



## Pro Directional

Survey Report

30-015-44736

NM OIL CONSERVATION  
ARTESIA DISTRICT

FEB 20 2018

PRODIRECTIONAL

|           |                      |                              |                                                     |
|-----------|----------------------|------------------------------|-----------------------------------------------------|
| Company:  | Marathon Oil         | Local Co-ordinate Reference: | Well WA #10H                                        |
| Project:  | Eddy County, NM      | TVD Reference:               | Well @ 3092.50usft (GL: 3066' + KB: 26.5' (H&P423)) |
| Site:     | Mariner Fee 23-28-19 | MD Reference:                | Well @ 3092.50usft (GL: 3066' + KB: 26.5' (H&P423)) |
| Well:     | WA #10H              | North Reference:             | Grid                                                |
| Wellbore: | OH                   | Survey Calculation Method:   | Minimum Curvature                                   |
| Design:   | Prelim Plan A        | Databases:                   | WellPlanner1                                        |

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

|                       |           |                      |                 |                   |             |
|-----------------------|-----------|----------------------|-----------------|-------------------|-------------|
| Site                  |           | Mariner Fee 23-28-19 |                 |                   |             |
| Site Position:        |           | Northing:            | 472,817.80 usft | Latitude:         | 32.299718   |
| From:                 | Map       | Easting:             | 564,941.79 usft | Longitude:        | -104.123154 |
| Position Uncertainty: | 0.00 usft | Slot Radius:         | 13-3/16 "       | Grid Convergence: | 0.11 °      |

|                      |         |           |                     |                 |               |               |
|----------------------|---------|-----------|---------------------|-----------------|---------------|---------------|
| Well:                | WA #10H |           |                     |                 |               |               |
| Well Position        | +N/-S   | 0.00 usft | Northing:           | 472,817.80 usft | Latitude:     | 32.299717     |
|                      | +E/-W   | 0.00 usft | Easting:            | 564,991.79 usft | Longitude:    | -104.122992   |
| Position Uncertainty |         | 0.00 usft | Wellhead Elevation: | usft            | Ground Level: | 3,066.00 usft |

|           |            |             |                    |                  |                        |
|-----------|------------|-------------|--------------------|------------------|------------------------|
| Wellbore  | OH         |             |                    |                  |                        |
| Magnetics | Model Name | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|           | HDGM       | 2/13/2018   | 7.32               | 60.08            | 48,036.10              |

|                   |                  |        |               |           |
|-------------------|------------------|--------|---------------|-----------|
| Design:           | Prelim Plan A    |        |               |           |
| Audit Notes:      |                  |        |               |           |
| Version:          | Phase:           | PLAN   | Tie On Depth: | 0.00      |
| Vertical Section: | Depth From (TVD) | +N/-S  | +E/-W         | Direction |
|                   | (usft)           | (usft) | (usft)        | (°)       |
|                   | 0.00             | 0.00   | 0.00          | 179.89    |

| Survey Tool Program |              | Date               | 2/13/2018 |                 |
|---------------------|--------------|--------------------|-----------|-----------------|
| From<br>(usft)      | To<br>(usft) | Survey (Wellbore)  | Tool Name | Description     |
| 0.00                | 14,711.53    | Prelim Plan A (OH) | MWD+IFR1  | OWSG MWD + IFR1 |

| 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                  |
| [MarinerWA#10H]FTP: 993' VS |                 |             |                       |              |              |                         |                         |                        |                       |
| 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                  |

**Company:** Marathon Oil  
**Project:** Eddy County, NM  
**Site:** Mariner Fee 23-28-19  
**Well:** WA #10H  
**Wellbore:** OH  
**Design:** Prelim Plan A

**Local Co-ordinate Reference:** Well WA #10H  
**TVD Reference:** Well @ 3092.50usft (GL: 3066' + KB: 26.5' (H&P423))  
**MD Reference:** Well @ 3092.50usft (GL: 3066' + KB: 26.5' (H&P423))  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** WellPlanner1

