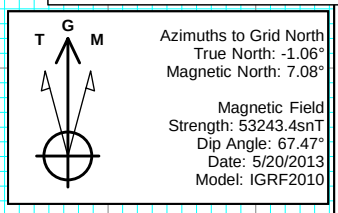
WHITING PETROLEUM CORPORATION

Project: Weld County, CO
Site: S21-T10N-R58W
Well: Razor #21A-2814B
Wellbore: HZ
Design: Plan #1

CATHEDRAL

SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | Target | Annotation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | | |
| 2 | 600.0 | 0.00 | 0.00 | 600.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | | KOP @ 600' MD |
| 3 | 800.0 | 4.00 | 176.70 | 799.8 | -7.0 | 0.4 | 2.00 | 176.70 | 7.0 | | EOB; 4° |
| 4 | 5392.8 | 4.00 | 176.70 | 5381.5 | -326.8 | 18.8 | 0.00 | 0.00 | 326.9 | | Start 11° Build |
| 5 | 6174.6 | 90.00 | 176.70 | 5866.0 | -845.6 | 48.8 | 11.00 | 0.00 | 845.9 | | LP @ 6174' MD |
| 6 | 6284.7 | 90.00 | 180.00 | 5866.0 | -955.5 | 51.9 | 3.00 | 90.00 | 955.9 | | EOT; 180° Az |
| 7 | 12756.2 | 90.00 | 180.00 | 5866.0 | -7427.0 | 51.8 | 0.00 | 0.00 | 7427.2 | 21A-2814B BHL | PBHL @ 12756' MD |




Azimuths to Grid North
True North: -1.06°
Magnetic North: 7.08°

Magnetic Field
Strength: 53243.4snT
Dip Angle: 67.47°
Date: 5/20/2013
Model: IGRF2010




Surface Hole Location
Razor #21A-2814B
X: 3452887.89
Y: 1549423.63

DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Easting |
|---|---|---|---|---|---|
| 21A-2814B BHL | 5866.0 | -7427.0 | 51.8 | 1541996.62 | 3452939.70 |

Plan #1
Razor #21A-2814B
WELL @ 4848.4ft (Original Well Elev)
Ground Elevation @ 4831.9
North American Datum 1983
Well Razor #21A-2814B, Grid North

| | | | |
|---|---|---|---|
| **Database:** | USA EDM 5000 Multi Users DB | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Company:** | Whiting Petroleum Corporation | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Project:** | Weld County, CO | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site:** | S21-T10N-R58W | **North Reference:** | Grid |
| **Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | HZ | | |
| **Design:** | Plan #1 | | |

**Project** Weld County, CO

| | | | |
|---|---|---|---|
| **Map System:** | US State Plane 1983 | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | North American Datum 1983 | | |
| **Map Zone:** | Colorado Northern Zone | | |

**Site** S21-T10N-R58W

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 1,549,497.72 ft | **Latitude:** | 40.830272 |
| **From:** | Lat/Long | **Easting:** | 3,452,853.58 ft | **Longitude:** | -103.863561 |
| **Position Uncertainty:** | 0.0 ft | **Slot Radius:** | 13.200 in | **Grid Convergence:** | 1.06 ° |

**Well** Razor #21A-2814B

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.0 ft | **Northing:** | 1,549,423.63 ft | **Latitude:** | 40.830067 |
| | **+E/-W** | 0.0 ft | **Easting:** | 3,452,887.89 ft | **Longitude:** | -103.863442 |
| **Position Uncertainty** | | 0.0 ft | **Wellhead Elevation:** | ft | **Ground Level:** | 4,831.9 ft |

**Wellbore** HZ

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2010 | 5/20/2013 | 8.14 | 67.47 | 53,243 |

**Design** Plan #1

**Audit Notes:**

| | | | | | |
|---|---|---|---|---|---|
| **Version:** | | **Phase:** | PLAN | **Tie On Depth:** | 0.0 |

| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
|---|---|---|---|---|
| | 0.0 | 0.0 | 0.0 | 179.60 |

**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 | |
| 600.0 | 0.00 | 0.00 | 600.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 800.0 | 4.00 | 176.70 | 799.8 | -7.0 | 0.4 | 2.00 | 2.00 | 0.00 | 176.70 | |
| 5,392.8 | 4.00 | 176.70 | 5,381.5 | -326.8 | 18.8 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,174.6 | 90.00 | 176.70 | 5,866.0 | -845.6 | 48.8 | 11.00 | 11.00 | 0.00 | 0.00 | |
| 6,284.7 | 90.00 | 180.00 | 5,866.0 | -955.5 | 51.9 | 3.00 | 0.00 | 3.00 | 90.00 | |
| 12,756.2 | 90.00 | 180.00 | 5,866.0 | -7,427.0 | 51.8 | 0.00 | 0.00 | 0.00 | 0.00 | 21A-2814B BHL |

| | | | |
|---|---|---|---|
| **Database:** | USA EDM 5000 Multi Users DB | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Company:** | Whiting Petroleum Corporation | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Project:** | Weld County, CO | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site:** | S21-T10N-R58W | **North Reference:** | Grid |
| **Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | HZ | | |
| **Design:** | Plan #1 | | |

**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) | Comments / Formations |
|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 100.0 | 0.00 | 0.00 | 100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 200.0 | 0.00 | 0.00 | 200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 300.0 | 0.00 | 0.00 | 300.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 400.0 | 0.00 | 0.00 | 400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 500.0 | 0.00 | 0.00 | 500.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 600.0 | 0.00 | 0.00 | 600.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | KOP @ 600' MD |
| 700.0 | 2.00 | 176.70 | 700.0 | -1.7 | 0.1 | 1.7 | 2.00 | 2.00 | |
| 800.0 | 4.00 | 176.70 | 799.8 | -7.0 | 0.4 | 7.0 | 2.00 | 2.00 | EOB; 4° |
| 900.0 | 4.00 | 176.70 | 899.6 | -13.9 | 0.8 | 13.9 | 0.00 | 0.00 | |
| 1,000.0 | 4.00 | 176.70 | 999.4 | -20.9 | 1.2 | 20.9 | 0.00 | 0.00 | |
| 1,100.0 | 4.00 | 176.70 | 1,099.1 | -27.9 | 1.6 | 27.9 | 0.00 | 0.00 | |
| 1,200.0 | 4.00 | 176.70 | 1,198.9 | -34.8 | 2.0 | 34.8 | 0.00 | 0.00 | |
| 1,300.0 | 4.00 | 176.70 | 1,298.6 | -41.8 | 2.4 | 41.8 | 0.00 | 0.00 | |
| 1,400.0 | 4.00 | 176.70 | 1,398.4 | -48.8 | 2.8 | 48.8 | 0.00 | 0.00 | |
| 1,500.0 | 4.00 | 176.70 | 1,498.1 | -55.7 | 3.2 | 55.7 | 0.00 | 0.00 | |
| 1,600.0 | 4.00 | 176.70 | 1,597.9 | -62.7 | 3.6 | 62.7 | 0.00 | 0.00 | |
| 1,700.0 | 4.00 | 176.70 | 1,697.6 | -69.6 | 4.0 | 69.7 | 0.00 | 0.00 | |
| 1,800.0 | 4.00 | 176.70 | 1,797.4 | -76.6 | 4.4 | 76.6 | 0.00 | 0.00 | |
| 1,900.0 | 4.00 | 176.70 | 1,897.2 | -83.6 | 4.8 | 83.6 | 0.00 | 0.00 | |
| 2,000.0 | 4.00 | 176.70 | 1,996.9 | -90.5 | 5.2 | 90.6 | 0.00 | 0.00 | |
| 2,100.0 | 4.00 | 176.70 | 2,096.7 | -97.5 | 5.6 | 97.5 | 0.00 | 0.00 | |
| 2,200.0 | 4.00 | 176.70 | 2,196.4 | -104.5 | 6.0 | 104.5 | 0.00 | 0.00 | |
| 2,300.0 | 4.00 | 176.70 | 2,296.2 | -111.4 | 6.4 | 111.5 | 0.00 | 0.00 | |
| 2,400.0 | 4.00 | 176.70 | 2,395.9 | -118.4 | 6.8 | 118.4 | 0.00 | 0.00 | |
| 2,500.0 | 4.00 | 176.70 | 2,495.7 | -125.4 | 7.2 | 125.4 | 0.00 | 0.00 | |
| 2,600.0 | 4.00 | 176.70 | 2,595.5 | -132.3 | 7.6 | 132.4 | 0.00 | 0.00 | |
| 2,700.0 | 4.00 | 176.70 | 2,695.2 | -139.3 | 8.0 | 139.3 | 0.00 | 0.00 | |
| 2,800.0 | 4.00 | 176.70 | 2,795.0 | -146.2 | 8.4 | 146.3 | 0.00 | 0.00 | |
| 2,900.0 | 4.00 | 176.70 | 2,894.7 | -153.2 | 8.8 | 153.3 | 0.00 | 0.00 | |
| 3,000.0 | 4.00 | 176.70 | 2,994.5 | -160.2 | 9.2 | 160.2 | 0.00 | 0.00 | |
| 3,100.0 | 4.00 | 176.70 | 3,094.2 | -167.1 | 9.6 | 167.2 | 0.00 | 0.00 | |
| 3,200.0 | 4.00 | 176.70 | 3,194.0 | -174.1 | 10.0 | 174.2 | 0.00 | 0.00 | |
| 3,300.0 | 4.00 | 176.70 | 3,293.7 | -181.1 | 10.4 | 181.1 | 0.00 | 0.00 | |
| 3,400.0 | 4.00 | 176.70 | 3,393.5 | -188.0 | 10.8 | 188.1 | 0.00 | 0.00 | |
| 3,500.0 | 4.00 | 176.70 | 3,493.3 | -195.0 | 11.2 | 195.1 | 0.00 | 0.00 | |
| 3,600.0 | 4.00 | 176.70 | 3,593.0 | -202.0 | 11.6 | 202.0 | 0.00 | 0.00 | |
| 3,700.0 | 4.00 | 176.70 | 3,692.8 | -208.9 | 12.0 | 209.0 | 0.00 | 0.00 | |
| 3,800.0 | 4.00 | 176.70 | 3,792.5 | -215.9 | 12.4 | 216.0 | 0.00 | 0.00 | |
| 3,900.0 | 4.00 | 176.70 | 3,892.3 | -222.9 | 12.8 | 222.9 | 0.00 | 0.00 | |
| 4,000.0 | 4.00 | 176.70 | 3,992.0 | -229.8 | 13.3 | 229.9 | 0.00 | 0.00 | |
| 4,100.0 | 4.00 | 176.70 | 4,091.8 | -236.8 | 13.7 | 236.9 | 0.00 | 0.00 | |
| 4,200.0 | 4.00 | 176.70 | 4,191.6 | -243.7 | 14.1 | 243.8 | 0.00 | 0.00 | |
| 4,300.0 | 4.00 | 176.70 | 4,291.3 | -250.7 | 14.5 | 250.8 | 0.00 | 0.00 | |
| 4,400.0 | 4.00 | 176.70 | 4,391.1 | -257.7 | 14.9 | 257.8 | 0.00 | 0.00 | |
| 4,500.0 | 4.00 | 176.70 | 4,490.8 | -264.6 | 15.3 | 264.7 | 0.00 | 0.00 | |
| 4,600.0 | 4.00 | 176.70 | 4,590.6 | -271.6 | 15.7 | 271.7 | 0.00 | 0.00 | |
| 4,700.0 | 4.00 | 176.70 | 4,690.3 | -278.6 | 16.1 | 278.7 | 0.00 | 0.00 | |
| 4,800.0 | 4.00 | 176.70 | 4,790.1 | -285.5 | 16.5 | 285.6 | 0.00 | 0.00 | |
| 4,900.0 | 4.00 | 176.70 | 4,889.9 | -292.5 | 16.9 | 292.6 | 0.00 | 0.00 | |
| 5,000.0 | 4.00 | 176.70 | 4,989.6 | -299.5 | 17.3 | 299.6 | 0.00 | 0.00 | |
| 5,100.0 | 4.00 | 176.70 | 5,089.4 | -306.4 | 17.7 | 306.5 | 0.00 | 0.00 | |

| | | | |
|---|---|---|---|
| **Database:** | USA EDM 5000 Multi Users DB | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Company:** | Whiting Petroleum Corporation | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Project:** | Weld County, CO | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site:** | S21-T10N-R58W | **North Reference:** | Grid |
| **Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | HZ | | |
| **Design:** | Plan #1 | | |

**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) | Comments / Formations |
|---|---|---|---|---|---|---|---|---|---|
| 5,200.0 | 4.00 | 176.70 | 5,189.1 | -313.4 | 18.1 | 313.5 | 0.00 | 0.00 | |
| 5,300.0 | 4.00 | 176.70 | 5,288.9 | -320.4 | 18.5 | 320.5 | 0.00 | 0.00 | |
| 5,392.8 | 4.00 | 176.70 | 5,381.5 | -326.8 | 18.8 | 326.9 | 0.00 | 0.00 | Start 11° Build |
| 5,400.0 | 4.79 | 176.70 | 5,388.6 | -327.4 | 18.9 | 327.5 | 11.00 | 11.00 | |
| 5,500.0 | 15.79 | 176.70 | 5,486.9 | -345.2 | 19.9 | 345.3 | 11.00 | 11.00 | |
| 5,600.0 | 26.79 | 176.70 | 5,579.9 | -381.4 | 22.0 | 381.5 | 11.00 | 11.00 | |
| 5,700.0 | 37.79 | 176.70 | 5,664.3 | -434.6 | 25.1 | 434.8 | 11.00 | 11.00 | |
| 5,779.2 | 46.51 | 176.70 | 5,723.0 | -487.7 | 28.1 | 487.8 | 11.00 | 11.00 | Top Niobrara |
| 5,800.0 | 48.79 | 176.70 | 5,737.0 | -503.0 | 29.0 | 503.2 | 11.00 | 11.00 | |
| 5,900.0 | 59.79 | 176.70 | 5,795.3 | -583.9 | 33.7 | 584.1 | 11.00 | 11.00 | |
| 6,000.0 | 70.79 | 176.70 | 5,837.0 | -674.5 | 38.9 | 674.7 | 11.00 | 11.00 | |
| 6,100.0 | 81.79 | 176.70 | 5,860.7 | -771.3 | 44.5 | 771.6 | 11.00 | 11.00 | |
| 6,174.6 | 90.00 | 176.70 | 5,866.0 | -845.5 | 48.8 | 845.8 | 11.00 | 11.00 | LP @ 6174' MD - 7" |
| 6,200.0 | 90.00 | 177.46 | 5,866.0 | -870.9 | 50.0 | 871.2 | 3.00 | 0.01 | |
| 6,284.7 | 90.00 | 180.00 | 5,866.0 | -955.5 | 51.9 | 955.9 | 3.00 | 0.00 | EOT; 180° Az |
| 6,300.0 | 90.00 | 180.00 | 5,866.0 | -970.9 | 51.9 | 971.2 | 0.00 | 0.00 | |
| 6,400.0 | 90.00 | 180.00 | 5,866.0 | -1,070.9 | 51.9 | 1,071.2 | 0.00 | 0.00 | |
| 6,500.0 | 90.00 | 180.00 | 5,866.0 | -1,170.9 | 51.9 | 1,171.2 | 0.00 | 0.00 | |
| 6,600.0 | 90.00 | 180.00 | 5,866.0 | -1,270.9 | 51.9 | 1,271.2 | 0.00 | 0.00 | |
| 6,700.0 | 90.00 | 180.00 | 5,866.0 | -1,370.9 | 51.9 | 1,371.2 | 0.00 | 0.00 | |
| 6,800.0 | 90.00 | 180.00 | 5,866.0 | -1,470.9 | 51.9 | 1,471.2 | 0.00 | 0.00 | |
| 6,900.0 | 90.00 | 180.00 | 5,866.0 | -1,570.9 | 51.9 | 1,571.2 | 0.00 | 0.00 | |
| 7,000.0 | 90.00 | 180.00 | 5,866.0 | -1,670.9 | 51.9 | 1,671.2 | 0.00 | 0.00 | |
| 7,100.0 | 90.00 | 180.00 | 5,866.0 | -1,770.9 | 51.9 | 1,771.2 | 0.00 | 0.00 | |
| 7,200.0 | 90.00 | 180.00 | 5,866.0 | -1,870.9 | 51.9 | 1,871.2 | 0.00 | 0.00 | |
| 7,300.0 | 90.00 | 180.00 | 5,866.0 | -1,970.9 | 51.9 | 1,971.2 | 0.00 | 0.00 | |
| 7,400.0 | 90.00 | 180.00 | 5,866.0 | -2,070.9 | 51.9 | 2,071.2 | 0.00 | 0.00 | |
| 7,500.0 | 90.00 | 180.00 | 5,866.0 | -2,170.9 | 51.9 | 2,171.2 | 0.00 | 0.00 | |
| 7,600.0 | 90.00 | 180.00 | 5,866.0 | -2,270.9 | 51.9 | 2,271.2 | 0.00 | 0.00 | |
| 7,700.0 | 90.00 | 180.00 | 5,866.0 | -2,370.9 | 51.9 | 2,371.2 | 0.00 | 0.00 | |
| 7,800.0 | 90.00 | 180.00 | 5,866.0 | -2,470.9 | 51.9 | 2,471.2 | 0.00 | 0.00 | |
| 7,900.0 | 90.00 | 180.00 | 5,866.0 | -2,570.9 | 51.9 | 2,571.2 | 0.00 | 0.00 | |
| 8,000.0 | 90.00 | 180.00 | 5,866.0 | -2,670.9 | 51.9 | 2,671.2 | 0.00 | 0.00 | |
| 8,100.0 | 90.00 | 180.00 | 5,866.0 | -2,770.9 | 51.9 | 2,771.2 | 0.00 | 0.00 | |
| 8,200.0 | 90.00 | 180.00 | 5,866.0 | -2,870.9 | 51.9 | 2,871.2 | 0.00 | 0.00 | |
| 8,300.0 | 90.00 | 180.00 | 5,866.0 | -2,970.9 | 51.9 | 2,971.2 | 0.00 | 0.00 | |
| 8,400.0 | 90.00 | 180.00 | 5,866.0 | -3,070.9 | 51.9 | 3,071.2 | 0.00 | 0.00 | |
| 8,500.0 | 90.00 | 180.00 | 5,866.0 | -3,170.9 | 51.9 | 3,171.1 | 0.00 | 0.00 | |
| 8,600.0 | 90.00 | 180.00 | 5,866.0 | -3,270.9 | 51.9 | 3,271.1 | 0.00 | 0.00 | |
| 8,700.0 | 90.00 | 180.00 | 5,866.0 | -3,370.9 | 51.9 | 3,371.1 | 0.00 | 0.00 | |
| 8,800.0 | 90.00 | 180.00 | 5,866.0 | -3,470.9 | 51.9 | 3,471.1 | 0.00 | 0.00 | |
| 8,900.0 | 90.00 | 180.00 | 5,866.0 | -3,570.9 | 51.9 | 3,571.1 | 0.00 | 0.00 | |
| 9,000.0 | 90.00 | 180.00 | 5,866.0 | -3,670.9 | 51.9 | 3,671.1 | 0.00 | 0.00 | |
| 9,100.0 | 90.00 | 180.00 | 5,866.0 | -3,770.9 | 51.9 | 3,771.1 | 0.00 | 0.00 | |
| 9,200.0 | 90.00 | 180.00 | 5,866.0 | -3,870.9 | 51.9 | 3,871.1 | 0.00 | 0.00 | |
| 9,300.0 | 90.00 | 180.00 | 5,866.0 | -3,970.9 | 51.9 | 3,971.1 | 0.00 | 0.00 | |
| 9,400.0 | 90.00 | 180.00 | 5,866.0 | -4,070.9 | 51.9 | 4,071.1 | 0.00 | 0.00 | |
| 9,500.0 | 90.00 | 180.00 | 5,866.0 | -4,170.9 | 51.9 | 4,171.1 | 0.00 | 0.00 | |
| 9,600.0 | 90.00 | 180.00 | 5,866.0 | -4,270.9 | 51.9 | 4,271.1 | 0.00 | 0.00 | |
| 9,700.0 | 90.00 | 180.00 | 5,866.0 | -4,370.9 | 51.9 | 4,371.1 | 0.00 | 0.00 | |
| 9,800.0 | 90.00 | 180.00 | 5,866.0 | -4,470.9 | 51.9 | 4,471.1 | 0.00 | 0.00 | |
| 9,900.0 | 90.00 | 180.00 | 5,866.0 | -4,570.9 | 51.9 | 4,571.1 | 0.00 | 0.00 | |

| | | | |
|---|---|---|---|
| **Database:** | USA EDM 5000 Multi Users DB | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Company:** | Whiting Petroleum Corporation | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Project:** | Weld County, CO | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site:** | S21-T10N-R58W | **North Reference:** | Grid |
| **Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | HZ | | |
| **Design:** | Plan #1 | | |

