



Vanguard Natural Resources

Garfield County, CO

MPD 25

CSF 41C-4-791

Wellbore #1

Plan: Design #1

Standard Planning Report

17 October, 2017



| | | | |
|------------------|----------------------------|-------------------------------------|-------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well CSF 41C-4-791 |
| Company: | Vanguard Natural Resources | TVD Reference: | CSF 41C-4-791 @ 6561.0usft (New KB) |
| Project: | Garfield County, CO | MD Reference: | CSF 41C-4-791 @ 6561.0usft (New KB) |
| Site: | MPD 25 | North Reference: | Grid |
| Well: | CSF 41C-4-791 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Design #1 | | |

| | | | |
|--------------------|---------------------------|----------------------|-----------------------------|
| Project | Garfield County, CO | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Central Zone | | Using geodetic scale factor |

| | | | |
|------------------------------|----------|--------------------------|-------------------|
| Site | MPD 25 | | |
| Site Position: | | Northing: | 1,606,032.98 usft |
| From: | Lat/Long | Easting: | 2,418,598.16 usft |
| Position Uncertainty: | 0.0 usft | Slot Radius: | 13-3/16 " |
| | | Latitude: | 39° 28' 45.253 N |
| | | Longitude: | 107° 33' 35.748 W |
| | | Grid Convergence: | -1.30 ° |

| | | | |
|-----------------------------|---------------|----------------------------|-------------------|
| Well | CSF 41C-4-791 | | |
| Well Position | +N/-S | 24.0 usft | Northing: |
| | +E/-W | -5.1 usft | Easting: |
| Position Uncertainty | 0.0 usft | Wellhead Elevation: | 6,561.0 usft |
| | | Latitude: | 39° 28' 45.489 N |
| | | Longitude: | 107° 33' 35.819 W |
| | | Ground Level: | 6,540.4 usft |

| | | | |
|------------------|-------------------|--------------------|-----------------------|
| Wellbore | Wellbore #1 | | |
| Magnetics | Model Name | Sample Date | Declination |
| | | | (°) |
| | IGRF2015 | 10/17/2017 | 9.47 |
| | | | Dip Angle |
| | | | (°) |
| | | | 65.64 |
| | | | Field Strength |
| | | | (nT) |
| | | | 51,533 |

| | | | |
|--------------------------|-------------------------|--------------|----------------------|
| Design | Design #1 | | |
| Audit Notes: | | | |
| Version: | Phase: | PLAN | Tie On Depth: |
| | | | 0.0 |
| Vertical Section: | Depth From (TVD) | +N/-S | +E/-W |
| | (usft) | (usft) | (usft) |
| | 0.0 | 0.0 | 0.0 |
| | | | Direction |
| | | | (°) |
| | | | 117.82 |

| | | | | | | | | | | |
|----------------------|--------------------|----------------|-----------------|--------------|--------------|---------------|--------------|-------------|------------|---------------|
| Plan Sections | | | | | | | | | | |
| Measured | Inclination | Azimuth | Vertical | +N/-S | +E/-W | Dogleg | Build | Turn | TFO | Target |
| Depth | (°) | (°) | Depth | (usft) | (usft) | Rate | Rate | Rate | (°) | |
| (usft) | | | (usft) | | | (°/100usft) | (°/100usft) | (°/100usft) | | |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 200.0 | 0.00 | 0.00 | 200.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,264.9 | 37.27 | 117.82 | 1,191.4 | -156.0 | 295.7 | 3.50 | 3.50 | 0.00 | 117.82 | |
| 4,459.6 | 37.27 | 117.82 | 3,733.6 | -1,058.9 | 2,006.8 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,524.5 | 0.00 | 0.00 | 4,725.0 | -1,215.0 | 2,302.5 | 3.50 | -3.50 | 0.00 | 180.00 | 41C-4-791 TGT |
| 8,466.4 | 0.00 | 0.00 | 7,666.9 | -1,215.0 | 2,302.5 | 0.00 | 0.00 | 0.00 | 0.00 | |