### 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) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 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              | 1.00            | 115.19      | 1,599.99              | -0.37        | 0.79         | 0.37                    | 1.00                    | 1.00                   | 0.00                  |
| 1,700.00              | 2.00            | 115.19      | 1,699.96              | -1.49        | 3.16         | 1.49                    | 1.00                    | 1.00                   | 0.00                  |
| 1,800.00              | 3.00            | 115.19      | 1,799.86              | -3.34        | 7.11         | 3.36                    | 1.00                    | 1.00                   | 0.00                  |
| 1,900.00              | 4.00            | 115.19      | 1,899.68              | -5.94        | 12.63        | 5.97                    | 1.00                    | 1.00                   | 0.00                  |
| 2,000.00              | 5.00            | 115.19      | 1,999.37              | -9.28        | 19.73        | 9.32                    | 1.00                    | 1.00                   | 0.00                  |
| 2,100.00              | 6.00            | 115.19      | 2,098.90              | -13.36       | 28.40        | 13.41                   | 1.00                    | 1.00                   | 0.00                  |
| 2,200.00              | 7.00            | 115.19      | 2,198.26              | -18.18       | 38.65        | 18.25                   | 1.00                    | 1.00                   | 0.00                  |
| 2,300.00              | 8.00            | 115.19      | 2,297.40              | -23.74       | 50.46        | 23.83                   | 1.00                    | 1.00                   | 0.00                  |
| 2,400.00              | 9.00            | 115.19      | 2,396.30              | -30.03       | 63.83        | 30.15                   | 1.00                    | 1.00                   | 0.00                  |
| 2,500.00              | 10.00           | 115.19      | 2,494.93              | -37.05       | 78.77        | 37.20                   | 1.00                    | 1.00                   | 0.00                  |
| 2,600.00              | 11.00           | 115.19      | 2,593.26              | -44.81       | 95.26        | 44.99                   | 1.00                    | 1.00                   | 0.00                  |
| 2,700.00              | 12.00           | 115.19      | 2,691.25              | -53.30       | 113.30       | 53.51                   | 1.00                    | 1.00                   | 0.00                  |
| 2,800.00              | 12.00           | 115.19      | 2,789.06              | -62.15       | 132.11       | 62.40                   | 0.00                    | 0.00                   | 0.00                  |
| 2,900.00              | 12.00           | 115.19      | 2,886.88              | -71.00       | 150.92       | 71.29                   | 0.00                    | 0.00                   | 0.00                  |
| 3,000.00              | 12.00           | 115.19      | 2,984.69              | -79.85       | 169.74       | 80.17                   | 0.00                    | 0.00                   | 0.00                  |
| 3,100.00              | 12.00           | 115.19      | 3,082.51              | -88.70       | 188.55       | 89.06                   | 0.00                    | 0.00                   | 0.00                  |
| 3,200.00              | 12.00           | 115.19      | 3,180.32              | -97.55       | 207.36       | 97.94                   | 0.00                    | 0.00                   | 0.00                  |
| 3,300.00              | 12.00           | 115.19      | 3,278.13              | -106.40      | 226.18       | 106.83                  | 0.00                    | 0.00                   | 0.00                  |
| 3,400.00              | 12.00           | 115.19      | 3,375.95              | -115.25      | 244.99       | 115.72                  | 0.00                    | 0.00                   | 0.00                  |
| 3,500.00              | 12.00           | 115.19      | 3,473.76              | -124.10      | 263.80       | 124.60                  | 0.00                    | 0.00                   | 0.00                  |
| 3,600.00              | 12.00           | 115.19      | 3,571.58              | -132.95      | 282.62       | 133.49                  | 0.00                    | 0.00                   | 0.00                  |
| 3,700.00              | 12.00           | 115.19      | 3,669.39              | -141.80      | 301.43       | 142.37                  | 0.00                    | 0.00                   | 0.00                  |
| 3,800.00              | 12.00           | 115.19      | 3,767.21              | -150.65      | 320.24       | 151.26                  | 0.00                    | 0.00                   | 0.00                  |
| 3,900.00              | 12.00           | 115.19      | 3,865.02              | -159.50      | 339.06       | 160.15                  | 0.00                    | 0.00                   | 0.00                  |
| 4,000.00              | 12.00           | 115.19      | 3,962.84              | -168.35      | 357.87       | 169.03                  | 0.00                    | 0.00                   | 0.00                  |
| 4,100.00              | 12.00           | 115.19      | 4,060.65              | -177.20      | 376.68       | 177.92                  | 0.00                    | 0.00                   | 0.00                  |
| 4,200.00              | 12.00           | 115.19      | 4,158.47              | -186.05      | 395.50       | 186.81                  | 0.00                    | 0.00                   | 0.00                  |
| 4,300.00              | 12.00           | 115.19      | 4,256.28              | -194.90      | 414.31       | 195.69                  | 0.00                    | 0.00                   | 0.00                  |
| 4,400.00              | 12.00           | 115.19      | 4,354.10              | -203.75      | 433.13       | 204.58                  | 0.00                    | 0.00                   | 0.00                  |
| 4,500.00              | 12.00           | 115.19      | 4,451.91              | -212.60      | 451.94       | 213.46                  | 0.00                    | 0.00                   | 0.00                  |
| 4,600.00              | 12.00           | 115.19      | 4,549.73              | -221.45      | 470.75       | 222.35                  | 0.00                    | 0.00                   | 0.00                  |
| 4,700.00              | 12.00           | 115.19      | 4,647.54              | -230.30      | 489.57       | 231.24                  | 0.00                    | 0.00                   | 0.00                  |
| 4,800.00              | 12.00           | 115.19      | 4,745.36              | -239.15      | 508.38       | 240.12                  | 0.00                    | 0.00                   | 0.00                  |
| 4,900.00              | 12.00           | 115.19      | 4,843.17              | -248.00      | 527.19       | 249.01                  | 0.00                    | 0.00                   | 0.00                  |

