

# ENSIGN

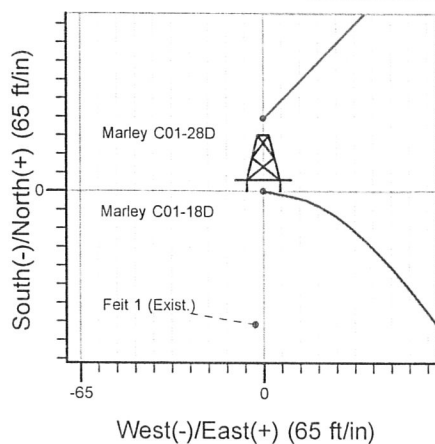
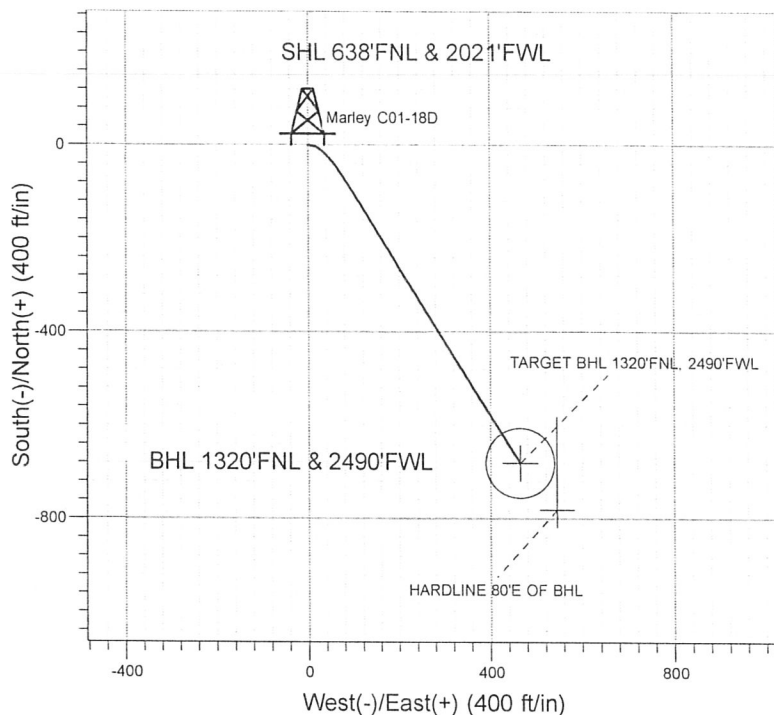
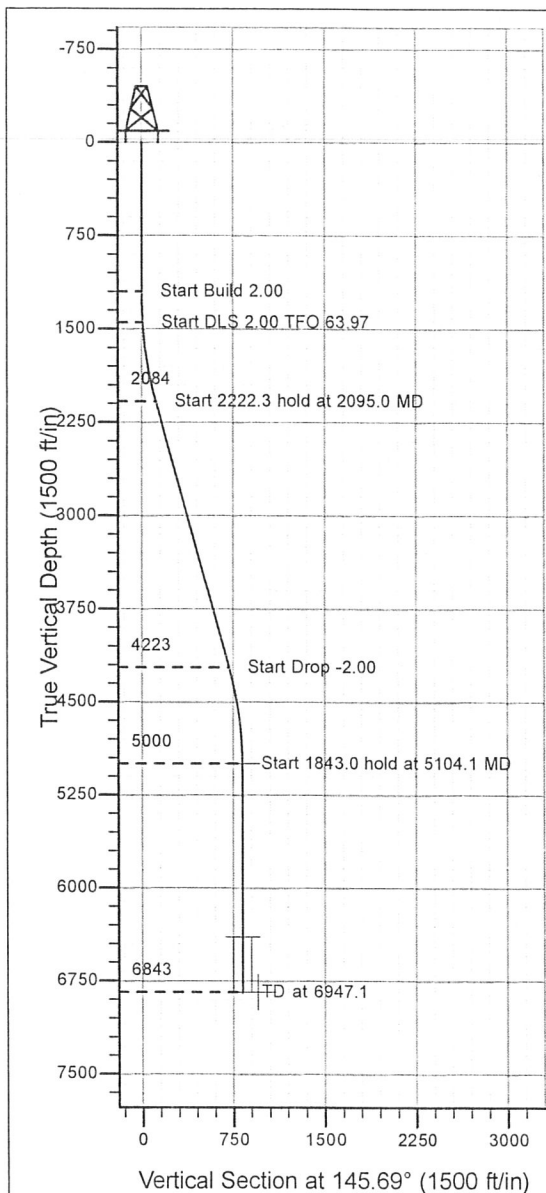
## Directional

**Well Name: Marley C01-18D**

Surface Location: Marley C01-28D Pad Sec.1-T4N-R64W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
Ground Elevation: 4605.0

+N/-S+E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1374431.46 3278430.67 40° 21' 24.876 N 104° 30' 3.240 W  
Original Well Elev WELL @ 4618.0ft (Original Well Elev)