Payzone Directional Planning Report



| | | | |
|------------------|----------------------------|-------------------------------------|-------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well CSF 41C-4-791 |
| Company: | Vanguard Natural Resources | TVD Reference: | CSF 41C-4-791 @ 6561.0usft (New KB) |
| Project: | Garfield County, CO | MD Reference: | CSF 41C-4-791 @ 6561.0usft (New KB) |
| Site: | MPD 25 | North Reference: | Grid |
| Well: | CSF 41C-4-791 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Design #1 | | |

| Planned Survey | | | | | | | | | |
|--------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 100.0 | 0.00 | 0.00 | 100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 200.0 | 0.00 | 0.00 | 200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| Start Build 3.50 | | | | | | | | | |
| 300.0 | 3.50 | 117.82 | 299.9 | -1.4 | 2.7 | 3.1 | 3.50 | 3.50 | 0.00 |
| 400.0 | 7.00 | 117.82 | 399.5 | -5.7 | 10.8 | 12.2 | 3.50 | 3.50 | 0.00 |
| 500.0 | 10.50 | 117.82 | 498.3 | -12.8 | 24.2 | 27.4 | 3.50 | 3.50 | 0.00 |
| 600.0 | 14.00 | 117.82 | 596.0 | -22.7 | 43.0 | 48.6 | 3.50 | 3.50 | 0.00 |
| 700.0 | 17.50 | 117.82 | 692.3 | -35.4 | 67.0 | 75.8 | 3.50 | 3.50 | 0.00 |
| 800.0 | 21.00 | 117.82 | 786.7 | -50.7 | 96.2 | 108.7 | 3.50 | 3.50 | 0.00 |
| 900.0 | 24.50 | 117.82 | 878.9 | -68.8 | 130.4 | 147.4 | 3.50 | 3.50 | 0.00 |
| 1,000.0 | 28.00 | 117.82 | 968.5 | -89.4 | 169.5 | 191.6 | 3.50 | 3.50 | 0.00 |
| 1,100.0 | 31.50 | 117.82 | 1,055.3 | -112.6 | 213.4 | 241.2 | 3.50 | 3.50 | 0.00 |
| 1,200.0 | 35.00 | 117.82 | 1,139.0 | -138.2 | 261.8 | 296.1 | 3.50 | 3.50 | 0.00 |
| 1,264.0 | 37.24 | 117.82 | 1,190.7 | -155.8 | 295.2 | 333.8 | 3.50 | 3.50 | 0.00 |
| Start 3195.1 hold at 1264.0 MD | | | | | | | | | |
| 1,264.9 | 37.27 | 117.82 | 1,191.4 | -156.0 | 295.7 | 334.3 | 3.50 | 3.50 | 0.00 |
| 1,300.0 | 37.27 | 117.82 | 1,219.3 | -165.9 | 314.5 | 355.6 | 0.00 | 0.00 | 0.00 |
| 1,400.0 | 37.27 | 117.82 | 1,298.9 | -194.2 | 368.0 | 416.1 | 0.00 | 0.00 | 0.00 |
| 1,500.0 | 37.27 | 117.82 | 1,378.5 | -222.5 | 421.6 | 476.7 | 0.00 | 0.00 | 0.00 |
| 1,600.0 | 37.27 | 117.82 | 1,458.0 | -250.7 | 475.2 | 537.3 | 0.00 | 0.00 | 0.00 |
| 1,700.0 | 37.27 | 117.82 | 1,537.6 | -279.0 | 528.7 | 597.8 | 0.00 | 0.00 | 0.00 |
| 1,800.0 | 37.27 | 117.82 | 1,617.2 | -307.3 | 582.3 | 658.4 | 0.00 | 0.00 | 0.00 |
| 1,900.0 | 37.27 | 117.82 | 1,696.8 | -335.5 | 635.8 | 718.9 | 0.00 | 0.00 | 0.00 |