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Planned Survey

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|-----------------------|-----------------|-------------|-----------------------|-------------|-------------|-------------------------|-------------------------|------------------------|-----------------------|
| 5,000.00              | 12.00           | 115.19      | 4,940.99              | -256.85     | 546.01      | 257.90                  | 0.00                    | 0.00                   | 0.00                  |
| 5,100.00              | 12.00           | 115.19      | 5,038.80              | -265.70     | 564.82      | 266.78                  | 0.00                    | 0.00                   | 0.00                  |
| 5,200.00              | 12.00           | 115.19      | 5,136.62              | -274.55     | 583.63      | 275.67                  | 0.00                    | 0.00                   | 0.00                  |
| 5,300.00              | 12.00           | 115.19      | 5,234.43              | -283.40     | 602.45      | 284.55                  | 0.00                    | 0.00                   | 0.00                  |
| 5,400.00              | 12.00           | 115.19      | 5,332.24              | -292.25     | 621.26      | 293.44                  | 0.00                    | 0.00                   | 0.00                  |
| 5,500.00              | 12.00           | 115.19      | 5,430.06              | -301.10     | 640.07      | 302.33                  | 0.00                    | 0.00                   | 0.00                  |
| 5,600.00              | 12.00           | 115.19      | 5,527.87              | -309.95     | 658.89      | 311.21                  | 0.00                    | 0.00                   | 0.00                  |
| 5,700.00              | 12.00           | 115.19      | 5,625.69              | -318.80     | 677.70      | 320.10                  | 0.00                    | 0.00                   | 0.00                  |
| 5,800.00              | 12.00           | 115.19      | 5,723.50              | -327.65     | 696.51      | 328.98                  | 0.00                    | 0.00                   | 0.00                  |
| 5,900.00              | 12.00           | 115.19      | 5,821.32              | -336.50     | 715.33      | 337.87                  | 0.00                    | 0.00                   | 0.00                  |
| 6,000.00              | 12.00           | 115.19      | 5,919.13              | -345.35     | 734.14      | 346.76                  | 0.00                    | 0.00                   | 0.00                  |
| 6,100.00              | 12.00           | 115.19      | 6,016.95              | -354.20     | 752.96      | 355.64                  | 0.00                    | 0.00                   | 0.00                  |
| 6,200.00              | 12.00           | 115.19      | 6,114.76              | -363.05     | 771.77      | 364.53                  | 0.00                    | 0.00                   | 0.00                  |
| 6,300.00              | 12.00           | 115.19      | 6,212.58              | -371.90     | 790.58      | 373.42                  | 0.00                    | 0.00                   | 0.00                  |
| 6,400.00              | 12.00           | 115.19      | 6,310.39              | -380.75     | 809.40      | 382.30                  | 0.00                    | 0.00                   | 0.00                  |
| 6,500.00              | 12.00           | 115.19      | 6,408.21              | -389.60     | 828.21      | 391.19                  | 0.00                    | 0.00                   | 0.00                  |
| 6,600.00              | 12.00           | 115.19      | 6,506.02              | -398.45     | 847.02      | 400.07                  | 0.00                    | 0.00                   | 0.00                  |
| 6,700.00              | 12.00           | 115.19      | 6,603.84              | -407.30     | 865.84      | 408.96                  | 0.00                    | 0.00                   | 0.00                  |
| 6,800.00              | 12.00           | 115.19      | 6,701.65              | -416.15     | 884.65      | 417.85                  | 0.00                    | 0.00                   | 0.00                  |
| 6,900.00              | 12.00           | 115.19      | 6,799.47              | -425.00     | 903.46      | 426.73                  | 0.00                    | 0.00                   | 0.00                  |
| 6,995.71              | 12.00           | 115.19      | 6,893.08              | -433.47     | 921.47      | 435.24                  | 0.00                    | 0.00                   | 0.00                  |
| 7,000.00              | 11.94           | 115.19      | 6,897.28              | -433.85     | 922.27      | 435.62                  | 1.50                    | -1.50                  | 0.00                  |
| 7,100.00              | 10.44           | 115.19      | 6,995.38              | -442.11     | 939.83      | 443.91                  | 1.50                    | -1.50                  | 0.00                  |
| 7,200.00              | 8.94            | 115.19      | 7,093.95              | -449.27     | 955.05      | 451.10                  | 1.50                    | -1.50                  | 0.00                  |
| 7,300.00              | 7.44            | 115.19      | 7,192.93              | -455.33     | 967.93      | 457.18                  | 1.50                    | -1.50                  | 0.00                  |
| 7,400.00              | 5.94            | 115.19      | 7,292.25              | -460.28     | 978.47      | 462.16                  | 1.50                    | -1.50                  | 0.00                  |
| 7,500.00              | 4.44            | 115.19      | 7,391.83              | -464.13     | 986.65      | 466.02                  | 1.50                    | -1.50                  | 0.00                  |
| 7,600.00              | 2.94            | 115.19      | 7,491.62              | -466.87     | 992.46      | 468.77                  | 1.50                    | -1.50                  | 0.00                  |
| 7,700.00              | 1.44            | 115.19      | 7,591.55              | -468.49     | 995.92      | 470.40                  | 1.50                    | -1.50                  | 0.00                  |
| 7,795.71              | 0.00            | 0.00        | 7,687.25              | -469.00     | 997.00      | 470.91                  | 1.50                    | -1.50                  | 0.00                  |
| 7,800.00              | 0.00            | 0.00        | 7,691.54              | -469.00     | 997.00      | 470.91                  | 0.00                    | 0.00                   | 0.00                  |
| 7,900.00              | 0.00            | 0.00        | 7,791.54              | -469.00     | 997.00      | 470.91                  | 0.00                    | 0.00                   | 0.00                  |
| 8,000.00              | 0.00            | 0.00        | 7,891.54              | -469.00     | 997.00      | 470.91                  | 0.00                    | 0.00                   | 0.00                  |
| 8,100.00              | 0.00            | 0.00        | 7,991.54              | -469.00     | 997.00      | 470.91                  | 0.00                    | 0.00                   | 0.00                  |
| 8,200.00              | 0.00            | 0.00        | 8,091.54              | -469.00     | 997.00      | 470.91                  | 0.00                    | 0.00                   | 0.00                  |
| 8,300.00              | 0.00            | 0.00        | 8,191.54              | -469.00     | 997.00      | 470.91                  | 0.00                    | 0.00                   | 0.00                  |
| 8,400.00              | 0.00            | 0.00        | 8,291.54              | -469.00     | 997.00      | 470.91                  | 0.00                    | 0.00                   | 0.00                  |
| 8,500.00              | 0.00            | 0.00        | 8,391.54              | -469.00     | 997.00      | 470.91                  | 0.00                    | 0.00                   | 0.00                  |
| 8,600.00              | 0.00            | 0.00        | 8,491.54              | -469.00     | 997.00      | 470.91                  | 0.00                    | 0.00                   | 0.00                  |
| 8,700.00              | 0.00            | 0.00        | 8,591.54              | -469.00     | 997.00      | 470.91                  | 0.00                    | 0.00                   | 0.00                  |
| 8,800.00              | 0.00            | 0.00        | 8,691.54              | -469.00     | 997.00      | 470.91                  | 0.00                    | 0.00                   | 0.00                  |
| 8,900.00              | 0.00            | 0.00        | 8,791.54              | -469.00     | 997.00      | 470.91                  | 0.00                    | 0.00                   | 0.00                  |