### NOBLE ENERGY INC WELD COUNTY CO



Marley C01-28D Pad Sec.1-T4N-R64W  
Marley C01-18D  
Noble Marley C01-18D Plan #1 11-13-09  
17:32, November 13 2009

Azimuths to True North  
Magnetic North: 8.89°

Magnetic Field  
Strength: 53325.1snT  
Dip Angle: 67.12°  
Date: 11/13/2009  
Model: IGRF200510

#### WELLBORE TARGET DETAILS (LAT/LONG)

| Name                             | TVD    | +N/-S  | +E/-W | Latitude         | Longitude         | Shape                 |
|----------------------------------|--------|--------|-------|------------------|-------------------|-----------------------|
| TARGET BHL 1320'FNL, 2490'FWL    | 5000.0 | -681.3 | 464.9 | 40° 21' 18.144 N | 104° 29' 57.234 W | Point                 |
| TARGET CIRCLE 1320'FNL, 2490'FWL | 6397.0 | -681.3 | 464.9 | 40° 21' 18.143 N | 104° 29' 57.235 W | Circle (Radius: 75.0) |
| HARDLINE 80°E OF BHL             | 6843.0 | -781.3 | 544.9 | 40° 21' 17.155 N | 104° 29' 56.202 W | Polygon               |

#### SECTION DETAILS

| Sec | MD     | Inc   | Azi    | TVD    | +N/-S  | +E/-W | DLeg | TFace  | VSec  | Target                        |
|-----|--------|-------|--------|--------|--------|-------|------|--------|-------|-------------------------------|
| 1   | 0.0    | 0.00  | 0.00   | 0.0    | 0.0    | 0.0   | 0.00 | 0.00   | 0.0   |                               |
| 2   | 1200.0 | 0.00  | 0.00   | 1200.0 | 0.0    | 0.0   | 0.00 | 0.00   | 0.0   |                               |
| 3   | 1450.0 | 5.00  | 100.00 | 1449.7 | -1.9   | 10.7  | 2.00 | 100.00 | 7.6   |                               |
| 4   | 2095.0 | 15.74 | 147.70 | 2084.0 | -81.0  | 85.5  | 2.00 | 63.97  | 115.1 |                               |
| 5   | 4317.3 | 15.74 | 147.70 | 4223.0 | -590.5 | 407.6 | 0.00 | 0.00   | 717.5 |                               |
| 6   | 5104.1 | 0.00  | 0.00   | 5000.0 | -681.3 | 464.9 | 2.00 | 180.00 | 824.8 | TARGET BHL 1320'FNL, 2490'FWL |
| 7   | 6947.1 | 0.00  | 0.00   | 6843.0 | -681.3 | 464.9 | 0.00 | 0.00   | 824.8 |                               |

**ENSIGN**

**Directional**

**NOBLE ENERGY INC WELD  
COUNTY CO**

**SEC.1-T4N-R64W**

**Marley C01-28D Pad Sec.1-T4N-R64W**

**Marley C01-18D**

**Wellbore #1**

**Plan: Noble Marley C01-18D Plan #1 11-13-09**

**Standard Planning Report**

**13 November, 2009**



**Database:** EDM den0-adp01 Server Data  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.1-T4N-R64W  
**Site:** Marley C01-28D Pad Sec.1-T4N-R64W  
**Well:** Marley C01-18D  
**Wellbore:** Wellbore #1  
**Design:** Noble Marley C01-18D Plan #1 11-13-09

**Local Co-ordinate Reference:** Well Marley C01-18D  
**TVD Reference:** WELL @ 4618.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4618.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

**Project** SEC.1-T4N-R64W, Weld County, Colorado  
**Map System:** US State Plane 1983  
**Geo Datum:** North American Datum 1983  
**Map Zone:** Colorado Northern Zone  
**System Datum:** Mean Sea Level  
**Using geodetic scale factor**

**Site** Marley C01-28D Pad Sec.1-T4N-R64W  
**Site Position:** Northing: 1,374,456.97 ft Latitude: 40° 21' 25.128 N  
**From:** Lat/Long Easting: 3,278,430.38 ft Longitude: 104° 30' 3.240 W  
**Position Uncertainty:** 0.0 ft Slot Radius: " Grid Convergence: 0.65 °

**Well** Marley C01-18D  
**Well Position** +N/-S -25.5 ft Northing: 1,374,431.46 ft Latitude: 40° 21' 24.876 N  
 +E/-W 0.0 ft Easting: 3,278,430.67 ft Longitude: 104° 30' 3.240 W  
**Position Uncertainty** 0.0 ft Wellhead Elevation: ft Ground Level: 4,605.0 ft

**Wellbore** Wellbore #1  
**Magnetics** Model Name Sample Date Declination (°) Dip Angle (°) Field Strength (nT)  
 IGRF200510 11/13/2009 8.89 67.12 53,325