**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) | Comments / Formations |
|---|---|---|---|---|---|---|---|---|---|
| 10,000.0 | 90.00 | 180.00 | 5,866.0 | -4,670.9 | 51.9 | 4,671.1 | 0.00 | 0.00 | |
| 10,100.0 | 90.00 | 180.00 | 5,866.0 | -4,770.9 | 51.9 | 4,771.1 | 0.00 | 0.00 | |
| 10,200.0 | 90.00 | 180.00 | 5,866.0 | -4,870.9 | 51.9 | 4,871.1 | 0.00 | 0.00 | |
| 10,300.0 | 90.00 | 180.00 | 5,866.0 | -4,970.9 | 51.9 | 4,971.1 | 0.00 | 0.00 | |
| 10,400.0 | 90.00 | 180.00 | 5,866.0 | -5,070.9 | 51.8 | 5,071.1 | 0.00 | 0.00 | |
| 10,500.0 | 90.00 | 180.00 | 5,866.0 | -5,170.9 | 51.8 | 5,171.1 | 0.00 | 0.00 | |
| 10,600.0 | 90.00 | 180.00 | 5,866.0 | -5,270.9 | 51.8 | 5,271.1 | 0.00 | 0.00 | |
| 10,700.0 | 90.00 | 180.00 | 5,866.0 | -5,370.9 | 51.8 | 5,371.1 | 0.00 | 0.00 | |
| 10,800.0 | 90.00 | 180.00 | 5,866.0 | -5,470.9 | 51.8 | 5,471.1 | 0.00 | 0.00 | |
| 10,900.0 | 90.00 | 180.00 | 5,866.0 | -5,570.9 | 51.8 | 5,571.1 | 0.00 | 0.00 | |
| 11,000.0 | 90.00 | 180.00 | 5,866.0 | -5,670.9 | 51.8 | 5,671.1 | 0.00 | 0.00 | |
| 11,100.0 | 90.00 | 180.00 | 5,866.0 | -5,770.9 | 51.8 | 5,771.1 | 0.00 | 0.00 | |
| 11,200.0 | 90.00 | 180.00 | 5,866.0 | -5,870.9 | 51.8 | 5,871.1 | 0.00 | 0.00 | |
| 11,300.0 | 90.00 | 180.00 | 5,866.0 | -5,970.9 | 51.8 | 5,971.1 | 0.00 | 0.00 | |
| 11,400.0 | 90.00 | 180.00 | 5,866.0 | -6,070.9 | 51.8 | 6,071.1 | 0.00 | 0.00 | |
| 11,500.0 | 90.00 | 180.00 | 5,866.0 | -6,170.9 | 51.8 | 6,171.1 | 0.00 | 0.00 | |
| 11,600.0 | 90.00 | 180.00 | 5,866.0 | -6,270.9 | 51.8 | 6,271.1 | 0.00 | 0.00 | |
| 11,700.0 | 90.00 | 180.00 | 5,866.0 | -6,370.9 | 51.8 | 6,371.1 | 0.00 | 0.00 | |
| 11,800.0 | 90.00 | 180.00 | 5,866.0 | -6,470.9 | 51.8 | 6,471.1 | 0.00 | 0.00 | |
| 11,900.0 | 90.00 | 180.00 | 5,866.0 | -6,570.9 | 51.8 | 6,571.1 | 0.00 | 0.00 | |
| 12,000.0 | 90.00 | 180.00 | 5,866.0 | -6,670.9 | 51.8 | 6,671.1 | 0.00 | 0.00 | |
| 12,100.0 | 90.00 | 180.00 | 5,866.0 | -6,770.9 | 51.8 | 6,771.1 | 0.00 | 0.00 | |
| 12,200.0 | 90.00 | 180.00 | 5,866.0 | -6,870.9 | 51.8 | 6,871.1 | 0.00 | 0.00 | |
| 12,300.0 | 90.00 | 180.00 | 5,866.0 | -6,970.9 | 51.8 | 6,971.1 | 0.00 | 0.00 | |
| 12,400.0 | 90.00 | 180.00 | 5,866.0 | -7,070.9 | 51.8 | 7,071.1 | 0.00 | 0.00 | |
| 12,500.0 | 90.00 | 180.00 | 5,866.0 | -7,170.9 | 51.8 | 7,171.1 | 0.00 | 0.00 | |
| 12,600.0 | 90.00 | 180.00 | 5,866.0 | -7,270.9 | 51.8 | 7,271.0 | 0.00 | 0.00 | |
| 12,700.0 | 90.00 | 180.00 | 5,866.0 | -7,370.9 | 51.8 | 7,371.0 | 0.00 | 0.00 | |
| 12,756.2 | 90.00 | 180.00 | 5,866.0 | -7,427.0 | 51.8 | 7,427.2 | 0.00 | 0.00 | PBHL @ 12756' MD |

**Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| 21A-2814B BHL<br>- plan hits target center<br>- Point | 0.00 | 0.00 | 5,866.0 | -7,427.0 | 51.8 | 1,541,996.62 | 3,452,939.70 | 40.809683 | -103.863750 |

**Casing Points**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (in) | Hole Diameter (in) |
|---|---|---|---|---|
| 6,174.6 | 5,866.0 | 7" | 0.000 | 0.000 |

| | | | |
|---|---|---|---|
| **Database:** | USA EDM 5000 Multi Users DB | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Company:** | Whiting Petroleum Corporation | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Project:** | Weld County, CO | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site:** | S21-T10N-R58W | **North Reference:** | Grid |
| **Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | HZ | | |
| **Design:** | Plan #1 | | |

**Formations**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 5,779.2 | 5,723.0 | Top Niobrara | | 0.00 | |

**Plan Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 600.0 | 600.0 | 0.0 | 0.0 | KOP @ 600' MD |
| 800.0 | 799.8 | -7.0 | 0.4 | EOB; 4° |
| 5,392.8 | 5,381.5 | -326.8 | 18.8 | Start 11° Build |
| 6,174.6 | 5,866.0 | -845.6 | 48.8 | LP @ 6174' MD |
| 6,284.7 | 5,866.0 | -955.5 | 51.9 | EOT; 180° Az |
| 12,756.2 | 5,866.0 | -7,427.0 | 51.8 | PBHL @ 12756' MD |

WHITING WHITING PETROLEUM CORPORATION

# Whiting Petroleum Corporation

**Weld County, CO**
**S21-T10N-R58W**
**Razor #21A-2814B**
**HZ**
**Plan #1**

# Anticollision Report

**23 May, 2013**

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

| | |
|---|---|
| **Reference** | Plan #1 |

| | | | |
|---|---|---|---|
| **Filter type:** | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| **Interpolation Method:** | Stations | **Error Model:** | Systematic Ellipse |
| **Depth Range:** | Unlimited | **Scan Method:** | Closest Approach 3D |
| **Results Limited by:** | Maximum center-center distance of 500.0ft | **Error Surface:** | Elliptical Conic |
| **Warning Levels Evaluated at:** | 2.00 **Sigma** | | |

**Survey Tool Program** **Date** 5/22/2013

| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
|---|---|---|---|---|
| 0.0 | 12,756.2 | Plan #1 (HZ) | ISCWSA MWD | MWD - ISCWSA |

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Summary**

| Site Name<br>Offset Well - Wellbore - Design | Reference Measured Depth (ft) | Offset Measured Depth (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|
| S21-T10N-R58W | | | | | | |
| Fregeau 1 (Existing) - Existing - ASSUMED VERTICAL | | | | | | Out of range |
| Fregeau 2 (Existing) - Existing - ASSUMED VERTICAL | | | | | | Out of range |
| Razor #21A-0913A - HZ - Plan #1 | 500.0 | 500.0 | 74.7 | 72.7 | 37.614 | CC, ES |
| Razor #21A-0913A - HZ - Plan #1 | 800.0 | 794.3 | 93.8 | 90.6 | 28.664 | SF |
| Razor #21A-0914B - HZ - Plan #1 | 600.0 | 600.0 | 32.9 | 30.5 | 13.523 | CC |
| Razor #21A-0914B - HZ - Plan #1 | 700.0 | 700.0 | 33.0 | 30.2 | 11.569 | ES |
| Razor #21A-0914B - HZ - Plan #1 | 800.0 | 799.2 | 34.8 | 31.5 | 10.670 | SF |
| Razor #21A-0915A - HZ - Plan #1 | 600.0 | 600.0 | 99.8 | 97.3 | 40.960 | CC, ES |
| Razor #21A-0915A - HZ - Plan #1 | 1,300.0 | 1,290.2 | 150.4 | 145.0 | 27.744 | SF |
| Razor #21A-0916B - HZ - Plan #1 | 686.7 | 686.7 | 33.2 | 30.4 | 11.849 | CC |
| Razor #21A-0916B - HZ - Plan #1 | 700.0 | 700.0 | 33.2 | 30.3 | 11.617 | ES |
| Razor #21A-0916B - HZ - Plan #1 | 1,100.0 | 1,099.1 | 42.5 | 38.0 | 9.317 | SF |
| Razor #21A-2813A - HZ - Plan #1 | 600.0 | 600.0 | 81.6 | 79.2 | 33.524 | CC |
| Razor #21A-2813A - HZ - Plan #1 | 12,756.2 | 12,815.2 | 341.2 | 62.8 | 1.226 | Level 2, ES, SF |
| Razor #21A-2815A - HZ - Plan #1 | 764.4 | 768.5 | 77.3 | 74.3 | 25.354 | CC |
| Razor #21A-2815A - HZ - Plan #1 | 12,756.2 | 12,784.8 | 341.3 | 62.2 | 1.223 | Level 2, ES, SF |
| Razor #21A-2816B - HZ - Plan #1 | 893.5 | 893.1 | 65.7 | 62.0 | 17.927 | CC |
| Razor #21A-2816B - HZ - Plan #1 | 1,000.0 | 999.4 | 66.1 | 62.0 | 15.993 | ES |
| Razor #21A-2816B - HZ - Plan #1 | 5,400.0 | 5,395.5 | 202.1 | 175.9 | 7.699 | SF |
| Razor #21B-0909A - HZ - Plan #1 | | | | | | Out of range |
| Razor #21B-0910B - HZ - Plan #1 | | | | | | Out of range |
| Razor #21B-0911A - HZ - Plan #1 | | | | | | Out of range |
| Razor #21B-0912B - HZ - Plan #1 | | | | | | Out of range |
| Razor #21B-2809A - HZ - Plan #1 | | | | | | Out of range |
| Razor #21B-2810B - HZ - Plan #1 | | | | | | Out of range |
| Razor #21B-2811A - HZ - Plan #1 | | | | | | Out of range |
| Razor #21B-2812B - HZ - Plan #1 | | | | | | Out of range |
| Razor #21C-0905A - HZ - Plan #1 | | | | | | Out of range |
| Razor #21C-0906B - HZ - Plan #1 | | | | | | Out of range |
| Razor #21C-0907A - HZ - Plan #1 | | | | | | Out of range |
| Razor #21C-0908B - HZ - Plan #1 | | | | | | Out of range |
| Razor #21C-2805A - HZ - Plan #1 | | | | | | Out of range |
| Razor #21C-2806B - HZ - Plan #1 | | | | | | Out of range |
| Razor #21C-2807A - HZ - Plan #1 | | | | | | Out of range |
| Razor #21C-2808B - HZ - Plan #1 | | | | | | Out of range |
| Razor #21D-0901A - HZ - Plan #1 | | | | | | Out of range |
| Razor #21D-0902B - HZ - Plan #1 | | | | | | Out of range |
| Razor #21D-0903A - HZ - Plan #1 | | | | | | Out of range |
| Razor #21D-0904B - HZ - Plan #1 | | | | | | Out of range |
| Razor #21D-2801A - HZ - Plan #1 | | | | | | Out of range |
| Razor #21D-2802B - HZ - Plan #1 | | | | | | Out of range |
| Razor #21D-2803A - HZ - Plan #1 | | | | | | Out of range |
| Razor #21D-2804B - HZ - Plan #1 | | | | | | Out of range |

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** S21-T10N-R58W - Razor #21A-0913A - HZ - Plan #1

**Offset Site Error:** 0.0 ft

**Survey Program:** 0-ISCWSA MWD

**Offset Well Error:** 0.0 ft

| Reference Measured Depth (ft) | Reference Vertical Depth (ft) | Offset Measured Depth (ft) | Offset Vertical Depth (ft) | Semi Major Axis Reference (ft) | Semi Major Axis Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -1.06 | 74.7 | -1.4 | 74.7 | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -1.06 | 74.7 | -1.4 | 74.7 | 74.5 | 0.19 | 397.985 | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -1.06 | 74.7 | -1.4 | 74.7 | 74.1 | 0.64 | 117.220 | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | -1.06 | 74.7 | -1.4 | 74.7 | 73.6 | 1.09 | 68.732 | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -1.06 | 74.7 | -1.4 | 74.7 | 73.2 | 1.54 | 48.620 | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | -1.06 | 74.7 | -1.4 | 74.7 | 72.7 | 1.99 | 37.614 | CC, ES |
| 600.0 | 600.0 | 597.8 | 597.7 | 1.2 | 1.2 | -1.69 | 76.1 | -2.2 | 76.2 | 73.7 | 2.43 | 31.349 | |
| 700.0 | 700.0 | 695.2 | 695.0 | 1.4 | 1.4 | 179.86 | 80.4 | -4.8 | 82.4 | 79.5 | 2.86 | 28.841 | |
| 800.0 | 799.8 | 794.3 | 793.9 | 1.6 | 1.7 | 177.88 | 86.3 | -8.4 | 93.8 | 90.6 | 3.27 | 28.664 | SF |
| 900.0 | 899.6 | 893.4 | 892.8 | 1.8 | 1.9 | 176.39 | 92.2 | -12.0 | 107.1 | 103.4 | 3.69 | 29.043 | |
| 1,000.0 | 999.4 | 992.5 | 991.6 | 2.0 | 2.1 | 175.23 | 98.1 | -15.6 | 120.4 | 116.3 | 4.11 | 29.291 | |
| 1,100.0 | 1,099.1 | 1,091.6 | 1,090.5 | 2.2 | 2.4 | 174.30 | 104.0 | -19.2 | 133.8 | 129.2 | 4.54 | 29.454 | |
| 1,200.0 | 1,198.9 | 1,190.7 | 1,189.3 | 2.5 | 2.6 | 173.54 | 109.9 | -22.8 | 147.1 | 142.2 | 4.98 | 29.563 | |
| 1,300.0 | 1,298.6 | 1,289.8 | 1,288.2 | 2.7 | 2.9 | 172.90 | 115.8 | -26.4 | 160.5 | 155.1 | 5.42 | 29.636 | |
| 1,400.0 | 1,398.4 | 1,388.8 | 1,387.0 | 3.0 | 3.1 | 172.37 | 121.7 | -30.0 | 174.0 | 168.1 | 5.86 | 29.685 | |
| 1,500.0 | 1,498.1 | 1,487.9 | 1,485.8 | 3.2 | 3.4 | 171.91 | 127.6 | -33.5 | 187.4 | 181.1 | 6.31 | 29.716 | |
| 1,600.0 | 1,597.9 | 1,587.0 | 1,584.7 | 3.5 | 3.6 | 171.51 | 133.5 | -37.1 | 200.8 | 194.1 | 6.75 | 29.736 | |
| 1,700.0 | 1,697.6 | 1,686.1 | 1,683.5 | 3.7 | 3.9 | 171.16 | 139.4 | -40.7 | 214.3 | 207.1 | 7.20 | 29.748 | |
| 1,800.0 | 1,797.4 | 1,785.2 | 1,782.4 | 4.0 | 4.1 | 170.85 | 145.3 | -44.3 | 227.7 | 220.1 | 7.65 | 29.754 | |
| 1,900.0 | 1,897.2 | 1,884.3 | 1,881.2 | 4.2 | 4.4 | 170.58 | 151.2 | -47.9 | 241.2 | 233.1 | 8.11 | 29.756 | |
| 2,000.0 | 1,996.9 | 1,983.3 | 1,980.1 | 4.5 | 4.6 | 170.34 | 157.2 | -51.5 | 254.7 | 246.1 | 8.56 | 29.755 | |
| 2,100.0 | 2,096.7 | 2,082.4 | 2,078.9 | 4.7 | 4.9 | 170.12 | 163.1 | -55.1 | 268.1 | 259.1 | 9.01 | 29.752 | |
| 2,200.0 | 2,196.4 | 2,181.5 | 2,177.7 | 5.0 | 5.1 | 169.92 | 169.0 | -58.7 | 281.6 | 272.1 | 9.47 | 29.747 | |
| 2,300.0 | 2,296.2 | 2,280.6 | 2,276.6 | 5.3 | 5.4 | 169.74 | 174.9 | -62.2 | 295.1 | 285.2 | 9.92 | 29.741 | |
| 2,400.0 | 2,395.9 | 2,379.7 | 2,375.4 | 5.5 | 5.7 | 169.58 | 180.8 | -65.8 | 308.6 | 298.2 | 10.38 | 29.734 | |
| 2,500.0 | 2,495.7 | 2,478.8 | 2,474.3 | 5.8 | 5.9 | 169.42 | 186.7 | -69.4 | 322.0 | 311.2 | 10.83 | 29.727 | |
| 2,600.0 | 2,595.5 | 2,577.8 | 2,573.1 | 6.0 | 6.2 | 169.29 | 192.6 | -73.0 | 335.5 | 324.2 | 11.29 | 29.720 | |
| 2,700.0 | 2,695.2 | 2,676.9 | 2,672.0 | 6.3 | 6.4 | 169.16 | 198.5 | -76.6 | 349.0 | 337.3 | 11.75 | 29.712 | |
| 2,800.0 | 2,795.0 | 2,776.0 | 2,770.8 | 6.6 | 6.7 | 169.04 | 204.4 | -80.2 | 362.5 | 350.3 | 12.20 | 29.704 | |
| 2,900.0 | 2,894.7 | 2,875.1 | 2,869.6 | 6.8 | 6.9 | 168.93 | 210.3 | -83.8 | 376.0 | 363.3 | 12.66 | 29.697 | |
| 3,000.0 | 2,994.5 | 2,974.2 | 2,968.5 | 7.1 | 7.2 | 168.83 | 216.2 | -87.4 | 389.5 | 376.4 | 13.12 | 29.689 | |
| 3,100.0 | 3,094.2 | 3,073.3 | 3,067.3 | 7.3 | 7.4 | 168.73 | 222.1 | -91.0 | 403.0 | 389.4 | 13.58 | 29.682 | |
| 3,200.0 | 3,194.0 | 3,172.4 | 3,166.2 | 7.6 | 7.7 | 168.64 | 228.0 | -94.5 | 416.5 | 402.4 | 14.03 | 29.674 | |
| 3,300.0 | 3,293.8 | 3,271.4 | 3,265.0 | 7.9 | 7.9 | 168.56 | 233.9 | -98.1 | 429.9 | 415.5 | 14.49 | 29.667 | |
| 3,400.0 | 3,393.5 | 3,370.5 | 3,363.9 | 8.1 | 8.2 | 168.48 | 239.9 | -101.7 | 443.4 | 428.5 | 14.95 | 29.660 | |
| 3,500.0 | 3,493.3 | 3,469.6 | 3,462.7 | 8.4 | 8.5 | 168.41 | 245.8 | -105.3 | 456.9 | 441.5 | 15.41 | 29.653 | |
| 3,600.0 | 3,593.0 | 3,568.7 | 3,561.5 | 8.7 | 8.7 | 168.34 | 251.7 | -108.9 | 470.4 | 454.6 | 15.87 | 29.646 | |
| 3,700.0 | 3,692.8 | 3,667.8 | 3,660.4 | 8.9 | 9.0 | 168.27 | 257.6 | -112.5 | 483.9 | 467.6 | 16.33 | 29.639 | |
| 3,800.0 | 3,792.5 | 3,766.9 | 3,759.2 | 9.2 | 9.2 | 168.21 | 263.5 | -116.1 | 497.4 | 480.6 | 16.79 | 29.633 | |

