

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 324647

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

1. Operator Name and Address MARATHON OIL PERMIAN LLC 990 Town & Country Blvd. Houston, TX 77024		2. OGRID Number 372098
		3. API Number 30-025-50618
4. Property Code 333309	5. Property Name GRAMA RIDGE 116 35 SB STATE COM	6. Well No. 201H

7. Surface Location

UL - Lot B	Section 35	Township 21S	Range 34E	Lot Idn B	Feet From 371	N/S Line N	Feet From 1616	E/W Line E	County Lea
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8. Proposed Bottom Hole Location

UL - Lot O	Section 2	Township 22S	Range 34E	Lot Idn O	Feet From 100	N/S Line S	Feet From 2310	E/W Line E	County Lea
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9. Pool Information

GRAMA RIDGE;BONE SPRING, NE	28435
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Additional Well Information

11. Work Type New Well	12. Well Type OIL	13. Cable/Rotary	14. Lease Type Private	15. Ground Level Elevation 3679
16. Multiple N	17. Proposed Depth 20689	18. Formation 2nd Bone Spring Sand	19. Contractor	20. Spud Date 11/5/2022
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	1739	920	0
Int1	12.25	9.625	40	5729	1270	0
Prod	8.75	5.5	23	20689	2593	5529

Casing/Cement Program: Additional Comments

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22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	5000	5000	Cactus
Pipe	5000	5000	Cactus

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.	OIL CONSERVATION DIVISION	
Signature:		
Printed Name: Electronically filed by Melissa Szudera	Approved By: Paul F Kautz	
Title: Regulatory Compliance Representative	Title: Geologist	
Email Address: mszudera@marathonoil.com	Approved Date: 9/22/2022	Expiration Date: 9/22/2024
Date: 9/6/2022	Phone: 713-296-3179	Conditions of Approval Attached

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Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico

Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, NM 87505

Form C-102

Revised August 1, 2011

Submit one copy to appropriate

District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-50618	² Pool Code 28435	³ Pool Name GRAMA RIDGE; BONE SPRING NE
⁴ Property Code 333309	⁵ Property Name GRAMA RIDGE 116 35 SB STATE COM	⁶ Well Number 201H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 3679'

¹⁰ Surface Location

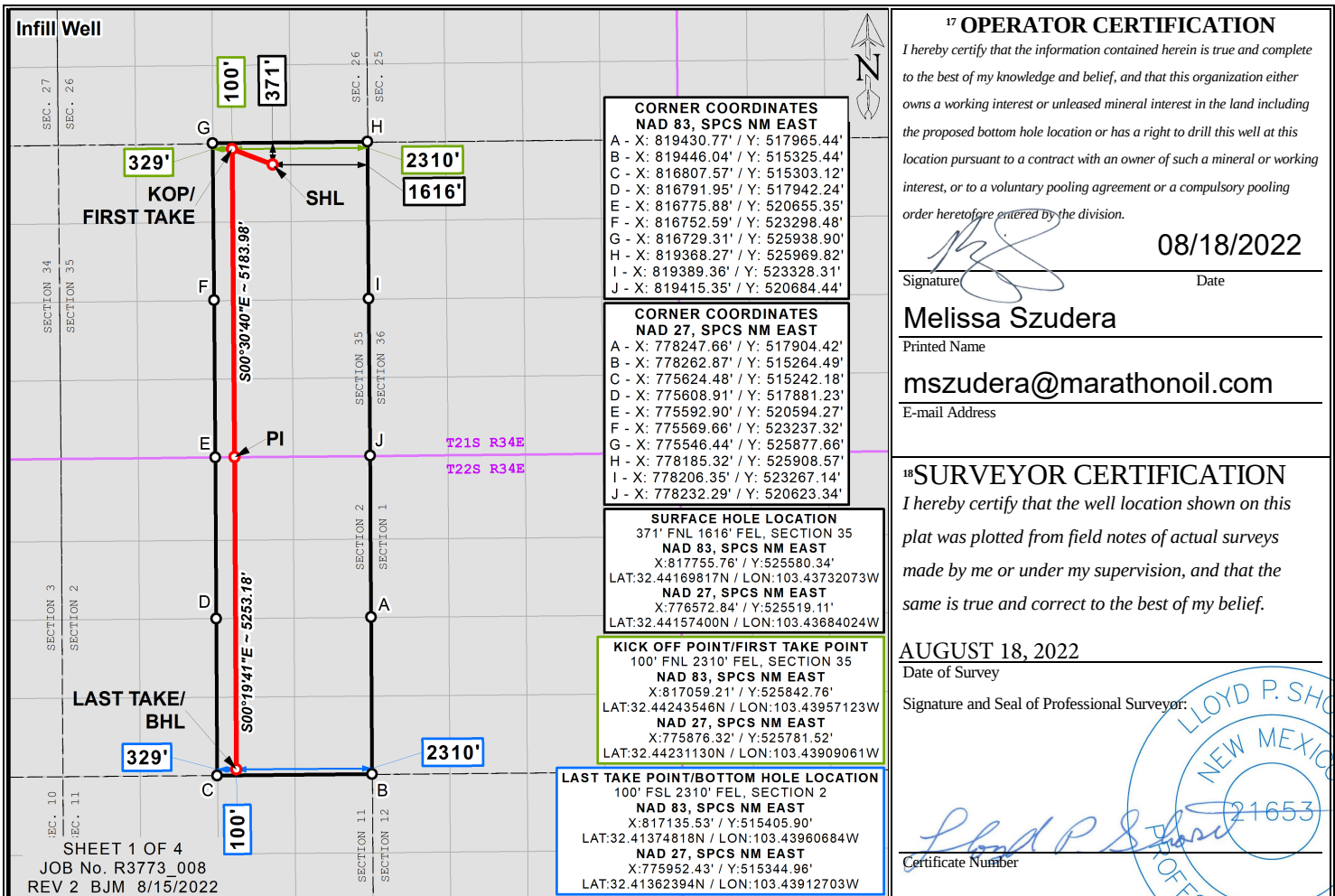
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	35	21S	34E		371	NORTH	1616	EAST	LEA

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	2	22S	34E		100	SOUTH	2310	EAST	LEA

