

Well Name: **Five Rivers K09-33D**

Surface Location: Five Rivers K08-24D Pad Sec.8-T4N-R66W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

Ground Elevation: 4703.0

+N/-S +E/-W
0.0 0.0

Northing

Easting

Latitude

Longitude

Slot

1360961.90 3195937.61

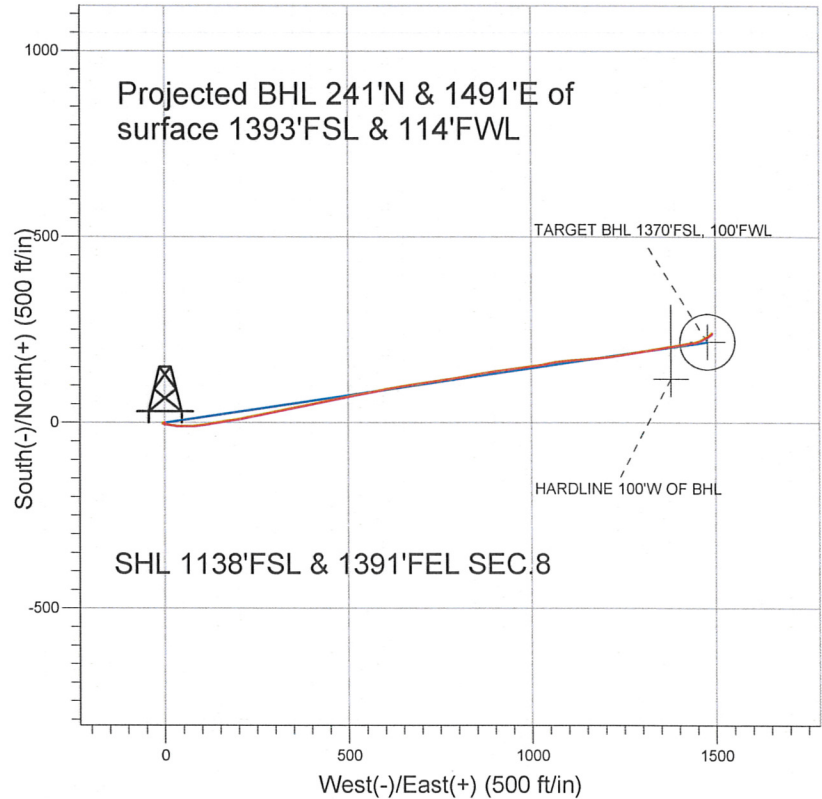
40.322110

-104.797280

Original Well Elev WELL @ 4716.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO

Projected BHL 241'N & 1491'E of
surface 1393'FSL & 114'FWL



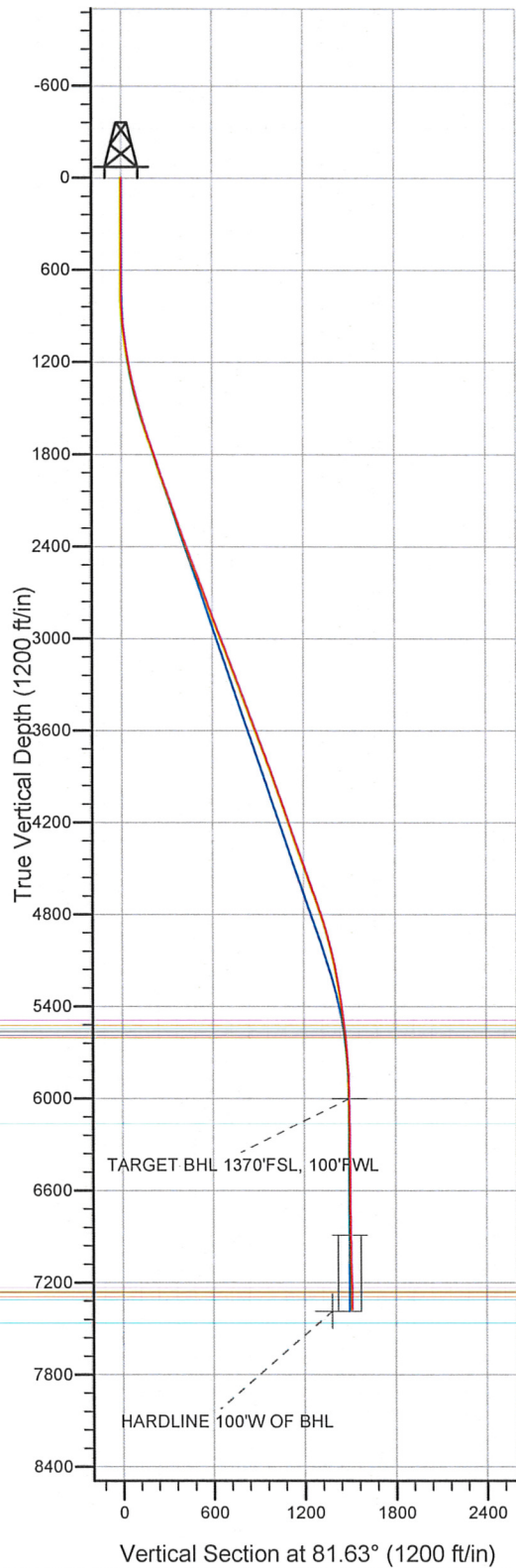
LEGEND

- Five Rivers K09-33D, Wellbore #1, Noble Five Rivers K08-33D Plan #1 (05-13-10) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7622'MD & 7381'TVD @ 1511'VS
0.7 deg Inc 14.3 deg AZ

Project: SEC.8-T4N-R66W
Site: Five Rivers K08-24D Pad Sec.8-T4N-R66W
Well: Five Rivers K09-33D
Plan: Wellbore #1



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Well: Five Rivers K09-33D
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Five Rivers K09-33D
TVD Reference: WELL @ 4716.0ft (Original Well Elev)
MD Reference: WELL @ 4716.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Landmark

| | | | |
|--------------------|---------------------------------------|----------------------|-----------------------------|
| Project | SEC.8-T4N-R66W, Weld County, Colorado | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Northern Zone | | Using geodetic scale factor |

Site Five Rivers K08-24D Pad Sec.8-T4N-R66W

Site Position:
From: Lat/Long **Northing:** 1,363,128.14 ft **Latitude:** 40.328060
Position Uncertainty: 0.0 ft **Easting:** 3,195,764.31 ft **Longitude:** -104.797840
Slot Radius: " **Grid Convergence:** 0.45 °

Well Five Rivers K09-33D

Well Position **+N/-S** 0.0 ft **Northing:** 1,360,961.90 ft **Latitude:** 40.322110
+E/-W 0.0 ft **Easting:** 3,195,937.61 ft **Longitude:** -104.797280
Position Uncertainty 0.0 ft **Wellhead Elevation:** ft **Ground Level:** 4,703.0 ft

Wellbore Wellbore #1

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|-----------|------------|-------------|-----------------|---------------|---------------------|
| | IGRF2010 | 5/13/2010 | 9.02 | 67.02 | 53,242 |

Design Wellbore #1

Audit Notes:

Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.0

| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
|-------------------|--------------------------|---------------|---------------|------------------|
| | 0.0 | 0.0 | 0.0 | 81.63 |

Survey Program Date 4/4/2011

| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
|-----------|---------|-------------------------|-----------|----------------|
| 646.0 | 7,622.0 | Survey #1 (Wellbore #1) | MWD | MWD - Standard |

