

Submit Copy To Appropriate District  
Office  
District I – (575) 393-6161  
1625 N. French Dr., Hobbs, NM 88240  
District II – (575) 748-1283  
811 S. First St., Artesia, NM 88210  
District III – (505) 334-6178  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV – (505) 476-3460  
1220 S. St. Francis Dr., Santa Fe, NM  
87505

State of New Mexico  
Energy, Minerals and Natural Resources

Form C-103  
Revised July 18, 2013

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

|                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WELL API NO.<br>30-025-50618                                                                                                                                                                                          |
| 5. Indicate Type of Lease<br>STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>                                                                                                                   |
| 6. State Oil & Gas Lease No.<br>LG14876                                                                                                                                                                               |
| 7. Lease Name or Unit Agreement Name<br>Grama Ridge 116 35 SB State Com                                                                                                                                               |
| 8. Well Number 201H                                                                                                                                                                                                   |
| 9. OGRID Number<br>372098                                                                                                                                                                                             |
| 10. Pool name or Wildcat<br>Grama Ridge; Bone Spring, NE                                                                                                                                                              |
| 4. Well Location<br>Unit Letter <u>B</u> : <u>371</u> feet from the <u>NORTH</u> line and <u>1616</u> feet from the <u>EAST</u> line<br>Section <u>35</u> Township <u>21S</u> Range <u>34E</u> NMPM County <u>LEA</u> |
| 11. Elevation (Show whether DR, RKB, RT, GR, etc.)<br>3679' GL                                                                                                                                                        |

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐

2. Name of Operator  
Marathon Oil Permian LLC

3. Address of Operator  
990 Town & Country Blvd. Houston, TX 77024

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐  
TEMPORARILY ABANDON ☐ CHANGE PLANS ☒  
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐  
DOWNHOLE COMMINGLE ☐  
CLOSED-LOOP SYSTEM ☐  
OTHER: ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐  
COMMENCE DRILLING OPNS. ☐ P AND A ☐  
CASING/CEMENT JOB ☐  
OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Marathon Oil Permian LLC requests to make the following changes to the approved drilling permit:

Change Casing and Cement Program:  
See Attached Drilling Plan and Directional Survey

Spud Date:

Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

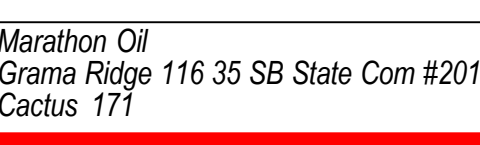
SIGNATURE Adrian Covarrubias TITLE Regulatory Compliance Representative DATE 1/18/2023

Type or print name Adrian Covarrubias E-mail address: acovarrubias@marathonoil.com PHONE: 713-296-3368

**For State Use Only**

APPROVED BY: \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

Conditions of Approval (if any):





## **Marathon Oil**

**Lea County, New Mexico (NAD 27)**

**Grama Ridge 116 35 SB State Com (201H, 203H, 302H)**

**Grama Ridge 116 35 SB State Com #201H**

**Wellbore #1**

**Plan: Design #4**

## **Standard Planning Report**

**16 January, 2023**





# MS Directional Planning Report



|                  |                                                    |                                     |                                            |
|------------------|----------------------------------------------------|-------------------------------------|--------------------------------------------|
| <b>Database:</b> | EDM 5000.15 Conroe DB                              | <b>Local Co-ordinate Reference:</b> | Well Grama Ridge 116 35 SB State Com #201H |
| <b>Company:</b>  | Marathon Oil                                       | <b>TVD Reference:</b>               | Well @ 3704.00usft (Cactus 171)            |
| <b>Project:</b>  | Lea County, New Mexico (NAD 27)                    | <b>MD Reference:</b>                | Well @ 3704.00usft (Cactus 171)            |
| <b>Site:</b>     | Grama Ridge 116 35 SB State Com (201H, 203H, 302H) | <b>North Reference:</b>             | Grid                                       |
| <b>Well:</b>     | Grama Ridge 116 35 SB State Com #201H              | <b>Survey Calculation Method:</b>   | Minimum Curvature                          |
| <b>Wellbore:</b> | Wellbore #1                                        |                                     |                                            |
| <b>Design:</b>   | Design #4                                          |                                     |                                            |

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

|                              |                                                    |                     |                 |
|------------------------------|----------------------------------------------------|---------------------|-----------------|
| <b>Site</b>                  | Grama Ridge 116 35 SB State Com (201H, 203H, 302H) |                     |                 |
| <b>Site Position:</b>        |                                                    | <b>Northing:</b>    | 525,519.11 usft |
| <b>From:</b>                 | Map                                                | <b>Easting:</b>     | 776,572.84 usft |
| <b>Position Uncertainty:</b> | 0.00 usft                                          | <b>Slot Radius:</b> | 13-3/16 "       |
|                              |                                                    | <b>Latitude:</b>    | 32.441574       |
|                              |                                                    | <b>Longitude:</b>   | -103.436841     |

| Well                 | Grama Ridge 116 35 SB State Com #201H |           |                     |                 |               |               |
|----------------------|---------------------------------------|-----------|---------------------|-----------------|---------------|---------------|
| Well Position        | +N/-S                                 | 0.00 usft | Northing:           | 525,519.10 usft | Latitude:     | 32.441574     |
|                      | +E/-W                                 | 0.00 usft | Easting:            | 776,572.84 usft | Longitude:    | -103.436841   |
| Position Uncertainty |                                       | 0.00 usft | Wellhead Elevation: | usft            | Ground Level: | 3,679.00 usft |
| Grid Convergence:    | 0.481 °                               |           |                     |                 |               |               |

|                 |             |  |  |
|-----------------|-------------|--|--|
| <b>Wellbore</b> | Wellbore #1 |  |  |
|-----------------|-------------|--|--|

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|-----------|------------|-------------|-----------------|---------------|---------------------|
|           | HDGM2023   | 2/15/2023   | 6.333           | 60.117        | 47,670.50           |

|               |           |  |  |
|---------------|-----------|--|--|
| <b>Design</b> | Design #4 |  |  |
|---------------|-----------|--|--|

|                   |                            |                 |                 |                  |
|-------------------|----------------------------|-----------------|-----------------|------------------|
| Audit Notes:      |                            |                 |                 |                  |
| Version:          | Phase:                     | PLAN            | Tie On Depth:   | 0.00             |
| Vertical Section: | Depth From (TVD)<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Direction<br>(°) |
|                   | 0.00                       | 0.00            | 0.00            | 179.58           |

|                                 |                        |                          |                         |                        |  |
|---------------------------------|------------------------|--------------------------|-------------------------|------------------------|--|
| <b>Plan Survey Tool Program</b> | <b>Date</b>            | 1/16/2023                |                         |                        |  |
| <b>Depth From (usft)</b>        | <b>Depth To (usft)</b> | <b>Survey (Wellbore)</b> | <b>Tool Name</b>        | <b>Remarks</b>         |  |
| 1                               | 0.00                   | 20,619.40                | Design #4 (Wellbore #1) | MWD+IFR1+FDIR          |  |
|                                 |                        |                          |                         | OWSG MWD + IFR1 + FDIR |  |