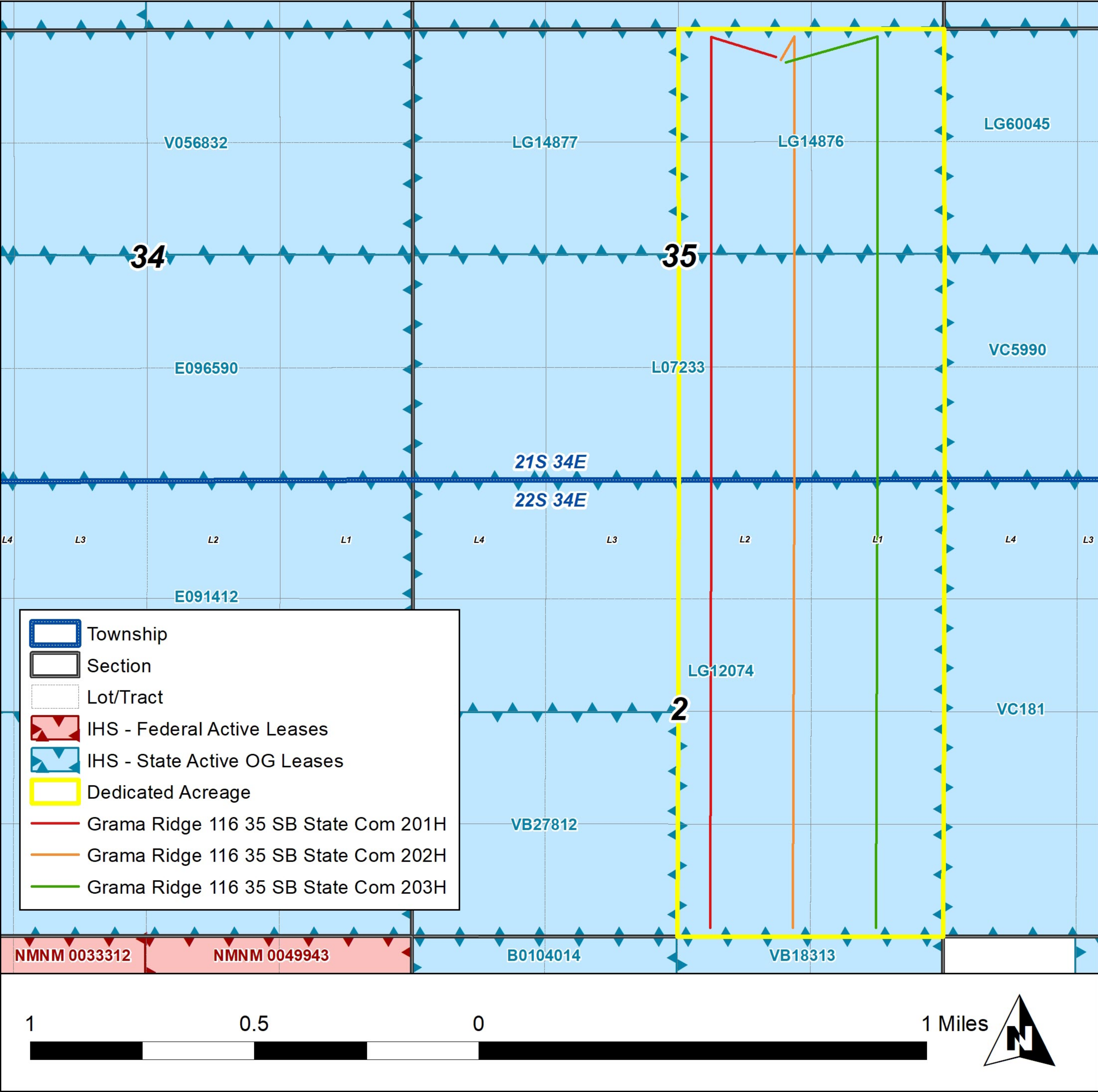
¹² Dedicated Acres 644.63	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



MARATHON OIL PERMIAN, LLC.
OIL & GAS LEASE OWNERSHIP MAP

GRAMA RIDGE 116 35 SB STATE COM 201H
GRAMA RIDGE 116 35 SB STATE COM 202H
GRAMA RIDGE 116 35 SB STATE COM 203H



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

Form APD Conditions

Permit 324647

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address: MARATHON OIL PERMIAN LLC [372098] 990 Town & Country Blvd. Houston, TX 77024	API Number: 30-025-50618
	Well: GRAMA RIDGE 116 35 SB STATE COM #201H

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	The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud

MARATHON OIL PERMIAN, LLC.
DRILLING & OPERATIONS PLAN

Well Name: **GRAMA RIDGE 116 35 SB STATE COM 201H**

Well SHL: Unit Letter B, 371' FNL, 1616' FEL
Section 35, Township 21S, Range 34E
Lea County, New Mexico

CASING PROGRAM

String Type	Hole Size	Csg Size	Top Set MD	Bottom Set MD	Weight (lbs/ft)	Grade
Surface	17 1/2	13 3/8	0	1,739	54.5	J55
Intermediate	12 1/4	9 5/8	0	5,729	40	P110
Production	8 3/4	5 1/2	0	20,689	23	P110

CEMENT PROGRAM

String Type	Top MD	Bottom MD	Quantity (sks)
Surface	0	1,739	920
Intermediate	0	5,729	1270
Production	5,529	20,689	2593

MUD PROGRAM

Hole Section	Mud Type
Surface	Water Based Mud
Intermediate	Brine
Production	Cut Brine / OBM

PRESSURE CONTROL EQUIPMENT

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12 1/4	13 5/8	5000	Annular	X	50% of working pressure
			Blind Ram	X	5000
			Pipe Ram	X	
			Pipe Ram	X	
8 3/4	13 5/8	5000	5M Annular	X	50% of working pressure
			Blind Ram	X	5000
			Pipe Ram	X	
			Pipe Ram	X	



Marathon Oil Permian LLC

Lea County, New Mexico (NAD 27)

Sec 35, T21S, R34E

Grama Ridge 116 35 SB State Com #201H

Wellbore #1

Plan: Design #2

KLX Well Planning Report

02 September, 2022





KLX
Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Grama Ridge 116 35 SB State Com #201H
Company:	Marathon Oil Permian LLC	TVD Reference:	KB=25' @ 3704.0usft (Cactus #171)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	KB=25' @ 3704.0usft (Cactus #171)
Site:	Sec 35, T21S, R34E	North Reference:	Grid
Well:	Grama Ridge 116 35 SB State Com #201H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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

Site	Sec 35, T21S, R34E		
Site Position:		Northing:	525,551.33 usft
From:	Map	Easting:	776,522.23 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 26' 29.989 N
		Longitude:	103° 26' 13.212 W
		Grid Convergence:	0.48 °

Well	Grama Ridge 116 35 SB State Com #201H		
Well Position	+N/-S	-32.2 usft	Northing:
	+E/-W	50.6 usft	Easting:
Position Uncertainty	0.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2022	9/2/2022	6.35	60.15	47,729.30000000

Design	Design #2				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	179.58	

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,355.3	9.11	290.64	2,353.4	12.7	-33.8	2.00	2.00	0.00	290.64	
6,602.0	9.11	290.64	6,546.6	249.7	-662.7	0.00	0.00	0.00	0.00	
7,057.4	0.00	0.00	7,000.0	262.4	-696.5	2.00	-2.00	0.00	180.00	VP - Grama Ridge #2
9,979.9	0.00	0.00	9,922.5	262.4	-696.5	0.00	0.00	0.00	0.00	
10,729.8	90.00	179.58	10,400.0	-215.0	-693.0	12.00	12.00	23.94	179.58	
20,689.2	90.00	179.58	10,400.0	-10,174.1	-620.4	0.00	0.00	0.00	0.00	PBHL - Grama Ridge