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 |
| 646.0 | 0.80 | 245.20 | 646.0 | -1.9 | -4.1 | -4.3 | 0.12 | 0.12 | 0.00 |
| 739.0 | 1.60 | 122.90 | 739.0 | -2.9 | -3.6 | -4.0 | 2.30 | 0.86 | -131.51 |
| 833.0 | 3.90 | 100.70 | 832.9 | -4.2 | 0.7 | 0.0 | 2.65 | 2.45 | -23.62 |
| 927.0 | 5.30 | 104.40 | 926.5 | -5.8 | 8.0 | 7.1 | 1.52 | 1.49 | 3.94 |
| 1,020.0 | 8.00 | 95.40 | 1,018.9 | -7.5 | 18.6 | 17.3 | 3.10 | 2.90 | -9.68 |
| 1,114.0 | 9.60 | 97.10 | 1,111.8 | -9.1 | 32.9 | 31.2 | 1.72 | 1.70 | 1.81 |
| 1,207.0 | 11.10 | 92.20 | 1,203.3 | -10.4 | 49.5 | 47.5 | 1.87 | 1.61 | -5.27 |
| 1,301.0 | 12.30 | 86.50 | 1,295.3 | -10.1 | 68.6 | 66.4 | 1.77 | 1.28 | -6.06 |
| 1,395.0 | 13.60 | 85.50 | 1,387.0 | -8.7 | 89.6 | 87.4 | 1.40 | 1.38 | -1.06 |
| 1,488.0 | 15.00 | 79.30 | 1,477.1 | -5.6 | 112.3 | 110.3 | 2.23 | 1.51 | -6.67 |
| 1,582.0 | 16.90 | 80.00 | 1,567.4 | -0.9 | 137.7 | 136.1 | 2.03 | 2.02 | 0.74 |
| 1,675.0 | 18.10 | 81.00 | 1,656.1 | 3.7 | 165.3 | 164.1 | 1.33 | 1.29 | 1.08 |

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 Design: Wellbore #1

Local Co-ordinate Reference: Well Five Rivers K09-33D
 TVD Reference: WELL @ 4716.0ft (Original Well Elev)
 MD Reference: WELL @ 4716.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Database: Landmark