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** S21-T10N-R58W - Razor #21A-0914B - HZ - Plan #1

**Offset Site Error:** 0.0 ft

**Survey Program:** 0-ISCWSA MWD

**Offset Well Error:** 0.0 ft

| Reference Measured Depth (ft) | Reference Vertical Depth (ft) | Offset Measured Depth (ft) | Offset Vertical Depth (ft) | Semi Major Axis Reference (ft) | Semi Major Axis Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -91.04 | -0.6 | -32.9 | 32.9 | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -91.04 | -0.6 | -32.9 | 32.9 | 32.7 | 0.19 | 175.471 | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -91.04 | -0.6 | -32.9 | 32.9 | 32.3 | 0.64 | 51.682 | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | -91.04 | -0.6 | -32.9 | 32.9 | 31.8 | 1.09 | 30.304 | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -91.04 | -0.6 | -32.9 | 32.9 | 31.4 | 1.54 | 21.437 | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | -91.04 | -0.6 | -32.9 | 32.9 | 30.9 | 1.99 | 16.584 | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | -91.04 | -0.6 | -32.9 | 32.9 | 30.5 | 2.44 | 13.523 | CC |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.4 | 1.4 | 95.28 | -0.6 | -32.9 | 33.0 | 30.2 | 2.86 | 11.569 | ES |
| 800.0 | 799.8 | 799.2 | 799.2 | 1.6 | 1.7 | 106.49 | 1.0 | -33.5 | 34.8 | 31.5 | 3.26 | 10.670 | SF |
| 900.0 | 899.6 | 897.7 | 897.5 | 1.8 | 1.9 | 121.99 | 5.9 | -35.1 | 41.0 | 37.3 | 3.69 | 11.126 | |
| 1,000.0 | 999.4 | 996.7 | 996.3 | 2.0 | 2.1 | 134.02 | 12.4 | -37.2 | 51.0 | 46.8 | 4.12 | 12.364 | |
| 1,100.0 | 1,099.1 | 1,095.7 | 1,095.1 | 2.2 | 2.4 | 141.92 | 19.0 | -39.4 | 62.4 | 57.8 | 4.55 | 13.696 | |
| 1,200.0 | 1,198.9 | 1,194.8 | 1,193.9 | 2.5 | 2.6 | 147.32 | 25.6 | -41.5 | 74.6 | 69.6 | 4.99 | 14.953 | |
| 1,300.0 | 1,298.6 | 1,293.8 | 1,292.7 | 2.7 | 2.8 | 151.18 | 32.1 | -43.7 | 87.3 | 81.9 | 5.43 | 16.087 | |
| 1,400.0 | 1,398.4 | 1,392.9 | 1,391.5 | 3.0 | 3.1 | 154.05 | 38.7 | -45.8 | 100.3 | 94.4 | 5.87 | 17.095 | |
| 1,500.0 | 1,498.1 | 1,491.9 | 1,490.3 | 3.2 | 3.3 | 156.26 | 45.3 | -48.0 | 113.5 | 107.2 | 6.31 | 17.986 | |
| 1,600.0 | 1,597.9 | 1,591.0 | 1,589.1 | 3.5 | 3.6 | 158.01 | 51.8 | -50.1 | 126.8 | 120.0 | 6.75 | 18.775 | |
| 1,700.0 | 1,697.6 | 1,690.0 | 1,687.9 | 3.7 | 3.8 | 159.43 | 58.4 | -52.3 | 140.2 | 133.0 | 7.20 | 19.476 | |
| 1,800.0 | 1,797.4 | 1,789.0 | 1,786.7 | 4.0 | 4.1 | 160.60 | 65.0 | -54.4 | 153.7 | 146.0 | 7.65 | 20.101 | |
| 1,900.0 | 1,897.2 | 1,888.1 | 1,885.5 | 4.2 | 4.3 | 161.58 | 71.5 | -56.6 | 167.2 | 159.1 | 8.09 | 20.660 | |
| 2,000.0 | 1,996.9 | 1,987.1 | 1,984.3 | 4.5 | 4.6 | 162.41 | 78.1 | -58.7 | 180.8 | 172.2 | 8.54 | 21.164 | |
| 2,100.0 | 2,096.7 | 2,086.2 | 2,083.1 | 4.7 | 4.8 | 163.13 | 84.7 | -60.9 | 194.4 | 185.4 | 8.99 | 21.618 | |
| 2,200.0 | 2,196.4 | 2,185.2 | 2,181.9 | 5.0 | 5.1 | 163.75 | 91.2 | -63.0 | 208.0 | 198.6 | 9.44 | 22.030 | |
| 2,300.0 | 2,296.2 | 2,284.3 | 2,280.7 | 5.3 | 5.3 | 164.29 | 97.8 | -65.2 | 221.7 | 211.8 | 9.89 | 22.405 | |
| 2,400.0 | 2,395.9 | 2,383.3 | 2,379.5 | 5.5 | 5.6 | 164.78 | 104.4 | -67.3 | 235.3 | 225.0 | 10.35 | 22.748 | |
| 2,500.0 | 2,495.7 | 2,482.3 | 2,478.3 | 5.8 | 5.8 | 165.21 | 110.9 | -69.5 | 249.0 | 238.2 | 10.80 | 23.063 | |
| 2,600.0 | 2,595.5 | 2,581.4 | 2,577.1 | 6.0 | 6.1 | 165.59 | 117.5 | -71.6 | 262.7 | 251.5 | 11.25 | 23.353 | |
| 2,700.0 | 2,695.2 | 2,680.4 | 2,675.9 | 6.3 | 6.3 | 165.94 | 124.1 | -73.8 | 276.4 | 264.7 | 11.70 | 23.620 | |
| 2,800.0 | 2,795.0 | 2,779.5 | 2,774.7 | 6.6 | 6.6 | 166.25 | 130.6 | -75.9 | 290.1 | 278.0 | 12.16 | 23.868 | |
| 2,900.0 | 2,894.7 | 2,878.5 | 2,873.5 | 6.8 | 6.8 | 166.54 | 137.2 | -78.1 | 303.9 | 291.3 | 12.61 | 24.097 | |
| 3,000.0 | 2,994.5 | 2,977.6 | 2,972.3 | 7.1 | 7.1 | 166.80 | 143.7 | -80.2 | 317.6 | 304.5 | 13.06 | 24.311 | |
| 3,100.0 | 3,094.2 | 3,076.6 | 3,071.1 | 7.3 | 7.3 | 167.04 | 150.3 | -82.4 | 331.3 | 317.8 | 13.52 | 24.510 | |
| 3,200.0 | 3,194.0 | 3,175.7 | 3,169.9 | 7.6 | 7.6 | 167.26 | 156.9 | -84.5 | 345.1 | 331.1 | 13.97 | 24.697 | |
| 3,300.0 | 3,293.8 | 3,274.7 | 3,268.7 | 7.9 | 7.8 | 167.46 | 163.4 | -86.7 | 358.8 | 344.4 | 14.43 | 24.871 | |
| 3,400.0 | 3,393.5 | 3,373.7 | 3,367.5 | 8.1 | 8.1 | 167.65 | 170.0 | -88.9 | 372.6 | 357.7 | 14.88 | 25.035 | |
| 3,500.0 | 3,493.3 | 3,472.8 | 3,466.4 | 8.4 | 8.3 | 167.83 | 176.6 | -91.0 | 386.3 | 371.0 | 15.34 | 25.190 | |
| 3,600.0 | 3,593.0 | 3,571.8 | 3,565.2 | 8.7 | 8.6 | 167.99 | 183.1 | -93.2 | 400.1 | 384.3 | 15.79 | 25.335 | |
| 3,700.0 | 3,692.8 | 3,670.9 | 3,664.0 | 8.9 | 8.8 | 168.14 | 189.7 | -95.3 | 413.8 | 397.6 | 16.25 | 25.472 | |
| 3,800.0 | 3,792.5 | 3,769.9 | 3,762.8 | 9.2 | 9.1 | 168.28 | 196.3 | -97.5 | 427.6 | 410.9 | 16.70 | 25.602 | |
| 3,900.0 | 3,892.3 | 3,869.0 | 3,861.6 | 9.4 | 9.4 | 168.42 | 202.8 | -99.6 | 441.4 | 424.2 | 17.16 | 25.724 | |
| 4,000.0 | 3,992.1 | 3,968.0 | 3,960.4 | 9.7 | 9.6 | 168.54 | 209.4 | -101.8 | 455.1 | 437.5 | 17.61 | 25.841 | |
| 4,100.0 | 4,091.8 | 4,067.0 | 4,059.2 | 10.0 | 9.9 | 168.66 | 216.0 | -103.9 | 468.9 | 450.8 | 18.07 | 25.951 | |
| 4,200.0 | 4,191.6 | 4,166.1 | 4,158.0 | 10.2 | 10.1 | 168.77 | 222.5 | -106.1 | 482.7 | 464.1 | 18.52 | 26.056 | |
| 4,300.0 | 4,291.3 | 4,265.1 | 4,256.8 | 10.5 | 10.4 | 168.88 | 229.1 | -108.2 | 496.4 | 477.5 | 18.98 | 26.156 | |

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** S21-T10N-R58W - Razor #21A-0915A - HZ - Plan #1

**Offset Site Error:** 0.0 ft

**Survey Program:** 0-ISCWSA MWD

**Offset Well Error:** 0.0 ft

| Reference Measured Depth (ft) | Reference Vertical Depth (ft) | Offset Measured Depth (ft) | Offset Vertical Depth (ft) | Semi Major Axis Reference (ft) | Semi Major Axis Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 40.48 | 75.9 | 64.8 | 99.8 | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 40.48 | 75.9 | 64.8 | 99.8 | 99.6 | 0.19 | 531.498 | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 40.48 | 75.9 | 64.8 | 99.8 | 99.1 | 0.64 | 156.544 | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | 40.48 | 75.9 | 64.8 | 99.8 | 98.7 | 1.09 | 91.789 | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | 40.48 | 75.9 | 64.8 | 99.8 | 98.2 | 1.54 | 64.931 | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 40.48 | 75.9 | 64.8 | 99.8 | 97.8 | 1.99 | 50.232 | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | 40.48 | 75.9 | 64.8 | 99.8 | 97.3 | 2.44 | 40.960 | CC, ES |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.4 | 1.4 | -136.89 | 75.9 | 64.8 | 101.0 | 98.2 | 2.86 | 35.346 | |
| 800.0 | 799.8 | 799.8 | 799.8 | 1.6 | 1.7 | -138.79 | 75.9 | 64.8 | 104.9 | 101.6 | 3.27 | 32.125 | |
| 900.0 | 899.6 | 899.6 | 899.6 | 1.8 | 1.9 | -141.18 | 75.9 | 64.8 | 110.3 | 106.6 | 3.68 | 29.919 | |
| 1,000.0 | 999.4 | 996.4 | 996.4 | 2.0 | 2.1 | -143.80 | 77.5 | 64.5 | 117.0 | 112.9 | 4.11 | 28.486 | |
| 1,100.0 | 1,099.1 | 1,092.5 | 1,092.3 | 2.2 | 2.3 | -147.03 | 82.3 | 63.9 | 126.7 | 122.2 | 4.54 | 27.911 | |
| 1,200.0 | 1,198.9 | 1,191.2 | 1,190.8 | 2.5 | 2.6 | -150.32 | 89.1 | 63.0 | 138.4 | 133.4 | 4.98 | 27.782 | |
| 1,300.0 | 1,298.6 | 1,290.2 | 1,289.6 | 2.7 | 2.8 | -153.11 | 96.0 | 62.1 | 150.4 | 145.0 | 5.42 | 27.744 | SF |
| 1,400.0 | 1,398.4 | 1,389.3 | 1,388.4 | 3.0 | 3.0 | -155.48 | 102.8 | 61.2 | 162.7 | 156.8 | 5.86 | 27.753 | |
| 1,500.0 | 1,498.1 | 1,488.3 | 1,487.2 | 3.2 | 3.3 | -157.52 | 109.6 | 60.3 | 175.3 | 169.0 | 6.31 | 27.792 | |
| 1,600.0 | 1,597.9 | 1,587.3 | 1,586.0 | 3.5 | 3.5 | -159.28 | 116.5 | 59.4 | 188.0 | 181.3 | 6.75 | 27.848 | |
| 1,700.0 | 1,697.6 | 1,686.4 | 1,684.8 | 3.7 | 3.7 | -160.82 | 123.3 | 58.5 | 200.9 | 193.7 | 7.20 | 27.914 | |
| 1,800.0 | 1,797.4 | 1,785.4 | 1,783.6 | 4.0 | 4.0 | -162.17 | 130.2 | 57.6 | 214.0 | 206.3 | 7.65 | 27.987 | |
| 1,900.0 | 1,897.2 | 1,884.4 | 1,882.3 | 4.2 | 4.2 | -163.37 | 137.0 | 56.6 | 227.1 | 219.0 | 8.09 | 28.061 | |
| 2,000.0 | 1,996.9 | 1,983.4 | 1,981.1 | 4.5 | 4.5 | -164.43 | 143.9 | 55.7 | 240.3 | 231.8 | 8.54 | 28.136 | |
| 2,100.0 | 2,096.7 | 2,082.5 | 2,079.9 | 4.7 | 4.7 | -165.39 | 150.7 | 54.8 | 253.6 | 244.6 | 8.99 | 28.210 | |
| 2,200.0 | 2,196.4 | 2,181.5 | 2,178.7 | 5.0 | 5.0 | -166.25 | 157.6 | 53.9 | 267.0 | 257.5 | 9.44 | 28.282 | |
| 2,300.0 | 2,296.2 | 2,280.5 | 2,277.5 | 5.3 | 5.2 | -167.02 | 164.4 | 53.0 | 280.4 | 270.5 | 9.89 | 28.351 | |
| 2,400.0 | 2,395.9 | 2,379.6 | 2,376.3 | 5.5 | 5.5 | -167.73 | 171.3 | 52.1 | 293.8 | 283.5 | 10.34 | 28.418 | |
| 2,500.0 | 2,495.7 | 2,478.6 | 2,475.1 | 5.8 | 5.7 | -168.37 | 178.1 | 51.2 | 307.3 | 296.6 | 10.79 | 28.482 | |
| 2,600.0 | 2,595.5 | 2,577.6 | 2,573.9 | 6.0 | 6.0 | -168.96 | 185.0 | 50.3 | 320.9 | 309.6 | 11.24 | 28.543 | |
| 2,700.0 | 2,695.2 | 2,676.6 | 2,672.6 | 6.3 | 6.2 | -169.51 | 191.8 | 49.4 | 334.4 | 322.8 | 11.69 | 28.601 | |
| 2,800.0 | 2,795.0 | 2,775.7 | 2,771.4 | 6.6 | 6.5 | -170.01 | 198.7 | 48.5 | 348.0 | 335.9 | 12.14 | 28.657 | |
| 2,900.0 | 2,894.7 | 2,874.7 | 2,870.2 | 6.8 | 6.7 | -170.47 | 205.5 | 47.6 | 361.6 | 349.1 | 12.60 | 28.710 | |
| 3,000.0 | 2,994.5 | 2,973.7 | 2,969.0 | 7.1 | 7.0 | -170.90 | 212.4 | 46.7 | 375.3 | 362.2 | 13.05 | 28.760 | |
| 3,100.0 | 3,094.2 | 3,072.8 | 3,067.8 | 7.3 | 7.2 | -171.30 | 219.2 | 45.8 | 388.9 | 375.4 | 13.50 | 28.808 | |
| 3,200.0 | 3,194.0 | 3,171.8 | 3,166.6 | 7.6 | 7.5 | -171.67 | 226.1 | 44.8 | 402.6 | 388.7 | 13.95 | 28.853 | |
| 3,300.0 | 3,293.8 | 3,270.8 | 3,265.4 | 7.9 | 7.7 | -172.02 | 232.9 | 43.9 | 416.3 | 401.9 | 14.41 | 28.897 | |
| 3,400.0 | 3,393.5 | 3,369.8 | 3,364.2 | 8.1 | 8.0 | -172.34 | 239.8 | 43.0 | 430.0 | 415.1 | 14.86 | 28.938 | |
| 3,500.0 | 3,493.3 | 3,468.9 | 3,462.9 | 8.4 | 8.2 | -172.65 | 246.6 | 42.1 | 443.7 | 428.4 | 15.31 | 28.977 | |
| 3,600.0 | 3,593.0 | 3,567.9 | 3,561.7 | 8.7 | 8.5 | -172.93 | 253.5 | 41.2 | 457.4 | 441.7 | 15.77 | 29.015 | |
| 3,700.0 | 3,692.8 | 3,666.9 | 3,660.5 | 8.9 | 8.7 | -173.20 | 260.3 | 40.3 | 471.2 | 455.0 | 16.22 | 29.051 | |
| 3,800.0 | 3,792.5 | 3,766.0 | 3,759.3 | 9.2 | 9.0 | -173.46 | 267.2 | 39.4 | 484.9 | 468.3 | 16.67 | 29.085 | |
| 3,900.0 | 3,892.3 | 3,865.0 | 3,858.1 | 9.4 | 9.2 | -173.70 | 274.0 | 38.5 | 498.7 | 481.6 | 17.13 | 29.118 | |

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** S21-T10N-R58W - Razor #21A-0916B - HZ - Plan #1

**Offset Site Error:** 0.0 ft

**Survey Program:** 0-ISCWSA MWD

**Offset Well Error:** 0.0 ft

| Reference Measured Depth (ft) | Reference Vertical Depth (ft) | Offset Measured Depth (ft) | Offset Vertical Depth (ft) | Semi Major Axis Reference (ft) | Semi Major Axis Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 88.96 | 0.6 | 33.2 | 33.2 | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 88.96 | 0.6 | 33.2 | 33.2 | 33.0 | 0.19 | 176.946 | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 88.96 | 0.6 | 33.2 | 33.2 | 32.6 | 0.64 | 52.116 | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | 88.96 | 0.6 | 33.2 | 33.2 | 32.1 | 1.09 | 30.558 | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | 88.96 | 0.6 | 33.2 | 33.2 | 31.7 | 1.54 | 21.617 | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 88.96 | 0.6 | 33.2 | 33.2 | 31.2 | 1.99 | 16.723 | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | 88.96 | 0.6 | 33.2 | 33.2 | 30.8 | 2.44 | 13.636 | |
| 686.7 | 686.7 | 686.7 | 686.7 | 1.4 | 1.4 | -90.00 | 0.6 | 33.2 | 33.2 | 30.4 | 2.80 | 11.849 | CC |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.4 | 1.4 | -90.75 | 0.6 | 33.2 | 33.2 | 30.3 | 2.86 | 11.617 | ES |
| 800.0 | 799.8 | 799.8 | 799.8 | 1.6 | 1.7 | -99.67 | 0.6 | 33.2 | 33.7 | 30.4 | 3.26 | 10.313 | |
| 900.0 | 899.6 | 899.6 | 899.6 | 1.8 | 1.9 | -110.81 | 0.6 | 33.2 | 35.5 | 31.8 | 3.69 | 9.624 | |
| 1,000.0 | 999.4 | 999.4 | 999.4 | 2.0 | 2.1 | -120.53 | 0.6 | 33.2 | 38.5 | 34.4 | 4.13 | 9.345 | |
| 1,100.0 | 1,099.1 | 1,099.1 | 1,099.1 | 2.2 | 2.3 | -128.64 | 0.6 | 33.2 | 42.5 | 38.0 | 4.56 | 9.317 | SF |
| 1,200.0 | 1,198.9 | 1,197.4 | 1,197.4 | 2.5 | 2.6 | -136.10 | 2.2 | 33.6 | 48.7 | 43.7 | 5.00 | 9.736 | |
| 1,300.0 | 1,298.6 | 1,295.0 | 1,294.9 | 2.7 | 2.8 | -142.99 | 7.1 | 34.7 | 58.7 | 53.3 | 5.44 | 10.791 | |
| 1,400.0 | 1,398.4 | 1,394.0 | 1,393.6 | 3.0 | 3.0 | -148.32 | 13.8 | 36.3 | 71.1 | 65.2 | 5.88 | 12.095 | |
| 1,500.0 | 1,498.1 | 1,493.0 | 1,492.4 | 3.2 | 3.2 | -152.05 | 20.5 | 37.9 | 83.9 | 77.6 | 6.32 | 13.288 | |
| 1,600.0 | 1,597.9 | 1,592.1 | 1,591.2 | 3.5 | 3.5 | -154.78 | 27.2 | 39.5 | 97.0 | 90.3 | 6.76 | 14.360 | |
| 1,700.0 | 1,697.6 | 1,691.1 | 1,690.0 | 3.7 | 3.7 | -156.87 | 34.0 | 41.1 | 110.3 | 103.1 | 7.20 | 15.319 | |
| 1,800.0 | 1,797.4 | 1,790.2 | 1,788.8 | 4.0 | 3.9 | -158.50 | 40.7 | 42.6 | 123.7 | 116.0 | 7.64 | 16.178 | |
| 1,900.0 | 1,897.2 | 1,889.2 | 1,887.6 | 4.2 | 4.2 | -159.81 | 47.4 | 44.2 | 137.1 | 129.0 | 8.09 | 16.950 | |
| 2,000.0 | 1,996.9 | 1,988.3 | 1,986.4 | 4.5 | 4.4 | -160.89 | 54.1 | 45.8 | 150.6 | 142.1 | 8.54 | 17.646 | |
| 2,100.0 | 2,096.7 | 2,087.3 | 2,085.2 | 4.7 | 4.7 | -161.79 | 60.9 | 47.4 | 164.2 | 155.2 | 8.98 | 18.275 | |
| 2,200.0 | 2,196.4 | 2,186.4 | 2,184.0 | 5.0 | 4.9 | -162.56 | 67.6 | 49.0 | 177.8 | 168.3 | 9.43 | 18.846 | |
| 2,300.0 | 2,296.2 | 2,285.4 | 2,282.8 | 5.3 | 5.1 | -163.21 | 74.3 | 50.6 | 191.4 | 181.5 | 9.88 | 19.366 | |
| 2,400.0 | 2,395.9 | 2,384.4 | 2,381.6 | 5.5 | 5.4 | -163.78 | 81.0 | 52.1 | 205.0 | 194.7 | 10.33 | 19.842 | |
| 2,500.0 | 2,495.7 | 2,483.5 | 2,480.5 | 5.8 | 5.6 | -164.28 | 87.8 | 53.7 | 218.7 | 207.9 | 10.78 | 20.278 | |
| 2,600.0 | 2,595.5 | 2,582.5 | 2,579.3 | 6.0 | 5.9 | -164.72 | 94.5 | 55.3 | 232.3 | 221.1 | 11.23 | 20.680 | |
| 2,700.0 | 2,695.2 | 2,681.6 | 2,678.1 | 6.3 | 6.1 | -165.11 | 101.2 | 56.9 | 246.0 | 234.3 | 11.69 | 21.051 | |
| 2,800.0 | 2,795.0 | 2,780.6 | 2,776.9 | 6.6 | 6.4 | -165.46 | 107.9 | 58.5 | 259.7 | 247.6 | 12.14 | 21.395 | |
| 2,900.0 | 2,894.7 | 2,879.7 | 2,875.7 | 6.8 | 6.6 | -165.77 | 114.7 | 60.1 | 273.4 | 260.8 | 12.59 | 21.714 | |
| 3,000.0 | 2,994.5 | 2,978.7 | 2,974.5 | 7.1 | 6.9 | -166.06 | 121.4 | 61.6 | 287.1 | 274.0 | 13.04 | 22.010 | |
| 3,100.0 | 3,094.2 | 3,077.8 | 3,073.3 | 7.3 | 7.1 | -166.31 | 128.1 | 63.2 | 300.8 | 287.3 | 13.50 | 22.287 | |
| 3,200.0 | 3,194.0 | 3,176.8 | 3,172.1 | 7.6 | 7.4 | -166.55 | 134.8 | 64.8 | 314.5 | 300.6 | 13.95 | 22.546 | |
| 3,300.0 | 3,293.8 | 3,275.9 | 3,270.9 | 7.9 | 7.6 | -166.77 | 141.6 | 66.4 | 328.2 | 313.8 | 14.40 | 22.788 | |
| 3,400.0 | 3,393.5 | 3,374.9 | 3,369.7 | 8.1 | 7.9 | -166.96 | 148.3 | 68.0 | 342.0 | 327.1 | 14.86 | 23.015 | |
| 3,500.0 | 3,493.3 | 3,474.0 | 3,468.5 | 8.4 | 8.1 | -167.15 | 155.0 | 69.6 | 355.7 | 340.4 | 15.31 | 23.229 | |
| 3,600.0 | 3,593.0 | 3,573.0 | 3,567.3 | 8.7 | 8.4 | -167.32 | 161.7 | 71.1 | 369.4 | 353.7 | 15.77 | 23.431 | |
| 3,700.0 | 3,692.8 | 3,672.1 | 3,666.1 | 8.9 | 8.6 | -167.48 | 168.5 | 72.7 | 383.2 | 366.9 | 16.22 | 23.621 | |
| 3,800.0 | 3,792.5 | 3,771.1 | 3,764.9 | 9.2 | 8.9 | -167.62 | 175.2 | 74.3 | 396.9 | 380.2 | 16.68 | 23.801 | |
| 3,900.0 | 3,892.3 | 3,870.2 | 3,863.7 | 9.4 | 9.1 | -167.76 | 181.9 | 75.9 | 410.6 | 393.5 | 17.13 | 23.971 | |
| 4,000.0 | 3,992.1 | 3,969.2 | 3,962.5 | 9.7 | 9.4 | -167.89 | 188.6 | 77.5 | 424.4 | 406.8 | 17.59 | 24.132 | |
| 4,100.0 | 4,091.8 | 4,068.3 | 4,061.3 | 10.0 | 9.6 | -168.01 | 195.4 | 79.1 | 438.1 | 420.1 | 18.04 | 24.285 | |
| 4,200.0 | 4,191.6 | 4,167.3 | 4,160.2 | 10.2 | 9.9 | -168.12 | 202.1 | 80.6 | 451.9 | 433.4 | 18.50 | 24.431 | |
| 4,300.0 | 4,291.3 | 4,266.3 | 4,259.0 | 10.5 | 10.1 | -168.23 | 208.8 | 82.2 | 465.6 | 446.7 | 18.95 | 24.569 | |
| 4,400.0 | 4,391.1 | 4,365.4 | 4,357.8 | 10.8 | 10.4 | -168.33 | 215.5 | 83.8 | 479.4 | 460.0 | 19.41 | 24.701 | |
| 4,500.0 | 4,490.8 | 4,464.4 | 4,456.6 | 11.0 | 10.6 | -168.42 | 222.3 | 85.4 | 493.1 | 473.3 | 19.86 | 24.827 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** S21-T10N-R58W - Razor #21A-2813A - HZ - Plan #1

**Offset Site Error:** 0.0 ft

**Survey Program:** 0-ISCWSA MWD

**Offset Well Error:** 0.0 ft

| Reference Measured Depth (ft) | Reference Vertical Depth (ft) | Offset Measured Depth (ft) | Offset Vertical Depth (ft) | Semi Major Axis Reference (ft) | Semi Major Axis Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -24.85 | 74.1 | -34.3 | 81.6 | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -24.85 | 74.1 | -34.3 | 81.6 | 81.5 | 0.19 | 435.009 | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -24.85 | 74.1 | -34.3 | 81.6 | 81.0 | 0.64 | 128.125 | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | -24.85 | 74.1 | -34.3 | 81.6 | 80.6 | 1.09 | 75.126 | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -24.85 | 74.1 | -34.3 | 81.6 | 80.1 | 1.54 | 53.143 | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | -24.85 | 74.1 | -34.3 | 81.6 | 79.7 | 1.99 | 41.113 | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | -24.85 | 74.1 | -34.3 | 81.6 | 79.2 | 2.44 | 33.524 | CC |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.4 | 1.4 | 158.88 | 74.1 | -34.3 | 83.3 | 80.4 | 2.86 | 29.129 | |
| 800.0 | 799.8 | 799.8 | 799.8 | 1.6 | 1.7 | 160.07 | 74.1 | -34.3 | 88.2 | 84.9 | 3.27 | 27.001 | |
| 900.0 | 899.6 | 899.6 | 899.6 | 1.8 | 1.9 | 161.51 | 74.1 | -34.3 | 94.8 | 91.1 | 3.68 | 25.743 | |
| 1,000.0 | 999.4 | 999.4 | 999.4 | 2.0 | 2.1 | 162.76 | 74.1 | -34.3 | 101.4 | 97.3 | 4.11 | 24.701 | |
| 1,100.0 | 1,099.1 | 1,099.1 | 1,099.1 | 2.2 | 2.3 | 163.86 | 74.1 | -34.3 | 108.1 | 103.5 | 4.54 | 23.831 | |
| 1,200.0 | 1,198.9 | 1,198.9 | 1,198.9 | 2.5 | 2.6 | 164.82 | 74.1 | -34.3 | 114.8 | 109.8 | 4.97 | 23.097 | |
| 1,300.0 | 1,298.6 | 1,302.3 | 1,302.3 | 2.7 | 2.8 | 165.26 | 72.3 | -34.7 | 120.0 | 114.7 | 5.39 | 22.287 | |
| 1,400.0 | 1,398.4 | 1,405.8 | 1,405.6 | 3.0 | 3.0 | 164.75 | 66.9 | -36.1 | 122.2 | 116.4 | 5.79 | 21.129 | |
| 1,500.0 | 1,498.1 | 1,505.7 | 1,505.3 | 3.2 | 3.1 | 163.88 | 60.1 | -37.7 | 123.1 | 116.9 | 6.19 | 19.883 | |
| 1,600.0 | 1,597.9 | 1,605.7 | 1,605.1 | 3.5 | 3.3 | 163.01 | 53.4 | -39.4 | 124.0 | 117.3 | 6.61 | 18.765 | |
| 1,700.0 | 1,697.6 | 1,705.7 | 1,704.8 | 3.7 | 3.5 | 162.15 | 46.6 | -41.0 | 124.9 | 117.8 | 7.03 | 17.761 | |
| 1,800.0 | 1,797.4 | 1,805.7 | 1,804.5 | 4.0 | 3.7 | 161.31 | 39.8 | -42.7 | 125.8 | 118.3 | 7.46 | 16.859 | |
| 1,900.0 | 1,897.2 | 1,905.7 | 1,904.3 | 4.2 | 4.0 | 160.48 | 33.0 | -44.3 | 126.7 | 118.8 | 7.90 | 16.045 | |
| 2,000.0 | 1,996.9 | 2,005.6 | 2,004.0 | 4.5 | 4.2 | 159.67 | 26.3 | -46.0 | 127.7 | 119.4 | 8.34 | 15.310 | |
| 2,100.0 | 2,096.7 | 2,105.6 | 2,103.7 | 4.7 | 4.4 | 158.86 | 19.5 | -47.6 | 128.7 | 119.9 | 8.79 | 14.642 | |
| 2,200.0 | 2,196.4 | 2,205.6 | 2,203.5 | 5.0 | 4.7 | 158.07 | 12.7 | -49.3 | 129.8 | 120.5 | 9.24 | 14.035 | |
| 2,300.0 | 2,296.2 | 2,305.6 | 2,303.2 | 5.3 | 4.9 | 157.29 | 5.9 | -50.9 | 130.8 | 121.1 | 9.70 | 13.482 | |
| 2,400.0 | 2,395.9 | 2,405.6 | 2,402.9 | 5.5 | 5.1 | 156.53 | -0.8 | -52.6 | 131.9 | 121.7 | 10.16 | 12.975 | |
| 2,500.0 | 2,495.7 | 2,505.5 | 2,502.7 | 5.8 | 5.4 | 155.77 | -7.6 | -54.2 | 133.0 | 122.4 | 10.63 | 12.510 | |
| 2,600.0 | 2,595.5 | 2,605.5 | 2,602.4 | 6.0 | 5.6 | 155.03 | -14.4 | -55.9 | 134.1 | 123.0 | 11.10 | 12.083 | |
| 2,700.0 | 2,695.2 | 2,705.5 | 2,702.2 | 6.3 | 5.9 | 154.30 | -21.2 | -57.5 | 135.3 | 123.7 | 11.57 | 11.689 | |
| 2,800.0 | 2,795.0 | 2,805.5 | 2,801.9 | 6.6 | 6.1 | 153.59 | -27.9 | -59.2 | 136.4 | 124.4 | 12.05 | 11.325 | |
| 2,900.0 | 2,894.7 | 2,905.5 | 2,901.6 | 6.8 | 6.4 | 152.88 | -34.7 | -60.8 | 137.6 | 125.1 | 12.53 | 10.988 | |
| 3,000.0 | 2,994.5 | 3,005.4 | 3,001.4 | 7.1 | 6.6 | 152.19 | -41.5 | -62.5 | 138.8 | 125.8 | 13.01 | 10.675 | |
| 3,100.0 | 3,094.2 | 3,105.4 | 3,101.1 | 7.3 | 6.9 | 151.51 | -48.3 | -64.1 | 140.1 | 126.6 | 13.49 | 10.384 | |
| 3,200.0 | 3,194.0 | 3,205.4 | 3,200.8 | 7.6 | 7.1 | 150.84 | -55.0 | -65.8 | 141.3 | 127.3 | 13.97 | 10.112 | |
| 3,300.0 | 3,293.8 | 3,305.4 | 3,300.6 | 7.9 | 7.4 | 150.19 | -61.8 | -67.4 | 142.6 | 128.1 | 14.46 | 9.859 | |
| 3,400.0 | 3,393.5 | 3,405.3 | 3,400.3 | 8.1 | 7.6 | 149.54 | -68.6 | -69.1 | 143.9 | 128.9 | 14.95 | 9.622 | |
| 3,500.0 | 3,493.3 | 3,505.3 | 3,500.0 | 8.4 | 7.9 | 148.91 | -75.4 | -70.7 | 145.2 | 129.7 | 15.44 | 9.400 | |
| 3,600.0 | 3,593.0 | 3,605.3 | 3,599.8 | 8.7 | 8.1 | 148.29 | -82.2 | -72.4 | 146.5 | 130.6 | 15.94 | 9.192 | |
| 3,700.0 | 3,692.8 | 3,705.3 | 3,699.5 | 8.9 | 8.4 | 147.68 | -88.9 | -74.0 | 147.8 | 131.4 | 16.43 | 8.996 | |
| 3,800.0 | 3,792.5 | 3,805.3 | 3,799.2 | 9.2 | 8.6 | 147.08 | -95.7 | -75.7 | 149.2 | 132.3 | 16.93 | 8.812 | |
| 3,900.0 | 3,892.3 | 3,905.2 | 3,899.0 | 9.4 | 8.9 | 146.49 | -102.5 | -77.3 | 150.6 | 133.1 | 17.43 | 8.639 | |
| 4,000.0 | 3,992.1 | 4,005.2 | 3,998.7 | 9.7 | 9.2 | 145.91 | -109.3 | -79.0 | 152.0 | 134.0 | 17.93 | 8.475 | |
| 4,100.0 | 4,091.8 | 4,105.2 | 4,098.4 | 10.0 | 9.4 | 145.34 | -116.0 | -80.7 | 153.4 | 134.9 | 18.43 | 8.320 | |
| 4,200.0 | 4,191.6 | 4,205.2 | 4,198.2 | 10.2 | 9.7 | 144.79 | -122.8 | -82.3 | 154.8 | 135.8 | 18.94 | 8.174 | |
| 4,300.0 | 4,291.3 | 4,305.2 | 4,297.9 | 10.5 | 9.9 | 144.24 | -129.6 | -84.0 | 156.2 | 136.8 | 19.44 | 8.035 | |
| 4,400.0 | 4,391.1 | 4,405.1 | 4,397.7 | 10.8 | 10.2 | 143.70 | -136.4 | -85.6 | 157.7 | 137.7 | 19.95 | 7.904 | |
| 4,500.0 | 4,490.8 | 4,505.1 | 4,497.4 | 11.0 | 10.4 | 143.18 | -143.1 | -87.3 | 159.1 | 138.7 | 20.45 | 7.779 | |
| 4,600.0 | 4,590.6 | 4,605.1 | 4,597.1 | 11.3 | 10.7 | 142.66 | -149.9 | -88.9 | 160.6 | 139.6 | 20.96 | 7.661 | |
| 4,700.0 | 4,690.3 | 4,705.1 | 4,696.9 | 11.5 | 11.0 | 142.15 | -156.7 | -90.6 | 162.1 | 140.6 | 21.47 | 7.548 | |
| 4,800.0 | 4,790.1 | 4,805.1 | 4,796.6 | 11.8 | 11.2 | 141.65 | -163.5 | -92.2 | 163.6 | 141.6 | 21.98 | 7.441 | |
| 4,900.0 | 4,889.9 | 4,905.0 | 4,896.3 | 12.1 | 11.5 | 141.16 | -170.2 | -93.9 | 165.1 | 142.6 | 22.49 | 7.339 | |
| 5,000.0 | 4,989.6 | 5,005.0 | 4,996.1 | 12.3 | 11.7 | 140.68 | -177.0 | -95.5 | 166.6 | 143.6 | 23.01 | 7.242 | |
| 5,100.0 | 5,089.4 | 5,105.0 | 5,095.8 | 12.6 | 12.0 | 140.21 | -183.8 | -97.2 | 168.1 | 144.6 | 23.52 | 7.149 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** S21-T10N-R58W - Razor #21A-2813A - HZ - Plan #1

**Offset Site Error:** 0.0 ft

**Survey Program:** 0-ISCWSA MWD

**Offset Well Error:** 0.0 ft

| Reference Measured Depth (ft) | Reference Vertical Depth (ft) | Offset Measured Depth (ft) | Offset Vertical Depth (ft) | Semi Major Axis Reference (ft) | Semi Major Axis Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,200.0 | 5,189.1 | 5,205.0 | 5,195.5 | 12.9 | 12.3 | 139.75 | -190.6 | -98.8 | 169.7 | 145.6 | 24.03 | 7.060 | |
| 5,300.0 | 5,288.9 | 5,305.1 | 5,295.5 | 13.1 | 12.5 | 139.29 | -197.4 | -100.5 | 171.2 | 146.7 | 24.55 | 6.975 | |
| 5,392.8 | 5,381.5 | 5,415.9 | 5,404.2 | 13.4 | 12.9 | 135.31 | -216.4 | -105.1 | 167.6 | 142.3 | 25.31 | 6.621 | |
| 5,400.0 | 5,388.6 | 5,424.2 | 5,412.2 | 13.4 | 13.0 | 134.79 | -218.7 | -105.7 | 167.0 | 141.6 | 25.38 | 6.578 | |
| 5,450.0 | 5,438.2 | 5,480.9 | 5,465.4 | 13.6 | 13.2 | 130.71 | -237.8 | -110.3 | 163.6 | 137.7 | 25.89 | 6.320 | |
| 5,500.0 | 5,486.9 | 5,535.9 | 5,514.6 | 13.8 | 13.6 | 126.04 | -261.6 | -116.1 | 162.0 | 135.6 | 26.45 | 6.126 | |
| 5,513.0 | 5,499.3 | 5,549.9 | 5,526.6 | 13.8 | 13.7 | 124.75 | -268.5 | -117.8 | 162.0 | 135.3 | 26.61 | 6.087 | |
| 5,550.0 | 5,534.3 | 5,589.2 | 5,559.5 | 14.0 | 13.9 | 120.94 | -289.4 | -122.9 | 162.6 | 135.5 | 27.11 | 5.996 | |
| 5,600.0 | 5,579.9 | 5,640.8 | 5,600.1 | 14.3 | 14.3 | 115.61 | -320.4 | -130.5 | 165.4 | 137.5 | 27.91 | 5.928 | |
| 5,650.0 | 5,623.4 | 5,690.8 | 5,636.2 | 14.6 | 14.8 | 110.24 | -354.0 | -138.7 | 170.7 | 141.8 | 28.83 | 5.920 | |
| 5,700.0 | 5,664.3 | 5,739.4 | 5,667.9 | 15.0 | 15.3 | 105.01 | -389.7 | -147.4 | 178.2 | 148.4 | 29.86 | 5.968 | |
| 5,750.0 | 5,702.3 | 5,786.6 | 5,695.3 | 15.5 | 15.8 | 100.03 | -427.0 | -156.5 | 187.8 | 156.9 | 30.95 | 6.068 | |
| 5,800.0 | 5,737.0 | 5,832.5 | 5,718.5 | 16.0 | 16.3 | 95.39 | -465.5 | -165.8 | 199.3 | 167.2 | 32.06 | 6.215 | |
| 5,850.0 | 5,768.1 | 5,877.4 | 5,737.8 | 16.5 | 16.9 | 91.12 | -504.9 | -175.4 | 212.2 | 179.0 | 33.16 | 6.398 | |
| 5,900.0 | 5,795.3 | 5,921.2 | 5,753.1 | 17.1 | 17.4 | 87.25 | -544.8 | -185.2 | 226.3 | 192.0 | 34.23 | 6.609 | |
| 5,950.0 | 5,818.3 | 5,964.2 | 5,764.8 | 17.7 | 18.0 | 83.75 | -584.9 | -195.0 | 241.2 | 205.9 | 35.27 | 6.838 | |
| 6,000.0 | 5,837.0 | 6,006.5 | 5,772.9 | 18.3 | 18.6 | 80.62 | -625.2 | -204.8 | 256.7 | 220.4 | 36.28 | 7.075 | |
| 6,050.0 | 5,851.2 | 6,050.0 | 5,777.7 | 19.0 | 19.3 | 77.78 | -667.2 | -215.0 | 272.6 | 235.3 | 37.30 | 7.308 | |
| 6,100.0 | 5,860.7 | 6,090.3 | 5,779.0 | 19.8 | 19.9 | 75.32 | -706.4 | -224.6 | 288.6 | 250.3 | 38.28 | 7.538 | |
| 6,150.0 | 5,865.4 | 6,146.5 | 5,779.0 | 20.5 | 20.6 | 73.55 | -761.2 | -236.9 | 303.1 | 263.6 | 39.49 | 7.676 | |
| 6,174.6 | 5,866.0 | 6,174.6 | 5,779.0 | 20.9 | 21.0 | 73.16 | -788.7 | -242.5 | 309.3 | 269.1 | 40.17 | 7.698 | |
| 6,200.0 | 5,866.0 | 6,203.9 | 5,779.0 | 21.2 | 21.3 | 73.58 | -817.5 | -247.9 | 315.0 | 273.9 | 41.02 | 7.679 | |
| 6,284.7 | 5,866.0 | 6,303.4 | 5,779.0 | 22.4 | 22.7 | 74.55 | -915.9 | -262.9 | 329.0 | 285.3 | 43.75 | 7.520 | |
| 6,300.0 | 5,866.0 | 6,321.7 | 5,779.0 | 22.6 | 23.0 | 74.65 | -934.0 | -265.1 | 330.8 | 286.6 | 44.25 | 7.475 | |
| 6,400.0 | 5,866.0 | 6,441.7 | 5,779.0 | 24.2 | 24.7 | 75.10 | -1,053.6 | -275.2 | 338.9 | 291.3 | 47.63 | 7.116 | |
| 6,500.0 | 5,866.0 | 6,559.0 | 5,779.0 | 25.8 | 26.5 | 75.22 | -1,170.9 | -277.9 | 341.1 | 290.1 | 50.99 | 6.688 | |
| 6,600.0 | 5,866.0 | 6,659.0 | 5,779.0 | 27.5 | 28.1 | 75.22 | -1,270.9 | -277.9 | 341.1 | 286.8 | 54.23 | 6.289 | |
| 6,700.0 | 5,866.0 | 6,759.0 | 5,779.0 | 29.2 | 29.8 | 75.22 | -1,370.9 | -277.9 | 341.1 | 283.5 | 57.54 | 5.927 | |
| 6,800.0 | 5,866.0 | 6,859.0 | 5,779.0 | 31.0 | 31.5 | 75.22 | -1,470.9 | -277.9 | 341.1 | 280.2 | 60.90 | 5.600 | |
| 6,900.0 | 5,866.0 | 6,959.0 | 5,779.0 | 32.7 | 33.2 | 75.22 | -1,570.9 | -277.9 | 341.1 | 276.8 | 64.30 | 5.304 | |
| 7,000.0 | 5,866.0 | 7,059.0 | 5,779.0 | 34.5 | 35.0 | 75.22 | -1,670.9 | -277.9 | 341.1 | 273.3 | 67.74 | 5.035 | |
| 7,100.0 | 5,866.0 | 7,159.0 | 5,779.0 | 36.3 | 36.7 | 75.22 | -1,770.9 | -277.9 | 341.1 | 269.9 | 71.20 | 4.790 | |
| 7,200.0 | 5,866.0 | 7,259.0 | 5,779.0 | 38.1 | 38.5 | 75.22 | -1,870.9 | -277.9 | 341.1 | 266.4 | 74.69 | 4.566 | |
| 7,300.0 | 5,866.0 | 7,359.0 | 5,779.0 | 39.9 | 40.3 | 75.22 | -1,970.9 | -277.9 | 341.1 | 262.9 | 78.21 | 4.361 | |
| 7,400.0 | 5,866.0 | 7,459.0 | 5,779.0 | 41.7 | 42.1 | 75.22 | -2,070.9 | -277.9 | 341.1 | 259.3 | 81.74 | 4.173 | |
| 7,500.0 | 5,866.0 | 7,559.0 | 5,779.0 | 43.6 | 43.9 | 75.22 | -2,170.9 | -277.9 | 341.1 | 255.8 | 85.28 | 3.999 | |
| 7,600.0 | 5,866.0 | 7,659.0 | 5,779.0 | 45.4 | 45.7 | 75.22 | -2,270.9 | -277.9 | 341.1 | 252.2 | 88.85 | 3.839 | |
| 7,700.0 | 5,866.0 | 7,759.0 | 5,779.0 | 47.2 | 47.6 | 75.22 | -2,370.9 | -277.9 | 341.1 | 248.7 | 92.42 | 3.691 | |
| 7,800.0 | 5,866.0 | 7,859.0 | 5,779.0 | 49.1 | 49.4 | 75.22 | -2,470.9 | -277.9 | 341.1 | 245.1 | 96.01 | 3.553 | |
| 7,900.0 | 5,866.0 | 7,959.0 | 5,779.0 | 50.9 | 51.2 | 75.22 | -2,570.9 | -277.9 | 341.1 | 241.5 | 99.61 | 3.424 | |
| 8,000.0 | 5,866.0 | 8,059.0 | 5,779.0 | 52.8 | 53.1 | 75.22 | -2,670.9 | -277.9 | 341.1 | 237.9 | 103.21 | 3.305 | |
| 8,100.0 | 5,866.0 | 8,159.0 | 5,779.0 | 54.7 | 54.9 | 75.22 | -2,770.9 | -277.9 | 341.1 | 234.3 | 106.83 | 3.193 | |
| 8,200.0 | 5,866.0 | 8,259.0 | 5,779.0 | 56.5 | 56.8 | 75.22 | -2,870.9 | -277.9 | 341.1 | 230.7 | 110.45 | 3.088 | |
| 8,300.0 | 5,866.0 | 8,359.0 | 5,779.0 | 58.4 | 58.6 | 75.22 | -2,970.9 | -277.9 | 341.1 | 227.0 | 114.08 | 2.990 | |
| 8,400.0 | 5,866.0 | 8,459.0 | 5,779.0 | 60.3 | 60.5 | 75.22 | -3,070.9 | -277.9 | 341.1 | 223.4 | 117.71 | 2.898 | |
| 8,500.0 | 5,866.0 | 8,559.0 | 5,779.0 | 62.1 | 62.4 | 75.22 | -3,170.9 | -277.9 | 341.1 | 219.8 | 121.35 | 2.811 | |
| 8,600.0 | 5,866.0 | 8,659.0 | 5,779.0 | 64.0 | 64.2 | 75.22 | -3,270.9 | -277.9 | 341.1 | 216.1 | 125.00 | 2.729 | |
| 8,700.0 | 5,866.0 | 8,759.0 | 5,779.0 | 65.9 | 66.1 | 75.22 | -3,370.9 | -277.9 | 341.1 | 212.5 | 128.65 | 2.651 | |
| 8,800.0 | 5,866.0 | 8,859.0 | 5,779.0 | 67.8 | 68.0 | 75.22 | -3,470.9 | -278.0 | 341.1 | 208.8 | 132.31 | 2.578 | |
| 8,900.0 | 5,866.0 | 8,959.0 | 5,779.0 | 69.7 | 69.9 | 75.22 | -3,570.9 | -278.0 | 341.1 | 205.2 | 135.96 | 2.509 | |
| 9,000.0 | 5,866.0 | 9,059.0 | 5,779.0 | 71.5 | 71.7 | 75.22 | -3,670.9 | -278.0 | 341.1 | 201.5 | 139.63 | 2.443 | |
| 9,100.0 | 5,866.0 | 9,159.0 | 5,779.0 | 73.4 | 73.6 | 75.22 | -3,770.9 | -278.0 | 341.1 | 197.8 | 143.29 | 2.381 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** S21-T10N-R58W - Razor #21A-2813A - HZ - Plan #1

**Offset Site Error:** 0.0 ft

**Survey Program:** 0-ISCWSA MWD

**Offset Well Error:** 0.0 ft

| Reference Measured Depth (ft) | Reference Vertical Depth (ft) | Offset Measured Depth (ft) | Offset Vertical Depth (ft) | Semi Major Axis Reference (ft) | Semi Major Axis Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9,200.0 | 5,866.0 | 9,259.0 | 5,779.0 | 75.3 | 75.5 | 75.22 | -3,870.9 | -278.0 | 341.1 | 194.2 | 146.96 | 2.321 | |
| 9,300.0 | 5,866.0 | 9,359.0 | 5,779.0 | 77.2 | 77.4 | 75.22 | -3,970.9 | -278.0 | 341.1 | 190.5 | 150.63 | 2.265 | |
| 9,400.0 | 5,866.0 | 9,459.0 | 5,779.0 | 79.1 | 79.3 | 75.22 | -4,070.9 | -278.0 | 341.1 | 186.8 | 154.30 | 2.211 | |
| 9,500.0 | 5,866.0 | 9,559.0 | 5,779.0 | 81.0 | 81.2 | 75.22 | -4,170.9 | -278.0 | 341.1 | 183.2 | 157.98 | 2.159 | |
| 9,600.0 | 5,866.0 | 9,659.0 | 5,779.0 | 82.9 | 83.1 | 75.22 | -4,270.9 | -278.0 | 341.1 | 179.5 | 161.66 | 2.110 | |
| 9,700.0 | 5,866.0 | 9,759.0 | 5,779.0 | 84.8 | 84.9 | 75.22 | -4,370.9 | -278.0 | 341.1 | 175.8 | 165.34 | 2.063 | |
| 9,800.0 | 5,866.0 | 9,859.0 | 5,779.0 | 86.7 | 86.8 | 75.22 | -4,470.9 | -278.0 | 341.1 | 172.1 | 169.02 | 2.018 | |
| 9,900.0 | 5,866.0 | 9,959.0 | 5,779.0 | 88.6 | 88.7 | 75.22 | -4,570.9 | -278.0 | 341.1 | 168.4 | 172.71 | 1.975 | |
| 10,000.0 | 5,866.0 | 10,059.0 | 5,779.0 | 90.5 | 90.6 | 75.22 | -4,670.9 | -278.0 | 341.1 | 164.7 | 176.39 | 1.934 | |
| 10,100.0 | 5,866.0 | 10,159.0 | 5,779.0 | 92.4 | 92.5 | 75.22 | -4,770.9 | -278.0 | 341.1 | 161.1 | 180.08 | 1.894 | |
| 10,200.0 | 5,866.0 | 10,259.0 | 5,779.0 | 94.3 | 94.4 | 75.22 | -4,870.9 | -278.0 | 341.1 | 157.4 | 183.77 | 1.856 | |
| 10,300.0 | 5,866.0 | 10,359.0 | 5,779.0 | 96.2 | 96.3 | 75.22 | -4,970.9 | -278.0 | 341.1 | 153.7 | 187.46 | 1.820 | |
| 10,400.0 | 5,866.0 | 10,459.0 | 5,779.0 | 98.1 | 98.2 | 75.22 | -5,070.9 | -278.0 | 341.1 | 150.0 | 191.15 | 1.785 | |
| 10,500.0 | 5,866.0 | 10,559.0 | 5,779.0 | 100.0 | 100.1 | 75.22 | -5,170.9 | -278.0 | 341.2 | 146.3 | 194.85 | 1.751 | |
| 10,600.0 | 5,866.0 | 10,659.0 | 5,779.0 | 101.9 | 102.0 | 75.22 | -5,270.9 | -278.0 | 341.2 | 142.6 | 198.54 | 1.718 | |
| 10,700.0 | 5,866.0 | 10,759.0 | 5,779.0 | 103.8 | 103.9 | 75.22 | -5,370.9 | -278.0 | 341.2 | 138.9 | 202.24 | 1.687 | |
| 10,800.0 | 5,866.0 | 10,859.0 | 5,779.0 | 105.7 | 105.8 | 75.22 | -5,470.9 | -278.0 | 341.2 | 135.2 | 205.94 | 1.657 | |
| 10,900.0 | 5,866.0 | 10,959.0 | 5,779.0 | 107.6 | 107.7 | 75.22 | -5,570.9 | -278.0 | 341.2 | 131.5 | 209.63 | 1.627 | |
| 11,000.0 | 5,866.0 | 11,059.0 | 5,779.0 | 109.5 | 109.6 | 75.22 | -5,670.9 | -278.0 | 341.2 | 127.8 | 213.33 | 1.599 | |
| 11,100.0 | 5,866.0 | 11,159.0 | 5,779.0 | 111.4 | 111.5 | 75.22 | -5,770.9 | -278.0 | 341.2 | 124.1 | 217.03 | 1.572 | |
| 11,200.0 | 5,866.0 | 11,259.0 | 5,779.0 | 113.3 | 113.4 | 75.22 | -5,870.9 | -278.0 | 341.2 | 120.4 | 220.73 | 1.546 | |
| 11,300.0 | 5,866.0 | 11,359.0 | 5,779.0 | 115.2 | 115.3 | 75.22 | -5,970.9 | -278.1 | 341.2 | 116.7 | 224.44 | 1.520 | |
| 11,400.0 | 5,866.0 | 11,459.0 | 5,779.0 | 117.1 | 117.2 | 75.22 | -6,070.9 | -278.1 | 341.2 | 113.0 | 228.14 | 1.495 | Level 3 |
| 11,500.0 | 5,866.0 | 11,559.0 | 5,779.0 | 119.0 | 119.1 | 75.23 | -6,170.9 | -278.1 | 341.2 | 109.3 | 231.84 | 1.472 | Level 3 |
| 11,600.0 | 5,866.0 | 11,659.0 | 5,779.0 | 120.9 | 121.0 | 75.23 | -6,270.9 | -278.1 | 341.2 | 105.6 | 235.55 | 1.448 | Level 3 |
| 11,700.0 | 5,866.0 | 11,759.0 | 5,779.0 | 122.8 | 122.9 | 75.23 | -6,370.9 | -278.1 | 341.2 | 101.9 | 239.25 | 1.426 | Level 3 |
| 11,800.0 | 5,866.0 | 11,859.0 | 5,779.0 | 124.7 | 124.8 | 75.23 | -6,470.9 | -278.1 | 341.2 | 98.2 | 242.96 | 1.404 | Level 3 |
| 11,900.0 | 5,866.0 | 11,959.0 | 5,779.0 | 126.6 | 126.7 | 75.23 | -6,570.9 | -278.1 | 341.2 | 94.5 | 246.66 | 1.383 | Level 3 |
| 12,000.0 | 5,866.0 | 12,059.0 | 5,779.0 | 128.6 | 128.6 | 75.23 | -6,670.9 | -278.1 | 341.2 | 90.8 | 250.37 | 1.363 | Level 3 |
| 12,100.0 | 5,866.0 | 12,159.0 | 5,779.0 | 130.5 | 130.5 | 75.23 | -6,770.9 | -278.1 | 341.2 | 87.1 | 254.08 | 1.343 | Level 3 |
| 12,200.0 | 5,866.0 | 12,259.0 | 5,779.0 | 132.4 | 132.4 | 75.23 | -6,870.9 | -278.1 | 341.2 | 83.4 | 257.78 | 1.324 | Level 3 |
| 12,300.0 | 5,866.0 | 12,359.0 | 5,779.0 | 134.3 | 134.4 | 75.23 | -6,970.9 | -278.1 | 341.2 | 79.7 | 261.49 | 1.305 | Level 3 |
| 12,400.0 | 5,866.0 | 12,459.0 | 5,779.0 | 136.2 | 136.3 | 75.23 | -7,070.9 | -278.1 | 341.2 | 76.0 | 265.20 | 1.287 | Level 3 |
| 12,500.0 | 5,866.0 | 12,559.0 | 5,779.0 | 138.1 | 138.2 | 75.23 | -7,170.9 | -278.1 | 341.2 | 72.3 | 268.91 | 1.269 | Level 3 |
| 12,600.0 | 5,866.0 | 12,659.0 | 5,779.0 | 140.0 | 140.1 | 75.23 | -7,270.9 | -278.1 | 341.2 | 68.6 | 272.62 | 1.252 | Level 3 |
| 12,700.0 | 5,866.0 | 12,759.0 | 5,779.0 | 141.9 | 142.0 | 75.23 | -7,370.9 | -278.1 | 341.2 | 64.9 | 276.33 | 1.235 | Level 2 |
| 12,756.2 | 5,866.0 | 12,815.2 | 5,779.0 | 143.0 | 143.1 | 75.23 | -7,427.0 | -278.1 | 341.2 | 62.8 | 278.41 | 1.226 | Level 2, ES, SF |

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** S21-T10N-R58W - Razor #21A-2815A - HZ - Plan #1

**Offset Site Error:** 0.0 ft

**Survey Program:** 0-ISCWSA MWD

**Offset Well Error:** 0.0 ft

| Reference Measured Depth (ft) | Reference Vertical Depth (ft) | Offset Measured Depth (ft) | Offset Vertical Depth (ft) | Semi Major Axis Reference (ft) | Semi Major Axis Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.92 | 75.3 | 31.8 | 81.7 | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 22.92 | 75.3 | 31.8 | 81.7 | 81.5 | 0.19 | 435.491 | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 22.92 | 75.3 | 31.8 | 81.7 | 81.1 | 0.64 | 128.266 | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | 22.92 | 75.3 | 31.8 | 81.7 | 80.6 | 1.09 | 75.209 | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | 22.92 | 75.3 | 31.8 | 81.7 | 80.2 | 1.54 | 53.202 | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 22.92 | 75.3 | 31.8 | 81.7 | 79.7 | 1.99 | 41.159 | |
| 600.0 | 600.0 | 602.2 | 602.1 | 1.2 | 1.2 | 23.76 | 73.5 | 32.4 | 80.4 | 78.0 | 2.41 | 33.304 | |
| 700.0 | 700.0 | 704.1 | 703.9 | 1.4 | 1.4 | -150.90 | 68.4 | 34.0 | 78.0 | 75.2 | 2.80 | 27.818 | |
| 764.4 | 764.4 | 768.5 | 768.2 | 1.5 | 1.5 | -149.68 | 64.1 | 35.4 | 77.3 | 74.3 | 3.05 | 25.354 | CC |
| 800.0 | 799.8 | 804.1 | 803.6 | 1.6 | 1.6 | -149.23 | 61.7 | 36.2 | 77.5 | 74.4 | 3.19 | 24.325 | |
| 900.0 | 899.6 | 904.0 | 903.4 | 1.8 | 1.8 | -148.22 | 55.1 | 38.3 | 78.6 | 75.0 | 3.60 | 21.854 | |
| 1,000.0 | 999.4 | 1,004.0 | 1,003.1 | 2.0 | 2.1 | -147.24 | 48.4 | 40.4 | 79.8 | 75.7 | 4.03 | 19.804 | |
| 1,100.0 | 1,099.1 | 1,104.0 | 1,102.9 | 2.2 | 2.3 | -146.29 | 41.8 | 42.6 | 80.9 | 76.4 | 4.47 | 18.097 | |
| 1,200.0 | 1,198.9 | 1,204.0 | 1,202.6 | 2.5 | 2.5 | -145.36 | 35.2 | 44.7 | 82.1 | 77.1 | 4.92 | 16.666 | |
| 1,300.0 | 1,298.6 | 1,304.0 | 1,302.4 | 2.7 | 2.8 | -144.46 | 28.5 | 46.8 | 83.2 | 77.9 | 5.39 | 15.456 | |
| 1,400.0 | 1,398.4 | 1,404.0 | 1,402.1 | 3.0 | 3.0 | -143.58 | 21.9 | 49.0 | 84.4 | 78.6 | 5.86 | 14.423 | |
| 1,500.0 | 1,498.1 | 1,504.0 | 1,501.8 | 3.2 | 3.3 | -142.73 | 15.2 | 51.1 | 85.7 | 79.3 | 6.33 | 13.534 | |
| 1,600.0 | 1,597.9 | 1,603.9 | 1,601.6 | 3.5 | 3.6 | -141.90 | 8.6 | 53.2 | 86.9 | 80.1 | 6.81 | 12.762 | |
| 1,700.0 | 1,697.6 | 1,703.9 | 1,701.3 | 3.7 | 3.8 | -141.10 | 2.0 | 55.3 | 88.2 | 80.9 | 7.29 | 12.087 | |
| 1,800.0 | 1,797.4 | 1,803.9 | 1,801.1 | 4.0 | 4.1 | -140.32 | -4.7 | 57.5 | 89.4 | 81.7 | 7.78 | 11.494 | |
| 1,900.0 | 1,897.2 | 1,903.9 | 1,900.8 | 4.2 | 4.3 | -139.56 | -11.3 | 59.6 | 90.7 | 82.5 | 8.27 | 10.967 | |
| 2,000.0 | 1,996.9 | 2,003.9 | 2,000.5 | 4.5 | 4.6 | -138.82 | -18.0 | 61.7 | 92.0 | 83.3 | 8.77 | 10.498 | |
| 2,100.0 | 2,096.7 | 2,103.9 | 2,100.3 | 4.7 | 4.8 | -138.11 | -24.6 | 63.9 | 93.4 | 84.1 | 9.26 | 10.078 | |
| 2,200.0 | 2,196.4 | 2,203.9 | 2,200.0 | 5.0 | 5.1 | -137.41 | -31.3 | 66.0 | 94.7 | 84.9 | 9.76 | 9.700 | |
| 2,300.0 | 2,296.2 | 2,303.8 | 2,299.8 | 5.3 | 5.4 | -136.74 | -37.9 | 68.1 | 96.1 | 85.8 | 10.26 | 9.358 | |
| 2,400.0 | 2,395.9 | 2,403.8 | 2,399.5 | 5.5 | 5.6 | -136.08 | -44.5 | 70.2 | 97.4 | 86.6 | 10.77 | 9.047 | |
| 2,500.0 | 2,495.7 | 2,503.8 | 2,499.2 | 5.8 | 5.9 | -135.44 | -51.2 | 72.4 | 98.8 | 87.5 | 11.27 | 8.764 | |
| 2,600.0 | 2,595.5 | 2,603.8 | 2,599.0 | 6.0 | 6.2 | -134.82 | -57.8 | 74.5 | 100.2 | 88.4 | 11.78 | 8.505 | |
| 2,700.0 | 2,695.2 | 2,703.8 | 2,698.7 | 6.3 | 6.4 | -134.21 | -64.5 | 76.6 | 101.6 | 89.3 | 12.29 | 8.267 | |
| 2,800.0 | 2,795.0 | 2,803.8 | 2,798.5 | 6.6 | 6.7 | -133.62 | -71.1 | 78.8 | 103.0 | 90.2 | 12.80 | 8.048 | |
| 2,900.0 | 2,894.7 | 2,903.7 | 2,898.2 | 6.8 | 6.9 | -133.05 | -77.7 | 80.9 | 104.4 | 91.1 | 13.31 | 7.846 | |
| 3,000.0 | 2,994.5 | 3,003.7 | 2,998.0 | 7.1 | 7.2 | -132.49 | -84.4 | 83.0 | 105.8 | 92.0 | 13.82 | 7.659 | |
| 3,100.0 | 3,094.2 | 3,103.7 | 3,097.7 | 7.3 | 7.5 | -131.95 | -91.0 | 85.2 | 107.3 | 92.9 | 14.33 | 7.485 | |
| 3,200.0 | 3,194.0 | 3,203.7 | 3,197.4 | 7.6 | 7.7 | -131.42 | -97.7 | 87.3 | 108.7 | 93.9 | 14.85 | 7.323 | |
| 3,300.0 | 3,293.8 | 3,303.7 | 3,297.2 | 7.9 | 8.0 | -130.91 | -104.3 | 89.4 | 110.2 | 94.8 | 15.36 | 7.172 | |
| 3,400.0 | 3,393.5 | 3,403.7 | 3,396.9 | 8.1 | 8.3 | -130.41 | -111.0 | 91.5 | 111.7 | 95.8 | 15.88 | 7.032 | |
| 3,500.0 | 3,493.3 | 3,503.7 | 3,496.7 | 8.4 | 8.5 | -129.92 | -117.6 | 93.7 | 113.1 | 96.7 | 16.40 | 6.900 | |
| 3,600.0 | 3,593.0 | 3,603.6 | 3,596.4 | 8.7 | 8.8 | -129.45 | -124.2 | 95.8 | 114.6 | 97.7 | 16.91 | 6.776 | |
| 3,700.0 | 3,692.8 | 3,703.6 | 3,696.1 | 8.9 | 9.0 | -128.98 | -130.9 | 97.9 | 116.1 | 98.7 | 17.43 | 6.660 | |
| 3,800.0 | 3,792.5 | 3,803.6 | 3,795.9 | 9.2 | 9.3 | -128.53 | -137.5 | 100.1 | 117.6 | 99.6 | 17.95 | 6.551 | |
| 3,900.0 | 3,892.3 | 3,903.6 | 3,895.6 | 9.4 | 9.6 | -128.09 | -144.2 | 102.2 | 119.1 | 100.6 | 18.47 | 6.448 | |
| 4,000.0 | 3,992.1 | 4,003.6 | 3,995.4 | 9.7 | 9.8 | -127.66 | -150.8 | 104.3 | 120.6 | 101.6 | 18.99 | 6.350 | |
| 4,100.0 | 4,091.8 | 4,103.6 | 4,095.1 | 10.0 | 10.1 | -127.25 | -157.4 | 106.5 | 122.1 | 102.6 | 19.52 | 6.259 | |
| 4,200.0 | 4,191.6 | 4,203.5 | 4,194.8 | 10.2 | 10.4 | -126.84 | -164.1 | 108.6 | 123.7 | 103.6 | 20.04 | 6.172 | |
| 4,300.0 | 4,291.3 | 4,303.5 | 4,294.6 | 10.5 | 10.6 | -126.44 | -170.7 | 110.7 | 125.2 | 104.6 | 20.56 | 6.089 | |
| 4,400.0 | 4,391.1 | 4,403.5 | 4,394.3 | 10.8 | 10.9 | -126.05 | -177.4 | 112.8 | 126.7 | 105.7 | 21.08 | 6.011 | |
| 4,500.0 | 4,490.8 | 4,503.5 | 4,494.1 | 11.0 | 11.2 | -125.67 | -184.0 | 115.0 | 128.3 | 106.7 | 21.61 | 5.937 | |
| 4,600.0 | 4,590.6 | 4,603.5 | 4,593.8 | 11.3 | 11.4 | -125.31 | -190.7 | 117.1 | 129.8 | 107.7 | 22.13 | 5.866 | |
| 4,700.0 | 4,690.3 | 4,703.5 | 4,693.6 | 11.5 | 11.7 | -124.94 | -197.3 | 119.2 | 131.4 | 108.7 | 22.65 | 5.799 | |
| 4,800.0 | 4,790.1 | 4,803.5 | 4,793.3 | 11.8 | 11.9 | -124.59 | -203.9 | 121.4 | 132.9 | 109.8 | 23.18 | 5.735 | |
| 4,900.0 | 4,889.9 | 4,903.4 | 4,893.0 | 12.1 | 12.2 | -124.25 | -210.6 | 123.5 | 134.5 | 110.8 | 23.70 | 5.674 | |
| 5,000.0 | 4,989.6 | 5,003.4 | 4,992.8 | 12.3 | 12.5 | -123.91 | -217.2 | 125.6 | 136.1 | 111.8 | 24.23 | 5.616 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** S21-T10N-R58W - Razor #21A-2815A - HZ - Plan #1

**Offset Site Error:** 0.0 ft

**Survey Program:** 0-ISCWSA MWD

**Offset Well Error:** 0.0 ft

| Reference Measured Depth (ft) | Reference Vertical Depth (ft) | Offset Measured Depth (ft) | Offset Vertical Depth (ft) | Semi Major Axis Reference (ft) | Semi Major Axis Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 5,089.4 | 5,103.4 | 5,092.5 | 12.6 | 12.7 | -123.58 | -223.9 | 127.8 | 137.6 | 112.9 | 24.75 | 5.560 | |
| 5,200.0 | 5,189.1 | 5,203.4 | 5,192.3 | 12.9 | 13.0 | -123.26 | -230.5 | 129.9 | 139.2 | 113.9 | 25.28 | 5.507 | |
| 5,300.0 | 5,288.9 | 5,303.4 | 5,292.0 | 13.1 | 13.3 | -122.95 | -237.1 | 132.0 | 140.8 | 115.0 | 25.81 | 5.456 | |
| 5,392.8 | 5,381.5 | 5,403.4 | 5,390.6 | 13.4 | 13.6 | -119.09 | -252.4 | 136.9 | 139.9 | 113.3 | 26.53 | 5.272 | |
| 5,400.0 | 5,388.6 | 5,411.0 | 5,397.9 | 13.4 | 13.7 | -118.52 | -254.3 | 137.5 | 139.6 | 113.0 | 26.60 | 5.250 | |
| 5,438.0 | 5,426.3 | 5,450.6 | 5,435.7 | 13.5 | 13.8 | -115.41 | -265.8 | 141.2 | 139.1 | 112.1 | 26.98 | 5.156 | |
| 5,450.0 | 5,438.2 | 5,463.0 | 5,447.3 | 13.6 | 13.9 | -114.39 | -270.0 | 142.5 | 139.2 | 112.1 | 27.11 | 5.134 | |
| 5,500.0 | 5,486.9 | 5,513.9 | 5,493.7 | 13.8 | 14.2 | -109.98 | -289.7 | 148.9 | 140.6 | 112.9 | 27.69 | 5.076 | |
| 5,550.0 | 5,534.3 | 5,563.7 | 5,536.9 | 14.0 | 14.6 | -105.48 | -313.1 | 156.4 | 143.8 | 115.4 | 28.36 | 5.070 | |
| 5,600.0 | 5,579.9 | 5,612.4 | 5,576.8 | 14.3 | 14.9 | -101.05 | -339.8 | 164.9 | 148.9 | 119.8 | 29.12 | 5.114 | |
| 5,650.0 | 5,623.4 | 5,660.1 | 5,613.1 | 14.6 | 15.4 | -96.81 | -369.2 | 174.3 | 155.7 | 125.8 | 29.94 | 5.201 | |
| 5,700.0 | 5,664.3 | 5,706.8 | 5,645.8 | 15.0 | 15.8 | -92.85 | -400.9 | 184.5 | 164.0 | 133.2 | 30.80 | 5.325 | |
| 5,750.0 | 5,702.3 | 5,752.6 | 5,674.9 | 15.5 | 16.3 | -89.23 | -434.6 | 195.3 | 173.7 | 142.0 | 31.70 | 5.479 | |
| 5,800.0 | 5,737.0 | 5,797.6 | 5,700.3 | 16.0 | 16.8 | -85.97 | -470.0 | 206.7 | 184.4 | 151.8 | 32.62 | 5.653 | |
| 5,850.0 | 5,768.1 | 5,841.9 | 5,722.1 | 16.5 | 17.4 | -83.05 | -506.7 | 218.4 | 196.0 | 162.4 | 33.55 | 5.841 | |
| 5,900.0 | 5,795.3 | 5,885.5 | 5,740.2 | 17.1 | 18.0 | -80.46 | -544.4 | 230.5 | 208.2 | 173.7 | 34.50 | 6.035 | |
| 5,950.0 | 5,818.3 | 5,928.5 | 5,754.9 | 17.7 | 18.6 | -78.18 | -582.9 | 242.9 | 220.9 | 185.4 | 35.47 | 6.227 | |
| 6,000.0 | 5,837.0 | 5,971.1 | 5,766.0 | 18.3 | 19.2 | -76.18 | -622.0 | 255.4 | 233.9 | 197.4 | 36.47 | 6.413 | |
| 6,050.0 | 5,851.2 | 6,013.2 | 5,773.7 | 19.0 | 19.9 | -74.43 | -661.4 | 268.1 | 246.9 | 209.4 | 37.50 | 6.585 | |
| 6,100.0 | 5,860.7 | 6,055.0 | 5,777.9 | 19.8 | 20.5 | -72.91 | -701.0 | 280.8 | 260.0 | 221.5 | 38.58 | 6.740 | |
| 6,150.0 | 5,865.4 | 6,099.6 | 5,779.0 | 20.5 | 21.2 | -71.63 | -743.5 | 294.3 | 272.9 | 233.2 | 39.76 | 6.865 | |
| 6,174.6 | 5,866.0 | 6,127.3 | 5,779.0 | 20.9 | 21.6 | -71.33 | -770.0 | 302.4 | 278.7 | 238.2 | 40.46 | 6.887 | |
| 6,200.0 | 5,866.0 | 6,156.0 | 5,779.0 | 21.2 | 22.0 | -71.72 | -797.6 | 310.4 | 284.2 | 242.9 | 41.24 | 6.891 | |
| 6,284.7 | 5,866.0 | 6,252.7 | 5,779.0 | 22.4 | 23.3 | -72.87 | -891.2 | 334.3 | 302.4 | 258.6 | 43.75 | 6.911 | |
| 6,300.0 | 5,866.0 | 6,270.4 | 5,779.0 | 22.6 | 23.6 | -73.09 | -908.5 | 338.1 | 305.6 | 261.3 | 44.27 | 6.903 | |
| 6,400.0 | 5,866.0 | 6,387.2 | 5,779.0 | 24.2 | 25.3 | -74.20 | -1,023.3 | 359.5 | 323.2 | 275.4 | 47.79 | 6.763 | |
| 6,500.0 | 5,866.0 | 6,506.2 | 5,779.0 | 25.8 | 27.1 | -74.88 | -1,141.4 | 374.0 | 335.0 | 283.6 | 51.35 | 6.523 | |
| 6,600.0 | 5,866.0 | 6,626.6 | 5,779.0 | 27.5 | 29.0 | -75.20 | -1,261.6 | 381.2 | 340.7 | 285.8 | 54.93 | 6.203 | |
| 6,700.0 | 5,866.0 | 6,735.9 | 5,779.0 | 29.2 | 30.7 | -75.23 | -1,370.9 | 382.0 | 341.3 | 283.0 | 58.35 | 5.850 | |
| 6,800.0 | 5,866.0 | 6,835.9 | 5,779.0 | 31.0 | 32.4 | -75.23 | -1,470.9 | 381.9 | 341.3 | 279.6 | 61.71 | 5.531 | |
| 6,900.0 | 5,866.0 | 6,935.9 | 5,779.0 | 32.7 | 34.1 | -75.23 | -1,570.9 | 381.9 | 341.3 | 276.2 | 65.11 | 5.242 | |
| 7,000.0 | 5,866.0 | 7,035.9 | 5,779.0 | 34.5 | 35.9 | -75.23 | -1,670.9 | 381.9 | 341.3 | 272.8 | 68.55 | 4.979 | |
| 7,100.0 | 5,866.0 | 7,135.9 | 5,779.0 | 36.3 | 37.6 | -75.23 | -1,770.9 | 381.9 | 341.3 | 269.3 | 72.01 | 4.740 | |
| 7,200.0 | 5,866.0 | 7,235.9 | 5,779.0 | 38.1 | 39.4 | -75.23 | -1,870.9 | 381.9 | 341.3 | 265.8 | 75.50 | 4.520 | |
| 7,300.0 | 5,866.0 | 7,335.9 | 5,779.0 | 39.9 | 41.1 | -75.23 | -1,970.9 | 381.9 | 341.3 | 262.3 | 79.01 | 4.320 | |
| 7,400.0 | 5,866.0 | 7,435.9 | 5,779.0 | 41.7 | 42.9 | -75.23 | -2,070.9 | 381.9 | 341.3 | 258.8 | 82.55 | 4.135 | |
| 7,500.0 | 5,866.0 | 7,535.9 | 5,779.0 | 43.6 | 44.7 | -75.23 | -2,170.9 | 381.9 | 341.3 | 255.2 | 86.09 | 3.964 | |
| 7,600.0 | 5,866.0 | 7,635.9 | 5,779.0 | 45.4 | 46.5 | -75.23 | -2,270.9 | 381.9 | 341.3 | 251.6 | 89.66 | 3.807 | |
| 7,700.0 | 5,866.0 | 7,735.9 | 5,779.0 | 47.2 | 48.4 | -75.23 | -2,370.9 | 381.9 | 341.3 | 248.1 | 93.23 | 3.661 | |
| 7,800.0 | 5,866.0 | 7,835.9 | 5,779.0 | 49.1 | 50.2 | -75.23 | -2,470.9 | 381.9 | 341.3 | 244.5 | 96.82 | 3.525 | |
| 7,900.0 | 5,866.0 | 7,935.9 | 5,779.0 | 50.9 | 52.0 | -75.23 | -2,570.9 | 381.9 | 341.3 | 240.9 | 100.42 | 3.399 | |
| 8,000.0 | 5,866.0 | 8,035.9 | 5,779.0 | 52.8 | 53.8 | -75.23 | -2,670.9 | 381.9 | 341.3 | 237.3 | 104.02 | 3.281 | |
| 8,100.0 | 5,866.0 | 8,135.9 | 5,779.0 | 54.7 | 55.7 | -75.23 | -2,770.9 | 381.9 | 341.3 | 233.7 | 107.64 | 3.171 | |
| 8,200.0 | 5,866.0 | 8,235.9 | 5,779.0 | 56.5 | 57.5 | -75.23 | -2,870.9 | 381.9 | 341.3 | 230.0 | 111.26 | 3.067 | |
| 8,300.0 | 5,866.0 | 8,335.9 | 5,779.0 | 58.4 | 59.4 | -75.23 | -2,970.9 | 381.9 | 341.3 | 226.4 | 114.89 | 2.971 | |
| 8,400.0 | 5,866.0 | 8,435.9 | 5,779.0 | 60.3 | 61.2 | -75.23 | -3,070.9 | 381.9 | 341.3 | 222.8 | 118.52 | 2.879 | |
| 8,500.0 | 5,866.0 | 8,535.9 | 5,779.0 | 62.1 | 63.1 | -75.23 | -3,170.9 | 381.9 | 341.3 | 219.1 | 122.16 | 2.794 | |
| 8,600.0 | 5,866.0 | 8,635.9 | 5,779.0 | 64.0 | 65.0 | -75.23 | -3,270.9 | 381.9 | 341.3 | 215.5 | 125.81 | 2.713 | |
| 8,700.0 | 5,866.0 | 8,735.9 | 5,779.0 | 65.9 | 66.8 | -75.23 | -3,370.9 | 381.9 | 341.3 | 211.8 | 129.46 | 2.636 | |
| 8,800.0 | 5,866.0 | 8,835.9 | 5,779.0 | 67.8 | 68.7 | -75.23 | -3,470.9 | 381.9 | 341.3 | 208.2 | 133.11 | 2.564 | |
| 8,900.0 | 5,866.0 | 8,935.9 | 5,779.0 | 69.7 | 70.6 | -75.23 | -3,570.9 | 381.9 | 341.3 | 204.5 | 136.77 | 2.495 | |
| 9,000.0 | 5,866.0 | 9,035.9 | 5,779.0 | 71.5 | 72.4 | -75.23 | -3,670.9 | 381.9 | 341.3 | 200.8 | 140.44 | 2.430 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** S21-T10N-R58W - Razor #21A-2815A - HZ - Plan #1

**Offset Site Error:** 0.0 ft

**Survey Program:** 0-ISCWSA MWD

**Offset Well Error:** 0.0 ft

| Reference Measured Depth (ft) | Reference Vertical Depth (ft) | Offset Measured Depth (ft) | Offset Vertical Depth (ft) | Semi Major Axis Reference (ft) | Semi Major Axis Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9,100.0 | 5,866.0 | 9,135.9 | 5,779.0 | 73.4 | 74.3 | -75.23 | -3,770.9 | 381.9 | 341.3 | 197.2 | 144.10 | 2.368 | |
| 9,200.0 | 5,866.0 | 9,235.9 | 5,779.0 | 75.3 | 76.2 | -75.23 | -3,870.9 | 381.9 | 341.3 | 193.5 | 147.77 | 2.309 | |
| 9,300.0 | 5,866.0 | 9,335.9 | 5,779.0 | 77.2 | 78.1 | -75.23 | -3,970.9 | 381.8 | 341.3 | 189.8 | 151.44 | 2.253 | |
| 9,400.0 | 5,866.0 | 9,435.9 | 5,779.0 | 79.1 | 80.0 | -75.23 | -4,070.9 | 381.8 | 341.3 | 186.1 | 155.12 | 2.200 | |
| 9,500.0 | 5,866.0 | 9,535.9 | 5,779.0 | 81.0 | 81.8 | -75.23 | -4,170.9 | 381.8 | 341.3 | 182.5 | 158.79 | 2.149 | |
| 9,600.0 | 5,866.0 | 9,635.9 | 5,779.0 | 82.9 | 83.7 | -75.23 | -4,270.9 | 381.8 | 341.3 | 178.8 | 162.47 | 2.100 | |
| 9,700.0 | 5,866.0 | 9,735.9 | 5,779.0 | 84.8 | 85.6 | -75.23 | -4,370.9 | 381.8 | 341.3 | 175.1 | 166.15 | 2.054 | |
| 9,800.0 | 5,866.0 | 9,835.9 | 5,779.0 | 86.7 | 87.5 | -75.23 | -4,470.9 | 381.8 | 341.2 | 171.4 | 169.84 | 2.009 | |
| 9,900.0 | 5,866.0 | 9,935.9 | 5,779.0 | 88.6 | 89.4 | -75.23 | -4,570.9 | 381.8 | 341.2 | 167.7 | 173.52 | 1.967 | |
| 10,000.0 | 5,866.0 | 10,035.9 | 5,779.0 | 90.5 | 91.3 | -75.23 | -4,670.9 | 381.8 | 341.2 | 164.0 | 177.21 | 1.926 | |
| 10,100.0 | 5,866.0 | 10,135.9 | 5,779.0 | 92.4 | 93.2 | -75.23 | -4,770.9 | 381.8 | 341.2 | 160.3 | 180.90 | 1.886 | |
| 10,200.0 | 5,866.0 | 10,235.9 | 5,779.0 | 94.3 | 95.1 | -75.23 | -4,870.9 | 381.8 | 341.2 | 156.7 | 184.59 | 1.849 | |
| 10,300.0 | 5,866.0 | 10,335.9 | 5,779.0 | 96.2 | 97.0 | -75.23 | -4,970.9 | 381.8 | 341.2 | 153.0 | 188.28 | 1.812 | |
| 10,400.0 | 5,866.0 | 10,435.9 | 5,779.0 | 98.1 | 98.8 | -75.23 | -5,070.9 | 381.8 | 341.2 | 149.3 | 191.97 | 1.778 | |
| 10,500.0 | 5,866.0 | 10,535.9 | 5,779.0 | 100.0 | 100.7 | -75.23 | -5,170.9 | 381.8 | 341.2 | 145.6 | 195.66 | 1.744 | |
| 10,600.0 | 5,866.0 | 10,635.9 | 5,779.0 | 101.9 | 102.6 | -75.23 | -5,270.9 | 381.8 | 341.2 | 141.9 | 199.36 | 1.712 | |
| 10,700.0 | 5,866.0 | 10,735.9 | 5,779.0 | 103.8 | 104.5 | -75.23 | -5,370.9 | 381.8 | 341.2 | 138.2 | 203.06 | 1.680 | |
| 10,800.0 | 5,866.0 | 10,835.9 | 5,779.0 | 105.7 | 106.4 | -75.23 | -5,470.9 | 381.8 | 341.2 | 134.5 | 206.75 | 1.650 | |
| 10,900.0 | 5,866.0 | 10,935.9 | 5,779.0 | 107.6 | 108.3 | -75.23 | -5,570.9 | 381.8 | 341.2 | 130.8 | 210.45 | 1.621 | |
| 11,000.0 | 5,866.0 | 11,035.9 | 5,779.0 | 109.5 | 110.2 | -75.23 | -5,670.9 | 381.8 | 341.2 | 127.1 | 214.15 | 1.593 | |
| 11,100.0 | 5,866.0 | 11,135.9 | 5,779.0 | 111.4 | 112.1 | -75.23 | -5,770.9 | 381.8 | 341.2 | 123.4 | 217.85 | 1.566 | |
| 11,200.0 | 5,866.0 | 11,235.9 | 5,779.0 | 113.3 | 114.0 | -75.23 | -5,870.9 | 381.8 | 341.2 | 119.7 | 221.55 | 1.540 | |
| 11,300.0 | 5,866.0 | 11,335.9 | 5,779.0 | 115.2 | 115.9 | -75.23 | -5,970.9 | 381.8 | 341.2 | 116.0 | 225.26 | 1.515 | |
| 11,400.0 | 5,866.0 | 11,435.9 | 5,779.0 | 117.1 | 117.8 | -75.23 | -6,070.9 | 381.8 | 341.2 | 112.3 | 228.96 | 1.490 | Level 3 |
| 11,500.0 | 5,866.0 | 11,535.9 | 5,779.0 | 119.0 | 119.7 | -75.23 | -6,170.9 | 381.8 | 341.2 | 108.5 | 232.66 | 1.467 | Level 3 |
| 11,600.0 | 5,866.0 | 11,635.9 | 5,779.0 | 120.9 | 121.6 | -75.23 | -6,270.9 | 381.8 | 341.2 | 104.8 | 236.37 | 1.444 | Level 3 |
| 11,700.0 | 5,866.0 | 11,735.9 | 5,779.0 | 122.8 | 123.5 | -75.23 | -6,370.9 | 381.8 | 341.2 | 101.1 | 240.07 | 1.421 | Level 3 |
| 11,800.0 | 5,866.0 | 11,835.9 | 5,779.0 | 124.7 | 125.4 | -75.23 | -6,470.9 | 381.7 | 341.2 | 97.4 | 243.78 | 1.400 | Level 3 |
| 11,900.0 | 5,866.0 | 11,935.9 | 5,779.0 | 126.6 | 127.3 | -75.23 | -6,570.9 | 381.7 | 341.2 | 93.7 | 247.49 | 1.379 | Level 3 |
| 12,000.0 | 5,866.0 | 12,035.9 | 5,779.0 | 128.6 | 129.2 | -75.23 | -6,670.9 | 381.7 | 341.2 | 90.0 | 251.19 | 1.358 | Level 3 |
| 12,100.0 | 5,866.0 | 12,135.9 | 5,779.0 | 130.5 | 131.2 | -75.23 | -6,770.9 | 381.7 | 341.2 | 86.3 | 254.90 | 1.339 | Level 3 |
| 12,200.0 | 5,866.0 | 12,235.9 | 5,779.0 | 132.4 | 133.1 | -75.23 | -6,870.9 | 381.7 | 341.2 | 82.6 | 258.61 | 1.319 | Level 3 |
| 12,300.0 | 5,866.0 | 12,335.9 | 5,779.0 | 134.3 | 135.0 | -75.23 | -6,970.9 | 381.7 | 341.2 | 78.9 | 262.32 | 1.301 | Level 3 |
| 12,400.0 | 5,866.0 | 12,435.9 | 5,779.0 | 136.2 | 136.9 | -75.23 | -7,070.9 | 381.7 | 341.2 | 75.2 | 266.03 | 1.283 | Level 3 |
| 12,500.0 | 5,866.0 | 12,535.9 | 5,779.0 | 138.1 | 138.8 | -75.23 | -7,170.9 | 381.7 | 341.2 | 71.5 | 269.74 | 1.265 | Level 3 |
| 12,600.0 | 5,866.0 | 12,635.9 | 5,779.0 | 140.0 | 140.7 | -75.23 | -7,270.9 | 381.7 | 341.2 | 67.7 | 273.45 | 1.248 | Level 2 |
| 12,700.0 | 5,866.0 | 12,735.9 | 5,779.0 | 141.9 | 142.6 | -75.23 | -7,370.9 | 381.7 | 341.2 | 64.0 | 277.16 | 1.231 | Level 2 |
| 12,739.7 | 5,866.0 | 12,775.6 | 5,779.0 | 142.7 | 143.3 | -75.23 | -7,410.6 | 381.7 | 341.2 | 62.6 | 278.62 | 1.225 | Level 2 |
| 12,756.2 | 5,866.0 | 12,784.8 | 5,779.0 | 143.0 | 143.5 | -75.23 | -7,419.8 | 381.7 | 341.3 | 62.2 | 279.10 | 1.223 | Level 2, ES, SF |

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** S21-T10N-R58W - Razor #21A-2816B - HZ - Plan #1

**Offset Site Error:** 0.0 ft

**Survey Program:** 0-ISCWSA MWD

**Offset Well Error:** 0.0 ft

| Reference Measured Depth (ft) | Reference Vertical Depth (ft) | Offset Measured Depth (ft) | Offset Vertical Depth (ft) | Semi Major Axis Reference (ft) | Semi Major Axis Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 98.32 | -9.7 | 66.3 | 67.0 | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 98.32 | -9.7 | 66.3 | 67.0 | 66.8 | 0.19 | 357.187 | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 98.32 | -9.7 | 66.3 | 67.0 | 66.4 | 0.64 | 105.203 | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | 98.32 | -9.7 | 66.3 | 67.0 | 66.0 | 1.09 | 61.686 | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | 98.32 | -9.7 | 66.3 | 67.0 | 65.5 | 1.54 | 43.636 | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 98.32 | -9.7 | 66.3 | 67.0 | 65.1 | 1.99 | 33.758 | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | 98.32 | -9.7 | 66.3 | 67.0 | 64.6 | 2.44 | 27.527 | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.4 | 1.4 | -79.86 | -9.7 | 66.3 | 66.7 | 63.9 | 2.86 | 23.352 | |
| 800.0 | 799.8 | 799.8 | 799.8 | 1.6 | 1.7 | -84.34 | -9.7 | 66.3 | 66.0 | 62.7 | 3.26 | 20.218 | |
| 893.5 | 893.1 | 893.1 | 893.1 | 1.8 | 1.9 | -90.00 | -9.7 | 66.3 | 65.7 | 62.0 | 3.66 | 17.927 | CC |
| 900.0 | 899.6 | 899.6 | 899.6 | 1.8 | 1.9 | -90.40 | -9.7 | 66.3 | 65.7 | 62.0 | 3.69 | 17.792 | |
| 1,000.0 | 999.4 | 999.4 | 999.4 | 2.0 | 2.1 | -96.44 | -9.7 | 66.3 | 66.1 | 62.0 | 4.13 | 15.993 | ES |
| 1,100.0 | 1,099.1 | 1,098.5 | 1,098.5 | 2.2 | 2.3 | -100.92 | -11.2 | 67.2 | 67.6 | 63.1 | 4.55 | 14.853 | |
| 1,200.0 | 1,198.9 | 1,197.9 | 1,197.7 | 2.5 | 2.5 | -102.42 | -15.7 | 69.7 | 70.3 | 65.4 | 4.97 | 14.162 | |
| 1,300.0 | 1,298.6 | 1,297.8 | 1,297.4 | 2.7 | 2.7 | -102.45 | -21.7 | 73.1 | 73.5 | 68.1 | 5.40 | 13.611 | |
| 1,400.0 | 1,398.4 | 1,397.8 | 1,397.1 | 3.0 | 2.9 | -102.47 | -27.8 | 76.5 | 76.6 | 70.8 | 5.85 | 13.107 | |
| 1,500.0 | 1,498.1 | 1,497.7 | 1,496.8 | 3.2 | 3.1 | -102.49 | -33.9 | 79.9 | 79.8 | 73.4 | 6.30 | 12.651 | |
| 1,600.0 | 1,597.9 | 1,597.7 | 1,596.5 | 3.5 | 3.3 | -102.51 | -40.0 | 83.3 | 82.9 | 76.1 | 6.77 | 12.239 | |
| 1,700.0 | 1,697.6 | 1,697.6 | 1,696.3 | 3.7 | 3.6 | -102.52 | -46.1 | 86.7 | 86.0 | 78.8 | 7.25 | 11.867 | |
| 1,800.0 | 1,797.4 | 1,797.6 | 1,796.0 | 4.0 | 3.8 | -102.54 | -52.1 | 90.1 | 89.2 | 81.4 | 7.73 | 11.532 | |
| 1,900.0 | 1,897.2 | 1,897.5 | 1,895.7 | 4.2 | 4.0 | -102.55 | -58.2 | 93.6 | 92.3 | 84.1 | 8.22 | 11.229 | |
| 2,000.0 | 1,996.9 | 1,997.5 | 1,995.4 | 4.5 | 4.3 | -102.57 | -64.3 | 97.0 | 95.4 | 86.7 | 8.71 | 10.954 | |
| 2,100.0 | 2,096.7 | 2,097.4 | 2,095.1 | 4.7 | 4.5 | -102.58 | -70.4 | 100.4 | 98.6 | 89.4 | 9.21 | 10.704 | |
| 2,200.0 | 2,196.4 | 2,197.4 | 2,194.8 | 5.0 | 4.7 | -102.59 | -76.5 | 103.8 | 101.7 | 92.0 | 9.71 | 10.476 | |
| 2,300.0 | 2,296.2 | 2,297.3 | 2,294.5 | 5.3 | 5.0 | -102.60 | -82.5 | 107.2 | 104.9 | 94.6 | 10.21 | 10.268 | |
| 2,400.0 | 2,395.9 | 2,397.3 | 2,394.2 | 5.5 | 5.2 | -102.61 | -88.6 | 110.6 | 108.0 | 97.3 | 10.72 | 10.077 | |
| 2,500.0 | 2,495.7 | 2,497.2 | 2,493.9 | 5.8 | 5.5 | -102.62 | -94.7 | 114.0 | 111.1 | 99.9 | 11.22 | 9.902 | |
| 2,600.0 | 2,595.5 | 2,597.2 | 2,593.6 | 6.0 | 5.7 | -102.63 | -100.8 | 117.4 | 114.3 | 102.5 | 11.73 | 9.740 | |
| 2,700.0 | 2,695.2 | 2,697.1 | 2,693.3 | 6.3 | 6.0 | -102.64 | -106.9 | 120.9 | 117.4 | 105.2 | 12.24 | 9.591 | |
| 2,800.0 | 2,795.0 | 2,797.1 | 2,793.0 | 6.6 | 6.2 | -102.65 | -112.9 | 124.3 | 120.5 | 107.8 | 12.75 | 9.452 | |
| 2,900.0 | 2,894.7 | 2,897.0 | 2,892.7 | 6.8 | 6.5 | -102.66 | -119.0 | 127.7 | 123.7 | 110.4 | 13.27 | 9.324 | |
| 3,000.0 | 2,994.5 | 2,997.0 | 2,992.5 | 7.1 | 6.8 | -102.67 | -125.1 | 131.1 | 126.8 | 113.0 | 13.78 | 9.204 | |
| 3,100.0 | 3,094.2 | 3,096.9 | 3,092.2 | 7.3 | 7.0 | -102.67 | -131.2 | 134.5 | 130.0 | 115.7 | 14.29 | 9.092 | |
| 3,200.0 | 3,194.0 | 3,196.9 | 3,191.9 | 7.6 | 7.3 | -102.68 | -137.3 | 137.9 | 133.1 | 118.3 | 14.81 | 8.988 | |
| 3,300.0 | 3,293.8 | 3,296.8 | 3,291.6 | 7.9 | 7.5 | -102.69 | -143.3 | 141.3 | 136.2 | 120.9 | 15.33 | 8.890 | |
| 3,400.0 | 3,393.5 | 3,396.8 | 3,391.3 | 8.1 | 7.8 | -102.69 | -149.4 | 144.7 | 139.4 | 123.5 | 15.84 | 8.798 | |
| 3,500.0 | 3,493.3 | 3,496.7 | 3,491.0 | 8.4 | 8.0 | -102.70 | -155.5 | 148.2 | 142.5 | 126.2 | 16.36 | 8.711 | |
| 3,600.0 | 3,593.0 | 3,596.7 | 3,590.7 | 8.7 | 8.3 | -102.71 | -161.6 | 151.6 | 145.6 | 128.8 | 16.88 | 8.630 | |
| 3,700.0 | 3,692.8 | 3,696.7 | 3,690.4 | 8.9 | 8.6 | -102.71 | -167.7 | 155.0 | 148.8 | 131.4 | 17.40 | 8.553 | |
| 3,800.0 | 3,792.5 | 3,796.6 | 3,790.1 | 9.2 | 8.8 | -102.72 | -173.7 | 158.4 | 151.9 | 134.0 | 17.91 | 8.481 | |
| 3,900.0 | 3,892.3 | 3,896.6 | 3,889.8 | 9.4 | 9.1 | -102.72 | -179.8 | 161.8 | 155.1 | 136.6 | 18.43 | 8.412 | |
| 4,000.0 | 3,992.1 | 3,996.5 | 3,989.5 | 9.7 | 9.3 | -102.73 | -185.9 | 165.2 | 158.2 | 139.2 | 18.95 | 8.347 | |
| 4,100.0 | 4,091.8 | 4,096.5 | 4,089.2 | 10.0 | 9.6 | -102.73 | -192.0 | 168.6 | 161.3 | 141.9 | 19.47 | 8.285 | |
| 4,200.0 | 4,191.6 | 4,196.4 | 4,188.9 | 10.2 | 9.9 | -102.74 | -198.1 | 172.0 | 164.5 | 144.5 | 19.99 | 8.226 | |
| 4,300.0 | 4,291.3 | 4,296.4 | 4,288.7 | 10.5 | 10.1 | -102.74 | -204.1 | 175.4 | 167.6 | 147.1 | 20.51 | 8.170 | |
| 4,400.0 | 4,391.1 | 4,396.3 | 4,388.4 | 10.8 | 10.4 | -102.75 | -210.2 | 178.9 | 170.8 | 149.7 | 21.04 | 8.117 | |
| 4,500.0 | 4,490.8 | 4,496.3 | 4,488.1 | 11.0 | 10.6 | -102.75 | -216.3 | 182.3 | 173.9 | 152.3 | 21.56 | 8.066 | |
| 4,600.0 | 4,590.6 | 4,596.2 | 4,587.8 | 11.3 | 10.9 | -102.75 | -222.4 | 185.7 | 177.0 | 154.9 | 22.08 | 8.018 | |
| 4,700.0 | 4,690.3 | 4,696.2 | 4,687.5 | 11.5 | 11.2 | -102.76 | -228.5 | 189.1 | 180.2 | 157.6 | 22.60 | 7.972 | |
| 4,800.0 | 4,790.1 | 4,796.1 | 4,787.2 | 11.8 | 11.4 | -102.76 | -234.5 | 192.5 | 183.3 | 160.2 | 23.12 | 7.928 | |
| 4,900.0 | 4,889.9 | 4,896.1 | 4,886.9 | 12.1 | 11.7 | -102.76 | -240.6 | 195.9 | 186.4 | 162.8 | 23.64 | 7.885 | |
| 5,000.0 | 4,989.6 | 4,996.0 | 4,986.6 | 12.3 | 11.9 | -102.77 | -246.7 | 199.3 | 189.6 | 165.4 | 24.17 | 7.845 | |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

**Offset Design** S21-T10N-R58W - Razor #21A-2816B - HZ - Plan #1

**Survey Program:** 0-ISCWSA MWD

**Offset Site Error:** 0.0 ft

**Offset Well Error:** 0.0 ft

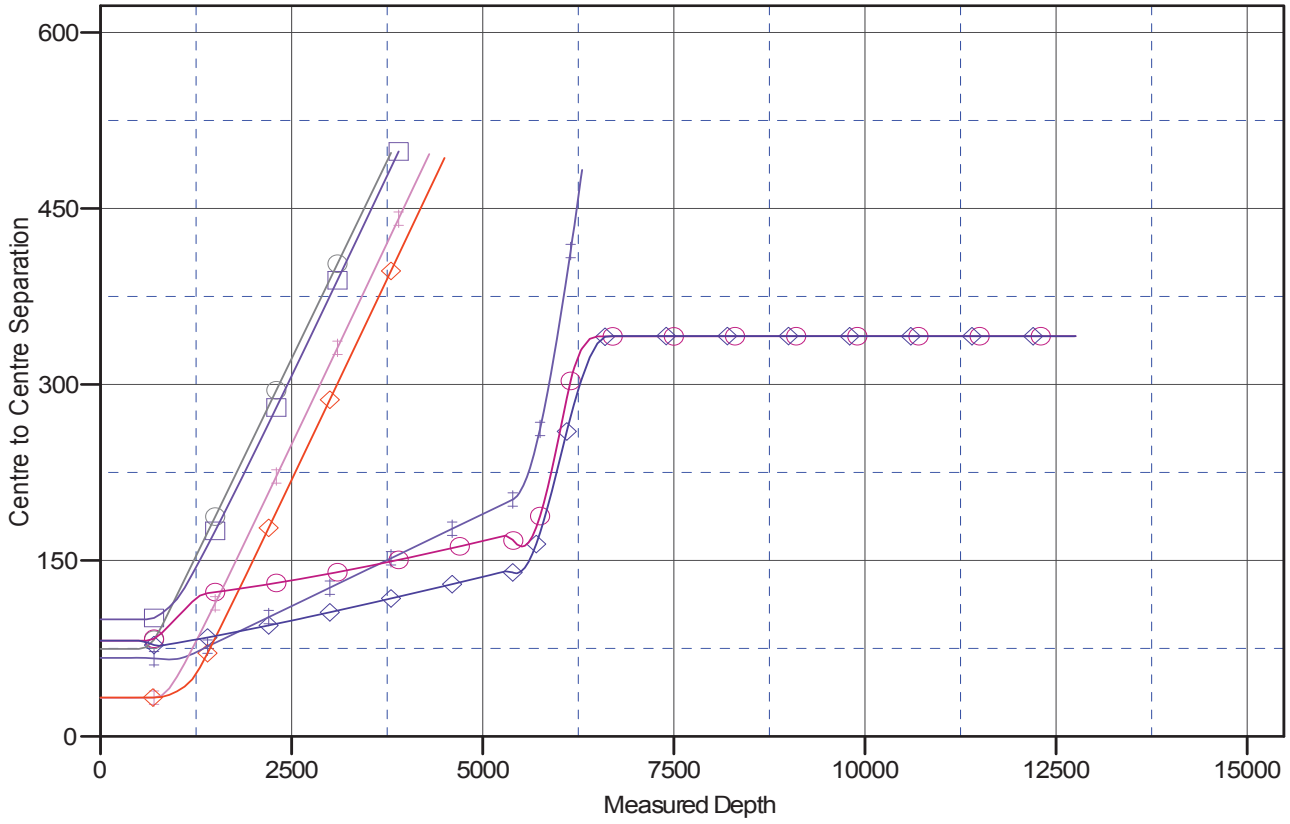
| Reference Measured Depth (ft) | Reference Vertical Depth (ft) | Offset Measured Depth (ft) | Offset Vertical Depth (ft) | Semi Major Axis Reference (ft) | Semi Major Axis Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | Offset Wellbore Centre +E/-W (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,100.0 | 5,089.4 | 5,096.0 | 5,086.3 | 12.6 | 12.2 | -102.77 | -252.8 | 202.7 | 192.7 | 168.0 | 24.69 | 7.806 | |
| 5,200.0 | 5,189.1 | 5,195.9 | 5,186.0 | 12.9 | 12.5 | -102.77 | -258.9 | 206.2 | 195.9 | 170.6 | 25.21 | 7.768 | |
| 5,300.0 | 5,288.9 | 5,295.9 | 5,285.7 | 13.1 | 12.7 | -102.78 | -264.9 | 209.6 | 199.0 | 173.3 | 25.74 | 7.732 | |
| 5,392.8 | 5,381.5 | 5,388.6 | 5,378.3 | 13.4 | 13.0 | -102.78 | -270.6 | 212.7 | 201.9 | 175.7 | 26.22 | 7.700 | |
| 5,400.0 | 5,388.6 | 5,395.5 | 5,385.1 | 13.4 | 13.0 | -102.76 | -271.0 | 213.0 | 202.1 | 175.9 | 26.26 | 7.699 | SF |
| 5,450.0 | 5,438.2 | 5,441.4 | 5,430.6 | 13.6 | 13.1 | -102.60 | -275.8 | 215.7 | 205.0 | 178.4 | 26.54 | 7.722 | |
| 5,500.0 | 5,486.9 | 5,487.0 | 5,475.3 | 13.8 | 13.3 | -102.31 | -284.1 | 220.3 | 209.8 | 182.9 | 26.89 | 7.802 | |
| 5,550.0 | 5,534.3 | 5,532.5 | 5,518.8 | 14.0 | 13.5 | -101.90 | -295.7 | 226.8 | 216.7 | 189.4 | 27.31 | 7.933 | |
| 5,600.0 | 5,579.9 | 5,577.7 | 5,560.6 | 14.3 | 13.8 | -101.38 | -310.4 | 235.1 | 225.4 | 197.6 | 27.80 | 8.107 | |
| 5,650.0 | 5,623.4 | 5,622.5 | 5,600.6 | 14.6 | 14.0 | -100.73 | -328.1 | 245.0 | 236.0 | 207.6 | 28.37 | 8.317 | |
| 5,700.0 | 5,664.3 | 5,666.9 | 5,638.3 | 15.0 | 14.4 | -99.98 | -348.5 | 256.5 | 248.3 | 219.2 | 29.02 | 8.554 | |
| 5,750.0 | 5,702.3 | 5,711.0 | 5,673.7 | 15.5 | 14.7 | -99.11 | -371.4 | 269.3 | 262.1 | 232.4 | 29.76 | 8.809 | |
| 5,800.0 | 5,737.0 | 5,754.6 | 5,706.3 | 16.0 | 15.1 | -98.14 | -396.7 | 283.5 | 277.5 | 246.9 | 30.58 | 9.074 | |
| 5,850.0 | 5,768.1 | 5,798.0 | 5,736.3 | 16.5 | 15.5 | -97.07 | -424.0 | 298.8 | 294.2 | 262.7 | 31.49 | 9.341 | |
| 5,900.0 | 5,795.3 | 5,841.0 | 5,763.3 | 17.1 | 16.0 | -95.92 | -453.1 | 315.2 | 312.0 | 279.5 | 32.50 | 9.601 | |
| 5,950.0 | 5,818.3 | 5,883.8 | 5,787.4 | 17.7 | 16.5 | -94.69 | -484.0 | 332.5 | 331.0 | 297.3 | 33.61 | 9.848 | |
| 6,000.0 | 5,837.0 | 5,926.5 | 5,808.4 | 18.3 | 17.0 | -93.40 | -516.4 | 350.7 | 350.7 | 316.0 | 34.78 | 10.083 | |
| 6,050.0 | 5,851.2 | 5,969.1 | 5,826.3 | 19.0 | 17.6 | -92.06 | -550.1 | 369.6 | 371.2 | 335.2 | 36.03 | 10.304 | |
| 6,100.0 | 5,860.7 | 6,011.8 | 5,841.0 | 19.8 | 18.2 | -90.69 | -585.1 | 389.2 | 392.3 | 355.0 | 37.33 | 10.509 | |
| 6,150.0 | 5,865.4 | 6,054.8 | 5,852.5 | 20.5 | 18.9 | -89.31 | -621.2 | 409.5 | 413.8 | 375.1 | 38.69 | 10.696 | |
| 6,174.6 | 5,866.0 | 6,076.1 | 5,856.9 | 20.9 | 19.2 | -88.63 | -639.4 | 419.7 | 424.5 | 385.1 | 39.38 | 10.780 | |
| 6,200.0 | 5,866.0 | 6,098.2 | 5,860.5 | 21.2 | 19.6 | -89.20 | -658.4 | 430.4 | 435.7 | 395.7 | 40.00 | 10.893 | |
| 6,284.7 | 5,866.0 | 6,172.4 | 5,866.0 | 22.4 | 20.8 | -90.00 | -722.9 | 466.5 | 475.4 | 433.5 | 41.96 | 11.330 | |
| 6,300.0 | 5,866.0 | 6,189.9 | 5,866.0 | 22.6 | 21.0 | -90.00 | -738.2 | 475.0 | 482.9 | 440.5 | 42.45 | 11.377 | |

| | | | |
|---|---|---|---|
| **Company:** | Whiting Petroleum Corporation | **Local Co-ordinate Reference:** | Well Razor #21A-2814B |
| **Project:** | Weld County, CO | **TVD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Reference Site:** | S21-T10N-R58W | **MD Reference:** | WELL @ 4848.4ft (Original Well Elev) |
| **Site Error:** | 0.0ft | **North Reference:** | Grid |
| **Reference Well:** | Razor #21A-2814B | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0ft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | HZ | **Database:** | USA EDM 5000 Multi Users DB |
| **Reference Design:** | Plan #1 | **Offset TVD Reference:** | Offset Datum |

Reference Depths are relative to WELL @ 4848.4ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Razor #21A-2814B
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.06°

## Ladder Plot




LEGEND

Razor #21A-2816B, HZ, Plan #1 V0
Razor #21A-0913A, HZ, Plan #1 V0
Razor #21A-2815A, HZ, Plan #1 V0
Razor #21A-0914B, HZ, Plan #1 V0
Razor #21A-0915A, HZ, Plan #1 V0
Razor #21A-0916B, HZ, Plan #1 V0
Razor #21A-2813A, HZ, Plan #1 V0