KLX
Well Planning Report



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Company:	Marathon Oil Permian LLC	TVD Reference:	KB=25' @ 3704.0usft (Cactus #171)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	KB=25' @ 3704.0usft (Cactus #171)
Site:	Sec 35, T21S, R34E	North Reference:	Grid
Well:	Grama Ridge 116 35 SB State Com #201H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler									
1,714.0	0.00	0.00	1,714.0	0.0	0.0	0.0	0.00	0.00	0.00
13 3/8"									
1,739.0	0.00	0.00	1,739.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
Build 2°/100'									
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	2.00	290.64	2,000.0	0.6	-1.6	-0.6	2.00	2.00	0.00
2,100.0	4.00	290.64	2,099.8	2.5	-6.5	-2.5	2.00	2.00	0.00
Salado (Top Salt)									
2,162.4	5.25	290.64	2,162.0	4.2	-11.2	-4.3	2.00	2.00	0.00
2,200.0	6.00	290.64	2,199.5	5.5	-14.7	-5.6	2.00	2.00	0.00
2,300.0	8.00	290.64	2,298.7	9.8	-26.1	-10.0	2.00	2.00	0.00
EOB @ 9.11°Inc/290.64°Az									
2,355.3	9.11	290.64	2,353.4	12.7	-33.8	-13.0	2.00	2.00	0.00
2,400.0	9.11	290.64	2,397.5	15.2	-40.4	-15.5	0.00	0.00	0.00
2,500.0	9.11	290.64	2,496.3	20.8	-55.2	-21.2	0.00	0.00	0.00
2,600.0	9.11	290.64	2,595.0	26.4	-70.0	-26.9	0.00	0.00	0.00
2,700.0	9.11	290.64	2,693.7	32.0	-84.8	-32.6	0.00	0.00	0.00
2,800.0	9.11	290.64	2,792.5	37.5	-99.6	-38.3	0.00	0.00	0.00
2,900.0	9.11	290.64	2,891.2	43.1	-114.5	-44.0	0.00	0.00	0.00
3,000.0	9.11	290.64	2,990.0	48.7	-129.3	-49.6	0.00	0.00	0.00
3,100.0	9.11	290.64	3,088.7	54.3	-144.1	-55.3	0.00	0.00	0.00
3,200.0	9.11	290.64	3,187.4	59.9	-158.9	-61.0	0.00	0.00	0.00
3,300.0	9.11	290.64	3,286.2	65.4	-173.7	-66.7	0.00	0.00	0.00
3,400.0	9.11	290.64	3,384.9	71.0	-188.5	-72.4	0.00	0.00	0.00
3,500.0	9.11	290.64	3,483.7	76.6	-203.3	-78.1	0.00	0.00	0.00
Base of Salt (BX)									
3,572.3	9.11	290.64	3,555.0	80.6	-214.0	-82.2	0.00	0.00	0.00
3,600.0	9.11	290.64	3,582.4	82.2	-218.1	-83.8	0.00	0.00	0.00
3,700.0	9.11	290.64	3,681.1	87.8	-232.9	-89.5	0.00	0.00	0.00
3,800.0	9.11	290.64	3,779.9	93.3	-247.7	-95.2	0.00	0.00	0.00
3,900.0	9.11	290.64	3,878.6	98.9	-262.6	-100.8	0.00	0.00	0.00
4,000.0	9.11	290.64	3,977.4	104.5	-277.4	-106.5	0.00	0.00	0.00



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Well Planning Report



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Well:	Gramma Ridge 116 35 SB State Com #201H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)	
Capitan Reef										
4,063.4	9.11	290.64	4,040.0	108.0	-286.8	-110.1	0.00	0.00	0.00	
4,100.0	9.11	290.64	4,076.1	110.1	-292.2	-112.2	0.00	0.00	0.00	
4,200.0	9.11	290.64	4,174.8	115.7	-307.0	-117.9	0.00	0.00	0.00	
4,300.0	9.11	290.64	4,273.6	121.2	-321.8	-123.6	0.00	0.00	0.00	
4,400.0	9.11	290.64	4,372.3	126.8	-336.6	-129.3	0.00	0.00	0.00	
4,500.0	9.11	290.64	4,471.1	132.4	-351.4	-135.0	0.00	0.00	0.00	
4,600.0	9.11	290.64	4,569.8	138.0	-366.2	-140.7	0.00	0.00	0.00	
4,700.0	9.11	290.64	4,668.5	143.6	-381.0	-146.3	0.00	0.00	0.00	
4,800.0	9.11	290.64	4,767.3	149.1	-395.8	-152.0	0.00	0.00	0.00	
4,900.0	9.11	290.64	4,866.0	154.7	-410.7	-157.7	0.00	0.00	0.00	
5,000.0	9.11	290.64	4,964.8	160.3	-425.5	-163.4	0.00	0.00	0.00	
5,100.0	9.11	290.64	5,063.5	165.9	-440.3	-169.1	0.00	0.00	0.00	
5,200.0	9.11	290.64	5,162.2	171.5	-455.1	-174.8	0.00	0.00	0.00	
5,300.0	9.11	290.64	5,261.0	177.0	-469.9	-180.5	0.00	0.00	0.00	
5,400.0	9.11	290.64	5,359.7	182.6	-484.7	-186.2	0.00	0.00	0.00	
5,500.0	9.11	290.64	5,458.5	188.2	-499.5	-191.8	0.00	0.00	0.00	
5,600.0	9.11	290.64	5,557.2	193.8	-514.3	-197.5	0.00	0.00	0.00	
5,700.0	9.11	290.64	5,655.9	199.4	-529.1	-203.2	0.00	0.00	0.00	
Lamar										
5,764.9	9.11	290.64	5,720.0	203.0	-538.7	-206.9	0.00	0.00	0.00	
9 5/8"										
5,780.1	9.11	290.64	5,735.0	203.8	-541.0	-207.8	0.00	0.00	0.00	
5,800.0	9.11	290.64	5,754.7	204.9	-543.9	-208.9	0.00	0.00	0.00	
5,900.0	9.11	290.64	5,853.4	210.5	-558.8	-214.6	0.00	0.00	0.00	
Cherry Canyon										
5,918.8	9.11	290.64	5,872.0	211.6	-561.5	-215.7	0.00	0.00	0.00	
Bell Canyon										
5,931.0	9.11	290.64	5,884.0	212.2	-563.3	-216.4	0.00	0.00	0.00	
6,000.0	9.11	290.64	5,952.2	216.1	-573.6	-220.3	0.00	0.00	0.00	
6,100.0	9.11	290.64	6,050.9	221.7	-588.4	-226.0	0.00	0.00	0.00	
6,200.0	9.11	290.64	6,149.6	227.2	-603.2	-231.7	0.00	0.00	0.00	
6,300.0	9.11	290.64	6,248.4	232.8	-618.0	-237.4	0.00	0.00	0.00	
6,400.0	9.11	290.64	6,347.1	238.4	-632.8	-243.0	0.00	0.00	0.00	
6,500.0	9.11	290.64	6,445.9	244.0	-647.6	-248.7	0.00	0.00	0.00	
Drop 2°/100'										
6,602.0	9.11	290.64	6,546.6	249.7	-662.7	-254.5	0.00	0.00	0.00	
6,700.0	7.15	290.64	6,643.6	254.6	-675.7	-259.5	2.00	-2.00	0.00	
6,800.0	5.15	290.64	6,743.0	258.3	-685.7	-263.4	2.00	-2.00	0.00	
6,900.0	3.15	290.64	6,842.7	260.9	-692.5	-266.0	2.00	-2.00	0.00	
7,000.0	1.15	290.64	6,942.7	262.2	-696.0	-267.3	2.00	-2.00	0.00	
EOD @ Vertical										
7,057.4	0.00	0.00	7,000.0	262.4	-696.5	-267.5	2.00	-2.00	0.00	
7,100.0	0.00	0.00	7,042.6	262.4	-696.5	-267.5	0.00	0.00	0.00	
Brushy Canyon										
7,112.4	0.00	0.00	7,055.0	262.4	-696.5	-267.5	0.00	0.00	0.00	
7,200.0	0.00	0.00	7,142.6	262.4	-696.5	-267.5	0.00	0.00	0.00	
7,300.0	0.00	0.00	7,242.6	262.4	-696.5	-267.5	0.00	0.00	0.00	
7,400.0	0.00	0.00	7,342.6	262.4	-696.5	-267.5	0.00	0.00	0.00	
7,500.0	0.00	0.00	7,442.6	262.4	-696.5	-267.5	0.00	0.00	0.00	
7,600.0	0.00	0.00	7,542.6	262.4	-696.5	-267.5	0.00	0.00	0.00	
7,700.0	0.00	0.00	7,642.6	262.4	-696.5	-267.5	0.00	0.00	0.00	