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) |
|------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 1,769.0 | 19.30 | 81.10 | 1,745.2 | 8.3 | 195.1 | 194.2 | 1.28 | 1.28 | 0.11 |
| 1,862.0 | 19.60 | 78.20 | 1,832.9 | 13.9 | 225.5 | 225.2 | 1.09 | 0.32 | -3.12 |
| 1,956.0 | 19.80 | 79.70 | 1,921.4 | 20.0 | 256.6 | 256.8 | 0.58 | 0.21 | 1.60 |
| 2,050.0 | 20.00 | 77.80 | 2,009.8 | 26.2 | 288.0 | 288.8 | 0.72 | 0.21 | -2.02 |
| 2,143.0 | 20.00 | 77.90 | 2,097.2 | 32.9 | 319.1 | 320.5 | 0.04 | 0.00 | 0.11 |
| 2,237.0 | 19.20 | 78.20 | 2,185.7 | 39.5 | 349.9 | 352.0 | 0.86 | -0.85 | 0.32 |
| 2,331.0 | 19.00 | 78.40 | 2,274.5 | 45.7 | 380.1 | 382.7 | 0.22 | -0.21 | 0.21 |
| 2,424.0 | 20.00 | 79.00 | 2,362.2 | 51.8 | 410.5 | 413.7 | 1.10 | 1.08 | 0.65 |
| 2,518.0 | 20.00 | 79.70 | 2,450.5 | 57.7 | 442.1 | 445.8 | 0.25 | 0.00 | 0.74 |
| 2,611.0 | 20.70 | 78.40 | 2,537.7 | 63.9 | 473.9 | 478.1 | 0.90 | 0.75 | -1.40 |
| 2,705.0 | 20.80 | 78.30 | 2,625.6 | 70.6 | 506.5 | 511.4 | 0.11 | 0.11 | -0.11 |
| 2,798.0 | 21.20 | 78.80 | 2,712.4 | 77.2 | 539.1 | 544.6 | 0.47 | 0.43 | 0.54 |
| 2,892.0 | 20.70 | 78.00 | 2,800.2 | 84.0 | 572.1 | 578.2 | 0.61 | -0.53 | -0.85 |
| 2,986.0 | 21.00 | 79.20 | 2,888.1 | 90.6 | 604.9 | 611.6 | 0.56 | 0.32 | 1.28 |
| 3,079.0 | 20.90 | 79.80 | 2,974.9 | 96.6 | 637.5 | 644.8 | 0.25 | -0.11 | 0.65 |
| 3,173.0 | 21.30 | 81.50 | 3,062.6 | 102.1 | 670.9 | 678.7 | 0.78 | 0.43 | 1.81 |
| 3,266.0 | 21.00 | 81.70 | 3,149.4 | 107.0 | 704.1 | 712.2 | 0.33 | -0.32 | 0.22 |
| 3,360.0 | 21.10 | 83.30 | 3,237.1 | 111.4 | 737.6 | 746.0 | 0.62 | 0.11 | 1.70 |
| 3,454.0 | 20.80 | 80.40 | 3,324.9 | 116.2 | 770.9 | 779.6 | 1.15 | -0.32 | -3.09 |
| 3,547.0 | 20.80 | 80.40 | 3,411.8 | 121.7 | 803.4 | 812.6 | 0.00 | 0.00 | 0.00 |
| 3,641.0 | 20.90 | 80.00 | 3,499.7 | 127.4 | 836.4 | 846.0 | 0.19 | 0.11 | -0.43 |
| 3,734.0 | 20.60 | 80.00 | 3,586.6 | 133.1 | 868.8 | 879.0 | 0.32 | -0.32 | 0.00 |
| 3,828.0 | 19.90 | 82.50 | 3,674.8 | 138.1 | 901.0 | 911.5 | 1.18 | -0.74 | 2.66 |
| 3,922.0 | 21.20 | 82.20 | 3,762.8 | 142.5 | 933.7 | 944.5 | 1.39 | 1.38 | -0.32 |
| 4,015.0 | 20.20 | 82.40 | 3,849.8 | 146.9 | 966.3 | 977.4 | 1.08 | -1.08 | 0.22 |
| 4,109.0 | 20.00 | 82.00 | 3,938.1 | 151.3 | 998.3 | 1,009.7 | 0.26 | -0.21 | -0.43 |
| 4,202.0 | 19.70 | 80.60 | 4,025.6 | 156.0 | 1,029.5 | 1,041.2 | 0.60 | -0.32 | -1.51 |
| 4,296.0 | 19.30 | 78.70 | 4,114.2 | 161.7 | 1,060.4 | 1,072.6 | 0.80 | -0.43 | -2.02 |
| 4,390.0 | 19.10 | 84.00 | 4,203.0 | 166.3 | 1,090.9 | 1,103.5 | 1.87 | -0.21 | 5.64 |
| 4,483.0 | 18.50 | 87.30 | 4,291.0 | 168.6 | 1,120.8 | 1,133.4 | 1.31 | -0.65 | 3.55 |
| 4,577.0 | 20.20 | 84.90 | 4,379.7 | 170.7 | 1,151.8 | 1,164.4 | 2.00 | 1.81 | -2.55 |
| 4,670.0 | 19.80 | 84.50 | 4,467.1 | 173.7 | 1,183.5 | 1,196.2 | 0.45 | -0.43 | -0.43 |
| 4,764.0 | 18.70 | 81.10 | 4,555.8 | 177.5 | 1,214.2 | 1,227.1 | 1.67 | -1.17 | -3.62 |
| 4,858.0 | 20.50 | 81.20 | 4,644.4 | 182.4 | 1,245.4 | 1,258.7 | 1.92 | 1.91 | 0.11 |
| 4,951.0 | 18.90 | 81.30 | 4,731.9 | 187.2 | 1,276.4 | 1,290.0 | 1.72 | -1.72 | 0.11 |
| 5,045.0 | 18.20 | 80.70 | 4,821.1 | 191.8 | 1,305.9 | 1,319.9 | 0.77 | -0.74 | -0.64 |
| 5,138.0 | 16.40 | 80.60 | 4,909.8 | 196.3 | 1,333.2 | 1,347.6 | 1.94 | -1.94 | -0.11 |
| 5,232.0 | 14.40 | 79.70 | 5,000.5 | 200.6 | 1,357.8 | 1,372.5 | 2.14 | -2.13 | -0.96 |
| 5,325.0 | 12.10 | 79.00 | 5,091.0 | 204.5 | 1,378.7 | 1,393.8 | 2.48 | -2.47 | -0.75 |
| 5,419.0 | 10.50 | 79.70 | 5,183.2 | 207.9 | 1,396.8 | 1,412.2 | 1.71 | -1.70 | 0.74 |
| 5,513.0 | 9.10 | 79.90 | 5,275.8 | 210.8 | 1,412.6 | 1,428.2 | 1.49 | -1.49 | 0.21 |
| 5,606.0 | 9.40 | 82.70 | 5,367.6 | 213.0 | 1,427.4 | 1,443.2 | 0.58 | 0.32 | 3.01 |
| 5,700.0 | 7.30 | 80.70 | 5,460.6 | 215.0 | 1,440.9 | 1,456.8 | 2.25 | -2.23 | -2.13 |
| 5,793.0 | 6.20 | 74.00 | 5,552.9 | 217.3 | 1,451.5 | 1,467.7 | 1.45 | -1.18 | -7.20 |
| 5,887.0 | 5.70 | 64.70 | 5,646.4 | 220.7 | 1,460.6 | 1,477.2 | 1.15 | -0.53 | -9.89 |
| 5,980.0 | 3.90 | 61.30 | 5,739.1 | 224.2 | 1,467.6 | 1,484.6 | 1.96 | -1.94 | -3.66 |
| 6,074.0 | 2.90 | 57.00 | 5,832.9 | 227.0 | 1,472.4 | 1,489.7 | 1.10 | -1.06 | -4.57 |
| 6,168.0 | 1.70 | 43.90 | 5,926.9 | 229.3 | 1,475.3 | 1,493.0 | 1.39 | -1.28 | -13.94 |
| 6,241.0 | 1.01 | 71.41 | 5,999.9 | 230.3 | 1,476.7 | 1,494.5 | 1.27 | -0.94 | 37.66 |
| TARGET BHL 1370'FSL, 100'FWL | | | | | | | | | |
| 6,261.0 | 0.90 | 85.20 | 6,019.8 | 230.4 | 1,477.0 | 1,494.8 | 1.27 | -0.55 | 69.10 |
| 6,355.0 | 0.70 | 73.20 | 6,113.8 | 230.6 | 1,478.3 | 1,496.1 | 0.28 | -0.21 | -12.77 |
| 6,448.0 | 0.70 | 69.00 | 6,206.8 | 231.0 | 1,479.4 | 1,497.2 | 0.06 | 0.00 | -4.52 |
| 6,573.0 | 0.50 | 60.80 | 6,331.8 | 231.5 | 1,480.6 | 1,498.5 | 0.17 | -0.16 | -6.56 |