# MS Directional Planning Report



|                  |                                                    |                                     |                                            |
|------------------|----------------------------------------------------|-------------------------------------|--------------------------------------------|
| <b>Database:</b> | EDM 5000.15 Conroe DB                              | <b>Local Co-ordinate Reference:</b> | Well Grama Ridge 116 35 SB State Com #201H |
| <b>Company:</b>  | Marathon Oil                                       | <b>TVD Reference:</b>               | Well @ 3704.00usft (Cactus 171)            |
| <b>Project:</b>  | Lea County, New Mexico (NAD 27)                    | <b>MD Reference:</b>                | Well @ 3704.00usft (Cactus 171)            |
| <b>Site:</b>     | Grama Ridge 116 35 SB State Com (201H, 203H, 302H) | <b>North Reference:</b>             | Grid                                       |
| <b>Well:</b>     | Grama Ridge 116 35 SB State Com #201H              | <b>Survey Calculation Method:</b>   | Minimum Curvature                          |
| <b>Wellbore:</b> | Wellbore #1                                        |                                     |                                            |
| <b>Design:</b>   | Design #4                                          |                                     |                                            |

| Plan Sections         |                 |             |                       |              |              |                         |                        |                       |         |                    |  |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|------------------------|-----------------------|---------|--------------------|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target             |  |
| 0.00                  | 0.00            | 0.00        | 0.00                  | 0.00         | 0.00         | 0.00                    | 0.00                   | 0.00                  | 0.000   |                    |  |
| 1,900.00              | 0.00            | 0.00        | 1,900.00              | 0.00         | 0.00         | 0.00                    | 0.00                   | 0.00                  | 0.000   |                    |  |
| 2,355.31              | 9.11            | 290.64      | 2,353.39              | 12.73        | -33.79       | 2.00                    | 2.00                   | 0.00                  | 290.645 |                    |  |
| 6,602.04              | 9.11            | 290.64      | 6,546.61              | 249.69       | -662.73      | 0.00                    | 0.00                   | 0.00                  | 0.000   |                    |  |
| 7,057.35              | 0.00            | 0.00        | 7,000.00              | 262.42       | -696.52      | 2.00                    | -2.00                  | 0.00                  | 180.000 | VP - Grama Ridge : |  |
| 9,855.46              | 0.00            | 0.00        | 9,798.11              | 262.42       | -696.52      | 0.00                    | 0.00                   | 0.00                  | 0.000   |                    |  |
| 10,753.46             | 89.80           | 179.58      | 10,371.06             | -308.52      | -692.36      | 10.00                   | 10.00                  | 0.00                  | 179.582 |                    |  |
| 20,619.40             | 89.80           | 179.58      | 10,405.50             | -10,174.14   | -620.41      | 0.00                    | 0.00                   | 0.00                  | 0.000   | LTP/PBHL v2 - Grai |  |



# MS Directional Planning Report



|                  |                                                    |                                     |                                            |
|------------------|----------------------------------------------------|-------------------------------------|--------------------------------------------|
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| <b>Company:</b>  | Marathon Oil                                       | <b>TVD Reference:</b>               | Well @ 3704.00usft (Cactus 171)            |
| <b>Project:</b>  | Lea County, New Mexico (NAD 27)                    | <b>MD Reference:</b>                | Well @ 3704.00usft (Cactus 171)            |
| <b>Site:</b>     | Grama Ridge 116 35 SB State Com (201H, 203H, 302H) | <b>North Reference:</b>             | Grid                                       |
| <b>Well:</b>     | Grama Ridge 116 35 SB State Com #201H              | <b>Survey Calculation Method:</b>   | Minimum Curvature                          |
| <b>Wellbore:</b> | Wellbore #1                                        |                                     |                                            |
| <b>Design:</b>   | Design #4                                          |                                     |                                            |

| Planned Survey               |                 |             |                       |              |              |                         |                         |                        |                       |
|------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft)        | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 0.00                         | 0.00            | 0.00        | 0.00                  | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 100.00                       | 0.00            | 0.00        | 100.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 200.00                       | 0.00            | 0.00        | 200.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 300.00                       | 0.00            | 0.00        | 300.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 400.00                       | 0.00            | 0.00        | 400.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 500.00                       | 0.00            | 0.00        | 500.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 600.00                       | 0.00            | 0.00        | 600.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 700.00                       | 0.00            | 0.00        | 700.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 800.00                       | 0.00            | 0.00        | 800.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 900.00                       | 0.00            | 0.00        | 900.00                | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,000.00                     | 0.00            | 0.00        | 1,000.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,100.00                     | 0.00            | 0.00        | 1,100.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,200.00                     | 0.00            | 0.00        | 1,200.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,300.00                     | 0.00            | 0.00        | 1,300.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,400.00                     | 0.00            | 0.00        | 1,400.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,500.00                     | 0.00            | 0.00        | 1,500.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,600.00                     | 0.00            | 0.00        | 1,600.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,700.00                     | 0.00            | 0.00        | 1,700.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,739.00                     | 0.00            | 0.00        | 1,739.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| <b>13 3/8"</b>               |                 |             |                       |              |              |                         |                         |                        |                       |
| 1,800.00                     | 0.00            | 0.00        | 1,800.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 1,900.00                     | 0.00            | 0.00        | 1,900.00              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| <b>KOP, 2.00°/100' Build</b> |                 |             |                       |              |              |                         |                         |                        |                       |
| 2,000.00                     | 2.00            | 290.64      | 1,999.98              | 0.62         | -1.63        | -0.63                   | 2.00                    | 2.00                   | 0.00                  |
| 2,100.00                     | 4.00            | 290.64      | 2,099.84              | 2.46         | -6.53        | -2.51                   | 2.00                    | 2.00                   | 0.00                  |
| 2,200.00                     | 6.00            | 290.64      | 2,199.45              | 5.53         | -14.69       | -5.64                   | 2.00                    | 2.00                   | 0.00                  |
| 2,300.00                     | 8.00            | 290.64      | 2,298.70              | 9.83         | -26.09       | -10.02                  | 2.00                    | 2.00                   | 0.00                  |
| 2,355.30                     | 9.11            | 290.64      | 2,353.39              | 12.73        | -33.79       | -12.98                  | 2.00                    | 2.00                   | 0.00                  |
| <b>Begin 9.11° Tangent</b>   |                 |             |                       |              |              |                         |                         |                        |                       |
| 2,400.00                     | 9.11            | 290.64      | 2,397.52              | 15.22        | -40.41       | -15.52                  | 0.00                    | 0.00                   | 0.00                  |
| 2,500.00                     | 9.11            | 290.64      | 2,496.26              | 20.80        | -55.22       | -21.21                  | 0.00                    | 0.00                   | 0.00                  |
| 2,600.00                     | 9.11            | 290.64      | 2,595.00              | 26.38        | -70.03       | -26.90                  | 0.00                    | 0.00                   | 0.00                  |
| 2,700.00                     | 9.11            | 290.64      | 2,693.74              | 31.96        | -84.84       | -32.58                  | 0.00                    | 0.00                   | 0.00                  |
| 2,800.00                     | 9.11            | 290.64      | 2,792.48              | 37.54        | -99.65       | -38.27                  | 0.00                    | 0.00                   | 0.00                  |
| 2,900.00                     | 9.11            | 290.64      | 2,891.22              | 43.12        | -114.46      | -43.96                  | 0.00                    | 0.00                   | 0.00                  |
| 3,000.00                     | 9.11            | 290.64      | 2,989.96              | 48.70        | -129.27      | -49.65                  | 0.00                    | 0.00                   | 0.00                  |
| 3,100.00                     | 9.11            | 290.64      | 3,088.70              | 54.28        | -144.08      | -55.34                  | 0.00                    | 0.00                   | 0.00                  |
| 3,200.00                     | 9.11            | 290.64      | 3,187.44              | 59.86        | -158.89      | -61.03                  | 0.00                    | 0.00                   | 0.00                  |
| 3,300.00                     | 9.11            | 290.64      | 3,286.18              | 65.44        | -173.70      | -66.71                  | 0.00                    | 0.00                   | 0.00                  |
| 3,400.00                     | 9.11            | 290.64      | 3,384.92              | 71.02        | -188.51      | -72.40                  | 0.00                    | 0.00                   | 0.00                  |
| 3,500.00                     | 9.11            | 290.64      | 3,483.66              | 76.60        | -203.32      | -78.09                  | 0.00                    | 0.00                   | 0.00                  |
| 3,600.00                     | 9.11            | 290.64      | 3,582.40              | 82.18        | -218.13      | -83.78                  | 0.00                    | 0.00                   | 0.00                  |
| 3,700.00                     | 9.11            | 290.64      | 3,681.14              | 87.76        | -232.94      | -89.47                  | 0.00                    | 0.00                   | 0.00                  |
| 3,800.00                     | 9.11            | 290.64      | 3,779.88              | 93.34        | -247.75      | -95.16                  | 0.00                    | 0.00                   | 0.00                  |
| 3,900.00                     | 9.11            | 290.64      | 3,878.62              | 98.92        | -262.56      | -100.84                 | 0.00                    | 0.00                   | 0.00                  |
| 4,000.00                     | 9.11            | 290.64      | 3,977.36              | 104.50       | -277.37      | -106.53                 | 0.00                    | 0.00                   | 0.00                  |
| 4,100.00                     | 9.11            | 290.64      | 4,076.10              | 110.08       | -292.18      | -112.22                 | 0.00                    | 0.00                   | 0.00                  |
| 4,200.00                     | 9.11            | 290.64      | 4,174.84              | 115.66       | -306.99      | -117.91                 | 0.00                    | 0.00                   | 0.00                  |
| 4,300.00                     | 9.11            | 290.64      | 4,273.58              | 121.24       | -321.80      | -123.60                 | 0.00                    | 0.00                   | 0.00                  |
| 4,400.00                     | 9.11            | 290.64      | 4,372.32              | 126.82       | -336.61      | -129.29                 | 0.00                    | 0.00                   | 0.00                  |
| 4,500.00                     | 9.11            | 290.64      | 4,471.06              | 132.40       | -351.42      | -134.97                 | 0.00                    | 0.00                   | 0.00                  |
| 4,600.00                     | 9.11            | 290.64      | 4,569.80              | 137.98       | -366.23      | -140.66                 | 0.00                    | 0.00                   | 0.00                  |