KLX
Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Grama Ridge 116 35 SB State Com #201H
Company:	Marathon Oil Permian LLC	TVD Reference:	KB=25' @ 3704.0usft (Cactus #171)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	KB=25' @ 3704.0usft (Cactus #171)
Site:	Sec 35, T21S, R34E	North Reference:	Grid
Well:	Grama Ridge 116 35 SB State Com #201H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)
7,800.0	0.00	0.00	7,742.6	262.4	-696.5	-267.5	0.00	0.00	0.00
7,900.0	0.00	0.00	7,842.6	262.4	-696.5	-267.5	0.00	0.00	0.00
8,000.0	0.00	0.00	7,942.6	262.4	-696.5	-267.5	0.00	0.00	0.00
8,100.0	0.00	0.00	8,042.6	262.4	-696.5	-267.5	0.00	0.00	0.00
8,200.0	0.00	0.00	8,142.6	262.4	-696.5	-267.5	0.00	0.00	0.00
8,300.0	0.00	0.00	8,242.6	262.4	-696.5	-267.5	0.00	0.00	0.00
8,400.0	0.00	0.00	8,342.6	262.4	-696.5	-267.5	0.00	0.00	0.00
Bone Spring Lime									
8,453.4	0.00	0.00	8,396.0	262.4	-696.5	-267.5	0.00	0.00	0.00
8,500.0	0.00	0.00	8,442.6	262.4	-696.5	-267.5	0.00	0.00	0.00
8,600.0	0.00	0.00	8,542.6	262.4	-696.5	-267.5	0.00	0.00	0.00
Upper Avalon Shale									
8,687.4	0.00	0.00	8,630.0	262.4	-696.5	-267.5	0.00	0.00	0.00
8,700.0	0.00	0.00	8,642.6	262.4	-696.5	-267.5	0.00	0.00	0.00
8,800.0	0.00	0.00	8,742.6	262.4	-696.5	-267.5	0.00	0.00	0.00
8,900.0	0.00	0.00	8,842.6	262.4	-696.5	-267.5	0.00	0.00	0.00
9,000.0	0.00	0.00	8,942.6	262.4	-696.5	-267.5	0.00	0.00	0.00
9,100.0	0.00	0.00	9,042.6	262.4	-696.5	-267.5	0.00	0.00	0.00
9,200.0	0.00	0.00	9,142.6	262.4	-696.5	-267.5	0.00	0.00	0.00
9,300.0	0.00	0.00	9,242.6	262.4	-696.5	-267.5	0.00	0.00	0.00
9,400.0	0.00	0.00	9,342.6	262.4	-696.5	-267.5	0.00	0.00	0.00
9,500.0	0.00	0.00	9,442.6	262.4	-696.5	-267.5	0.00	0.00	0.00
9,600.0	0.00	0.00	9,542.6	262.4	-696.5	-267.5	0.00	0.00	0.00
1st Bone Spring Sand									
9,627.4	0.00	0.00	9,570.0	262.4	-696.5	-267.5	0.00	0.00	0.00
9,700.0	0.00	0.00	9,642.6	262.4	-696.5	-267.5	0.00	0.00	0.00
9,800.0	0.00	0.00	9,742.6	262.4	-696.5	-267.5	0.00	0.00	0.00
2nd Bone Spring Carbonate									
9,839.4	0.00	0.00	9,782.0	262.4	-696.5	-267.5	0.00	0.00	0.00
9,900.0	0.00	0.00	9,842.6	262.4	-696.5	-267.5	0.00	0.00	0.00
Build 12°/100'									
9,979.9	0.00	0.00	9,922.5	262.4	-696.5	-267.5	0.00	0.00	0.00
10,000.0	2.42	179.58	9,942.6	262.0	-696.5	-267.1	12.00	12.00	0.00
10,025.0	5.42	179.58	9,967.6	260.3	-696.5	-265.4	12.00	12.00	0.00
10,050.0	8.42	179.58	9,992.4	257.3	-696.5	-262.4	12.00	12.00	0.00
10,075.0	11.42	179.58	10,017.0	253.0	-696.5	-258.1	12.00	12.00	0.00
10,100.0	14.42	179.58	10,041.4	247.4	-696.4	-252.5	12.00	12.00	0.00
10,125.0	17.42	179.58	10,065.4	240.5	-696.4	-245.6	12.00	12.00	0.00
10,150.0	20.42	179.58	10,089.1	232.4	-696.3	-237.5	12.00	12.00	0.00
2nd Bone Spring Sand									
10,167.1	22.47	179.58	10,105.0	226.2	-696.3	-231.3	12.00	12.00	0.00
10,175.0	23.42	179.58	10,112.3	223.1	-696.2	-228.2	12.00	12.00	0.00
10,200.0	26.42	179.58	10,134.9	212.6	-696.2	-217.6	12.00	12.00	0.00
10,225.0	29.42	179.58	10,157.0	200.8	-696.1	-205.9	12.00	12.00	0.00
10,250.0	32.42	179.58	10,178.5	188.0	-696.0	-193.1	12.00	12.00	0.00
10,275.0	35.42	179.58	10,199.2	174.1	-695.9	-179.2	12.00	12.00	0.00
10,300.0	38.42	179.58	10,219.2	159.0	-695.8	-164.1	12.00	12.00	0.00
10,325.0	41.42	179.58	10,238.4	143.0	-695.6	-148.1	12.00	12.00	0.00
10,350.0	44.42	179.58	10,256.7	126.0	-695.5	-131.1	12.00	12.00	0.00
10,375.0	47.42	179.58	10,274.1	108.0	-695.4	-113.1	12.00	12.00	0.00
10,400.0	50.42	179.58	10,290.5	89.2	-695.3	-94.3	12.00	12.00	0.00
10,425.0	53.42	179.58	10,305.9	69.5	-695.1	-74.6	12.00	12.00	0.00