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|---------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 6,698.0 | 0.50 | 44.80 | 6,456.8 | 232.2 | 1,481.4 | 1,499.4 | 0.11 | 0.00 | -12.80 |
| 6,823.0 | 0.50 | 40.60 | 6,581.8 | 233.0 | 1,482.2 | 1,500.3 | 0.03 | 0.00 | -3.36 |
| 6,948.0 | 0.60 | 47.60 | 6,706.8 | 233.8 | 1,483.0 | 1,501.2 | 0.10 | 0.08 | 5.60 |
| 7,072.0 | 0.70 | 44.50 | 6,830.8 | 234.8 | 1,484.0 | 1,502.4 | 0.09 | 0.08 | -2.50 |
| 7,132.0 | 0.84 | 51.89 | 6,890.8 | 235.3 | 1,484.6 | 1,503.1 | 0.28 | 0.23 | 12.33 |
| TARGET CIRCLE 1370'FSL, 100'FWL | | | | | | | | | |
| 7,197.0 | 1.00 | 57.50 | 6,955.8 | 235.9 | 1,485.5 | 1,504.0 | 0.28 | 0.25 | 8.62 |
| 7,322.0 | 1.50 | 66.10 | 7,080.7 | 237.2 | 1,487.9 | 1,506.6 | 0.43 | 0.40 | 6.88 |
| 7,447.0 | 1.10 | 50.30 | 7,205.7 | 238.6 | 1,490.3 | 1,509.2 | 0.43 | -0.32 | -12.64 |
| 7,571.0 | 0.70 | 9.30 | 7,329.7 | 240.1 | 1,491.3 | 1,510.4 | 0.59 | -0.32 | -33.06 |
| 7,577.0 | 0.70 | 12.80 | 7,335.7 | 240.2 | 1,491.4 | 1,510.4 | 0.71 | 0.00 | 58.33 |
| 7,622.0 | 0.70 | 14.30 | 7,380.7 | 240.7 | 1,491.5 | 1,510.6 | 0.04 | 0.00 | 3.33 |
| HARDLINE 100'W OF BHL | | | | | | | | | |

Checked By: _____ Approved By: _____ Date: _____