|                  |                      |                                     |                                                     |
|------------------|----------------------|-------------------------------------|-----------------------------------------------------|
| <b>Company:</b>  | Marathon Oil         | <b>Local Co-ordinate Reference:</b> | Well WA #10H                                        |
| <b>Project:</b>  | Eddy County, NM      | <b>TVD Reference:</b>               | Well @ 3092.50usft (GL: 3066' + KB: 26.5' (H&P423)) |
| <b>Site:</b>     | Mariner Fee 23-28-19 | <b>MD Reference:</b>                | Well @ 3092.50usft (GL: 3066' + KB: 26.5' (H&P423)) |
| <b>Well:</b>     | WA #10H              | <b>North Reference:</b>             | Grid                                                |
| <b>Wellbore:</b> | OH                   | <b>Survey Calculation Method:</b>   | Minimum Curvature                                   |
| <b>Design:</b>   | Prelim Plan A        | <b>Database:</b>                    | WellPlanner1                                        |

| Planned Survey              |                    |                |                             |                 |                 |                               |                               |                              |                             |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Vertical<br>Section<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |
| 9,000.00                    | 0.00               | 0.00           | 8,891.54                    | -469.00         | 997.00          | 470.91                        | 0.00                          | 0.00                         | 0.00                        |
| 9,100.00                    | 0.00               | 0.00           | 8,991.54                    | -469.00         | 997.00          | 470.91                        | 0.00                          | 0.00                         | 0.00                        |
| 9,162.46                    | 0.00               | 0.00           | 9,054.00                    | -469.00         | 997.00          | 470.91                        | 0.00                          | 0.00                         | 0.00                        |
| [MarinerWA#10H]KOP          |                    |                |                             |                 |                 |                               |                               |                              |                             |
| 9,200.00                    | 4.13               | 179.89         | 9,091.51                    | -470.35         | 997.00          | 472.27                        | 11.00                         | 11.00                        | 0.00                        |
| 9,250.00                    | 9.63               | 179.89         | 9,141.13                    | -476.34         | 997.01          | 478.25                        | 11.00                         | 11.00                        | 0.00                        |
| 9,300.00                    | 15.13              | 179.89         | 9,189.95                    | -487.05         | 997.03          | 488.97                        | 11.00                         | 11.00                        | 0.00                        |
| 9,350.00                    | 20.63              | 179.89         | 9,237.51                    | -502.40         | 997.06          | 504.31                        | 11.00                         | 11.00                        | 0.00                        |
| 9,400.00                    | 26.13              | 179.89         | 9,283.39                    | -522.23         | 997.10          | 524.14                        | 11.00                         | 11.00                        | 0.00                        |
| 9,450.00                    | 31.63              | 179.89         | 9,327.16                    | -546.37         | 997.14          | 548.28                        | 11.00                         | 11.00                        | 0.00                        |
| 9,500.00                    | 37.13              | 179.89         | 9,368.41                    | -574.59         | 997.19          | 576.51                        | 11.00                         | 11.00                        | 0.00                        |
| 9,550.00                    | 42.63              | 179.89         | 9,406.76                    | -606.64         | 997.25          | 608.55                        | 11.00                         | 11.00                        | 0.00                        |
| 9,600.00                    | 48.13              | 179.89         | 9,441.87                    | -642.21         | 997.32          | 644.13                        | 11.00                         | 11.00                        | 0.00                        |
| 9,650.00                    | 53.63              | 179.89         | 9,473.40                    | -680.99         | 997.39          | 682.90                        | 11.00                         | 11.00                        | 0.00                        |
| 9,700.00                    | 59.13              | 179.89         | 9,501.08                    | -722.61         | 997.47          | 724.52                        | 11.00                         | 11.00                        | 0.00                        |
| 9,750.00                    | 64.63              | 179.89         | 9,524.64                    | -766.69         | 997.55          | 768.60                        | 11.00                         | 11.00                        | 0.00                        |
| 9,800.00                    | 70.13              | 179.89         | 9,543.86                    | -812.83         | 997.63          | 814.74                        | 11.00                         | 11.00                        | 0.00                        |
| 9,850.00                    | 75.63              | 179.89         | 9,558.57                    | -860.59         | 997.72          | 862.51                        | 11.00                         | 11.00                        | 0.00                        |