**Design** Noble Marley C01-18D Plan #1 11-13-09  
**Audit Notes:**  
**Version:** Phase: PROTOTYPE Tie On Depth: 0.0  
**Vertical Section:** Depth From (TVD) (ft) +N/-S (ft) +E/-W (ft) Direction (°)  
 0.0 0.0 0.0 145.69

| Plan Sections       |                 |             |                     |            |            |                       |                      |                     |         |                 |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|----------------------|---------------------|---------|-----------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target          |
| 0.0                 | 0.00            | 0.00        | 0.0                 | 0.0        | 0.0        | 0.00                  | 0.00                 | 0.00                | 0.00    |                 |
| 1,200.0             | 0.00            | 0.00        | 1,200.0             | 0.0        | 0.0        | 0.00                  | 0.00                 | 0.00                | 0.00    |                 |
| 1,450.0             | 5.00            | 100.00      | 1,449.7             | -1.9       | 10.7       | 2.00                  | 2.00                 | 0.00                | 100.00  |                 |
| 2,095.0             | 15.74           | 147.70      | 2,084.0             | -81.0      | 85.5       | 2.00                  | 1.66                 | 7.40                | 63.97   |                 |
| 4,317.3             | 15.74           | 147.70      | 4,223.0             | -590.5     | 407.6      | 0.00                  | 0.00                 | 0.00                | 0.00    |                 |
| 5,104.1             | 0.00            | 0.00        | 5,000.0             | -681.3     | 464.9      | 2.00                  | -2.00                | 0.00                | 180.00  | TARGET BHL 132C |
| 6,947.1             | 0.00            | 0.00        | 6,843.0             | -681.3     | 464.9      | 0.00                  | 0.00                 | 0.00                | 0.00    |                 |

**Database:** EDM den0-adp01 Server Data  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.1-T4N-R64W  
**Site:** Marley C01-28D Pad Sec.1-T4N-R64W  
**Well:** Marley C01-18D  
**Wellbore:** Wellbore #1  
**Design:** Noble Marley C01-18D Plan #1 11-13-09

**Local Co-ordinate Reference:** Well Marley C01-18D  
**TVD Reference:** WELL @ 4618.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4618.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

#### Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 0.0                 | 0.00            | 0.00        | 0.0                 | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 40.0                | 0.00            | 0.00        | 40.0                | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 80.0                | 0.00            | 0.00        | 80.0                | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 120.0               | 0.00            | 0.00        | 120.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 160.0               | 0.00            | 0.00        | 160.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 200.0               | 0.00            | 0.00        | 200.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 240.0               | 0.00            | 0.00        | 240.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 280.0               | 0.00            | 0.00        | 280.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 320.0               | 0.00            | 0.00        | 320.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 360.0               | 0.00            | 0.00        | 360.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 400.0               | 0.00            | 0.00        | 400.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 440.0               | 0.00            | 0.00        | 440.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 480.0               | 0.00            | 0.00        | 480.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 520.0               | 0.00            | 0.00        | 520.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 560.0               | 0.00            | 0.00        | 560.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 600.0               | 0.00            | 0.00        | 600.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 640.0               | 0.00            | 0.00        | 640.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 680.0               | 0.00            | 0.00        | 680.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 720.0               | 0.00            | 0.00        | 720.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 760.0               | 0.00            | 0.00        | 760.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 800.0               | 0.00            | 0.00        | 800.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 840.0               | 0.00            | 0.00        | 840.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 880.0               | 0.00            | 0.00        | 880.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 920.0               | 0.00            | 0.00        | 920.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 960.0               | 0.00            | 0.00        | 960.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 1,000.0             | 0.00            | 0.00        | 1,000.0             | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 1,040.0             | 0.00            | 0.00        | 1,040.0             | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 1,080.0             | 0.00            | 0.00        | 1,080.0             | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 1,120.0             | 0.00            | 0.00        | 1,120.0             | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 1,160.0             | 0.00            | 0.00        | 1,160.0             | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 1,200.0             | 0.00            | 0.00        | 1,200.0             | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | 0.00                |
| 1,240.0             | 0.80            | 100.00      | 1,240.0             | 0.0        | 0.3        | 0.2                   | 2.00                  | 2.00                 | 0.00                |
| 1,280.0             | 1.60            | 100.00      | 1,280.0             | -0.2       | 1.1        | 0.8                   | 2.00                  | 2.00                 | 0.00                |
| 1,320.0             | 2.40            | 100.00      | 1,320.0             | -0.4       | 2.5        | 1.8                   | 2.00                  | 2.00                 | 0.00                |
| 1,360.0             | 3.20            | 100.00      | 1,359.9             | -0.8       | 4.4        | 3.1                   | 2.00                  | 2.00                 | 0.00                |
| 1,400.0             | 4.00            | 100.00      | 1,399.8             | -1.2       | 6.9        | 4.9                   | 2.00                  | 2.00                 | 0.00                |
| 1,440.0             | 4.80            | 100.00      | 1,439.7             | -1.7       | 9.9        | 7.0                   | 2.00                  | 2.00                 | 0.00                |
| 1,450.0             | 5.00            | 100.00      | 1,449.7             | -1.9       | 10.7       | 7.6                   | 2.00                  | 2.00                 | 0.00                |
| 1,480.0             | 5.29            | 105.86      | 1,479.6             | -2.5       | 13.4       | 9.6                   | 2.00                  | 0.97                 | 19.52               |
| 1,520.0             | 5.75            | 112.65      | 1,519.4             | -3.8       | 17.0       | 12.7                  | 2.00                  | 1.16                 | 16.98               |
| 1,560.0             | 6.28            | 118.37      | 1,559.2             | -5.6       | 20.8       | 16.3                  | 2.00                  | 1.33                 | 14.30               |
| 1,600.0             | 6.87            | 123.16      | 1,598.9             | -7.9       | 24.7       | 20.5                  | 2.00                  | 1.46                 | 11.98               |
| 1,640.0             | 7.49            | 127.19      | 1,638.6             | -10.8      | 28.8       | 25.1                  | 2.00                  | 1.56                 | 10.06               |
| 1,680.0             | 8.14            | 130.58      | 1,678.2             | -14.2      | 33.0       | 30.4                  | 2.00                  | 1.63                 | 8.49                |
| 1,720.0             | 8.82            | 133.47      | 1,717.8             | -18.2      | 37.4       | 36.1                  | 2.00                  | 1.69                 | 7.21                |
| 1,760.0             | 9.52            | 135.94      | 1,757.3             | -22.7      | 41.9       | 42.3                  | 2.00                  | 1.74                 | 6.18                |
| 1,800.0             | 10.23           | 138.08      | 1,796.7             | -27.7      | 46.6       | 49.1                  | 2.00                  | 1.78                 | 5.34                |
| 1,840.0             | 10.95           | 139.93      | 1,836.0             | -33.2      | 51.4       | 56.4                  | 2.00                  | 1.81                 | 4.64                |
| 1,880.0             | 11.69           | 141.56      | 1,875.2             | -39.3      | 56.3       | 64.2                  | 2.00                  | 1.83                 | 4.07                |
| 1,920.0             | 12.43           | 143.00      | 1,914.3             | -45.9      | 61.5       | 72.6                  | 2.00                  | 1.85                 | 3.59                |
| 1,960.0             | 13.18           | 144.28      | 1,953.3             | -53.1      | 66.7       | 81.4                  | 2.00                  | 1.87                 | 3.19                |
| 2,000.0             | 13.93           | 145.42      | 1,992.2             | -60.7      | 72.1       | 90.8                  | 2.00                  | 1.88                 | 2.85                |
| 2,040.0             | 14.69           | 146.45      | 2,031.0             | -68.9      | 77.6       | 100.7                 | 2.00                  | 1.90                 | 2.57                |
| 2,080.0             | 15.45           | 147.37      | 2,069.6             | -77.6      | 83.3       | 111.1                 | 2.00                  | 1.91                 | 2.32                |

**Database:** EDM den0-adp01 Server Data  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.1-T4N-R64W  
**Site:** Marley C01-28D Pad Sec.1-T4N-R64W  
**Well:** Marley C01-18D  
**Wellbore:** Wellbore #1  
**Design:** Noble Marley C01-18D Plan #1 11-13-09

**Local Co-ordinate Reference:**  
**TVD Reference:**  
**MD Reference:**  
**North Reference:**  
**Survey Calculation Method:**

Well Marley C01-18D  
 WELL @ 4618.0ft (Original Well Elev)  
 WELL @ 4618.0ft (Original Well Elev)  
 True  
 Minimum Curvature

#### Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 2,095.0             | 15.74           | 147.70      | 2,084.0             | -81.0      | 85.5       | 115.1                 | 2.00                  | 1.91                 | 2.17                |
| 2,120.0             | 15.74           | 147.70      | 2,108.1             | -86.8      | 89.1       | 121.9                 | 0.00                  | 0.00                 | 0.00                |
| 2,160.0             | 15.74           | 147.70      | 2,146.6             | -95.9      | 94.9       | 132.7                 | 0.00                  | 0.00                 | 0.00                |
| 2,200.0             | 15.74           | 147.70      | 2,185.1             | -105.1     | 100.7      | 143.6                 | 0.00                  | 0.00                 | 0.00                |
| 2,240.0             | 15.74           | 147.70      | 2,223.6             | -114.3     | 106.5      | 154.4                 | 0.00                  | 0.00                 | 0.00                |
| 2,280.0             | 15.74           | 147.70      | 2,262.1             | -123.5     | 112.3      | 165.3                 | 0.00                  | 0.00                 | 0.00                |
| 2,320.0             | 15.74           | 147.70      | 2,300.6             | -132.6     | 118.1      | 176.1                 | 0.00                  | 0.00                 | 0.00                |
| 2,360.0             | 15.74           | 147.70      | 2,339.1             | -141.8     | 123.9      | 187.0                 | 0.00                  | 0.00                 | 0.00                |
| 2,400.0             | 15.74           | 147.70      | 2,377.6             | -151.0     | 129.7      | 197.8                 | 0.00                  | 0.00                 | 0.00                |
| 2,440.0             | 15.74           | 147.70      | 2,416.1             | -160.1     | 135.5      | 208.6                 | 0.00                  | 0.00                 | 0.00                |
| 2,480.0             | 15.74           | 147.70      | 2,454.6             | -169.3     | 141.3      | 219.5                 | 0.00                  | 0.00                 | 0.00                |
| 2,520.0             | 15.74           | 147.70      | 2,493.1             | -178.5     | 147.1      | 230.3                 | 0.00                  | 0.00                 | 0.00                |
| 2,560.0             | 15.74           | 147.70      | 2,531.6             | -187.6     | 152.9      | 241.2                 | 0.00                  | 0.00                 | 0.00                |
| 2,600.0             | 15.74           | 147.70      | 2,570.1             | -196.8     | 158.7      | 252.0                 | 0.00                  | 0.00                 | 0.00                |
| 2,640.0             | 15.74           | 147.70      | 2,608.6             | -206.0     | 164.5      | 262.8                 | 0.00                  | 0.00                 | 0.00                |
| 2,680.0             | 15.74           | 147.70      | 2,647.1             | -215.2     | 170.3      | 273.7                 | 0.00                  | 0.00                 | 0.00                |
| 2,720.0             | 15.74           | 147.70      | 2,685.6             | -224.3     | 176.1      | 284.5                 | 0.00                  | 0.00                 | 0.00                |
| 2,760.0             | 15.74           | 147.70      | 2,724.1             | -233.5     | 181.9      | 295.4                 | 0.00                  | 0.00                 | 0.00                |
| 2,800.0             | 15.74           | 147.70      | 2,762.6             | -242.7     | 187.7      | 306.2                 | 0.00                  | 0.00                 | 0.00                |
| 2,840.0             | 15.74           | 147.70      | 2,801.1             | -251.8     | 193.5      | 317.1                 | 0.00                  | 0.00                 | 0.00                |
| 2,880.0             | 15.74           | 147.70      | 2,839.6             | -261.0     | 199.3      | 327.9                 | 0.00                  | 0.00                 | 0.00                |
| 2,920.0             | 15.74           | 147.70      | 2,878.1             | -270.2     | 205.0      | 338.7                 | 0.00                  | 0.00                 | 0.00                |
| 2,960.0             | 15.74           | 147.70      | 2,916.6             | -279.3     | 210.8      | 349.6                 | 0.00                  | 0.00                 | 0.00                |
| 3,000.0             | 15.74           | 147.70      | 2,955.1             | -288.5     | 216.6      | 360.4                 | 0.00                  | 0.00                 | 0.00                |
| 3,040.0             | 15.74           | 147.70      | 2,993.6             | -297.7     | 222.4      | 371.3                 | 0.00                  | 0.00                 | 0.00                |
| 3,080.0             | 15.74           | 147.70      | 3,032.1             | -306.9     | 228.2      | 382.1                 | 0.00                  | 0.00                 | 0.00                |
| 3,120.0             | 15.74           | 147.70      | 3,070.6             | -316.0     | 234.0      | 393.0                 | 0.00                  | 0.00                 | 0.00                |