KLX
Well Planning Report



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Project:	Lea County, New Mexico (NAD 27)	MD Reference:	KB=25' @ 3704.0usft (Cactus #171)
Site:	Sec 35, T21S, R34E	North Reference:	Grid
Well:	Grama Ridge 116 35 SB State Com #201H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,450.0	56.42	179.58	10,320.3	49.1	-695.0	-54.1	12.00	12.00	0.00	
10,475.0	59.42	179.58	10,333.6	27.9	-694.8	-33.0	12.00	12.00	0.00	
10,500.0	62.42	179.58	10,345.7	6.0	-694.7	-11.1	12.00	12.00	0.00	
10,525.0	65.42	179.58	10,356.7	-16.4	-694.5	11.3	12.00	12.00	0.00	
10,550.0	68.42	179.58	10,366.5	-39.4	-694.3	34.3	12.00	12.00	0.00	
10,575.0	71.42	179.58	10,375.1	-62.9	-694.1	57.8	12.00	12.00	0.00	
10,600.0	74.42	179.58	10,382.4	-86.8	-694.0	81.7	12.00	12.00	0.00	
10,625.0	77.42	179.58	10,388.5	-111.0	-693.8	105.9	12.00	12.00	0.00	
10,650.0	80.42	179.58	10,393.3	-135.6	-693.6	130.5	12.00	12.00	0.00	
10,675.0	83.42	179.58	10,396.8	-160.3	-693.4	155.2	12.00	12.00	0.00	
10,700.0	86.42	179.58	10,399.0	-185.2	-693.3	180.1	12.00	12.00	0.00	
10,725.0	89.42	179.58	10,399.9	-210.2	-693.1	205.1	12.00	12.00	0.00	
EOB @ 89.99°Inc/179.58°Az										
10,729.8	90.00	179.58	10,400.0	-215.0	-693.0	210.0	12.00	12.00	0.00	
10,800.0	90.00	179.58	10,400.0	-285.2	-692.5	280.1	0.00	0.00	0.00	
10,900.0	90.00	179.58	10,400.0	-385.2	-691.8	380.1	0.00	0.00	0.00	
11,000.0	90.00	179.58	10,400.0	-485.2	-691.1	480.1	0.00	0.00	0.00	
11,100.0	90.00	179.58	10,400.0	-585.2	-690.3	580.1	0.00	0.00	0.00	
11,200.0	90.00	179.58	10,400.0	-685.2	-689.6	680.1	0.00	0.00	0.00	
11,300.0	90.00	179.58	10,400.0	-785.2	-688.9	780.1	0.00	0.00	0.00	
11,400.0	90.00	179.58	10,400.0	-885.2	-688.2	880.1	0.00	0.00	0.00	
11,500.0	90.00	179.58	10,400.0	-985.2	-687.4	980.1	0.00	0.00	0.00	
11,600.0	90.00	179.58	10,400.0	-1,085.2	-686.7	1,080.1	0.00	0.00	0.00	
11,700.0	90.00	179.58	10,400.0	-1,185.2	-686.0	1,180.1	0.00	0.00	0.00	
11,800.0	90.00	179.58	10,400.0	-1,285.2	-685.2	1,280.1	0.00	0.00	0.00	
11,900.0	90.00	179.58	10,400.0	-1,385.2	-684.5	1,380.1	0.00	0.00	0.00	
12,000.0	90.00	179.58	10,400.0	-1,485.2	-683.8	1,480.1	0.00	0.00	0.00	
12,100.0	90.00	179.58	10,400.0	-1,585.2	-683.0	1,580.1	0.00	0.00	0.00	
12,200.0	90.00	179.58	10,400.0	-1,685.2	-682.3	1,680.1	0.00	0.00	0.00	
12,300.0	90.00	179.58	10,400.0	-1,785.2	-681.6	1,780.1	0.00	0.00	0.00	
12,400.0	90.00	179.58	10,400.0	-1,885.1	-680.9	1,880.1	0.00	0.00	0.00	
12,500.0	90.00	179.58	10,400.0	-1,985.1	-680.1	1,980.1	0.00	0.00	0.00	
12,600.0	90.00	179.58	10,400.0	-2,085.1	-679.4	2,080.1	0.00	0.00	0.00	
12,700.0	90.00	179.58	10,400.0	-2,185.1	-678.7	2,180.1	0.00	0.00	0.00	
12,800.0	90.00	179.58	10,400.0	-2,285.1	-677.9	2,280.1	0.00	0.00	0.00	
12,900.0	90.00	179.58	10,400.0	-2,385.1	-677.2	2,380.1	0.00	0.00	0.00	
13,000.0	90.00	179.58	10,400.0	-2,485.1	-676.5	2,480.1	0.00	0.00	0.00	
13,100.0	90.00	179.58	10,400.0	-2,585.1	-675.8	2,580.1	0.00	0.00	0.00	
13,200.0	90.00	179.58	10,400.0	-2,685.1	-675.0	2,680.1	0.00	0.00	0.00	
13,300.0	90.00	179.58	10,400.0	-2,785.1	-674.3	2,780.1	0.00	0.00	0.00	
13,400.0	90.00	179.58	10,400.0	-2,885.1	-673.6	2,880.1	0.00	0.00	0.00	
13,500.0	90.00	179.58	10,400.0	-2,985.1	-672.8	2,980.1	0.00	0.00	0.00	
13,600.0	90.00	179.58	10,400.0	-3,085.1	-672.1	3,080.1	0.00	0.00	0.00	
13,700.0	90.00	179.58	10,400.0	-3,185.1	-671.4	3,180.1	0.00	0.00	0.00	
13,800.0	90.00	179.58	10,400.0	-3,285.1	-670.6	3,280.1	0.00	0.00	0.00	
13,900.0	90.00	179.58	10,400.0	-3,385.1	-669.9	3,380.1	0.00	0.00	0.00	
14,000.0	90.00	179.58	10,400.0	-3,485.1	-669.2	3,480.1	0.00	0.00	0.00	
14,100.0	90.00	179.58	10,400.0	-3,585.1	-668.5	3,580.1	0.00	0.00	0.00	
14,200.0	90.00	179.58	10,400.0	-3,685.1	-667.7	3,680.1	0.00	0.00	0.00	
14,300.0	90.00	179.58	10,400.0	-3,785.1	-667.0	3,780.1	0.00	0.00	0.00	
14,400.0	90.00	179.58	10,400.0	-3,885.1	-666.3	3,880.1	0.00	0.00	0.00	
14,500.0	90.00	179.58	10,400.0	-3,985.1	-665.5	3,980.1	0.00	0.00	0.00	
14,600.0	90.00	179.58	10,400.0	-4,085.1	-664.8	4,080.1	0.00	0.00	0.00	



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14,700.0	90.00	179.58	10,400.0	-4,185.1	-664.1	4,180.1	0.00	0.00	0.00
14,800.0	90.00	179.58	10,400.0	-4,285.1	-663.4	4,280.1	0.00	0.00	0.00
14,900.0	90.00	179.58	10,400.0	-4,385.1	-662.6	4,380.1	0.00	0.00	0.00
15,000.0	90.00	179.58	10,400.0	-4,485.1	-661.9	4,480.1	0.00	0.00	0.00
15,100.0	90.00	179.58	10,400.0	-4,585.1	-661.2	4,580.1	0.00	0.00	0.00
15,200.0	90.00	179.58	10,400.0	-4,685.1	-660.4	4,680.1	0.00	0.00	0.00
15,300.0	90.00	179.58	10,400.0	-4,785.1	-659.7	4,780.1	0.00	0.00	0.00
15,400.0	90.00	179.58	10,400.0	-4,885.1	-659.0	4,880.1	0.00	0.00	0.00
15,500.0	90.00	179.58	10,400.0	-4,985.1	-658.3	4,980.1	0.00	0.00	0.00
15,600.0	90.00	179.58	10,400.0	-5,085.1	-657.5	5,080.1	0.00	0.00	0.00
15,700.0	90.00	179.58	10,400.0	-5,185.1	-656.8	5,180.1	0.00	0.00	0.00
15,800.0	90.00	179.58	10,400.0	-5,285.1	-656.1	5,280.1	0.00	0.00	0.00
15,900.0	90.00	179.58	10,400.0	-5,385.1	-655.3	5,380.1	0.00	0.00	0.00
16,000.0	90.00	179.58	10,400.0	-5,485.1	-654.6	5,480.1	0.00	0.00	0.00
16,100.0	90.00	179.58	10,400.0	-5,585.0	-653.9	5,580.1	0.00	0.00	0.00
16,200.0	90.00	179.58	10,400.0	-5,685.0	-653.1	5,680.1	0.00	0.00	0.00
16,300.0	90.00	179.58	10,400.0	-5,785.0	-652.4	5,780.1	0.00	0.00	0.00
16,400.0	90.00	179.58	10,400.0	-5,885.0	-651.7	5,880.1	0.00	0.00	0.00
16,500.0	90.00	179.58	10,400.0	-5,985.0	-651.0	5,980.1	0.00	0.00	0.00
16,600.0	90.00	179.58	10,400.0	-6,085.0	-650.2	6,080.1	0.00	0.00	0.00
16,700.0	90.00	179.58	10,400.0	-6,185.0	-649.5	6,180.1	0.00	0.00	0.00
16,800.0	90.00	179.58	10,400.0	-6,285.0	-648.8	6,280.1	0.00	0.00	0.00
16,900.0	90.00	179.58	10,400.0	-6,385.0	-648.0	6,380.1	0.00	0.00	0.00
17,000.0	90.00	179.58	10,400.0	-6,485.0	-647.3	6,480.1	0.00	0.00	0.00
17,100.0	90.00	179.58	10,400.0	-6,585.0	-646.6	6,580.1	0.00	0.00	0.00
17,200.0	90.00	179.58	10,400.0	-6,685.0	-645.9	6,680.1	0.00	0.00	0.00
17,300.0	90.00	179.58	10,400.0	-6,785.0	-645.1	6,780.1	0.00	0.00	0.00
17,400.0	90.00	179.58	10,400.0	-6,885.0	-644.4	6,880.1	0.00	0.00	0.00
17,500.0	90.00	179.58	10,400.0	-6,985.0	-643.7	6,980.1	0.00	0.00	0.00
17,600.0	90.00	179.58	10,400.0	-7,085.0	-642.9	7,080.1	0.00	0.00	0.00
17,700.0	90.00	179.58	10,400.0	-7,185.0	-642.2	7,180.1	0.00	0.00	0.00
17,800.0	90.00	179.58	10,400.0	-7,285.0	-641.5	7,280.1	0.00	0.00	0.00
17,900.0	90.00	179.58	10,400.0	-7,385.0	-640.8	7,380.1	0.00	0.00	0.00
18,000.0	90.00	179.58	10,400.0	-7,485.0	-640.0	7,480.1	0.00	0.00	0.00
18,100.0	90.00	179.58	10,400.0	-7,585.0	-639.3	7,580.1	0.00	0.00	0.00
18,200.0	90.00	179.58	10,400.0	-7,685.0	-638.6	7,680.1	0.00	0.00	0.00
18,300.0	90.00	179.58	10,400.0	-7,785.0	-637.8	7,780.1	0.00	0.00	0.00
18,400.0	90.00	179.58	10,400.0	-7,885.0	-637.1	7,880.1	0.00	0.00	0.00
18,500.0	90.00	179.58	10,400.0	-7,985.0	-636.4	7,980.1	0.00	0.00	0.00
18,600.0	90.00	179.58	10,400.0	-8,085.0	-635.6	8,080.1	0.00	0.00	0.00
18,700.0	90.00	179.58	10,400.0	-8,185.0	-634.9	8,180.1	0.00	0.00	0.00
18,800.0	90.00	179.58	10,400.0	-8,285.0	-634.2	8,280.1	0.00	0.00	0.00
18,900.0	90.00	179.58	10,400.0	-8,385.0	-633.5	8,380.1	0.00	0.00	0.00
19,000.0	90.00	179.58	10,400.0	-8,485.0	-632.7	8,480.1	0.00	0.00	0.00
19,100.0	90.00	179.58	10,400.0	-8,585.0	-632.0	8,580.1	0.00	0.00	0.00
19,200.0	90.00	179.58	10,400.0	-8,685.0	-631.3	8,680.1	0.00	0.00	0.00
19,300.0	90.00	179.58	10,400.0	-8,785.0	-630.5	8,780.1	0.00	0.00	0.00
19,400.0	90.00	179.58	10,400.0	-8,885.0	-629.8	8,880.1	0.00	0.00	0.00
19,500.0	90.00	179.58	10,400.0	-8,985.0	-629.1	8,980.1	0.00	0.00	0.00
19,600.0	90.00	179.58	10,400.0	-9,085.0	-628.4	9,080.1	0.00	0.00	0.00
19,700.0	90.00	179.58	10,400.0	-9,185.0	-627.6	9,180.1	0.00	0.00	0.00
19,800.0	90.00	179.58	10,400.0	-9,285.0	-626.9	9,280.1	0.00	0.00	0.00
19,900.0	90.00	179.58	10,400.0	-9,384.9	-626.2	9,380.1	0.00	0.00	0.00



KLX
Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Grama Ridge 116 35 SB State Com #201H
Company:	Marathon Oil Permian LLC	TVD Reference:	KB=25' @ 3704.0usft (Cactus #171)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	KB=25' @ 3704.0usft (Cactus #171)
Site:	Sec 35, T21S, R34E	North Reference:	Grid
Well:	Grama Ridge 116 35 SB State Com #201H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)
20,000.0	90.00	179.58	10,400.0	-9,484.9	-625.4	9,480.1	0.00	0.00	0.00
20,100.0	90.00	179.58	10,400.0	-9,584.9	-624.7	9,580.1	0.00	0.00	0.00
20,200.0	90.00	179.58	10,400.0	-9,684.9	-624.0	9,680.1	0.00	0.00	0.00
20,300.0	90.00	179.58	10,400.0	-9,784.9	-623.2	9,780.1	0.00	0.00	0.00
20,400.0	90.00	179.58	10,400.0	-9,884.9	-622.5	9,880.1	0.00	0.00	0.00
20,500.0	90.00	179.58	10,400.0	-9,984.9	-621.8	9,980.1	0.00	0.00	0.00
20,600.0	90.00	179.58	10,400.0	-10,084.9	-621.1	10,080.1	0.00	0.00	0.00
TD @ 20689.2'MD/10400.0'TVD - 5 1/2"									
20,689.2	90.00	179.58	10,400.0	-10,174.1	-620.4	10,169.3	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP/FTP - Grama Ridge	0.00	0.00	-1.0	262.4	-696.5	525,781.52	775,876.32	32° 26' 32.321 N	103° 26' 20.726 W
- hit/miss target									
- plan misses target center by 744.3usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Point									
VP - Grama Ridge #201H	0.00	0.00	7,000.0	262.4	-696.5	525,781.52	775,876.32	32° 26' 32.321 N	103° 26' 20.726 W
- plan hits target center									
- Point									
PBHL - Grama Ridge #2	0.00	0.00	10,400.0	-10,174.1	-620.4	515,344.96	775,952.43	32° 24' 49.046 N	103° 26' 20.857 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,739.0	1,739.0	13 3/8"	13-3/8	17-1/2	
5,780.1	5,735.0	9 5/8"	9-5/8	12-1/4	
20,689.2	10,400.0	5 1/2"	5-1/2	6	



KLX
Well Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Grama Ridge 116 35 SB State Com #201H
Company:	Marathon Oil Permian LLC	TVD Reference:	KB=25' @ 3704.0usft (Cactus #171)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	KB=25' @ 3704.0usft (Cactus #171)
Site:	Sec 35, T21S, R34E	North Reference:	Grid
Well:	Grama Ridge 116 35 SB State Com #201H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,714.0	1,714.0	Rustler				
2,162.4	2,162.0	Salado (Top Salt)				
3,572.3	3,555.0	Base of Salt (BX)				
4,063.4	4,040.0	Capitan Reef				
5,764.9	5,720.0	Lamar				
5,918.8	5,872.0	Cherry Canyon				
5,931.0	5,884.0	Bell Canyon				
7,112.4	7,055.0	Brushy Canyon				
8,453.4	8,396.0	Bone Spring Lime				
8,687.4	8,630.0	Upper Avalon Shale				
9,627.4	9,570.0	1st Bone Spring Sand				
9,839.4	9,782.0	2nd Bone Spring Carbonate		0.00	179.58	
10,167.1	10,105.0	2nd Bone Spring Sand		0.00	179.58	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,900.0	1,900.0	0.0	0.0	Build 2°/100'	
2,355.3	2,353.4	12.7	-33.8	EOB @ 9.11°Inc/290.64°Az	
6,602.0	6,546.6	249.7	-662.7	Drop 2°/100'	
7,057.4	7,000.0	262.4	-696.5	EOD @ Vertical	
9,979.9	9,922.5	262.4	-696.5	Build 12°/100'	
10,729.8	10,400.0	-215.0	-693.0	EOB @ 89.99°Inc/179.58°Az	
20,689.2	10,400.0	-10,174.1	-620.4	TD @ 20689.2'MD/10400.0'TVD	

Grama Ridge 116 35 SB State Com #201H
Lea County, New Mexico (NAD 27)
Q220*** & WT220***
Design #2