| 9,900.00                    | 81.13              | 179.89         | 9,568.64                    | -909.55         | 997.81          | 911.46                        | 11.00                         | 11.00                        | 0.00                        |
| 9,950.00                    | 86.63              | 179.89         | 9,573.97                    | -959.24         | 997.90          | 961.16                        | 11.00                         | 11.00                        | 0.00                        |
| 9,981.51                    | 90.10              | 179.89         | 9,574.87                    | -990.73         | 997.96          | 992.65                        | 11.00                         | 11.00                        | 0.00                        |
| 10,000.00                   | 90.10              | 179.89         | 9,574.84                    | -1,009.23       | 998.00          | 1,011.14                      | 0.00                          | 0.00                         | 0.00                        |
| 10,100.00                   | 90.10              | 179.89         | 9,574.67                    | -1,109.23       | 998.18          | 1,111.14                      | 0.00                          | 0.00                         | 0.00                        |
| 10,200.00                   | 90.10              | 179.89         | 9,574.51                    | -1,209.23       | 998.36          | 1,211.14                      | 0.00                          | 0.00                         | 0.00                        |
| 10,300.00                   | 90.10              | 179.89         | 9,574.34                    | -1,309.23       | 998.55          | 1,311.14                      | 0.00                          | 0.00                         | 0.00                        |
| 10,400.00                   | 90.10              | 179.89         | 9,574.18                    | -1,409.23       | 998.73          | 1,411.14                      | 0.00                          | 0.00                         | 0.00                        |
| 10,500.00                   | 90.10              | 179.89         | 9,574.01                    | -1,509.23       | 998.92          | 1,511.14                      | 0.00                          | 0.00                         | 0.00                        |
| 10,600.00                   | 90.10              | 179.89         | 9,573.84                    | -1,609.23       | 999.10          | 1,611.14                      | 0.00                          | 0.00                         | 0.00                        |
| 10,700.00                   | 90.10              | 179.89         | 9,573.68                    | -1,709.22       | 999.28          | 1,711.14                      | 0.00                          | 0.00                         | 0.00                        |
| 10,800.00                   | 90.10              | 179.89         | 9,573.51                    | -1,809.22       | 999.47          | 1,811.14                      | 0.00                          | 0.00                         | 0.00                        |
| 10,900.00                   | 90.10              | 179.89         | 9,573.34                    | -1,909.22       | 999.65          | 1,911.14                      | 0.00                          | 0.00                         | 0.00                        |
| 11,000.00                   | 90.10              | 179.89         | 9,573.18                    | -2,009.22       | 999.84          | 2,011.14                      | 0.00                          | 0.00                         | 0.00                        |
| 11,100.00                   | 90.10              | 179.89         | 9,573.01                    | -2,109.22       | 1,000.02        | 2,111.14                      | 0.00                          | 0.00                         | 0.00                        |
| 11,200.00                   | 90.10              | 179.89         | 9,572.85                    | -2,209.22       | 1,000.21        | 2,211.14                      | 0.00                          | 0.00                         | 0.00                        |
| 11,300.00                   | 90.10              | 179.89         | 9,572.68                    | -2,309.22       | 1,000.39        | 2,311.14                      | 0.00                          | 0.00                         | 0.00                        |
| 11,400.00                   | 90.10              | 179.89         | 9,572.51                    | -2,409.22       | 1,000.57        | 2,411.14                      | 0.00                          | 0.00                         | 0.00                        |
| 11,500.00                   | 90.10              | 179.89         | 9,572.35                    | -2,509.22       | 1,000.76        | 2,511.14                      | 0.00                          | 0.00                         | 0.00                        |
| 11,600.00                   | 90.10              | 179.89         | 9,572.18                    | -2,609.22       | 1,000.94        | 2,611.14                      | 0.00                          | 0.00                         | 0.00                        |
| 11,700.00                   | 90.10              | 179.89         | 9,572.02                    | -2,709.22       | 1,001.13        | 2,711.14                      | 0.00                          | 0.00                         | 0.00                        |
| 11,800.00                   | 90.10              | 179.89         | 9,571.85                    | -2,809.22       | 1,001.31        | 2,811.14                      | 0.00                          | 0.00                         | 0.00                        |
| 11,900.00                   | 90.10              | 179.89         | 9,571.68                    | -2,909.22       | 1,001.49        | 2,911.14                      | 0.00                          | 0.00                         | 0.00                        |
| 12,000.00                   | 90.10              | 179.89         | 9,571.52                    | -3,009.22       | 1,001.68        | 3,011.14                      | 0.00                          | 0.00                         | 0.00                        |

|                  |                      |                                     |                                                     |
|------------------|----------------------|-------------------------------------|-----------------------------------------------------|
| <b>Company:</b>  | Marathon Oil         | <b>Local Co-ordinate Reference:</b> | Well WA #10H                                        |
| <b>Project:</b>  | Eddy County, NM      | <b>TVD Reference:</b>               | Well @ 3092.50usft (GL: 3066' + KB: 26.5' (H&P423)) |
| <b>Site:</b>     | Mariner Fee 23-28-19 | <b>MD Reference:</b>                | Well @ 3092.50usft (GL: 3066' + KB: 26.5' (H&P423)) |
| <b>Well:</b>     | WA #10H              | <b>North Reference:</b>             | Grid                                                |
| <b>Wellbore:</b> | OH                   | <b>Survey Calculation Method:</b>   | Minimum Curvature                                   |
| <b>Design:</b>   | Prelim Plan A        | <b>Database:</b>                    | WellPlanner1                                        |

| 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) |  |
| 12,100.00                        | 90.10           | 179.89      | 9,571.35              | -3,109.22    | 1,001.86     | 3,111.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 12,200.00                        | 90.10           | 179.89      | 9,571.19              | -3,209.22    | 1,002.05     | 3,211.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 12,300.00                        | 90.10           | 179.89      | 9,571.02              | -3,309.22    | 1,002.23     | 3,311.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 12,400.00                        | 90.10           | 179.89      | 9,570.85              | -3,409.22    | 1,002.42     | 3,411.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 12,500.00                        | 90.10           | 179.89      | 9,570.69              | -3,509.22    | 1,002.60     | 3,511.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 12,600.00                        | 90.10           | 179.89      | 9,570.52              | -3,609.22    | 1,002.78     | 3,611.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 12,700.00                        | 90.10           | 179.89      | 9,570.36              | -3,709.22    | 1,002.97     | 3,711.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 12,800.00                        | 90.10           | 179.89      | 9,570.19              | -3,809.22    | 1,003.15     | 3,811.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 12,900.00                        | 90.10           | 179.89      | 9,570.02              | -3,909.22    | 1,003.34     | 3,911.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 13,000.00                        | 90.10           | 179.89      | 9,569.86              | -4,009.22    | 1,003.52     | 4,011.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 13,100.00                        | 90.10           | 179.89      | 9,569.69              | -4,109.22    | 1,003.70     | 4,111.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 13,200.00                        | 90.10           | 179.89      | 9,569.53              | -4,209.22    | 1,003.89     | 4,211.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 13,300.00                        | 90.10           | 179.89      | 9,569.36              | -4,309.22    | 1,004.07     | 4,311.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 13,400.00                        | 90.10           | 179.89      | 9,569.19              | -4,409.22    | 1,004.26     | 4,411.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 13,500.00                        | 90.10           | 179.89      | 9,569.03              | -4,509.22    | 1,004.44     | 4,511.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 13,600.00                        | 90.10           | 179.89      | 9,568.86              | -4,609.22    | 1,004.63     | 4,611.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 13,700.00                        | 90.10           | 179.89      | 9,568.70              | -4,709.22    | 1,004.81     | 4,711.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 13,800.00                        | 90.10           | 179.89      | 9,568.53              | -4,809.22    | 1,004.99     | 4,811.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 13,900.00                        | 90.10           | 179.89      | 9,568.36              | -4,909.21    | 1,005.18     | 4,911.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 14,000.00                        | 90.10           | 179.89      | 9,568.20              | -5,009.21    | 1,005.36     | 5,011.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 14,100.00                        | 90.10           | 179.89      | 9,568.03              | -5,109.21    | 1,005.55     | 5,111.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 14,200.00                        | 90.10           | 179.89      | 9,567.86              | -5,209.21    | 1,005.73     | 5,211.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 14,300.00                        | 90.10           | 179.89      | 9,567.70              | -5,309.21    | 1,005.91     | 5,311.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 14,400.00                        | 90.10           | 179.89      | 9,567.53              | -5,409.21    | 1,006.10     | 5,411.14                | 0.00                    | 0.00                   | 0.00                  |  |
| 14,500.00                        | 90.10           | 179.89      | 9,567.37              | -5,509.21    | 1,006.28     | 5,511.13                | 0.00                    | 0.00                   | 0.00                  |  |
| 14,600.00                        | 90.10           | 179.89      | 9,567.20              | -5,609.21    | 1,006.47     | 5,611.13                | 0.00                    | 0.00                   | 0.00                  |  |
| 14,666.53                        | 90.10           | 179.89      | 9,567.09              | -5,675.74    | 1,006.59     | 5,677.66                | 0.00                    | 0.00                   | 0.00                  |  |
| [MarinerWA#10H]LTP/BHL: 5678' VS |                 |             |                       |              |              |                         |                         |                        |                       |  |
| 14,700.00                        | 90.10           | 179.89      | 9,567.03              | -5,709.21    | 1,006.65     | 5,711.13                | 0.00                    | 0.00                   | 0.00                  |  |
| 14,711.53                        | 90.10           | 179.89      | 9,567.02              | -5,720.74    | 1,006.67     | 5,722.66                | 0.00                    | 0.00                   | 0.00                  |  |

**Company:** Marathon Oil  
**Project:** Eddy County, NM  
**Site:** Mariner Fee 23-28-19  
**Well:** WA #10H  
**Wellbore:** OH  
**Design:** Prelim Plan A

**Local Co-ordinate Reference:** Well WA #10H  
**TVD Reference:** Well @ 3092.50usft (GL: 3066' + KB: 26.5' (H&P423))  
**MD Reference:** Well @ 3092.50usft (GL: 3066' + KB: 26.5' (H&P423))  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** WellPlanner1