| 2,000.0 | 37.27 | 117.82 | 1,776.3 | -363.8 | 689.4 | 779.5 | 0.00 | 0.00 | 0.00 |
| 2,100.0 | 37.27 | 117.82 | 1,855.9 | -392.0 | 743.0 | 840.1 | 0.00 | 0.00 | 0.00 |
| 2,200.0 | 37.27 | 117.82 | 1,935.5 | -420.3 | 796.5 | 900.6 | 0.00 | 0.00 | 0.00 |
| 2,300.0 | 37.27 | 117.82 | 2,015.1 | -448.6 | 850.1 | 961.2 | 0.00 | 0.00 | 0.00 |
| 2,400.0 | 37.27 | 117.82 | 2,094.6 | -476.8 | 903.7 | 1,021.7 | 0.00 | 0.00 | 0.00 |
| 2,500.0 | 37.27 | 117.82 | 2,174.2 | -505.1 | 957.2 | 1,082.3 | 0.00 | 0.00 | 0.00 |
| 2,600.0 | 37.27 | 117.82 | 2,253.8 | -533.4 | 1,010.8 | 1,142.9 | 0.00 | 0.00 | 0.00 |
| 2,700.0 | 37.27 | 117.82 | 2,333.4 | -561.6 | 1,064.3 | 1,203.4 | 0.00 | 0.00 | 0.00 |
| 2,800.0 | 37.27 | 117.82 | 2,413.0 | -589.9 | 1,117.9 | 1,264.0 | 0.00 | 0.00 | 0.00 |
| 2,900.0 | 37.27 | 117.82 | 2,492.5 | -618.1 | 1,171.5 | 1,324.5 | 0.00 | 0.00 | 0.00 |
| 3,000.0 | 37.27 | 117.82 | 2,572.1 | -646.4 | 1,225.0 | 1,385.1 | 0.00 | 0.00 | 0.00 |
| 3,100.0 | 37.27 | 117.82 | 2,651.7 | -674.7 | 1,278.6 | 1,445.7 | 0.00 | 0.00 | 0.00 |
| 3,200.0 | 37.27 | 117.82 | 2,731.3 | -702.9 | 1,332.1 | 1,506.2 | 0.00 | 0.00 | 0.00 |
| 3,300.0 | 37.27 | 117.82 | 2,810.8 | -731.2 | 1,385.7 | 1,566.8 | 0.00 | 0.00 | 0.00 |
| 3,400.0 | 37.27 | 117.82 | 2,890.4 | -759.5 | 1,439.3 | 1,627.3 | 0.00 | 0.00 | 0.00 |
| 3,500.0 | 37.27 | 117.82 | 2,970.0 | -787.7 | 1,492.8 | 1,687.9 | 0.00 | 0.00 | 0.00 |
| 3,600.0 | 37.27 | 117.82 | 3,049.6 | -816.0 | 1,546.4 | 1,748.5 | 0.00 | 0.00 | 0.00 |
| 3,700.0 | 37.27 | 117.82 | 3,129.1 | -844.2 | 1,599.9 | 1,809.0 | 0.00 | 0.00 | 0.00 |
| 3,800.0 | 37.27 | 117.82 | 3,208.7 | -872.5 | 1,653.5 | 1,869.6 | 0.00 | 0.00 | 0.00 |
| 3,900.0 | 37.27 | 117.82 | 3,288.3 | -900.8 | 1,707.1 | 1,930.1 | 0.00 | 0.00 | 0.00 |
| 4,000.0 | 37.27 | 117.82 | 3,367.9 | -929.0 | 1,760.6 | 1,990.7 | 0.00 | 0.00 | 0.00 |
| 4,100.0 | 37.27 | 117.82 | 3,447.4 | -957.3 | 1,814.2 | 2,051.3 | 0.00 | 0.00 | 0.00 |
| 4,200.0 | 37.27 | 117.82 | 3,527.0 | -985.6 | 1,867.8 | 2,111.8 | 0.00 | 0.00 | 0.00 |
| 4,300.0 | 37.27 | 117.82 | 3,606.6 | -1,013.8 | 1,921.3 | 2,172.4 | 0.00 | 0.00 | 0.00 |
| 4,400.0 | 37.27 | 117.82 | 3,686.2 | -1,042.1 | 1,974.9 | 2,232.9 | 0.00 | 0.00 | 0.00 |
| 4,459.2 | 37.27 | 117.82 | 3,733.3 | -1,058.8 | 2,006.6 | 2,268.8 | 0.00 | 0.00 | 0.00 |
| Start Drop -3.50 | | | | | | | | | |
| 4,459.6 | 37.27 | 117.82 | 3,733.6 | -1,058.9 | 2,006.8 | 2,269.0 | 0.00 | 0.00 | 0.00 |
| 4,500.0 | 35.86 | 117.82 | 3,766.1 | -1,070.2 | 2,028.1 | 2,293.1 | 3.50 | -3.50 | 0.00 |