| 3,160.0             | 15.74           | 147.70      | 3,109.1             | -325.2     | 239.8      | 403.8                 | 0.00                  | 0.00                 | 0.00                |
| 3,200.0             | 15.74           | 147.70      | 3,147.6             | -334.4     | 245.6      | 414.6                 | 0.00                  | 0.00                 | 0.00                |
| 3,240.0             | 15.74           | 147.70      | 3,186.1             | -343.5     | 251.4      | 425.5                 | 0.00                  | 0.00                 | 0.00                |
| 3,280.0             | 15.74           | 147.70      | 3,224.6             | -352.7     | 257.2      | 436.3                 | 0.00                  | 0.00                 | 0.00                |
| 3,320.0             | 15.74           | 147.70      | 3,263.1             | -361.9     | 263.0      | 447.2                 | 0.00                  | 0.00                 | 0.00                |
| 3,360.0             | 15.74           | 147.70      | 3,301.6             | -371.0     | 268.8      | 458.0                 | 0.00                  | 0.00                 | 0.00                |
| 3,400.0             | 15.74           | 147.70      | 3,340.1             | -380.2     | 274.6      | 468.8                 | 0.00                  | 0.00                 | 0.00                |
| 3,440.0             | 15.74           | 147.70      | 3,378.6             | -389.4     | 280.4      | 479.7                 | 0.00                  | 0.00                 | 0.00                |
| 3,480.0             | 15.74           | 147.70      | 3,417.1             | -398.6     | 286.2      | 490.5                 | 0.00                  | 0.00                 | 0.00                |
| 3,520.0             | 15.74           | 147.70      | 3,455.6             | -407.7     | 292.0      | 501.4                 | 0.00                  | 0.00                 | 0.00                |
| 3,560.0             | 15.74           | 147.70      | 3,494.1             | -416.9     | 297.8      | 512.2                 | 0.00                  | 0.00                 | 0.00                |
| 3,600.0             | 15.74           | 147.70      | 3,532.6             | -426.1     | 303.6      | 523.1                 | 0.00                  | 0.00                 | 0.00                |
| 3,640.0             | 15.74           | 147.70      | 3,571.1             | -435.2     | 309.4      | 533.9                 | 0.00                  | 0.00                 | 0.00                |
| 3,680.0             | 15.74           | 147.70      | 3,609.6             | -444.4     | 315.2      | 544.7                 | 0.00                  | 0.00                 | 0.00                |
| 3,720.0             | 15.74           | 147.70      | 3,648.1             | -453.6     | 321.0      | 555.6                 | 0.00                  | 0.00                 | 0.00                |
| 3,760.0             | 15.74           | 147.70      | 3,686.6             | -462.7     | 326.8      | 566.4                 | 0.00                  | 0.00                 | 0.00                |
| 3,800.0             | 15.74           | 147.70      | 3,725.1             | -471.9     | 332.6      | 577.3                 | 0.00                  | 0.00                 | 0.00                |
| 3,840.0             | 15.74           | 147.70      | 3,763.6             | -481.1     | 338.4      | 588.1                 | 0.00                  | 0.00                 | 0.00                |
| 3,880.0             | 15.74           | 147.70      | 3,802.1             | -490.3     | 344.2      | 599.0                 | 0.00                  | 0.00                 | 0.00                |
| 3,920.0             | 15.74           | 147.70      | 3,840.6             | -499.4     | 350.0      | 609.8                 | 0.00                  | 0.00                 | 0.00                |
| 3,960.0             | 15.74           | 147.70      | 3,879.1             | -508.6     | 355.8      | 620.6                 | 0.00                  | 0.00                 | 0.00                |
| 4,000.0             | 15.74           | 147.70      | 3,917.6             | -517.8     | 361.6      | 631.5                 | 0.00                  | 0.00                 | 0.00                |
| 4,040.0             | 15.74           | 147.70      | 3,956.1             | -526.9     | 367.4      | 642.3                 | 0.00                  | 0.00                 | 0.00                |
| 4,080.0             | 15.74           | 147.70      | 3,994.6             | -536.1     | 373.2      | 653.2                 | 0.00                  | 0.00                 | 0.00                |
| 4,120.0             | 15.74           | 147.70      | 4,033.1             | -545.3     | 379.0      | 664.0                 | 0.00                  | 0.00                 | 0.00                |
| 4,160.0             | 15.74           | 147.70      | 4,071.6             | -554.4     | 384.8      | 674.9                 | 0.00                  | 0.00                 | 0.00                |
| 4,200.0             | 15.74           | 147.70      | 4,110.1             | -563.6     | 390.6      | 685.7                 | 0.00                  | 0.00                 | 0.00                |