#### Design Targets

| Target Name           | hit/miss target                                                                      | Dip Angle<br>(°) | Dip Dir.<br>(°) | TVD<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Northing<br>(usft) | Easting<br>(usft) | Latitude  | Longitude   |
|-----------------------|--------------------------------------------------------------------------------------|------------------|-----------------|---------------|-----------------|-----------------|--------------------|-------------------|-----------|-------------|
| [MarinerWA#10H]FTP: 9 | - plan misses target center by 1405.99usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) | 0.00             | 0.00            | 0.00          | -990.60         | 997.76          | 471,827.20         | 565,989.55        | 32.296989 | -104.119769 |
|                       | - Point                                                                              |                  |                 |               |                 |                 |                    |                   |           |             |
| [MarinerWA#10H]KOP    | - plan hits target center                                                            | 0.00             | 0.00            | 9,054.00      | -469.00         | 997.00          | 472,348.80         | 565,988.79        | 32.298423 | -104.119769 |
|                       | - Point                                                                              |                  |                 |               |                 |                 |                    |                   |           |             |
| [MarinerWA#10H]LTP/BI | - plan hits target center                                                            | 0.00             | 0.00            | 9,567.09      | -5,675.74       | 1,006.59        | 467,142.06         | 565,998.38        | 32.284110 | -104.119771 |
|                       | - Point                                                                              |                  |                 |               |                 |                 |                    |                   |           |             |

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

# Marathon Oil Corporation

Marathon Oil  
Eddy County, NM  
Manner Fee 23-28-19  
WA #10H  
Prelim Plan A  
GL: 3066 + KB: 26.5 (H&P423)

US State Plane 1987 (Exact solution)  
NAD 83 MARCONI (CONUS)  
Clarke 1866  
New Mexico East 3001  
Marathon State Level

RKB Elevation: Well @ 3092.50usft (GL: 3066 + KB: 26.5 (H&P423))

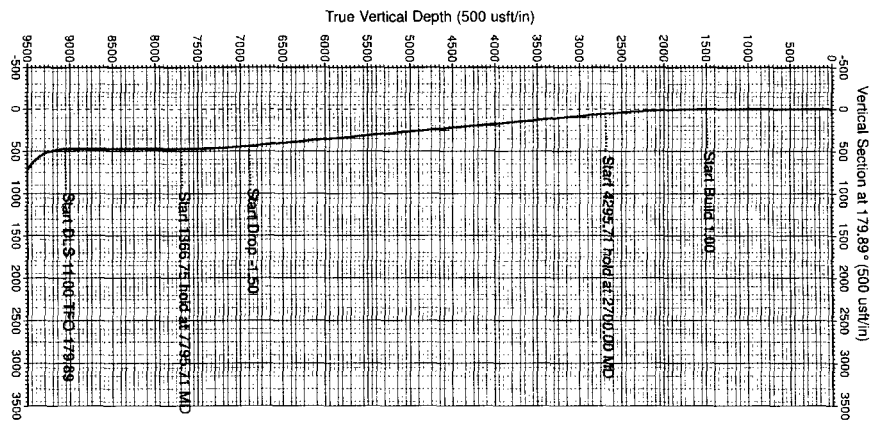
+N-S 0.00 +E-W 0.00 Northing 472817.80 Easting 564391.79 Latitude 32.239717 Longitude -104.122392 Spot

## SECTION DETAILS

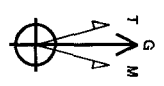
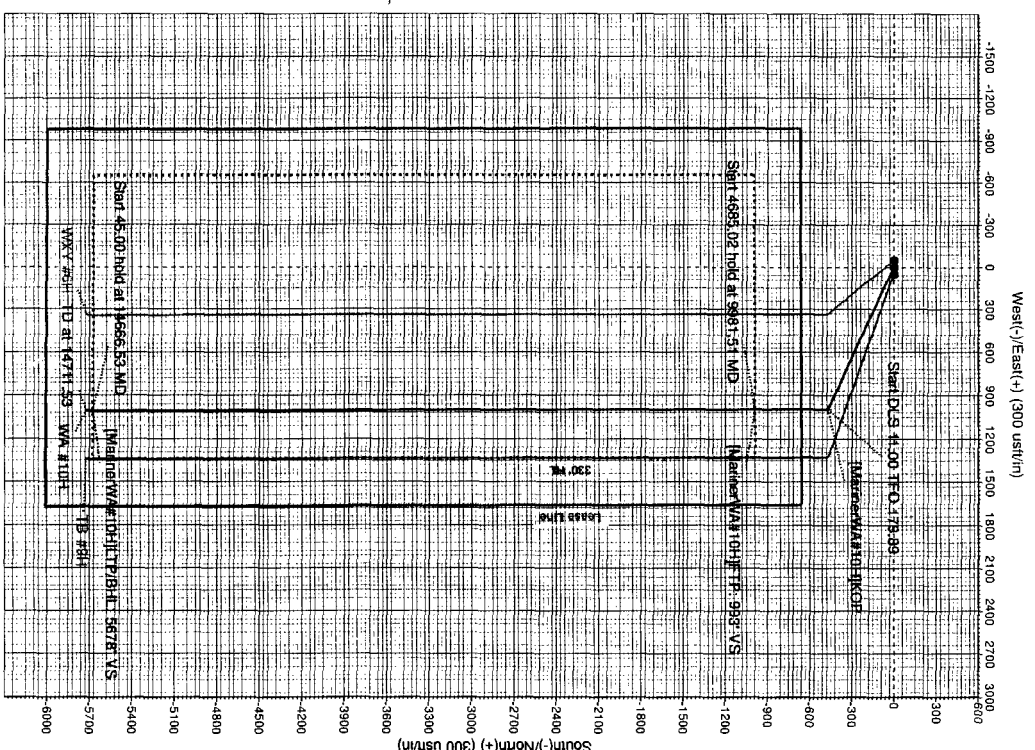
| Sec | MD       | Inc   | Azi    | TVD     | +N-S     | +E-W    | Dlog | Vsect   |
|-----|----------|-------|--------|---------|----------|---------|------|---------|
| 1   | 0.00     | 0.00  | 0.00   | 0.00    | 0.00     | 0.00    | 0.00 | 0.00    |
| 2   | 1500.00  | 0.00  | 0.00   | 1500.00 | -53.30   | 0.00    | 0.00 | 53.51   |
| 3   | 2700.00  | 12.00 | 115.19 | 2691.25 | -433.47  | 113.30  | 1.00 | 433.24  |
| 4   | 6995.71  | 12.00 | 115.19 | 6893.08 | -433.47  | 921.47  | 0.00 | 470.91  |
| 5   | 7795.71  | 0.00  | 0.00   | 7687.25 | -489.00  | 997.00  | 1.00 | 470.91  |
| 6   | 9162.46  | 0.00  | 0.00   | 9054.00 | -489.00  | 997.00  | 0.00 | 470.91  |
| 7   | 9368.53  | 90.10 | 179.89 | 9247.09 | -5720.74 | 1006.57 | 1.00 | 5722.86 |
| 8   | 14711.53 | 90.10 | 179.89 | 9567.02 | -5720.74 | 1006.57 | 0.00 | 5722.86 |

## WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

| Name                          | TVD     | +N-S     | +E-W    | Northing  | Easting   |
|-------------------------------|---------|----------|---------|-----------|-----------|
| MannerWA#10H-FTP: 993 VS      | 0.00    | -990.60  | 997.76  | 471827.20 | 565989.55 |
| MannerWA#10H-KOP              | 9054.00 | -489.00  | 997.00  | 472348.80 | 565988.79 |
| MannerWA#10H-LTP:BHL: 5678 VS | 9567.09 | -5675.74 | 1006.59 | 467142.06 | 565998.38 |

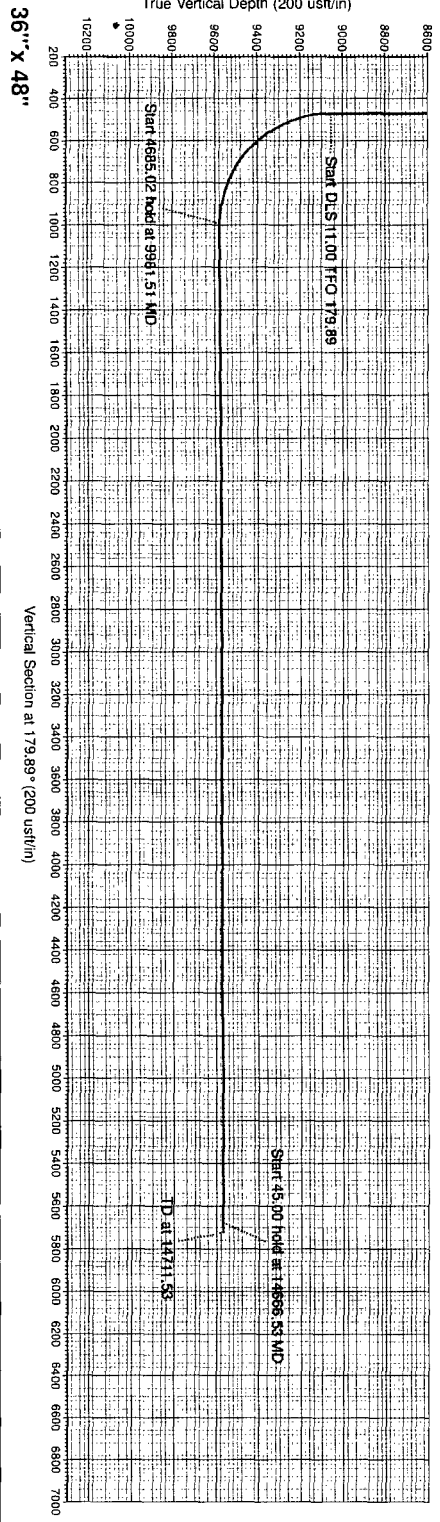


Target Line: 9577' TVD @ 0° VS: 90.1° INC



Azimuth to Grid North  
True North: 0.11°  
Magnetic North: 7.20°  
Magnetic Field  
Strength: 48036.150T  
Dip Angle: 80.08°  
Date: 2/1/2018  
Model: ICDM

Azimuth Corrections  
Total Magnetic Corr. (M to G): 7.20°  
Declination (M to T): 7.32° East



36" x 48"

Vertical Section at 179.89° (200 usft/in)