| | | | |
|------------------|----------------------------|-------------------------------------|-------------------------------------|
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| Project: | Garfield County, CO | MD Reference: | CSF 41C-4-791 @ 6561.0usft (New KB) |
| Site: | MPD 25 | North Reference: | Grid |
| Well: | CSF 41C-4-791 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Design #1 | | |

| Planned Survey | | | | | | | | | |
|---------------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 4,600.0 | 32.36 | 117.82 | 3,848.8 | -1,096.3 | 2,077.7 | 2,349.2 | 3.50 | -3.50 | 0.00 |
| 4,700.0 | 28.86 | 117.82 | 3,934.9 | -1,120.1 | 2,122.7 | 2,400.1 | 3.50 | -3.50 | 0.00 |
| 4,800.0 | 25.36 | 117.82 | 4,023.9 | -1,141.3 | 2,163.0 | 2,445.6 | 3.50 | -3.50 | 0.00 |
| 4,900.0 | 21.86 | 117.82 | 4,115.5 | -1,160.0 | 2,198.4 | 2,485.7 | 3.50 | -3.50 | 0.00 |
| 5,000.0 | 18.36 | 117.82 | 4,209.4 | -1,176.1 | 2,228.8 | 2,520.1 | 3.50 | -3.50 | 0.00 |
| 5,100.0 | 14.86 | 117.82 | 4,305.2 | -1,189.4 | 2,254.1 | 2,548.6 | 3.50 | -3.50 | 0.00 |
| 5,200.0 | 11.36 | 117.82 | 4,402.6 | -1,200.0 | 2,274.1 | 2,571.3 | 3.50 | -3.50 | 0.00 |
| 5,300.0 | 7.86 | 117.82 | 4,501.2 | -1,207.8 | 2,288.9 | 2,588.0 | 3.50 | -3.50 | 0.00 |
| 5,324.0 | 7.02 | 117.82 | 4,525.0 | -1,209.2 | 2,291.7 | 2,591.1 | 3.50 | -3.50 | 0.00 |
| Price Coal | | | | | | | | | |
| 5,400.0 | 4.36 | 117.82 | 4,600.6 | -1,212.7 | 2,298.3 | 2,598.6 | 3.50 | -3.50 | 0.00 |
| 5,500.0 | 0.86 | 117.82 | 4,700.5 | -1,214.9 | 2,302.3 | 2,603.2 | 3.50 | -3.50 | 0.00 |
| 5,523.2 | 0.05 | 117.82 | 4,723.7 | -1,215.0 | 2,302.5 | 2,603.4 | 3.50 | -3.50 | 0.00 |
| Start 2941.9 hold at 5523.2 MD | | | | | | | | | |
| 5,524.5 | 0.00 | 0.00 | 4,725.0 | -1,215.0 | 2,302.5 | 2,603.4 | 3.50 | -3.50 | 0.00 |
| 5,600.0 | 0.00 | 0.00 | 4,800.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 5,700.0 | 0.00 | 0.00 | 4,900.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 5,800.0 | 0.00 | 0.00 | 5,000.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 5,900.0 | 0.00 | 0.00 | 5,100.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 6,000.0 | 0.00 | 0.00 | 5,200.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 6,073.2 | 0.00 | 0.00 | 5,273.7 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| Top of Gas | | | | | | | | | |
| 6,100.0 | 0.00 | 0.00 | 5,300.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 6,200.0 | 0.00 | 0.00 | 5,400.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 6,300.0 | 0.00 | 0.00 | 5,500.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 6,400.0 | 0.00 | 0.00 | 5,600.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 6,500.0 | 0.00 | 0.00 | 5,700.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 6,600.0 | 0.00 | 0.00 | 5,800.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 6,700.0 | 0.00 | 0.00 | 5,900.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 6,800.0 | 0.00 | 0.00 | 6,000.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 6,900.0 | 0.00 | 0.00 | 6,100.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 7,000.0 | 0.00 | 0.00 | 6,200.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 7,100.0 | 0.00 | 0.00 | 6,300.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 7,200.0 | 0.00 | 0.00 | 6,400.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 7,300.0 | 0.00 | 0.00 | 6,500.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 7,400.0 | 0.00 | 0.00 | 6,600.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 7,500.0 | 0.00 | 0.00 | 6,700.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 7,600.0 | 0.00 | 0.00 | 6,800.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 7,700.0 | 0.00 | 0.00 | 6,900.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 7,800.0 | 0.00 | 0.00 | 7,000.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 7,900.0 | 0.00 | 0.00 | 7,100.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 8,000.0 | 0.00 | 0.00 | 7,200.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 8,100.0 | 0.00 | 0.00 | 7,300.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 8,200.0 | 0.00 | 0.00 | 7,400.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 8,216.4 | 0.00 | 0.00 | 7,416.9 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| Rollins | | | | | | | | | |
| 8,300.0 | 0.00 | 0.00 | 7,500.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 8,400.0 | 0.00 | 0.00 | 7,600.5 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| 8,465.1 | 0.00 | 0.00 | 7,665.6 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |
| TD at 8465.1 | | | | | | | | | |
| 8,466.4 | 0.00 | 0.00 | 7,666.9 | -1,215.0 | 2,302.5 | 2,603.4 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|----------------------------|-------------------------------------|-------------------------------------|
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| Company: | Vanguard Natural Resources | TVD Reference: | CSF 41C-4-791 @ 6561.0usft (New KB) |
| Project: | Garfield County, CO | MD Reference: | CSF 41C-4-791 @ 6561.0usft (New KB) |
| Site: | MPD 25 | North Reference: | Grid |
| Well: | CSF 41C-4-791 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #1 | | |
| Design: | Design #1 | | |

| Design Targets | | | | | | | | | |
|---|-----------|----------|---------|----------|---------|--------------|--------------|------------------|------------------|
| Target Name | Dip Angle | Dip Dir. | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
| - hit/miss target | (°) | (°) | (usft) | (usft) | (usft) | (usft) | (usft) | | |
| - Shape | | | | | | | | | |
| 41C-4-791 TGT | 0.00 | 360.00 | 4,725.0 | -1,215.0 | 2,302.5 | 1,604,842.10 | 2,420,895.50 | 39° 28' 34.000 N | 107° 33' 6.113 W |
| - plan hits target center | | | | | | | | | |
| - Rectangle (sides W100.0 H40.0 D2,941.9) | | | | | | | | | |