# MS Directional Planning Report



|                  |                                                     |                                     |                                            |
|------------------|-----------------------------------------------------|-------------------------------------|--------------------------------------------|
| <b>Database:</b> | EDM 5000.15 Conroe DB                               | <b>Local Co-ordinate Reference:</b> | Well Grama Ridge 116 35 SB State Com #201H |
| <b>Company:</b>  | Marathon Oil                                        | <b>TVD Reference:</b>               | Well @ 3704.00usft (Cactus 171)            |
| <b>Project:</b>  | Lea County, New Mexico (NAD 27)                     | <b>MD Reference:</b>                | Well @ 3704.00usft (Cactus 171)            |
| <b>Site:</b>     | Gramma Ridge 116 35 SB State Com (201H, 203H, 302H) | <b>North Reference:</b>             | Grid                                       |
| <b>Well:</b>     | Gramma Ridge 116 35 SB State Com #201H              | <b>Survey Calculation Method:</b>   | Minimum Curvature                          |
| <b>Wellbore:</b> | Wellbore #1                                         |                                     |                                            |
| <b>Design:</b>   | Design #4                                           |                                     |                                            |

| 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) |
| 4,700.00                     | 9.11            | 290.64      | 4,668.54              | 143.56       | -381.04      | -146.35                 | 0.00                    | 0.00                   | 0.00                  |
| 4,800.00                     | 9.11            | 290.64      | 4,767.27              | 149.14       | -395.85      | -152.04                 | 0.00                    | 0.00                   | 0.00                  |
| 4,900.00                     | 9.11            | 290.64      | 4,866.01              | 154.72       | -410.66      | -157.73                 | 0.00                    | 0.00                   | 0.00                  |
| 5,000.00                     | 9.11            | 290.64      | 4,964.75              | 160.30       | -425.47      | -163.42                 | 0.00                    | 0.00                   | 0.00                  |
| 5,100.00                     | 9.11            | 290.64      | 5,063.49              | 165.88       | -440.28      | -169.10                 | 0.00                    | 0.00                   | 0.00                  |
| 5,200.00                     | 9.11            | 290.64      | 5,162.23              | 171.46       | -455.09      | -174.79                 | 0.00                    | 0.00                   | 0.00                  |
| 5,300.00                     | 9.11            | 290.64      | 5,260.97              | 177.04       | -469.90      | -180.48                 | 0.00                    | 0.00                   | 0.00                  |
| 5,400.00                     | 9.11            | 290.64      | 5,359.71              | 182.62       | -484.71      | -186.17                 | 0.00                    | 0.00                   | 0.00                  |
| 5,500.00                     | 9.11            | 290.64      | 5,458.45              | 188.20       | -499.52      | -191.86                 | 0.00                    | 0.00                   | 0.00                  |
| 5,600.00                     | 9.11            | 290.64      | 5,557.19              | 193.78       | -514.33      | -197.55                 | 0.00                    | 0.00                   | 0.00                  |
| 5,700.00                     | 9.11            | 290.64      | 5,655.93              | 199.36       | -529.14      | -203.23                 | 0.00                    | 0.00                   | 0.00                  |
| 5,780.08                     | 9.11            | 290.64      | 5,735.00              | 203.83       | -541.00      | -207.79                 | 0.00                    | 0.00                   | 0.00                  |
| <b>9 5/8"</b>                |                 |             |                       |              |              |                         |                         |                        |                       |
| 5,800.00                     | 9.11            | 290.64      | 5,754.67              | 204.94       | -543.95      | -208.92                 | 0.00                    | 0.00                   | 0.00                  |
| 5,900.00                     | 9.11            | 290.64      | 5,853.41              | 210.52       | -558.76      | -214.61                 | 0.00                    | 0.00                   | 0.00                  |
| 6,000.00                     | 9.11            | 290.64      | 5,952.15              | 216.10       | -573.57      | -220.30                 | 0.00                    | 0.00                   | 0.00                  |
| 6,100.00                     | 9.11            | 290.64      | 6,050.89              | 221.68       | -588.38      | -225.99                 | 0.00                    | 0.00                   | 0.00                  |
| 6,200.00                     | 9.11            | 290.64      | 6,149.63              | 227.26       | -603.19      | -231.68                 | 0.00                    | 0.00                   | 0.00                  |
| 6,300.00                     | 9.11            | 290.64      | 6,248.37              | 232.84       | -618.00      | -237.36                 | 0.00                    | 0.00                   | 0.00                  |
| 6,400.00                     | 9.11            | 290.64      | 6,347.11              | 238.42       | -632.81      | -243.05                 | 0.00                    | 0.00                   | 0.00                  |
| 6,500.00                     | 9.11            | 290.64      | 6,445.85              | 244.00       | -647.62      | -248.74                 | 0.00                    | 0.00                   | 0.00                  |
| 6,602.05                     | 9.11            | 290.64      | 6,546.61              | 249.69       | -662.73      | -254.55                 | 0.00                    | 0.00                   | 0.00                  |
| <b>Begin 2.00°/100' Drop</b> |                 |             |                       |              |              |                         |                         |                        |                       |
| 6,700.00                     | 7.15            | 290.64      | 6,643.58              | 254.58       | -675.69      | -259.52                 | 2.00                    | -2.00                  | 0.00                  |
| 6,800.00                     | 5.15            | 290.64      | 6,743.00              | 258.35       | -685.71      | -263.37                 | 2.00                    | -2.00                  | 0.00                  |
| 6,900.00                     | 3.15            | 290.64      | 6,842.73              | 260.90       | -692.48      | -265.97                 | 2.00                    | -2.00                  | 0.00                  |
| 7,000.00                     | 1.15            | 290.64      | 6,942.65              | 262.22       | -695.98      | -267.32                 | 2.00                    | -2.00                  | 0.00                  |
| 7,057.35                     | 0.00            | 0.00        | 7,000.00              | 262.42       | -696.52      | -267.52                 | 2.00                    | -2.00                  | 120.93                |
| <b>Begin Vertical Hold</b>   |                 |             |                       |              |              |                         |                         |                        |                       |
| 7,100.00                     | 0.00            | 0.00        | 7,042.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 7,200.00                     | 0.00            | 0.00        | 7,142.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 7,300.00                     | 0.00            | 0.00        | 7,242.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 7,400.00                     | 0.00            | 0.00        | 7,342.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 7,500.00                     | 0.00            | 0.00        | 7,442.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 7,600.00                     | 0.00            | 0.00        | 7,542.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 7,700.00                     | 0.00            | 0.00        | 7,642.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 7,800.00                     | 0.00            | 0.00        | 7,742.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 7,900.00                     | 0.00            | 0.00        | 7,842.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 8,000.00                     | 0.00            | 0.00        | 7,942.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 8,100.00                     | 0.00            | 0.00        | 8,042.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 8,200.00                     | 0.00            | 0.00        | 8,142.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 8,300.00                     | 0.00            | 0.00        | 8,242.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 8,400.00                     | 0.00            | 0.00        | 8,342.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 8,500.00                     | 0.00            | 0.00        | 8,442.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 8,600.00                     | 0.00            | 0.00        | 8,542.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 8,700.00                     | 0.00            | 0.00        | 8,642.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 8,800.00                     | 0.00            | 0.00        | 8,742.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 8,900.00                     | 0.00            | 0.00        | 8,842.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 9,000.00                     | 0.00            | 0.00        | 8,942.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 9,100.00                     | 0.00            | 0.00        | 9,042.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 9,200.00                     | 0.00            | 0.00        | 9,142.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 9,300.00                     | 0.00            | 0.00        | 9,242.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |



# MS Directional Planning Report



|                  |                                                    |                                     |                                            |
|------------------|----------------------------------------------------|-------------------------------------|--------------------------------------------|
| <b>Database:</b> | EDM 5000.15 Conroe DB                              | <b>Local Co-ordinate Reference:</b> | Well Grama Ridge 116 35 SB State Com #201H |
| <b>Company:</b>  | Marathon Oil                                       | <b>TVD Reference:</b>               | Well @ 3704.00usft (Cactus 171)            |
| <b>Project:</b>  | Lea County, New Mexico (NAD 27)                    | <b>MD Reference:</b>                | Well @ 3704.00usft (Cactus 171)            |
| <b>Site:</b>     | Grams Ridge 116 35 SB State Com (201H, 203H, 302H) | <b>North Reference:</b>             | Grid                                       |
| <b>Well:</b>     | Grams Ridge 116 35 SB State Com #201H              | <b>Survey Calculation Method:</b>   | Minimum Curvature                          |
| <b>Wellbore:</b> | Wellbore #1                                        |                                     |                                            |
| <b>Design:</b>   | Design #4                                          |                                     |                                            |

| Planned Survey                 |                 |             |                       |              |              |                         |                         |                        |                       |
|--------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft)          | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 9,400.00                       | 0.00            | 0.00        | 9,342.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 9,500.00                       | 0.00            | 0.00        | 9,442.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 9,600.00                       | 0.00            | 0.00        | 9,542.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 9,700.00                       | 0.00            | 0.00        | 9,642.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 9,800.00                       | 0.00            | 0.00        | 9,742.65              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| 9,855.46                       | 0.00            | 0.00        | 9,798.11              | 262.42       | -696.52      | -267.52                 | 0.00                    | 0.00                   | 0.00                  |
| <b>Begin 10.00°/100' Build</b> |                 |             |                       |              |              |                         |                         |                        |                       |
| 9,900.00                       | 4.45            | 179.58      | 9,842.60              | 260.69       | -696.51      | -265.79                 | 10.00                   | 10.00                  | 0.00                  |
| 9,950.00                       | 9.45            | 179.58      | 9,892.22              | 254.64       | -696.46      | -259.74                 | 10.00                   | 10.00                  | 0.00                  |
| 10,000.00                      | 14.45           | 179.58      | 9,941.12              | 244.29       | -696.39      | -249.39                 | 10.00                   | 10.00                  | 0.00                  |
| 10,050.00                      | 19.45           | 179.58      | 9,988.93              | 229.71       | -696.28      | -234.81                 | 10.00                   | 10.00                  | 0.00                  |
| 10,100.00                      | 24.45           | 179.58      | 10,035.29             | 211.03       | -696.15      | -216.12                 | 10.00                   | 10.00                  | 0.00                  |
| 10,150.00                      | 29.45           | 179.58      | 10,079.85             | 188.37       | -695.98      | -193.47                 | 10.00                   | 10.00                  | 0.00                  |
| 10,200.00                      | 34.45           | 179.58      | 10,122.26             | 161.92       | -695.79      | -167.01                 | 10.00                   | 10.00                  | 0.00                  |
| 10,250.00                      | 39.45           | 179.58      | 10,162.20             | 131.87       | -695.57      | -136.96                 | 10.00                   | 10.00                  | 0.00                  |
| 10,300.00                      | 44.45           | 179.58      | 10,199.37             | 98.45        | -695.32      | -103.55                 | 10.00                   | 10.00                  | 0.00                  |
| 10,350.00                      | 49.45           | 179.58      | 10,233.49             | 61.93        | -695.06      | -67.02                  | 10.00                   | 10.00                  | 0.00                  |
| 10,400.00                      | 54.45           | 179.58      | 10,264.29             | 22.56        | -694.77      | -27.66                  | 10.00                   | 10.00                  | 0.00                  |
| 10,450.00                      | 59.45           | 179.58      | 10,291.55             | -19.33       | -694.47      | 14.24                   | 10.00                   | 10.00                  | 0.00                  |
| 10,500.00                      | 64.45           | 179.58      | 10,315.05             | -63.45       | -694.14      | 58.36                   | 10.00                   | 10.00                  | 0.00                  |
| 10,550.00                      | 69.45           | 179.58      | 10,334.62             | -109.44      | -693.81      | 104.35                  | 10.00                   | 10.00                  | 0.00                  |
| 10,600.00                      | 74.45           | 179.58      | 10,350.10             | -156.97      | -693.46      | 151.88                  | 10.00                   | 10.00                  | 0.00                  |
| 10,650.00                      | 79.45           | 179.58      | 10,361.39             | -205.66      | -693.11      | 200.57                  | 10.00                   | 10.00                  | 0.00                  |
| 10,700.00                      | 84.45           | 179.58      | 10,368.38             | -255.15      | -692.75      | 250.06                  | 10.00                   | 10.00                  | 0.00                  |
| 10,753.46                      | 89.80           | 179.58      | 10,371.06             | -308.52      | -692.36      | 303.44                  | 10.00                   | 10.00                  | 0.00                  |
| <b>Begin 89.80° Lateral</b>    |                 |             |                       |              |              |                         |                         |                        |                       |
| 10,800.00                      | 89.80           | 179.58      | 10,371.22             | -355.06      | -692.02      | 349.98                  | 0.00                    | 0.00                   | 0.00                  |
| 10,900.00                      | 89.80           | 179.58      | 10,371.57             | -455.06      | -691.29      | 449.98                  | 0.00                    | 0.00                   | 0.00                  |
| 11,000.00                      | 89.80           | 179.58      | 10,371.92             | -555.05      | -690.56      | 549.98                  | 0.00                    | 0.00                   | 0.00                  |
| 11,100.00                      | 89.80           | 179.58      | 10,372.27             | -655.05      | -689.83      | 649.98                  | 0.00                    | 0.00                   | 0.00                  |
| 11,200.00                      | 89.80           | 179.58      | 10,372.62             | -755.05      | -689.10      | 749.97                  | 0.00                    | 0.00                   | 0.00                  |
| 11,300.00                      | 89.80           | 179.58      | 10,372.97             | -855.04      | -688.37      | 849.97                  | 0.00                    | 0.00                   | 0.00                  |
| 11,400.00                      | 89.80           | 179.58      | 10,373.32             | -955.04      | -687.64      | 949.97                  | 0.00                    | 0.00                   | 0.00                  |
| 11,500.00                      | 89.80           | 179.58      | 10,373.67             | -1,055.04    | -686.91      | 1,049.97                | 0.00                    | 0.00                   | 0.00                  |
| 11,600.00                      | 89.80           | 179.58      | 10,374.02             | -1,155.03    | -686.18      | 1,149.97                | 0.00                    | 0.00                   | 0.00                  |
| 11,700.00                      | 89.80           | 179.58      | 10,374.37             | -1,255.03    | -685.45      | 1,249.97                | 0.00                    | 0.00                   | 0.00                  |
| 11,800.00                      | 89.80           | 179.58      | 10,374.71             | -1,355.03    | -684.72      | 1,349.97                | 0.00                    | 0.00                   | 0.00                  |
| 11,900.00                      | 89.80           | 179.58      | 10,375.06             | -1,455.02    | -684.00      | 1,449.97                | 0.00                    | 0.00                   | 0.00                  |
| 12,000.00                      | 89.80           | 179.58      | 10,375.41             | -1,555.02    | -683.27      | 1,549.97                | 0.00                    | 0.00                   | 0.00                  |
| 12,100.00                      | 89.80           | 179.58      | 10,375.76             | -1,655.02    | -682.54      | 1,649.97                | 0.00                    | 0.00                   | 0.00                  |
| 12,200.00                      | 89.80           | 179.58      | 10,376.11             | -1,755.01    | -681.81      | 1,749.97                | 0.00                    | 0.00                   | 0.00                  |
| 12,300.00                      | 89.80           | 179.58      | 10,376.46             | -1,855.01    | -681.08      | 1,849.97                | 0.00                    | 0.00                   | 0.00                  |
| 12,400.00                      | 89.80           | 179.58      | 10,376.81             | -1,955.01    | -680.35      | 1,949.97                | 0.00                    | 0.00                   | 0.00                  |
| 12,500.00                      | 89.80           | 179.58      | 10,377.16             | -2,055.00    | -679.62      | 2,049.97                | 0.00                    | 0.00                   | 0.00                  |
| 12,600.00                      | 89.80           | 179.58      | 10,377.51             | -2,155.00    | -678.89      | 2,149.97                | 0.00                    | 0.00                   | 0.00                  |
| 12,700.00                      | 89.80           | 179.58      | 10,377.86             | -2,255.00    | -678.16      | 2,249.97                | 0.00                    | 0.00                   | 0.00                  |
| 12,800.00                      | 89.80           | 179.58      | 10,378.21             | -2,354.99    | -677.43      | 2,349.96                | 0.00                    | 0.00                   | 0.00                  |
| 12,900.00                      | 89.80           | 179.58      | 10,378.55             | -2,454.99    | -676.70      | 2,449.96                | 0.00                    | 0.00                   | 0.00                  |
| 13,000.00                      | 89.80           | 179.58      | 10,378.90             | -2,554.99    | -675.97      | 2,549.96                | 0.00                    | 0.00                   | 0.00                  |
| 13,100.00                      | 89.80           | 179.58      | 10,379.25             | -2,654.98    | -675.24      | 2,649.96                | 0.00                    | 0.00                   | 0.00                  |
| 13,200.00                      | 89.80           | 179.58      | 10,379.60             | -2,754.98    | -674.52      | 2,749.96                | 0.00                    | 0.00                   | 0.00                  |
| 13,300.00                      | 89.80           | 179.58      | 10,379.95             | -2,854.98    | -673.79      | 2,849.96                | 0.00                    | 0.00                   | 0.00                  |



# MS Directional Planning Report



|                  |                                                     |                                     |                                            |
|------------------|-----------------------------------------------------|-------------------------------------|--------------------------------------------|
| <b>Database:</b> | EDM 5000.15 Conroe DB                               | <b>Local Co-ordinate Reference:</b> | Well Grama Ridge 116 35 SB State Com #201H |
| <b>Company:</b>  | Marathon Oil                                        | <b>TVD Reference:</b>               | Well @ 3704.00usft (Cactus 171)            |
| <b>Project:</b>  | Lea County, New Mexico (NAD 27)                     | <b>MD Reference:</b>                | Well @ 3704.00usft (Cactus 171)            |
| <b>Site:</b>     | Gramma Ridge 116 35 SB State Com (201H, 203H, 302H) | <b>North Reference:</b>             | Grid                                       |
| <b>Well:</b>     | Gramma Ridge 116 35 SB State Com #201H              | <b>Survey Calculation Method:</b>   | Minimum Curvature                          |
| <b>Wellbore:</b> | Wellbore #1                                         |                                     |                                            |
| <b>Design:</b>   | Design #4                                           |                                     |                                            |

| 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) |
| 13,400.00             | 89.80           | 179.58      | 10,380.30             | -2,954.97    | -673.06      | 2,949.96                | 0.00                    | 0.00                   | 0.00                  |
| 13,500.00             | 89.80           | 179.58      | 10,380.65             | -3,054.97    | -672.33      | 3,049.96                | 0.00                    | 0.00                   | 0.00                  |
| 13,600.00             | 89.80           | 179.58      | 10,381.00             | -3,154.97    | -671.60      | 3,149.96                | 0.00                    | 0.00                   | 0.00                  |
| 13,700.00             | 89.80           | 179.58      | 10,381.35             | -3,254.96    | -670.87      | 3,249.96                | 0.00                    | 0.00                   | 0.00                  |
| 13,800.00             | 89.80           | 179.58      | 10,381.70             | -3,354.96    | -670.14      | 3,349.96                | 0.00                    | 0.00                   | 0.00                  |
| 13,900.00             | 89.80           | 179.58      | 10,382.05             | -3,454.96    | -669.41      | 3,449.96                | 0.00                    | 0.00                   | 0.00                  |
| 14,000.00             | 89.80           | 179.58      | 10,382.39             | -3,554.95    | -668.68      | 3,549.96                | 0.00                    | 0.00                   | 0.00                  |
| 14,100.00             | 89.80           | 179.58      | 10,382.74             | -3,654.95    | -667.95      | 3,649.96                | 0.00                    | 0.00                   | 0.00                  |
| 14,200.00             | 89.80           | 179.58      | 10,383.09             | -3,754.95    | -667.22      | 3,749.96                | 0.00                    | 0.00                   | 0.00                  |
| 14,300.00             | 89.80           | 179.58      | 10,383.44             | -3,854.94    | -666.49      | 3,849.96                | 0.00                    | 0.00                   | 0.00                  |
| 14,400.00             | 89.80           | 179.58      | 10,383.79             | -3,954.94    | -665.76      | 3,949.95                | 0.00                    | 0.00                   | 0.00                  |
| 14,500.00             | 89.80           | 179.58      | 10,384.14             | -4,054.94    | -665.04      | 4,049.95                | 0.00                    | 0.00                   | 0.00                  |
| 14,600.00             | 89.80           | 179.58      | 10,384.49             | -4,154.93    | -664.31      | 4,149.95                | 0.00                    | 0.00                   | 0.00                  |
| 14,700.00             | 89.80           | 179.58      | 10,384.84             | -4,254.93    | -663.58      | 4,249.95                | 0.00                    | 0.00                   | 0.00                  |
| 14,800.00             | 89.80           | 179.58      | 10,385.19             | -4,354.93    | -662.85      | 4,349.95                | 0.00                    | 0.00                   | 0.00                  |
| 14,900.00             | 89.80           | 179.58      | 10,385.54             | -4,454.93    | -662.12      | 4,449.95                | 0.00                    | 0.00                   | 0.00                  |
| 15,000.00             | 89.80           | 179.58      | 10,385.88             | -4,554.92    | -661.39      | 4,549.95                | 0.00                    | 0.00                   | 0.00                  |
| 15,100.00             | 89.80           | 179.58      | 10,386.23             | -4,654.92    | -660.66      | 4,649.95                | 0.00                    | 0.00                   | 0.00                  |
| 15,200.00             | 89.80           | 179.58      | 10,386.58             | -4,754.92    | -659.93      | 4,749.95                | 0.00                    | 0.00                   | 0.00                  |
| 15,300.00             | 89.80           | 179.58      | 10,386.93             | -4,854.91    | -659.20      | 4,849.95                | 0.00                    | 0.00                   | 0.00                  |
| 15,400.00             | 89.80           | 179.58      | 10,387.28             | -4,954.91    | -658.47      | 4,949.95                | 0.00                    | 0.00                   | 0.00                  |
| 15,500.00             | 89.80           | 179.58      | 10,387.63             | -5,054.91    | -657.74      | 5,049.95                | 0.00                    | 0.00                   | 0.00                  |
| 15,600.00             | 89.80           | 179.58      | 10,387.98             | -5,154.90    | -657.01      | 5,149.95                | 0.00                    | 0.00                   | 0.00                  |
| 15,700.00             | 89.80           | 179.58      | 10,388.33             | -5,254.90    | -656.28      | 5,249.95                | 0.00                    | 0.00                   | 0.00                  |
| 15,800.00             | 89.80           | 179.58      | 10,388.68             | -5,354.90    | -655.56      | 5,349.95                | 0.00                    | 0.00                   | 0.00                  |
| 15,900.00             | 89.80           | 179.58      | 10,389.03             | -5,454.89    | -654.83      | 5,449.95                | 0.00                    | 0.00                   | 0.00                  |
| 16,000.00             | 89.80           | 179.58      | 10,389.38             | -5,554.89    | -654.10      | 5,549.95                | 0.00                    | 0.00                   | 0.00                  |
| 16,100.00             | 89.80           | 179.58      | 10,389.72             | -5,654.89    | -653.37      | 5,649.94                | 0.00                    | 0.00                   | 0.00                  |
| 16,200.00             | 89.80           | 179.58      | 10,390.07             | -5,754.88    | -652.64      | 5,749.94                | 0.00                    | 0.00                   | 0.00                  |
| 16,300.00             | 89.80           | 179.58      | 10,390.42             | -5,854.88    | -651.91      | 5,849.94                | 0.00                    | 0.00                   | 0.00                  |
| 16,400.00             | 89.80           | 179.58      | 10,390.77             | -5,954.88    | -651.18      | 5,949.94                | 0.00                    | 0.00                   | 0.00                  |
| 16,500.00             | 89.80           | 179.58      | 10,391.12             | -6,054.87    | -650.45      | 6,049.94                | 0.00                    | 0.00                   | 0.00                  |
| 16,600.00             | 89.80           | 179.58      | 10,391.47             | -6,154.87    | -649.72      | 6,149.94                | 0.00                    | 0.00                   | 0.00                  |
| 16,700.00             | 89.80           | 179.58      | 10,391.82             | -6,254.87    | -648.99      | 6,249.94                | 0.00                    | 0.00                   | 0.00                  |
| 16,800.00             | 89.80           | 179.58      | 10,392.17             | -6,354.86    | -648.26      | 6,349.94                | 0.00                    | 0.00                   | 0.00                  |
| 16,900.00             | 89.80           | 179.58      | 10,392.52             | -6,454.86    | -647.53      | 6,449.94                | 0.00                    | 0.00                   | 0.00                  |
| 17,000.00             | 89.80           | 179.58      | 10,392.87             | -6,554.86    | -646.80      | 6,549.94                | 0.00                    | 0.00                   | 0.00                  |
| 17,100.00             | 89.80           | 179.58      | 10,393.22             | -6,654.85    | -646.07      | 6,649.94                | 0.00                    | 0.00                   | 0.00                  |
| 17,200.00             | 89.80           | 179.58      | 10,393.56             | -6,754.85    | -645.35      | 6,749.94                | 0.00                    | 0.00                   | 0.00                  |
| 17,300.00             | 89.80           | 179.58      | 10,393.91             | -6,854.85    | -644.62      | 6,849.94                | 0.00                    | 0.00                   | 0.00                  |
| 17,400.00             | 89.80           | 179.58      | 10,394.26             | -6,954.84    | -643.89      | 6,949.94                | 0.00                    | 0.00                   | 0.00                  |
| 17,500.00             | 89.80           | 179.58      | 10,394.61             | -7,054.84    | -643.16      | 7,049.94                | 0.00                    | 0.00                   | 0.00                  |
| 17,600.00             | 89.80           | 179.58      | 10,394.96             | -7,154.84    | -642.43      | 7,149.94                | 0.00                    | 0.00                   | 0.00                  |
| 17,700.00             | 89.80           | 179.58      | 10,395.31             | -7,254.83    | -641.70      | 7,249.93                | 0.00                    | 0.00                   | 0.00                  |
| 17,800.00             | 89.80           | 179.58      | 10,395.66             | -7,354.83    | -640.97      | 7,349.93                | 0.00                    | 0.00                   | 0.00                  |
| 17,900.00             | 89.80           | 179.58      | 10,396.01             | -7,454.83    | -640.24      | 7,449.93                | 0.00                    | 0.00                   | 0.00                  |
| 18,000.00             | 89.80           | 179.58      | 10,396.36             | -7,554.82    | -639.51      | 7,549.93                | 0.00                    | 0.00                   | 0.00                  |
| 18,100.00             | 89.80           | 179.58      | 10,396.71             | -7,654.82    | -638.78      | 7,649.93                | 0.00                    | 0.00                   | 0.00                  |
| 18,200.00             | 89.80           | 179.58      | 10,397.05             | -7,754.82    | -638.05      | 7,749.93                | 0.00                    | 0.00                   | 0.00                  |
| 18,300.00             | 89.80           | 179.58      | 10,397.40             | -7,854.81    | -637.32      | 7,849.93                | 0.00                    | 0.00                   | 0.00                  |
| 18,400.00             | 89.80           | 179.58      | 10,397.75             | -7,954.81    | -636.59      | 7,949.93                | 0.00                    | 0.00                   | 0.00                  |
| 18,500.00             | 89.80           | 179.58      | 10,398.10             | -8,054.81    | -635.87      | 8,049.93                | 0.00                    | 0.00                   | 0.00                  |



# MS Directional Planning Report



|                  |                                                    |                                     |                                            |
|------------------|----------------------------------------------------|-------------------------------------|--------------------------------------------|
| <b>Database:</b> | EDM 5000.15 Conroe DB                              | <b>Local Co-ordinate Reference:</b> | Well Grama Ridge 116 35 SB State Com #201H |
| <b>Company:</b>  | Marathon Oil                                       | <b>TVD Reference:</b>               | Well @ 3704.00usft (Cactus 171)            |
| <b>Project:</b>  | Lea County, New Mexico (NAD 27)                    | <b>MD Reference:</b>                | Well @ 3704.00usft (Cactus 171)            |
| <b>Site:</b>     | Grama Ridge 116 35 SB State Com (201H, 203H, 302H) | <b>North Reference:</b>             | Grid                                       |
| <b>Well:</b>     | Grama Ridge 116 35 SB State Com #201H              | <b>Survey Calculation Method:</b>   | Minimum Curvature                          |
| <b>Wellbore:</b> | Wellbore #1                                        |                                     |                                            |
| <b>Design:</b>   | Design #4                                          |                                     |                                            |

| 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) |
| 18,600.00             | 89.80           | 179.58      | 10,398.45             | -8,154.80    | -635.14      | 8,149.93                | 0.00                    | 0.00                   | 0.00                  |
| 18,700.00             | 89.80           | 179.58      | 10,398.80             | -8,254.80    | -634.41      | 8,249.93                | 0.00                    | 0.00                   | 0.00                  |
| 18,800.00             | 89.80           | 179.58      | 10,399.15             | -8,354.80    | -633.68      | 8,349.93                | 0.00                    | 0.00                   | 0.00                  |
| 18,900.00             | 89.80           | 179.58      | 10,399.50             | -8,454.79    | -632.95      | 8,449.93                | 0.00                    | 0.00                   | 0.00                  |
| 19,000.00             | 89.80           | 179.58      | 10,399.85             | -8,554.79    | -632.22      | 8,549.93                | 0.00                    | 0.00                   | 0.00                  |
| 19,100.00             | 89.80           | 179.58      | 10,400.20             | -8,654.79    | -631.49      | 8,649.93                | 0.00                    | 0.00                   | 0.00                  |
| 19,200.00             | 89.80           | 179.58      | 10,400.55             | -8,754.78    | -630.76      | 8,749.93                | 0.00                    | 0.00                   | 0.00                  |
| 19,300.00             | 89.80           | 179.58      | 10,400.89             | -8,854.78    | -630.03      | 8,849.93                | 0.00                    | 0.00                   | 0.00                  |
| 19,400.00             | 89.80           | 179.58      | 10,401.24             | -8,954.78    | -629.30      | 8,949.92                | 0.00                    | 0.00                   | 0.00                  |
| 19,500.00             | 89.80           | 179.58      | 10,401.59             | -9,054.77    | -628.57      | 9,049.92                | 0.00                    | 0.00                   | 0.00                  |
| 19,600.00             | 89.80           | 179.58      | 10,401.94             | -9,154.77    | -627.84      | 9,149.92                | 0.00                    | 0.00                   | 0.00                  |
| 19,700.00             | 89.80           | 179.58      | 10,402.29             | -9,254.77    | -627.11      | 9,249.92                | 0.00                    | 0.00                   | 0.00                  |
| 19,800.00             | 89.80           | 179.58      | 10,402.64             | -9,354.77    | -626.39      | 9,349.92                | 0.00                    | 0.00                   | 0.00                  |
| 19,900.00             | 89.80           | 179.58      | 10,402.99             | -9,454.76    | -625.66      | 9,449.92                | 0.00                    | 0.00                   | 0.00                  |
| 20,000.00             | 89.80           | 179.58      | 10,403.34             | -9,554.76    | -624.93      | 9,549.92                | 0.00                    | 0.00                   | 0.00                  |
| 20,100.00             | 89.80           | 179.58      | 10,403.69             | -9,654.76    | -624.20      | 9,649.92                | 0.00                    | 0.00                   | 0.00                  |
| 20,200.00             | 89.80           | 179.58      | 10,404.04             | -9,754.75    | -623.47      | 9,749.92                | 0.00                    | 0.00                   | 0.00                  |
| 20,300.00             | 89.80           | 179.58      | 10,404.39             | -9,854.75    | -622.74      | 9,849.92                | 0.00                    | 0.00                   | 0.00                  |
| 20,400.00             | 89.80           | 179.58      | 10,404.73             | -9,954.75    | -622.01      | 9,949.92                | 0.00                    | 0.00                   | 0.00                  |
| 20,500.00             | 89.80           | 179.58      | 10,405.08             | -10,054.74   | -621.28      | 10,049.92               | 0.00                    | 0.00                   | 0.00                  |
| 20,600.00             | 89.80           | 179.58      | 10,405.43             | -10,154.74   | -620.55      | 10,149.92               | 0.00                    | 0.00                   | 0.00                  |
| 20,619.40             | 89.80           | 179.58      | 10,405.50             | -10,174.14   | -620.41      | 10,169.32               | 0.00                    | 0.00                   | 0.00                  |
| PBHL                  |                 |             |                       |              |              |                         |                         |                        |                       |

| Design Targets                                                                      |               |              |            |              |              |                 |                |           |             |
|-------------------------------------------------------------------------------------|---------------|--------------|------------|--------------|--------------|-----------------|----------------|-----------|-------------|
| Target Name                                                                         | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude  | Longitude   |
| FTP - Grama Ridge 201H<br>- hit/miss target<br>- Shape<br>- Point                   | 0.00          | 0.00         | 0.00       | 262.42       | -696.52      | 525,781.52      | 775,876.32     | 32.442311 | -103.439091 |
| - plan misses target center by 744.32usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) |               |              |            |              |              |                 |                |           |             |
| VP - Grama Ridge 20<br>- plan hits target center<br>- Point                         | 0.00          | 0.00         | 7,000.00   | 262.42       | -696.52      | 525,781.52      | 775,876.32     | 32.442311 | -103.439091 |
| KOP - Grama Ridge 2<br>- plan hits target center<br>- Point                         | 0.00          | 0.00         | 9,798.11   | 262.42       | -696.52      | 525,781.52      | 775,876.32     | 32.442311 | -103.439091 |
| LTP/PBHL v2 - Grama Ridge<br>- plan hits target center<br>- Point                   | 0.00          | 0.00         | 10,405.50  | -10,174.14   | -620.41      | 515,344.96      | 775,952.43     | 32.413624 | -103.439127 |



# MS Directional Planning Report



|                  |                                                    |                                     |                                            |
|------------------|----------------------------------------------------|-------------------------------------|--------------------------------------------|
| <b>Database:</b> | EDM 5000.15 Conroe DB                              | <b>Local Co-ordinate Reference:</b> | Well Grama Ridge 116 35 SB State Com #201H |
| <b>Company:</b>  | Marathon Oil                                       | <b>TVD Reference:</b>               | Well @ 3704.00usft (Cactus 171)            |
| <b>Project:</b>  | Lea County, New Mexico (NAD 27)                    | <b>MD Reference:</b>                | Well @ 3704.00usft (Cactus 171)            |
| <b>Site:</b>     | Grama Ridge 116 35 SB State Com (201H, 203H, 302H) | <b>North Reference:</b>             | Grid                                       |
| <b>Well:</b>     | Grama Ridge 116 35 SB State Com #201H              | <b>Survey Calculation Method:</b>   | Minimum Curvature                          |
| <b>Wellbore:</b> | Wellbore #1                                        |                                     |                                            |
| <b>Design:</b>   | Design #4                                          |                                     |                                            |

## Casing Points

| Measured Depth (usft) | Vertical Depth (usft) | Name    | Casing Diameter (") | Hole Diameter (") |
|-----------------------|-----------------------|---------|---------------------|-------------------|
| 1,739.00              | 1,739.00              | 13 3/8" | 13-3/8              | 17-1/2            |
| 5,780.08              | 5,735.00              | 9 5/8"  | 9-5/8               | 12-1/4            |
| 20,619.40             | 10,405.50             | 5 1/2"  | 5-1/2               | 6                 |

## Plan Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              | Comment                 |
|-----------------------|-----------------------|-------------------|--------------|-------------------------|
|                       |                       | +N/-S (usft)      | +E/-W (usft) |                         |
| 1,900.00              | 1,900.00              | 0.00              | 0.00         | KOP, 2.00°/100' Build   |
| 2,355.30              | 2,353.39              | 12.73             | -33.79       | Begin 9.11° Tangent     |
| 6,602.05              | 6,546.61              | 249.69            | -662.73      | Begin 2.00°/100' Drop   |
| 7,057.35              | 7,000.00              | 262.42            | -696.52      | Begin Vertical Hold     |
| 9,855.46              | 9,798.11              | 262.42            | -696.52      | Begin 10.00°/100' Build |
| 10,753.46             | 10,371.06             | -308.52           | -692.36      | Begin 89.80° Lateral    |
| 20,619.40             | 10,405.50             | -10,174.14        | -620.41      | PBHL                    |

# MARATHON OIL PERMIAN LLC

## DRILLING AND OPERATIONS PLAN

**PAD NAME:** Gramma Ridge 116 35 State Com 201H, 302H, 203H

**STATE:** NEW MEXICO

**COUNTY:** LEA

|      |                                       |
|------|---------------------------------------|
| Well | Gramma Ridge 116 35 SB State Com 201H |
|------|---------------------------------------|

### 1. CASING PROGRAM

201H

| String Type    | Hole Size     | Csg Size      | Top Set MD    | Bottom Set MD | Weight (lbs/ft) | Grade       |
|----------------|---------------|---------------|---------------|---------------|-----------------|-------------|
| Surface        | <u>17 1/2</u> | <u>13 3/8</u> | <u>0</u>      | <u>1,739</u>  | <u>54.5</u>     | <u>J55</u>  |
| Intermediate I | <u>12 1/4</u> | <u>9 5/8</u>  | <u>0</u>      | <u>5,729</u>  | <u>40</u>       | <u>P110</u> |
| Production csg | <u>8 3/4</u>  | <u>5 1/2</u>  | <u>0</u>      | <u>10,750</u> | <u>23</u>       | <u>P110</u> |
| Production csg | <u>8 1/2</u>  | <u>5 1/2</u>  | <u>10,750</u> | <u>20,619</u> | <u>23</u>       | <u>P110</u> |

### 2. CEMENT PROGRAM:

201H

| String Type      | Top MD | Bottom MD | Quantity (sx) |
|------------------|--------|-----------|---------------|
| Surface          | 0      | 1,739     | 1452          |
| Intermediate I   | 0      | 5,729     | 1002          |
| Production 8.75" | 5,229  | 9,355     | 699           |
| Production 8.5"  | 9,355  | 20,619    | 1972          |

**3. PRESSURE CONTROL EQUIPMENT**

| BOP installed and tested before drilling which hole? | Size?  | Min. Required WP | Type       | ✓ | Tested to:              |
|------------------------------------------------------|--------|------------------|------------|---|-------------------------|
| 12 ¼"                                                | 13 5/8 | 5000             | Annular    | x | 50% of working pressure |
|                                                      |        |                  | Blind Ram  | X | 5000                    |
|                                                      |        |                  | Pipe Ram   | X |                         |
|                                                      |        |                  | Pipe Ram   | X |                         |
|                                                      |        |                  |            |   |                         |
| 8 ¾" & 8 ½"                                          | 13 5/8 | 5000             | 5M Annular | x | 50% of working pressure |
|                                                      |        |                  | Blind Ram  | x | 5000                    |
|                                                      |        |                  | Pipe Ram   | x |                         |
|                                                      |        |                  | Pipe Ram   | x |                         |
|                                                      |        |                  |            |   |                         |
|                                                      |        |                  |            |   |                         |
|                                                      |        |                  |            |   |                         |

**4. MUD PROGRAM:**

| Hole Section          | Mud Type               |
|-----------------------|------------------------|
| <u>Surface</u>        | <u>Water Based Mud</u> |
| <u>Intermediate 1</u> | <u>Brine</u>           |
| <u>Production</u>     | <u>Cut Brine / OBM</u> |

**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720

**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720

**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170

**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 177027

CONDITIONS

|                                                                                        |                                                      |
|----------------------------------------------------------------------------------------|------------------------------------------------------|
| Operator:<br>MARATHON OIL PERMIAN LLC<br>990 Town & Country Blvd.<br>Houston, TX 77024 | OGRID:<br>372098                                     |
|                                                                                        | Action Number:<br>177027                             |
|                                                                                        | Action Type:<br>[C-103] NOI Change of Plans (C-103A) |

CONDITIONS

|            |           |                |
|------------|-----------|----------------|
| Created By | Condition | Condition Date |
| pkautz     | None      | 1/18/2023      |