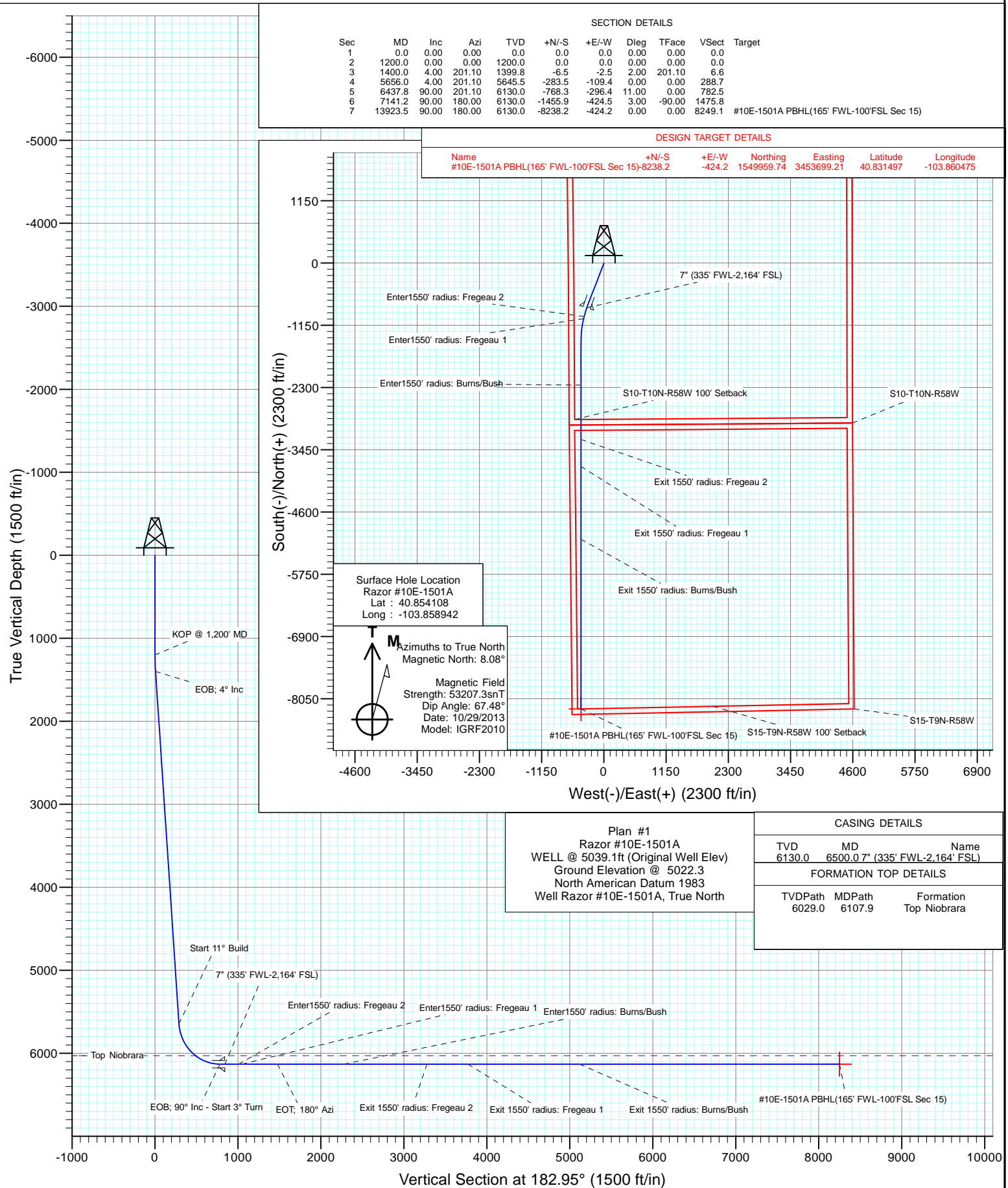




Project: Weld County, CO
Site: S10-T10N-R58W
Well: Razor #10E-1501A
Wellbore: HZ
Design: Plan #1



Cathedral Energy Services

Planning Report

| | | | |
|------------------|-------------------------------|-------------------------------------|--|
| Database: | USA EDM 5000 Multi Users DB | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Company: | Whiting Petroleum Corporation | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Project: | Weld County, CO | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site: | S10-T10N-R58W | North Reference: | True |
| Well: | Razor #10E-1501A | 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 | | S10-T10N-R58W | | | |
| Site Position: | | Northing: | 1,558,370.48 usft | Latitude: | 40° 51' 15.74 N |
| From: | Lat/Long | Easting: | 3,457,889.23 usft | Longitude: | 103° 50' 41.08 W |
| Position Uncertainty: | 0.0 usft | Slot Radius: | 13-3/16 " | Grid Convergence: | 1.07 ° |

| | | | | | | |
|----------------------|------------------|----------|---------------------|-------------------|---------------|------------------|
| Well | Razor #10E-1501A | | | | | |
| Well Position | +N/-S | 0.0 usft | Northing: | 1,558,201.23 usft | Latitude: | 40° 51' 14.79 N |
| | +E/-W | 0.0 usft | Easting: | 3,453,964.02 usft | Longitude: | 103° 51' 32.19 W |
| Position Uncertainty | | 0.0 usft | Wellhead Elevation: | usft | Ground Level: | 5,022.3 usft |

| | | | | | |
|------------------|-------------------|--------------------|--------------------|------------------|-----------------------|
| Wellbore | HZ | | | | |
| Magnetics | Model Name | Sample Date | Declination | Dip Angle | Field Strength |
| | | | (°) | (°) | (nT) |
| | IGRF2010 | 10/29/2013 | 8.08 | 67.48 | 53,207 |

| | | | | | |
|--------------------------|-------------------------|--------------|----------------------|------------------|--|
| Design | Plan #1 | | | | |
| Audit Notes: | | | | | |
| Version: | Phase: | PLAN | Tie On Depth: | 0.0 | |
| Vertical Section: | Depth From (TVD) | +N/-S | +E/-W | Direction | |
| | (usft) | (usft) | (usft) | (°) | |
| | 0.0 | 0.0 | 0.0 | 182.95 | |

| Plan Sections | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|------------------------|-----------------------|---------|--------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,200.0 | 0.00 | 0.00 | 1,200.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,400.0 | 4.00 | 201.10 | 1,399.8 | -6.5 | -2.5 | 2.00 | 2.00 | 0.00 | 201.10 | |
| 5,656.0 | 4.00 | 201.10 | 5,645.5 | -283.5 | -109.4 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,437.8 | 90.00 | 201.10 | 6,130.0 | -768.3 | -296.4 | 11.00 | 11.00 | 0.00 | 0.00 | |
| 7,141.2 | 90.00 | 180.00 | 6,130.0 | -1,455.9 | -424.5 | 3.00 | 0.00 | -3.00 | -90.00 | |
| 13,923.5 | 90.00 | 180.00 | 6,130.0 | -8,238.2 | -424.2 | 0.00 | 0.00 | 0.00 | 0.00 | #10E-1501A PBHL(16 |

Cathedral Energy Services

Planning Report

| | | | |
|------------------|-------------------------------|-------------------------------------|--|
| Database: | USA EDM 5000 Multi Users DB | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Company: | Whiting Petroleum Corporation | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Project: | Weld County, CO | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site: | S10-T10N-R58W | North Reference: | True |
| Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | HZ | | |
| Design: | Plan #1 | | |

Planned Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100u) | 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 | |
| 700.0 | 0.00 | 0.00 | 700.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 800.0 | 0.00 | 0.00 | 800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 900.0 | 0.00 | 0.00 | 900.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 1,000.0 | 0.00 | 0.00 | 1,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 1,100.0 | 0.00 | 0.00 | 1,100.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 1,200.0 | 0.00 | 0.00 | 1,200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | KOP @ 1,200' MD |
| 1,300.0 | 2.00 | 201.10 | 1,300.0 | -1.6 | -0.6 | 1.7 | 2.00 | 2.00 | |
| 1,400.0 | 4.00 | 201.10 | 1,399.8 | -6.5 | -2.5 | 6.6 | 2.00 | 2.00 | EOB; 4° Inc |
| 1,500.0 | 4.00 | 201.10 | 1,499.6 | -13.0 | -5.0 | 13.3 | 0.00 | 0.00 | |
| 1,600.0 | 4.00 | 201.10 | 1,599.4 | -19.5 | -7.5 | 19.9 | 0.00 | 0.00 | |
| 1,700.0 | 4.00 | 201.10 | 1,699.1 | -26.0 | -10.0 | 26.5 | 0.00 | 0.00 | |
| 1,800.0 | 4.00 | 201.10 | 1,798.9 | -32.5 | -12.6 | 33.1 | 0.00 | 0.00 | |
| 1,900.0 | 4.00 | 201.10 | 1,898.6 | -39.1 | -15.1 | 39.8 | 0.00 | 0.00 | |
| 2,000.0 | 4.00 | 201.10 | 1,998.4 | -45.6 | -17.6 | 46.4 | 0.00 | 0.00 | |
| 2,100.0 | 4.00 | 201.10 | 2,098.1 | -52.1 | -20.1 | 53.0 | 0.00 | 0.00 | |
| 2,200.0 | 4.00 | 201.10 | 2,197.9 | -58.6 | -22.6 | 59.7 | 0.00 | 0.00 | |
| 2,300.0 | 4.00 | 201.10 | 2,297.6 | -65.1 | -25.1 | 66.3 | 0.00 | 0.00 | |
| 2,400.0 | 4.00 | 201.10 | 2,397.4 | -71.6 | -27.6 | 72.9 | 0.00 | 0.00 | |
| 2,500.0 | 4.00 | 201.10 | 2,497.2 | -78.1 | -30.1 | 79.5 | 0.00 | 0.00 | |
| 2,600.0 | 4.00 | 201.10 | 2,596.9 | -84.6 | -32.6 | 86.2 | 0.00 | 0.00 | |
| 2,700.0 | 4.00 | 201.10 | 2,696.7 | -91.1 | -35.2 | 92.8 | 0.00 | 0.00 | |
| 2,800.0 | 4.00 | 201.10 | 2,796.4 | -97.6 | -37.7 | 99.4 | 0.00 | 0.00 | |
| 2,900.0 | 4.00 | 201.10 | 2,896.2 | -104.1 | -40.2 | 106.1 | 0.00 | 0.00 | |
| 3,000.0 | 4.00 | 201.10 | 2,995.9 | -110.6 | -42.7 | 112.7 | 0.00 | 0.00 | |
| 3,100.0 | 4.00 | 201.10 | 3,095.7 | -117.1 | -45.2 | 119.3 | 0.00 | 0.00 | |
| 3,200.0 | 4.00 | 201.10 | 3,195.5 | -123.7 | -47.7 | 125.9 | 0.00 | 0.00 | |
| 3,300.0 | 4.00 | 201.10 | 3,295.2 | -130.2 | -50.2 | 132.6 | 0.00 | 0.00 | |
| 3,400.0 | 4.00 | 201.10 | 3,395.0 | -136.7 | -52.7 | 139.2 | 0.00 | 0.00 | |
| 3,500.0 | 4.00 | 201.10 | 3,494.7 | -143.2 | -55.2 | 145.8 | 0.00 | 0.00 | |
| 3,600.0 | 4.00 | 201.10 | 3,594.5 | -149.7 | -57.8 | 152.5 | 0.00 | 0.00 | |
| 3,700.0 | 4.00 | 201.10 | 3,694.2 | -156.2 | -60.3 | 159.1 | 0.00 | 0.00 | |
| 3,800.0 | 4.00 | 201.10 | 3,794.0 | -162.7 | -62.8 | 165.7 | 0.00 | 0.00 | |
| 3,900.0 | 4.00 | 201.10 | 3,893.7 | -169.2 | -65.3 | 172.3 | 0.00 | 0.00 | |
| 4,000.0 | 4.00 | 201.10 | 3,993.5 | -175.7 | -67.8 | 179.0 | 0.00 | 0.00 | |
| 4,100.0 | 4.00 | 201.10 | 4,093.3 | -182.2 | -70.3 | 185.6 | 0.00 | 0.00 | |
| 4,200.0 | 4.00 | 201.10 | 4,193.0 | -188.7 | -72.8 | 192.2 | 0.00 | 0.00 | |
| 4,300.0 | 4.00 | 201.10 | 4,292.8 | -195.2 | -75.3 | 198.9 | 0.00 | 0.00 | |
| 4,400.0 | 4.00 | 201.10 | 4,392.5 | -201.7 | -77.8 | 205.5 | 0.00 | 0.00 | |
| 4,500.0 | 4.00 | 201.10 | 4,492.3 | -208.3 | -80.4 | 212.1 | 0.00 | 0.00 | |
| 4,600.0 | 4.00 | 201.10 | 4,592.0 | -214.8 | -82.9 | 218.7 | 0.00 | 0.00 | |
| 4,700.0 | 4.00 | 201.10 | 4,691.8 | -221.3 | -85.4 | 225.4 | 0.00 | 0.00 | |
| 4,800.0 | 4.00 | 201.10 | 4,791.6 | -227.8 | -87.9 | 232.0 | 0.00 | 0.00 | |
| 4,900.0 | 4.00 | 201.10 | 4,891.3 | -234.3 | -90.4 | 238.6 | 0.00 | 0.00 | |
| 5,000.0 | 4.00 | 201.10 | 4,991.1 | -240.8 | -92.9 | 245.3 | 0.00 | 0.00 | |
| 5,100.0 | 4.00 | 201.10 | 5,090.8 | -247.3 | -95.4 | 251.9 | 0.00 | 0.00 | |

Cathedral Energy Services

Planning Report

| | | | |
|------------------|-------------------------------|-------------------------------------|--|
| Database: | USA EDM 5000 Multi Users DB | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Company: | Whiting Petroleum Corporation | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Project: | Weld County, CO | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site: | S10-T10N-R58W | North Reference: | True |
| Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | HZ | | |
| Design: | Plan #1 | | |

| Planned Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|---------------------|-------------------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100u) | Comments / Formations |
| 5,200.0 | 4.00 | 201.10 | 5,190.6 | -253.8 | -97.9 | 258.5 | 0.00 | 0.00 | |
| 5,300.0 | 4.00 | 201.10 | 5,290.3 | -260.3 | -100.4 | 265.1 | 0.00 | 0.00 | |
| 5,400.0 | 4.00 | 201.10 | 5,390.1 | -266.8 | -103.0 | 271.8 | 0.00 | 0.00 | |
| 5,500.0 | 4.00 | 201.10 | 5,489.9 | -273.3 | -105.5 | 278.4 | 0.00 | 0.00 | |
| 5,600.0 | 4.00 | 201.10 | 5,589.6 | -279.8 | -108.0 | 285.0 | 0.00 | 0.00 | |
| 5,656.0 | 4.00 | 201.10 | 5,645.5 | -283.5 | -109.4 | 288.7 | 0.00 | 0.00 | Start 11° Build |
| 5,700.0 | 8.84 | 201.10 | 5,689.2 | -288.1 | -111.2 | 293.4 | 11.00 | 11.00 | |
| 5,750.0 | 14.34 | 201.10 | 5,738.1 | -297.4 | -114.8 | 303.0 | 11.00 | 11.00 | |
| 5,800.0 | 19.84 | 201.10 | 5,785.9 | -311.1 | -120.1 | 316.9 | 11.00 | 11.00 | |
| 5,850.0 | 25.34 | 201.10 | 5,832.1 | -329.1 | -127.0 | 335.2 | 11.00 | 11.00 | |
| 5,900.0 | 30.84 | 201.10 | 5,876.2 | -351.0 | -135.4 | 357.5 | 11.00 | 11.00 | |
| 5,950.0 | 36.34 | 201.10 | 5,917.8 | -376.8 | -145.4 | 383.8 | 11.00 | 11.00 | |
| 6,000.0 | 41.84 | 201.10 | 5,956.6 | -406.2 | -156.7 | 413.7 | 11.00 | 11.00 | |
| 6,050.0 | 47.34 | 201.10 | 5,992.2 | -439.0 | -169.4 | 447.1 | 11.00 | 11.00 | |
| 6,100.0 | 52.84 | 201.10 | 6,024.2 | -474.7 | -183.2 | 483.5 | 11.00 | 11.00 | |
| 6,107.9 | 53.71 | 201.10 | 6,029.0 | -480.7 | -185.5 | 489.6 | 11.00 | 11.00 | Top Niobrara |
| 6,150.0 | 58.34 | 201.10 | 6,052.5 | -513.2 | -198.0 | 522.7 | 11.00 | 11.00 | |
| 6,200.0 | 63.84 | 201.10 | 6,076.7 | -554.0 | -213.8 | 564.3 | 11.00 | 11.00 | |
| 6,250.0 | 69.34 | 201.10 | 6,096.5 | -596.8 | -230.3 | 607.9 | 11.00 | 11.00 | |
| 6,300.0 | 74.84 | 201.10 | 6,111.9 | -641.2 | -247.4 | 653.0 | 11.00 | 11.00 | |
| 6,350.0 | 80.34 | 201.10 | 6,122.6 | -686.7 | -265.0 | 699.4 | 11.00 | 11.00 | |
| 6,400.0 | 85.84 | 201.10 | 6,128.6 | -733.0 | -282.8 | 746.6 | 11.00 | 11.00 | |
| 6,437.8 | 90.00 | 201.10 | 6,130.0 | -768.2 | -296.4 | 782.5 | 11.00 | 11.00 | EOB; 90° Inc - Start 3° Turn |
| 6,500.0 | 90.00 | 199.23 | 6,130.0 | -826.6 | -317.9 | 841.9 | 3.00 | 0.01 | 7" (335' FWL-2,164' FSL) |
| 6,600.0 | 90.00 | 196.23 | 6,130.0 | -921.9 | -348.3 | 938.6 | 3.00 | 0.00 | |
| 6,668.6 | 90.00 | 194.18 | 6,130.0 | -988.0 | -366.3 | 1,005.6 | 3.00 | 0.00 | Enter1550' radius: Fregeau 2 |
| 6,700.0 | 90.00 | 193.23 | 6,130.0 | -1,018.6 | -373.8 | 1,036.4 | 3.00 | 0.00 | |
| 6,710.7 | 90.00 | 192.91 | 6,130.0 | -1,029.0 | -376.2 | 1,047.0 | 3.00 | 0.00 | Enter1550' radius: Fregeau 1 |
| 6,800.0 | 90.00 | 190.23 | 6,130.0 | -1,116.5 | -394.1 | 1,135.2 | 3.00 | 0.00 | |
| 6,900.0 | 90.00 | 187.23 | 6,130.0 | -1,215.3 | -409.3 | 1,234.7 | 3.00 | 0.00 | |
| 7,000.0 | 90.00 | 184.23 | 6,130.0 | -1,314.8 | -419.3 | 1,334.6 | 3.00 | 0.00 | |
| 7,100.0 | 90.00 | 181.23 | 6,130.0 | -1,414.6 | -424.1 | 1,434.6 | 3.00 | 0.00 | |
| 7,141.2 | 90.00 | 180.00 | 6,130.0 | -1,455.8 | -424.5 | 1,475.7 | 3.00 | 0.00 | EOT; 180° Azi |
| 7,200.0 | 90.00 | 180.00 | 6,130.0 | -1,514.6 | -424.5 | 1,534.5 | 0.00 | 0.00 | |
| 7,300.0 | 90.00 | 180.00 | 6,130.0 | -1,614.6 | -424.5 | 1,634.3 | 0.00 | 0.00 | |
| 7,400.0 | 90.00 | 180.00 | 6,130.0 | -1,714.6 | -424.5 | 1,734.2 | 0.00 | 0.00 | |
| 7,500.0 | 90.00 | 180.00 | 6,130.0 | -1,814.6 | -424.5 | 1,834.1 | 0.00 | 0.00 | |
| 7,600.0 | 90.00 | 180.00 | 6,130.0 | -1,914.6 | -424.5 | 1,933.9 | 0.00 | 0.00 | |
| 7,700.0 | 90.00 | 180.00 | 6,130.0 | -2,014.6 | -424.5 | 2,033.8 | 0.00 | 0.00 | |
| 7,800.0 | 90.00 | 180.00 | 6,130.0 | -2,114.6 | -424.5 | 2,133.7 | 0.00 | 0.00 | |
| 7,900.0 | 90.00 | 180.00 | 6,130.0 | -2,214.6 | -424.5 | 2,233.5 | 0.00 | 0.00 | |
| 7,940.4 | 90.00 | 180.00 | 6,130.0 | -2,255.0 | -424.5 | 2,273.9 | 0.00 | 0.00 | Enter1550' radius: Burns/Bush |
| 8,000.0 | 90.00 | 180.00 | 6,130.0 | -2,314.6 | -424.5 | 2,333.4 | 0.00 | 0.00 | |
| 8,100.0 | 90.00 | 180.00 | 6,130.0 | -2,414.6 | -424.5 | 2,433.3 | 0.00 | 0.00 | |
| 8,200.0 | 90.00 | 180.00 | 6,130.0 | -2,514.6 | -424.5 | 2,533.1 | 0.00 | 0.00 | |
| 8,300.0 | 90.00 | 180.00 | 6,130.0 | -2,614.6 | -424.5 | 2,633.0 | 0.00 | 0.00 | |
| 8,400.0 | 90.00 | 180.00 | 6,130.0 | -2,714.6 | -424.4 | 2,732.9 | 0.00 | 0.00 | |
| 8,500.0 | 90.00 | 180.00 | 6,130.0 | -2,814.6 | -424.4 | 2,832.7 | 0.00 | 0.00 | |
| 8,600.0 | 90.00 | 180.00 | 6,130.0 | -2,914.6 | -424.4 | 2,932.6 | 0.00 | 0.00 | |
| 8,700.0 | 90.00 | 180.00 | 6,130.0 | -3,014.6 | -424.4 | 3,032.5 | 0.00 | 0.00 | |
| 8,800.0 | 90.00 | 180.00 | 6,130.0 | -3,114.6 | -424.4 | 3,132.4 | 0.00 | 0.00 | |
| 8,900.0 | 90.00 | 180.00 | 6,130.0 | -3,214.6 | -424.4 | 3,232.2 | 0.00 | 0.00 | |

Cathedral Energy Services

Planning Report

| | | | |
|------------------|-------------------------------|-------------------------------------|--|
| Database: | USA EDM 5000 Multi Users DB | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Company: | Whiting Petroleum Corporation | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Project: | Weld County, CO | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site: | S10-T10N-R58W | North Reference: | True |
| Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | HZ | | |
| Design: | Plan #1 | | |

| Planned Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|---------------------|-------------------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100u) | Comments / Formations |
| 8,945.4 | 90.00 | 180.00 | 6,130.0 | -3,260.0 | -424.4 | 3,277.5 | 0.00 | 0.00 | Exit 1550' radius: Fregeau 2 |
| 9,000.0 | 90.00 | 180.00 | 6,130.0 | -3,314.6 | -424.4 | 3,332.1 | 0.00 | 0.00 | |
| 9,100.0 | 90.00 | 180.00 | 6,130.0 | -3,414.6 | -424.4 | 3,432.0 | 0.00 | 0.00 | |
| 9,200.0 | 90.00 | 180.00 | 6,130.0 | -3,514.6 | -424.4 | 3,531.8 | 0.00 | 0.00 | |
| 9,300.0 | 90.00 | 180.00 | 6,130.0 | -3,614.6 | -424.4 | 3,631.7 | 0.00 | 0.00 | |
| 9,400.0 | 90.00 | 180.00 | 6,130.0 | -3,714.6 | -424.4 | 3,731.6 | 0.00 | 0.00 | |
| 9,441.4 | 90.00 | 180.00 | 6,130.0 | -3,756.0 | -424.4 | 3,772.9 | 0.00 | 0.00 | Exit 1550' radius: Fregeau 1 |
| 9,500.0 | 90.00 | 180.00 | 6,130.0 | -3,814.6 | -424.4 | 3,831.4 | 0.00 | 0.00 | |
| 9,600.0 | 90.00 | 180.00 | 6,130.0 | -3,914.6 | -424.4 | 3,931.3 | 0.00 | 0.00 | |
| 9,700.0 | 90.00 | 180.00 | 6,130.0 | -4,014.6 | -424.4 | 4,031.2 | 0.00 | 0.00 | |
| 9,800.0 | 90.00 | 180.00 | 6,130.0 | -4,114.6 | -424.4 | 4,131.0 | 0.00 | 0.00 | |
| 9,900.0 | 90.00 | 180.00 | 6,130.0 | -4,214.6 | -424.4 | 4,230.9 | 0.00 | 0.00 | |
| 10,000.0 | 90.00 | 180.00 | 6,130.0 | -4,314.6 | -424.4 | 4,330.8 | 0.00 | 0.00 | |
| 10,100.0 | 90.00 | 180.00 | 6,130.0 | -4,414.6 | -424.4 | 4,430.6 | 0.00 | 0.00 | |
| 10,200.0 | 90.00 | 180.00 | 6,130.0 | -4,514.6 | -424.4 | 4,530.5 | 0.00 | 0.00 | |
| 10,300.0 | 90.00 | 180.00 | 6,130.0 | -4,614.6 | -424.4 | 4,630.4 | 0.00 | 0.00 | |
| 10,400.0 | 90.00 | 180.00 | 6,130.0 | -4,714.6 | -424.4 | 4,730.2 | 0.00 | 0.00 | |
| 10,500.0 | 90.00 | 180.00 | 6,130.0 | -4,814.6 | -424.4 | 4,830.1 | 0.00 | 0.00 | |
| 10,600.0 | 90.00 | 180.00 | 6,130.0 | -4,914.6 | -424.4 | 4,930.0 | 0.00 | 0.00 | |
| 10,700.0 | 90.00 | 180.00 | 6,130.0 | -5,014.6 | -424.4 | 5,029.8 | 0.00 | 0.00 | |
| 10,788.4 | 90.00 | 180.00 | 6,130.0 | -5,103.0 | -424.4 | 5,118.1 | 0.00 | 0.00 | Exit 1550' radius: Burns/Bush |
| 10,800.0 | 90.00 | 180.00 | 6,130.0 | -5,114.6 | -424.4 | 5,129.7 | 0.00 | 0.00 | |
| 10,900.0 | 90.00 | 180.00 | 6,130.0 | -5,214.6 | -424.4 | 5,229.6 | 0.00 | 0.00 | |
| 11,000.0 | 90.00 | 180.00 | 6,130.0 | -5,314.6 | -424.3 | 5,329.4 | 0.00 | 0.00 | |
| 11,100.0 | 90.00 | 180.00 | 6,130.0 | -5,414.6 | -424.3 | 5,429.3 | 0.00 | 0.00 | |
| 11,200.0 | 90.00 | 180.00 | 6,130.0 | -5,514.6 | -424.3 | 5,529.2 | 0.00 | 0.00 | |
| 11,300.0 | 90.00 | 180.00 | 6,130.0 | -5,614.6 | -424.3 | 5,629.0 | 0.00 | 0.00 | |
| 11,400.0 | 90.00 | 180.00 | 6,130.0 | -5,714.6 | -424.3 | 5,728.9 | 0.00 | 0.00 | |
| 11,500.0 | 90.00 | 180.00 | 6,130.0 | -5,814.6 | -424.3 | 5,828.8 | 0.00 | 0.00 | |
| 11,600.0 | 90.00 | 180.00 | 6,130.0 | -5,914.6 | -424.3 | 5,928.6 | 0.00 | 0.00 | |
| 11,700.0 | 90.00 | 180.00 | 6,130.0 | -6,014.6 | -424.3 | 6,028.5 | 0.00 | 0.00 | |
| 11,800.0 | 90.00 | 180.00 | 6,130.0 | -6,114.6 | -424.3 | 6,128.4 | 0.00 | 0.00 | |
| 11,900.0 | 90.00 | 180.00 | 6,130.0 | -6,214.6 | -424.3 | 6,228.2 | 0.00 | 0.00 | |
| 12,000.0 | 90.00 | 180.00 | 6,130.0 | -6,314.6 | -424.3 | 6,328.1 | 0.00 | 0.00 | |
| 12,100.0 | 90.00 | 180.00 | 6,130.0 | -6,414.6 | -424.3 | 6,428.0 | 0.00 | 0.00 | |
| 12,200.0 | 90.00 | 180.00 | 6,130.0 | -6,514.6 | -424.3 | 6,527.8 | 0.00 | 0.00 | |
| 12,300.0 | 90.00 | 180.00 | 6,130.0 | -6,614.6 | -424.3 | 6,627.7 | 0.00 | 0.00 | |
| 12,400.0 | 90.00 | 180.00 | 6,130.0 | -6,714.6 | -424.3 | 6,727.6 | 0.00 | 0.00 | |
| 12,500.0 | 90.00 | 180.00 | 6,130.0 | -6,814.6 | -424.3 | 6,827.4 | 0.00 | 0.00 | |
| 12,600.0 | 90.00 | 180.00 | 6,130.0 | -6,914.6 | -424.3 | 6,927.3 | 0.00 | 0.00 | |
| 12,700.0 | 90.00 | 180.00 | 6,130.0 | -7,014.6 | -424.3 | 7,027.2 | 0.00 | 0.00 | |
| 12,800.0 | 90.00 | 180.00 | 6,130.0 | -7,114.6 | -424.3 | 7,127.1 | 0.00 | 0.00 | |
| 12,900.0 | 90.00 | 180.00 | 6,130.0 | -7,214.6 | -424.3 | 7,226.9 | 0.00 | 0.00 | |
| 13,000.0 | 90.00 | 180.00 | 6,130.0 | -7,314.6 | -424.3 | 7,326.8 | 0.00 | 0.00 | |
| 13,100.0 | 90.00 | 180.00 | 6,130.0 | -7,414.6 | -424.3 | 7,426.7 | 0.00 | 0.00 | |
| 13,200.0 | 90.00 | 180.00 | 6,130.0 | -7,514.6 | -424.3 | 7,526.5 | 0.00 | 0.00 | |
| 13,300.0 | 90.00 | 180.00 | 6,130.0 | -7,614.6 | -424.3 | 7,626.4 | 0.00 | 0.00 | |
| 13,400.0 | 90.00 | 180.00 | 6,130.0 | -7,714.6 | -424.3 | 7,726.3 | 0.00 | 0.00 | |
| 13,500.0 | 90.00 | 180.00 | 6,130.0 | -7,814.6 | -424.3 | 7,826.1 | 0.00 | 0.00 | |
| 13,600.0 | 90.00 | 180.00 | 6,130.0 | -7,914.6 | -424.3 | 7,926.0 | 0.00 | 0.00 | |
| 13,700.0 | 90.00 | 180.00 | 6,130.0 | -8,014.6 | -424.2 | 8,025.9 | 0.00 | 0.00 | |
| 13,800.0 | 90.00 | 180.00 | 6,130.0 | -8,114.6 | -424.2 | 8,125.7 | 0.00 | 0.00 | |

Cathedral Energy Services

Planning Report

| | | | |
|------------------|-------------------------------|-------------------------------------|--|
| Database: | USA EDM 5000 Multi Users DB | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Company: | Whiting Petroleum Corporation | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Project: | Weld County, CO | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site: | S10-T10N-R58W | North Reference: | True |
| Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | HZ | | |
| Design: | Plan #1 | | |

| Planned Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|---------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100u) | Comments / Formations |
| 13,900.0 | 90.00 | 180.00 | 6,130.0 | -8,214.6 | -424.2 | 8,225.6 | 0.00 | 0.00 | |
| 13,923.5 | 90.00 | 180.00 | 6,130.0 | -8,238.1 | -424.2 | 8,249.0 | 0.00 | 0.00 | PBHL @ 13,923' MD |

| Targets | | | | | | | | | |
|---------------------------|---------------|--------------|------------|--------------|--------------|-----------------|----------------|-----------------|------------------|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
| #10E-1501A PBHL(165' | 0.00 | 0.00 | 6,130.0 | -8,238.2 | -424.2 | 1,549,956.64 | 3,453,692.31 | 40° 49' 53.39 N | 103° 51' 37.71 W |
| - hit/miss target | | | | | | | | | |
| - Shape | | | | | | | | | |
| - plan hits target center | | | | | | | | | |
| - Point | | | | | | | | | |

| Casing Points | | | | | | Casing Diameter (") | Hole Diameter (") |
|-----------------------|-----------------------|--------------------------|--|--|--|---------------------|-------------------|
| Measured Depth (usft) | Vertical Depth (usft) | Name | | | | | |
| 6,500.0 | 6,130.0 | 7" (335' FWL-2,164' FSL) | | | | 7 | 7-1/2 |

| Formations | | | | | | Dip (°) | Dip Direction (°) |
|-----------------------|-----------------------|--------------|-----------|--|--|---------|-------------------|
| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | | | | |
| 6,107.9 | 6,029.0 | Top Niobrara | | | | 0.00 | |

| Plan Annotations | | | | | Comment |
|-----------------------|-----------------------|--------------|--------------|--|-------------------------------|
| Measured Depth (usft) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | | |
| 1,200.0 | 1,200.0 | 0.0 | 0.0 | | KOP @ 1,200' MD |
| 1,400.0 | 1,399.8 | -6.5 | -2.5 | | EOB; 4° Inc |
| 5,656.0 | 5,645.5 | -283.5 | -109.4 | | Start 11° Build |
| 6,437.8 | 6,130.0 | -768.2 | -296.4 | | EOB; 90° Inc - Start 3° Turn |
| 6,668.6 | 6,130.0 | -988.0 | -366.3 | | Enter1550' radius: Fregeau 2 |
| 6,710.7 | 6,130.0 | -1,029.0 | -376.2 | | Enter1550' radius: Fregeau 1 |
| 7,141.2 | 6,130.0 | -1,455.8 | -424.5 | | EOT; 180° Azi |
| 7,940.4 | 6,130.0 | -2,255.0 | -424.5 | | Enter1550' radius: Burns/Bush |
| 8,945.4 | 6,130.0 | -3,260.0 | -424.4 | | Exit 1550' radius: Fregeau 2 |
| 9,441.4 | 6,130.0 | -3,756.0 | -424.4 | | Exit 1550' radius: Fregeau 1 |
| 10,788.4 | 6,130.0 | -5,103.0 | -424.4 | | Exit 1550' radius: Burns/Bush |
| 13,923.5 | 6,130.0 | -8,238.1 | -424.2 | | PBHL @ 13,923' MD |

Whiting Petroleum Corporation

Weld County, CO

S10-T10N-R58W

Razor #10E-1501A

HZ

Plan #1

Anticollision Report

06 November, 2013

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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: | MD Interval 100.0usft | Error Model: | Systematic Ellipse |
| Depth Range: | Unlimited | Scan Method: | Closest Approach 3D |
| Results Limited by: | Maximum center-center distance of 1,356.1usft | Error Surface: | Elliptical Conic |
| Warning Levels Evaluated at: | 2.00 Sigma | | |

| Survey Tool Program | | Date | 10/30/2013 | | |
|---------------------|--------------|-------------------|------------|--------------|--|
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description | |
| 0.0 | 13,923.5 | Plan #1 (HZ) | ISCWSA MWD | MWD - ISCWSA | |

| Summary | | | | | | |
|---|---------------------------------|------------------------------|---------------------------------|----------------------------------|-------------------|-------------|
| Site Name | Reference Measured Depth (usft) | Offset Measured Depth (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Separation Factor | Warning |
| Offset Well - Wellbore - Design | | | | | | |
| S10-T10N-R58W | | | | | | |
| BUSH 1 (EXISTING) - BURNS WELL - NO SURVEYS | 9,364.5 | 6,026.9 | 610.3 | 533.6 | 7.954 | CC, ES |
| BUSH 1 (EXISTING) - BURNS WELL - NO SURVEYS | 9,500.0 | 6,026.9 | 625.2 | 545.9 | 7.887 | SF |
| FREGEAU 1 (EXISTING) - CREST WELL - NO SURVEY | 8,060.1 | 6,043.9 | 720.4 | 667.2 | 13.551 | CC, ES |
| FREGEAU 1 (EXISTING) - CREST WELL - NO SURVEY | 8,200.0 | 6,043.9 | 733.9 | 678.1 | 13.156 | SF |
| FREGEAU 2 (EXISTING) - CREST WELL - NO SURVEY | 7,783.2 | 6,040.9 | 1,024.7 | 976.8 | 21.375 | CC |
| FREGEAU 2 (EXISTING) - CREST WELL - NO SURVEY | 7,800.0 | 6,040.9 | 1,024.9 | 976.6 | 21.245 | ES |
| FREGEAU 2 (EXISTING) - CREST WELL - NO SURVEY | 8,200.0 | 6,040.9 | 1,106.2 | 1,050.5 | 19.833 | SF |
| Razor #10E-0301A - HZ - Plan #1 | 900.0 | 900.0 | 75.1 | 71.3 | 19.839 | CC, ES |
| Razor #10E-0301A - HZ - Plan #1 | 1,200.0 | 1,194.7 | 87.8 | 82.7 | 17.126 | SF |
| Razor #10E-0302B - HZ - Plan #1 | 1,000.0 | 1,000.0 | 81.7 | 77.5 | 19.310 | CC, ES |
| Razor #10E-0302B - HZ - Plan #1 | 1,200.0 | 1,195.2 | 87.3 | 82.2 | 17.036 | SF |
| Razor #10E-0303A - HZ - Plan #1 | 1,100.0 | 1,100.0 | 99.5 | 94.8 | 21.245 | CC, ES |
| Razor #10E-0303A - HZ - Plan #1 | 1,300.0 | 1,294.2 | 106.6 | 101.1 | 19.236 | SF |
| Razor #10E-0304B - HZ - Plan #1 | 1,200.0 | 1,200.0 | 123.8 | 118.7 | 24.129 | CC, ES |
| Razor #10E-0304B - HZ - Plan #1 | 1,400.0 | 1,392.2 | 135.5 | 129.6 | 22.842 | SF |
| Razor #10E-1502B - HZ - Plan #1 | 1,223.7 | 1,223.8 | 33.0 | 27.8 | 6.354 | CC, ES |
| Razor #10E-1502B - HZ - Plan #1 | 13,923.9 | 13,958.1 | 350.7 | 51.2 | 1.171 | Level 2, SF |
| Razor #10E-1503A - HZ - Plan #1 | 1,000.0 | 1,000.0 | 65.3 | 61.1 | 15.424 | CC |
| Razor #10E-1503A - HZ - Plan #1 | 1,100.0 | 1,099.6 | 65.6 | 61.0 | 14.101 | ES |
| Razor #10E-1503A - HZ - Plan #1 | 13,923.9 | 13,839.3 | 659.6 | 343.5 | 2.087 | SF |
| Razor #10E-1504B - HZ - Plan #1 | 900.0 | 900.0 | 98.5 | 94.7 | 26.032 | CC, ES |
| Razor #10E-1504B - HZ - Plan #1 | 13,923.9 | 14,006.5 | 996.7 | 682.5 | 3.172 | SF |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - BUSH 1 (EXISTING) - BURNS WELL - NO SURVEYS | | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|-------------------|--------------------|----------|
| Survey Program: 6820-ISCWSA MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | Separation Factor | Warning | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | | | |
| 8,200.0 | 6,130.0 | 6,026.9 | 6,026.9 | 49.0 | 6.8 | -90.00 | -3,679.1 | 185.9 | 1,314.8 | 1,259.6 | 55.15 | 23.839 | | |
| 8,300.0 | 6,130.0 | 6,026.9 | 6,026.9 | 50.8 | 6.8 | -90.00 | -3,679.1 | 185.9 | 1,227.1 | 1,170.1 | 56.98 | 21.536 | | |
| 8,400.0 | 6,130.0 | 6,026.9 | 6,026.9 | 52.6 | 6.8 | -90.00 | -3,679.1 | 185.9 | 1,141.4 | 1,082.6 | 58.81 | 19.408 | | |
| 8,500.0 | 6,130.0 | 6,026.9 | 6,026.9 | 54.5 | 6.8 | -90.00 | -3,679.1 | 185.9 | 1,058.3 | 997.6 | 60.65 | 17.449 | | |
| 8,600.0 | 6,130.0 | 6,026.9 | 6,026.9 | 56.3 | 6.8 | -90.00 | -3,679.1 | 185.9 | 978.3 | 915.8 | 62.49 | 15.654 | | |
| 8,700.0 | 6,130.0 | 6,026.9 | 6,026.9 | 58.1 | 6.8 | -90.00 | -3,679.1 | 185.9 | 902.3 | 838.0 | 64.34 | 14.023 | | |
| 8,800.0 | 6,130.0 | 6,026.9 | 6,026.9 | 60.0 | 6.8 | -90.00 | -3,679.1 | 185.9 | 831.4 | 765.2 | 66.20 | 12.559 | | |
| 8,900.0 | 6,130.0 | 6,026.9 | 6,026.9 | 61.8 | 6.8 | -90.00 | -3,679.1 | 185.9 | 767.0 | 699.0 | 68.06 | 11.270 | | |
| 9,000.0 | 6,130.0 | 6,026.9 | 6,026.9 | 63.6 | 6.8 | -90.00 | -3,679.1 | 185.9 | 710.9 | 641.0 | 69.92 | 10.168 | | |
| 9,100.0 | 6,130.0 | 6,026.9 | 6,026.9 | 65.5 | 6.8 | -90.00 | -3,679.1 | 185.9 | 665.2 | 593.4 | 71.78 | 9.267 | | |
| 9,200.0 | 6,130.0 | 6,026.9 | 6,026.9 | 67.3 | 6.8 | -90.00 | -3,679.1 | 185.9 | 632.1 | 558.5 | 73.65 | 8.583 | | |
| 9,300.0 | 6,130.0 | 6,026.9 | 6,026.9 | 69.2 | 6.8 | -90.00 | -3,679.1 | 185.9 | 613.7 | 538.2 | 75.52 | 8.127 | | |
| 9,364.5 | 6,130.0 | 6,026.9 | 6,026.9 | 70.4 | 6.8 | -90.00 | -3,679.1 | 185.9 | 610.3 | 533.6 | 76.73 | 7.954 CC, ES | | |
| 9,400.0 | 6,130.0 | 6,026.9 | 6,026.9 | 71.1 | 6.8 | -90.00 | -3,679.1 | 185.9 | 611.4 | 534.0 | 77.40 | 7.899 | | |
| 9,500.0 | 6,130.0 | 6,026.9 | 6,026.9 | 72.9 | 6.8 | -90.00 | -3,679.1 | 185.9 | 625.2 | 545.9 | 79.27 | 7.887 SF | | |
| 9,600.0 | 6,130.0 | 6,026.9 | 6,026.9 | 74.8 | 6.8 | -90.00 | -3,679.1 | 185.9 | 654.2 | 573.0 | 81.15 | 8.061 | | |
| 9,700.0 | 6,130.0 | 6,026.9 | 6,026.9 | 76.7 | 6.8 | -90.00 | -3,679.1 | 185.9 | 696.5 | 613.4 | 83.03 | 8.388 | | |
| 9,800.0 | 6,130.0 | 6,026.9 | 6,026.9 | 78.5 | 6.8 | -90.00 | -3,679.1 | 185.9 | 749.8 | 664.8 | 84.92 | 8.829 | | |
| 9,900.0 | 6,130.0 | 6,026.9 | 6,026.9 | 80.4 | 6.8 | -90.00 | -3,679.1 | 185.9 | 811.9 | 725.1 | 86.80 | 9.354 | | |
| 10,000.0 | 6,130.0 | 6,026.9 | 6,026.9 | 82.3 | 6.8 | -90.00 | -3,679.1 | 185.9 | 881.1 | 792.4 | 88.69 | 9.935 | | |
| 10,100.0 | 6,130.0 | 6,026.9 | 6,026.9 | 84.2 | 6.8 | -90.00 | -3,679.1 | 185.9 | 955.7 | 865.1 | 90.58 | 10.552 | | |
| 10,200.0 | 6,130.0 | 6,026.9 | 6,026.9 | 86.1 | 6.8 | -90.00 | -3,679.1 | 185.9 | 1,034.7 | 942.2 | 92.47 | 11.190 | | |
| 10,300.0 | 6,130.0 | 6,026.9 | 6,026.9 | 87.9 | 6.8 | -90.00 | -3,679.1 | 185.9 | 1,117.0 | 1,022.6 | 94.36 | 11.838 | | |
| 10,400.0 | 6,130.0 | 6,026.9 | 6,026.9 | 89.8 | 6.8 | -90.00 | -3,679.1 | 185.9 | 1,201.9 | 1,105.7 | 96.25 | 12.488 | | |
| 10,500.0 | 6,130.0 | 6,026.9 | 6,026.9 | 91.7 | 6.8 | -90.00 | -3,679.1 | 185.9 | 1,289.1 | 1,191.0 | 98.14 | 13.135 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - FREGEAU 1 (EXISTING) - CREST WELL - NO SURVEYS | | | | | | | | | | | | Offset Site Error: 0.0 usft | |
|--|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|-----------------------------|---------|
| Survey Program: 6864-ISCWSA MWD | | | | | | | | | | | | Offset Well Error: 0.0 usft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | |
| 7,000.0 | 6,130.0 | 6,043.9 | 6,043.9 | 28.7 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 1,284.6 | 1,249.7 | 34.86 | 36.848 | |
| 7,100.0 | 6,130.0 | 6,043.9 | 6,043.9 | 30.2 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 1,200.6 | 1,164.5 | 36.11 | 33.249 | |
| 7,200.0 | 6,130.0 | 6,043.9 | 6,043.9 | 31.8 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 1,122.0 | 1,084.4 | 37.57 | 29.865 | |
| 7,300.0 | 6,130.0 | 6,043.9 | 6,043.9 | 33.4 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 1,047.3 | 1,008.0 | 39.25 | 26.685 | |
| 7,400.0 | 6,130.0 | 6,043.9 | 6,043.9 | 35.1 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 977.1 | 936.2 | 40.95 | 23.861 | |
| 7,500.0 | 6,130.0 | 6,043.9 | 6,043.9 | 36.8 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 912.5 | 869.8 | 42.72 | 21.361 | |
| 7,600.0 | 6,130.0 | 6,043.9 | 6,043.9 | 38.5 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 854.8 | 810.3 | 44.54 | 19.190 | |
| 7,700.0 | 6,130.0 | 6,043.9 | 6,043.9 | 40.2 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 805.4 | 759.0 | 46.39 | 17.363 | |
| 7,800.0 | 6,130.0 | 6,043.9 | 6,043.9 | 41.9 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 765.9 | 717.7 | 48.24 | 15.876 | |
| 7,900.0 | 6,130.0 | 6,043.9 | 6,043.9 | 43.7 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 738.0 | 687.9 | 50.11 | 14.726 | |
| 8,000.0 | 6,130.0 | 6,043.9 | 6,043.9 | 45.5 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 722.9 | 670.9 | 51.99 | 13.904 | |
| 8,060.1 | 6,130.0 | 6,043.9 | 6,043.9 | 46.5 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 720.4 | 667.2 | 53.16 | 13.551 | CC, ES |
| 8,100.0 | 6,130.0 | 6,043.9 | 6,043.9 | 47.2 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 721.5 | 667.6 | 53.88 | 13.390 | |
| 8,200.0 | 6,130.0 | 6,043.9 | 6,043.9 | 49.0 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 733.9 | 678.1 | 55.78 | 13.156 | SF |
| 8,300.0 | 6,130.0 | 6,043.9 | 6,043.9 | 50.8 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 759.3 | 701.6 | 57.69 | 13.162 | |
| 8,400.0 | 6,130.0 | 6,043.9 | 6,043.9 | 52.6 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 796.6 | 737.0 | 59.60 | 13.365 | |
| 8,500.0 | 6,130.0 | 6,043.9 | 6,043.9 | 54.5 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 844.1 | 782.6 | 61.52 | 13.720 | |
| 8,600.0 | 6,130.0 | 6,043.9 | 6,043.9 | 56.3 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 900.3 | 836.8 | 63.45 | 14.189 | |
| 8,700.0 | 6,130.0 | 6,043.9 | 6,043.9 | 58.1 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 963.6 | 898.2 | 65.38 | 14.738 | |
| 8,800.0 | 6,130.0 | 6,043.9 | 6,043.9 | 60.0 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 1,032.7 | 965.4 | 67.31 | 15.341 | |
| 8,900.0 | 6,130.0 | 6,043.9 | 6,043.9 | 61.8 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 1,106.5 | 1,037.3 | 69.25 | 15.978 | |
| 9,000.0 | 6,130.0 | 6,043.9 | 6,043.9 | 63.6 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 1,184.2 | 1,113.0 | 71.19 | 16.633 | |
| 9,100.0 | 6,130.0 | 6,043.9 | 6,043.9 | 65.5 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 1,265.0 | 1,191.9 | 73.14 | 17.296 | |
| 9,200.0 | 6,130.0 | 6,043.9 | 6,043.9 | 67.3 | 6.8 | 90.00 | -2,374.8 | -1,144.9 | 1,348.4 | 1,273.4 | 75.09 | 17.958 | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - FREGEAU 2 (EXISTING) - CREST WELL - NO SURVEYS | | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|--|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|-------------------|--------------------|----------|
| Survey Program: 6860-ISCWSA MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | | |
| 7,000.0 | 6,130.0 | 6,040.9 | 6,040.9 | 28.7 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,293.8 | 1,259.0 | 34.86 | 37.118 | | |
| 7,100.0 | 6,130.0 | 6,040.9 | 6,040.9 | 30.2 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,231.9 | 1,195.8 | 36.10 | 34.122 | | |
| 7,200.0 | 6,130.0 | 6,040.9 | 6,040.9 | 31.8 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,179.0 | 1,141.5 | 37.56 | 31.388 | | |
| 7,300.0 | 6,130.0 | 6,040.9 | 6,040.9 | 33.4 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,132.9 | 1,093.7 | 39.24 | 28.870 | | |
| 7,400.0 | 6,130.0 | 6,040.9 | 6,040.9 | 35.1 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,094.0 | 1,053.1 | 40.95 | 26.719 | | |
| 7,500.0 | 6,130.0 | 6,040.9 | 6,040.9 | 36.8 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,063.1 | 1,020.4 | 42.71 | 24.889 | | |
| 7,600.0 | 6,130.0 | 6,040.9 | 6,040.9 | 38.5 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,041.0 | 996.4 | 44.54 | 23.371 | | |
| 7,700.0 | 6,130.0 | 6,040.9 | 6,040.9 | 40.2 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,028.1 | 981.7 | 46.38 | 22.165 | | |
| 7,783.2 | 6,130.0 | 6,040.9 | 6,040.9 | 41.6 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,024.7 | 976.8 | 47.94 | 21.375 CC | | |
| 7,800.0 | 6,130.0 | 6,040.9 | 6,040.9 | 41.9 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,024.9 | 976.6 | 48.24 | 21.245 ES | | |
| 7,900.0 | 6,130.0 | 6,040.9 | 6,040.9 | 43.7 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,031.4 | 981.2 | 50.11 | 20.582 | | |
| 8,000.0 | 6,130.0 | 6,040.9 | 6,040.9 | 45.5 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,047.4 | 995.4 | 51.99 | 20.147 | | |
| 8,100.0 | 6,130.0 | 6,040.9 | 6,040.9 | 47.2 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,072.6 | 1,018.7 | 53.88 | 19.907 | | |
| 8,200.0 | 6,130.0 | 6,040.9 | 6,040.9 | 49.0 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,106.2 | 1,050.5 | 55.78 | 19.833 SF | | |
| 8,300.0 | 6,130.0 | 6,040.9 | 6,040.9 | 50.8 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,147.7 | 1,090.0 | 57.68 | 19.896 | | |
| 8,400.0 | 6,130.0 | 6,040.9 | 6,040.9 | 52.6 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,196.0 | 1,136.4 | 59.60 | 20.068 | | |
| 8,500.0 | 6,130.0 | 6,040.9 | 6,040.9 | 54.5 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,250.5 | 1,189.0 | 61.52 | 20.328 | | |
| 8,600.0 | 6,130.0 | 6,040.9 | 6,040.9 | 56.3 | 6.8 | 90.00 | -2,097.9 | -1,449.2 | 1,310.4 | 1,247.0 | 63.44 | 20.655 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-0301A - HZ - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|---|-----------------|------------------------------|-------------------------------|------------------------------|----------------------|--------------------|----------|
| Survey Program: 0-ISCWSA MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | Total Uncertainty Axis | Separation Factor | Warning | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.42 | 75.1 | -0.6 | 75.1 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -0.42 | 75.1 | -0.6 | 75.1 | 74.9 | 0.19 | 401.364 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -0.42 | 75.1 | -0.6 | 75.1 | 74.4 | 0.64 | 117.915 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | -0.42 | 75.1 | -0.6 | 75.1 | 74.0 | 1.09 | 69.109 | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | -0.42 | 75.1 | -0.6 | 75.1 | 73.5 | 1.54 | 48.878 | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | -0.42 | 75.1 | -0.6 | 75.1 | 73.1 | 1.99 | 37.810 | | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | -0.42 | 75.1 | -0.6 | 75.1 | 72.6 | 2.43 | 30.829 | | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.4 | 1.4 | -0.42 | 75.1 | -0.6 | 75.1 | 72.2 | 2.88 | 26.024 | | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | -0.42 | 75.1 | -0.6 | 75.1 | 71.7 | 3.33 | 22.514 | | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | -0.42 | 75.1 | -0.6 | 75.1 | 71.3 | 3.78 | 19.839 CC, ES | | |
| 1,000.0 | 1,000.0 | 997.6 | 997.6 | 2.1 | 2.1 | -0.94 | 76.6 | -1.3 | 76.6 | 72.4 | 4.23 | 18.123 | | |
| 1,100.0 | 1,100.0 | 1,095.0 | 1,094.9 | 2.3 | 2.3 | -2.37 | 81.1 | -3.4 | 81.3 | 76.6 | 4.67 | 17.395 | | |
| 1,200.0 | 1,200.0 | 1,194.7 | 1,194.3 | 2.6 | 2.6 | -4.11 | 87.4 | -6.3 | 87.8 | 82.7 | 5.13 | 17.126 SF | | |
| 1,300.0 | 1,300.0 | 1,294.3 | 1,293.7 | 2.8 | 2.8 | 153.68 | 93.7 | -9.2 | 95.9 | 90.3 | 5.55 | 17.284 | | |
| 1,400.0 | 1,399.8 | 1,393.7 | 1,392.8 | 2.9 | 3.0 | 153.56 | 100.0 | -12.1 | 107.1 | 101.2 | 5.95 | 18.018 | | |
| 1,500.0 | 1,499.6 | 1,492.9 | 1,491.7 | 3.1 | 3.3 | 153.92 | 106.2 | -15.1 | 119.9 | 113.6 | 6.35 | 18.873 | | |
| 1,600.0 | 1,599.3 | 1,592.0 | 1,590.7 | 3.3 | 3.5 | 154.21 | 112.5 | -18.0 | 132.7 | 126.0 | 6.77 | 19.604 | | |
| 1,700.0 | 1,699.1 | 1,691.2 | 1,689.6 | 3.5 | 3.7 | 154.45 | 118.8 | -20.9 | 145.5 | 138.3 | 7.19 | 20.232 | | |
| 1,800.0 | 1,798.9 | 1,790.4 | 1,788.5 | 3.7 | 4.0 | 154.65 | 125.1 | -23.8 | 158.3 | 150.7 | 7.62 | 20.777 | | |
| 1,900.0 | 1,898.6 | 1,889.6 | 1,887.5 | 4.0 | 4.2 | 154.82 | 131.3 | -26.7 | 171.1 | 163.1 | 8.05 | 21.253 | | |
| 2,000.0 | 1,998.4 | 1,988.7 | 1,986.4 | 4.2 | 4.5 | 154.97 | 137.6 | -29.6 | 183.9 | 175.5 | 8.49 | 21.670 | | |
| 2,100.0 | 2,098.1 | 2,087.9 | 2,085.3 | 4.4 | 4.7 | 155.10 | 143.9 | -32.6 | 196.7 | 187.8 | 8.93 | 22.039 | | |
| 2,200.0 | 2,197.9 | 2,187.1 | 2,184.3 | 4.7 | 5.0 | 155.21 | 150.1 | -35.5 | 209.6 | 200.2 | 9.37 | 22.367 | | |
| 2,300.0 | 2,297.6 | 2,286.3 | 2,283.2 | 4.9 | 5.2 | 155.31 | 156.4 | -38.4 | 222.4 | 212.6 | 9.81 | 22.660 | | |
| 2,400.0 | 2,397.4 | 2,385.4 | 2,382.1 | 5.1 | 5.5 | 155.40 | 162.7 | -41.3 | 235.2 | 224.9 | 10.26 | 22.923 | | |
| 2,500.0 | 2,497.2 | 2,484.6 | 2,481.1 | 5.4 | 5.7 | 155.48 | 169.0 | -44.2 | 248.0 | 237.3 | 10.71 | 23.160 | | |
| 2,600.0 | 2,596.9 | 2,583.8 | 2,580.0 | 5.6 | 6.0 | 155.55 | 175.2 | -47.1 | 260.8 | 249.6 | 11.16 | 23.374 | | |
| 2,700.0 | 2,696.7 | 2,683.0 | 2,678.9 | 5.9 | 6.2 | 155.61 | 181.5 | -50.1 | 273.6 | 262.0 | 11.61 | 23.569 | | |
| 2,800.0 | 2,796.4 | 2,782.1 | 2,777.9 | 6.1 | 6.5 | 155.67 | 187.8 | -53.0 | 286.4 | 274.4 | 12.06 | 23.748 | | |
| 2,900.0 | 2,896.2 | 2,881.3 | 2,876.8 | 6.4 | 6.7 | 155.72 | 194.1 | -55.9 | 299.2 | 286.7 | 12.51 | 23.911 | | |
| 3,000.0 | 2,995.9 | 2,980.5 | 2,975.7 | 6.6 | 7.0 | 155.77 | 200.3 | -58.8 | 312.0 | 299.1 | 12.97 | 24.061 | | |
| 3,100.0 | 3,095.7 | 3,079.7 | 3,074.7 | 6.9 | 7.2 | 155.82 | 206.6 | -61.7 | 324.8 | 311.4 | 13.42 | 24.199 | | |
| 3,200.0 | 3,195.4 | 3,178.8 | 3,173.6 | 7.1 | 7.5 | 155.86 | 212.9 | -64.6 | 337.7 | 323.8 | 13.88 | 24.327 | | |
| 3,300.0 | 3,295.2 | 3,278.0 | 3,272.5 | 7.4 | 7.7 | 155.90 | 219.1 | -67.6 | 350.5 | 336.1 | 14.34 | 24.445 | | |
| 3,400.0 | 3,395.0 | 3,377.2 | 3,371.5 | 7.6 | 8.0 | 155.94 | 225.4 | -70.5 | 363.3 | 348.5 | 14.79 | 24.555 | | |
| 3,500.0 | 3,494.7 | 3,476.4 | 3,470.4 | 7.9 | 8.3 | 155.97 | 231.7 | -73.4 | 376.1 | 360.8 | 15.25 | 24.657 | | |
| 3,600.0 | 3,594.5 | 3,575.5 | 3,569.3 | 8.1 | 8.5 | 156.00 | 238.0 | -76.3 | 388.9 | 373.2 | 15.71 | 24.753 | | |
| 3,700.0 | 3,694.2 | 3,674.7 | 3,668.3 | 8.4 | 8.8 | 156.03 | 244.2 | -79.2 | 401.7 | 385.5 | 16.17 | 24.842 | | |
| 3,800.0 | 3,794.0 | 3,773.9 | 3,767.2 | 8.6 | 9.0 | 156.06 | 250.5 | -82.1 | 414.5 | 397.9 | 16.63 | 24.926 | | |
| 3,900.0 | 3,893.7 | 3,873.1 | 3,866.1 | 8.9 | 9.3 | 156.09 | 256.8 | -85.1 | 427.3 | 410.3 | 17.09 | 25.005 | | |
| 4,000.0 | 3,993.5 | 3,972.2 | 3,965.1 | 9.2 | 9.5 | 156.11 | 263.1 | -88.0 | 440.2 | 422.6 | 17.55 | 25.079 | | |
| 4,100.0 | 4,093.3 | 4,071.4 | 4,064.0 | 9.4 | 9.8 | 156.13 | 269.3 | -90.9 | 453.0 | 435.0 | 18.01 | 25.149 | | |
| 4,200.0 | 4,193.0 | 4,170.6 | 4,162.9 | 9.7 | 10.0 | 156.16 | 275.6 | -93.8 | 465.8 | 447.3 | 18.47 | 25.215 | | |
| 4,300.0 | 4,292.8 | 4,269.8 | 4,261.9 | 9.9 | 10.3 | 156.18 | 281.9 | -96.7 | 478.6 | 459.7 | 18.93 | 25.277 | | |
| 4,400.0 | 4,392.5 | 4,368.9 | 4,360.8 | 10.2 | 10.5 | 156.20 | 288.1 | -99.6 | 491.4 | 472.0 | 19.40 | 25.336 | | |
| 4,500.0 | 4,492.3 | 4,468.1 | 4,459.7 | 10.4 | 10.8 | 156.21 | 294.4 | -102.6 | 504.2 | 484.4 | 19.86 | 25.391 | | |
| 4,600.0 | 4,592.0 | 4,567.3 | 4,558.7 | 10.7 | 11.0 | 156.23 | 300.7 | -105.5 | 517.0 | 496.7 | 20.32 | 25.444 | | |
| 4,700.0 | 4,691.8 | 4,666.5 | 4,657.6 | 11.0 | 11.3 | 156.25 | 307.0 | -108.4 | 529.8 | 509.1 | 20.78 | 25.495 | | |
| 4,800.0 | 4,791.5 | 4,765.6 | 4,756.6 | 11.2 | 11.5 | 156.27 | 313.2 | -111.3 | 542.7 | 521.4 | 21.25 | 25.543 | | |
| 4,900.0 | 4,891.3 | 4,864.8 | 4,855.5 | 11.5 | 11.8 | 156.28 | 319.5 | -114.2 | 555.5 | 533.8 | 21.71 | 25.588 | | |
| 5,000.0 | 4,991.1 | 4,964.0 | 4,954.4 | 11.7 | 12.1 | 156.30 | 325.8 | -117.2 | 568.3 | 546.1 | 22.17 | 25.632 | | |
| 5,100.0 | 5,090.8 | 5,063.2 | 5,053.4 | 12.0 | 12.3 | 156.31 | 332.1 | -120.1 | 581.1 | 558.5 | 22.63 | 25.673 | | |

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

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-0301A - HZ - Plan #1 | | | | | | | | | | | | Offset Site Error: 0.0 usft | |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|-----------------------------|---------|
| Survey Program: 0-ISCSWA MWD | | | | | | | | | | | | Offset Well Error: 0.0 usft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | |
| 5,200.0 | 5,190.6 | 5,162.3 | 5,152.3 | 12.3 | 12.6 | 156.32 | 338.3 | -123.0 | 593.9 | 570.8 | 23.10 | 25.713 | |
| 5,300.0 | 5,290.3 | 5,261.5 | 5,251.2 | 12.5 | 12.8 | 156.34 | 344.6 | -125.9 | 606.7 | 583.2 | 23.56 | 25.751 | |
| 5,400.0 | 5,390.1 | 5,360.7 | 5,350.2 | 12.8 | 13.1 | 156.35 | 350.9 | -128.8 | 619.5 | 595.5 | 24.02 | 25.787 | |
| 5,500.0 | 5,489.8 | 5,459.9 | 5,449.1 | 13.0 | 13.3 | 156.36 | 357.2 | -131.7 | 632.3 | 607.9 | 24.49 | 25.822 | |
| 5,600.0 | 5,589.6 | 5,559.0 | 5,548.0 | 13.3 | 13.6 | 156.37 | 363.4 | -134.7 | 645.2 | 620.2 | 24.95 | 25.856 | |
| 5,700.0 | 5,689.2 | 5,657.0 | 5,645.7 | 13.6 | 13.8 | 156.12 | 369.6 | -137.5 | 659.7 | 634.4 | 25.23 | 26.147 | |
| 5,800.0 | 5,785.9 | 5,700.0 | 5,688.4 | 14.0 | 14.0 | 154.75 | 373.9 | -139.5 | 692.3 | 667.6 | 24.69 | 28.036 | |
| 5,900.0 | 5,876.1 | 5,750.0 | 5,737.4 | 14.6 | 14.1 | 152.13 | 383.0 | -143.7 | 747.0 | 723.3 | 23.72 | 31.497 | |
| 6,000.0 | 5,956.6 | 5,765.6 | 5,752.5 | 15.3 | 14.2 | 146.67 | 386.6 | -145.5 | 818.8 | 796.0 | 22.82 | 35.878 | |
| 6,100.0 | 6,024.2 | 5,800.0 | 5,785.2 | 16.3 | 14.4 | 137.44 | 396.2 | -149.9 | 903.7 | 880.3 | 23.40 | 38.613 | |
| 6,200.0 | 6,076.6 | 5,800.0 | 5,785.2 | 17.4 | 14.4 | 116.27 | 396.2 | -149.9 | 995.9 | 967.8 | 28.16 | 35.365 | |
| 6,300.0 | 6,111.9 | 5,800.0 | 5,785.2 | 18.7 | 14.4 | 79.38 | 396.2 | -149.9 | 1,091.9 | 1,059.9 | 32.05 | 34.070 | |
| 6,400.0 | 6,128.6 | 5,800.0 | 5,785.2 | 20.2 | 14.4 | 47.09 | 396.2 | -149.9 | 1,187.7 | 1,161.9 | 25.81 | 46.012 | |
| 6,500.0 | 6,130.0 | 5,800.0 | 5,785.2 | 21.6 | 14.4 | 35.31 | 396.2 | -149.9 | 1,281.5 | 1,259.6 | 21.93 | 58.437 | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-0302B - HZ - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|-------------------|--------------------|----------|
| Survey Program: 0-ISCWSA MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 23.33 | 75.1 | 32.4 | 81.7 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 23.33 | 75.1 | 32.4 | 81.7 | 81.5 | 0.19 | 437.083 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 23.33 | 75.1 | 32.4 | 81.7 | 81.1 | 0.64 | 128.409 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | 23.33 | 75.1 | 32.4 | 81.7 | 80.7 | 1.09 | 75.259 | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | 23.33 | 75.1 | 32.4 | 81.7 | 80.2 | 1.54 | 53.228 | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 23.33 | 75.1 | 32.4 | 81.7 | 79.8 | 1.99 | 41.175 | | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | 23.33 | 75.1 | 32.4 | 81.7 | 79.3 | 2.43 | 33.572 | | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.4 | 1.4 | 23.33 | 75.1 | 32.4 | 81.7 | 78.9 | 2.88 | 28.340 | | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | 23.33 | 75.1 | 32.4 | 81.7 | 78.4 | 3.33 | 24.518 | | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | 23.33 | 75.1 | 32.4 | 81.7 | 78.0 | 3.78 | 21.605 | | |
| 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 2.1 | 2.1 | 23.33 | 75.1 | 32.4 | 81.7 | 77.5 | 4.23 | 19.310 CC, ES | | |
| 1,100.0 | 1,100.0 | 1,097.7 | 1,097.7 | 2.3 | 2.3 | 22.65 | 76.7 | 32.0 | 83.1 | 78.4 | 4.68 | 17.768 | | |
| 1,200.0 | 1,200.0 | 1,195.2 | 1,195.0 | 2.6 | 2.6 | 20.74 | 81.5 | 30.9 | 87.3 | 82.2 | 5.13 | 17.036 SF | | |
| 1,300.0 | 1,300.0 | 1,294.7 | 1,294.3 | 2.8 | 2.8 | 177.32 | 88.3 | 29.3 | 95.0 | 89.4 | 5.55 | 17.110 | | |
| 1,400.0 | 1,399.8 | 1,394.0 | 1,393.4 | 2.9 | 3.0 | 175.48 | 95.0 | 27.8 | 106.2 | 100.2 | 5.95 | 17.853 | | |
| 1,500.0 | 1,499.6 | 1,493.1 | 1,492.3 | 3.1 | 3.2 | 174.09 | 101.8 | 26.2 | 119.2 | 112.9 | 6.35 | 18.761 | | |
| 1,600.0 | 1,599.3 | 1,592.2 | 1,591.1 | 3.3 | 3.5 | 172.98 | 108.5 | 24.7 | 132.3 | 125.5 | 6.77 | 19.548 | | |
| 1,700.0 | 1,699.1 | 1,691.4 | 1,690.0 | 3.5 | 3.7 | 172.06 | 115.3 | 23.1 | 145.4 | 138.2 | 7.19 | 20.233 | | |
| 1,800.0 | 1,798.9 | 1,790.5 | 1,788.9 | 3.7 | 4.0 | 171.30 | 122.0 | 21.6 | 158.6 | 151.0 | 7.61 | 20.834 | | |
| 1,900.0 | 1,898.6 | 1,889.6 | 1,887.7 | 4.0 | 4.2 | 170.66 | 128.7 | 20.1 | 171.8 | 163.7 | 8.04 | 21.364 | | |
| 2,000.0 | 1,998.4 | 1,988.7 | 1,986.6 | 4.2 | 4.5 | 170.11 | 135.5 | 18.5 | 185.0 | 176.5 | 8.47 | 21.833 | | |
| 2,100.0 | 2,098.1 | 2,087.8 | 2,085.5 | 4.4 | 4.7 | 169.63 | 142.2 | 17.0 | 198.2 | 189.3 | 8.91 | 22.250 | | |
| 2,200.0 | 2,197.9 | 2,186.9 | 2,184.3 | 4.7 | 4.9 | 169.21 | 149.0 | 15.4 | 211.4 | 202.1 | 9.34 | 22.624 | | |
| 2,300.0 | 2,297.6 | 2,286.0 | 2,283.2 | 4.9 | 5.2 | 168.84 | 155.7 | 13.9 | 224.7 | 214.9 | 9.78 | 22.960 | | |
| 2,400.0 | 2,397.4 | 2,385.1 | 2,382.1 | 5.1 | 5.4 | 168.51 | 162.4 | 12.3 | 237.9 | 227.7 | 10.23 | 23.264 | | |
| 2,500.0 | 2,497.2 | 2,484.2 | 2,480.9 | 5.4 | 5.7 | 168.21 | 169.2 | 10.8 | 251.2 | 240.5 | 10.67 | 23.539 | | |
| 2,600.0 | 2,596.9 | 2,583.3 | 2,579.8 | 5.6 | 5.9 | 167.95 | 175.9 | 9.2 | 264.4 | 253.3 | 11.11 | 23.790 | | |
| 2,700.0 | 2,696.7 | 2,682.5 | 2,678.7 | 5.9 | 6.2 | 167.71 | 182.6 | 7.7 | 277.7 | 266.1 | 11.56 | 24.019 | | |
| 2,800.0 | 2,796.4 | 2,781.6 | 2,777.5 | 6.1 | 6.4 | 167.49 | 189.4 | 6.1 | 290.9 | 278.9 | 12.01 | 24.228 | | |
| 2,900.0 | 2,896.2 | 2,880.7 | 2,876.4 | 6.4 | 6.7 | 167.29 | 196.1 | 4.6 | 304.2 | 291.8 | 12.46 | 24.421 | | |
| 3,000.0 | 2,995.9 | 2,979.8 | 2,975.3 | 6.6 | 6.9 | 167.11 | 202.9 | 3.0 | 317.5 | 304.6 | 12.91 | 24.599 | | |
| 3,100.0 | 3,095.7 | 3,078.9 | 3,074.2 | 6.9 | 7.2 | 166.94 | 209.6 | 1.5 | 330.8 | 317.4 | 13.36 | 24.764 | | |
| 3,200.0 | 3,195.4 | 3,178.0 | 3,173.0 | 7.1 | 7.4 | 166.79 | 216.3 | 0.0 | 344.1 | 330.2 | 13.81 | 24.916 | | |
| 3,300.0 | 3,295.2 | 3,277.1 | 3,271.9 | 7.4 | 7.7 | 166.65 | 223.1 | -1.6 | 357.3 | 343.1 | 14.26 | 25.058 | | |
| 3,400.0 | 3,395.0 | 3,376.2 | 3,370.8 | 7.6 | 7.9 | 166.51 | 229.8 | -3.1 | 370.6 | 355.9 | 14.71 | 25.190 | | |
| 3,500.0 | 3,494.7 | 3,475.3 | 3,469.6 | 7.9 | 8.2 | 166.39 | 236.6 | -4.7 | 383.9 | 368.7 | 15.17 | 25.314 | | |
| 3,600.0 | 3,594.5 | 3,574.4 | 3,568.5 | 8.1 | 8.4 | 166.28 | 243.3 | -6.2 | 397.2 | 381.6 | 15.62 | 25.429 | | |
| 3,700.0 | 3,694.2 | 3,673.5 | 3,667.4 | 8.4 | 8.7 | 166.17 | 250.0 | -7.8 | 410.5 | 394.4 | 16.07 | 25.538 | | |
| 3,800.0 | 3,794.0 | 3,772.7 | 3,766.2 | 8.6 | 8.9 | 166.07 | 256.8 | -9.3 | 423.8 | 407.2 | 16.53 | 25.639 | | |
| 3,900.0 | 3,893.7 | 3,871.8 | 3,865.1 | 8.9 | 9.2 | 165.97 | 263.5 | -10.9 | 437.1 | 420.1 | 16.98 | 25.735 | | |
| 4,000.0 | 3,993.5 | 3,970.9 | 3,964.0 | 9.2 | 9.5 | 165.88 | 270.3 | -12.4 | 450.4 | 432.9 | 17.44 | 25.825 | | |
| 4,100.0 | 4,093.3 | 4,070.0 | 4,062.8 | 9.4 | 9.7 | 165.80 | 277.0 | -14.0 | 463.7 | 445.8 | 17.89 | 25.911 | | |
| 4,200.0 | 4,193.0 | 4,169.1 | 4,161.7 | 9.7 | 10.0 | 165.72 | 283.7 | -15.5 | 477.0 | 458.6 | 18.35 | 25.991 | | |
| 4,300.0 | 4,292.8 | 4,268.2 | 4,260.6 | 9.9 | 10.2 | 165.64 | 290.5 | -17.0 | 490.2 | 471.4 | 18.81 | 26.068 | | |
| 4,400.0 | 4,392.5 | 4,367.3 | 4,359.4 | 10.2 | 10.5 | 165.57 | 297.2 | -18.6 | 503.5 | 484.3 | 19.26 | 26.140 | | |
| 4,500.0 | 4,492.3 | 4,466.4 | 4,458.3 | 10.4 | 10.7 | 165.51 | 303.9 | -20.1 | 516.8 | 497.1 | 19.72 | 26.209 | | |
| 4,600.0 | 4,592.0 | 4,565.5 | 4,557.2 | 10.7 | 11.0 | 165.44 | 310.7 | -21.7 | 530.1 | 510.0 | 20.18 | 26.274 | | |
| 4,700.0 | 4,691.8 | 4,664.6 | 4,656.0 | 11.0 | 11.2 | 165.38 | 317.4 | -23.2 | 543.4 | 522.8 | 20.63 | 26.336 | | |
| 4,800.0 | 4,791.5 | 4,763.8 | 4,754.9 | 11.2 | 11.5 | 165.32 | 324.2 | -24.8 | 556.7 | 535.6 | 21.09 | 26.395 | | |
| 4,900.0 | 4,891.3 | 4,862.9 | 4,853.8 | 11.5 | 11.7 | 165.27 | 330.9 | -26.3 | 570.0 | 548.5 | 21.55 | 26.452 | | |
| 5,000.0 | 4,991.1 | 4,962.0 | 4,952.7 | 11.7 | 12.0 | 165.21 | 337.6 | -27.9 | 583.3 | 561.3 | 22.01 | 26.506 | | |
| 5,100.0 | 5,090.8 | 5,061.1 | 5,051.5 | 12.0 | 12.2 | 165.16 | 344.4 | -29.4 | 596.6 | 574.2 | 22.47 | 26.557 | | |

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

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-0302B - HZ - Plan #1 | | | | | | | | | | | | | Offset Site Error: 0.0 usft | |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|-------------------|-----------------------------|---------|
| Survey Program: 0-ISWWSA MWD | | | | | | | | | | | | | Offset Well Error: 0.0 usft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | | |
| 5,200.0 | 5,190.6 | 5,160.2 | 5,150.4 | 12.3 | 12.5 | 165.12 | 351.1 | -31.0 | 609.9 | 587.0 | 22.92 | 26.607 | | |
| 5,300.0 | 5,290.3 | 5,259.3 | 5,249.3 | 12.5 | 12.7 | 165.07 | 357.9 | -32.5 | 623.2 | 599.9 | 23.38 | 26.654 | | |
| 5,400.0 | 5,390.1 | 5,358.4 | 5,348.1 | 12.8 | 13.0 | 165.03 | 364.6 | -34.1 | 636.6 | 612.7 | 23.84 | 26.699 | | |
| 5,500.0 | 5,489.8 | 5,457.5 | 5,447.0 | 13.0 | 13.2 | 164.98 | 371.3 | -35.6 | 649.9 | 625.6 | 24.30 | 26.742 | | |
| 5,600.0 | 5,589.6 | 5,556.6 | 5,545.9 | 13.3 | 13.5 | 164.94 | 378.1 | -37.1 | 663.2 | 638.4 | 24.76 | 26.784 | | |
| 5,700.0 | 5,689.2 | 5,655.5 | 5,644.4 | 13.6 | 13.8 | 164.72 | 384.8 | -38.7 | 678.2 | 653.2 | 25.01 | 27.114 | | |
| 5,800.0 | 5,785.9 | 5,750.5 | 5,739.3 | 14.0 | 14.0 | 164.14 | 391.2 | -40.2 | 708.5 | 684.0 | 24.45 | 28.981 | | |
| 5,900.0 | 5,876.1 | 5,800.0 | 5,788.6 | 14.6 | 14.1 | 162.76 | 395.1 | -41.1 | 757.2 | 734.1 | 23.09 | 32.787 | | |
| 6,000.0 | 5,956.6 | 5,832.1 | 5,820.3 | 15.3 | 14.2 | 159.88 | 399.7 | -42.1 | 825.4 | 804.0 | 21.33 | 38.694 | | |
| 6,100.0 | 6,024.2 | 5,850.0 | 5,837.9 | 16.3 | 14.3 | 153.83 | 403.1 | -42.9 | 908.3 | 888.2 | 20.10 | 45.183 | | |
| 6,200.0 | 6,076.6 | 5,866.3 | 5,853.8 | 17.4 | 14.4 | 139.88 | 406.7 | -43.7 | 1,000.7 | 978.3 | 22.41 | 44.647 | | |
| 6,300.0 | 6,111.9 | 5,871.6 | 5,858.9 | 18.7 | 14.4 | 99.36 | 407.9 | -44.0 | 1,098.2 | 1,065.9 | 32.25 | 34.051 | | |
| 6,400.0 | 6,128.6 | 5,870.2 | 5,857.6 | 20.2 | 14.4 | 45.13 | 407.6 | -43.9 | 1,196.5 | 1,171.2 | 25.25 | 47.378 | | |
| 6,500.0 | 6,130.0 | 5,850.0 | 5,837.9 | 21.6 | 14.3 | 26.47 | 403.1 | -42.9 | 1,293.5 | 1,275.6 | 17.92 | 72.186 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-0303A - HZ - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|---|-----------------|------------------------------|-------------------------------|------------------------------|----------------------|--------------------|----------|
| Survey Program: 0-ISCSWA MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | Total Uncertainty Axis | Separation Factor | Warning | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 41.02 | 75.1 | 65.3 | 99.5 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 41.02 | 75.1 | 65.3 | 99.5 | 99.3 | 0.19 | 531.951 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 41.02 | 75.1 | 65.3 | 99.5 | 98.8 | 0.64 | 156.279 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | 41.02 | 75.1 | 65.3 | 99.5 | 98.4 | 1.09 | 91.594 | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | 41.02 | 75.1 | 65.3 | 99.5 | 97.9 | 1.54 | 64.781 | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 41.02 | 75.1 | 65.3 | 99.5 | 97.5 | 1.99 | 50.111 | | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | 41.02 | 75.1 | 65.3 | 99.5 | 97.0 | 2.43 | 40.859 | | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.4 | 1.4 | 41.02 | 75.1 | 65.3 | 99.5 | 96.6 | 2.88 | 34.491 | | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | 41.02 | 75.1 | 65.3 | 99.5 | 96.1 | 3.33 | 29.840 | | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | 41.02 | 75.1 | 65.3 | 99.5 | 95.7 | 3.78 | 26.294 | | |
| 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 2.1 | 2.1 | 41.02 | 75.1 | 65.3 | 99.5 | 95.2 | 4.23 | 23.502 | | |
| 1,100.0 | 1,100.0 | 1,100.0 | 1,100.0 | 2.3 | 2.3 | 41.02 | 75.1 | 65.3 | 99.5 | 94.8 | 4.68 | 21.245 CC, ES | | |
| 1,200.0 | 1,200.0 | 1,197.3 | 1,197.3 | 2.6 | 2.6 | 40.45 | 76.7 | 65.4 | 100.8 | 95.7 | 5.13 | 19.669 | | |
| 1,300.0 | 1,300.0 | 1,294.2 | 1,294.0 | 2.8 | 2.8 | -162.50 | 81.6 | 65.7 | 106.6 | 101.1 | 5.54 | 19.236 SF | | |
| 1,400.0 | 1,399.8 | 1,393.3 | 1,392.9 | 2.9 | 3.0 | -165.14 | 88.5 | 66.2 | 117.5 | 111.5 | 5.94 | 19.773 | | |
| 1,500.0 | 1,499.6 | 1,492.3 | 1,491.7 | 3.1 | 3.2 | -167.55 | 95.4 | 66.7 | 130.2 | 123.9 | 6.35 | 20.520 | | |
| 1,600.0 | 1,599.3 | 1,591.4 | 1,590.5 | 3.3 | 3.5 | -169.53 | 102.3 | 67.1 | 143.1 | 136.4 | 6.76 | 21.183 | | |
| 1,700.0 | 1,699.1 | 1,690.4 | 1,689.3 | 3.5 | 3.7 | -171.18 | 109.2 | 67.6 | 156.2 | 149.1 | 7.17 | 21.774 | | |
| 1,800.0 | 1,798.9 | 1,789.5 | 1,788.1 | 3.7 | 3.9 | -172.58 | 116.1 | 68.0 | 169.4 | 161.8 | 7.60 | 22.300 | | |
| 1,900.0 | 1,898.6 | 1,888.5 | 1,886.9 | 4.0 | 4.2 | -173.78 | 123.0 | 68.5 | 182.7 | 174.7 | 8.02 | 22.770 | | |
| 2,000.0 | 1,998.4 | 1,987.6 | 1,985.7 | 4.2 | 4.4 | -174.81 | 129.9 | 69.0 | 196.0 | 187.6 | 8.45 | 23.192 | | |
| 2,100.0 | 2,098.1 | 2,086.6 | 2,084.5 | 4.4 | 4.7 | -175.71 | 136.8 | 69.4 | 209.4 | 200.5 | 8.88 | 23.573 | | |
| 2,200.0 | 2,197.9 | 2,185.7 | 2,183.3 | 4.7 | 4.9 | -176.50 | 143.7 | 69.9 | 222.9 | 213.5 | 9.32 | 23.916 | | |
| 2,300.0 | 2,297.6 | 2,284.7 | 2,282.1 | 4.9 | 5.1 | -177.20 | 150.6 | 70.3 | 236.3 | 226.6 | 9.75 | 24.228 | | |
| 2,400.0 | 2,397.4 | 2,383.8 | 2,381.0 | 5.1 | 5.4 | -177.83 | 157.4 | 70.8 | 249.8 | 239.6 | 10.19 | 24.511 | | |
| 2,500.0 | 2,497.2 | 2,482.8 | 2,479.8 | 5.4 | 5.6 | -178.39 | 164.3 | 71.3 | 263.4 | 252.7 | 10.63 | 24.771 | | |
| 2,600.0 | 2,596.9 | 2,581.9 | 2,578.6 | 5.6 | 5.9 | -178.90 | 171.2 | 71.7 | 276.9 | 265.8 | 11.07 | 25.008 | | |
| 2,700.0 | 2,696.7 | 2,680.9 | 2,677.4 | 5.9 | 6.1 | -179.36 | 178.1 | 72.2 | 290.5 | 279.0 | 11.52 | 25.226 | | |
| 2,800.0 | 2,796.4 | 2,780.0 | 2,776.2 | 6.1 | 6.4 | -179.78 | 185.0 | 72.6 | 304.1 | 292.1 | 11.96 | 25.427 | | |
| 2,900.0 | 2,896.2 | 2,879.0 | 2,875.0 | 6.4 | 6.6 | -179.84 | 191.9 | 73.1 | 317.7 | 305.3 | 12.40 | 25.613 | | |
| 3,000.0 | 2,995.9 | 2,978.1 | 2,973.8 | 6.6 | 6.9 | -179.49 | 198.8 | 73.6 | 331.3 | 318.5 | 12.85 | 25.785 | | |
| 3,100.0 | 3,095.7 | 3,077.1 | 3,072.6 | 6.9 | 7.1 | -179.16 | 205.7 | 74.0 | 344.9 | 331.6 | 13.30 | 25.944 | | |
| 3,200.0 | 3,195.4 | 3,176.1 | 3,171.4 | 7.1 | 7.4 | -178.87 | 212.6 | 74.5 | 358.6 | 344.8 | 13.74 | 26.093 | | |
| 3,300.0 | 3,295.2 | 3,275.2 | 3,270.2 | 7.4 | 7.6 | -178.59 | 219.5 | 75.0 | 372.2 | 358.0 | 14.19 | 26.232 | | |
| 3,400.0 | 3,395.0 | 3,374.2 | 3,369.0 | 7.6 | 7.9 | -178.33 | 226.4 | 75.4 | 385.9 | 371.2 | 14.64 | 26.362 | | |
| 3,500.0 | 3,494.7 | 3,473.3 | 3,467.8 | 7.9 | 8.1 | -178.09 | 233.3 | 75.9 | 399.5 | 384.5 | 15.09 | 26.483 | | |
| 3,600.0 | 3,594.5 | 3,572.3 | 3,566.6 | 8.1 | 8.4 | -177.87 | 240.2 | 76.3 | 413.2 | 397.7 | 15.54 | 26.597 | | |
| 3,700.0 | 3,694.2 | 3,671.4 | 3,665.5 | 8.4 | 8.6 | -177.66 | 247.1 | 76.8 | 426.9 | 410.9 | 15.99 | 26.705 | | |
| 3,800.0 | 3,794.0 | 3,770.4 | 3,764.3 | 8.6 | 8.9 | -177.46 | 254.0 | 77.3 | 440.6 | 424.1 | 16.44 | 26.806 | | |
| 3,900.0 | 3,893.7 | 3,869.5 | 3,863.1 | 8.9 | 9.1 | -177.28 | 260.9 | 77.7 | 454.3 | 437.4 | 16.89 | 26.901 | | |
| 4,000.0 | 3,993.5 | 3,968.5 | 3,961.9 | 9.2 | 9.4 | -177.10 | 267.7 | 78.2 | 467.9 | 450.6 | 17.34 | 26.991 | | |
| 4,100.0 | 4,093.3 | 4,067.6 | 4,060.7 | 9.4 | 9.6 | -176.94 | 274.6 | 78.6 | 481.6 | 463.9 | 17.79 | 27.076 | | |
| 4,200.0 | 4,193.0 | 4,166.6 | 4,159.5 | 9.7 | 9.9 | -176.78 | 281.5 | 79.1 | 495.3 | 477.1 | 18.24 | 27.157 | | |
| 4,300.0 | 4,292.8 | 4,265.7 | 4,258.3 | 9.9 | 10.1 | -176.63 | 288.4 | 79.6 | 509.0 | 490.4 | 18.69 | 27.234 | | |
| 4,400.0 | 4,392.5 | 4,364.7 | 4,357.1 | 10.2 | 10.4 | -176.50 | 295.3 | 80.0 | 522.7 | 503.6 | 19.14 | 27.306 | | |
| 4,500.0 | 4,492.3 | 4,463.8 | 4,455.9 | 10.4 | 10.6 | -176.36 | 302.2 | 80.5 | 536.5 | 516.9 | 19.60 | 27.375 | | |
| 4,600.0 | 4,592.0 | 4,562.8 | 4,554.7 | 10.7 | 10.9 | -176.24 | 309.1 | 81.0 | 550.2 | 530.1 | 20.05 | 27.441 | | |
| 4,700.0 | 4,691.8 | 4,661.9 | 4,653.5 | 11.0 | 11.1 | -176.12 | 316.0 | 81.4 | 563.9 | 543.4 | 20.50 | 27.504 | | |
| 4,800.0 | 4,791.5 | 4,760.9 | 4,752.3 | 11.2 | 11.4 | -176.01 | 322.9 | 81.9 | 577.6 | 556.6 | 20.95 | 27.564 | | |
| 4,900.0 | 4,891.3 | 4,860.0 | 4,851.1 | 11.5 | 11.7 | -175.90 | 329.8 | 82.3 | 591.3 | 569.9 | 21.41 | 27.621 | | |
| 5,000.0 | 4,991.1 | 4,959.0 | 4,949.9 | 11.7 | 11.9 | -175.79 | 336.7 | 82.8 | 605.0 | 583.2 | 21.86 | 27.676 | | |
| 5,100.0 | 5,090.8 | 5,058.1 | 5,048.8 | 12.0 | 12.2 | -175.70 | 343.6 | 83.3 | 618.7 | 596.4 | 22.31 | 27.728 | | |

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

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-0303A - HZ - Plan #1 | | | | | | | | | | | | | Offset Site Error: 0.0 usft | |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|-------------------|-----------------------------|--|
| Survey Program: 0-ISWWSA MWD | | | | | | | | | | | | | Offset Well Error: 0.0 usft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | | |
| 5,200.0 | 5,190.6 | 5,157.1 | 5,147.6 | 12.3 | 12.4 | 175.60 | 350.5 | 83.7 | 632.5 | 609.7 | 22.77 | 27.779 | | |
| 5,300.0 | 5,290.3 | 5,256.2 | 5,246.4 | 12.5 | 12.7 | 175.51 | 357.4 | 84.2 | 646.2 | 623.0 | 23.22 | 27.827 | | |
| 5,400.0 | 5,390.1 | 5,355.2 | 5,345.2 | 12.8 | 12.9 | 175.42 | 364.3 | 84.6 | 659.9 | 636.2 | 23.68 | 27.873 | | |
| 5,500.0 | 5,489.8 | 5,454.3 | 5,444.0 | 13.0 | 13.2 | 175.34 | 371.2 | 85.1 | 673.6 | 649.5 | 24.13 | 27.917 | | |
| 5,600.0 | 5,589.6 | 5,553.3 | 5,542.8 | 13.3 | 13.4 | 175.26 | 378.1 | 85.6 | 687.4 | 662.8 | 24.58 | 27.960 | | |
| 5,700.0 | 5,689.2 | 5,652.1 | 5,641.3 | 13.6 | 13.7 | 175.12 | 384.9 | 86.0 | 702.9 | 678.1 | 24.82 | 28.318 | | |
| 5,800.0 | 5,785.9 | 5,700.0 | 5,688.9 | 14.0 | 13.8 | 174.76 | 390.1 | 86.4 | 737.4 | 713.3 | 24.08 | 30.620 | | |
| 5,900.0 | 5,876.1 | 5,727.8 | 5,716.2 | 14.6 | 13.9 | 174.01 | 395.1 | 86.7 | 794.7 | 772.2 | 22.51 | 35.300 | | |
| 6,000.0 | 5,956.6 | 5,750.0 | 5,737.9 | 15.3 | 14.0 | 172.54 | 400.1 | 87.0 | 870.3 | 850.0 | 20.26 | 42.951 | | |
| 6,100.0 | 6,024.2 | 5,770.3 | 5,757.5 | 16.3 | 14.1 | 169.34 | 405.5 | 87.4 | 958.7 | 941.1 | 17.69 | 54.210 | | |
| 6,200.0 | 6,076.6 | 5,779.4 | 5,766.2 | 17.4 | 14.1 | 158.42 | 408.2 | 87.6 | 1,055.0 | 1,037.9 | 17.08 | 61.763 | | |
| 6,300.0 | 6,111.9 | 5,781.5 | 5,768.2 | 18.7 | 14.1 | 56.09 | 408.8 | 87.6 | 1,154.5 | 1,126.5 | 28.03 | 41.190 | | |
| 6,400.0 | 6,128.6 | 5,777.7 | 5,764.5 | 20.2 | 14.1 | 13.26 | 407.7 | 87.6 | 1,253.3 | 1,241.8 | 11.52 | 108.762 | | |
| 6,500.0 | 6,130.0 | 5,769.9 | 5,757.1 | 21.6 | 14.1 | 3.56 | 405.4 | 87.4 | 1,349.5 | 1,340.7 | 8.82 | 152.929 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-0304B - HZ - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------|---------------|--------------------|----------|
| Survey Program: 0-ISCWSA MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | Distance | | Total | | Separation | | Warning | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Uncertainty Axis | Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 52.69 | 75.1 | 98.5 | 123.8 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 52.69 | 75.1 | 98.5 | 123.8 | 123.6 | 0.19 | 662.147 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 52.69 | 75.1 | 98.5 | 123.8 | 123.2 | 0.64 | 194.529 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | 52.69 | 75.1 | 98.5 | 123.8 | 122.7 | 1.09 | 114.012 | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | 52.69 | 75.1 | 98.5 | 123.8 | 122.3 | 1.54 | 80.636 | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 52.69 | 75.1 | 98.5 | 123.8 | 121.8 | 1.99 | 62.376 | | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | 52.69 | 75.1 | 98.5 | 123.8 | 121.4 | 2.43 | 50.859 | | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.4 | 1.4 | 52.69 | 75.1 | 98.5 | 123.8 | 120.9 | 2.88 | 42.932 | | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | 52.69 | 75.1 | 98.5 | 123.8 | 120.5 | 3.33 | 37.143 | | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | 52.69 | 75.1 | 98.5 | 123.8 | 120.0 | 3.78 | 32.730 | | |
| 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 2.1 | 2.1 | 52.69 | 75.1 | 98.5 | 123.8 | 119.6 | 4.23 | 29.254 | | |
| 1,100.0 | 1,100.0 | 1,100.0 | 1,100.0 | 2.3 | 2.3 | 52.69 | 75.1 | 98.5 | 123.8 | 119.1 | 4.68 | 26.445 | | |
| 1,200.0 | 1,200.0 | 1,200.0 | 1,200.0 | 2.6 | 2.6 | 52.69 | 75.1 | 98.5 | 123.8 | 118.7 | 5.13 | 24.129 CC, ES | | |
| 1,300.0 | 1,300.0 | 1,296.4 | 1,296.4 | 2.8 | 2.8 | -149.20 | 76.6 | 99.0 | 126.7 | 121.2 | 5.54 | 22.856 | | |
| 1,400.0 | 1,399.8 | 1,392.2 | 1,392.1 | 2.9 | 3.0 | -151.34 | 81.2 | 100.5 | 135.5 | 129.6 | 5.93 | 22.842 SF | | |
| 1,500.0 | 1,499.6 | 1,490.9 | 1,490.5 | 3.1 | 3.2 | -154.03 | 87.7 | 102.7 | 147.7 | 141.4 | 6.34 | 23.311 | | |
| 1,600.0 | 1,599.3 | 1,590.0 | 1,589.3 | 3.3 | 3.4 | -156.31 | 94.3 | 104.8 | 160.2 | 153.5 | 6.75 | 23.747 | | |
| 1,700.0 | 1,699.1 | 1,689.0 | 1,688.1 | 3.5 | 3.7 | -158.27 | 100.8 | 107.0 | 172.9 | 165.8 | 7.16 | 24.143 | | |
| 1,800.0 | 1,798.9 | 1,788.0 | 1,786.9 | 3.7 | 3.9 | -159.95 | 107.4 | 109.1 | 185.8 | 178.2 | 7.58 | 24.503 | | |
| 1,900.0 | 1,898.6 | 1,887.0 | 1,885.7 | 4.0 | 4.1 | -161.42 | 114.0 | 111.3 | 198.9 | 190.9 | 8.01 | 24.829 | | |
| 2,000.0 | 1,998.4 | 1,986.1 | 1,984.5 | 4.2 | 4.4 | -162.71 | 120.5 | 113.5 | 212.0 | 203.6 | 8.44 | 25.126 | | |
| 2,100.0 | 2,098.1 | 2,085.1 | 2,083.3 | 4.4 | 4.6 | -163.84 | 127.1 | 115.6 | 225.2 | 216.4 | 8.87 | 25.398 | | |
| 2,200.0 | 2,197.9 | 2,184.1 | 2,182.0 | 4.7 | 4.9 | -164.85 | 133.6 | 117.8 | 238.5 | 229.2 | 9.30 | 25.646 | | |
| 2,300.0 | 2,297.6 | 2,283.1 | 2,280.8 | 4.9 | 5.1 | -165.75 | 140.2 | 120.0 | 251.9 | 242.2 | 9.74 | 25.873 | | |
| 2,400.0 | 2,397.4 | 2,382.2 | 2,379.6 | 5.1 | 5.4 | -166.56 | 146.8 | 122.1 | 265.4 | 255.2 | 10.17 | 26.082 | | |
| 2,500.0 | 2,497.2 | 2,481.2 | 2,478.4 | 5.4 | 5.6 | -167.30 | 153.3 | 124.3 | 278.8 | 268.2 | 10.61 | 26.274 | | |
| 2,600.0 | 2,596.9 | 2,580.2 | 2,577.2 | 5.6 | 5.8 | -167.96 | 159.9 | 126.4 | 292.3 | 281.3 | 11.05 | 26.451 | | |
| 2,700.0 | 2,696.7 | 2,679.3 | 2,676.0 | 5.9 | 6.1 | -168.57 | 166.4 | 128.6 | 305.9 | 294.4 | 11.49 | 26.615 | | |
| 2,800.0 | 2,796.4 | 2,778.3 | 2,774.8 | 6.1 | 6.3 | -169.13 | 173.0 | 130.8 | 319.5 | 307.6 | 11.94 | 26.767 | | |
| 2,900.0 | 2,896.2 | 2,877.3 | 2,873.5 | 6.4 | 6.6 | -169.63 | 179.6 | 132.9 | 333.1 | 320.7 | 12.38 | 26.909 | | |
| 3,000.0 | 2,995.9 | 2,976.3 | 2,972.3 | 6.6 | 6.8 | -170.10 | 186.1 | 135.1 | 346.7 | 333.9 | 12.82 | 27.040 | | |
| 3,100.0 | 3,095.7 | 3,075.4 | 3,071.1 | 6.9 | 7.1 | -170.54 | 192.7 | 137.2 | 360.4 | 347.1 | 13.27 | 27.163 | | |
| 3,200.0 | 3,195.4 | 3,174.4 | 3,169.9 | 7.1 | 7.3 | -170.94 | 199.2 | 139.4 | 374.1 | 360.4 | 13.71 | 27.278 | | |
| 3,300.0 | 3,295.2 | 3,273.4 | 3,268.7 | 7.4 | 7.6 | -171.32 | 205.8 | 141.6 | 387.8 | 373.6 | 14.16 | 27.385 | | |
| 3,400.0 | 3,395.0 | 3,372.4 | 3,367.5 | 7.6 | 7.8 | -171.66 | 212.4 | 143.7 | 401.5 | 386.9 | 14.61 | 27.486 | | |
| 3,500.0 | 3,494.7 | 3,471.5 | 3,466.3 | 7.9 | 8.1 | -171.99 | 218.9 | 145.9 | 415.2 | 400.1 | 15.05 | 27.581 | | |
| 3,600.0 | 3,594.5 | 3,570.5 | 3,565.1 | 8.1 | 8.3 | -172.30 | 225.5 | 148.1 | 428.9 | 413.4 | 15.50 | 27.671 | | |
| 3,700.0 | 3,694.2 | 3,669.5 | 3,663.8 | 8.4 | 8.6 | -172.58 | 232.0 | 150.2 | 442.7 | 426.7 | 15.95 | 27.755 | | |
| 3,800.0 | 3,794.0 | 3,768.6 | 3,762.6 | 8.6 | 8.8 | -172.85 | 238.6 | 152.4 | 456.4 | 440.0 | 16.40 | 27.834 | | |
| 3,900.0 | 3,893.7 | 3,867.6 | 3,861.4 | 8.9 | 9.1 | -173.10 | 245.2 | 154.5 | 470.2 | 453.3 | 16.85 | 27.910 | | |
| 4,000.0 | 3,993.5 | 3,966.6 | 3,960.2 | 9.2 | 9.3 | -173.34 | 251.7 | 156.7 | 484.0 | 466.7 | 17.30 | 27.981 | | |
| 4,100.0 | 4,093.3 | 4,065.6 | 4,059.0 | 9.4 | 9.6 | -173.57 | 258.3 | 158.9 | 497.7 | 480.0 | 17.75 | 28.048 | | |
| 4,200.0 | 4,193.0 | 4,164.7 | 4,157.8 | 9.7 | 9.8 | -173.78 | 264.8 | 161.0 | 511.5 | 493.3 | 18.20 | 28.112 | | |
| 4,300.0 | 4,292.8 | 4,263.7 | 4,256.6 | 9.9 | 10.1 | -173.98 | 271.4 | 163.2 | 525.3 | 506.7 | 18.65 | 28.173 | | |
| 4,400.0 | 4,392.5 | 4,362.7 | 4,355.3 | 10.2 | 10.3 | -174.17 | 278.0 | 165.4 | 539.1 | 520.0 | 19.10 | 28.231 | | |
| 4,500.0 | 4,492.3 | 4,461.7 | 4,454.1 | 10.4 | 10.6 | -174.36 | 284.5 | 167.5 | 552.9 | 533.4 | 19.55 | 28.287 | | |
| 4,600.0 | 4,592.0 | 4,560.8 | 4,552.9 | 10.7 | 10.8 | -174.53 | 291.1 | 169.7 | 566.7 | 546.7 | 20.00 | 28.339 | | |
| 4,700.0 | 4,691.8 | 4,659.8 | 4,651.7 | 11.0 | 11.1 | -174.69 | 297.6 | 171.8 | 580.6 | 560.1 | 20.45 | 28.390 | | |
| 4,800.0 | 4,791.5 | 4,758.8 | 4,750.5 | 11.2 | 11.3 | -174.85 | 304.2 | 174.0 | 594.4 | 573.5 | 20.90 | 28.438 | | |
| 4,900.0 | 4,891.3 | 4,857.9 | 4,849.3 | 11.5 | 11.6 | -175.00 | 310.8 | 176.2 | 608.2 | 586.9 | 21.35 | 28.484 | | |
| 5,000.0 | 4,991.1 | 4,956.9 | 4,948.1 | 11.7 | 11.8 | -175.15 | 317.3 | 178.3 | 622.0 | 600.2 | 21.80 | 28.528 | | |
| 5,100.0 | 5,090.8 | 5,055.9 | 5,046.8 | 12.0 | 12.1 | -175.28 | 323.9 | 180.5 | 635.9 | 613.6 | 22.26 | 28.570 | | |

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

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-0304B - HZ - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|-------------------|--------------------|----------|
| Survey Program: 0-ISWWSA MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | | |
| 5,200.0 | 5,190.6 | 5,154.9 | 5,145.6 | 12.3 | 12.3 | -175.41 | 330.5 | 182.7 | 649.7 | 627.0 | 22.71 | 28.611 | | |
| 5,300.0 | 5,290.3 | 5,254.0 | 5,244.4 | 12.5 | 12.6 | -175.54 | 337.0 | 184.8 | 663.5 | 640.4 | 23.16 | 28.650 | | |
| 5,400.0 | 5,390.1 | 5,353.0 | 5,343.2 | 12.8 | 12.9 | -175.66 | 343.6 | 187.0 | 677.4 | 653.8 | 23.61 | 28.687 | | |
| 5,500.0 | 5,489.8 | 5,452.0 | 5,442.0 | 13.0 | 13.1 | -175.78 | 350.1 | 189.1 | 691.2 | 667.2 | 24.07 | 28.723 | | |
| 5,600.0 | 5,589.6 | 5,551.0 | 5,540.8 | 13.3 | 13.4 | -175.89 | 356.7 | 191.3 | 705.1 | 680.6 | 24.52 | 28.757 | | |
| 5,700.0 | 5,689.2 | 5,649.8 | 5,639.2 | 13.6 | 13.6 | -175.94 | 363.2 | 193.5 | 720.8 | 696.0 | 24.76 | 29.113 | | |
| 5,800.0 | 5,785.9 | 5,744.5 | 5,733.8 | 14.0 | 13.9 | -175.88 | 369.5 | 195.5 | 752.1 | 728.0 | 24.11 | 31.190 | | |
| 5,900.0 | 5,876.1 | 5,800.0 | 5,789.1 | 14.6 | 14.0 | -175.60 | 373.8 | 196.9 | 802.1 | 779.5 | 22.58 | 35.520 | | |
| 6,000.0 | 5,956.6 | 5,824.9 | 5,813.7 | 15.3 | 14.1 | -174.86 | 377.1 | 198.0 | 871.7 | 851.4 | 20.29 | 42.958 | | |
| 6,100.0 | 6,024.2 | 5,850.0 | 5,838.4 | 16.3 | 14.2 | -173.34 | 381.6 | 199.5 | 956.2 | 938.7 | 17.51 | 54.596 | | |
| 6,200.0 | 6,076.6 | 5,850.0 | 5,838.4 | 17.4 | 14.2 | -168.35 | 381.6 | 199.5 | 1,050.2 | 1,035.1 | 15.09 | 69.612 | | |
| 6,300.0 | 6,111.9 | 5,850.0 | 5,838.4 | 18.7 | 14.2 | -119.54 | 381.6 | 199.5 | 1,149.2 | 1,119.7 | 29.50 | 38.951 | | |
| 6,400.0 | 6,128.6 | 5,850.0 | 5,838.4 | 20.2 | 14.2 | -13.61 | 381.6 | 199.5 | 1,248.7 | 1,237.2 | 11.51 | 108.472 | | |
| 6,500.0 | 6,130.0 | 5,850.0 | 5,838.4 | 21.6 | 14.2 | -17.23 | 381.6 | 199.5 | 1,346.3 | 1,333.0 | 13.32 | 101.062 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-1502B - HZ - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------|--------------|--------------------|----------|
| Survey Program: 0-ISCWSA MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | Distance | | Total | | Separation | | Warning | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Uncertainty Axis | Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.00 | 0.0 | 33.2 | 33.2 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 90.00 | 0.0 | 33.2 | 33.2 | 33.0 | 0.19 | 177.521 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 90.00 | 0.0 | 33.2 | 33.2 | 32.6 | 0.64 | 52.153 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | 90.00 | 0.0 | 33.2 | 33.2 | 32.1 | 1.09 | 30.567 | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | 90.00 | 0.0 | 33.2 | 33.2 | 31.7 | 1.54 | 21.619 | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 90.00 | 0.0 | 33.2 | 33.2 | 31.2 | 1.99 | 16.723 | | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | 90.00 | 0.0 | 33.2 | 33.2 | 30.8 | 2.43 | 13.635 | | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.4 | 1.4 | 90.00 | 0.0 | 33.2 | 33.2 | 30.3 | 2.88 | 11.510 | | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | 90.00 | 0.0 | 33.2 | 33.2 | 29.9 | 3.33 | 9.958 | | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | 90.00 | 0.0 | 33.2 | 33.2 | 29.4 | 3.78 | 8.775 | | |
| 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 2.1 | 2.1 | 90.00 | 0.0 | 33.2 | 33.2 | 29.0 | 4.23 | 7.843 | | |
| 1,100.0 | 1,100.0 | 1,100.0 | 1,100.0 | 2.3 | 2.3 | 90.00 | 0.0 | 33.2 | 33.2 | 28.5 | 4.68 | 7.090 | | |
| 1,200.0 | 1,200.0 | 1,200.1 | 1,200.1 | 2.6 | 2.5 | 93.01 | -1.7 | 33.0 | 33.0 | 27.9 | 5.10 | 6.469 | | |
| 1,223.7 | 1,223.7 | 1,223.8 | 1,223.8 | 2.6 | 2.6 | -106.65 | -2.7 | 32.8 | 33.0 | 27.8 | 5.19 | 6.354 CC, ES | | |
| 1,300.0 | 1,300.0 | 1,300.1 | 1,299.9 | 2.8 | 2.7 | -101.95 | -6.9 | 32.3 | 33.3 | 27.9 | 5.47 | 6.089 | | |
| 1,400.0 | 1,399.8 | 1,400.0 | 1,399.6 | 2.9 | 2.9 | -98.85 | -13.8 | 31.4 | 34.6 | 28.8 | 5.84 | 5.937 | | |
| 1,500.0 | 1,499.6 | 1,500.0 | 1,499.4 | 3.1 | 3.1 | -98.76 | -20.7 | 30.4 | 36.3 | 30.1 | 6.22 | 5.833 | | |
| 1,600.0 | 1,599.3 | 1,600.0 | 1,599.1 | 3.3 | 3.3 | -98.67 | -27.7 | 29.5 | 37.9 | 31.3 | 6.63 | 5.724 | | |
| 1,700.0 | 1,699.1 | 1,700.0 | 1,698.9 | 3.5 | 3.5 | -98.59 | -34.6 | 28.6 | 39.6 | 32.5 | 7.05 | 5.614 | | |
| 1,800.0 | 1,798.9 | 1,800.0 | 1,798.6 | 3.7 | 3.7 | -98.51 | -41.5 | 27.7 | 41.2 | 33.7 | 7.48 | 5.507 | | |
| 1,900.0 | 1,898.6 | 1,900.0 | 1,898.4 | 4.0 | 4.0 | -98.45 | -48.4 | 26.7 | 42.8 | 34.9 | 7.93 | 5.403 | | |
| 2,000.0 | 1,998.4 | 2,000.0 | 1,998.1 | 4.2 | 4.2 | -98.38 | -55.3 | 25.8 | 44.5 | 36.1 | 8.39 | 5.305 | | |
| 2,100.0 | 2,098.1 | 2,100.0 | 2,097.8 | 4.4 | 4.4 | -98.32 | -62.2 | 24.9 | 46.1 | 37.3 | 8.85 | 5.212 | | |
| 2,200.0 | 2,197.9 | 2,199.9 | 2,197.6 | 4.7 | 4.7 | -98.27 | -69.1 | 24.0 | 47.8 | 38.4 | 9.32 | 5.124 | | |
| 2,300.0 | 2,297.6 | 2,299.9 | 2,297.3 | 4.9 | 4.9 | -98.22 | -76.1 | 23.0 | 49.4 | 39.6 | 9.80 | 5.042 | | |
| 2,400.0 | 2,397.4 | 2,399.9 | 2,397.1 | 5.1 | 5.2 | -98.17 | -83.0 | 22.1 | 51.0 | 40.8 | 10.28 | 4.965 | | |
| 2,500.0 | 2,497.2 | 2,499.9 | 2,496.8 | 5.4 | 5.4 | -98.13 | -89.9 | 21.2 | 52.7 | 41.9 | 10.77 | 4.893 | | |
| 2,600.0 | 2,596.9 | 2,599.9 | 2,596.6 | 5.6 | 5.7 | -98.08 | -96.8 | 20.3 | 54.3 | 43.1 | 11.26 | 4.825 | | |
| 2,700.0 | 2,696.7 | 2,699.9 | 2,696.3 | 5.9 | 5.9 | -98.05 | -103.7 | 19.4 | 56.0 | 44.2 | 11.75 | 4.762 | | |
| 2,800.0 | 2,796.4 | 2,799.9 | 2,796.0 | 6.1 | 6.1 | -98.01 | -110.6 | 18.4 | 57.6 | 45.3 | 12.25 | 4.703 | | |
| 2,900.0 | 2,896.2 | 2,899.8 | 2,895.8 | 6.4 | 6.4 | -97.97 | -117.5 | 17.5 | 59.2 | 46.5 | 12.75 | 4.647 | | |
| 3,000.0 | 2,995.9 | 2,999.8 | 2,995.5 | 6.6 | 6.7 | -97.94 | -124.4 | 16.6 | 60.9 | 47.6 | 13.25 | 4.595 | | |
| 3,100.0 | 3,095.7 | 3,099.8 | 3,095.3 | 6.9 | 6.9 | -97.91 | -131.4 | 15.7 | 62.5 | 48.8 | 13.75 | 4.546 | | |
| 3,200.0 | 3,195.4 | 3,199.8 | 3,195.0 | 7.1 | 7.2 | -97.88 | -138.3 | 14.7 | 64.2 | 49.9 | 14.26 | 4.500 | | |
| 3,300.0 | 3,295.2 | 3,299.8 | 3,294.8 | 7.4 | 7.4 | -97.85 | -145.2 | 13.8 | 65.8 | 51.0 | 14.76 | 4.456 | | |
| 3,400.0 | 3,395.0 | 3,399.8 | 3,394.5 | 7.6 | 7.7 | -97.82 | -152.1 | 12.9 | 67.4 | 52.2 | 15.27 | 4.415 | | |
| 3,500.0 | 3,494.7 | 3,499.8 | 3,494.2 | 7.9 | 7.9 | -97.80 | -159.0 | 12.0 | 69.1 | 53.3 | 15.78 | 4.376 | | |
| 3,600.0 | 3,594.5 | 3,599.7 | 3,594.0 | 8.1 | 8.2 | -97.77 | -165.9 | 11.1 | 70.7 | 54.4 | 16.29 | 4.340 | | |
| 3,700.0 | 3,694.2 | 3,699.7 | 3,693.7 | 8.4 | 8.4 | -97.75 | -172.8 | 10.1 | 72.3 | 55.5 | 16.81 | 4.305 | | |
| 3,800.0 | 3,794.0 | 3,799.7 | 3,793.5 | 8.6 | 8.7 | -97.73 | -179.8 | 9.2 | 74.0 | 56.7 | 17.32 | 4.272 | | |
| 3,900.0 | 3,893.7 | 3,899.7 | 3,893.2 | 8.9 | 9.0 | -97.70 | -186.7 | 8.3 | 75.6 | 57.8 | 17.83 | 4.241 | | |
| 4,000.0 | 3,993.5 | 3,999.7 | 3,993.0 | 9.2 | 9.2 | -97.68 | -193.6 | 7.4 | 77.3 | 58.9 | 18.35 | 4.211 | | |
| 4,100.0 | 4,093.3 | 4,099.7 | 4,092.7 | 9.4 | 9.5 | -97.66 | -200.5 | 6.4 | 78.9 | 60.0 | 18.86 | 4.183 | | |
| 4,200.0 | 4,193.0 | 4,199.7 | 4,192.4 | 9.7 | 9.7 | -97.64 | -207.4 | 5.5 | 80.5 | 61.2 | 19.38 | 4.156 | | |
| 4,300.0 | 4,292.8 | 4,299.7 | 4,292.2 | 9.9 | 10.0 | -97.63 | -214.3 | 4.6 | 82.2 | 62.3 | 19.90 | 4.131 | | |
| 4,400.0 | 4,392.5 | 4,399.6 | 4,391.9 | 10.2 | 10.3 | -97.61 | -221.2 | 3.7 | 83.8 | 63.4 | 20.41 | 4.106 | | |
| 4,500.0 | 4,492.3 | 4,499.6 | 4,491.7 | 10.4 | 10.5 | -97.59 | -228.2 | 2.8 | 85.5 | 64.5 | 20.93 | 4.083 | | |
| 4,600.0 | 4,592.0 | 4,599.6 | 4,591.4 | 10.7 | 10.8 | -97.58 | -235.1 | 1.8 | 87.1 | 65.7 | 21.45 | 4.060 | | |
| 4,700.0 | 4,691.8 | 4,699.6 | 4,691.2 | 11.0 | 11.0 | -97.56 | -242.0 | 0.9 | 88.7 | 66.8 | 21.97 | 4.039 | | |
| 4,800.0 | 4,791.5 | 4,799.6 | 4,790.9 | 11.2 | 11.3 | -97.55 | -248.9 | 0.0 | 90.4 | 67.9 | 22.49 | 4.019 | | |
| 4,900.0 | 4,891.3 | 4,899.6 | 4,890.6 | 11.5 | 11.6 | -97.53 | -255.8 | -0.9 | 92.0 | 69.0 | 23.01 | 3.999 | | |
| 5,000.0 | 4,991.1 | 4,999.6 | 4,990.4 | 11.7 | 11.8 | -97.52 | -262.7 | -1.9 | 93.7 | 70.1 | 23.53 | 3.980 | | |

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

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-1502B - HZ - Plan #1 | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|--------------------|----------|
| Survey Program: 0-ISCWSA MWD | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | Distance | | | | | | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | Warning |
| 5,100.0 | 5,090.8 | 5,099.5 | 5,090.1 | 12.0 | 12.1 | -97.50 | -269.6 | -2.8 | 95.3 | 71.3 | 24.05 | 3.962 | |
| 5,200.0 | 5,190.6 | 5,199.5 | 5,189.9 | 12.3 | 12.3 | -97.49 | -276.5 | -3.7 | 96.9 | 72.4 | 24.57 | 3.945 | |
| 5,300.0 | 5,290.3 | 5,299.5 | 5,289.6 | 12.5 | 12.6 | -97.48 | -283.5 | -4.6 | 98.6 | 73.5 | 25.10 | 3.928 | |
| 5,400.0 | 5,390.1 | 5,399.5 | 5,389.4 | 12.8 | 12.9 | -97.47 | -290.4 | -5.5 | 100.2 | 74.6 | 25.62 | 3.912 | |
| 5,500.0 | 5,489.8 | 5,499.5 | 5,489.1 | 13.0 | 13.1 | -97.45 | -297.3 | -6.5 | 101.9 | 75.7 | 26.14 | 3.897 | |
| 5,600.0 | 5,589.6 | 5,599.5 | 5,588.8 | 13.3 | 13.4 | -97.44 | -304.2 | -7.4 | 103.5 | 76.8 | 26.66 | 3.882 | |
| 5,700.0 | 5,689.2 | 5,699.4 | 5,688.5 | 13.6 | 13.6 | -98.32 | -311.1 | -8.3 | 105.4 | 78.2 | 27.19 | 3.876 | |
| 5,800.0 | 5,785.9 | 5,797.9 | 5,786.8 | 14.0 | 13.9 | -106.51 | -318.4 | -9.3 | 111.0 | 83.3 | 27.71 | 4.006 | |
| 5,900.0 | 5,876.1 | 5,898.6 | 5,885.0 | 14.6 | 14.3 | -115.18 | -339.2 | -12.1 | 124.3 | 96.2 | 28.04 | 4.431 | |
| 6,000.0 | 5,956.6 | 6,003.4 | 5,981.1 | 15.3 | 14.9 | -120.73 | -380.4 | -17.6 | 143.7 | 115.4 | 28.28 | 5.080 | |
| 6,100.0 | 6,024.2 | 6,112.6 | 6,070.3 | 16.3 | 15.7 | -123.37 | -442.5 | -25.8 | 167.1 | 138.3 | 28.75 | 5.811 | |
| 6,200.0 | 6,076.6 | 6,226.3 | 6,147.1 | 17.4 | 16.8 | -123.68 | -525.3 | -36.9 | 192.5 | 162.7 | 29.85 | 6.449 | |
| 6,300.0 | 6,111.9 | 6,344.3 | 6,205.7 | 18.7 | 18.1 | -122.26 | -626.5 | -50.4 | 218.7 | 186.8 | 31.92 | 6.852 | |
| 6,400.0 | 6,128.6 | 6,466.3 | 6,240.6 | 20.2 | 19.8 | -119.57 | -742.1 | -65.8 | 244.4 | 209.4 | 34.97 | 6.988 | |
| 6,500.0 | 6,130.0 | 6,580.9 | 6,248.5 | 21.6 | 21.4 | -116.92 | -855.2 | -80.8 | 266.6 | 228.0 | 38.57 | 6.912 | |
| 6,600.0 | 6,130.0 | 6,667.3 | 6,248.5 | 22.9 | 22.6 | -114.98 | -941.3 | -89.2 | 285.6 | 244.0 | 41.66 | 6.856 | |
| 6,700.0 | 6,130.0 | 6,753.1 | 6,248.5 | 24.3 | 23.7 | -113.34 | -1,026.9 | -93.7 | 304.3 | 259.6 | 44.69 | 6.809 | |
| 6,800.0 | 6,130.0 | 6,842.6 | 6,248.5 | 25.8 | 25.0 | -111.89 | -1,116.4 | -94.5 | 322.2 | 274.4 | 47.76 | 6.746 | |
| 6,900.0 | 6,130.0 | 6,941.4 | 6,248.5 | 27.2 | 26.6 | -110.78 | -1,215.3 | -94.5 | 336.3 | 285.4 | 50.94 | 6.603 | |
| 7,000.0 | 6,130.0 | 7,040.9 | 6,248.5 | 28.7 | 28.2 | -110.09 | -1,314.7 | -94.5 | 345.7 | 291.7 | 54.01 | 6.401 | |
| 7,100.0 | 6,130.0 | 7,140.8 | 6,248.5 | 30.2 | 29.9 | -109.78 | -1,414.6 | -94.5 | 350.2 | 293.3 | 56.91 | 6.153 | |
| 7,200.0 | 6,130.0 | 7,240.8 | 6,248.5 | 31.8 | 31.6 | -109.75 | -1,514.6 | -94.5 | 350.6 | 290.7 | 59.92 | 5.851 | |
| 7,300.0 | 6,130.0 | 7,340.8 | 6,248.5 | 33.4 | 33.3 | -109.76 | -1,614.6 | -94.5 | 350.6 | 287.5 | 63.17 | 5.550 | |
| 7,400.0 | 6,130.0 | 7,440.8 | 6,248.5 | 35.1 | 35.1 | -109.76 | -1,714.6 | -94.5 | 350.6 | 284.2 | 66.46 | 5.275 | |
| 7,500.0 | 6,130.0 | 7,540.8 | 6,248.5 | 36.8 | 36.9 | -109.76 | -1,814.6 | -94.5 | 350.6 | 280.8 | 69.79 | 5.024 | |
| 7,600.0 | 6,130.0 | 7,640.8 | 6,248.5 | 38.5 | 38.7 | -109.76 | -1,914.6 | -94.5 | 350.6 | 277.5 | 73.15 | 4.793 | |
| 7,700.0 | 6,130.0 | 7,740.8 | 6,248.5 | 40.2 | 40.5 | -109.76 | -2,014.6 | -94.5 | 350.6 | 274.1 | 76.53 | 4.581 | |
| 7,800.0 | 6,130.0 | 7,840.8 | 6,248.6 | 41.9 | 42.3 | -109.76 | -2,114.6 | -94.5 | 350.6 | 270.7 | 79.94 | 4.386 | |
| 7,900.0 | 6,130.0 | 7,940.8 | 6,248.6 | 43.7 | 44.1 | -109.76 | -2,214.6 | -94.5 | 350.6 | 267.3 | 83.37 | 4.206 | |
| 8,000.0 | 6,130.0 | 8,040.8 | 6,248.6 | 45.5 | 45.9 | -109.76 | -2,314.6 | -94.5 | 350.6 | 263.8 | 86.82 | 4.039 | |
| 8,100.0 | 6,130.0 | 8,140.8 | 6,248.6 | 47.2 | 47.7 | -109.77 | -2,414.6 | -94.5 | 350.6 | 260.4 | 90.28 | 3.884 | |
| 8,200.0 | 6,130.0 | 8,240.8 | 6,248.6 | 49.0 | 49.6 | -109.77 | -2,514.6 | -94.5 | 350.6 | 256.9 | 93.76 | 3.740 | |
| 8,300.0 | 6,130.0 | 8,340.8 | 6,248.6 | 50.8 | 51.4 | -109.77 | -2,614.6 | -94.5 | 350.6 | 253.4 | 97.25 | 3.606 | |
| 8,400.0 | 6,130.0 | 8,440.8 | 6,248.6 | 52.6 | 53.3 | -109.77 | -2,714.6 | -94.5 | 350.6 | 249.9 | 100.75 | 3.480 | |
| 8,500.0 | 6,130.0 | 8,540.8 | 6,248.6 | 54.5 | 55.1 | -109.77 | -2,814.6 | -94.5 | 350.6 | 246.4 | 104.26 | 3.363 | |
| 8,600.0 | 6,130.0 | 8,640.8 | 6,248.6 | 56.3 | 57.0 | -109.77 | -2,914.6 | -94.5 | 350.6 | 242.9 | 107.78 | 3.253 | |
| 8,700.0 | 6,130.0 | 8,740.8 | 6,248.6 | 58.1 | 58.9 | -109.77 | -3,014.6 | -94.5 | 350.6 | 239.3 | 111.31 | 3.150 | |
| 8,800.0 | 6,130.0 | 8,840.8 | 6,248.6 | 60.0 | 60.7 | -109.77 | -3,114.6 | -94.5 | 350.6 | 235.8 | 114.85 | 3.053 | |
| 8,900.0 | 6,130.0 | 8,940.8 | 6,248.6 | 61.8 | 62.6 | -109.78 | -3,214.6 | -94.5 | 350.6 | 232.3 | 118.39 | 2.962 | |
| 9,000.0 | 6,130.0 | 9,040.8 | 6,248.6 | 63.6 | 64.5 | -109.78 | -3,314.6 | -94.5 | 350.6 | 228.7 | 121.94 | 2.876 | |
| 9,100.0 | 6,130.0 | 9,140.8 | 6,248.7 | 65.5 | 66.4 | -109.78 | -3,414.6 | -94.5 | 350.6 | 225.1 | 125.49 | 2.794 | |
| 9,200.0 | 6,130.0 | 9,240.8 | 6,248.7 | 67.3 | 68.2 | -109.78 | -3,514.6 | -94.5 | 350.6 | 221.6 | 129.05 | 2.717 | |
| 9,300.0 | 6,130.0 | 9,340.8 | 6,248.7 | 69.2 | 70.1 | -109.78 | -3,614.6 | -94.5 | 350.6 | 218.0 | 132.62 | 2.644 | |
| 9,400.0 | 6,130.0 | 9,440.8 | 6,248.7 | 71.1 | 72.0 | -109.78 | -3,714.6 | -94.5 | 350.6 | 214.5 | 136.19 | 2.575 | |
| 9,500.0 | 6,130.0 | 9,540.8 | 6,248.7 | 72.9 | 73.9 | -109.78 | -3,814.6 | -94.5 | 350.6 | 210.9 | 139.76 | 2.509 | |
| 9,600.0 | 6,130.0 | 9,640.8 | 6,248.7 | 74.8 | 75.8 | -109.78 | -3,914.6 | -94.5 | 350.6 | 207.3 | 143.34 | 2.446 | |
| 9,700.0 | 6,130.0 | 9,740.8 | 6,248.7 | 76.7 | 77.7 | -109.78 | -4,014.6 | -94.4 | 350.6 | 203.7 | 146.92 | 2.387 | |
| 9,800.0 | 6,130.0 | 9,840.8 | 6,248.7 | 78.5 | 79.6 | -109.79 | -4,114.6 | -94.4 | 350.6 | 200.1 | 150.51 | 2.330 | |
| 9,900.0 | 6,130.0 | 9,940.8 | 6,248.7 | 80.4 | 81.5 | -109.79 | -4,214.6 | -94.4 | 350.6 | 196.6 | 154.09 | 2.276 | |
| 10,000.0 | 6,130.0 | 10,040.8 | 6,248.7 | 82.3 | 83.3 | -109.79 | -4,314.6 | -94.4 | 350.6 | 193.0 | 157.68 | 2.224 | |
| 10,100.0 | 6,130.0 | 10,140.8 | 6,248.7 | 84.2 | 85.2 | -109.79 | -4,414.6 | -94.4 | 350.6 | 189.4 | 161.27 | 2.174 | |
| 10,200.0 | 6,130.0 | 10,240.8 | 6,248.7 | 86.1 | 87.1 | -109.79 | -4,514.6 | -94.4 | 350.7 | 185.8 | 164.87 | 2.127 | |

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

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-1502B - HZ - Plan #1 | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|--------------------|-------------|
| Survey Program: 0-ISCWSA MWD | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | Distance | | | | | | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | Warning |
| 10,300.0 | 6,130.0 | 10,340.8 | 6,248.7 | 87.9 | 89.0 | -109.79 | -4,614.6 | -94.4 | 350.7 | 182.2 | 168.47 | 2.081 | |
| 10,400.0 | 6,130.0 | 10,440.8 | 6,248.7 | 89.8 | 90.9 | -109.79 | -4,714.6 | -94.4 | 350.7 | 178.6 | 172.07 | 2.038 | |
| 10,500.0 | 6,130.0 | 10,540.8 | 6,248.8 | 91.7 | 92.8 | -109.79 | -4,814.6 | -94.4 | 350.7 | 175.0 | 175.67 | 1.996 | |
| 10,600.0 | 6,130.0 | 10,640.8 | 6,248.8 | 93.6 | 94.7 | -109.80 | -4,914.6 | -94.4 | 350.7 | 171.4 | 179.27 | 1.956 | |
| 10,700.0 | 6,130.0 | 10,740.8 | 6,248.8 | 95.5 | 96.6 | -109.80 | -5,014.6 | -94.4 | 350.7 | 167.8 | 182.88 | 1.917 | |
| 10,800.0 | 6,130.0 | 10,840.8 | 6,248.8 | 97.4 | 98.5 | -109.80 | -5,114.6 | -94.4 | 350.7 | 164.2 | 186.48 | 1.880 | |
| 10,900.0 | 6,130.0 | 10,940.8 | 6,248.8 | 99.3 | 100.4 | -109.80 | -5,214.6 | -94.4 | 350.7 | 160.6 | 190.09 | 1.845 | |
| 11,000.0 | 6,130.0 | 11,040.8 | 6,248.8 | 101.2 | 102.3 | -109.80 | -5,314.6 | -94.4 | 350.7 | 157.0 | 193.70 | 1.810 | |
| 11,100.0 | 6,130.0 | 11,140.8 | 6,248.8 | 103.1 | 104.2 | -109.80 | -5,414.6 | -94.4 | 350.7 | 153.3 | 197.31 | 1.777 | |
| 11,200.0 | 6,130.0 | 11,240.8 | 6,248.8 | 105.0 | 106.2 | -109.80 | -5,514.6 | -94.4 | 350.7 | 149.7 | 200.92 | 1.745 | |
| 11,300.0 | 6,130.0 | 11,340.8 | 6,248.8 | 106.9 | 108.1 | -109.80 | -5,614.6 | -94.4 | 350.7 | 146.1 | 204.54 | 1.714 | |
| 11,400.0 | 6,130.0 | 11,440.8 | 6,248.8 | 108.7 | 110.0 | -109.81 | -5,714.6 | -94.4 | 350.7 | 142.5 | 208.15 | 1.685 | |
| 11,500.0 | 6,130.0 | 11,540.8 | 6,248.8 | 110.6 | 111.9 | -109.81 | -5,814.6 | -94.4 | 350.7 | 138.9 | 211.77 | 1.656 | |
| 11,600.0 | 6,130.0 | 11,640.8 | 6,248.8 | 112.5 | 113.8 | -109.81 | -5,914.6 | -94.4 | 350.7 | 135.3 | 215.38 | 1.628 | |
| 11,700.0 | 6,130.0 | 11,740.8 | 6,248.8 | 114.4 | 115.7 | -109.81 | -6,014.6 | -94.4 | 350.7 | 131.7 | 219.00 | 1.601 | |
| 11,800.0 | 6,130.0 | 11,840.8 | 6,248.8 | 116.3 | 117.6 | -109.81 | -6,114.6 | -94.4 | 350.7 | 128.0 | 222.62 | 1.575 | |
| 11,900.0 | 6,130.0 | 11,940.8 | 6,248.9 | 118.2 | 119.5 | -109.81 | -6,214.6 | -94.4 | 350.7 | 124.4 | 226.24 | 1.550 | |
| 12,000.0 | 6,130.0 | 12,040.8 | 6,248.9 | 120.1 | 121.4 | -109.81 | -6,314.6 | -94.4 | 350.7 | 120.8 | 229.86 | 1.526 | |
| 12,100.0 | 6,130.0 | 12,140.8 | 6,248.9 | 122.0 | 123.3 | -109.81 | -6,414.6 | -94.4 | 350.7 | 117.2 | 233.48 | 1.502 | |
| 12,200.0 | 6,130.0 | 12,240.8 | 6,248.9 | 123.9 | 125.2 | -109.82 | -6,514.6 | -94.4 | 350.7 | 113.6 | 237.10 | 1.479 | Level 3 |
| 12,300.0 | 6,130.0 | 12,340.8 | 6,248.9 | 125.9 | 127.1 | -109.82 | -6,614.6 | -94.4 | 350.7 | 109.9 | 240.72 | 1.457 | Level 3 |
| 12,400.0 | 6,130.0 | 12,440.8 | 6,248.9 | 127.8 | 129.0 | -109.82 | -6,714.6 | -94.4 | 350.7 | 106.3 | 244.35 | 1.435 | Level 3 |
| 12,500.0 | 6,130.0 | 12,540.8 | 6,248.9 | 129.7 | 131.0 | -109.82 | -6,814.6 | -94.4 | 350.7 | 102.7 | 247.97 | 1.414 | Level 3 |
| 12,600.0 | 6,130.0 | 12,640.8 | 6,248.9 | 131.6 | 132.9 | -109.82 | -6,914.6 | -94.4 | 350.7 | 99.1 | 251.60 | 1.394 | Level 3 |
| 12,700.0 | 6,130.0 | 12,740.8 | 6,248.9 | 133.5 | 134.8 | -109.82 | -7,014.6 | -94.4 | 350.7 | 95.4 | 255.22 | 1.374 | Level 3 |
| 12,800.0 | 6,130.0 | 12,840.8 | 6,248.9 | 135.4 | 136.7 | -109.82 | -7,114.6 | -94.4 | 350.7 | 91.8 | 258.85 | 1.355 | Level 3 |
| 12,900.0 | 6,130.0 | 12,940.8 | 6,248.9 | 137.3 | 138.6 | -109.82 | -7,214.6 | -94.4 | 350.7 | 88.2 | 262.47 | 1.336 | Level 3 |
| 13,000.0 | 6,130.0 | 13,040.8 | 6,248.9 | 139.2 | 140.5 | -109.83 | -7,314.6 | -94.4 | 350.7 | 84.6 | 266.10 | 1.318 | Level 3 |
| 13,100.0 | 6,130.0 | 13,140.8 | 6,248.9 | 141.1 | 142.4 | -109.83 | -7,414.6 | -94.4 | 350.7 | 80.9 | 269.73 | 1.300 | Level 3 |
| 13,200.0 | 6,130.0 | 13,240.8 | 6,248.9 | 143.0 | 144.3 | -109.83 | -7,514.6 | -94.4 | 350.7 | 77.3 | 273.35 | 1.283 | Level 3 |
| 13,300.0 | 6,130.0 | 13,340.8 | 6,249.0 | 144.9 | 146.2 | -109.83 | -7,614.6 | -94.4 | 350.7 | 73.7 | 276.98 | 1.266 | Level 3 |
| 13,400.0 | 6,130.0 | 13,440.8 | 6,249.0 | 146.8 | 148.2 | -109.83 | -7,714.6 | -94.4 | 350.7 | 70.1 | 280.61 | 1.250 | Level 2 |
| 13,500.0 | 6,130.0 | 13,540.8 | 6,249.0 | 148.7 | 150.1 | -109.83 | -7,814.6 | -94.4 | 350.7 | 66.4 | 284.24 | 1.234 | Level 2 |
| 13,600.0 | 6,130.0 | 13,640.8 | 6,249.0 | 150.6 | 152.0 | -109.83 | -7,914.6 | -94.4 | 350.7 | 62.8 | 287.87 | 1.218 | Level 2 |
| 13,700.0 | 6,130.0 | 13,740.8 | 6,249.0 | 152.5 | 153.9 | -109.83 | -8,014.6 | -94.4 | 350.7 | 59.2 | 291.50 | 1.203 | Level 2 |
| 13,800.0 | 6,130.0 | 13,840.8 | 6,249.0 | 154.5 | 155.8 | -109.84 | -8,114.6 | -94.4 | 350.7 | 55.5 | 295.13 | 1.188 | Level 2 |
| 13,900.0 | 6,130.0 | 13,940.8 | 6,249.0 | 156.4 | 157.7 | -109.84 | -8,214.6 | -94.4 | 350.7 | 51.9 | 298.76 | 1.174 | Level 2 |
| 13,907.3 | 6,130.0 | 13,948.2 | 6,249.0 | 156.5 | 157.9 | -109.84 | -8,222.0 | -94.4 | 350.7 | 51.7 | 299.02 | 1.173 | Level 2 |
| 13,923.9 | 6,130.0 | 13,958.1 | 6,249.0 | 156.8 | 158.1 | -109.84 | -8,232.0 | -94.4 | 350.7 | 51.2 | 299.50 | 1.171 | Level 2, SF |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-1503A - HZ - Plan #1 | | | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|-------------------|---------|--------------------|----------|
| Survey Program: 0-ISCSWA MWD | | | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | Distance | | | | | | | | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | Warning | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.00 | 0.0 | 65.3 | 65.3 | | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 90.00 | 0.0 | 65.3 | 65.3 | 65.1 | 0.19 | 349.125 | | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 90.00 | 0.0 | 65.3 | 65.3 | 64.7 | 0.64 | 102.568 | | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | 90.00 | 0.0 | 65.3 | 65.3 | 64.2 | 1.09 | 60.114 | | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | 90.00 | 0.0 | 65.3 | 65.3 | 63.8 | 1.54 | 42.516 | | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 90.00 | 0.0 | 65.3 | 65.3 | 63.3 | 1.99 | 32.889 | | | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | 90.00 | 0.0 | 65.3 | 65.3 | 62.9 | 2.43 | 26.816 | | | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.4 | 1.4 | 90.00 | 0.0 | 65.3 | 65.3 | 62.4 | 2.88 | 22.637 | | | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | 90.00 | 0.0 | 65.3 | 65.3 | 62.0 | 3.33 | 19.584 | | | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | 90.00 | 0.0 | 65.3 | 65.3 | 61.5 | 3.78 | 17.257 | | | |
| 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 2.1 | 2.1 | 90.00 | 0.0 | 65.3 | 65.3 | 61.1 | 4.23 | 15.424 CC | | | |
| 1,100.0 | 1,100.0 | 1,099.6 | 1,099.6 | 2.3 | 2.3 | 91.49 | -1.7 | 65.6 | 65.6 | 61.0 | 4.65 | 14.101 ES | | | |
| 1,200.0 | 1,200.0 | 1,198.9 | 1,198.7 | 2.6 | 2.5 | 95.84 | -6.8 | 66.5 | 66.8 | 61.8 | 5.05 | 13.226 | | | |
| 1,300.0 | 1,300.0 | 1,298.7 | 1,298.3 | 2.8 | 2.7 | -101.05 | -13.7 | 67.6 | 69.3 | 63.9 | 5.44 | 12.755 | | | |
| 1,400.0 | 1,399.8 | 1,398.7 | 1,398.0 | 2.9 | 2.9 | -99.86 | -20.5 | 68.8 | 72.7 | 66.9 | 5.81 | 12.516 | | | |
| 1,500.0 | 1,499.6 | 1,498.6 | 1,497.7 | 3.1 | 3.1 | -100.13 | -27.4 | 70.0 | 76.4 | 70.2 | 6.21 | 12.315 | | | |
| 1,600.0 | 1,599.3 | 1,598.5 | 1,597.4 | 3.3 | 3.3 | -100.37 | -34.3 | 71.2 | 80.1 | 73.5 | 6.62 | 12.105 | | | |
| 1,700.0 | 1,699.1 | 1,698.5 | 1,697.1 | 3.5 | 3.5 | -100.60 | -41.1 | 72.4 | 83.8 | 76.8 | 7.05 | 11.894 | | | |
| 1,800.0 | 1,798.9 | 1,798.4 | 1,796.8 | 3.7 | 3.8 | -100.80 | -48.0 | 73.6 | 87.5 | 80.1 | 7.49 | 11.689 | | | |
| 1,900.0 | 1,898.6 | 1,898.3 | 1,896.5 | 4.0 | 4.0 | -100.99 | -54.9 | 74.8 | 91.2 | 83.3 | 7.94 | 11.492 | | | |
| 2,000.0 | 1,998.4 | 1,998.3 | 1,996.1 | 4.2 | 4.2 | -101.16 | -61.7 | 76.0 | 95.0 | 86.6 | 8.40 | 11.304 | | | |
| 2,100.0 | 2,098.1 | 2,098.2 | 2,095.8 | 4.4 | 4.5 | -101.32 | -68.6 | 77.1 | 98.7 | 89.8 | 8.87 | 11.127 | | | |
| 2,200.0 | 2,197.9 | 2,198.1 | 2,195.5 | 4.7 | 4.7 | -101.47 | -75.5 | 78.3 | 102.4 | 93.0 | 9.34 | 10.960 | | | |
| 2,300.0 | 2,297.6 | 2,298.0 | 2,295.2 | 4.9 | 5.0 | -101.61 | -82.4 | 79.5 | 106.1 | 96.3 | 9.82 | 10.803 | | | |
| 2,400.0 | 2,397.4 | 2,398.0 | 2,394.9 | 5.1 | 5.2 | -101.74 | -89.2 | 80.7 | 109.8 | 99.5 | 10.30 | 10.657 | | | |
| 2,500.0 | 2,497.2 | 2,497.9 | 2,494.6 | 5.4 | 5.5 | -101.86 | -96.1 | 81.9 | 113.5 | 102.7 | 10.79 | 10.519 | | | |
| 2,600.0 | 2,596.9 | 2,597.8 | 2,594.3 | 5.6 | 5.7 | -101.97 | -103.0 | 83.1 | 117.2 | 105.9 | 11.28 | 10.391 | | | |
| 2,700.0 | 2,696.7 | 2,697.8 | 2,694.0 | 5.9 | 6.0 | -102.08 | -109.8 | 84.3 | 120.9 | 109.1 | 11.77 | 10.270 | | | |
| 2,800.0 | 2,796.4 | 2,797.7 | 2,793.6 | 6.1 | 6.2 | -102.18 | -116.7 | 85.4 | 124.6 | 112.3 | 12.27 | 10.157 | | | |
| 2,900.0 | 2,896.2 | 2,897.6 | 2,893.3 | 6.4 | 6.5 | -102.27 | -123.6 | 86.6 | 128.3 | 115.6 | 12.77 | 10.051 | | | |
| 3,000.0 | 2,995.9 | 2,997.6 | 2,993.0 | 6.6 | 6.7 | -102.36 | -130.4 | 87.8 | 132.0 | 118.8 | 13.27 | 9.952 | | | |
| 3,100.0 | 3,095.7 | 3,097.5 | 3,092.7 | 6.9 | 7.0 | -102.44 | -137.3 | 89.0 | 135.7 | 122.0 | 13.77 | 9.858 | | | |
| 3,200.0 | 3,195.4 | 3,197.4 | 3,192.4 | 7.1 | 7.2 | -102.52 | -144.2 | 90.2 | 139.5 | 125.2 | 14.27 | 9.770 | | | |
| 3,300.0 | 3,295.2 | 3,297.3 | 3,292.1 | 7.4 | 7.5 | -102.60 | -151.0 | 91.4 | 143.2 | 128.4 | 14.78 | 9.687 | | | |
| 3,400.0 | 3,395.0 | 3,397.3 | 3,391.8 | 7.6 | 7.8 | -102.67 | -157.9 | 92.6 | 146.9 | 131.6 | 15.29 | 9.608 | | | |
| 3,500.0 | 3,494.7 | 3,497.2 | 3,491.5 | 7.9 | 8.0 | -102.73 | -164.8 | 93.8 | 150.6 | 134.8 | 15.79 | 9.534 | | | |
| 3,600.0 | 3,594.5 | 3,597.1 | 3,591.1 | 8.1 | 8.3 | -102.80 | -171.7 | 94.9 | 154.3 | 138.0 | 16.30 | 9.464 | | | |
| 3,700.0 | 3,694.2 | 3,697.1 | 3,690.8 | 8.4 | 8.5 | -102.86 | -178.5 | 96.1 | 158.0 | 141.2 | 16.81 | 9.398 | | | |
| 3,800.0 | 3,794.0 | 3,797.0 | 3,790.5 | 8.6 | 8.8 | -102.92 | -185.4 | 97.3 | 161.7 | 144.4 | 17.33 | 9.335 | | | |
| 3,900.0 | 3,893.7 | 3,896.9 | 3,890.2 | 8.9 | 9.0 | -102.98 | -192.3 | 98.5 | 165.4 | 147.6 | 17.84 | 9.275 | | | |
| 4,000.0 | 3,993.5 | 3,996.9 | 3,989.9 | 9.2 | 9.3 | -103.03 | -199.1 | 99.7 | 169.2 | 150.8 | 18.35 | 9.218 | | | |
| 4,100.0 | 4,093.3 | 4,096.8 | 4,089.6 | 9.4 | 9.6 | -103.08 | -206.0 | 100.9 | 172.9 | 154.0 | 18.86 | 9.164 | | | |
| 4,200.0 | 4,193.0 | 4,196.7 | 4,189.3 | 9.7 | 9.8 | -103.13 | -212.9 | 102.1 | 176.6 | 157.2 | 19.38 | 9.112 | | | |
| 4,300.0 | 4,292.8 | 4,296.7 | 4,289.0 | 9.9 | 10.1 | -103.18 | -219.7 | 103.2 | 180.3 | 160.4 | 19.89 | 9.063 | | | |
| 4,400.0 | 4,392.5 | 4,396.6 | 4,386.6 | 10.2 | 10.3 | -103.22 | -226.6 | 104.4 | 184.0 | 163.6 | 20.41 | 9.016 | | | |
| 4,500.0 | 4,492.3 | 4,496.5 | 4,488.3 | 10.4 | 10.6 | -103.26 | -233.5 | 105.6 | 187.7 | 166.8 | 20.92 | 8.972 | | | |
| 4,600.0 | 4,592.0 | 4,596.4 | 4,588.0 | 10.7 | 10.9 | -103.31 | -240.3 | 106.8 | 191.4 | 170.0 | 21.44 | 8.929 | | | |
| 4,700.0 | 4,691.8 | 4,696.4 | 4,687.7 | 11.0 | 11.1 | -103.35 | -247.2 | 108.0 | 195.1 | 173.2 | 21.96 | 8.888 | | | |
| 4,800.0 | 4,791.5 | 4,796.3 | 4,787.4 | 11.2 | 11.4 | -103.39 | -254.1 | 109.2 | 198.9 | 176.4 | 22.47 | 8.849 | | | |
| 4,900.0 | 4,891.3 | 4,896.2 | 4,887.1 | 11.5 | 11.6 | -103.42 | -261.0 | 110.4 | 202.6 | 179.6 | 22.99 | 8.811 | | | |
| 5,000.0 | 4,991.1 | 4,996.2 | 4,986.8 | 11.7 | 11.9 | -103.46 | -267.8 | 111.5 | 206.3 | 182.8 | 23.51 | 8.775 | | | |
| 5,100.0 | 5,090.8 | 5,096.1 | 5,086.4 | 12.0 | 12.2 | -103.49 | -274.7 | 112.7 | 210.0 | 186.0 | 24.03 | 8.740 | | | |

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

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-1503A - HZ - Plan #1 | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|--------------------|----------|
| Survey Program: 0-ISCWSA MWD | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | Distance | | | | | | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | Warning |
| 5,200.0 | 5,190.6 | 5,196.0 | 5,186.1 | 12.3 | 12.4 | -103.53 | -281.6 | 113.9 | 213.7 | 189.2 | 24.55 | 8.707 | |
| 5,300.0 | 5,290.3 | 5,296.0 | 5,285.8 | 12.5 | 12.7 | -103.56 | -288.4 | 115.1 | 217.4 | 192.4 | 25.06 | 8.675 | |
| 5,400.0 | 5,390.1 | 5,395.9 | 5,385.5 | 12.8 | 13.0 | -103.59 | -295.3 | 116.3 | 221.1 | 195.6 | 25.58 | 8.644 | |
| 5,500.0 | 5,489.8 | 5,495.8 | 5,485.2 | 13.0 | 13.2 | -103.62 | -302.2 | 117.5 | 224.9 | 198.8 | 26.10 | 8.614 | |
| 5,600.0 | 5,589.6 | 5,595.8 | 5,584.9 | 13.3 | 13.5 | -103.65 | -309.0 | 118.7 | 228.6 | 201.9 | 26.62 | 8.586 | |
| 5,700.0 | 5,689.2 | 5,691.1 | 5,679.8 | 13.6 | 13.7 | -103.53 | -316.7 | 120.0 | 233.1 | 206.0 | 27.14 | 8.589 | |
| 5,800.0 | 5,785.9 | 5,778.7 | 5,765.2 | 14.0 | 14.1 | -102.87 | -335.7 | 123.3 | 245.4 | 217.6 | 27.82 | 8.822 | |
| 5,900.0 | 5,876.1 | 5,864.8 | 5,844.9 | 14.6 | 14.6 | -101.69 | -367.7 | 128.8 | 266.6 | 237.9 | 28.74 | 9.277 | |
| 6,000.0 | 5,956.6 | 5,950.0 | 5,917.3 | 15.3 | 15.2 | -100.00 | -411.7 | 136.4 | 295.8 | 265.9 | 29.95 | 9.876 | |
| 6,100.0 | 6,024.2 | 6,031.0 | 5,978.6 | 16.3 | 15.9 | -97.75 | -463.9 | 145.4 | 331.9 | 300.4 | 31.54 | 10.523 | |
| 6,200.0 | 6,076.6 | 6,111.3 | 6,030.5 | 17.4 | 16.7 | -95.05 | -524.1 | 155.8 | 373.7 | 340.2 | 33.49 | 11.156 | |
| 6,300.0 | 6,111.9 | 6,190.4 | 6,071.8 | 18.7 | 17.6 | -91.99 | -590.4 | 167.3 | 419.7 | 384.0 | 35.73 | 11.746 | |
| 6,400.0 | 6,128.6 | 6,269.3 | 6,102.5 | 20.2 | 18.6 | -88.70 | -662.0 | 179.6 | 468.6 | 430.4 | 38.18 | 12.275 | |
| 6,500.0 | 6,130.0 | 6,350.6 | 6,122.2 | 21.6 | 19.8 | -89.02 | -739.7 | 193.1 | 518.3 | 477.5 | 40.88 | 12.681 | |
| 6,600.0 | 6,130.0 | 6,438.6 | 6,129.5 | 22.9 | 21.1 | -89.94 | -826.0 | 208.0 | 564.5 | 520.8 | 43.71 | 12.915 | |
| 6,700.0 | 6,130.0 | 6,571.7 | 6,129.5 | 24.3 | 22.9 | -89.95 | -957.8 | 226.0 | 602.8 | 555.7 | 47.13 | 12.792 | |
| 6,800.0 | 6,130.0 | 6,714.0 | 6,129.5 | 25.8 | 24.9 | -89.96 | -1,099.8 | 235.0 | 629.4 | 578.6 | 50.77 | 12.397 | |
| 6,900.0 | 6,130.0 | 6,829.5 | 6,129.5 | 27.2 | 26.7 | -89.96 | -1,215.3 | 235.7 | 645.0 | 590.8 | 54.18 | 11.905 | |
| 7,000.0 | 6,130.0 | 6,929.0 | 6,129.5 | 28.7 | 28.3 | -89.96 | -1,314.8 | 235.7 | 655.0 | 597.6 | 57.41 | 11.409 | |
| 7,100.0 | 6,130.0 | 7,028.9 | 6,129.5 | 30.2 | 30.0 | -89.96 | -1,414.7 | 235.7 | 659.7 | 599.1 | 60.58 | 10.890 | |
| 7,200.0 | 6,130.0 | 7,128.9 | 6,129.6 | 31.8 | 31.7 | -89.96 | -1,514.7 | 235.7 | 660.2 | 596.3 | 63.84 | 10.341 | |
| 7,300.0 | 6,130.0 | 7,228.9 | 6,129.6 | 33.4 | 33.5 | -89.96 | -1,614.7 | 235.7 | 660.2 | 592.9 | 67.27 | 9.813 | |
| 7,400.0 | 6,130.0 | 7,328.9 | 6,129.6 | 35.1 | 35.2 | -89.96 | -1,714.7 | 235.7 | 660.1 | 589.4 | 70.75 | 9.331 | |
| 7,500.0 | 6,130.0 | 7,428.9 | 6,129.6 | 36.8 | 37.0 | -89.96 | -1,814.7 | 235.7 | 660.1 | 585.9 | 74.26 | 8.890 | |
| 7,600.0 | 6,130.0 | 7,528.9 | 6,129.6 | 38.5 | 38.8 | -89.96 | -1,914.7 | 235.6 | 660.1 | 582.3 | 77.80 | 8.485 | |
| 7,700.0 | 6,130.0 | 7,628.9 | 6,129.6 | 40.2 | 40.6 | -89.96 | -2,014.7 | 235.6 | 660.1 | 578.7 | 81.37 | 8.112 | |
| 7,800.0 | 6,130.0 | 7,728.9 | 6,129.6 | 41.9 | 42.4 | -89.96 | -2,114.7 | 235.6 | 660.1 | 575.1 | 84.97 | 7.769 | |
| 7,900.0 | 6,130.0 | 7,828.9 | 6,129.6 | 43.7 | 44.3 | -89.96 | -2,214.7 | 235.6 | 660.1 | 571.5 | 88.59 | 7.451 | |
| 8,000.0 | 6,130.0 | 7,928.9 | 6,129.6 | 45.5 | 46.1 | -89.97 | -2,314.7 | 235.6 | 660.1 | 567.9 | 92.22 | 7.158 | |
| 8,100.0 | 6,130.0 | 8,028.9 | 6,129.6 | 47.2 | 47.9 | -89.97 | -2,414.7 | 235.6 | 660.1 | 564.2 | 95.87 | 6.885 | |
| 8,200.0 | 6,130.0 | 8,128.9 | 6,129.6 | 49.0 | 49.8 | -89.97 | -2,514.7 | 235.6 | 660.1 | 560.5 | 99.54 | 6.631 | |
| 8,300.0 | 6,130.0 | 8,228.9 | 6,129.6 | 50.8 | 51.6 | -89.97 | -2,614.7 | 235.6 | 660.0 | 556.8 | 103.22 | 6.395 | |
| 8,400.0 | 6,130.0 | 8,328.9 | 6,129.6 | 52.6 | 53.5 | -89.97 | -2,714.7 | 235.6 | 660.0 | 553.1 | 106.91 | 6.174 | |
| 8,500.0 | 6,130.0 | 8,428.9 | 6,129.6 | 54.5 | 55.3 | -89.97 | -2,814.7 | 235.6 | 660.0 | 549.4 | 110.61 | 5.967 | |
| 8,600.0 | 6,130.0 | 8,528.9 | 6,129.6 | 56.3 | 57.2 | -89.97 | -2,914.7 | 235.6 | 660.0 | 545.7 | 114.32 | 5.773 | |
| 8,700.0 | 6,130.0 | 8,628.9 | 6,129.7 | 58.1 | 59.1 | -89.97 | -3,014.7 | 235.6 | 660.0 | 542.0 | 118.04 | 5.591 | |
| 8,800.0 | 6,130.0 | 8,728.9 | 6,129.7 | 60.0 | 60.9 | -89.97 | -3,114.7 | 235.6 | 660.0 | 538.2 | 121.77 | 5.420 | |
| 8,900.0 | 6,130.0 | 8,828.9 | 6,129.7 | 61.8 | 62.8 | -89.97 | -3,214.7 | 235.6 | 660.0 | 534.5 | 125.50 | 5.259 | |
| 9,000.0 | 6,130.0 | 8,928.9 | 6,129.7 | 63.6 | 64.7 | -89.97 | -3,314.7 | 235.6 | 660.0 | 530.7 | 129.25 | 5.106 | |
| 9,100.0 | 6,130.0 | 9,028.9 | 6,129.7 | 65.5 | 66.6 | -89.97 | -3,414.7 | 235.5 | 660.0 | 527.0 | 132.99 | 4.962 | |
| 9,200.0 | 6,130.0 | 9,128.9 | 6,129.7 | 67.3 | 68.4 | -89.97 | -3,514.7 | 235.5 | 660.0 | 523.2 | 136.75 | 4.826 | |
| 9,300.0 | 6,130.0 | 9,228.9 | 6,129.7 | 69.2 | 70.3 | -89.97 | -3,614.7 | 235.5 | 659.9 | 519.4 | 140.50 | 4.697 | |
| 9,400.0 | 6,130.0 | 9,328.9 | 6,129.7 | 71.1 | 72.2 | -89.97 | -3,714.7 | 235.5 | 659.9 | 515.7 | 144.26 | 4.574 | |
| 9,500.0 | 6,130.0 | 9,428.9 | 6,129.7 | 72.9 | 74.1 | -89.97 | -3,814.7 | 235.5 | 659.9 | 511.9 | 148.03 | 4.458 | |
| 9,600.0 | 6,130.0 | 9,528.9 | 6,129.7 | 74.8 | 76.0 | -89.97 | -3,914.7 | 235.5 | 659.9 | 508.1 | 151.80 | 4.347 | |
| 9,700.0 | 6,130.0 | 9,628.9 | 6,129.7 | 76.7 | 77.9 | -89.98 | -4,014.7 | 235.5 | 659.9 | 504.3 | 155.57 | 4.242 | |
| 9,800.0 | 6,130.0 | 9,728.9 | 6,129.7 | 78.5 | 79.8 | -89.98 | -4,114.7 | 235.5 | 659.9 | 500.5 | 159.35 | 4.141 | |
| 9,900.0 | 6,130.0 | 9,828.9 | 6,129.7 | 80.4 | 81.7 | -89.98 | -4,214.7 | 235.5 | 659.9 | 496.8 | 163.13 | 4.045 | |
| 10,000.0 | 6,130.0 | 9,928.9 | 6,129.7 | 82.3 | 83.6 | -89.98 | -4,314.7 | 235.5 | 659.9 | 493.0 | 166.91 | 3.953 | |
| 10,100.0 | 6,130.0 | 10,028.9 | 6,129.7 | 84.2 | 85.5 | -89.98 | -4,414.7 | 235.5 | 659.9 | 489.2 | 170.70 | 3.866 | |
| 10,200.0 | 6,130.0 | 10,128.9 | 6,129.8 | 86.1 | 87.4 | -89.98 | -4,514.7 | 235.5 | 659.9 | 485.4 | 174.49 | 3.782 | |
| 10,300.0 | 6,130.0 | 10,228.9 | 6,129.8 | 87.9 | 89.3 | -89.98 | -4,614.7 | 235.5 | 659.8 | 481.6 | 178.28 | 3.701 | |

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

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-1503A - HZ - Plan #1 | | | | | | | | | | | | | Offset Site Error: 0.0 usft | |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|-------------------|-----------------------------|---------|
| Survey Program: 0-ISCWSA MWD | | | | | | | | | | | | | Offset Well Error: 0.0 usft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | | |
| 10,400.0 | 6,130.0 | 10,328.9 | 6,129.8 | 89.8 | 91.2 | -89.98 | -4,714.7 | 235.5 | 659.8 | 477.8 | 182.07 | 3.624 | | |
| 10,500.0 | 6,130.0 | 10,428.9 | 6,129.8 | 91.7 | 93.1 | -89.98 | -4,814.7 | 235.5 | 659.8 | 474.0 | 185.87 | 3.550 | | |
| 10,600.0 | 6,130.0 | 10,528.9 | 6,129.8 | 93.6 | 95.0 | -89.98 | -4,914.7 | 235.4 | 659.8 | 470.1 | 189.66 | 3.479 | | |
| 10,700.0 | 6,130.0 | 10,628.9 | 6,129.8 | 95.5 | 96.9 | -89.98 | -5,014.7 | 235.4 | 659.8 | 466.3 | 193.46 | 3.410 | | |
| 10,800.0 | 6,130.0 | 10,728.9 | 6,129.8 | 97.4 | 98.8 | -89.98 | -5,114.7 | 235.4 | 659.8 | 462.5 | 197.26 | 3.345 | | |
| 10,900.0 | 6,130.0 | 10,828.9 | 6,129.8 | 99.3 | 100.7 | -89.98 | -5,214.7 | 235.4 | 659.8 | 458.7 | 201.06 | 3.281 | | |
| 11,000.0 | 6,130.0 | 10,928.9 | 6,129.8 | 101.2 | 102.6 | -89.98 | -5,314.7 | 235.4 | 659.8 | 454.9 | 204.87 | 3.220 | | |
| 11,100.0 | 6,130.0 | 11,028.9 | 6,129.8 | 103.1 | 104.5 | -89.98 | -5,414.7 | 235.4 | 659.8 | 451.1 | 208.67 | 3.162 | | |
| 11,200.0 | 6,130.0 | 11,128.9 | 6,129.8 | 105.0 | 106.4 | -89.98 | -5,514.7 | 235.4 | 659.7 | 447.3 | 212.48 | 3.105 | | |
| 11,300.0 | 6,130.0 | 11,228.9 | 6,129.8 | 106.9 | 108.3 | -89.98 | -5,614.7 | 235.4 | 659.7 | 443.4 | 216.29 | 3.050 | | |
| 11,400.0 | 6,130.0 | 11,328.9 | 6,129.8 | 108.7 | 110.2 | -89.99 | -5,714.7 | 235.4 | 659.7 | 439.6 | 220.10 | 2.997 | | |
| 11,500.0 | 6,130.0 | 11,428.9 | 6,129.8 | 110.6 | 112.1 | -89.99 | -5,814.7 | 235.4 | 659.7 | 435.8 | 223.91 | 2.946 | | |
| 11,600.0 | 6,130.0 | 11,528.9 | 6,129.8 | 112.5 | 114.0 | -89.99 | -5,914.7 | 235.4 | 659.7 | 432.0 | 227.72 | 2.897 | | |
| 11,700.0 | 6,130.0 | 11,628.9 | 6,129.9 | 114.4 | 115.9 | -89.99 | -6,014.7 | 235.4 | 659.7 | 428.2 | 231.53 | 2.849 | | |
| 11,800.0 | 6,130.0 | 11,728.9 | 6,129.9 | 116.3 | 117.8 | -89.99 | -6,114.7 | 235.4 | 659.7 | 424.3 | 235.34 | 2.803 | | |
| 11,900.0 | 6,130.0 | 11,828.9 | 6,129.9 | 118.2 | 119.7 | -89.99 | -6,214.7 | 235.4 | 659.7 | 420.5 | 239.16 | 2.758 | | |
| 12,000.0 | 6,130.0 | 11,928.9 | 6,129.9 | 120.1 | 121.6 | -89.99 | -6,314.7 | 235.4 | 659.7 | 416.7 | 242.97 | 2.715 | | |
| 12,100.0 | 6,130.0 | 12,028.9 | 6,129.9 | 122.0 | 123.6 | -89.99 | -6,414.7 | 235.3 | 659.7 | 412.9 | 246.79 | 2.673 | | |
| 12,200.0 | 6,130.0 | 12,128.9 | 6,129.9 | 123.9 | 125.5 | -89.99 | -6,514.7 | 235.3 | 659.6 | 409.0 | 250.61 | 2.632 | | |
| 12,300.0 | 6,130.0 | 12,228.9 | 6,129.9 | 125.9 | 127.4 | -89.99 | -6,614.7 | 235.3 | 659.6 | 405.2 | 254.42 | 2.593 | | |
| 12,400.0 | 6,130.0 | 12,328.9 | 6,129.9 | 127.8 | 129.3 | -89.99 | -6,714.7 | 235.3 | 659.6 | 401.4 | 258.24 | 2.554 | | |
| 12,500.0 | 6,130.0 | 12,428.9 | 6,129.9 | 129.7 | 131.2 | -89.99 | -6,814.7 | 235.3 | 659.6 | 397.6 | 262.06 | 2.517 | | |
| 12,600.0 | 6,130.0 | 12,528.9 | 6,129.9 | 131.6 | 133.1 | -89.99 | -6,914.7 | 235.3 | 659.6 | 393.7 | 265.88 | 2.481 | | |
| 12,700.0 | 6,130.0 | 12,628.9 | 6,129.9 | 133.5 | 135.0 | -89.99 | -7,014.7 | 235.3 | 659.6 | 389.9 | 269.70 | 2.446 | | |
| 12,800.0 | 6,130.0 | 12,728.9 | 6,129.9 | 135.4 | 136.9 | -89.99 | -7,114.7 | 235.3 | 659.6 | 386.1 | 273.52 | 2.411 | | |
| 12,900.0 | 6,130.0 | 12,828.9 | 6,129.9 | 137.3 | 138.8 | -89.99 | -7,214.7 | 235.3 | 659.6 | 382.2 | 277.35 | 2.378 | | |
| 13,000.0 | 6,130.0 | 12,928.9 | 6,129.9 | 139.2 | 140.8 | -89.99 | -7,314.7 | 235.3 | 659.6 | 378.4 | 281.17 | 2.346 | | |
| 13,100.0 | 6,130.0 | 13,028.9 | 6,129.9 | 141.1 | 142.7 | -90.00 | -7,414.7 | 235.3 | 659.6 | 374.6 | 284.99 | 2.314 | | |
| 13,200.0 | 6,130.0 | 13,128.9 | 6,130.0 | 143.0 | 144.6 | -90.00 | -7,514.7 | 235.3 | 659.5 | 370.7 | 288.81 | 2.284 | | |
| 13,300.0 | 6,130.0 | 13,228.9 | 6,130.0 | 144.9 | 146.5 | -90.00 | -7,614.7 | 235.3 | 659.5 | 366.9 | 292.64 | 2.254 | | |
| 13,400.0 | 6,130.0 | 13,328.9 | 6,130.0 | 146.8 | 148.4 | -90.00 | -7,714.7 | 235.3 | 659.5 | 363.1 | 296.46 | 2.225 | | |
| 13,500.0 | 6,130.0 | 13,428.9 | 6,130.0 | 148.7 | 150.3 | -90.00 | -7,814.7 | 235.3 | 659.5 | 359.2 | 300.29 | 2.196 | | |
| 13,600.0 | 6,130.0 | 13,528.9 | 6,130.0 | 150.6 | 152.2 | -90.00 | -7,914.7 | 235.2 | 659.5 | 355.4 | 304.11 | 2.169 | | |
| 13,700.0 | 6,130.0 | 13,628.9 | 6,130.0 | 152.5 | 154.1 | -90.00 | -8,014.7 | 235.2 | 659.5 | 351.5 | 307.94 | 2.142 | | |
| 13,800.0 | 6,130.0 | 13,728.9 | 6,130.0 | 154.5 | 156.1 | -90.00 | -8,114.7 | 235.2 | 659.5 | 347.7 | 311.77 | 2.115 | | |
| 13,900.0 | 6,130.0 | 13,828.9 | 6,130.0 | 156.4 | 157.9 | -90.00 | -8,214.7 | 235.2 | 659.5 | 344.0 | 315.49 | 2.090 | | |
| 13,910.3 | 6,130.0 | 13,839.2 | 6,130.0 | 156.6 | 158.0 | -90.00 | -8,225.0 | 235.2 | 659.5 | 343.6 | 315.84 | 2.088 | | |
| 13,923.9 | 6,130.0 | 13,839.3 | 6,130.0 | 156.8 | 158.0 | -90.00 | -8,225.0 | 235.2 | 659.6 | 343.5 | 316.10 | 2.087 SF | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-1504B - HZ - Plan #1 | | | | | | | | | | | | | Offset Site Error: 0.0 usft | |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|-------------------|-----------------------------|---------|
| Survey Program: 0-ISCWSA MWD | | | | | | | | | | | | | Offset Well Error: 0.0 usft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 90.00 | 0.0 | 98.5 | 98.5 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 90.00 | 0.0 | 98.5 | 98.5 | 98.3 | 0.19 | 526.646 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 90.00 | 0.0 | 98.5 | 98.5 | 97.8 | 0.64 | 154.721 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | 90.00 | 0.0 | 98.5 | 98.5 | 97.4 | 1.09 | 90.681 | | |
| 400.0 | 400.0 | 400.0 | 400.0 | 0.8 | 0.8 | 90.00 | 0.0 | 98.5 | 98.5 | 96.9 | 1.54 | 64.135 | | |
| 500.0 | 500.0 | 500.0 | 500.0 | 1.0 | 1.0 | 90.00 | 0.0 | 98.5 | 98.5 | 96.5 | 1.99 | 49.612 | | |
| 600.0 | 600.0 | 600.0 | 600.0 | 1.2 | 1.2 | 90.00 | 0.0 | 98.5 | 98.5 | 96.1 | 2.43 | 40.451 | | |
| 700.0 | 700.0 | 700.0 | 700.0 | 1.4 | 1.4 | 90.00 | 0.0 | 98.5 | 98.5 | 95.6 | 2.88 | 34.147 | | |
| 800.0 | 800.0 | 800.0 | 800.0 | 1.7 | 1.7 | 90.00 | 0.0 | 98.5 | 98.5 | 95.2 | 3.33 | 29.542 | | |
| 900.0 | 900.0 | 900.0 | 900.0 | 1.9 | 1.9 | 90.00 | 0.0 | 98.5 | 98.5 | 94.7 | 3.78 | 26.032 CC, ES | | |
| 1,000.0 | 1,000.0 | 998.7 | 998.7 | 2.1 | 2.1 | 90.91 | -1.6 | 99.1 | 99.2 | 94.9 | 4.20 | 23.594 | | |
| 1,100.0 | 1,100.0 | 1,097.1 | 1,097.0 | 2.3 | 2.3 | 93.55 | -6.3 | 101.1 | 101.3 | 96.7 | 4.60 | 22.002 | | |
| 1,200.0 | 1,200.0 | 1,196.8 | 1,196.4 | 2.6 | 2.5 | 96.98 | -12.7 | 103.7 | 104.5 | 99.5 | 5.02 | 20.817 | | |
| 1,300.0 | 1,300.0 | 1,296.6 | 1,296.0 | 2.8 | 2.7 | -101.72 | -19.1 | 106.3 | 108.5 | 103.1 | 5.42 | 20.022 | | |
| 1,400.0 | 1,399.8 | 1,396.5 | 1,395.6 | 2.9 | 2.9 | -101.22 | -25.6 | 109.0 | 113.2 | 107.4 | 5.80 | 19.509 | | |
| 1,500.0 | 1,499.6 | 1,496.4 | 1,495.3 | 3.1 | 3.1 | -101.67 | -32.0 | 111.6 | 118.3 | 112.1 | 6.21 | 19.058 | | |
| 1,600.0 | 1,599.3 | 1,596.3 | 1,594.9 | 3.3 | 3.3 | -102.09 | -38.5 | 114.3 | 123.4 | 116.7 | 6.63 | 18.617 | | |
| 1,700.0 | 1,699.1 | 1,696.1 | 1,694.5 | 3.5 | 3.6 | -102.47 | -44.9 | 116.9 | 128.5 | 121.4 | 7.06 | 18.195 | | |
| 1,800.0 | 1,798.9 | 1,796.0 | 1,794.1 | 3.7 | 3.8 | -102.82 | -51.4 | 119.6 | 133.5 | 126.0 | 7.50 | 17.795 | | |
| 1,900.0 | 1,898.6 | 1,895.9 | 1,893.8 | 4.0 | 4.0 | -103.15 | -57.8 | 122.2 | 138.6 | 130.7 | 7.96 | 17.421 | | |
| 2,000.0 | 1,998.4 | 1,995.7 | 1,993.4 | 4.2 | 4.3 | -103.45 | -64.3 | 124.9 | 143.8 | 135.3 | 8.42 | 17.072 | | |
| 2,100.0 | 2,098.1 | 2,095.6 | 2,093.0 | 4.4 | 4.5 | -103.74 | -70.7 | 127.5 | 148.9 | 140.0 | 8.89 | 16.747 | | |
| 2,200.0 | 2,197.9 | 2,195.5 | 2,192.6 | 4.7 | 4.8 | -104.00 | -77.1 | 130.2 | 154.0 | 144.6 | 9.36 | 16.445 | | |
| 2,300.0 | 2,297.6 | 2,295.3 | 2,292.2 | 4.9 | 5.0 | -104.25 | -83.6 | 132.8 | 159.1 | 149.2 | 9.84 | 16.164 | | |
| 2,400.0 | 2,397.4 | 2,395.2 | 2,391.9 | 5.1 | 5.3 | -104.48 | -90.0 | 135.4 | 164.2 | 153.9 | 10.32 | 15.904 | | |
| 2,500.0 | 2,497.2 | 2,495.1 | 2,491.5 | 5.4 | 5.5 | -104.70 | -96.5 | 138.1 | 169.3 | 158.5 | 10.81 | 15.662 | | |
| 2,600.0 | 2,596.9 | 2,594.9 | 2,591.1 | 5.6 | 5.8 | -104.91 | -102.9 | 140.7 | 174.4 | 163.1 | 11.30 | 15.436 | | |
| 2,700.0 | 2,696.7 | 2,694.8 | 2,690.7 | 5.9 | 6.0 | -105.10 | -109.4 | 143.4 | 179.6 | 167.8 | 11.79 | 15.226 | | |
| 2,800.0 | 2,796.4 | 2,794.7 | 2,790.4 | 6.1 | 6.3 | -105.28 | -115.8 | 146.0 | 184.7 | 172.4 | 12.29 | 15.030 | | |
| 2,900.0 | 2,896.2 | 2,894.5 | 2,890.0 | 6.4 | 6.6 | -105.46 | -122.3 | 148.7 | 189.8 | 177.0 | 12.79 | 14.847 | | |
| 3,000.0 | 2,995.9 | 2,994.4 | 2,989.6 | 6.6 | 6.8 | -105.62 | -128.7 | 151.3 | 195.0 | 181.7 | 13.28 | 14.676 | | |
| 3,100.0 | 3,095.7 | 3,094.3 | 3,089.2 | 6.9 | 7.1 | -105.78 | -135.1 | 154.0 | 200.1 | 186.3 | 13.78 | 14.515 | | |
| 3,200.0 | 3,195.4 | 3,194.1 | 3,188.9 | 7.1 | 7.3 | -105.92 | -141.6 | 156.6 | 205.2 | 190.9 | 14.29 | 14.364 | | |
| 3,300.0 | 3,295.2 | 3,294.0 | 3,288.5 | 7.4 | 7.6 | -106.06 | -148.0 | 159.3 | 210.4 | 195.6 | 14.79 | 14.222 | | |
| 3,400.0 | 3,395.0 | 3,393.9 | 3,388.1 | 7.6 | 7.8 | -106.20 | -154.5 | 161.9 | 215.5 | 200.2 | 15.29 | 14.089 | | |
| 3,500.0 | 3,494.7 | 3,493.7 | 3,487.7 | 7.9 | 8.1 | -106.32 | -160.9 | 164.6 | 220.6 | 204.8 | 15.80 | 13.963 | | |
| 3,600.0 | 3,594.5 | 3,593.6 | 3,587.4 | 8.1 | 8.4 | -106.45 | -167.4 | 167.2 | 225.8 | 209.5 | 16.31 | 13.844 | | |
| 3,700.0 | 3,694.2 | 3,693.5 | 3,687.0 | 8.4 | 8.6 | -106.56 | -173.8 | 169.8 | 230.9 | 214.1 | 16.82 | 13.732 | | |
| 3,800.0 | 3,794.0 | 3,793.3 | 3,786.6 | 8.6 | 8.9 | -106.67 | -180.3 | 172.5 | 236.0 | 218.7 | 17.32 | 13.625 | | |
| 3,900.0 | 3,893.7 | 3,893.2 | 3,886.2 | 8.9 | 9.1 | -106.78 | -186.7 | 175.1 | 241.2 | 223.3 | 17.83 | 13.525 | | |
| 4,000.0 | 3,993.5 | 3,993.1 | 3,985.8 | 9.2 | 9.4 | -106.88 | -193.1 | 177.8 | 246.3 | 228.0 | 18.34 | 13.429 | | |
| 4,100.0 | 4,093.3 | 4,092.9 | 4,085.5 | 9.4 | 9.7 | -106.98 | -199.6 | 180.4 | 251.5 | 232.6 | 18.85 | 13.338 | | |
| 4,200.0 | 4,193.0 | 4,192.8 | 4,185.1 | 9.7 | 9.9 | -107.07 | -206.0 | 183.1 | 256.6 | 237.2 | 19.36 | 13.251 | | |
| 4,300.0 | 4,292.8 | 4,292.7 | 4,284.7 | 9.9 | 10.2 | -107.17 | -212.5 | 185.7 | 261.7 | 241.9 | 19.88 | 13.169 | | |
| 4,400.0 | 4,392.5 | 4,392.5 | 4,384.3 | 10.2 | 10.4 | -107.25 | -218.9 | 188.4 | 266.9 | 246.5 | 20.39 | 13.091 | | |
| 4,500.0 | 4,492.3 | 4,492.4 | 4,484.0 | 10.4 | 10.7 | -107.34 | -225.4 | 191.0 | 272.0 | 251.1 | 20.90 | 13.016 | | |
| 4,600.0 | 4,592.0 | 4,592.3 | 4,583.6 | 10.7 | 11.0 | -107.42 | -231.8 | 193.7 | 277.2 | 255.8 | 21.41 | 12.944 | | |
| 4,700.0 | 4,691.8 | 4,692.1 | 4,683.2 | 11.0 | 11.2 | -107.49 | -238.3 | 196.3 | 282.3 | 260.4 | 21.93 | 12.876 | | |
| 4,800.0 | 4,791.5 | 4,792.0 | 4,782.8 | 11.2 | 11.5 | -107.57 | -244.7 | 198.9 | 287.5 | 265.0 | 22.44 | 12.810 | | |
| 4,900.0 | 4,891.3 | 4,891.9 | 4,882.5 | 11.5 | 11.8 | -107.64 | -251.1 | 201.6 | 292.6 | 269.7 | 22.95 | 12.748 | | |
| 5,000.0 | 4,991.1 | 4,991.7 | 4,982.1 | 11.7 | 12.0 | -107.71 | -257.6 | 204.2 | 297.8 | 274.3 | 23.47 | 12.687 | | |
| 5,100.0 | 5,090.8 | 5,091.6 | 5,081.7 | 12.0 | 12.3 | -107.78 | -264.0 | 206.9 | 302.9 | 278.9 | 23.98 | 12.630 | | |

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

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-1504B - HZ - Plan #1 | | | | | | | | | | | | | Offset Site Error: 0.0 usft | |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|-------------------|-----------------------------|--|
| Survey Program: 0-ISCWSA MWD | | | | | | | | | | | | | Offset Well Error: 0.0 usft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | | |
| 5,200.0 | 5,190.6 | 5,191.5 | 5,181.3 | 12.3 | 12.5 | -107.84 | -270.5 | 209.5 | 308.1 | 283.6 | 24.50 | 12.574 | | |
| 5,300.0 | 5,290.3 | 5,291.3 | 5,281.0 | 12.5 | 12.8 | -107.91 | -276.9 | 212.2 | 313.2 | 288.2 | 25.01 | 12.521 | | |
| 5,400.0 | 5,390.1 | 5,391.2 | 5,380.6 | 12.8 | 13.1 | -107.97 | -283.4 | 214.8 | 318.4 | 292.8 | 25.53 | 12.470 | | |
| 5,500.0 | 5,489.8 | 5,491.1 | 5,480.2 | 13.0 | 13.3 | -108.02 | -289.8 | 217.5 | 323.5 | 297.5 | 26.05 | 12.421 | | |
| 5,600.0 | 5,589.6 | 5,590.9 | 5,579.8 | 13.3 | 13.6 | -108.08 | -296.3 | 220.1 | 328.6 | 302.1 | 26.56 | 12.373 | | |
| 5,700.0 | 5,689.2 | 5,690.7 | 5,679.4 | 13.6 | 13.9 | -108.14 | -302.7 | 222.8 | 334.4 | 307.3 | 27.07 | 12.354 | | |
| 5,800.0 | 5,785.9 | 5,786.0 | 5,774.4 | 14.0 | 14.1 | -109.69 | -308.9 | 225.3 | 345.6 | 318.0 | 27.57 | 12.535 | | |
| 5,900.0 | 5,876.1 | 5,862.3 | 5,849.7 | 14.6 | 14.4 | -110.59 | -320.3 | 230.0 | 367.7 | 339.6 | 28.10 | 13.084 | | |
| 6,000.0 | 5,956.6 | 5,937.0 | 5,920.8 | 15.3 | 14.7 | -110.24 | -341.2 | 238.6 | 402.2 | 373.4 | 28.83 | 13.954 | | |
| 6,100.0 | 6,024.2 | 6,009.0 | 5,985.6 | 16.3 | 15.2 | -108.47 | -370.0 | 250.4 | 447.7 | 417.8 | 29.89 | 14.981 | | |
| 6,200.0 | 6,076.6 | 6,078.0 | 6,043.2 | 17.4 | 15.7 | -105.25 | -405.2 | 264.8 | 502.3 | 470.8 | 31.48 | 15.959 | | |
| 6,300.0 | 6,111.9 | 6,143.9 | 6,093.0 | 18.7 | 16.3 | -100.64 | -445.0 | 281.2 | 564.1 | 530.6 | 33.56 | 16.807 | | |
| 6,400.0 | 6,128.6 | 6,207.1 | 6,135.3 | 20.2 | 16.9 | -94.83 | -488.4 | 299.0 | 631.2 | 595.3 | 35.92 | 17.572 | | |
| 6,500.0 | 6,130.0 | 6,271.5 | 6,172.3 | 21.6 | 17.6 | -94.77 | -537.2 | 319.0 | 700.9 | 662.8 | 38.08 | 18.405 | | |
| 6,600.0 | 6,130.0 | 6,349.7 | 6,208.0 | 22.9 | 18.6 | -97.70 | -601.5 | 345.4 | 768.1 | 728.0 | 40.17 | 19.124 | | |
| 6,700.0 | 6,130.0 | 6,443.2 | 6,236.4 | 24.3 | 20.0 | -99.21 | -683.7 | 379.2 | 830.9 | 788.2 | 42.68 | 19.466 | | |
| 6,800.0 | 6,130.0 | 6,548.7 | 6,248.9 | 25.8 | 21.6 | -99.12 | -780.4 | 418.9 | 887.7 | 841.9 | 45.74 | 19.407 | | |
| 6,900.0 | 6,130.0 | 6,710.9 | 6,249.0 | 27.2 | 23.9 | -98.05 | -932.7 | 474.8 | 935.7 | 886.0 | 49.74 | 18.812 | | |
| 7,000.0 | 6,130.0 | 6,896.3 | 6,249.0 | 28.7 | 26.7 | -97.34 | -1,111.7 | 522.6 | 970.8 | 916.5 | 54.30 | 17.877 | | |
| 7,100.0 | 6,130.0 | 7,096.0 | 6,249.0 | 30.2 | 29.8 | -96.95 | -1,308.8 | 554.4 | 991.3 | 932.0 | 59.28 | 16.723 | | |
| 7,200.0 | 6,130.0 | 7,302.3 | 6,249.0 | 31.8 | 33.0 | -96.85 | -1,514.7 | 565.4 | 997.1 | 932.7 | 64.32 | 15.501 | | |
| 7,300.0 | 6,130.0 | 7,402.3 | 6,249.0 | 33.4 | 34.6 | -96.85 | -1,614.7 | 565.4 | 997.1 | 929.4 | 67.64 | 14.740 | | |
| 7,400.0 | 6,130.0 | 7,502.3 | 6,249.0 | 35.1 | 36.3 | -96.85 | -1,714.7 | 565.4 | 997.0 | 926.0 | 71.04 | 14.034 | | |
| 7,500.0 | 6,130.0 | 7,602.3 | 6,249.0 | 36.8 | 37.9 | -96.85 | -1,814.7 | 565.4 | 997.0 | 922.5 | 74.49 | 13.385 | | |
| 7,600.0 | 6,130.0 | 7,702.3 | 6,249.0 | 38.5 | 39.7 | -96.85 | -1,914.7 | 565.4 | 997.0 | 919.1 | 77.97 | 12.788 | | |
| 7,700.0 | 6,130.0 | 7,802.3 | 6,249.0 | 40.2 | 41.4 | -96.85 | -2,014.7 | 565.4 | 997.0 | 915.5 | 81.48 | 12.236 | | |
| 7,800.0 | 6,130.0 | 7,902.3 | 6,249.0 | 41.9 | 43.1 | -96.85 | -2,114.7 | 565.4 | 997.0 | 912.0 | 85.02 | 11.727 | | |
| 7,900.0 | 6,130.0 | 8,002.3 | 6,249.0 | 43.7 | 44.9 | -96.85 | -2,214.7 | 565.4 | 997.0 | 908.4 | 88.58 | 11.255 | | |
| 8,000.0 | 6,130.0 | 8,102.3 | 6,249.0 | 45.5 | 46.7 | -96.85 | -2,314.7 | 565.4 | 997.0 | 904.8 | 92.16 | 10.817 | | |
| 8,100.0 | 6,130.0 | 8,202.3 | 6,249.0 | 47.2 | 48.4 | -96.85 | -2,414.7 | 565.4 | 997.0 | 901.2 | 95.77 | 10.410 | | |
| 8,200.0 | 6,130.0 | 8,302.3 | 6,249.0 | 49.0 | 50.2 | -96.85 | -2,514.7 | 565.4 | 997.0 | 897.6 | 99.39 | 10.031 | | |
| 8,300.0 | 6,130.0 | 8,402.3 | 6,249.0 | 50.8 | 52.0 | -96.85 | -2,614.7 | 565.4 | 997.0 | 893.9 | 103.02 | 9.677 | | |
| 8,400.0 | 6,130.0 | 8,502.3 | 6,249.0 | 52.6 | 53.8 | -96.85 | -2,714.7 | 565.4 | 997.0 | 890.3 | 106.67 | 9.346 | | |
| 8,500.0 | 6,130.0 | 8,602.3 | 6,249.0 | 54.5 | 55.7 | -96.85 | -2,814.7 | 565.4 | 996.9 | 886.6 | 110.33 | 9.036 | | |
| 8,600.0 | 6,130.0 | 8,702.3 | 6,249.0 | 56.3 | 57.5 | -96.85 | -2,914.7 | 565.4 | 996.9 | 882.9 | 114.00 | 8.745 | | |
| 8,700.0 | 6,130.0 | 8,802.3 | 6,249.0 | 58.1 | 59.3 | -96.85 | -3,014.7 | 565.4 | 996.9 | 879.3 | 117.68 | 8.472 | | |
| 8,800.0 | 6,130.0 | 8,902.3 | 6,249.0 | 60.0 | 61.2 | -96.85 | -3,114.7 | 565.4 | 996.9 | 875.6 | 121.36 | 8.214 | | |
| 8,900.0 | 6,130.0 | 9,002.3 | 6,249.0 | 61.8 | 63.0 | -96.85 | -3,214.7 | 565.4 | 996.9 | 871.9 | 125.06 | 7.971 | | |
| 9,000.0 | 6,130.0 | 9,102.3 | 6,249.0 | 63.6 | 64.8 | -96.85 | -3,314.7 | 565.4 | 996.9 | 868.1 | 128.76 | 7.742 | | |
| 9,100.0 | 6,130.0 | 9,202.3 | 6,249.0 | 65.5 | 66.7 | -96.85 | -3,414.7 | 565.3 | 996.9 | 864.4 | 132.47 | 7.525 | | |
| 9,200.0 | 6,130.0 | 9,302.3 | 6,249.0 | 67.3 | 68.5 | -96.85 | -3,514.7 | 565.3 | 996.9 | 860.7 | 136.19 | 7.320 | | |
| 9,300.0 | 6,130.0 | 9,402.3 | 6,249.0 | 69.2 | 70.4 | -96.86 | -3,614.7 | 565.3 | 996.9 | 857.0 | 139.91 | 7.125 | | |
| 9,400.0 | 6,130.0 | 9,502.3 | 6,249.0 | 71.1 | 72.3 | -96.86 | -3,714.7 | 565.3 | 996.9 | 853.2 | 143.64 | 6.940 | | |
| 9,500.0 | 6,130.0 | 9,602.3 | 6,249.0 | 72.9 | 74.1 | -96.86 | -3,814.7 | 565.3 | 996.9 | 849.5 | 147.37 | 6.764 | | |
| 9,600.0 | 6,130.0 | 9,702.3 | 6,249.0 | 74.8 | 76.0 | -96.86 | -3,914.7 | 565.3 | 996.8 | 845.7 | 151.11 | 6.597 | | |
| 9,700.0 | 6,130.0 | 9,802.3 | 6,249.0 | 76.7 | 77.9 | -96.86 | -4,014.7 | 565.3 | 996.8 | 842.0 | 154.85 | 6.438 | | |
| 9,800.0 | 6,130.0 | 9,902.3 | 6,249.0 | 78.5 | 79.7 | -96.86 | -4,114.7 | 565.3 | 996.8 | 838.2 | 158.59 | 6.286 | | |
| 9,900.0 | 6,130.0 | 10,002.3 | 6,249.0 | 80.4 | 81.6 | -96.86 | -4,214.7 | 565.3 | 996.8 | 834.5 | 162.34 | 6.140 | | |
| 10,000.0 | 6,130.0 | 10,102.3 | 6,249.0 | 82.3 | 83.5 | -96.86 | -4,314.7 | 565.3 | 996.8 | 830.7 | 166.09 | 6.002 | | |
| 10,100.0 | 6,130.0 | 10,202.3 | 6,249.0 | 84.2 | 85.4 | -96.86 | -4,414.7 | 565.3 | 996.8 | 827.0 | 169.85 | 5.869 | | |
| 10,200.0 | 6,130.0 | 10,302.3 | 6,249.0 | 86.1 | 87.2 | -96.86 | -4,514.7 | 565.3 | 996.8 | 823.2 | 173.60 | 5.742 | | |
| 10,300.0 | 6,130.0 | 10,402.3 | 6,249.0 | 87.9 | 89.1 | -96.86 | -4,614.7 | 565.3 | 996.8 | 819.4 | 177.36 | 5.620 | | |

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

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 S10-T10N-R58W - Razor #10E-1504B - HZ - Plan #1 | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|--------------------|----------|
| Survey Program: 0-ISCSWA MWD | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | Distance | | | | | | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Total Uncertainty Axis | Separation Factor | Warning |
| 10,400.0 | 6,130.0 | 10,502.3 | 6,249.0 | 89.8 | 91.0 | -96.86 | -4,714.7 | 565.3 | 996.8 | 815.7 | 181.12 | 5.503 | |
| 10,500.0 | 6,130.0 | 10,602.3 | 6,249.0 | 91.7 | 92.9 | -96.86 | -4,814.7 | 565.3 | 996.8 | 811.9 | 184.89 | 5.391 | |
| 10,600.0 | 6,130.0 | 10,702.3 | 6,249.0 | 93.6 | 94.8 | -96.86 | -4,914.7 | 565.3 | 996.8 | 808.1 | 188.66 | 5.283 | |
| 10,700.0 | 6,130.0 | 10,802.3 | 6,249.0 | 95.5 | 96.7 | -96.86 | -5,014.7 | 565.3 | 996.8 | 804.3 | 192.42 | 5.180 | |
| 10,800.0 | 6,130.0 | 10,902.3 | 6,249.0 | 97.4 | 98.6 | -96.86 | -5,114.7 | 565.3 | 996.7 | 800.5 | 196.20 | 5.080 | |
| 10,900.0 | 6,130.0 | 11,002.3 | 6,249.0 | 99.3 | 100.5 | -96.86 | -5,214.7 | 565.3 | 996.7 | 796.8 | 199.97 | 4.984 | |
| 11,000.0 | 6,130.0 | 11,102.3 | 6,249.0 | 101.2 | 102.3 | -96.86 | -5,314.7 | 565.2 | 996.7 | 793.0 | 203.74 | 4.892 | |
| 11,100.0 | 6,130.0 | 11,202.3 | 6,249.0 | 103.1 | 104.2 | -96.86 | -5,414.7 | 565.2 | 996.7 | 789.2 | 207.52 | 4.803 | |
| 11,200.0 | 6,130.0 | 11,302.3 | 6,249.0 | 105.0 | 106.1 | -96.86 | -5,514.7 | 565.2 | 996.7 | 785.4 | 211.30 | 4.717 | |
| 11,300.0 | 6,130.0 | 11,402.3 | 6,249.0 | 106.9 | 108.0 | -96.86 | -5,614.7 | 565.2 | 996.7 | 781.6 | 215.08 | 4.634 | |
| 11,400.0 | 6,130.0 | 11,502.3 | 6,249.0 | 108.7 | 109.9 | -96.86 | -5,714.7 | 565.2 | 996.7 | 777.8 | 218.86 | 4.554 | |
| 11,500.0 | 6,130.0 | 11,602.3 | 6,249.0 | 110.6 | 111.8 | -96.86 | -5,814.7 | 565.2 | 996.7 | 774.0 | 222.64 | 4.477 | |
| 11,600.0 | 6,130.0 | 11,702.3 | 6,249.0 | 112.5 | 113.7 | -96.86 | -5,914.7 | 565.2 | 996.7 | 770.2 | 226.42 | 4.402 | |
| 11,700.0 | 6,130.0 | 11,802.3 | 6,249.0 | 114.4 | 115.6 | -96.86 | -6,014.7 | 565.2 | 996.7 | 766.5 | 230.21 | 4.329 | |
| 11,800.0 | 6,130.0 | 11,902.3 | 6,249.0 | 116.3 | 117.5 | -96.86 | -6,114.7 | 565.2 | 996.7 | 762.7 | 233.99 | 4.259 | |
| 11,900.0 | 6,130.0 | 12,002.3 | 6,249.0 | 118.2 | 119.4 | -96.86 | -6,214.7 | 565.2 | 996.6 | 758.9 | 237.78 | 4.191 | |
| 12,000.0 | 6,130.0 | 12,102.3 | 6,249.0 | 120.1 | 121.3 | -96.86 | -6,314.7 | 565.2 | 996.6 | 755.1 | 241.57 | 4.126 | |
| 12,100.0 | 6,130.0 | 12,202.3 | 6,249.0 | 122.0 | 123.2 | -96.86 | -6,414.7 | 565.2 | 996.6 | 751.3 | 245.36 | 4.062 | |
| 12,200.0 | 6,130.0 | 12,302.3 | 6,249.0 | 123.9 | 125.1 | -96.86 | -6,514.7 | 565.2 | 996.6 | 747.5 | 249.15 | 4.000 | |
| 12,300.0 | 6,130.0 | 12,402.3 | 6,249.0 | 125.9 | 127.0 | -96.86 | -6,614.7 | 565.2 | 996.6 | 743.7 | 252.94 | 3.940 | |
| 12,400.0 | 6,130.0 | 12,502.3 | 6,249.0 | 127.8 | 128.9 | -96.86 | -6,714.7 | 565.2 | 996.6 | 739.9 | 256.73 | 3.882 | |
| 12,500.0 | 6,130.0 | 12,602.3 | 6,249.0 | 129.7 | 130.8 | -96.86 | -6,814.7 | 565.2 | 996.6 | 736.1 | 260.52 | 3.825 | |
| 12,600.0 | 6,130.0 | 12,702.3 | 6,249.0 | 131.6 | 132.7 | -96.86 | -6,914.7 | 565.2 | 996.6 | 732.3 | 264.31 | 3.770 | |
| 12,700.0 | 6,130.0 | 12,802.3 | 6,249.0 | 133.5 | 134.6 | -96.86 | -7,014.7 | 565.2 | 996.6 | 728.5 | 268.11 | 3.717 | |
| 12,800.0 | 6,130.0 | 12,902.3 | 6,249.0 | 135.4 | 136.5 | -96.86 | -7,114.7 | 565.2 | 996.6 | 724.7 | 271.90 | 3.665 | |
| 12,900.0 | 6,130.0 | 13,002.3 | 6,249.0 | 137.3 | 138.4 | -96.86 | -7,214.7 | 565.1 | 996.6 | 720.9 | 275.70 | 3.615 | |
| 13,000.0 | 6,130.0 | 13,102.3 | 6,249.0 | 139.2 | 140.4 | -96.86 | -7,314.7 | 565.1 | 996.5 | 717.1 | 279.49 | 3.566 | |
| 13,100.0 | 6,130.0 | 13,202.3 | 6,249.0 | 141.1 | 142.3 | -96.86 | -7,414.7 | 565.1 | 996.5 | 713.3 | 283.29 | 3.518 | |
| 13,200.0 | 6,130.0 | 13,302.3 | 6,249.0 | 143.0 | 144.2 | -96.86 | -7,514.7 | 565.1 | 996.5 | 709.4 | 287.09 | 3.471 | |
| 13,300.0 | 6,130.0 | 13,402.3 | 6,249.0 | 144.9 | 146.1 | -96.86 | -7,614.7 | 565.1 | 996.5 | 705.6 | 290.88 | 3.426 | |
| 13,400.0 | 6,130.0 | 13,502.3 | 6,249.0 | 146.8 | 148.0 | -96.86 | -7,714.7 | 565.1 | 996.5 | 701.8 | 294.68 | 3.382 | |
| 13,500.0 | 6,130.0 | 13,602.3 | 6,249.0 | 148.7 | 149.9 | -96.86 | -7,814.7 | 565.1 | 996.5 | 698.0 | 298.48 | 3.339 | |
| 13,600.0 | 6,130.0 | 13,702.3 | 6,249.0 | 150.6 | 151.8 | -96.86 | -7,914.7 | 565.1 | 996.5 | 694.2 | 302.28 | 3.297 | |
| 13,700.0 | 6,130.0 | 13,802.3 | 6,249.0 | 152.5 | 153.7 | -96.86 | -8,014.7 | 565.1 | 996.5 | 690.4 | 306.08 | 3.256 | |
| 13,800.0 | 6,130.0 | 13,902.3 | 6,249.0 | 154.5 | 155.6 | -96.86 | -8,114.7 | 565.1 | 996.5 | 686.6 | 309.88 | 3.216 | |
| 13,900.0 | 6,130.0 | 14,002.3 | 6,249.0 | 156.4 | 157.5 | -96.86 | -8,214.7 | 565.1 | 996.5 | 682.8 | 313.68 | 3.177 | |
| 13,904.2 | 6,130.0 | 14,006.5 | 6,249.0 | 156.4 | 157.6 | -96.86 | -8,218.8 | 565.1 | 996.5 | 682.6 | 313.82 | 3.175 | |
| 13,923.9 | 6,130.0 | 14,006.5 | 6,249.0 | 156.8 | 157.6 | -96.86 | -8,218.8 | 565.1 | 996.7 | 682.5 | 314.20 | 3.172 SF | |

Cathedral Energy Services

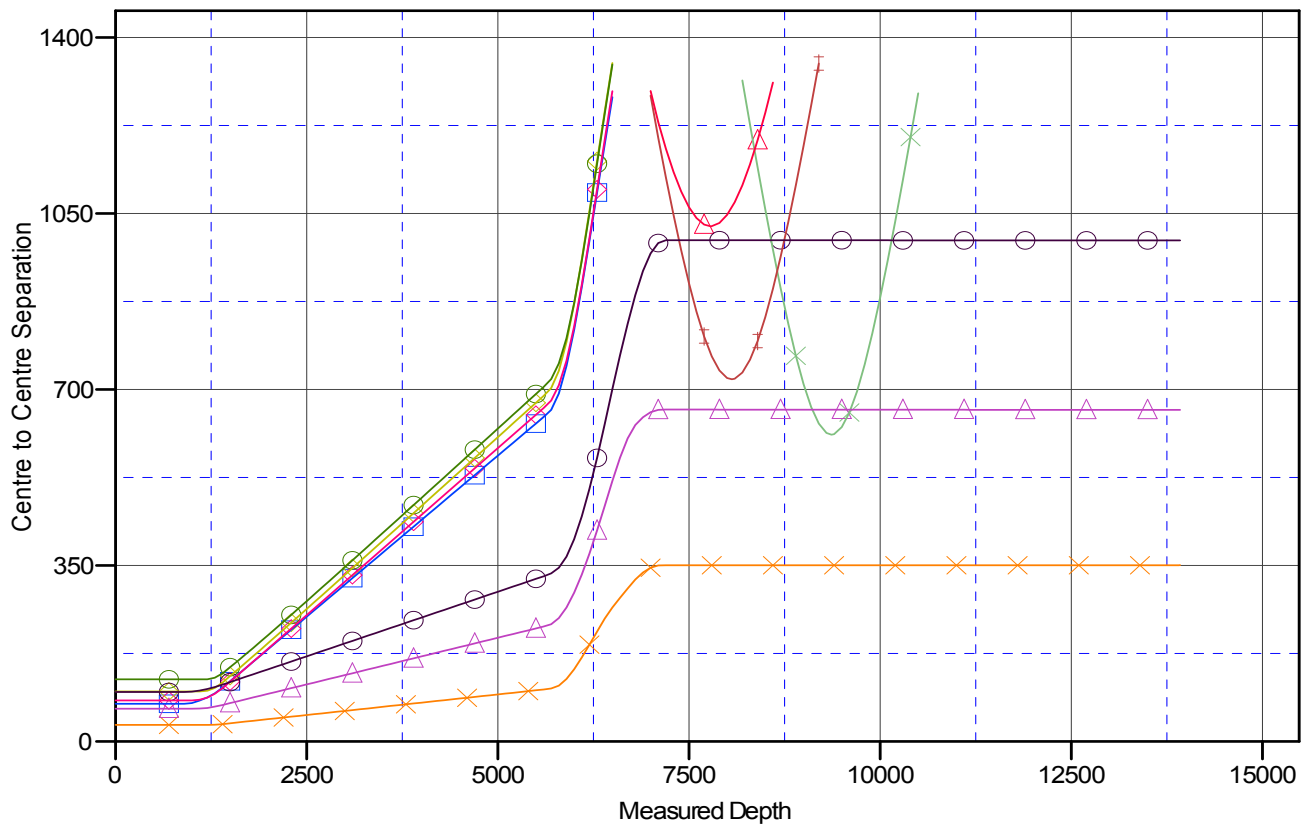
Anticollision Report

| | | | |
|---------------------------|-------------------------------|-------------------------------------|--|
| Company: | Whiting Petroleum Corporation | Local Co-ordinate Reference: | Well Razor #10E-1501A |
| Project: | Weld County, CO | TVD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Reference Site: | S10-T10N-R58W | MD Reference: | WELL @ 5039.1usft (Original Well Elev) |
| Site Error: | 0.0usft | North Reference: | True |
| Reference Well: | Razor #10E-1501A | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0usft | 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 @ 5039.1usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.00 W °

Coordinates are relative to: Razor #10E-1501A
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.06°

Ladder Plot



LEGEND

| | | |
|--|----------------------------------|----------------------------------|
| ISTING), BURNS WELL, NO SURVEYS V0 | Razor #10E-0302B, HZ, Plan #1 V0 | Razor #10E-1503A, HZ, Plan #1 V0 |
| (EXISTING), CREST WELL, NO SURVEYS V0 | Razor #10E-0303A, HZ, Plan #1 V0 | Razor #10E-1504B, HZ, Plan #1 V0 |
| !(EXISTING), CREST WELL, NO SURVEYS V0 | Razor #10E-0304B, HZ, Plan #1 V0 | |
| 0301A, HZ, Plan #1 V0 | Razor #10E-1502B, HZ, Plan #1 V0 | |