.564024 N	103° 29' 30.421325 W

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
FTP - Hef SC 301H	9750.00	144.32	-347.49	596962.29	758710.05	32° 38' 18.019241 N	103° 29' 34.471358 W
LTP/BHL - Hef SC 301H	9750.00	-10264.97	-275.43	586553.00	758782.11	32° 36' 35.017019 N	103° 29' 34.591323 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00		
2	2359.00	0.00	0.00	2359.00	0.00	0.00	0.00	0.000	0.00		KOP, Begin 2.00°/100' Build
3	2858.96	10.00	338.09	2856.43	40.37	-16.24	2.00	338.092	-40.49		Hold 10.00° Inc at 338.09° Azm
4	6810.12	10.00	338.09	6747.57	676.89	-272.22	0.00	0.000	-678.77		Begin 2.00°/100' Drop
5	7310.09	0.00	0.00	7245.00	717.26	-288.46	2.00	180.000	-719.26		Begin Vertical Hold
6	9242.13	0.00	0.00	9177.04	717.26	-288.46	0.00	0.000	-719.26		KOP2, Begin 10.00°/100' Build
7	10142.13	90.00	184.75	9750.00	146.27	-335.91	10.00	184.750	-148.62		LP, Hold 90.00° Inc, Begin 2.00°/100' Turn
8	10399.45	90.00	179.60	9750.00	-110.77	-345.68	2.00	-90.000	108.36		Hold 179.60° Azm
9	20553.89	90.00	179.60	9750.00	-10264.97	-275.43	0.00	0.000	10262.80	LTP/BHL - Hef SC 301H	TD at 20553.89

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001

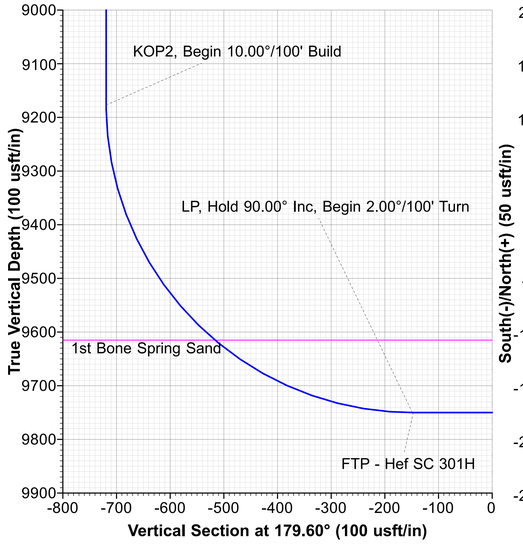
Local Origin: Well Hefeweizen State Com 301H, Grid North

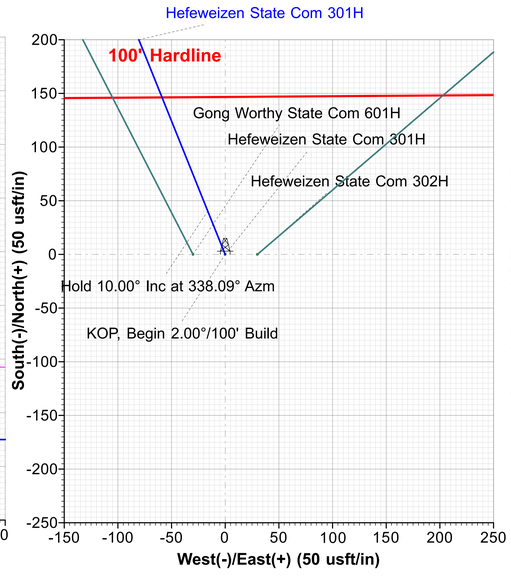
Latitude: 32° 38' 16.564024 N
Longitude: 103° 29' 30.421325 W

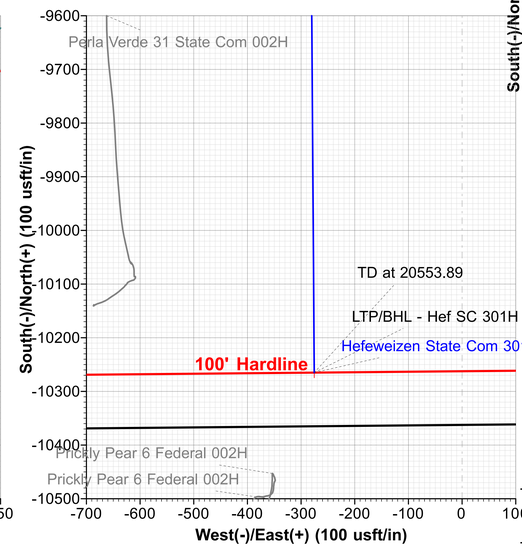
Grid East: 759057.54
Grid North: 596817.97
Scale Factor: 1.000

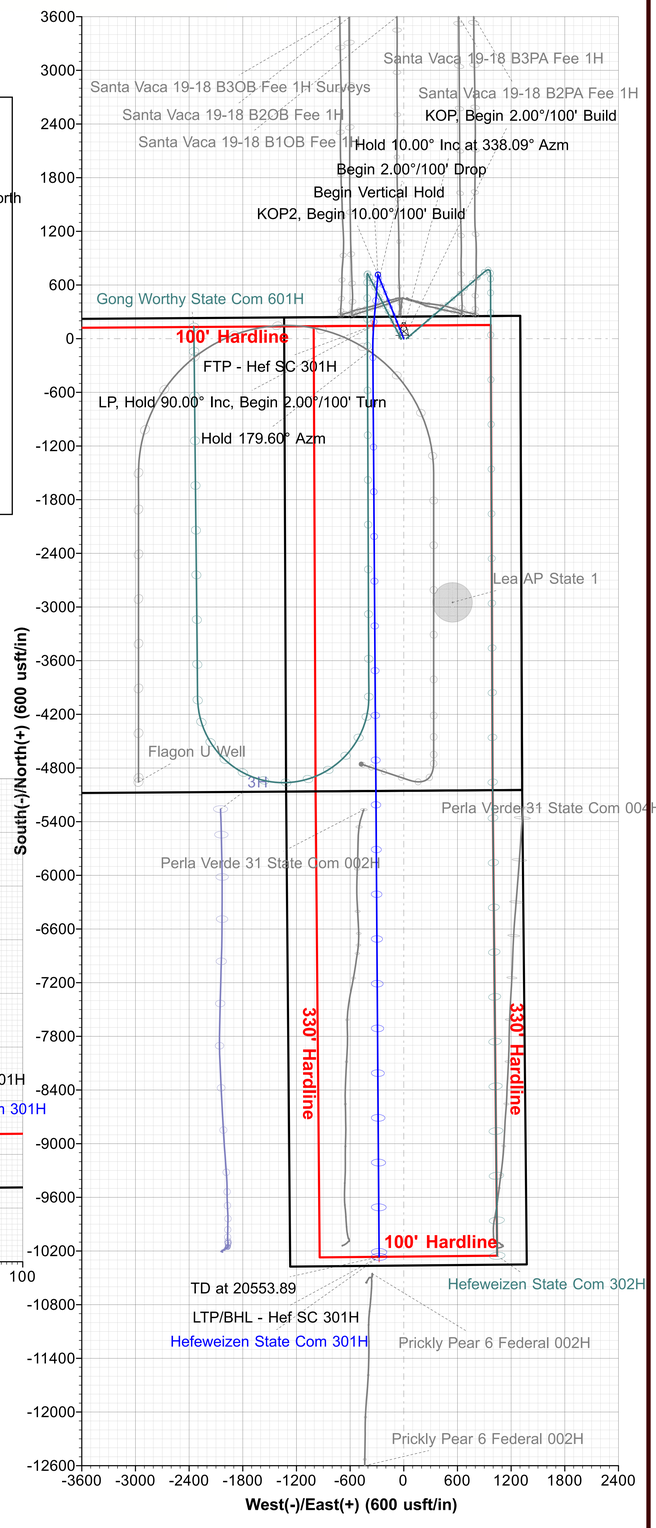
Geomagnetic Model: MVHD
Sample Date: 26-Dec-23
Magnetic Declination: 6.146°
Dip Angle from Horizontal: 60.456°
Magnetic Field Strength: 47589.62704415nT

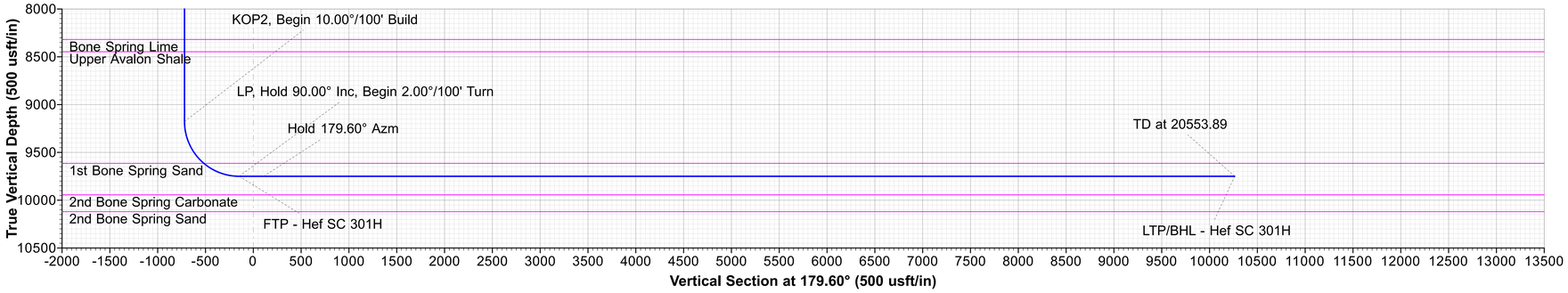
To convert a Magnetic Direction to a Grid Direction, Add 5.692°
To convert a Magnetic Direction to a True Direction, Add 6.146° East
To convert a True Direction to a Grid Direction, Subtract 0.454°











Date: 15:25, November 14 2023

PHOENIX
TECHNOLOGY SERVICES

Marathon Oil Permian LLC

Lea County, NM (NAD27 NME)
Gong Worthy - Hefeweizen Pad
Hefeweizen State Com 301H

OH

Plan: Plan 2 11-14-23

Standard Planning Report

14 November, 2023

Marathon Oil Corporation

PHOENIX TECHNOLOGY SERVICES

Phoenix
Planning Report

Marathon Oil Corporation

Database:	USAEDMDB	**Local Co-ordinate Reference:**	Well Hefeweizen State Com 301H
Company:	Marathon Oil Permian LLC	**TVD Reference:**	RKB @ 3809.60usft (Cactus 171)
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	RKB @ 3809.60usft (Cactus 171)
Site:	Gong Worthy - Hefeweizen Pad	**North Reference:**	Grid
Well:	Hefeweizen State Com 301H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 11-14-23		

Project Lea 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 Gong Worthy - Hefeweizen Pad

Site Position:		**Northing:**	596,817.97 usft	**Latitude:**	32° 38' 16.564024 N
From:	Map	**Easting:**	759,057.54 usft	**Longitude:**	103° 29' 30.421325 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.454 °

Well Hefeweizen State Com 301H

Well Position	**+N/-S**	0.00 usft	**Northing:**	596,817.97 usft	**Latitude:**	32° 38' 16.564024 N
	+E/-W	0.00 usft	**Easting:**	759,057.54 usft	**Longitude:**	103° 29' 30.421325 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,786.00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	12/26/23	6.146	60.456	47,589.62704415

Design Plan 2 11-14-23

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	179.60

Plan Survey Tool Program **Date** 11/14/23

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,553.73	Plan 2 11-14-23 (OH)	MWD+IFR1+MS OWSG Rev. 2 MWD + IFR1	

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	
2,359.00	0.00	0.00	2,359.00	0.00	0.00	0.00	0.00	0.00	0.000	
2,858.96	10.00	338.09	2,856.43	40.37	-16.24	2.00	2.00	0.00	338.092	
6,810.12	10.00	338.09	6,747.57	676.89	-272.22	0.00	0.00	0.00	0.000	
7,310.09	0.00	0.00	7,245.00	717.26	-288.46	2.00	-2.00	0.00	180.000	
9,242.13	0.00	0.00	9,177.04	717.26	-288.46	0.00	0.00	0.00	0.000	
10,142.13	90.00	184.75	9,750.00	146.27	-335.91	10.00	10.00	0.00	184.750	
10,399.45	90.00	179.60	9,750.00	-110.77	-345.68	2.00	0.00	-2.00	-90.000	
20,553.89	90.00	179.60	9,750.00	-10,264.97	-275.43	0.00	0.00	0.00	0.000	LTP/BHL - Hef SC 3

PHOENIX TECHNOLOGY SERVICES

Phoenix

Planning Report

Marathon Oil Corporation

Database:	USAEDMDB	**Local Co-ordinate Reference:**	Well Hefeweizen State Com 301H
Company:	Marathon Oil Permian LLC	**TVD Reference:**	RKB @ 3809.60usft (Cactus 171)
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	RKB @ 3809.60usft (Cactus 171)
Site:	Gong Worthy - Hefeweizen Pad	**North Reference:**	Grid
Well:	Hefeweizen State Com 301H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 11-14-23		

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
1,893.00	0.00	0.00	1,893.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
2,359.00	0.00	0.00	2,359.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 2.00°/100' Build									
2,400.00	0.82	338.09	2,400.00	0.27	-0.11	-0.27	2.00	2.00	0.00
2,500.00	2.82	338.09	2,499.94	3.22	-1.29	-3.23	2.00	2.00	0.00
2,600.00	4.82	338.09	2,599.72	9.40	-3.78	-9.43	2.00	2.00	0.00
2,700.00	6.82	338.09	2,699.20	18.81	-7.56	-18.86	2.00	2.00	0.00
2,800.00	8.82	338.09	2,798.26	31.43	-12.64	-31.52	2.00	2.00	0.00
2,858.96	10.00	338.09	2,856.43	40.37	-16.24	-40.49	2.00	2.00	0.00
Hold 10.00° Inc at 338.09° Azm									
2,900.00	10.00	338.09	2,896.84	46.98	-18.90	-47.12	0.00	0.00	0.00
3,000.00	10.00	338.09	2,995.32	63.09	-25.37	-63.27	0.00	0.00	0.00
3,100.00	10.00	338.09	3,093.80	79.20	-31.85	-79.42	0.00	0.00	0.00
3,200.00	10.00	338.09	3,192.29	95.31	-38.33	-95.58	0.00	0.00	0.00
3,300.00	10.00	338.09	3,290.77	111.42	-44.81	-111.73	0.00	0.00	0.00
3,400.00	10.00	338.09	3,389.25	127.53	-51.29	-127.89	0.00	0.00	0.00
3,500.00	10.00	338.09	3,487.73	143.64	-57.77	-144.04	0.00	0.00	0.00
3,600.00	10.00	338.09	3,586.21	159.75	-64.25	-160.20	0.00	0.00	0.00
3,668.84	10.00	338.09	3,654.00	170.84	-68.71	-171.32	0.00	0.00	0.00
Yates									
3,700.00	10.00	338.09	3,684.69	175.86	-70.73	-176.35	0.00	0.00	0.00
3,800.00	10.00	338.09	3,783.17	191.97	-77.20	-192.51	0.00	0.00	0.00
3,900.00	10.00	338.09	3,881.65	208.08	-83.68	-208.66	0.00	0.00	0.00
4,000.00	10.00	338.09	3,980.13	224.19	-90.16	-224.81	0.00	0.00	0.00
4,100.00	10.00	338.09	4,078.61	240.30	-96.64	-240.97	0.00	0.00	0.00
4,108.51	10.00	338.09	4,087.00	241.67	-97.19	-242.34	0.00	0.00	0.00
Seven Rivers									
4,200.00	10.00	338.09	4,177.10	256.41	-103.12	-257.12	0.00	0.00	0.00
4,300.00	10.00	338.09	4,275.58	272.52	-109.60	-273.28	0.00	0.00	0.00
4,400.00	10.00	338.09	4,374.06	288.63	-116.08	-289.43	0.00	0.00	0.00
4,500.00	10.00	338.09	4,472.54	304.74	-122.56	-305.59	0.00	0.00	0.00
4,600.00	10.00	338.09	4,571.02	320.85	-129.03	-321.74	0.00	0.00	0.00
4,700.00	10.00	338.09	4,669.50	336.96	-135.51	-337.90	0.00	0.00	0.00
4,800.00	10.00	338.09	4,767.98	353.07	-141.99	-354.05	0.00	0.00	0.00
4,802.05	10.00	338.09	4,770.00	353.40	-142.12	-354.38	0.00	0.00	0.00
Queen									
4,900.00	10.00	338.09	4,866.46	369.18	-148.47	-370.20	0.00	0.00	0.00
5,000.00	10.00	338.09	4,964.94	385.29	-154.95	-386.36	0.00	0.00	0.00
5,046.77	10.00	338.09	5,011.00	392.82	-157.98	-393.91	0.00	0.00	0.00
Grayburg									
5,100.00	10.00	338.09	5,063.42	401.40	-161.43	-402.51	0.00	0.00	0.00
5,200.00	10.00	338.09	5,161.91	417.51	-167.91	-418.67	0.00	0.00	0.00
5,300.00	10.00	338.09	5,260.39	433.62	-174.39	-434.82	0.00	0.00	0.00
5,400.00	10.00	338.09	5,358.87	449.72	-180.86	-450.98	0.00	0.00	0.00
5,500.00	10.00	338.09	5,457.35	465.83	-187.34	-467.13	0.00	0.00	0.00
5,502.69	10.00	338.09	5,460.00	466.27	-187.52	-467.57	0.00	0.00	0.00
Capitan Reef									
5,600.00	10.00	338.09	5,555.83	481.94	-193.82	-483.29	0.00	0.00	0.00
5,700.00	10.00	338.09	5,654.31	498.05	-200.30	-499.44	0.00	0.00	0.00
5,800.00	10.00	338.09	5,752.79	514.16	-206.78	-515.59	0.00	0.00	0.00
5,900.00	10.00	338.09	5,851.27	530.27	-213.26	-531.75	0.00	0.00	0.00

PHOENIX TECHNOLOGY SERVICES

Phoenix

Planning Report

Marathon Oil Corporation

Database:	USAEDMDB	**Local Co-ordinate Reference:**	Well Hefeweizen State Com 301H
Company:	Marathon Oil Permian LLC	**TVD Reference:**	RKB @ 3809.60usft (Cactus 171)
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	RKB @ 3809.60usft (Cactus 171)
Site:	Gong Worthy - Hefeweizen Pad	**North Reference:**	Grid
Well:	Hefeweizen State Com 301H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 11-14-23		

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)
5,903.79	10.00	338.09	5,855.00	530.88	-213.50	-532.36	0.00	0.00	0.00
Cherry Canyon									
6,000.00	10.00	338.09	5,949.75	546.38	-219.74	-547.90	0.00	0.00	0.00
6,100.00	10.00	338.09	6,048.23	562.49	-226.22	-564.06	0.00	0.00	0.00
6,200.00	10.00	338.09	6,146.72	578.60	-232.69	-580.21	0.00	0.00	0.00
6,300.00	10.00	338.09	6,245.20	594.71	-239.17	-596.37	0.00	0.00	0.00
6,400.00	10.00	338.09	6,343.68	610.82	-245.65	-612.52	0.00	0.00	0.00
6,500.00	10.00	338.09	6,442.16	626.93	-252.13	-628.68	0.00	0.00	0.00
6,600.00	10.00	338.09	6,540.64	643.04	-258.61	-644.83	0.00	0.00	0.00
6,700.00	10.00	338.09	6,639.12	659.15	-265.09	-660.98	0.00	0.00	0.00
6,800.00	10.00	338.09	6,737.60	675.26	-271.57	-677.14	0.00	0.00	0.00
6,810.12	10.00	338.09	6,747.57	676.89	-272.22	-678.77	0.00	0.00	0.00
Begin 2.00°/100' Drop									
6,817.67	9.85	338.09	6,755.00	678.10	-272.71	-679.98	2.00	-2.00	0.00
Brushy Canyon									
6,900.00	8.20	338.09	6,836.31	690.08	-277.53	-692.00	2.00	-2.00	0.00
7,000.00	6.20	338.09	6,935.52	701.71	-282.20	-703.66	2.00	-2.00	0.00
7,100.00	4.20	338.09	7,035.10	710.12	-285.59	-712.10	2.00	-2.00	0.00
7,200.00	2.20	338.09	7,134.94	715.30	-287.67	-717.29	2.00	-2.00	0.00
7,300.00	0.20	338.09	7,234.91	717.25	-288.45	-719.24	2.00	-2.00	0.00
7,310.09	0.00	0.00	7,245.00	717.26	-288.46	-719.26	2.00	-2.00	0.00
Begin Vertical Hold									
8,384.09	0.00	0.00	8,319.00	717.26	-288.46	-719.26	0.00	0.00	0.00
Bone Spring Lime									
8,512.09	0.00	0.00	8,447.00	717.26	-288.46	-719.26	0.00	0.00	0.00
Upper Avalon Shale									
9,242.13	0.00	0.00	9,177.04	717.26	-288.46	-719.26	0.00	0.00	0.00
KOP2, Begin 10.00°/100' Build									
9,300.00	5.79	184.75	9,234.82	714.35	-288.70	-716.35	10.00	10.00	0.00
9,400.00	15.79	184.75	9,332.92	695.73	-290.25	-697.74	10.00	10.00	0.00
9,500.00	25.79	184.75	9,426.30	660.40	-293.18	-662.43	10.00	10.00	0.00
9,600.00	35.79	184.75	9,512.09	609.46	-297.42	-611.52	10.00	10.00	0.00
9,700.00	45.79	184.75	9,587.71	544.44	-302.82	-546.54	10.00	10.00	0.00
9,740.65	49.85	184.75	9,615.00	514.43	-305.31	-516.55	10.00	10.00	0.00
1st Bone Spring Sand									
9,800.00	55.79	184.75	9,650.85	467.32	-309.23	-469.47	10.00	10.00	0.00
9,900.00	65.79	184.75	9,699.60	380.45	-316.45	-382.65	10.00	10.00	0.00
10,000.00	75.79	184.75	9,732.46	286.47	-324.26	-288.72	10.00	10.00	0.00
10,100.00	85.79	184.75	9,748.45	188.22	-332.42	-190.54	10.00	10.00	0.00
10,142.13	90.00	184.75	9,750.00	146.27	-335.91	-148.62	10.00	10.00	0.00
LP, Hold 90.00° Inc, Begin 2.00°/100' Turn									
10,200.00	90.00	183.59	9,750.00	88.56	-340.11	-90.93	2.00	0.00	-2.00
10,300.00	90.00	181.59	9,750.00	-11.34	-344.64	8.93	2.00	0.00	-2.00
10,399.45	90.00	179.60	9,750.00	-110.77	-345.68	108.36	2.00	0.00	-2.00
Hold 179.60° Azm									
10,400.00	90.00	179.60	9,750.00	-111.32	-345.67	108.91	0.00	0.00	0.00
10,500.00	90.00	179.60	9,750.00	-211.32	-344.98	208.91	0.00	0.00	0.00
10,600.00	90.00	179.60	9,750.00	-311.32	-344.29	308.91	0.00	0.00	0.00
10,700.00	90.00	179.60	9,750.00	-411.32	-343.60	408.91	0.00	0.00	0.00
10,800.00	90.00	179.60	9,750.00	-511.32	-342.91	508.91	0.00	0.00	0.00
10,900.00	90.00	179.60	9,750.00	-611.31	-342.21	608.91	0.00	0.00	0.00
11,000.00	90.00	179.60	9,750.00	-711.31	-341.52	708.91	0.00	0.00	0.00
11,100.00	90.00	179.60	9,750.00	-811.31	-340.83	808.91	0.00	0.00	0.00

PHOENIX TECHNOLOGY SERVICES

Phoenix

Planning Report

Marathon Oil Corporation

Database:	USAEDMDB	**Local Co-ordinate Reference:**	Well Hefeweizen State Com 301H
Company:	Marathon Oil Permian LLC	**TVD Reference:**	RKB @ 3809.60usft (Cactus 171)
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	RKB @ 3809.60usft (Cactus 171)
Site:	Gong Worthy - Hefeweizen Pad	**North Reference:**	Grid
Well:	Hefeweizen State Com 301H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 11-14-23		

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)
11,200.00	90.00	179.60	9,750.00	-911.31	-340.14	908.91	0.00	0.00	0.00
11,300.00	90.00	179.60	9,750.00	-1,011.30	-339.45	1,008.91	0.00	0.00	0.00
11,400.00	90.00	179.60	9,750.00	-1,111.30	-338.75	1,108.91	0.00	0.00	0.00
11,500.00	90.00	179.60	9,750.00	-1,211.30	-338.06	1,208.91	0.00	0.00	0.00
11,600.00	90.00	179.60	9,750.00	-1,311.30	-337.37	1,308.91	0.00	0.00	0.00
11,700.00	90.00	179.60	9,750.00	-1,411.29	-336.68	1,408.91	0.00	0.00	0.00
11,800.00	90.00	179.60	9,750.00	-1,511.29	-335.99	1,508.91	0.00	0.00	0.00
11,900.00	90.00	179.60	9,750.00	-1,611.29	-335.30	1,608.91	0.00	0.00	0.00
12,000.00	90.00	179.60	9,750.00	-1,711.29	-334.60	1,708.91	0.00	0.00	0.00
12,100.00	90.00	179.60	9,750.00	-1,811.28	-333.91	1,808.91	0.00	0.00	0.00
12,200.00	90.00	179.60	9,750.00	-1,911.28	-333.22	1,908.91	0.00	0.00	0.00
12,300.00	90.00	179.60	9,750.00	-2,011.28	-332.53	2,008.91	0.00	0.00	0.00
12,400.00	90.00	179.60	9,750.00	-2,111.28	-331.84	2,108.91	0.00	0.00	0.00
12,500.00	90.00	179.60	9,750.00	-2,211.27	-331.15	2,208.91	0.00	0.00	0.00
12,600.00	90.00	179.60	9,750.00	-2,311.27	-330.45	2,308.91	0.00	0.00	0.00
12,700.00	90.00	179.60	9,750.00	-2,411.27	-329.76	2,408.91	0.00	0.00	0.00
12,800.00	90.00	179.60	9,750.00	-2,511.27	-329.07	2,508.91	0.00	0.00	0.00
12,900.00	90.00	179.60	9,750.00	-2,611.27	-328.38	2,608.91	0.00	0.00	0.00
13,000.00	90.00	179.60	9,750.00	-2,711.26	-327.69	2,708.91	0.00	0.00	0.00
13,100.00	90.00	179.60	9,750.00	-2,811.26	-326.99	2,808.91	0.00	0.00	0.00
13,200.00	90.00	179.60	9,750.00	-2,911.26	-326.30	2,908.91	0.00	0.00	0.00
13,300.00	90.00	179.60	9,750.00	-3,011.26	-325.61	3,008.91	0.00	0.00	0.00
13,400.00	90.00	179.60	9,750.00	-3,111.25	-324.92	3,108.91	0.00	0.00	0.00
13,500.00	90.00	179.60	9,750.00	-3,211.25	-324.23	3,208.91	0.00	0.00	0.00
13,600.00	90.00	179.60	9,750.00	-3,311.25	-323.54	3,308.91	0.00	0.00	0.00
13,700.00	90.00	179.60	9,750.00	-3,411.25	-322.84	3,408.91	0.00	0.00	0.00
13,800.00	90.00	179.60	9,750.00	-3,511.24	-322.15	3,508.91	0.00	0.00	0.00
13,900.00	90.00	179.60	9,750.00	-3,611.24	-321.46	3,608.91	0.00	0.00	0.00
14,000.00	90.00	179.60	9,750.00	-3,711.24	-320.77	3,708.91	0.00	0.00	0.00
14,100.00	90.00	179.60	9,750.00	-3,811.24	-320.08	3,808.91	0.00	0.00	0.00
14,200.00	90.00	179.60	9,750.00	-3,911.23	-319.38	3,908.91	0.00	0.00	0.00
14,300.00	90.00	179.60	9,750.00	-4,011.23	-318.69	4,008.91	0.00	0.00	0.00
14,400.00	90.00	179.60	9,750.00	-4,111.23	-318.00	4,108.91	0.00	0.00	0.00
14,500.00	90.00	179.60	9,750.00	-4,211.23	-317.31	4,208.91	0.00	0.00	0.00
14,600.00	90.00	179.60	9,750.00	-4,311.22	-316.62	4,308.91	0.00	0.00	0.00
14,700.00	90.00	179.60	9,750.00	-4,411.22	-315.93	4,408.91	0.00	0.00	0.00
14,800.00	90.00	179.60	9,750.00	-4,511.22	-315.23	4,508.91	0.00	0.00	0.00
14,900.00	90.00	179.60	9,750.00	-4,611.22	-314.54	4,608.91	0.00	0.00	0.00
15,000.00	90.00	179.60	9,750.00	-4,711.21	-313.85	4,708.91	0.00	0.00	0.00
15,100.00	90.00	179.60	9,750.00	-4,811.21	-313.16	4,808.91	0.00	0.00	0.00
15,200.00	90.00	179.60	9,750.00	-4,911.21	-312.47	4,908.91	0.00	0.00	0.00
15,300.00	90.00	179.60	9,750.00	-5,011.21	-311.78	5,008.91	0.00	0.00	0.00
15,400.00	90.00	179.60	9,750.00	-5,111.21	-311.08	5,108.91	0.00	0.00	0.00
15,500.00	90.00	179.60	9,750.00	-5,211.20	-310.39	5,208.91	0.00	0.00	0.00
15,600.00	90.00	179.60	9,750.00	-5,311.20	-309.70	5,308.91	0.00	0.00	0.00
15,700.00	90.00	179.60	9,750.00	-5,411.20	-309.01	5,408.91	0.00	0.00	0.00
15,800.00	90.00	179.60	9,750.00	-5,511.20	-308.32	5,508.91	0.00	0.00	0.00
15,900.00	90.00	179.60	9,750.00	-5,611.19	-307.62	5,608.91	0.00	0.00	0.00
16,000.00	90.00	179.60	9,750.00	-5,711.19	-306.93	5,708.91	0.00	0.00	0.00
16,100.00	90.00	179.60	9,750.00	-5,811.19	-306.24	5,808.91	0.00	0.00	0.00
16,200.00	90.00	179.60	9,750.00	-5,911.19	-305.55	5,908.91	0.00	0.00	0.00
16,300.00	90.00	179.60	9,750.00	-6,011.18	-304.86	6,008.91	0.00	0.00	0.00
16,400.00	90.00	179.60	9,750.00	-6,111.18	-304.17	6,108.91	0.00	0.00	0.00
16,500.00	90.00	179.60	9,750.00	-6,211.18	-303.47	6,208.91	0.00	0.00	0.00

PHOENIX TECHNOLOGY SERVICES

Phoenix
Planning Report

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Design:	Plan 2 11-14-23		

Planned Survey

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16,600.00	90.00	179.60	9,750.00	-6,311.18	-302.78	6,308.91	0.00	0.00	0.00
16,700.00	90.00	179.60	9,750.00	-6,411.17	-302.09	6,408.91	0.00	0.00	0.00
16,800.00	90.00	179.60	9,750.00	-6,511.17	-301.40	6,508.91	0.00	0.00	0.00
16,900.00	90.00	179.60	9,750.00	-6,611.17	-300.71	6,608.91	0.00	0.00	0.00
17,000.00	90.00	179.60	9,750.00	-6,711.17	-300.02	6,708.91	0.00	0.00	0.00
17,100.00	90.00	179.60	9,750.00	-6,811.16	-299.32	6,808.91	0.00	0.00	0.00
17,200.00	90.00	179.60	9,750.00	-6,911.16	-298.63	6,908.91	0.00	0.00	0.00
17,300.00	90.00	179.60	9,750.00	-7,011.16	-297.94	7,008.91	0.00	0.00	0.00
17,400.00	90.00	179.60	9,750.00	-7,111.16	-297.25	7,108.91	0.00	0.00	0.00
17,500.00	90.00	179.60	9,750.00	-7,211.16	-296.56	7,208.91	0.00	0.00	0.00
17,600.00	90.00	179.60	9,750.00	-7,311.15	-295.86	7,308.91	0.00	0.00	0.00
17,700.00	90.00	179.60	9,750.00	-7,411.15	-295.17	7,408.91	0.00	0.00	0.00
17,800.00	90.00	179.60	9,750.00	-7,511.15	-294.48	7,508.91	0.00	0.00	0.00
17,900.00	90.00	179.60	9,750.00	-7,611.15	-293.79	7,608.91	0.00	0.00	0.00
18,000.00	90.00	179.60	9,750.00	-7,711.14	-293.10	7,708.91	0.00	0.00	0.00
18,100.00	90.00	179.60	9,750.00	-7,811.14	-292.41	7,808.91	0.00	0.00	0.00
18,200.00	90.00	179.60	9,750.00	-7,911.14	-291.71	7,908.91	0.00	0.00	0.00
18,300.00	90.00	179.60	9,750.00	-8,011.14	-291.02	8,008.91	0.00	0.00	0.00
18,400.00	90.00	179.60	9,750.00	-8,111.13	-290.33	8,108.91	0.00	0.00	0.00
18,500.00	90.00	179.60	9,750.00	-8,211.13	-289.64	8,208.91	0.00	0.00	0.00
18,600.00	90.00	179.60	9,750.00	-8,311.13	-288.95	8,308.91	0.00	0.00	0.00
18,700.00	90.00	179.60	9,750.00	-8,411.13	-288.25	8,408.91	0.00	0.00	0.00
18,800.00	90.00	179.60	9,750.00	-8,511.12	-287.56	8,508.91	0.00	0.00	0.00
18,900.00	90.00	179.60	9,750.00	-8,611.12	-286.87	8,608.91	0.00	0.00	0.00
19,000.00	90.00	179.60	9,750.00	-8,711.12	-286.18	8,708.91	0.00	0.00	0.00
19,100.00	90.00	179.60	9,750.00	-8,811.12	-285.49	8,808.91	0.00	0.00	0.00
19,200.00	90.00	179.60	9,750.00	-8,911.11	-284.80	8,908.91	0.00	0.00	0.00
19,300.00	90.00	179.60	9,750.00	-9,011.11	-284.10	9,008.91	0.00	0.00	0.00
19,400.00	90.00	179.60	9,750.00	-9,111.11	-283.41	9,108.91	0.00	0.00	0.00
19,500.00	90.00	179.60	9,750.00	-9,211.11	-282.72	9,208.91	0.00	0.00	0.00
19,600.00	90.00	179.60	9,750.00	-9,311.10	-282.03	9,308.91	0.00	0.00	0.00
19,700.00	90.00	179.60	9,750.00	-9,411.10	-281.34	9,408.91	0.00	0.00	0.00
19,800.00	90.00	179.60	9,750.00	-9,511.10	-280.65	9,508.91	0.00	0.00	0.00
19,900.00	90.00	179.60	9,750.00	-9,611.10	-279.95	9,608.91	0.00	0.00	0.00
20,000.00	90.00	179.60	9,750.00	-9,711.10	-279.26	9,708.91	0.00	0.00	0.00
20,100.00	90.00	179.60	9,750.00	-9,811.09	-278.57	9,808.91	0.00	0.00	0.00
20,200.00	90.00	179.60	9,750.00	-9,911.09	-277.88	9,908.91	0.00	0.00	0.00
20,300.00	90.00	179.60	9,750.00	-10,011.09	-277.19	10,008.91	0.00	0.00	0.00
20,400.00	90.00	179.60	9,750.00	-10,111.09	-276.49	10,108.91	0.00	0.00	0.00
20,500.00	90.00	179.60	9,750.00	-10,211.08	-275.80	10,208.91	0.00	0.00	0.00
20,553.89	90.00	179.60	9,750.00	-10,264.97	-275.43	10,262.80	0.00	0.00	0.00
TD at 20553.89									

PHOENIX TECHNOLOGY SERVICES

Phoenix
Planning Report

Marathon Oil Corporation

Database:	USAEDMDB	**Local Co-ordinate Reference:**	Well Hefeweizen State Com 301H
Company:	Marathon Oil Permian LLC	**TVD Reference:**	RKB @ 3809.60usft (Cactus 171)
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	RKB @ 3809.60usft (Cactus 171)
Site:	Gong Worthy - Hefeweizen Pad	**North Reference:**	Grid
Well:	Hefeweizen State Com 301H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2 11-14-23		

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
FTP - Hef SC 301H - plan misses target center by 11.38usft at 10144.92usft MD (9750.00 TVD, 143.49 N, -336.14 E) - Point	0.00	0.00	9,750.00	144.32	-347.49	596,962.29	758,710.05	32° 38' 18.019241 N	3° 29' 34.471358 W
LTP/BHL - Hef SC 30′ - plan hits target center - Point	0.00	0.00	9,750.00	-10,264.97	-275.43	586,553.00	758,782.11	32° 36' 35.017019 N	3° 29' 34.591323 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,893.00	1,893.00	Rustler		0.000	179.60
3,668.84	3,654.00	Yates		0.000	179.60
4,108.51	4,087.00	Seven Rivers		0.000	179.60
4,802.05	4,770.00	Queen		0.000	179.60
5,046.77	5,011.00	Grayburg		0.000	179.60
5,502.69	5,460.00	Capitan Reef		0.000	179.60
5,903.79	5,855.00	Cherry Canyon		0.000	179.60
6,817.67	6,755.00	Brushy Canyon		0.000	179.60
8,384.09	8,319.00	Bone Spring Lime		0.000	179.60
8,512.09	8,447.00	Upper Avalon Shale		0.000	179.60
9,740.65	9,615.00	1st Bone Spring Sand		0.000	179.60

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,359.00	2,359.00	0.00	0.00	KOP, Begin 2.00°/100' Build
2,858.96	2,856.43	40.37	-16.24	Hold 10.00° Inc at 338.09° Azm
6,810.12	6,747.57	676.89	-272.22	Begin 2.00°/100' Drop
7,310.09	7,245.00	717.26	-288.46	Begin Vertical Hold
9,242.13	9,177.04	717.26	-288.46	KOP2, Begin 10.00°/100' Build
10,142.13	9,750.00	146.27	-335.91	LP, Hold 90.00° Inc, Begin 2.00°/100' Turn
10,399.45	9,750.00	-110.77	-345.68	Hold 179.60° Azm
20,553.89	9,750.00	-10,264.97	-275.43	TD at 20553.89

MARATHON OIL PERMIAN, LLC.

DRILLING AND OPERATIONS PLAN

WELL NAME & NUMBER: **HEFEWEIZEN STATE COM 301H**

LOCATION: SECTION **30** TOWNSHIP **19S** RANGE **35E**

LEA COUNTY, **NEW MEXICO**

Section 1: GEOLOGICAL FORMATIONS

Name of Surface Formation: Permian

Elevation: 3786 *feet*

Estimated Tops of Important Geological Markers:

Formation	TVD (ft)	MD (ft)	Elevation (ft SS)	Lithologies	Mineral Resources	Producing Formation?
Rustler	1893	1920	1893	Anhydrite	Brine	No
Yates	3654	3681	132	Salt/Anhydrite	Brine	No
Seven Rivers	4087	4114	-301	Salt/Anhydrite	Brine	No
Queen	4770	4797	-984	Salt/Anhydrite	Brine	No
Grayburg	5011	5038	-1225	Sandstone/Shale	None	No
Capitan Reef	5460	5487	-1674	Sandstone	Oil	No
Cherry Canyon	5855	5882	-2069	Sandstone	Oil	No
Brushy Canyon	6755	6782	-2969	Sandstone	Oil	No
Bone Spring Lime	8319	8346	-4533	Limestone	None	No
Upper Avalon Shale	8447	8474	-4661	Shale	Oil	Yes
1st Bone Spring Sand	9615	9642	-5829	Sandstone	Oil	Yes
2nd Bone Spring Carbonate	9944	9971	-6158	Limestone/Shale	None	No
2nd Bone Spring Sand	10120	10147	-6334	Sandstone	Oil	Yes
3rd Bone Spring Carbonate	10596	10623	-6810	Limestone	Oil	No
3rd Bone Spring Sand	10762	10789	-6976	Sandstone	Oil	Yes
Wolfcamp	10979	11006	-7193	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp A	11097	11124	-7311	Sandstone/Shale/Carbonates	Natural Gas / Oil	Yes
Wolfcamp B	11307	11334	-7521	Sandstone/Shale/Carbonates	Natural Gas / Oil	No

Section 2: BLOWOUT PREVENTER TESTING PROCEDURE

Pressure Rating (PSI): 10M

Rating Depth: 10000

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

Requesting Variance? Yes

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

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

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

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

Section 3: CASING PROGRAM

String Type	Hole Size	Casing Size	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Weight (lbs/ft)	Grade	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
Surface	17.5	13.375	0	1918	0	1918	3786	1868	54.5	J55	BTC	5.22	1.81	BUOY	4.52	BUOY	4.52
Intermediate	12.25	9.625	0	9142	0	9077	3786	-5291	40	P110HC	BTC	1.20	1.42	BUOY	2.44	BUOY	2.44
Production	8.75	5.5	0	20553	0	9750	3786	-5964	23	P110HC	TLW	2.53	1.26	BUOY	2.22	BUOY	2.22
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h												Safety Factors will Meet or Exceed					

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

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

Section 4: CEMENT PROGRAM

String Type	Lead/Tail	Top MD	Bottom MD	Quantity (sks)	Yield (ft^3/sks)	Density (ppg)	Slurry Volume (ft^3)	Excess (%)	Cement Type	Additives
Surface	Lead	0	1768	747	2.12	12.5	1584	25	Class C	Extender,Accelerator,LCM
Surface	Tail	1768	1918	99	1.32	14.8	130	25	Class C	Accelerator
Intermediate	Lead	0	8642	1606	2.18	12.4	3502	25	Class C	Extender,Accelerator,LCM
Intermediate	Tail	8642	9142	147	1.33	14.8	196	25	Class C	Retarder
Production	Tail	8842	20553	2242	1.68	13	3766	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	1918	Water Based Mud	8.4	8.8
1918	9142	Brine or Oil Based Mud	9.2	10.2
9142	20553	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: **6338** PSI
Anticipated Bottom Hole Temperature: **195** ˚F
Anticipated Abnormal Pressure? **No**
Anticipated Abnormal Temperature? **No**

Potential Hazards:
H2S detection equipment will be in operation after drilling out the surface casing shoe until the production casing has been cemented. Breathing equipment will be on location from drilling out the surface shoe until production casing is cemented. If H2S is encountered the operator will comply with Onshore Order #6. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. See attached H2S Contingency Plan.

Section 8: OTHER INFORMATION

Auxiliary Well Control and Monitoring Equipment:
A Kelly cock will be in the drill string at all times. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor unobstructed and readily accessible at all times.
Hydrogen Sulfide detection equipment will be in operation after drilling out the surface casing shoe until the production casing is cemented. Breathing equipment will be on location upon drilling the surface casing shoe until total depth is reached. If Hydrogen Sulfide is encountered, measured amounts and formations will be reported to the BLM.

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

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

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

NATURAL GAS MANAGEMENT PLAN

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

Section 1 – Plan Description
Effective May 25, 2021

I. Operator: Marathon Oil Permian LLC **OGRID:** 972098 **Date:** 12 / 06 / 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
Please see attached						

IV. Central Delivery Point Name: Gong-Worthy Hefeweizen Com CTB [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Please see attached						

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

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

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

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

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

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

IX. Anticipated Natural Gas Production:

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

X. Natural Gas Gathering System (NGGS):

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

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

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

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

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

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

Section 3 - Certifications

Effective May 25, 2021

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

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

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

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

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

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

Section 4 - Notices

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

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

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

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

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

Signature:	
Printed Name:	Adrian Covarrubias
Title:	Regulatory Compliance Representative
E-mail Address:	acovarrubias@marathonoil.com
Date:	12/06/2023
Phone:	713-296-3368

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.

- **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.

III. Wells

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Hefeweizen State Com 301H		A-30-19S-35E	247 FNL 1303 FEL	1210	1680	3500
Hefeweizen State Com 302H		A-30-19S-35E	247 FNL 1273 FEL	1210	1680	3500
Gong Worthy State Com 601H		B-30-19S-35E	246 FNL 1333 FEL	1590	990	2730

V. Anticipated Schedule

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Hefeweizen State Com 301H		1/11/2024	1/29/2024	6/14/2024	7/14/2024	7/14/2024
Hefeweizen State Com 302H		1/9/2024	2/15/2024	6/14/2024	7/14/2024	7/14/2024
Gong Worthy State Com 601H		1/4/2024	3/20/2024	6/14/2024	7/14/2024	7/14/2024