| Formations | | | | | | |
|----------------|----------------|------------|-----------|------|---------------|--|
| Measured Depth | Vertical Depth | Name | Lithology | Dip | Dip Direction | |
| (usft) | (usft) | | | (°) | (°) | |
| 5,324.0 | 4,525.0 | Price Coal | | 0.00 | | |
| 6,073.2 | 5,273.7 | Top of Gas | | 0.00 | | |
| 8,216.4 | 7,416.9 | Rollins | | 0.00 | | |

| Plan Annotations | | | | | |
|------------------|----------------|-------------------|---------|--------------------------------|--|
| Measured Depth | Vertical Depth | Local Coordinates | | | |
| (usft) | (usft) | +N/-S | +E/-W | Comment | |
| (usft) | (usft) | (usft) | (usft) | | |
| 200.0 | 200.0 | 0.0 | 0.0 | Start Build 3.50 | |
| 1,264.0 | 1,190.7 | -155.8 | 295.2 | Start 3195.1 hold at 1264.0 MD | |
| 4,459.2 | 3,733.3 | -1,058.8 | 2,006.6 | Start Drop -3.50 | |
| 5,523.2 | 4,723.7 | -1,215.0 | 2,302.5 | Start 2941.9 hold at 5523.2 MD | |
| 8,465.1 | 7,665.6 | -1,215.0 | 2,302.5 | TD at 8465.1 | |



Well Name: CSF 41C-4-791
Surface Location: MPD 25
North American Datum 1983, US State Plane 1983, Colorado Central Zone
Ground Elevation: 6540.4
+N/-S +E/-W Northing Easting Latitude Longitude
0.0 0.0 1606057.00 2418593.10 39° 28' 34.000 N 107° 33' 6.113 W
New KB CSF 41C-4-791 @ 6561.0usft (New KB)

Slot



Azimuths to Grid North
True North: 1.30°
Magnetic North: 10.76°
Magnetic Field
Strength: 51533.1snT
Dip Angle: 65.64°
Date: 10/17/2017
Model: IGRF2015

MPD 25
CSF 41C-4-791
Design #1
11:05, October 17 2017

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Shape |
|---------------|--------|---------|--------|------------|------------|------------------|------------------|---------------------------------|
| 41C-4-791 TGT | 4725.0 | -1215.0 | 2302.5 | 1604842.10 | 2420895.50 | 39° 28' 34.000 N | 107° 33' 6.113 W | Rectangle (Sides: L40.0 W100.0) |

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 | 200.0 | 0.00 | 0.00 | 200.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 3 | 1264.9 | 37.27 | 117.82 | 1191.4 | -156.0 | 295.7 | 3.50 | 117.82 | 334.3 | |
| 4 | 4459.6 | 37.27 | 117.82 | 3733.6 | -1058.9 | 2006.8 | 0.00 | 0.00 | 2269.0 | |
| 5 | 5524.5 | 0.00 | 0.00 | 4725.0 | -1215.0 | 2302.5 | 3.50 | 180.00 | 2603.4 | 41C-4-791 TGT |
| 6 | 8466.4 | 0.00 | 0.00 | 7666.9 | -1215.0 | 2302.5 | 0.00 | 0.00 | 2603.4 | |

ANNOTATIONS

| TVD | MD | Annotation |
|--------|--------|--------------------------------|
| 200.0 | 200.0 | Start Build 3.50 |
| 1190.7 | 1264.0 | Start 3195.1 hold at 1264.0 MD |
| 3733.3 | 4459.2 | Start Drop -3.50 |
| 4723.7 | 5523.2 | Start 2941.9 hold at 5523.2 MD |
| 7665.6 | 8465.1 | TD at 8465.1 |

FORMATION TOP DETAILS

| TVDPath | MDPath | Formation |
|---------|--------|------------|
| 4525.0 | 5324.0 | Price Coal |
| 5273.7 | 6073.2 | Top of Gas |
| 7416.9 | 8216.4 | Rollins |