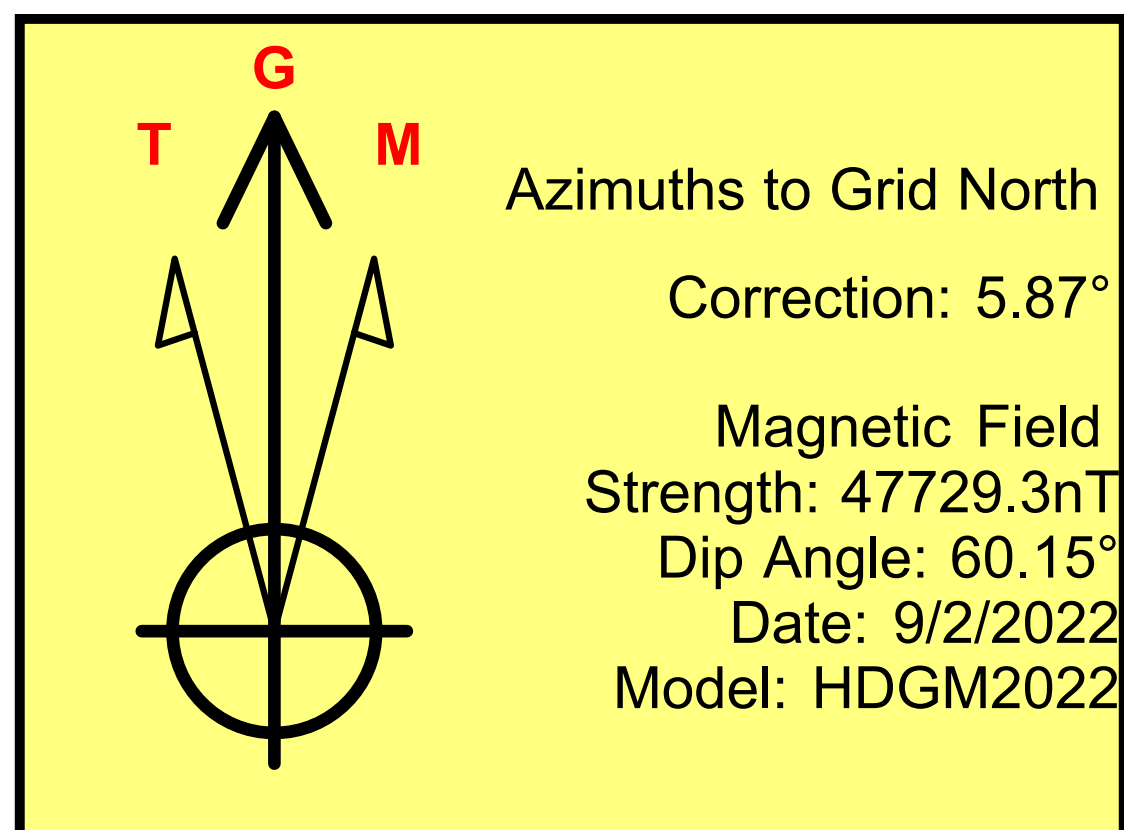
Company Name: Marathon Oil Permian LLC
Grama Ridge 116 35 SB State Com #201H
Lea County, New Mexico (NAD 27)
Rig: Cactus #171
Created By: Michael Hilliard
Date: 12:13, September 02 2022

PROJECT DETAILS: Lea County, New Mexico (NAD 27)

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

WELL DETAILS: Grama Ridge 116 35 SB State Com #201H

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	525519.11	776572.8432	26° 29.666' N	103° 26' 12.625" W



CASING DETAILS

TVD	MD	Name	Size
1739.0	1739.0	13 3/8"	13-3/8
5735.0	5780.1	9 5/8"	9-5/8
10400.0	20689.2	5 1/2"	5-1/2

DESIGN TARGET DETAILS

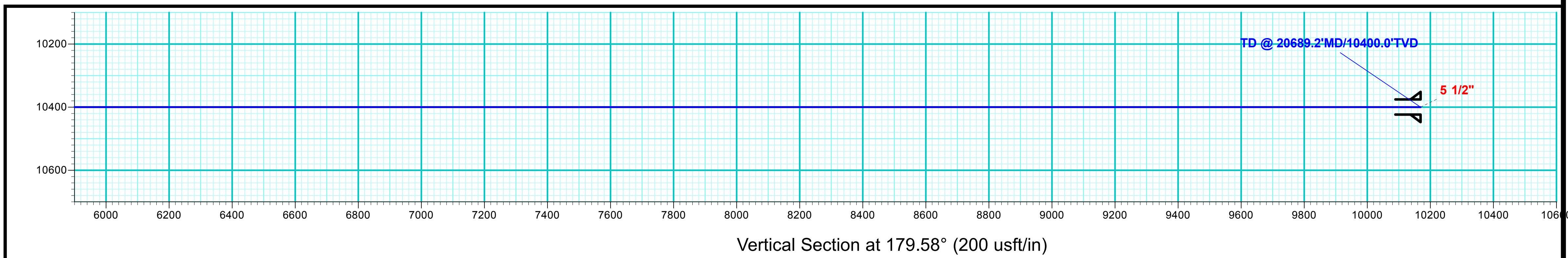
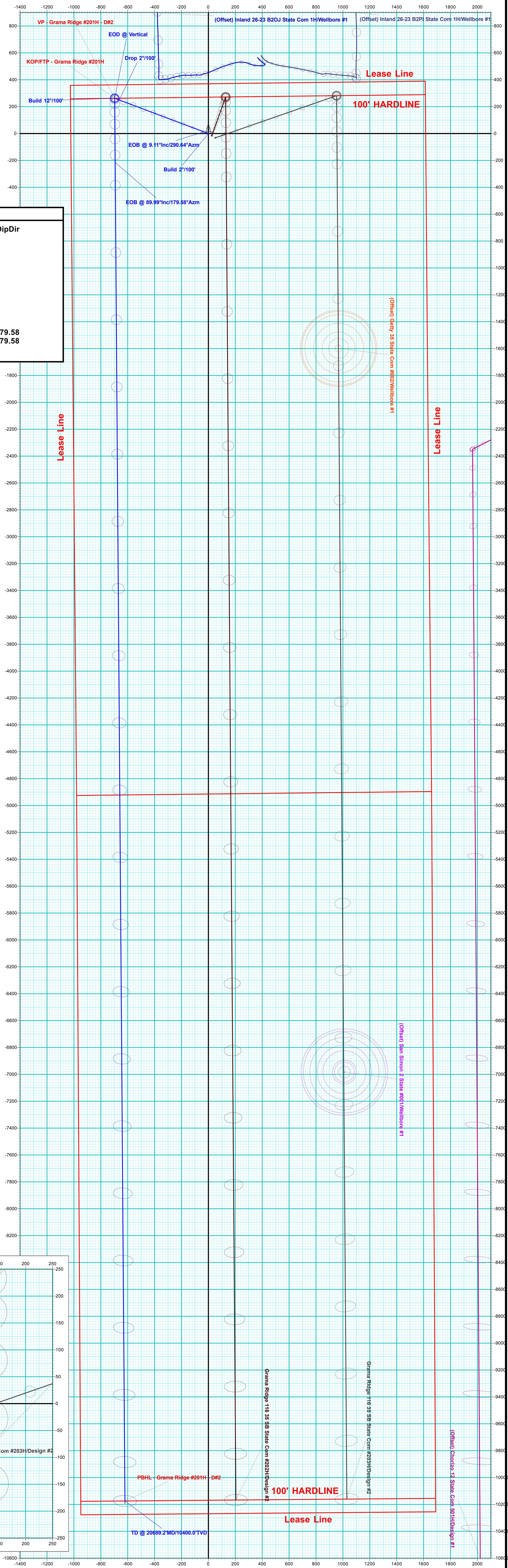
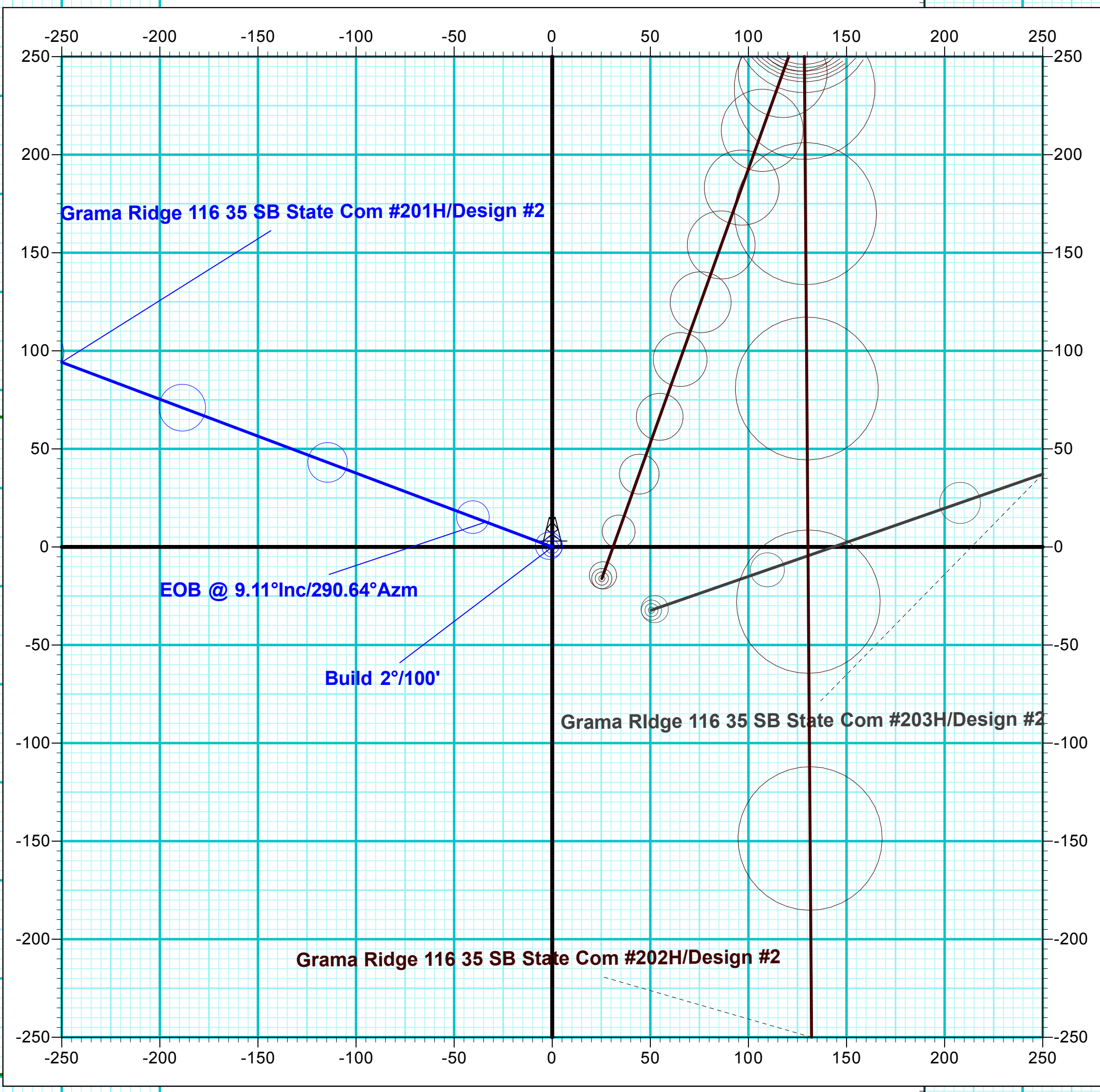
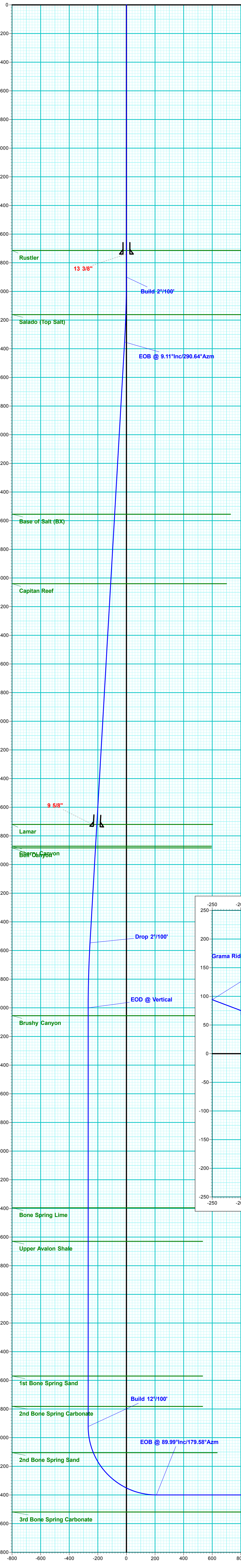
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
KOP/FTP - Grama Ridge #201H	-1.0	262.4	-696.5	525781.52	775876.32	32° 26' 32.321" N	103° 26' 20.726" W	Point
VP - Grama Ridge #201H - D#2	7000.0	262.4	-696.5	525781.52	775876.32	32° 26' 32.321" N	103° 26' 20.726" W	Point
PBHL - Grama Ridge #201H - D#2	10400.0	-10174.1	-620.4	515344.96	775952.43	32° 24' 49.046" N	103° 26' 20.857" W	Point

DESIGN ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
1900.0	0.00	0.00	1900.0	0.0	0.0	0.0	0.0	Build 2°/100'
2355.3	9.11	290.64	2353.4	12.7	-33.8	-13.0	36.1	EOB @ 9.11°Inc/290.64°Az
6602.0	9.11	290.64	6546.6	249.7	-662.7	-254.5	708.2	Drop 2°/100'
7057.4	0.00	0.00	7000.0	262.4	-696.5	-267.5	744.3	EOD @ Vertical
9979.9	0.00	0.00	9922.5	262.4	-696.5	-267.5	744.3	Build 12°/100'
10729.8	90.00	179.58	10400.0	-215.0	-693.0	210.0	1221.8	EOB @ 89.99°Inc/179.58°Az
20689.2	90.00	179.58	10400.0	-10174.1	-620.4	10169.3	11181.1	TD @ 20689.2 MD/10400.0 TVD

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
1714.0	1714.0	Rustler		
2162.0	2162.4	Salado (Top Salt)		
3555.0	3572.3	Base of Salt (BX)		
4040.0	4063.4	Capitan Reef		
5720.0	5764.9	Lamar		
5872.0	5918.8	Cherry Canyon		
5884.0	5931.0	Bell Canyon		
7055.0	7112.4	Brushy Canyon		
8396.0	8453.4	Bone Spring Lime		
8630.0	8687.4	Upper Avalon Shale		
9570.0	9627.4	1st Bone Spring Sand	0.00	179.58
9782.0	9839.4	2nd Bone Spring Carbonate	0.00	179.58
10105.0	10167.1	2nd Bone Spring Sand	0.00	179.58



Target Line: 10400' TVD @ 0°VS 90° INC 10' U/D

Vertical Section at 179.58° (200 usft/in)

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:** 9/6/2022

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
GRAMA RIDGE 116 35 SB STATE COM 201H		B-35-21S-34E	371 FNL 1616 FEL	1761	1788	1744
GRAMA RIDGE 116 35 SB STATE COM 202H		B-35-21S-34E	387 FNL 1590 FEL	1761	1788	1744
GRAMA RIDGE 116 35 SB STATE COM 203H		B-35-21S-34E	403 FNL 1565 FEL	1761	1788	1744

IV. Central Delivery Point Name: GRAMA RIDGE 116 35 STATE 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
GRAMA RIDGE 116 35 SB STATE COM 201H		11/05/2022	12/21/2022	03/14/2023	04/02/2023	04/02/2023
GRAMA RIDGE 116 35 SB STATE COM 202H		11/08/2022	12/02/2022	03/08/2023	04/02/2023	04/02/2023
GRAMA RIDGE 116 35 SB STATE COM 203H		11/10/2022	01/09/2023	03/01/2023	04/02/2023	04/02/2023

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:

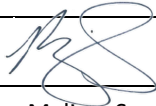
(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit 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:

Melissa Szudera

Title:

Sr. Regulatory Compliance Representative

E-mail Address:

mszudera@marathonoil.com

Date:

9/6/2022

Phone:

713-296-3179

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.