**Database:** EDM den0-adp01 Server Data  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.1-T4N-R64W  
**Site:** Marley C01-28D Pad Sec.1-T4N-R64W  
**Well:** Marley C01-18D  
**Wellbore:** Wellbore #1  
**Design:** Noble Marley C01-18D Plan #1 11-13-09

#### Local Co-ordinate Reference:

**TVD Reference:**

**MD Reference:**

**North Reference:**

**Survey Calculation Method:**

Well Marley C01-18D

WELL @ 4618.0ft (Original Well Elev)

WELL @ 4618.0ft (Original Well Elev)

True

Minimum Curvature

#### Planned Survey

| Measured Depth (ft)           | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|-------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 4,240.0                       | 15.74           | 147.70      | 4,148.6             | -572.8     | 396.4      | 696.5                 | 0.00                  | 0.00                 | 0.00                |
| 4,280.0                       | 15.74           | 147.70      | 4,187.1             | -581.9     | 402.2      | 707.4                 | 0.00                  | 0.00                 | 0.00                |
| 4,317.3                       | 15.74           | 147.70      | 4,223.0             | -590.5     | 407.6      | 717.5                 | 0.00                  | 0.00                 | 0.00                |
| 4,320.0                       | 15.68           | 147.70      | 4,225.6             | -591.1     | 408.0      | 718.2                 | 2.00                  | -2.00                | 0.00                |
| 4,360.0                       | 14.88           | 147.70      | 4,264.2             | -600.0     | 413.6      | 728.8                 | 2.00                  | -2.00                | 0.00                |
| 4,400.0                       | 14.08           | 147.70      | 4,303.0             | -608.5     | 418.9      | 738.8                 | 2.00                  | -2.00                | 0.00                |
| 4,440.0                       | 13.28           | 147.70      | 4,341.8             | -616.5     | 424.0      | 748.2                 | 2.00                  | -2.00                | 0.00                |
| 4,480.0                       | 12.48           | 147.70      | 4,380.8             | -624.0     | 428.8      | 757.1                 | 2.00                  | -2.00                | 0.00                |
| 4,520.0                       | 11.68           | 147.70      | 4,419.9             | -631.1     | 433.2      | 765.5                 | 2.00                  | -2.00                | 0.00                |
| 4,560.0                       | 10.88           | 147.70      | 4,459.2             | -637.7     | 437.4      | 773.3                 | 2.00                  | -2.00                | 0.00                |
| 4,600.0                       | 10.08           | 147.70      | 4,498.5             | -643.9     | 441.3      | 780.6                 | 2.00                  | -2.00                | 0.00                |
| 4,640.0                       | 9.28            | 147.70      | 4,537.9             | -649.5     | 444.9      | 787.3                 | 2.00                  | -2.00                | 0.00                |
| 4,680.0                       | 8.48            | 147.70      | 4,577.4             | -654.8     | 448.2      | 793.5                 | 2.00                  | -2.00                | 0.00                |
| 4,720.0                       | 7.68            | 147.70      | 4,617.0             | -659.5     | 451.2      | 799.1                 | 2.00                  | -2.00                | 0.00                |
| 4,760.0                       | 6.88            | 147.70      | 4,656.7             | -663.8     | 453.9      | 804.2                 | 2.00                  | -2.00                | 0.00                |
| 4,800.0                       | 6.08            | 147.70      | 4,696.5             | -667.6     | 456.3      | 808.7                 | 2.00                  | -2.00                | 0.00                |
| 4,840.0                       | 5.28            | 147.70      | 4,736.3             | -671.0     | 458.4      | 812.6                 | 2.00                  | -2.00                | 0.00                |
| 4,880.0                       | 4.48            | 147.70      | 4,776.1             | -673.8     | 460.3      | 816.0                 | 2.00                  | -2.00                | 0.00                |
| 4,920.0                       | 3.68            | 147.70      | 4,816.0             | -676.3     | 461.8      | 818.9                 | 2.00                  | -2.00                | 0.00                |
| 4,960.0                       | 2.88            | 147.70      | 4,856.0             | -678.2     | 463.0      | 821.2                 | 2.00                  | -2.00                | 0.00                |
| 5,000.0                       | 2.08            | 147.70      | 4,895.9             | -679.7     | 463.9      | 822.9                 | 2.00                  | -2.00                | 0.00                |
| 5,040.0                       | 1.28            | 147.70      | 4,935.9             | -680.6     | 464.6      | 824.1                 | 2.00                  | -2.00                | 0.00                |
| 5,080.0                       | 0.48            | 147.70      | 4,975.9             | -681.2     | 464.9      | 824.7                 | 2.00                  | -2.00                | 0.00                |
| 5,104.1                       | 0.00            | 0.00        | 5,000.0             | -681.3     | 464.9      | 824.8                 | 2.00                  | -2.00                | 0.00                |
| TARGET BHL 1320'FNL, 2490'FWL |                 |             |                     |            |            |                       |                       |                      |                     |
| 5,120.0                       | 0.00            | 0.00        | 5,015.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,160.0                       | 0.00            | 0.00        | 5,055.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,200.0                       | 0.00            | 0.00        | 5,095.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,240.0                       | 0.00            | 0.00        | 5,135.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,280.0                       | 0.00            | 0.00        | 5,175.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,320.0                       | 0.00            | 0.00        | 5,215.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,360.0                       | 0.00            | 0.00        | 5,255.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,400.0                       | 0.00            | 0.00        | 5,295.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,440.0                       | 0.00            | 0.00        | 5,335.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,480.0                       | 0.00            | 0.00        | 5,375.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,520.0                       | 0.00            | 0.00        | 5,415.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,560.0                       | 0.00            | 0.00        | 5,455.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,600.0                       | 0.00            | 0.00        | 5,495.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,640.0                       | 0.00            | 0.00        | 5,535.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,680.0                       | 0.00            | 0.00        | 5,575.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,720.0                       | 0.00            | 0.00        | 5,615.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,760.0                       | 0.00            | 0.00        | 5,655.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,800.0                       | 0.00            | 0.00        | 5,695.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,840.0                       | 0.00            | 0.00        | 5,735.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,880.0                       | 0.00            | 0.00        | 5,775.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,920.0                       | 0.00            | 0.00        | 5,815.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 5,960.0                       | 0.00            | 0.00        | 5,855.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,000.0                       | 0.00            | 0.00        | 5,895.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,040.0                       | 0.00            | 0.00        | 5,935.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,080.0                       | 0.00            | 0.00        | 5,975.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,120.0                       | 0.00            | 0.00        | 6,015.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,160.0                       | 0.00            | 0.00        | 6,055.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,200.0                       | 0.00            | 0.00        | 6,095.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |



**Database:** EDM den0-adp01 Server Data  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.1-T4N-R64W  
**Site:** Marley C01-28D Pad Sec.1-T4N-R64W  
**Well:** Marley C01-18D  
**Wellbore:** Wellbore #1  
**Design:** Noble Marley C01-18D Plan #1 11-13-09

**Local Co-ordinate Reference:** Well Marley C01-18D  
**TVD Reference:** WELL @ 4618.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4618.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

#### Planned Survey

| Measured Depth (ft)                         | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 6,240.0                                     | 0.00            | 0.00        | 6,135.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,280.0                                     | 0.00            | 0.00        | 6,175.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,320.0                                     | 0.00            | 0.00        | 6,215.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,360.0                                     | 0.00            | 0.00        | 6,255.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,400.0                                     | 0.00            | 0.00        | 6,295.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,440.0                                     | 0.00            | 0.00        | 6,335.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,480.0                                     | 0.00            | 0.00        | 6,375.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,501.1                                     | 0.00            | 0.00        | 6,397.0             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| NIOBRARA - TARGET CIRCLE 1320'FNL, 2490'FWL |                 |             |                     |            |            |                       |                       |                      |                     |
| 6,520.0                                     | 0.00            | 0.00        | 6,415.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,560.0                                     | 0.00            | 0.00        | 6,455.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,600.0                                     | 0.00            | 0.00        | 6,495.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,640.0                                     | 0.00            | 0.00        | 6,535.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,680.0                                     | 0.00            | 0.00        | 6,575.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,720.0                                     | 0.00            | 0.00        | 6,615.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,760.0                                     | 0.00            | 0.00        | 6,655.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,797.1                                     | 0.00            | 0.00        | 6,693.0             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| CODELL                                      |                 |             |                     |            |            |                       |                       |                      |                     |
| 6,800.0                                     | 0.00            | 0.00        | 6,695.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,840.0                                     | 0.00            | 0.00        | 6,735.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,880.0                                     | 0.00            | 0.00        | 6,775.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,920.0                                     | 0.00            | 0.00        | 6,815.9             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| 6,947.1                                     | 0.00            | 0.00        | 6,843.0             | -681.3     | 464.9      | 824.8                 | 0.00                  | 0.00                 | 0.00                |
| HARDLINE 80'E OF BHL                        |                 |             |                     |            |            |                       |                       |                      |                     |

#### Targets

##### Target Name

| - hit/miss target<br>- Shape  | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude         | Longitude         |
|---|---------------|--------------|----------|------------|------------|---------------|--------------|------------------|-------------------|
| TARGET CIRCLE 1320'FNL  | 0.00          | 0.00         | 6,397.0  | -681.3     | 464.9      | 1,373,755.47  | 3,278,903.20 | 40° 21' 18.143 N | 104° 29' 57.235 W |
| - plan misses target center by 0.1ft at 6501.1ft MD (6397.0 TVD, -681.3 N, 464.9 E)   |               |              |          |            |            |               |              |                  |                   |
| - Circle (radius 75.0)  |               |              |          |            |            |               |              |                  |                   |
| HARDLINE 80'E OF E  | 0.00          | 0.00         | 6,843.0  | -781.3     | 544.9      | 1,373,656.38  | 3,278,984.31 | 40° 21' 17.155 N | 104° 29' 56.202 W |
| - plan misses target center by 128.1ft at 6947.1ft MD (6843.0 TVD, -681.3 N, 464.9 E) |               |              |          |            |            |               |              |                  |                   |
| - Polygon   |               |              |          |            |            |               |              |                  |                   |
| Point 1   |               |              | 6,843.0  | 0.0        | 0.0        | 1,373,656.38  | 3,278,984.31 |                  |                   |
| Point 2   |               |              | 6,843.0  | 200.0      | 0.0        | 1,373,856.36  | 3,278,982.06 |                  |                   |
| TARGET BHL 1320'F   | 0.00          | 0.00         | 5,000.0  | -681.3     | 464.9      | 1,373,755.52  | 3,278,903.24 | 40° 21' 18.144 N | 104° 29' 57.234 W |
| - plan hits target center   |               |              |          |            |            |               |              |                  |                   |
| - Point   |               |              |          |            |            |               |              |                  |                   |

#### Formations

| Measured Depth (ft) | Vertical Depth (ft) | Name     | Lithology | Dip (°) | Dip Direction (°) |
|---------------------|---------------------|----------|-----------|---------|-------------------|
| 6,501.1             | 6,397.0             | NIOBRARA |           | 0.00    |                   |
| 6,797.1             | 6,693.0             | CODELL   |           | 0.00    |                   |

**Database:** EDM den0-adp01 Server Data  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.1-T4N-R64W  
**Site:** Marley C01-28D Pad Sec.1-T4N-R64W  
**Well:** Marley C01-18D  
**Wellbore:** Wellbore #1  
**Design:** Noble Marley C01-18D Plan #1 11-13-09

**Local Co-ordinate Reference:** Well Marley C01-18D  
**TVD Reference:** WELL @ 4618.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4618.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature