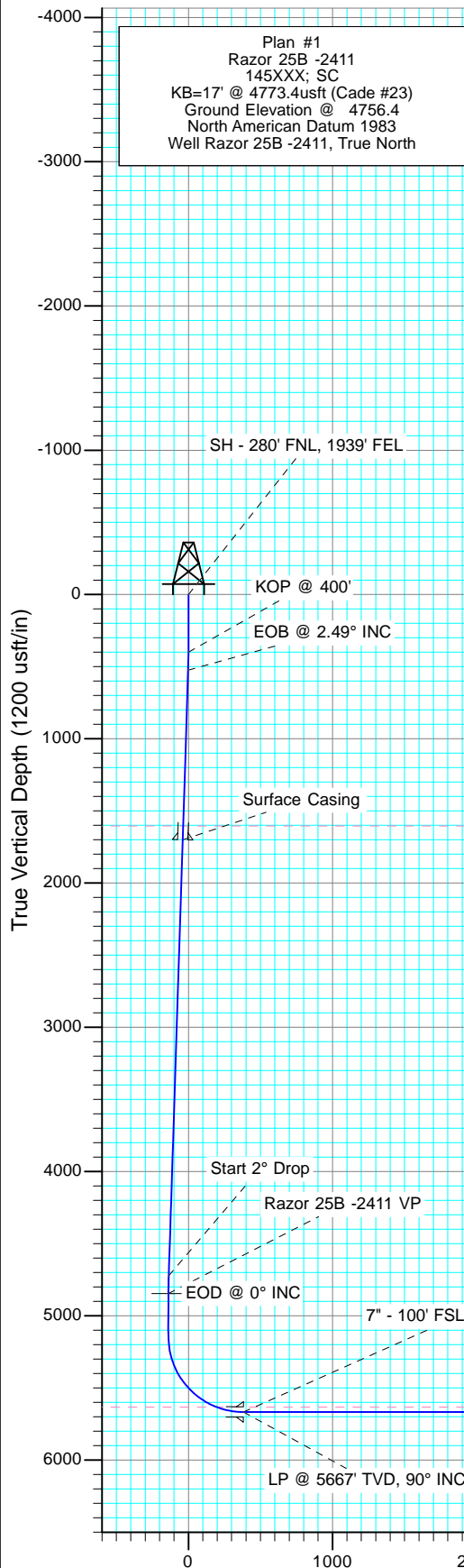
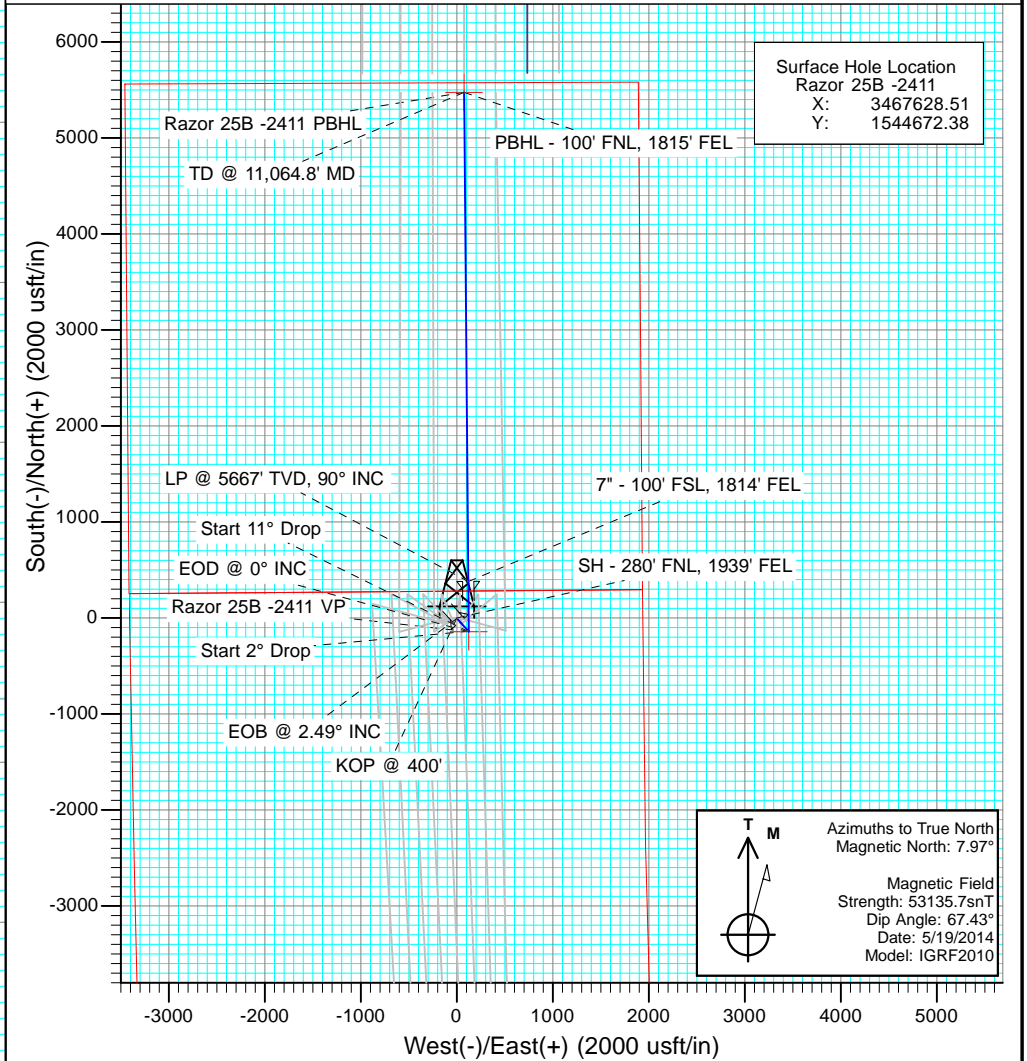




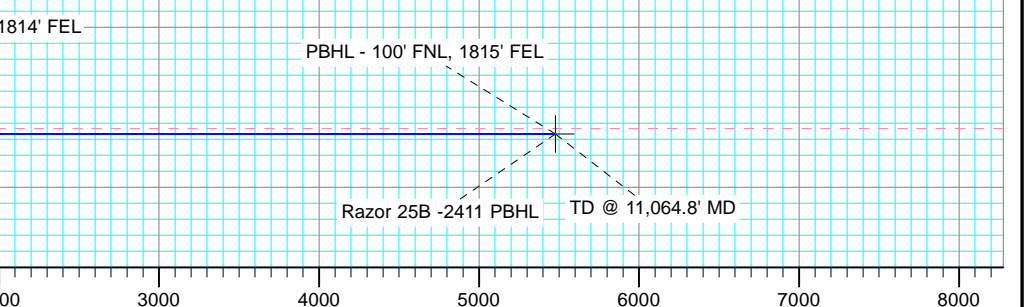
Project: Weld County, CO  
Site: S25-T10N-R58W  
Well: Razor 25B -2411  
Wellbore: HZ  
Design: Plan #1



| SECTION DETAILS |         |       |        |        |        |       |       |        |        |                      |
|-----------------|---------|-------|--------|--------|--------|-------|-------|--------|--------|----------------------|
| Sec             | MD      | Inc   | Azi    | TVD    | +N/-S  | +E/-W | Dleg  | TFace  | VSec   | Target               |
| 1               | 0.0     | 0.00  | 0.00   | 0.0    | 0.0    | 0.0   | 0.00  | 0.00   | 0.0    |                      |
| 2               | 400.0   | 0.00  | 0.00   | 400.0  | 0.0    | 0.0   | 0.00  | 0.00   | 0.0    |                      |
| 3               | 524.3   | 2.49  | 138.26 | 524.2  | -2.0   | 1.8   | 2.00  | 138.26 | -2.0   |                      |
| 4               | 4725.8  | 2.49  | 138.26 | 4721.9 | -138.0 | 123.1 | 0.00  | 0.00   | -136.2 |                      |
| 5               | 4850.1  | 0.00  | 0.00   | 4846.1 | -140.0 | 124.9 | 2.00  | 180.00 | -138.2 | Razor 25B -2411 VP   |
| 6               | 5150.1  | 0.00  | 0.00   | 5146.1 | -140.0 | 124.9 | 0.00  | 0.00   | -138.2 |                      |
| 7               | 5968.3  | 90.00 | 359.52 | 5667.0 | 380.8  | 120.5 | 11.00 | 359.52 | 382.5  |                      |
| 8               | 11064.8 | 90.00 | 359.52 | 5667.0 | 5477.1 | 77.8  | 0.00  | 0.00   | 5477.7 | Razor 25B -2411 PBHL |



| DESIGN TARGET DETAILS |        |        |       |            |            |  |
|-----------------------|--------|--------|-------|------------|------------|--|
| Name                  | TVD    | +N/-S  | +E/-W | Northing   | Easting    |  |
| Razor 25B -2411 VP    | 4846.1 | -140.0 | 124.9 | 1544534.78 | 3467756.06 |  |
| Razor 25B -2411 PBHL  | 5667.0 | 5477.1 | 77.8  | 1550150.01 | 3467601.91 |  |



# Cathedral Energy Services

## Planning Report

|                  |                               |                                     |                                |
|------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Database:</b> | USA EDM 5000 Multi Users DB   | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Company:</b>  | Whiting Petroleum Corporation | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Project:</b>  | Weld County, CO               | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site:</b>     | S25-T10N-R58W                 | <b>North Reference:</b>             | True                           |
| <b>Well:</b>     | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Wellbore:</b> | HZ                            |                                     |                                |
| <b>Design:</b>   | Plan #1                       |                                     |                                |

|                    |                           |                      |                |
|--------------------|---------------------------|----------------------|----------------|
| <b>Project</b>     | Weld County, CO           |                      |                |
| <b>Map System:</b> | US State Plane 1983       | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | North American Datum 1983 |                      |                |
| <b>Map Zone:</b>   | Colorado Northern Zone    |                      |                |

|                       |          |               |                   |                   |             |
|-----------------------|----------|---------------|-------------------|-------------------|-------------|
| Site                  |          | S25-T10N-R58W |                   |                   |             |
| Site Position:        |          | Northing:     | 1,544,670.15 usft | Latitude:         | 40.816275   |
| From:                 | Lat/Long | Easting:      | 3,467,568.48 usft | Longitude:        | -103.810706 |
| Position Uncertainty: | 0.0 usft | Slot Radius:  | 13-3/16 "         | Grid Convergence: | 1.09 °      |

|                      |                 |          |                     |                   |               |              |
|----------------------|-----------------|----------|---------------------|-------------------|---------------|--------------|
| Well                 | Razor 25B -2411 |          |                     |                   |               |              |
| Well Position        | +N/-S           | 0.0 usft | Northing:           | 1,544,672.38 usft | Latitude:     | 40.816278    |
|                      | +E/-W           | 0.0 usft | Easting:            | 3,467,628.51 usft | Longitude:    | -103.810489  |
| Position Uncertainty |                 | 0.0 usft | Wellhead Elevation: | 0.0 usft          | Ground Level: | 4,756.4 usft |

|                  |                   |                    |                    |                  |                       |
|------------------|-------------------|--------------------|--------------------|------------------|-----------------------|
| <b>Wellbore</b>  | HZ                |                    |                    |                  |                       |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination</b> | <b>Dip Angle</b> | <b>Field Strength</b> |
|                  |                   |                    | (°)                | (°)              | (nT)                  |
|                  | IGRF2010          | 5/19/2014          | 7.97               | 67.43            | 53,136                |

|                          |                         |              |                      |                  |
|--------------------------|-------------------------|--------------|----------------------|------------------|
| <b>Design</b>            | Plan #1                 |              |                      |                  |
| <b>Audit Notes:</b>      |                         |              |                      |                  |
| <b>Version:</b>          | <b>Phase:</b>           | PLAN         | <b>Tie On Depth:</b> | 0.0              |
| <b>Vertical Section:</b> | <b>Depth From (TVD)</b> | <b>+N/-S</b> | <b>+E/-W</b>         | <b>Direction</b> |
|                          | (usft)                  | (usft)       | (usft)               | (°)              |
|                          | 0.0                     | 0.0          | 0.0                  | 0.81             |

| <b>Plan Sections</b>  |                 |             |                       |              |              |                         |                        |                       |         |                     |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|------------------------|-----------------------|---------|---------------------|
| 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    |                     |
| 400.0                 | 0.00            | 0.00        | 400.0                 | 0.0          | 0.0          | 0.00                    | 0.00                   | 0.00                  | 0.00    |                     |
| 524.3                 | 2.49            | 138.26      | 524.2                 | -2.0         | 1.8          | 2.00                    | 2.00                   | 0.00                  | 138.26  |                     |
| 4,725.8               | 2.49            | 138.26      | 4,721.9               | -138.0       | 123.1        | 0.00                    | 0.00                   | 0.00                  | 0.00    |                     |
| 4,850.1               | 0.00            | 0.00        | 4,846.1               | -140.0       | 124.9        | 2.00                    | -2.00                  | 0.00                  | 180.00  | Razor 25B -2411 VP  |
| 5,150.1               | 0.00            | 0.00        | 5,146.1               | -140.0       | 124.9        | 0.00                    | 0.00                   | 0.00                  | 0.00    |                     |
| 5,968.3               | 90.00           | 359.52      | 5,667.0               | 380.8        | 120.5        | 11.00                   | 11.00                  | -0.06                 | 359.52  |                     |
| 11,064.8              | 90.00           | 359.52      | 5,667.0               | 5,477.1      | 77.8         | 0.00                    | 0.00                   | 0.00                  | 0.00    | Razor 25B -2411 PBH |

# Cathedral Energy Services

## Planning Report

|                  |                               |                                     |                                |
|------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Database:</b> | USA EDM 5000 Multi Users DB   | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Company:</b>  | Whiting Petroleum Corporation | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Project:</b>  | Weld County, CO               | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site:</b>     | S25-T10N-R58W                 | <b>North Reference:</b>             | True                           |
| <b>Well:</b>     | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Wellbore:</b> | HZ                            |                                     |                                |
| <b>Design:</b>   | 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                |                          |
| 0.5                   | 0.00            | 0.00        | 0.5                   | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                | SH - 280' FNL, 1939' FEL |
| 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                | KOP @ 400'               |
| 500.0                 | 2.00            | 138.26      | 500.0                 | -1.3         | 1.2          | -1.3                    | 2.00                    | 2.00                |                          |
| 524.3                 | 2.49            | 138.26      | 524.2                 | -2.0         | 1.8          | -2.0                    | 2.00                    | 2.00                | EOB @ 2.49° INC          |
| 600.0                 | 2.49            | 138.26      | 599.9                 | -4.5         | 4.0          | -4.4                    | 0.00                    | 0.00                |                          |
| 700.0                 | 2.49            | 138.26      | 699.8                 | -7.7         | 6.9          | -7.6                    | 0.00                    | 0.00                |                          |
| 800.0                 | 2.49            | 138.26      | 799.7                 | -10.9        | 9.8          | -10.8                   | 0.00                    | 0.00                |                          |
| 900.0                 | 2.49            | 138.26      | 899.6                 | -14.2        | 12.6         | -14.0                   | 0.00                    | 0.00                |                          |
| 1,000.0               | 2.49            | 138.26      | 999.5                 | -17.4        | 15.5         | -17.2                   | 0.00                    | 0.00                |                          |
| 1,100.0               | 2.49            | 138.26      | 1,099.4               | -20.6        | 18.4         | -20.4                   | 0.00                    | 0.00                |                          |
| 1,200.0               | 2.49            | 138.26      | 1,199.3               | -23.9        | 21.3         | -23.6                   | 0.00                    | 0.00                |                          |
| 1,300.0               | 2.49            | 138.26      | 1,299.2               | -27.1        | 24.2         | -26.8                   | 0.00                    | 0.00                |                          |
| 1,400.0               | 2.49            | 138.26      | 1,399.1               | -30.4        | 27.1         | -30.0                   | 0.00                    | 0.00                |                          |
| 1,500.0               | 2.49            | 138.26      | 1,499.0               | -33.6        | 30.0         | -33.2                   | 0.00                    | 0.00                |                          |
| 1,600.0               | 2.49            | 138.26      | 1,598.9               | -36.8        | 32.9         | -36.4                   | 0.00                    | 0.00                |                          |
| 1,605.1               | 2.49            | 138.26      | 1,604.0               | -37.0        | 33.0         | -36.5                   | 0.00                    | 0.00                | Pierre                   |
| 1,700.0               | 2.49            | 138.26      | 1,698.9               | -40.1        | 35.7         | -39.6                   | 0.00                    | 0.00                |                          |
| 1,701.1               | 2.49            | 138.26      | 1,700.0               | -40.1        | 35.8         | -39.6                   | 0.00                    | 0.00                | Surface Casing           |
| 1,800.0               | 2.49            | 138.26      | 1,798.8               | -43.3        | 38.6         | -42.7                   | 0.00                    | 0.00                |                          |
| 1,900.0               | 2.49            | 138.26      | 1,898.7               | -46.5        | 41.5         | -45.9                   | 0.00                    | 0.00                |                          |
| 2,000.0               | 2.49            | 138.26      | 1,998.6               | -49.8        | 44.4         | -49.1                   | 0.00                    | 0.00                |                          |
| 2,100.0               | 2.49            | 138.26      | 2,098.5               | -53.0        | 47.3         | -52.3                   | 0.00                    | 0.00                |                          |
| 2,200.0               | 2.49            | 138.26      | 2,198.4               | -56.2        | 50.2         | -55.5                   | 0.00                    | 0.00                |                          |
| 2,300.0               | 2.49            | 138.26      | 2,298.3               | -59.5        | 53.1         | -58.7                   | 0.00                    | 0.00                |                          |
| 2,400.0               | 2.49            | 138.26      | 2,398.2               | -62.7        | 56.0         | -61.9                   | 0.00                    | 0.00                |                          |
| 2,500.0               | 2.49            | 138.26      | 2,498.1               | -66.0        | 58.8         | -65.1                   | 0.00                    | 0.00                |                          |
| 2,600.0               | 2.49            | 138.26      | 2,598.0               | -69.2        | 61.7         | -68.3                   | 0.00                    | 0.00                |                          |
| 2,700.0               | 2.49            | 138.26      | 2,697.9               | -72.4        | 64.6         | -71.5                   | 0.00                    | 0.00                |                          |
| 2,800.0               | 2.49            | 138.26      | 2,797.8               | -75.7        | 67.5         | -74.7                   | 0.00                    | 0.00                |                          |
| 2,900.0               | 2.49            | 138.26      | 2,897.7               | -78.9        | 70.4         | -77.9                   | 0.00                    | 0.00                |                          |
| 3,000.0               | 2.49            | 138.26      | 2,997.6               | -82.1        | 73.3         | -81.1                   | 0.00                    | 0.00                |                          |
| 3,100.0               | 2.49            | 138.26      | 3,097.5               | -85.4        | 76.2         | -84.3                   | 0.00                    | 0.00                |                          |
| 3,200.0               | 2.49            | 138.26      | 3,197.4               | -88.6        | 79.0         | -87.5                   | 0.00                    | 0.00                |                          |
| 3,300.0               | 2.49            | 138.26      | 3,297.3               | -91.8        | 81.9         | -90.7                   | 0.00                    | 0.00                |                          |
| 3,400.0               | 2.49            | 138.26      | 3,397.3               | -95.1        | 84.8         | -93.9                   | 0.00                    | 0.00                |                          |
| 3,500.0               | 2.49            | 138.26      | 3,497.2               | -98.3        | 87.7         | -97.1                   | 0.00                    | 0.00                |                          |
| 3,600.0               | 2.49            | 138.26      | 3,597.1               | -101.6       | 90.6         | -100.3                  | 0.00                    | 0.00                |                          |
| 3,700.0               | 2.49            | 138.26      | 3,697.0               | -104.8       | 93.5         | -103.5                  | 0.00                    | 0.00                |                          |
| 3,800.0               | 2.49            | 138.26      | 3,796.9               | -108.0       | 96.4         | -106.6                  | 0.00                    | 0.00                |                          |
| 3,900.0               | 2.49            | 138.26      | 3,896.8               | -111.3       | 99.3         | -109.8                  | 0.00                    | 0.00                |                          |
| 4,000.0               | 2.49            | 138.26      | 3,996.7               | -114.5       | 102.1        | -113.0                  | 0.00                    | 0.00                |                          |
| 4,100.0               | 2.49            | 138.26      | 4,096.6               | -117.7       | 105.0        | -116.2                  | 0.00                    | 0.00                |                          |
| 4,200.0               | 2.49            | 138.26      | 4,196.5               | -121.0       | 107.9        | -119.4                  | 0.00                    | 0.00                |                          |
| 4,300.0               | 2.49            | 138.26      | 4,296.4               | -124.2       | 110.8        | -122.6                  | 0.00                    | 0.00                |                          |
| 4,400.0               | 2.49            | 138.26      | 4,396.3               | -127.4       | 113.7        | -125.8                  | 0.00                    | 0.00                |                          |
| 4,500.0               | 2.49            | 138.26      | 4,496.2               | -130.7       | 116.6        | -129.0                  | 0.00                    | 0.00                |                          |
| 4,600.0               | 2.49            | 138.26      | 4,596.1               | -133.9       | 119.5        | -132.2                  | 0.00                    | 0.00                |                          |
| 4,700.0               | 2.49            | 138.26      | 4,696.0               | -137.2       | 122.4        | -135.4                  | 0.00                    | 0.00                |                          |

# Cathedral Energy Services

## Planning Report

|                  |                               |                                     |                                |
|------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Database:</b> | USA EDM 5000 Multi Users DB   | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Company:</b>  | Whiting Petroleum Corporation | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Project:</b>  | Weld County, CO               | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site:</b>     | S25-T10N-R58W                 | <b>North Reference:</b>             | True                           |
| <b>Well:</b>     | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Wellbore:</b> | HZ                            |                                     |                                |
| <b>Design:</b>   | 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                         |
| 4,725.8               | 2.49            | 138.26      | 4,721.9               | -138.0       | 123.1        | -136.2                  | 0.00                    | 0.00                | Start 2° Drop                                 |
| 4,800.0               | 1.00            | 138.26      | 4,796.0               | -139.7       | 124.6        | -137.9                  | 2.00                    | -2.00               |   |
| 4,850.1               | 0.00            | 0.00        | 4,846.1               | -140.0       | 124.9        | -138.2                  | 2.00                    | -2.00               | EOB @ 0° INC                                  |
| 4,900.0               | 0.00            | 0.00        | 4,896.0               | -140.0       | 124.9        | -138.2                  | 0.00                    | 0.00                |   |
| 5,000.0               | 0.00            | 0.00        | 4,996.0               | -140.0       | 124.9        | -138.2                  | 0.00                    | 0.00                |   |
| 5,100.0               | 0.00            | 0.00        | 5,096.0               | -140.0       | 124.9        | -138.2                  | 0.00                    | 0.00                |   |
| 5,150.1               | 0.00            | 0.00        | 5,146.1               | -140.0       | 124.9        | -138.2                  | 0.00                    | 0.00                | Start 11° Drop                                |
| 5,200.0               | 5.49            | 359.52      | 5,195.9               | -137.6       | 124.9        | -135.8                  | 11.00                   | 11.00               |   |
| 5,250.0               | 10.99           | 359.52      | 5,245.4               | -130.5       | 124.8        | -128.7                  | 11.00                   | 11.00               |   |
| 5,300.0               | 16.49           | 359.52      | 5,293.9               | -118.6       | 124.7        | -116.8                  | 11.00                   | 11.00               |   |
| 5,350.0               | 21.99           | 359.52      | 5,341.1               | -102.1       | 124.6        | -100.3                  | 11.00                   | 11.00               |   |
| 5,400.0               | 27.49           | 359.52      | 5,386.5               | -81.2        | 124.4        | -79.4                   | 11.00                   | 11.00               |   |
| 5,450.0               | 32.99           | 359.52      | 5,429.7               | -56.0        | 124.2        | -54.3                   | 11.00                   | 11.00               |   |
| 5,500.0               | 38.49           | 359.52      | 5,470.2               | -26.9        | 124.0        | -25.1                   | 11.00                   | 11.00               |   |
| 5,550.0               | 43.99           | 359.52      | 5,507.8               | 6.1          | 123.7        | 7.8                     | 11.00                   | 11.00               |   |
| 5,600.0               | 49.49           | 359.52      | 5,542.1               | 42.5         | 123.4        | 44.2                    | 11.00                   | 11.00               |   |
| 5,650.0               | 54.99           | 359.52      | 5,572.7               | 82.0         | 123.0        | 83.7                    | 11.00                   | 11.00               |   |
| 5,700.0               | 60.49           | 359.52      | 5,599.4               | 124.3        | 122.7        | 126.0                   | 11.00                   | 11.00               |   |
| 5,750.0               | 65.99           | 359.52      | 5,621.9               | 168.9        | 122.3        | 170.6                   | 11.00                   | 11.00               |   |
| 5,779.2               | 69.19           | 359.52      | 5,633.0               | 195.8        | 122.1        | 197.5                   | 11.00                   | 11.00               | Niobrara                                      |
| 5,800.0               | 71.49           | 359.52      | 5,640.0               | 215.5        | 121.9        | 217.2                   | 11.00                   | 11.00               |   |
| 5,850.0               | 76.99           | 359.52      | 5,653.6               | 263.6        | 121.5        | 265.3                   | 11.00                   | 11.00               |   |
| 5,900.0               | 82.49           | 359.52      | 5,662.5               | 312.7        | 121.1        | 314.4                   | 11.00                   | 11.00               |   |
| 5,950.0               | 87.99           | 359.52      | 5,666.6               | 362.5        | 120.7        | 364.2                   | 11.00                   | 11.00               |   |
| 5,968.3               | 90.00           | 359.52      | 5,667.0               | 380.8        | 120.5        | 382.5                   | 11.00                   | 11.00               | LP @ 5667' TVD, 90° INC - 7" - 100' FSL, 1814 |
| 6,000.0               | 90.00           | 359.52      | 5,667.0               | 412.5        | 120.3        | 414.2                   | 0.00                    | 0.00                |   |
| 6,100.0               | 90.00           | 359.52      | 5,667.0               | 512.5        | 119.4        | 514.2                   | 0.00                    | 0.00                |   |
| 6,200.0               | 90.00           | 359.52      | 5,667.0               | 612.5        | 118.6        | 614.2                   | 0.00                    | 0.00                |   |
| 6,300.0               | 90.00           | 359.52      | 5,667.0               | 712.5        | 117.7        | 714.1                   | 0.00                    | 0.00                |   |
| 6,400.0               | 90.00           | 359.52      | 5,667.0               | 812.5        | 116.9        | 814.1                   | 0.00                    | 0.00                |   |
| 6,500.0               | 90.00           | 359.52      | 5,667.0               | 912.5        | 116.1        | 914.1                   | 0.00                    | 0.00                |   |
| 6,600.0               | 90.00           | 359.52      | 5,667.0               | 1,012.5      | 115.2        | 1,014.1                 | 0.00                    | 0.00                |   |
| 6,700.0               | 90.00           | 359.52      | 5,667.0               | 1,112.5      | 114.4        | 1,114.0                 | 0.00                    | 0.00                |   |
| 6,800.0               | 90.00           | 359.52      | 5,667.0               | 1,212.5      | 113.6        | 1,214.0                 | 0.00                    | 0.00                |   |
| 6,900.0               | 90.00           | 359.52      | 5,667.0               | 1,312.5      | 112.7        | 1,314.0                 | 0.00                    | 0.00                |   |
| 7,000.0               | 90.00           | 359.52      | 5,667.0               | 1,412.5      | 111.9        | 1,413.9                 | 0.00                    | 0.00                |   |
| 7,100.0               | 90.00           | 359.52      | 5,667.0               | 1,512.5      | 111.0        | 1,513.9                 | 0.00                    | 0.00                |   |
| 7,200.0               | 90.00           | 359.52      | 5,667.0               | 1,612.5      | 110.2        | 1,613.9                 | 0.00                    | 0.00                |   |
| 7,300.0               | 90.00           | 359.52      | 5,667.0               | 1,712.5      | 109.4        | 1,713.9                 | 0.00                    | 0.00                |   |
| 7,400.0               | 90.00           | 359.52      | 5,667.0               | 1,812.5      | 108.5        | 1,813.8                 | 0.00                    | 0.00                |   |
| 7,500.0               | 90.00           | 359.52      | 5,667.0               | 1,912.5      | 107.7        | 1,913.8                 | 0.00                    | 0.00                |   |
| 7,600.0               | 90.00           | 359.52      | 5,667.0               | 2,012.5      | 106.8        | 2,013.8                 | 0.00                    | 0.00                |   |
| 7,700.0               | 90.00           | 359.52      | 5,667.0               | 2,112.5      | 106.0        | 2,113.8                 | 0.00                    | 0.00                |   |
| 7,800.0               | 90.00           | 359.52      | 5,667.0               | 2,212.5      | 105.2        | 2,213.7                 | 0.00                    | 0.00                |   |
| 7,900.0               | 90.00           | 359.52      | 5,667.0               | 2,312.5      | 104.3        | 2,313.7                 | 0.00                    | 0.00                |   |
| 8,000.0               | 90.00           | 359.52      | 5,667.0               | 2,412.5      | 103.5        | 2,413.7                 | 0.00                    | 0.00                |   |
| 8,100.0               | 90.00           | 359.52      | 5,667.0               | 2,512.5      | 102.6        | 2,513.7                 | 0.00                    | 0.00                |   |
| 8,200.0               | 90.00           | 359.52      | 5,667.0               | 2,612.5      | 101.8        | 2,613.6                 | 0.00                    | 0.00                |   |
| 8,300.0               | 90.00           | 359.52      | 5,667.0               | 2,712.5      | 101.0        | 2,713.6                 | 0.00                    | 0.00                |   |
| 8,400.0               | 90.00           | 359.52      | 5,667.0               | 2,812.5      | 100.1        | 2,813.6                 | 0.00                    | 0.00                |   |
| 8,500.0               | 90.00           | 359.52      | 5,667.0               | 2,912.4      | 99.3         | 2,913.6                 | 0.00                    | 0.00                |   |
| 8,600.0               | 90.00           | 359.52      | 5,667.0               | 3,012.4      | 98.4         | 3,013.5                 | 0.00                    | 0.00                |   |

# Cathedral Energy Services

## Planning Report

|                  |                               |                                     |                                |
|------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Database:</b> | USA EDM 5000 Multi Users DB   | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Company:</b>  | Whiting Petroleum Corporation | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Project:</b>  | Weld County, CO               | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site:</b>     | S25-T10N-R58W                 | <b>North Reference:</b>             | True                           |
| <b>Well:</b>     | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Wellbore:</b> | HZ                            |                                     |                                |
| <b>Design:</b>   | 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                         |
| 8,700.0               | 90.00           | 359.52      | 5,667.0               | 3,112.4      | 97.6         | 3,113.5                 | 0.00                    | 0.00                |   |
| 8,800.0               | 90.00           | 359.52      | 5,667.0               | 3,212.4      | 96.8         | 3,213.5                 | 0.00                    | 0.00                |   |
| 8,900.0               | 90.00           | 359.52      | 5,667.0               | 3,312.4      | 95.9         | 3,313.5                 | 0.00                    | 0.00                |   |
| 9,000.0               | 90.00           | 359.52      | 5,667.0               | 3,412.4      | 95.1         | 3,413.4                 | 0.00                    | 0.00                |   |
| 9,100.0               | 90.00           | 359.52      | 5,667.0               | 3,512.4      | 94.3         | 3,513.4                 | 0.00                    | 0.00                |   |
| 9,200.0               | 90.00           | 359.52      | 5,667.0               | 3,612.4      | 93.4         | 3,613.4                 | 0.00                    | 0.00                |   |
| 9,300.0               | 90.00           | 359.52      | 5,667.0               | 3,712.4      | 92.6         | 3,713.4                 | 0.00                    | 0.00                |   |
| 9,400.0               | 90.00           | 359.52      | 5,667.0               | 3,812.4      | 91.7         | 3,813.3                 | 0.00                    | 0.00                |   |
| 9,500.0               | 90.00           | 359.52      | 5,667.0               | 3,912.4      | 90.9         | 3,913.3                 | 0.00                    | 0.00                |   |
| 9,600.0               | 90.00           | 359.52      | 5,667.0               | 4,012.4      | 90.1         | 4,013.3                 | 0.00                    | 0.00                |   |
| 9,700.0               | 90.00           | 359.52      | 5,667.0               | 4,112.4      | 89.2         | 4,113.3                 | 0.00                    | 0.00                |   |
| 9,800.0               | 90.00           | 359.52      | 5,667.0               | 4,212.4      | 88.4         | 4,213.2                 | 0.00                    | 0.00                |   |
| 9,900.0               | 90.00           | 359.52      | 5,667.0               | 4,312.4      | 87.5         | 4,313.2                 | 0.00                    | 0.00                |   |
| 10,000.0              | 90.00           | 359.52      | 5,667.0               | 4,412.4      | 86.7         | 4,413.2                 | 0.00                    | 0.00                |   |
| 10,100.0              | 90.00           | 359.52      | 5,667.0               | 4,512.4      | 85.9         | 4,513.2                 | 0.00                    | 0.00                |   |
| 10,200.0              | 90.00           | 359.52      | 5,667.0               | 4,612.4      | 85.0         | 4,613.1                 | 0.00                    | 0.00                |   |
| 10,300.0              | 90.00           | 359.52      | 5,667.0               | 4,712.4      | 84.2         | 4,713.1                 | 0.00                    | 0.00                |   |
| 10,400.0              | 90.00           | 359.52      | 5,667.0               | 4,812.4      | 83.3         | 4,813.1                 | 0.00                    | 0.00                |   |
| 10,500.0              | 90.00           | 359.52      | 5,667.0               | 4,912.4      | 82.5         | 4,913.1                 | 0.00                    | 0.00                |   |
| 10,600.0              | 90.00           | 359.52      | 5,667.0               | 5,012.4      | 81.7         | 5,013.0                 | 0.00                    | 0.00                |   |
| 10,700.0              | 90.00           | 359.52      | 5,667.0               | 5,112.4      | 80.8         | 5,113.0                 | 0.00                    | 0.00                |   |
| 10,800.0              | 90.00           | 359.52      | 5,667.0               | 5,212.4      | 80.0         | 5,213.0                 | 0.00                    | 0.00                |   |
| 10,900.0              | 90.00           | 359.52      | 5,667.0               | 5,312.4      | 79.1         | 5,313.0                 | 0.00                    | 0.00                |   |
| 11,000.0              | 90.00           | 359.52      | 5,667.0               | 5,412.4      | 78.3         | 5,412.9                 | 0.00                    | 0.00                |   |
| 11,064.8              | 90.00           | 359.52      | 5,667.0               | 5,477.1      | 77.8         | 5,477.7                 | 0.00                    | 0.00                | PBHL - 100' FNL, 1815' FEL - TD @ 11,064.8' M |

| Targets  |               |              |            |              |              |                 |                |           |             |
|--|---------------|--------------|------------|--------------|--------------|-----------------|----------------|-----------|-------------|
| Target Name<br>- hit/miss target<br>- Shape                  | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude  | Longitude   |
| Razor 25B -2411 VP<br>- plan hits target center<br>- Point   | 0.00          | 0.00         | 4,846.1    | -140.0       | 124.9        | 1,544,534.78    | 3,467,756.06   | 40.815894 | -103.810038 |
| Razor 25B -2411 PBHL<br>- plan hits target center<br>- Point | 0.00          | 0.00         | 5,667.0    | 5,477.1      | 77.8         | 1,550,150.01    | 3,467,601.91   | 40.831311 | -103.810208 |

| Casing Points         |                       |                          |                     |                   |  |
|-----------------------|-----------------------|--------------------------|---------------------|-------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Name                     | Casing Diameter (") | Hole Diameter (") |  |
| 1,701.1               | 1,700.0               | Surface Casing           | 0                   | 0                 |  |
| 5,968.3               | 5,667.0               | 7" - 100' FSL, 1814' FEL | 0                   | 0                 |  |

# Cathedral Energy Services

## Planning Report

|                  |                               |                                     |                                |
|------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Database:</b> | USA EDM 5000 Multi Users DB   | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Company:</b>  | Whiting Petroleum Corporation | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Project:</b>  | Weld County, CO               | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site:</b>     | S25-T10N-R58W                 | <b>North Reference:</b>             | True                           |
| <b>Well:</b>     | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Wellbore:</b> | HZ                            |                                     |                                |
| <b>Design:</b>   | Plan #1                       |                                     |                                |

| Formations            |                       |          |           |         |                   |  |
|-----------------------|-----------------------|----------|-----------|---------|-------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Name     | Lithology | Dip (°) | Dip Direction (°) |  |
| 1,605.1               | 1,604.0               | Pierre   |           |         |                   |  |
| 5,779.2               | 5,633.0               | Niobrara |           |         |                   |  |

| Plan Annotations      |                       |                   |              |                            |  |
|-----------------------|-----------------------|-------------------|--------------|----------------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              |                            |  |
|                       |                       | +N/-S (usft)      | +E/-W (usft) | Comment                    |  |
| 0.5                   | 0.5                   | 0.0               | 0.0          | SH - 280' FNL, 1939' FEL   |  |
| 400.0                 | 400.0                 | 0.0               | 0.0          | KOP @ 400'                 |  |
| 524.3                 | 524.2                 | -2.0              | 1.8          | EOB @ 2.49° INC            |  |
| 4,725.8               | 4,721.9               | -138.0            | 123.1        | Start 2° Drop              |  |
| 4,850.1               | 4,846.1               | -140.0            | 124.9        | EOB @ 0° INC               |  |
| 5,150.1               | 5,146.1               | -140.0            | 124.9        | Start 11° Drop             |  |
| 5,968.3               | 5,667.0               | 380.8             | 120.5        | LP @ 5667' TVD, 90° INC    |  |
| 11,064.8              | 5,667.0               | 5,477.1           | 77.8         | PBHL - 100' FNL, 1815' FEL |  |
| 11,064.8              | 5,667.0               | 5,477.1           | 77.8         | TD @ 11,064.8' MD          |  |

# **Whiting Petroleum Corporation**

**Weld County, CO**

**S25-T10N-R58W**

**Razor 25B -2411**

**HZ**

**Plan #1**

## **Anticollision Report**

**28 May, 2014**

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | 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 1,310.5usft                       | Error Surface: | Elliptical Conic    |
| Warning Levels Evaluated at: | 2.00 Sigma  |                |                     |

| Survey Tool Program |              | Date              | 5/28/2014  |              |  |
|---------------------|--------------|-------------------|------------|--------------|--|
| From<br>(usft)      | To<br>(usft) | Survey (Wellbore) | Tool Name  | Description  |  |
| 0.0                 | 11,064.8     | 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    |
| S12-T10N-R58W                           |                                 |                              |                                 |                                  |                   |            |
| Razor Federal #12F-1308B - HZ - Plan #3 | 11,064.8                        | 13,925.4                     | 1,079.9                         | 816.0                            | 4.092             | CC, ES, SF |
| Razor Federal #12G-1309A - HZ - Plan #1 | 11,064.8                        | 13,221.6                     | 692.7                           | 435.8                            | 2.696             | CC, ES, SF |
| Razor Federal #12G-1310B - HZ - Plan #1 | 11,064.8                        | 13,293.1                     | 389.5                           | 133.3                            | 1.521             | CC, ES, SF |
| Razor Federal #12G-1311A - HZ - Plan #1 | 11,064.8                        | 13,250.1                     | 206.1                           | 106.5                            | 2.069             | CC, ES, SF |
| Razor Federal #12G-1312B - HZ - Plan #1 | 11,064.8                        | 13,435.7                     | 387.4                           | 129.7                            | 1.503             | CC, ES, SF |
| Razor Federal #12H-1313A - HZ - Plan #1 | 11,064.8                        | 13,552.2                     | 691.1                           | 429.6                            | 2.643             | CC, ES, SF |
| Razor Federal #12H-1314B - HZ - Plan #1 | 11,064.8                        | 13,641.6                     | 1,009.0                         | 747.4                            | 3.857             | CC, ES, SF |
| S25-T10N-R58W                           |                                 |                              |                                 |                                  |                   |            |
| Razor 25B -2409 - HZ - Plan #1          | 400.0                           | 400.0                        | 60.1                            | 58.5                             | 39.133            | CC, ES     |
| Razor 25B -2409 - HZ - Plan #1          | 11,064.8                        | 11,104.5                     | 659.8                           | 446.2                            | 3.089             | SF         |
| Razor 25B -2410 - HZ - Plan #1          | 400.0                           | 400.0                        | 29.9                            | 28.4                             | 19.486            | CC, ES     |
| Razor 25B -2410 - HZ - Plan #1          | 11,064.8                        | 11,146.8                     | 339.4                           | 130.9                            | 1.628             | SF         |
| Razor 25B -2412 - HZ - Plan #1          | 600.0                           | 599.3                        | 27.2                            | 24.8                             | 11.475            | CC, ES     |
| Razor 25B -2412 - HZ - Plan #1          | 11,064.8                        | 11,162.1                     | 339.2                           | 131.0                            | 1.629             | SF         |
| Razor 25B -2549 - HZ - Plan #2          | 400.0                           | 400.0                        | 158.3                           | 156.8                            | 103.149           | CC, ES     |
| Razor 25B -2549 - HZ - Plan #2          | 6,500.0                         | 5,500.0                      | 1,293.4                         | 1,258.4                          | 36.907            | SF         |
| Razor 25B -2550 - HZ - Plan #2          | 400.0                           | 400.0                        | 130.1                           | 128.6                            | 84.759            | CC, ES     |
| Razor 25B -2550 - HZ - Plan #2          | 6,100.0                         | 5,550.0                      | 880.1                           | 851.0                            | 30.260            | SF         |
| Razor 25B -2551 - HZ - Plan #2          | 400.0                           | 400.0                        | 103.2                           | 101.7                            | 67.257            | CC         |
| Razor 25B -2551 - HZ - Plan #2          | 500.0                           | 500.0                        | 103.6                           | 101.7                            | 52.801            | ES         |
| Razor 25B -2551 - HZ - Plan #2          | 5,900.0                         | 5,650.0                      | 648.0                           | 620.7                            | 23.727            | SF         |
| Razor 25B -2552 - HZ - Plan #2          | 400.0                           | 400.0                        | 78.6                            | 77.0                             | 51.188            | CC         |
| Razor 25B -2552 - HZ - Plan #2          | 600.0                           | 599.9                        | 79.0                            | 76.6                             | 33.126            | ES         |
| Razor 25B -2552 - HZ - Plan #2          | 5,700.0                         | 5,656.8                      | 466.3                           | 441.0                            | 18.434            | SF         |
| Razor 25B -2553 - HZ - Plan #1          | 931.7                           | 932.0                        | 54.2                            | 50.4                             | 14.053            | CC, ES     |
| Razor 25B -2553 - HZ - Plan #1          | 5,615.6                         | 5,634.6                      | 273.1                           | 248.4                            | 11.052            | SF         |
| Razor 25B -2554 - HZ - Plan #2          | 1,083.8                         | 1,084.5                      | 15.2                            | 10.6                             | 3.311             | CC, ES     |
| Razor 25B -2554 - HZ - Plan #2          | 1,100.0                         | 1,100.6                      | 15.3                            | 10.6                             | 3.280             | SF         |
| Razor 25B -2555 - HZ - Plan #2          | 1,035.5                         | 1,035.2                      | 31.1                            | 26.8                             | 7.182             | CC, ES     |
| Razor 25B -2555 - HZ - Plan #2          | 5,615.7                         | 5,624.7                      | 108.2                           | 83.5                             | 4.374             | SF         |
| Razor 25B -2556 - HZ - Plan #2          | 791.0                           | 788.4                        | 68.9                            | 65.8                             | 21.559            | CC         |
| Razor 25B -2556 - HZ - Plan #2          | 800.0                           | 797.3                        | 69.0                            | 65.7                             | 21.300            | ES         |
| Razor 25B -2556 - HZ - Plan #2          | 5,700.0                         | 5,640.7                      | 299.0                           | 273.6                            | 11.778            | SF         |

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



# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design         |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        | S12-T10N-R58W - Razor Federal #12F-1308B - HZ - Plan #3 |            | 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                                       |            |                    |  |          |
| 10,500.0              | 5,667.0               | 13,925.4              | 5,912.0               | 96.0             | 158.4         | -93.50                | 5,672.5                             | -982.4       | 1,310.0                | 1,056.8                 | 253.17                 | 5.174   |            |                    |  |          |
| 10,600.0              | 5,667.0               | 13,925.4              | 5,912.0               | 97.9             | 158.4         | -93.50                | 5,672.5                             | -982.4       | 1,253.9                | 998.8                   | 255.07                 | 4.916   |            |                    |  |          |
| 10,700.0              | 5,667.0               | 13,925.4              | 5,912.0               | 99.9             | 158.4         | -93.50                | 5,672.5                             | -982.4       | 1,203.5                | 946.5                   | 256.98                 | 4.683   |            |                    |  |          |
| 10,800.0              | 5,667.0               | 13,925.4              | 5,912.0               | 101.8            | 158.4         | -93.50                | 5,672.5                             | -982.4       | 1,159.6                | 900.7                   | 258.88                 | 4.479   |            |                    |  |          |
| 10,900.0              | 5,667.0               | 13,925.4              | 5,912.0               | 103.7            | 158.4         | -93.50                | 5,672.5                             | -982.4       | 1,122.8                | 862.0                   | 260.79                 | 4.306   |            |                    |  |          |
| 11,000.0              | 5,667.0               | 13,925.4              | 5,912.0               | 105.6            | 158.4         | -93.50                | 5,672.5                             | -982.4       | 1,094.1                | 831.4                   | 262.70                 | 4.165   |            |                    |  |          |
| 11,064.8              | 5,667.0               | 13,925.4              | 5,912.0               | 106.8            | 158.4         | -93.50                | 5,672.5                             | -982.4       | 1,079.9                | 816.0                   | 263.93                 | 4.092   | CC, ES, SF |                    |  |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| <b>Offset Design</b> S12-T10N-R58W - Razor Federal #12G-1309A - HZ - Plan #1 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        | <b>Offset Site Error:</b> | 0.0 usft   |
|--|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|---------------------------|------------|
| Survey Program: 0-ISCSWA MWD   |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        | <b>Offset Well Error:</b> | 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    |
| 10,200.0   | 5,667.0               | 13,221.6              | 5,812.0               | 90.3             | 150.9         | -85.51                | 5,674.5                             | -584.2       | 1,256.5                | 1,016.0                 | 240.49                 | 5.224                     |            |
| 10,300.0   | 5,667.0               | 13,221.6              | 5,812.0               | 92.2             | 150.9         | -85.51                | 5,674.5                             | -584.2       | 1,172.7                | 930.3                   | 242.39                 | 4.838                     |            |
| 10,400.0   | 5,667.0               | 13,221.6              | 5,812.0               | 94.1             | 150.9         | -85.51                | 5,674.5                             | -584.2       | 1,091.6                | 847.3                   | 244.30                 | 4.468                     |            |
| 10,500.0   | 5,667.0               | 13,221.6              | 5,812.0               | 96.0             | 150.9         | -85.51                | 5,674.5                             | -584.2       | 1,013.9                | 767.7                   | 246.20                 | 4.118                     |            |
| 10,600.0   | 5,667.0               | 13,221.6              | 5,812.0               | 97.9             | 150.9         | -85.51                | 5,674.5                             | -584.2       | 940.5                  | 692.4                   | 248.10                 | 3.791                     |            |
| 10,700.0   | 5,667.0               | 13,221.6              | 5,812.0               | 99.9             | 150.9         | -85.51                | 5,674.5                             | -584.2       | 872.3                  | 622.3                   | 250.00                 | 3.489                     |            |
| 10,800.0   | 5,667.0               | 13,221.6              | 5,812.0               | 101.8            | 150.9         | -85.51                | 5,674.5                             | -584.2       | 810.8                  | 558.9                   | 251.90                 | 3.219                     |            |
| 10,900.0   | 5,667.0               | 13,221.6              | 5,812.0               | 103.7            | 150.9         | -85.51                | 5,674.5                             | -584.2       | 757.5                  | 503.7                   | 253.81                 | 2.985                     |            |
| 11,000.0   | 5,667.0               | 13,221.6              | 5,812.0               | 105.6            | 150.9         | -85.51                | 5,674.5                             | -584.2       | 714.4                  | 458.7                   | 255.71                 | 2.794                     |            |
| 11,064.8   | 5,667.0               | 13,221.6              | 5,812.0               | 106.8            | 150.9         | -85.51                | 5,674.5                             | -584.2       | 692.7                  | 435.8                   | 256.95                 | 2.696                     | CC, ES, SF |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S12-T10N-R58W - Razor Federal #12G-1310B - 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 |                    |          |
| 10,000.0  | 5,667.0               | 13,293.1              | 5,911.0               | 86.5             | 151.4         | -98.11                | 5,674.9                             | -254.4       | 1,308.7                | 1,072.7                 | 235.99                 | 5.545             |                    |          |
| 10,100.0  | 5,667.0               | 13,293.1              | 5,911.0               | 88.4             | 151.4         | -98.11                | 5,674.9                             | -254.4       | 1,212.2                | 974.4                   | 237.88                 | 5.096             |                    |          |
| 10,200.0  | 5,667.0               | 13,293.1              | 5,911.0               | 90.3             | 151.4         | -98.11                | 5,674.9                             | -254.4       | 1,116.4                | 876.7                   | 239.77                 | 4.656             |                    |          |
| 10,300.0  | 5,667.0               | 13,293.1              | 5,911.0               | 92.2             | 151.4         | -98.11                | 5,674.9                             | -254.4       | 1,021.5                | 779.8                   | 241.65                 | 4.227             |                    |          |
| 10,400.0  | 5,667.0               | 13,293.1              | 5,911.0               | 94.1             | 151.4         | -98.11                | 5,674.9                             | -254.4       | 927.5                  | 684.0                   | 243.54                 | 3.808             |                    |          |
| 10,500.0  | 5,667.0               | 13,293.1              | 5,911.0               | 96.0             | 151.4         | -98.11                | 5,674.9                             | -254.4       | 835.0                  | 589.6                   | 245.43                 | 3.402             |                    |          |
| 10,600.0  | 5,667.0               | 13,293.1              | 5,911.0               | 97.9             | 151.4         | -98.11                | 5,674.9                             | -254.4       | 744.4                  | 497.1                   | 247.32                 | 3.010             |                    |          |
| 10,700.0  | 5,667.0               | 13,293.1              | 5,911.0               | 99.9             | 151.4         | -98.11                | 5,674.9                             | -254.4       | 656.6                  | 407.4                   | 249.22                 | 2.635             |                    |          |
| 10,800.0  | 5,667.0               | 13,293.1              | 5,911.0               | 101.8            | 151.4         | -98.11                | 5,674.9                             | -254.4       | 572.7                  | 321.6                   | 251.11                 | 2.281             |                    |          |
| 10,900.0  | 5,667.0               | 13,293.1              | 5,911.0               | 103.7            | 151.4         | -98.11                | 5,674.9                             | -254.4       | 494.9                  | 241.9                   | 253.00                 | 1.956             |                    |          |
| 11,000.0  | 5,667.0               | 13,293.1              | 5,911.0               | 105.6            | 151.4         | -98.11                | 5,674.9                             | -254.4       | 426.5                  | 171.6                   | 254.89                 | 1.673             |                    |          |
| 11,064.8  | 5,667.0               | 13,293.1              | 5,911.0               | 106.8            | 151.4         | -98.11                | 5,674.9                             | -254.4       | 389.5                  | 133.3                   | 256.12                 | 1.521             | CC, ES, SF         |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S12-T10N-R58W - Razor Federal #12G-1311A - 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 |                    |          |
| 10,000.0  | 5,667.0               | 13,250.1              | 5,812.0               | 86.5             | 151.1         | 0.05                  | 5,676.6                             | 76.1         | 1,265.3                | 1,173.5                 | 91.77                  | 13.787            |                    |          |
| 10,100.0  | 5,667.0               | 13,250.1              | 5,812.0               | 88.4             | 151.1         | 0.05                  | 5,676.6                             | 76.1         | 1,165.4                | 1,072.9                 | 92.51                  | 12.598            |                    |          |
| 10,200.0  | 5,667.0               | 13,250.1              | 5,812.0               | 90.3             | 151.1         | 0.05                  | 5,676.6                             | 76.1         | 1,065.5                | 972.2                   | 93.24                  | 11.427            |                    |          |
| 10,300.0  | 5,667.0               | 13,250.1              | 5,812.0               | 92.2             | 151.1         | 0.05                  | 5,676.6                             | 76.1         | 965.6                  | 871.6                   | 93.97                  | 10.275            |                    |          |
| 10,400.0  | 5,667.0               | 13,250.1              | 5,812.0               | 94.1             | 151.1         | 0.05                  | 5,676.6                             | 76.1         | 865.8                  | 771.1                   | 94.71                  | 9.142             |                    |          |
| 10,500.0  | 5,667.0               | 13,250.1              | 5,812.0               | 96.0             | 151.1         | 0.05                  | 5,676.6                             | 76.1         | 766.0                  | 670.5                   | 95.44                  | 8.026             |                    |          |
| 10,600.0  | 5,667.0               | 13,250.1              | 5,812.0               | 97.9             | 151.1         | 0.05                  | 5,676.6                             | 76.1         | 666.2                  | 570.1                   | 96.17                  | 6.927             |                    |          |
| 10,700.0  | 5,667.0               | 13,250.1              | 5,812.0               | 99.9             | 151.1         | 0.05                  | 5,676.6                             | 76.1         | 566.6                  | 469.7                   | 96.91                  | 5.847             |                    |          |
| 10,800.0  | 5,667.0               | 13,250.1              | 5,812.0               | 101.8            | 151.1         | 0.05                  | 5,676.6                             | 76.1         | 467.1                  | 369.5                   | 97.64                  | 4.784             |                    |          |
| 10,900.0  | 5,667.0               | 13,250.1              | 5,812.0               | 103.7            | 151.1         | 0.05                  | 5,676.6                             | 76.1         | 367.9                  | 269.5                   | 98.37                  | 3.740             |                    |          |
| 11,000.0  | 5,667.0               | 13,250.1              | 5,812.0               | 105.6            | 151.1         | 0.05                  | 5,676.6                             | 76.1         | 269.3                  | 170.1                   | 99.10                  | 2.717             |                    |          |
| 11,064.8  | 5,667.0               | 13,250.1              | 5,812.0               | 106.8            | 151.1         | 0.05                  | 5,676.6                             | 76.1         | 206.1                  | 106.5                   | 99.58                  | 2.069 CC, ES, SF  |                    |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S12-T10N-R58W - Razor Federal #12G-1312B - 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  |          |
| 10,000.0  | 5,667.0               | 13,435.7              | 5,911.0               | 86.5             | 151.2         | 98.13                 | 5,677.6                             | 405.9        | 1,305.7                | 1,067.2                 | 238.49                 | 5.475              |          |
| 10,100.0  | 5,667.0               | 13,435.7              | 5,911.0               | 88.4             | 151.2         | 98.13                 | 5,677.6                             | 405.9        | 1,209.3                | 969.0                   | 240.30                 | 5.032              |          |
| 10,200.0  | 5,667.0               | 13,435.7              | 5,911.0               | 90.3             | 151.2         | 98.13                 | 5,677.6                             | 405.9        | 1,113.5                | 871.4                   | 242.10                 | 4.599              |          |
| 10,300.0  | 5,667.0               | 13,435.7              | 5,911.0               | 92.2             | 151.2         | 98.13                 | 5,677.6                             | 405.9        | 1,018.5                | 774.6                   | 243.91                 | 4.176              |          |
| 10,400.0  | 5,667.0               | 13,435.7              | 5,911.0               | 94.1             | 151.2         | 98.13                 | 5,677.6                             | 405.9        | 924.6                  | 678.9                   | 245.71                 | 3.763              |          |
| 10,500.0  | 5,667.0               | 13,435.7              | 5,911.0               | 96.0             | 151.2         | 98.13                 | 5,677.6                             | 405.9        | 832.1                  | 584.5                   | 247.52                 | 3.362              |          |
| 10,600.0  | 5,667.0               | 13,435.7              | 5,911.0               | 97.9             | 151.2         | 98.13                 | 5,677.6                             | 405.9        | 741.5                  | 492.2                   | 249.33                 | 2.974              |          |
| 10,700.0  | 5,667.0               | 13,435.7              | 5,911.0               | 99.9             | 151.2         | 98.13                 | 5,677.6                             | 405.9        | 653.7                  | 402.6                   | 251.13                 | 2.603              |          |
| 10,800.0  | 5,667.0               | 13,435.7              | 5,911.0               | 101.8            | 151.2         | 98.13                 | 5,677.6                             | 405.9        | 570.0                  | 317.0                   | 252.94                 | 2.253              |          |
| 10,900.0  | 5,667.0               | 13,435.7              | 5,911.0               | 103.7            | 151.2         | 98.13                 | 5,677.6                             | 405.9        | 492.3                  | 237.6                   | 254.75                 | 1.933              |          |
| 11,000.0  | 5,667.0               | 13,435.7              | 5,911.0               | 105.6            | 151.2         | 98.13                 | 5,677.6                             | 405.9        | 424.1                  | 167.6                   | 256.56                 | 1.653              |          |
| 11,064.8  | 5,667.0               | 13,435.7              | 5,911.0               | 106.8            | 151.2         | 98.13                 | 5,677.6                             | 405.9        | 387.4                  | 129.7                   | 257.73                 | 1.503 CC, ES, SF   |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design         |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        |                   | S12-T10N-R58W - Razor Federal #12H-1313A - 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 |   |         |                    |  |          |
| 10,200.0              | 5,667.0               | 13,552.2              | 5,795.0               | 90.3             | 153.6         | 84.57                 | 5,679.7                             | 735.6        | 1,251.5                | 1,005.7                 | 245.83                 | 5.091             |   |         |                    |  |          |
| 10,300.0              | 5,667.0               | 13,552.2              | 5,795.0               | 92.2             | 153.6         | 84.57                 | 5,679.7                             | 735.6        | 1,167.9                | 920.2                   | 247.65                 | 4.716             |   |         |                    |  |          |
| 10,400.0              | 5,667.0               | 13,552.2              | 5,795.0               | 94.1             | 153.6         | 84.57                 | 5,679.7                             | 735.6        | 1,087.0                | 837.6                   | 249.46                 | 4.357             |   |         |                    |  |          |
| 10,500.0              | 5,667.0               | 13,552.2              | 5,795.0               | 96.0             | 153.6         | 84.57                 | 5,679.7                             | 735.6        | 1,009.6                | 758.3                   | 251.28                 | 4.018             |   |         |                    |  |          |
| 10,600.0              | 5,667.0               | 13,552.2              | 5,795.0               | 97.9             | 153.6         | 84.57                 | 5,679.7                             | 735.6        | 936.4                  | 683.3                   | 253.09                 | 3.700             |   |         |                    |  |          |
| 10,700.0              | 5,667.0               | 13,552.2              | 5,795.0               | 99.9             | 153.6         | 84.57                 | 5,679.7                             | 735.6        | 868.6                  | 613.7                   | 254.91                 | 3.408             |   |         |                    |  |          |
| 10,800.0              | 5,667.0               | 13,552.2              | 5,795.0               | 101.8            | 153.6         | 84.57                 | 5,679.7                             | 735.6        | 807.6                  | 550.8                   | 256.72                 | 3.146             |   |         |                    |  |          |
| 10,900.0              | 5,667.0               | 13,552.2              | 5,795.0               | 103.7            | 153.6         | 84.57                 | 5,679.7                             | 735.6        | 754.8                  | 496.3                   | 258.54                 | 2.920             |   |         |                    |  |          |
| 11,000.0              | 5,667.0               | 13,552.2              | 5,795.0               | 105.6            | 153.6         | 84.57                 | 5,679.7                             | 735.6        | 712.3                  | 452.0                   | 260.36                 | 2.736             |   |         |                    |  |          |
| 11,064.8              | 5,667.0               | 13,552.2              | 5,795.0               | 106.8            | 153.6         | 84.57                 | 5,679.7                             | 735.6        | 691.1                  | 429.6                   | 261.54                 | 2.643 CC, ES, SF  |   |         |                    |  |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| <b>Offset Design</b> S12-T10N-R58W - Razor Federal #12H-1314B - Hz - Plan #1 |                          |                          |                          |                     |                  |                             |   |                 |                              |                               |                              | <b>Offset Site Error:</b> | 0.0 usft |
|--|--------------------------|--------------------------|--------------------------|---------------------|------------------|-----------------------------|---|-----------------|------------------------------|-------------------------------|------------------------------|---------------------------|----------|
| Survey Program: 0-ISWWSA MWD   |                          |                          |                          |                     |                  |                             |   |                 |                              |                               |                              | <b>Offset Well Error:</b> | 0.0 usft |
| Reference  |                          | Offset                   |                          | Semi Major Axis     |                  |                             | Distance                                  |                 |                              |                               |                              |                           | Warning  |
| Measured Depth<br>(usft)   | Vertical Depth<br>(usft) | Measured Depth<br>(usft) | Vertical Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) | Highside<br>Toolface<br>(°) | Offset Wellbore Centre<br>+N/-S<br>(usft) | +E/-W<br>(usft) | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) | Total<br>Uncertainty<br>Axis | Separation<br>Factor      |          |
| 10,500.0   | 5,667.0                  | 13,641.6                 | 5,893.0                  | 96.0                | 153.3            | 92.04                       | 5,680.5                                   | 1,065.4         | 1,247.9                      | 996.6                         | 251.30                       | 4.966                     |          |
| 10,600.0   | 5,667.0                  | 13,641.6                 | 5,893.0                  | 97.9                | 153.3            | 92.04                       | 5,680.5                                   | 1,065.4         | 1,189.7                      | 936.6                         | 253.12                       | 4.700                     |          |
| 10,700.0   | 5,667.0                  | 13,641.6                 | 5,893.0                  | 99.9                | 153.3            | 92.04                       | 5,680.5                                   | 1,065.4         | 1,137.3                      | 882.4                         | 254.94                       | 4.461                     |          |
| 10,800.0   | 5,667.0                  | 13,641.6                 | 5,893.0                  | 101.8               | 153.3            | 92.04                       | 5,680.5                                   | 1,065.4         | 1,091.5                      | 834.8                         | 256.76                       | 4.251                     |          |
| 10,900.0   | 5,667.0                  | 13,641.6                 | 5,893.0                  | 103.7               | 153.3            | 92.04                       | 5,680.5                                   | 1,065.4         | 1,053.3                      | 794.7                         | 258.59                       | 4.073                     |          |
| 11,000.0   | 5,667.0                  | 13,641.6                 | 5,893.0                  | 105.6               | 153.3            | 92.04                       | 5,680.5                                   | 1,065.4         | 1,023.5                      | 763.1                         | 260.41                       | 3.930                     |          |
| 11,064.8   | 5,667.0                  | 13,641.6                 | 5,893.0                  | 106.8               | 153.3            | 92.04                       | 5,680.5                                   | 1,065.4         | 1,009.0                      | 747.4                         | 261.59                       | 3.857 CC, ES, SF          |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2409 - 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           | -91.04                | -1.1                                | -60.1        | 60.1                   |                         |                        |                   |                             |         |
| 100.0  | 100.0                 | 100.0                 | 100.0                 | 0.1              | 0.1           | -91.04                | -1.1                                | -60.1        | 60.1                   | 59.9                    | 0.19                   | 322.024           |                             |         |
| 200.0  | 200.0                 | 200.0                 | 200.0                 | 0.3              | 0.3           | -91.04                | -1.1                                | -60.1        | 60.1                   | 59.4                    | 0.64                   | 94.445            |                             |         |
| 300.0  | 300.0                 | 300.0                 | 300.0                 | 0.5              | 0.5           | -91.04                | -1.1                                | -60.1        | 60.1                   | 59.0                    | 1.09                   | 55.338            |                             |         |
| 400.0  | 400.0                 | 400.0                 | 400.0                 | 0.8              | 0.8           | -91.04                | -1.1                                | -60.1        | 60.1                   | 58.5                    | 1.54                   | 39.133            | CC, ES                      |         |
| 500.0  | 500.0                 | 500.0                 | 500.0                 | 1.0              | 1.0           | 131.92                | -1.1                                | -60.1        | 61.2                   | 59.3                    | 1.97                   | 31.141            |                             |         |
| 600.0  | 599.9                 | 599.9                 | 599.9                 | 1.2              | 1.2           | 134.72                | -1.1                                | -60.1        | 64.1                   | 61.7                    | 2.39                   | 26.869            |                             |         |
| 700.0  | 699.8                 | 699.8                 | 699.8                 | 1.4              | 1.4           | 137.35                | -1.1                                | -60.1        | 67.3                   | 64.4                    | 2.82                   | 23.862            |                             |         |
| 800.0  | 799.7                 | 799.7                 | 799.7                 | 1.6              | 1.7           | 139.73                | -1.1                                | -60.1        | 70.5                   | 67.3                    | 3.26                   | 21.644            |                             |         |
| 900.0  | 899.6                 | 899.6                 | 899.6                 | 1.8              | 1.9           | 141.91                | -1.1                                | -60.1        | 73.9                   | 70.2                    | 3.70                   | 19.961            |                             |         |
| 1,000.0  | 999.5                 | 999.5                 | 999.5                 | 2.0              | 2.1           | 143.89                | -1.1                                | -60.1        | 77.3                   | 73.2                    | 4.15                   | 18.648            |                             |         |
| 1,100.0  | 1,099.4               | 1,097.0               | 1,097.0               | 2.3              | 2.3           | 145.11                | -1.5                                | -61.7        | 82.4                   | 77.8                    | 4.57                   | 18.003            |                             |         |
| 1,200.0  | 1,199.3               | 1,194.1               | 1,193.9               | 2.5              | 2.5           | 145.16                | -2.8                                | -66.4        | 90.4                   | 85.4                    | 5.00                   | 18.090            |                             |         |
| 1,300.0  | 1,299.2               | 1,290.6               | 1,290.1               | 2.7              | 2.7           | 144.33                | -4.8                                | -74.3        | 101.4                  | 96.0                    | 5.43                   | 18.678            |                             |         |
| 1,400.0  | 1,399.1               | 1,386.4               | 1,385.2               | 3.0              | 2.9           | 142.93                | -7.7                                | -85.2        | 115.4                  | 109.5                   | 5.87                   | 19.654            |                             |         |
| 1,500.0  | 1,499.0               | 1,481.6               | 1,479.3               | 3.2              | 3.2           | 141.25                | -11.4                               | -99.1        | 132.4                  | 126.1                   | 6.33                   | 20.932            |                             |         |
| 1,600.0  | 1,598.9               | 1,579.8               | 1,576.3               | 3.5              | 3.5           | 139.72                | -15.4                               | -114.6       | 150.7                  | 143.9                   | 6.79                   | 22.199            |                             |         |
| 1,700.0  | 1,698.9               | 1,678.1               | 1,673.2               | 3.7              | 3.8           | 138.52                | -19.5                               | -130.1       | 169.1                  | 161.8                   | 7.25                   | 23.308            |                             |         |
| 1,800.0  | 1,798.8               | 1,776.3               | 1,770.1               | 3.9              | 4.1           | 137.56                | -23.6                               | -145.6       | 187.5                  | 179.8                   | 7.72                   | 24.280            |                             |         |
| 1,900.0  | 1,898.7               | 1,874.6               | 1,867.0               | 4.2              | 4.4           | 136.77                | -27.7                               | -161.1       | 206.0                  | 197.8                   | 8.19                   | 25.135            |                             |         |
| 2,000.0  | 1,998.6               | 1,972.8               | 1,964.0               | 4.4              | 4.8           | 136.10                | -31.7                               | -176.6       | 224.5                  | 215.8                   | 8.67                   | 25.894            |                             |         |
| 2,100.0  | 2,098.5               | 2,071.1               | 2,060.9               | 4.7              | 5.1           | 135.54                | -35.8                               | -192.1       | 243.0                  | 233.8                   | 9.14                   | 26.572            |                             |         |
| 2,200.0  | 2,198.4               | 2,169.3               | 2,157.8               | 4.9              | 5.5           | 135.06                | -39.9                               | -207.6       | 261.5                  | 251.9                   | 9.62                   | 27.181            |                             |         |
| 2,300.0  | 2,298.3               | 2,267.6               | 2,254.8               | 5.1              | 5.8           | 134.64                | -44.0                               | -223.2       | 280.1                  | 270.0                   | 10.10                  | 27.730            |                             |         |
| 2,400.0  | 2,398.2               | 2,365.8               | 2,351.7               | 5.4              | 6.2           | 134.28                | -48.1                               | -238.7       | 298.6                  | 288.0                   | 10.58                  | 28.228            |                             |         |
| 2,500.0  | 2,498.1               | 2,464.0               | 2,448.6               | 5.6              | 6.5           | 133.96                | -52.1                               | -254.2       | 317.2                  | 306.1                   | 11.06                  | 28.681            |                             |         |
| 2,600.0  | 2,598.0               | 2,562.3               | 2,545.5               | 5.9              | 6.9           | 133.67                | -56.2                               | -269.7       | 335.8                  | 324.2                   | 11.54                  | 29.096            |                             |         |
| 2,700.0  | 2,697.9               | 2,660.5               | 2,642.5               | 6.1              | 7.2           | 133.41                | -60.3                               | -285.2       | 354.4                  | 342.3                   | 12.02                  | 29.476            |                             |         |
| 2,800.0  | 2,797.8               | 2,758.8               | 2,739.4               | 6.3              | 7.6           | 133.18                | -64.4                               | -300.7       | 373.0                  | 360.5                   | 12.50                  | 29.827            |                             |         |
| 2,900.0  | 2,897.7               | 2,857.0               | 2,836.3               | 6.6              | 8.0           | 132.97                | -68.4                               | -316.2       | 391.6                  | 378.6                   | 12.99                  | 30.152            |                             |         |
| 3,000.0  | 2,997.6               | 2,955.3               | 2,933.2               | 6.8              | 8.3           | 132.78                | -72.5                               | -331.7       | 410.2                  | 396.7                   | 13.47                  | 30.453            |                             |         |
| 3,100.0  | 3,097.5               | 3,053.5               | 3,030.2               | 7.1              | 8.7           | 132.61                | -76.6                               | -347.2       | 428.8                  | 414.8                   | 13.95                  | 30.734            |                             |         |
| 3,200.0  | 3,197.4               | 3,151.8               | 3,127.1               | 7.3              | 9.1           | 132.45                | -80.7                               | -362.7       | 447.4                  | 433.0                   | 14.43                  | 30.996            |                             |         |
| 3,300.0  | 3,297.3               | 3,250.0               | 3,224.0               | 7.5              | 9.5           | 132.30                | -84.8                               | -378.2       | 466.0                  | 451.1                   | 14.92                  | 31.240            |                             |         |
| 3,400.0  | 3,397.3               | 3,348.2               | 3,321.0               | 7.8              | 9.8           | 132.16                | -88.8                               | -393.7       | 484.6                  | 469.2                   | 15.40                  | 31.470            |                             |         |
| 3,500.0  | 3,497.2               | 3,446.5               | 3,417.9               | 8.0              | 10.2          | 132.04                | -92.9                               | -409.2       | 503.3                  | 487.4                   | 15.88                  | 31.686            |                             |         |
| 3,600.0  | 3,597.1               | 3,544.7               | 3,514.8               | 8.3              | 10.6          | 131.92                | -97.0                               | -424.7       | 521.9                  | 505.5                   | 16.36                  | 31.890            |                             |         |
| 3,700.0  | 3,697.0               | 3,643.0               | 3,611.7               | 8.5              | 11.0          | 131.81                | -101.1                              | -440.2       | 540.5                  | 523.7                   | 16.85                  | 32.082            |                             |         |
| 3,800.0  | 3,796.9               | 3,741.2               | 3,708.7               | 8.7              | 11.3          | 131.71                | -105.1                              | -455.8       | 559.1                  | 541.8                   | 17.33                  | 32.264            |                             |         |
| 3,900.0  | 3,896.8               | 3,839.5               | 3,805.6               | 9.0              | 11.7          | 131.62                | -109.2                              | -471.3       | 577.8                  | 560.0                   | 17.81                  | 32.437            |                             |         |
| 4,000.0  | 3,996.7               | 3,937.7               | 3,902.5               | 9.2              | 12.1          | 131.53                | -113.3                              | -486.8       | 596.4                  | 578.1                   | 18.29                  | 32.601            |                             |         |
| 4,100.0  | 4,096.6               | 4,036.0               | 3,999.5               | 9.5              | 12.5          | 131.45                | -117.4                              | -502.3       | 615.0                  | 596.3                   | 18.78                  | 32.757            |                             |         |
| 4,200.0  | 4,196.5               | 4,134.2               | 4,096.4               | 9.7              | 12.8          | 131.37                | -121.5                              | -517.8       | 633.7                  | 614.4                   | 19.26                  | 32.906            |                             |         |
| 4,300.0  | 4,296.4               | 4,232.5               | 4,193.3               | 9.9              | 13.2          | 131.29                | -125.5                              | -533.3       | 652.3                  | 632.6                   | 19.74                  | 33.048            |                             |         |
| 4,400.0  | 4,396.3               | 4,330.7               | 4,290.2               | 10.2             | 13.6          | 131.22                | -129.6                              | -548.8       | 670.9                  | 650.7                   | 20.22                  | 33.184            |                             |         |
| 4,500.0  | 4,496.2               | 4,431.6               | 4,389.8               | 10.4             | 14.0          | 131.16                | -133.8                              | -564.7       | 689.5                  | 668.8                   | 20.70                  | 33.308            |                             |         |
| 4,600.0  | 4,596.1               | 4,560.8               | 4,517.7               | 10.7             | 14.3          | 131.14                | -138.3                              | -581.8       | 705.7                  | 684.5                   | 21.20                  | 33.279            |                             |         |
| 4,700.0  | 4,696.0               | 4,691.6               | 4,648.0               | 10.9             | 14.6          | 131.25                | -141.3                              | -593.4       | 717.4                  | 695.7                   | 21.68                  | 33.084            |                             |         |
| 4,800.0  | 4,796.0               | 4,823.5               | 4,779.7               | 11.1             | 14.8          | 131.46                | -142.9                              | -599.3       | 724.1                  | 702.0                   | 22.16                  | 32.676            |                             |         |
| 4,900.0  | 4,896.0               | 4,939.7               | 4,896.0               | 11.3             | 15.0          | -90.24                | -143.1                              | -600.1       | 725.0                  | 702.4                   | 22.59                  | 32.087            |                             |         |
| 5,000.0  | 4,996.0               | 5,039.7               | 4,996.0               | 11.5             | 15.2          | -90.24                | -143.1                              | -600.1       | 725.0                  | 702.0                   | 22.95                  | 31.585            |                             |         |
| 5,100.0  | 5,096.0               | 5,139.7               | 5,096.0               | 11.7             | 15.3          | -90.24                | -143.1                              | -600.1       | 725.0                  | 701.7                   | 23.32                  | 31.094            |                             |         |

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



# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2409 - 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  | 5,195.9               | 5,240.3               | 5,196.4               | 11.8             | 15.5          | -89.76                | -140.7                              | -600.1       | 724.9                  | 701.3                   | 23.65                  | 30.657            |                             |  |
| 5,300.0  | 5,293.9               | 5,341.3               | 5,295.4               | 11.9             | 15.6          | -89.77                | -121.2                              | -600.0       | 724.7                  | 700.8                   | 23.90                  | 30.324            |                             |  |
| 5,400.0  | 5,386.5               | 5,442.3               | 5,388.7               | 12.0             | 15.6          | -89.79                | -83.1                               | -599.9       | 724.3                  | 700.2                   | 24.09                  | 30.062            |                             |  |
| 5,500.0  | 5,470.2               | 5,543.1               | 5,472.9               | 12.1             | 15.7          | -89.81                | -27.8                               | -599.7       | 723.7                  | 699.3                   | 24.34                  | 29.730            |                             |  |
| 5,600.0  | 5,542.1               | 5,643.9               | 5,544.8               | 12.3             | 15.8          | -89.85                | 42.6                                | -599.5       | 722.8                  | 698.1                   | 24.78                  | 29.165            |                             |  |
| 5,700.0  | 5,599.4               | 5,744.5               | 5,601.7               | 12.6             | 15.9          | -89.88                | 125.3                               | -599.2       | 721.9                  | 696.3                   | 25.56                  | 28.241            |                             |  |
| 5,800.0  | 5,640.0               | 5,844.9               | 5,641.6               | 13.3             | 16.1          | -89.92                | 217.3                               | -598.9       | 720.8                  | 694.1                   | 26.76                  | 26.935            |                             |  |
| 5,900.0  | 5,662.5               | 5,945.1               | 5,663.2               | 14.1             | 16.6          | -89.97                | 315.0                               | -598.6       | 719.7                  | 691.3                   | 28.40                  | 25.344            |                             |  |
| 6,000.0  | 5,667.0               | 6,045.1               | 5,667.0               | 15.2             | 17.3          | -90.00                | 414.9                               | -598.3       | 718.5                  | 688.1                   | 30.42                  | 23.619            |                             |  |
| 6,100.0  | 5,667.0               | 6,145.1               | 5,667.0               | 16.3             | 18.2          | -90.00                | 514.8                               | -597.9       | 717.4                  | 684.6                   | 32.75                  | 21.902            |                             |  |
| 6,200.0  | 5,667.0               | 6,245.1               | 5,667.0               | 17.7             | 19.3          | -90.00                | 614.8                               | -597.6       | 716.2                  | 680.9                   | 35.35                  | 20.261            |                             |  |
| 6,300.0  | 5,667.0               | 6,345.1               | 5,667.0               | 19.1             | 20.5          | -90.00                | 714.8                               | -597.3       | 715.1                  | 676.9                   | 38.16                  | 18.740            |                             |  |
| 6,400.0  | 5,667.0               | 6,445.1               | 5,667.0               | 20.6             | 21.9          | -90.00                | 814.8                               | -597.0       | 713.9                  | 672.8                   | 41.14                  | 17.355            |                             |  |
| 6,500.0  | 5,667.0               | 6,545.1               | 5,667.0               | 22.1             | 23.3          | -90.00                | 914.8                               | -596.7       | 712.7                  | 668.5                   | 44.25                  | 16.108            |                             |  |
| 6,600.0  | 5,667.0               | 6,645.1               | 5,667.0               | 23.8             | 24.8          | -90.00                | 1,014.8                             | -596.3       | 711.6                  | 664.1                   | 47.47                  | 14.990            |                             |  |
| 6,700.0  | 5,667.0               | 6,745.1               | 5,667.0               | 25.4             | 26.4          | -90.00                | 1,114.8                             | -596.0       | 710.4                  | 659.6                   | 50.78                  | 13.990            |                             |  |
| 6,800.0  | 5,667.0               | 6,845.1               | 5,667.0               | 27.1             | 28.0          | -90.00                | 1,214.8                             | -595.7       | 709.2                  | 655.1                   | 54.16                  | 13.096            |                             |  |
| 6,900.0  | 5,667.0               | 6,945.1               | 5,667.0               | 28.8             | 29.6          | -90.00                | 1,314.8                             | -595.4       | 708.1                  | 650.5                   | 57.60                  | 12.293            |                             |  |
| 7,000.0  | 5,667.0               | 7,045.1               | 5,667.0               | 30.6             | 31.3          | -90.00                | 1,414.8                             | -595.1       | 706.9                  | 645.8                   | 61.09                  | 11.572            |                             |  |
| 7,100.0  | 5,667.0               | 7,145.0               | 5,667.0               | 32.3             | 33.0          | -90.00                | 1,514.8                             | -594.7       | 705.8                  | 641.1                   | 64.62                  | 10.922            |                             |  |
| 7,200.0  | 5,667.0               | 7,245.0               | 5,667.0               | 34.1             | 34.7          | -90.00                | 1,614.8                             | -594.4       | 704.6                  | 636.4                   | 68.18                  | 10.334            |                             |  |
| 7,300.0  | 5,667.0               | 7,345.0               | 5,667.0               | 35.9             | 36.5          | -90.00                | 1,714.8                             | -594.1       | 703.4                  | 631.7                   | 71.78                  | 9.800             |                             |  |
| 7,400.0  | 5,667.0               | 7,445.0               | 5,667.0               | 37.7             | 38.2          | -90.00                | 1,814.7                             | -593.8       | 702.3                  | 626.9                   | 75.40                  | 9.315             |                             |  |
| 7,500.0  | 5,667.0               | 7,545.0               | 5,667.0               | 39.6             | 40.0          | -90.00                | 1,914.7                             | -593.4       | 701.1                  | 622.1                   | 79.04                  | 8.871             |                             |  |
| 7,600.0  | 5,667.0               | 7,645.0               | 5,667.0               | 41.4             | 41.8          | -90.00                | 2,014.7                             | -593.1       | 700.0                  | 617.3                   | 82.70                  | 8.464             |                             |  |
| 7,700.0  | 5,667.0               | 7,745.0               | 5,667.0               | 43.2             | 43.6          | -90.00                | 2,114.7                             | -592.8       | 698.8                  | 612.4                   | 86.37                  | 8.090             |                             |  |
| 7,800.0  | 5,667.0               | 7,845.0               | 5,667.0               | 45.1             | 45.4          | -90.00                | 2,214.7                             | -592.5       | 697.6                  | 607.6                   | 90.07                  | 7.746             |                             |  |
| 7,900.0  | 5,667.0               | 7,945.0               | 5,667.0               | 46.9             | 47.2          | -90.00                | 2,314.7                             | -592.2       | 696.5                  | 602.7                   | 93.77                  | 7.427             |                             |  |
| 8,000.0  | 5,667.0               | 8,045.0               | 5,667.0               | 48.8             | 49.1          | -90.00                | 2,414.7                             | -591.8       | 695.3                  | 597.8                   | 97.49                  | 7.132             |                             |  |
| 8,100.0  | 5,667.0               | 8,145.0               | 5,667.0               | 50.6             | 50.9          | -90.00                | 2,514.7                             | -591.5       | 694.2                  | 592.9                   | 101.21                 | 6.858             |                             |  |
| 8,200.0  | 5,667.0               | 8,245.0               | 5,667.0               | 52.5             | 52.7          | -90.00                | 2,614.7                             | -591.2       | 693.0                  | 588.0                   | 104.95                 | 6.603             |                             |  |
| 8,300.0  | 5,667.0               | 8,345.0               | 5,667.0               | 54.4             | 54.6          | -90.00                | 2,714.7                             | -590.9       | 691.8                  | 583.1                   | 108.69                 | 6.365             |                             |  |
| 8,400.0  | 5,667.0               | 8,445.0               | 5,667.0               | 56.2             | 56.4          | -90.00                | 2,814.7                             | -590.5       | 690.7                  | 578.2                   | 112.44                 | 6.143             |                             |  |
| 8,500.0  | 5,667.0               | 8,544.9               | 5,667.0               | 58.1             | 58.3          | -90.00                | 2,914.7                             | -590.2       | 689.5                  | 573.3                   | 116.19                 | 5.934             |                             |  |
| 8,600.0  | 5,667.0               | 8,644.9               | 5,667.0               | 60.0             | 60.1          | -90.00                | 3,014.7                             | -589.9       | 688.3                  | 568.4                   | 119.96                 | 5.738             |                             |  |
| 8,700.0  | 5,667.0               | 8,744.9               | 5,667.0               | 61.9             | 62.0          | -90.00                | 3,114.7                             | -589.6       | 687.2                  | 563.5                   | 123.72                 | 5.554             |                             |  |
| 8,800.0  | 5,667.0               | 8,844.9               | 5,667.0               | 63.8             | 63.9          | -90.00                | 3,214.6                             | -589.3       | 686.0                  | 558.5                   | 127.50                 | 5.381             |                             |  |
| 8,900.0  | 5,667.0               | 8,944.9               | 5,667.0               | 65.7             | 65.7          | -90.00                | 3,314.6                             | -588.9       | 684.9                  | 553.6                   | 131.27                 | 5.217             |                             |  |
| 9,000.0  | 5,667.0               | 9,044.9               | 5,667.0               | 67.5             | 67.6          | -90.00                | 3,414.6                             | -588.6       | 683.7                  | 548.6                   | 135.06                 | 5.062             |                             |  |
| 9,100.0  | 5,667.0               | 9,144.9               | 5,667.0               | 69.4             | 69.5          | -90.00                | 3,514.6                             | -588.3       | 682.5                  | 543.7                   | 138.84                 | 4.916             |                             |  |
| 9,200.0  | 5,667.0               | 9,244.9               | 5,667.0               | 71.3             | 71.4          | -90.00                | 3,614.6                             | -588.0       | 681.4                  | 538.8                   | 142.63                 | 4.777             |                             |  |
| 9,300.0  | 5,667.0               | 9,344.9               | 5,667.0               | 73.2             | 73.2          | -90.00                | 3,714.6                             | -587.6       | 680.2                  | 533.8                   | 146.42                 | 4.646             |                             |  |
| 9,400.0  | 5,667.0               | 9,444.9               | 5,667.0               | 75.1             | 75.1          | -90.00                | 3,814.6                             | -587.3       | 679.1                  | 528.8                   | 150.22                 | 4.521             |                             |  |
| 9,500.0  | 5,667.0               | 9,544.9               | 5,667.0               | 77.0             | 77.0          | -90.00                | 3,914.6                             | -587.0       | 677.9                  | 523.9                   | 154.01                 | 4.402             |                             |  |
| 9,600.0  | 5,667.0               | 9,644.9               | 5,667.0               | 78.9             | 78.9          | -90.00                | 4,014.6                             | -586.7       | 676.7                  | 518.9                   | 157.81                 | 4.288             |                             |  |
| 9,700.0  | 5,667.0               | 9,744.9               | 5,667.0               | 80.8             | 80.8          | -90.00                | 4,114.6                             | -586.4       | 675.6                  | 514.0                   | 161.62                 | 4.180             |                             |  |
| 9,800.0  | 5,667.0               | 9,844.9               | 5,667.0               | 82.7             | 82.7          | -90.00                | 4,214.6                             | -586.0       | 674.4                  | 509.0                   | 165.42                 | 4.077             |                             |  |
| 9,900.0  | 5,667.0               | 9,944.9               | 5,667.0               | 84.6             | 84.5          | -90.00                | 4,314.6                             | -585.7       | 673.3                  | 504.0                   | 169.23                 | 3.978             |                             |  |
| 10,000.0   | 5,667.0               | 10,044.8              | 5,667.0               | 86.5             | 86.4          | -90.00                | 4,414.6                             | -585.4       | 672.1                  | 499.1                   | 173.04                 | 3.884             |                             |  |
| 10,100.0   | 5,667.0               | 10,144.8              | 5,667.0               | 88.4             | 88.3          | -90.00                | 4,514.6                             | -585.1       | 670.9                  | 494.1                   | 176.85                 | 3.794             |                             |  |
| 10,200.0   | 5,667.0               | 10,244.8              | 5,667.0               | 90.3             | 90.2          | -90.00                | 4,614.5                             | -584.7       | 669.8                  | 489.1                   | 180.66                 | 3.707             |                             |  |
| 10,300.0   | 5,667.0               | 10,344.8              | 5,667.0               | 92.2             | 92.1          | -90.00                | 4,714.5                             | -584.4       | 668.6                  | 484.1                   | 184.47                 | 3.624             |                             |  |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design                |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        |                   | S25-T10N-R58W - Razor 25B -2409 - 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 |  |         |                    |  |          |
| 10,400.0                     | 5,667.0               | 10,444.8              | 5,667.0               | 94.1             | 94.0          | -90.00                | 4,814.5                             | -584.1       | 667.4                  | 479.2                   | 188.29                 | 3.545             |  |         |                    |  |          |
| 10,500.0                     | 5,667.0               | 10,544.8              | 5,667.0               | 96.0             | 95.9          | -90.00                | 4,914.5                             | -583.8       | 666.3                  | 474.2                   | 192.10                 | 3.468             |  |         |                    |  |          |
| 10,600.0                     | 5,667.0               | 10,644.8              | 5,667.0               | 97.9             | 97.8          | -90.00                | 5,014.5                             | -583.5       | 665.1                  | 469.2                   | 195.92                 | 3.395             |  |         |                    |  |          |
| 10,700.0                     | 5,667.0               | 10,744.8              | 5,667.0               | 99.9             | 99.7          | -90.00                | 5,114.5                             | -583.1       | 664.0                  | 464.2                   | 199.74                 | 3.324             |  |         |                    |  |          |
| 10,800.0                     | 5,667.0               | 10,844.8              | 5,667.0               | 101.8            | 101.6         | -90.00                | 5,214.5                             | -582.8       | 662.8                  | 459.2                   | 203.56                 | 3.256             |  |         |                    |  |          |
| 10,900.0                     | 5,667.0               | 10,944.8              | 5,667.0               | 103.7            | 103.5         | -90.00                | 5,314.5                             | -582.5       | 661.6                  | 454.3                   | 207.38                 | 3.190             |  |         |                    |  |          |
| 11,000.0                     | 5,667.0               | 11,044.8              | 5,667.0               | 105.6            | 105.4         | -90.00                | 5,414.5                             | -582.2       | 660.5                  | 449.3                   | 211.21                 | 3.127             |  |         |                    |  |          |
| 11,064.8                     | 5,667.0               | 11,104.5              | 5,667.0               | 106.8            | 106.5         | -90.00                | 5,474.2                             | -582.0       | 659.8                  | 446.2                   | 213.59                 | 3.089 SF          |  |         |                    |  |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2410 - 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           | -92.10                | -1.1                                | -29.9        | 29.9                   |                         |                        |                   |                             |         |
| 100.0  | 100.0                 | 100.0                 | 100.0                 | 0.1              | 0.1           | -92.10                | -1.1                                | -29.9        | 29.9                   | 29.7                    | 0.19                   | 160.351           |                             |         |
| 200.0  | 200.0                 | 200.0                 | 200.0                 | 0.3              | 0.3           | -92.10                | -1.1                                | -29.9        | 29.9                   | 29.3                    | 0.64                   | 47.029            |                             |         |
| 300.0  | 300.0                 | 300.0                 | 300.0                 | 0.5              | 0.5           | -92.10                | -1.1                                | -29.9        | 29.9                   | 28.8                    | 1.09                   | 27.555            |                             |         |
| 400.0  | 400.0                 | 400.0                 | 400.0                 | 0.8              | 0.8           | -92.10                | -1.1                                | -29.9        | 29.9                   | 28.4                    | 1.54                   | 19.486            | CC, ES                      |         |
| 500.0  | 500.0                 | 499.1                 | 499.0                 | 1.0              | 1.0           | 130.33                | -2.1                                | -31.3        | 32.5                   | 30.5                    | 1.95                   | 16.690            |                             |         |
| 600.0  | 599.9                 | 598.2                 | 598.0                 | 1.2              | 1.2           | 131.07                | -4.8                                | -35.4        | 39.4                   | 37.0                    | 2.35                   | 16.768            |                             |         |
| 700.0  | 699.8                 | 697.9                 | 697.6                 | 1.4              | 1.4           | 131.21                | -8.0                                | -40.0        | 47.0                   | 44.2                    | 2.77                   | 16.977            |                             |         |
| 800.0  | 799.7                 | 797.6                 | 797.1                 | 1.6              | 1.6           | 131.32                | -11.2                               | -44.7        | 54.5                   | 51.3                    | 3.20                   | 17.044            |                             |         |
| 900.0  | 899.6                 | 897.3                 | 896.7                 | 1.8              | 1.8           | 131.39                | -14.4                               | -49.4        | 62.1                   | 58.5                    | 3.64                   | 17.045            |                             |         |
| 1,000.0  | 999.5                 | 997.0                 | 996.2                 | 2.0              | 2.1           | 131.45                | -17.6                               | -54.1        | 69.7                   | 65.6                    | 4.10                   | 17.016            |                             |         |
| 1,100.0  | 1,099.4               | 1,096.7               | 1,095.8               | 2.3              | 2.3           | 131.50                | -20.8                               | -58.8        | 77.3                   | 72.7                    | 4.55                   | 16.974            |                             |         |
| 1,200.0  | 1,199.3               | 1,196.5               | 1,195.3               | 2.5              | 2.6           | 131.54                | -24.0                               | -63.4        | 84.8                   | 79.8                    | 5.01                   | 16.928            |                             |         |
| 1,300.0  | 1,299.2               | 1,296.2               | 1,294.9               | 2.7              | 2.8           | 131.57                | -27.2                               | -68.1        | 92.4                   | 86.9                    | 5.47                   | 16.881            |                             |         |
| 1,400.0  | 1,399.1               | 1,395.9               | 1,394.4               | 3.0              | 3.1           | 131.60                | -30.4                               | -72.8        | 100.0                  | 94.0                    | 5.94                   | 16.837            |                             |         |
| 1,500.0  | 1,499.0               | 1,495.6               | 1,494.0               | 3.2              | 3.3           | 131.62                | -33.6                               | -77.5        | 107.6                  | 101.1                   | 6.40                   | 16.794            |                             |         |
| 1,600.0  | 1,598.9               | 1,595.3               | 1,593.5               | 3.5              | 3.6           | 131.65                | -36.8                               | -82.1        | 115.1                  | 108.3                   | 6.87                   | 16.755            |                             |         |
| 1,700.0  | 1,698.9               | 1,695.0               | 1,693.1               | 3.7              | 3.8           | 131.66                | -40.0                               | -86.8        | 122.7                  | 115.4                   | 7.34                   | 16.719            |                             |         |
| 1,800.0  | 1,798.8               | 1,794.7               | 1,792.7               | 3.9              | 4.0           | 131.68                | -43.2                               | -91.5        | 130.3                  | 122.5                   | 7.81                   | 16.685            |                             |         |
| 1,900.0  | 1,898.7               | 1,894.4               | 1,892.2               | 4.2              | 4.3           | 131.69                | -46.4                               | -96.2        | 137.8                  | 129.6                   | 8.28                   | 16.654            |                             |         |
| 2,000.0  | 1,998.6               | 1,994.2               | 1,991.8               | 4.4              | 4.5           | 131.71                | -49.6                               | -100.9       | 145.4                  | 136.7                   | 8.75                   | 16.626            |                             |         |
| 2,100.0  | 2,098.5               | 2,093.9               | 2,091.3               | 4.7              | 4.8           | 131.72                | -52.8                               | -105.5       | 153.0                  | 143.8                   | 9.22                   | 16.600            |                             |         |
| 2,200.0  | 2,198.4               | 2,193.6               | 2,190.9               | 4.9              | 5.0           | 131.73                | -55.9                               | -110.2       | 160.6                  | 150.9                   | 9.69                   | 16.576            |                             |         |
| 2,300.0  | 2,298.3               | 2,293.3               | 2,290.4               | 5.1              | 5.3           | 131.74                | -59.1                               | -114.9       | 168.1                  | 158.0                   | 10.16                  | 16.554            |                             |         |
| 2,400.0  | 2,398.2               | 2,393.0               | 2,390.0               | 5.4              | 5.5           | 131.75                | -62.3                               | -119.6       | 175.7                  | 165.1                   | 10.63                  | 16.534            |                             |         |
| 2,500.0  | 2,498.1               | 2,492.7               | 2,489.5               | 5.6              | 5.8           | 131.76                | -65.5                               | -124.2       | 183.3                  | 172.2                   | 11.10                  | 16.515            |                             |         |
| 2,600.0  | 2,598.0               | 2,592.4               | 2,589.1               | 5.9              | 6.0           | 131.76                | -68.7                               | -128.9       | 190.9                  | 179.3                   | 11.57                  | 16.498            |                             |         |
| 2,700.0  | 2,697.9               | 2,692.1               | 2,688.6               | 6.1              | 6.3           | 131.77                | -71.9                               | -133.6       | 198.4                  | 186.4                   | 12.04                  | 16.482            |                             |         |
| 2,800.0  | 2,797.8               | 2,791.9               | 2,788.2               | 6.3              | 6.5           | 131.78                | -75.1                               | -138.3       | 206.0                  | 193.5                   | 12.51                  | 16.468            |                             |         |
| 2,900.0  | 2,897.7               | 2,891.6               | 2,887.7               | 6.6              | 6.8           | 131.78                | -78.3                               | -143.0       | 213.6                  | 200.6                   | 12.98                  | 16.454            |                             |         |
| 3,000.0  | 2,997.6               | 2,991.3               | 2,987.3               | 6.8              | 7.0           | 131.79                | -81.5                               | -147.6       | 221.1                  | 207.7                   | 13.45                  | 16.441            |                             |         |
| 3,100.0  | 3,097.5               | 3,091.0               | 3,086.8               | 7.1              | 7.3           | 131.79                | -84.7                               | -152.3       | 228.7                  | 214.8                   | 13.92                  | 16.430            |                             |         |
| 3,200.0  | 3,197.4               | 3,190.7               | 3,186.4               | 7.3              | 7.5           | 131.80                | -87.9                               | -157.0       | 236.3                  | 221.9                   | 14.39                  | 16.419            |                             |         |
| 3,300.0  | 3,297.3               | 3,290.4               | 3,285.9               | 7.5              | 7.8           | 131.80                | -91.1                               | -161.7       | 243.9                  | 229.0                   | 14.86                  | 16.409            |                             |         |
| 3,400.0  | 3,397.3               | 3,390.1               | 3,385.5               | 7.8              | 8.0           | 131.81                | -94.3                               | -166.3       | 251.4                  | 236.1                   | 15.33                  | 16.399            |                             |         |
| 3,500.0  | 3,497.2               | 3,489.8               | 3,485.0               | 8.0              | 8.3           | 131.81                | -97.5                               | -171.0       | 259.0                  | 243.2                   | 15.80                  | 16.391            |                             |         |
| 3,600.0  | 3,597.1               | 3,589.6               | 3,584.6               | 8.3              | 8.5           | 131.81                | -100.7                              | -175.7       | 266.6                  | 250.3                   | 16.27                  | 16.383            |                             |         |
| 3,700.0  | 3,697.0               | 3,689.3               | 3,684.1               | 8.5              | 8.8           | 131.82                | -103.9                              | -180.4       | 274.2                  | 257.4                   | 16.74                  | 16.375            |                             |         |
| 3,800.0  | 3,796.9               | 3,789.0               | 3,783.7               | 8.7              | 9.0           | 131.82                | -107.1                              | -185.0       | 281.7                  | 264.5                   | 17.21                  | 16.368            |                             |         |
| 3,900.0  | 3,896.8               | 3,888.7               | 3,883.2               | 9.0              | 9.3           | 131.82                | -110.2                              | -189.7       | 289.3                  | 271.6                   | 17.68                  | 16.362            |                             |         |
| 4,000.0  | 3,996.7               | 3,988.4               | 3,982.8               | 9.2              | 9.5           | 131.83                | -113.4                              | -194.4       | 296.9                  | 278.7                   | 18.15                  | 16.356            |                             |         |
| 4,100.0  | 4,096.6               | 4,088.1               | 4,082.3               | 9.5              | 9.8           | 131.83                | -116.6                              | -199.1       | 304.4                  | 285.8                   | 18.62                  | 16.350            |                             |         |
| 4,200.0  | 4,196.5               | 4,187.8               | 4,181.9               | 9.7              | 10.1          | 131.83                | -119.8                              | -203.8       | 312.0                  | 292.9                   | 19.09                  | 16.345            |                             |         |
| 4,300.0  | 4,296.4               | 4,287.5               | 4,281.4               | 9.9              | 10.3          | 131.84                | -123.0                              | -208.4       | 319.6                  | 300.0                   | 19.56                  | 16.340            |                             |         |
| 4,400.0  | 4,396.3               | 4,387.3               | 4,381.0               | 10.2             | 10.6          | 131.84                | -126.2                              | -213.1       | 327.2                  | 307.1                   | 20.03                  | 16.336            |                             |         |
| 4,500.0  | 4,496.2               | 4,487.0               | 4,480.6               | 10.4             | 10.8          | 131.84                | -129.4                              | -217.8       | 334.7                  | 314.2                   | 20.50                  | 16.332            |                             |         |
| 4,600.0  | 4,596.1               | 4,586.7               | 4,580.1               | 10.7             | 11.1          | 131.84                | -132.6                              | -222.5       | 342.3                  | 321.3                   | 20.97                  | 16.328            |                             |         |
| 4,700.0  | 4,696.0               | 4,686.4               | 4,679.7               | 10.9             | 11.3          | 131.85                | -135.8                              | -227.1       | 349.9                  | 328.5                   | 21.43                  | 16.324            |                             |         |
| 4,800.0  | 4,796.0               | 4,788.0               | 4,781.1               | 11.1             | 11.6          | 131.81                | -139.0                              | -231.9       | 356.8                  | 334.9                   | 21.89                  | 16.302            |                             |         |
| 4,900.0  | 4,896.0               | 4,894.4               | 4,892.5               | 11.3             | 11.7          | -90.16                | -141.0                              | -234.7       | 359.6                  | 337.4                   | 22.27                  | 16.148            |                             |         |
| 5,000.0  | 4,996.0               | 5,002.9               | 4,996.0               | 11.5             | 11.9          | -90.17                | -141.1                              | -234.9       | 359.8                  | 337.2                   | 22.64                  | 15.891            |                             |         |
| 5,100.0  | 5,096.0               | 5,102.9               | 5,096.0               | 11.7             | 12.1          | -90.17                | -141.1                              | -234.9       | 359.8                  | 336.8                   | 23.00                  | 15.646            |                             |         |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2410 - 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  |
| 5,181.3  | 5,177.2               | 5,184.2               | 5,177.2               | 11.8             | 12.2          | -90.20                | -141.1                              | -234.9       | 359.8                  | 336.5                   | 23.27                  | 15.459             |          |
| 5,200.0  | 5,195.9               | 5,202.9               | 5,195.9               | 11.8             | 12.3          | -90.07                | -141.1                              | -234.9       | 359.8                  | 336.5                   | 23.34                  | 15.415             |          |
| 5,300.0  | 5,293.9               | 5,303.4               | 5,296.2               | 11.9             | 12.4          | -92.35                | -136.4                              | -234.9       | 360.1                  | 336.5                   | 23.62                  | 15.245             |          |
| 5,400.0  | 5,386.5               | 5,407.1               | 5,396.9               | 12.0             | 12.6          | -94.72                | -112.3                              | -235.0       | 360.9                  | 337.1                   | 23.82                  | 15.151             |          |
| 5,500.0  | 5,470.2               | 5,514.1               | 5,493.7               | 12.1             | 12.7          | -96.94                | -67.1                               | -235.1       | 362.1                  | 338.1                   | 24.01                  | 15.078             |          |
| 5,600.0  | 5,542.1               | 5,624.3               | 5,581.6               | 12.3             | 12.7          | -98.91                | -0.9                                | -235.3       | 363.5                  | 339.1                   | 24.33                  | 14.938             |          |
| 5,700.0  | 5,599.4               | 5,737.6               | 5,655.3               | 12.6             | 12.8          | -100.54               | 84.7                                | -235.6       | 364.8                  | 339.8                   | 24.94                  | 14.627             |          |
| 5,800.0  | 5,640.0               | 5,853.2               | 5,709.8               | 13.3             | 13.3          | -101.74               | 186.5                               | -235.9       | 365.7                  | 339.7                   | 25.98                  | 14.074             |          |
| 5,900.0  | 5,662.5               | 5,970.6               | 5,740.7               | 14.1             | 14.2          | -102.45               | 299.4                               | -236.2       | 366.1                  | 338.5                   | 27.58                  | 13.272             |          |
| 6,000.0  | 5,667.0               | 6,082.9               | 5,747.0               | 15.2             | 15.3          | -102.64               | 411.4                               | -236.6       | 365.7                  | 336.1                   | 29.63                  | 12.341             |          |
| 6,100.0  | 5,667.0               | 6,182.9               | 5,747.0               | 16.3             | 16.5          | -102.65               | 511.4                               | -236.9       | 365.2                  | 333.2                   | 31.95                  | 11.431             |          |
| 6,200.0  | 5,667.0               | 6,282.9               | 5,747.0               | 17.7             | 17.8          | -102.67               | 611.4                               | -237.2       | 364.7                  | 330.2                   | 34.51                  | 10.567             |          |
| 6,300.0  | 5,667.0               | 6,382.9               | 5,747.0               | 19.1             | 19.2          | -102.69               | 711.4                               | -237.5       | 364.2                  | 326.9                   | 37.28                  | 9.769              |          |
| 6,400.0  | 5,667.0               | 6,482.9               | 5,747.0               | 20.6             | 20.7          | -102.71               | 811.4                               | -237.8       | 363.6                  | 323.4                   | 40.21                  | 9.044              |          |
| 6,500.0  | 5,667.0               | 6,582.9               | 5,747.0               | 22.1             | 22.3          | -102.73               | 911.4                               | -238.1       | 363.1                  | 319.8                   | 43.27                  | 8.392              |          |
| 6,600.0  | 5,667.0               | 6,682.9               | 5,747.0               | 23.8             | 23.9          | -102.75               | 1,011.4                             | -238.4       | 362.6                  | 316.2                   | 46.43                  | 7.809              |          |
| 6,700.0  | 5,667.0               | 6,782.9               | 5,747.0               | 25.4             | 25.5          | -102.76               | 1,111.4                             | -238.7       | 362.1                  | 312.4                   | 49.68                  | 7.288              |          |
| 6,800.0  | 5,667.0               | 6,882.9               | 5,747.0               | 27.1             | 27.2          | -102.78               | 1,211.4                             | -239.0       | 361.6                  | 308.6                   | 52.99                  | 6.823              |          |
| 6,900.0  | 5,667.0               | 6,982.9               | 5,747.0               | 28.8             | 28.9          | -102.80               | 1,311.4                             | -239.3       | 361.0                  | 304.7                   | 56.36                  | 6.405              |          |
| 7,000.0  | 5,667.0               | 7,082.9               | 5,747.0               | 30.6             | 30.6          | -102.82               | 1,411.4                             | -239.7       | 360.5                  | 300.7                   | 59.78                  | 6.031              |          |
| 7,100.0  | 5,667.0               | 7,182.9               | 5,747.0               | 32.3             | 32.4          | -102.84               | 1,511.4                             | -240.0       | 360.0                  | 296.8                   | 63.24                  | 5.693              |          |
| 7,200.0  | 5,667.0               | 7,282.9               | 5,747.0               | 34.1             | 34.2          | -102.86               | 1,611.4                             | -240.3       | 359.5                  | 292.7                   | 66.73                  | 5.387              |          |
| 7,300.0  | 5,667.0               | 7,382.9               | 5,747.0               | 35.9             | 36.0          | -102.88               | 1,711.4                             | -240.6       | 359.0                  | 288.7                   | 70.24                  | 5.110              |          |
| 7,400.0  | 5,667.0               | 7,482.9               | 5,747.0               | 37.7             | 37.8          | -102.90               | 1,811.4                             | -240.9       | 358.4                  | 284.7                   | 73.78                  | 4.858              |          |
| 7,500.0  | 5,667.0               | 7,582.9               | 5,747.0               | 39.6             | 39.6          | -102.92               | 1,911.4                             | -241.2       | 357.9                  | 280.6                   | 77.35                  | 4.628              |          |
| 7,600.0  | 5,667.0               | 7,682.9               | 5,747.0               | 41.4             | 41.4          | -102.93               | 2,011.4                             | -241.5       | 357.4                  | 276.5                   | 80.92                  | 4.416              |          |
| 7,700.0  | 5,667.0               | 7,782.9               | 5,747.0               | 43.2             | 43.2          | -102.95               | 2,111.4                             | -241.8       | 356.9                  | 272.4                   | 84.52                  | 4.223              |          |
| 7,800.0  | 5,667.0               | 7,882.9               | 5,747.0               | 45.1             | 45.1          | -102.97               | 2,211.4                             | -242.1       | 356.4                  | 268.2                   | 88.12                  | 4.044              |          |
| 7,900.0  | 5,667.0               | 7,982.9               | 5,747.0               | 46.9             | 46.9          | -102.99               | 2,311.4                             | -242.4       | 355.8                  | 264.1                   | 91.74                  | 3.879              |          |
| 8,000.0  | 5,667.0               | 8,082.9               | 5,747.0               | 48.8             | 48.8          | -103.01               | 2,411.4                             | -242.7       | 355.3                  | 260.0                   | 95.37                  | 3.726              |          |
| 8,100.0  | 5,667.0               | 8,182.9               | 5,747.0               | 50.6             | 50.6          | -103.03               | 2,511.4                             | -243.0       | 354.8                  | 255.8                   | 99.01                  | 3.583              |          |
| 8,200.0  | 5,667.0               | 8,282.9               | 5,747.0               | 52.5             | 52.5          | -103.05               | 2,611.4                             | -243.3       | 354.3                  | 251.6                   | 102.66                 | 3.451              |          |
| 8,300.0  | 5,667.0               | 8,382.9               | 5,747.0               | 54.4             | 54.4          | -103.07               | 2,711.4                             | -243.6       | 353.8                  | 247.5                   | 106.31                 | 3.328              |          |
| 8,400.0  | 5,667.0               | 8,482.9               | 5,747.0               | 56.2             | 56.2          | -103.09               | 2,811.4                             | -243.9       | 353.2                  | 243.3                   | 109.97                 | 3.212              |          |
| 8,500.0  | 5,667.0               | 8,582.9               | 5,747.0               | 58.1             | 58.1          | -103.11               | 2,911.4                             | -244.3       | 352.7                  | 239.1                   | 113.64                 | 3.104              |          |
| 8,600.0  | 5,667.0               | 8,682.9               | 5,747.0               | 60.0             | 60.0          | -103.13               | 3,011.4                             | -244.6       | 352.2                  | 234.9                   | 117.31                 | 3.002              |          |
| 8,700.0  | 5,667.0               | 8,782.9               | 5,747.0               | 61.9             | 61.9          | -103.15               | 3,111.4                             | -244.9       | 351.7                  | 230.7                   | 120.98                 | 2.907              |          |
| 8,800.0  | 5,667.0               | 8,882.9               | 5,747.0               | 63.8             | 63.7          | -103.17               | 3,211.4                             | -245.2       | 351.2                  | 226.5                   | 124.66                 | 2.817              |          |
| 8,900.0  | 5,667.0               | 8,982.9               | 5,747.0               | 65.7             | 65.6          | -103.19               | 3,311.4                             | -245.5       | 350.7                  | 222.3                   | 128.35                 | 2.732              |          |
| 9,000.0  | 5,667.0               | 9,082.9               | 5,747.0               | 67.5             | 67.5          | -103.21               | 3,411.4                             | -245.8       | 350.1                  | 218.1                   | 132.03                 | 2.652              |          |
| 9,100.0  | 5,667.0               | 9,182.9               | 5,747.0               | 69.4             | 69.4          | -103.23               | 3,511.4                             | -246.1       | 349.6                  | 213.9                   | 135.72                 | 2.576              |          |
| 9,200.0  | 5,667.0               | 9,282.9               | 5,747.0               | 71.3             | 71.3          | -103.25               | 3,611.4                             | -246.4       | 349.1                  | 209.7                   | 139.42                 | 2.504              |          |
| 9,300.0  | 5,667.0               | 9,382.9               | 5,747.0               | 73.2             | 73.2          | -103.27               | 3,711.4                             | -246.7       | 348.6                  | 205.5                   | 143.11                 | 2.436              |          |
| 9,400.0  | 5,667.0               | 9,482.9               | 5,747.0               | 75.1             | 75.1          | -103.29               | 3,811.4                             | -247.0       | 348.1                  | 201.3                   | 146.81                 | 2.371              |          |
| 9,500.0  | 5,667.0               | 9,582.9               | 5,747.0               | 77.0             | 77.0          | -103.31               | 3,911.4                             | -247.3       | 347.5                  | 197.0                   | 150.51                 | 2.309              |          |
| 9,600.0  | 5,667.0               | 9,682.9               | 5,747.0               | 78.9             | 78.9          | -103.33               | 4,011.4                             | -247.6       | 347.0                  | 192.8                   | 154.21                 | 2.250              |          |
| 9,700.0  | 5,667.0               | 9,782.9               | 5,747.0               | 80.8             | 80.8          | -103.35               | 4,111.4                             | -247.9       | 346.5                  | 188.6                   | 157.91                 | 2.194              |          |
| 9,800.0  | 5,667.0               | 9,882.9               | 5,747.0               | 82.7             | 82.7          | -103.37               | 4,211.4                             | -248.2       | 346.0                  | 184.4                   | 161.62                 | 2.141              |          |
| 9,900.0  | 5,667.0               | 9,982.9               | 5,747.0               | 84.6             | 84.6          | -103.39               | 4,311.4                             | -248.5       | 345.5                  | 180.1                   | 165.32                 | 2.090              |          |
| 10,000.0   | 5,667.0               | 10,082.9              | 5,747.0               | 86.5             | 86.5          | -103.41               | 4,411.4                             | -248.8       | 345.0                  | 175.9                   | 169.03                 | 2.041              |          |
| 10,100.0   | 5,667.0               | 10,182.9              | 5,747.0               | 88.4             | 88.4          | -103.43               | 4,511.4                             | -249.2       | 344.4                  | 171.7                   | 172.74                 | 1.994              |          |
| 10,200.0   | 5,667.0               | 10,282.9              | 5,747.0               | 90.3             | 90.3          | -103.45               | 4,611.4                             | -249.5       | 343.9                  | 167.5                   | 176.45                 | 1.949              |          |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| <b>Offset Design</b> S25-T10N-R58W - Razor 25B -2410 - HZ - Plan #1 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        | <b>Offset Site Error:</b> | 0.0 usft |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|---------------------------|----------|
| Survey Program: 0-ISCSWA MWD  |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        | <b>Offset Well Error:</b> | 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         |          |
| 10,300.0  | 5,667.0               | 10,382.9              | 5,747.0               | 92.2             | 92.2          | -103.47               | 4,711.4                             | -249.8       | 343.4                  | 163.2                   | 180.16                 | 1.906                     |          |
| 10,400.0  | 5,667.0               | 10,482.9              | 5,747.0               | 94.1             | 94.1          | -103.49               | 4,811.4                             | -250.1       | 342.9                  | 159.0                   | 183.87                 | 1.865                     |          |
| 10,500.0  | 5,667.0               | 10,582.9              | 5,747.0               | 96.0             | 96.0          | -103.51               | 4,911.4                             | -250.4       | 342.4                  | 154.8                   | 187.58                 | 1.825                     |          |
| 10,600.0  | 5,667.0               | 10,682.9              | 5,747.0               | 97.9             | 97.9          | -103.53               | 5,011.4                             | -250.7       | 341.8                  | 150.6                   | 191.29                 | 1.787                     |          |
| 10,700.0  | 5,667.0               | 10,782.9              | 5,747.0               | 99.9             | 99.8          | -103.56               | 5,111.4                             | -251.0       | 341.3                  | 146.3                   | 195.01                 | 1.750                     |          |
| 10,800.0  | 5,667.0               | 10,882.9              | 5,747.0               | 101.8            | 101.7         | -103.58               | 5,211.4                             | -251.3       | 340.8                  | 142.1                   | 198.72                 | 1.715                     |          |
| 10,900.0  | 5,667.0               | 10,982.9              | 5,747.0               | 103.7            | 103.6         | -103.60               | 5,311.4                             | -251.6       | 340.3                  | 137.9                   | 202.43                 | 1.681                     |          |
| 11,000.0  | 5,667.0               | 11,082.9              | 5,747.0               | 105.6            | 105.5         | -103.62               | 5,411.3                             | -251.9       | 339.8                  | 133.6                   | 206.15                 | 1.648                     |          |
| 11,064.8  | 5,667.0               | 11,146.8              | 5,747.0               | 106.8            | 106.7         | -103.63               | 5,475.3                             | -252.1       | 339.4                  | 130.9                   | 208.54                 | 1.628 SF                  |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2412 - 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           | 90.02                 | 0.0                                 | 29.9         | 29.9                   |                         |                        |                   |                    |          |
| 100.0  | 100.0                 | 100.0                 | 100.0                 | 0.1              | 0.1           | 90.02                 | 0.0                                 | 29.9         | 29.9                   | 29.7                    | 0.19                   | 160.244           |                    |          |
| 200.0  | 200.0                 | 200.0                 | 200.0                 | 0.3              | 0.3           | 90.02                 | 0.0                                 | 29.9         | 29.9                   | 29.3                    | 0.64                   | 46.997            |                    |          |
| 300.0  | 300.0                 | 300.0                 | 300.0                 | 0.5              | 0.5           | 90.02                 | 0.0                                 | 29.9         | 29.9                   | 28.8                    | 1.09                   | 27.537            |                    |          |
| 400.0  | 400.0                 | 400.0                 | 400.0                 | 0.8              | 0.8           | 90.02                 | 0.0                                 | 29.9         | 29.9                   | 28.4                    | 1.54                   | 19.473            |                    |          |
| 500.0  | 500.0                 | 500.0                 | 500.0                 | 1.0              | 1.0           | -50.86                | 0.0                                 | 29.9         | 28.8                   | 26.8                    | 1.96                   | 14.637            |                    |          |
| 599.7  | 599.6                 | 599.0                 | 599.0                 | 1.2              | 1.2           | -56.56                | -0.3                                | 30.8         | 27.4                   | 25.0                    | 2.37                   | 11.554            |                    |          |
| 600.0  | 599.9                 | 599.3                 | 599.2                 | 1.2              | 1.2           | -57.14                | -0.3                                | 30.8         | 27.2                   | 24.8                    | 2.37                   | 11.475 CC, ES     |                    |          |
| 700.0  | 699.8                 | 698.4                 | 698.3                 | 1.4              | 1.4           | -60.85                | -1.4                                | 35.0         | 28.8                   | 26.1                    | 2.77                   | 10.390            |                    |          |
| 800.0  | 799.7                 | 797.3                 | 796.9                 | 1.6              | 1.6           | -61.13                | -3.4                                | 42.4         | 33.6                   | 30.4                    | 3.21                   | 10.481            |                    |          |
| 900.0  | 899.6                 | 896.1                 | 895.1                 | 1.8              | 1.9           | -59.14                | -6.3                                | 53.0         | 41.4                   | 37.7                    | 3.66                   | 11.306            |                    |          |
| 1,000.0  | 999.5                 | 995.7                 | 993.9                 | 2.0              | 2.1           | -57.26                | -9.4                                | 64.7         | 50.1                   | 46.0                    | 4.12                   | 12.181            |                    |          |
| 1,100.0  | 1,099.4               | 1,095.3               | 1,092.8               | 2.3              | 2.4           | -55.94                | -12.6                               | 76.4         | 58.9                   | 54.3                    | 4.58                   | 12.872            |                    |          |
| 1,200.0  | 1,199.3               | 1,194.9               | 1,191.7               | 2.5              | 2.7           | -54.97                | -15.8                               | 88.1         | 67.8                   | 62.7                    | 5.05                   | 13.428            |                    |          |
| 1,300.0  | 1,299.2               | 1,294.5               | 1,290.5               | 2.7              | 3.0           | -54.22                | -19.0                               | 99.8         | 76.6                   | 71.1                    | 5.52                   | 13.884            |                    |          |
| 1,400.0  | 1,399.1               | 1,394.1               | 1,389.4               | 3.0              | 3.3           | -53.62                | -22.1                               | 111.6        | 85.4                   | 79.5                    | 5.99                   | 14.264            |                    |          |
| 1,500.0  | 1,499.0               | 1,493.7               | 1,488.3               | 3.2              | 3.6           | -53.14                | -25.3                               | 123.3        | 94.3                   | 87.8                    | 6.47                   | 14.585            |                    |          |
| 1,600.0  | 1,598.9               | 1,593.3               | 1,587.1               | 3.5              | 3.9           | -52.74                | -28.5                               | 135.0        | 103.2                  | 96.2                    | 6.94                   | 14.859            |                    |          |
| 1,700.0  | 1,698.9               | 1,692.9               | 1,686.0               | 3.7              | 4.3           | -52.40                | -31.6                               | 146.7        | 112.0                  | 104.6                   | 7.42                   | 15.096            |                    |          |
| 1,800.0  | 1,798.8               | 1,792.5               | 1,784.8               | 3.9              | 4.6           | -52.11                | -34.8                               | 158.4        | 120.9                  | 113.0                   | 7.90                   | 15.304            |                    |          |
| 1,900.0  | 1,898.7               | 1,892.1               | 1,883.7               | 4.2              | 4.9           | -51.86                | -38.0                               | 170.1        | 129.8                  | 121.4                   | 8.38                   | 15.486            |                    |          |
| 2,000.0  | 1,998.6               | 1,991.8               | 1,982.6               | 4.4              | 5.2           | -51.65                | -41.2                               | 181.9        | 138.6                  | 129.8                   | 8.86                   | 15.648            |                    |          |
| 2,100.0  | 2,098.5               | 2,091.4               | 2,081.4               | 4.7              | 5.5           | -51.45                | -44.3                               | 193.6        | 147.5                  | 138.2                   | 9.34                   | 15.793            |                    |          |
| 2,200.0  | 2,198.4               | 2,191.0               | 2,180.3               | 4.9              | 5.8           | -51.29                | -47.5                               | 205.3        | 156.4                  | 146.6                   | 9.82                   | 15.923            |                    |          |
| 2,300.0  | 2,298.3               | 2,290.6               | 2,279.1               | 5.1              | 6.1           | -51.14                | -50.7                               | 217.0        | 165.3                  | 155.0                   | 10.30                  | 16.041            |                    |          |
| 2,400.0  | 2,398.2               | 2,390.2               | 2,378.0               | 5.4              | 6.5           | -51.00                | -53.9                               | 228.7        | 174.2                  | 163.4                   | 10.79                  | 16.148            |                    |          |
| 2,500.0  | 2,498.1               | 2,489.8               | 2,476.9               | 5.6              | 6.8           | -50.88                | -57.0                               | 240.4        | 183.0                  | 171.8                   | 11.27                  | 16.246            |                    |          |
| 2,600.0  | 2,598.0               | 2,589.4               | 2,575.7               | 5.9              | 7.1           | -50.77                | -60.2                               | 252.1        | 191.9                  | 180.2                   | 11.75                  | 16.336            |                    |          |
| 2,700.0  | 2,697.9               | 2,689.0               | 2,674.6               | 6.1              | 7.4           | -50.67                | -63.4                               | 263.9        | 200.8                  | 188.6                   | 12.23                  | 16.418            |                    |          |
| 2,800.0  | 2,797.8               | 2,788.6               | 2,773.5               | 6.3              | 7.7           | -50.57                | -66.5                               | 275.6        | 209.7                  | 197.0                   | 12.71                  | 16.495            |                    |          |
| 2,900.0  | 2,897.7               | 2,888.2               | 2,872.3               | 6.6              | 8.1           | -50.49                | -69.7                               | 287.3        | 218.6                  | 205.4                   | 13.19                  | 16.566            |                    |          |
| 3,000.0  | 2,997.6               | 2,987.8               | 2,971.2               | 6.8              | 8.4           | -50.41                | -72.9                               | 299.0        | 227.5                  | 213.8                   | 13.68                  | 16.632            |                    |          |
| 3,100.0  | 3,097.5               | 3,087.4               | 3,070.0               | 7.1              | 8.7           | -50.34                | -76.1                               | 310.7        | 236.3                  | 222.2                   | 14.16                  | 16.693            |                    |          |
| 3,200.0  | 3,197.4               | 3,187.0               | 3,168.9               | 7.3              | 9.0           | -50.27                | -79.2                               | 322.4        | 245.2                  | 230.6                   | 14.64                  | 16.751            |                    |          |
| 3,300.0  | 3,297.3               | 3,286.6               | 3,267.8               | 7.5              | 9.3           | -50.21                | -82.4                               | 334.1        | 254.1                  | 239.0                   | 15.12                  | 16.805            |                    |          |
| 3,400.0  | 3,397.3               | 3,386.2               | 3,366.6               | 7.8              | 9.7           | -50.15                | -85.6                               | 345.9        | 263.0                  | 247.4                   | 15.60                  | 16.856            |                    |          |
| 3,500.0  | 3,497.2               | 3,485.8               | 3,465.5               | 8.0              | 10.0          | -50.09                | -88.8                               | 357.6        | 271.9                  | 255.8                   | 16.08                  | 16.903            |                    |          |
| 3,600.0  | 3,597.1               | 3,585.4               | 3,564.4               | 8.3              | 10.3          | -50.04                | -91.9                               | 369.3        | 280.8                  | 264.2                   | 16.57                  | 16.949            |                    |          |
| 3,700.0  | 3,697.0               | 3,685.0               | 3,663.2               | 8.5              | 10.6          | -50.00                | -95.1                               | 381.0        | 289.7                  | 272.6                   | 17.05                  | 16.992            |                    |          |
| 3,800.0  | 3,796.9               | 3,784.6               | 3,762.1               | 8.7              | 11.0          | -49.95                | -98.3                               | 392.7        | 298.5                  | 281.0                   | 17.53                  | 17.032            |                    |          |
| 3,900.0  | 3,896.8               | 3,884.2               | 3,860.9               | 9.0              | 11.3          | -49.91                | -101.4                              | 404.4        | 307.4                  | 289.4                   | 18.01                  | 17.071            |                    |          |
| 4,000.0  | 3,996.7               | 3,983.8               | 3,959.8               | 9.2              | 11.6          | -49.87                | -104.6                              | 416.2        | 316.3                  | 297.8                   | 18.49                  | 17.108            |                    |          |
| 4,100.0  | 4,096.6               | 4,083.4               | 4,058.7               | 9.5              | 11.9          | -49.83                | -107.8                              | 427.9        | 325.2                  | 306.2                   | 18.97                  | 17.143            |                    |          |
| 4,200.0  | 4,196.5               | 4,183.0               | 4,157.5               | 9.7              | 12.2          | -49.79                | -111.0                              | 439.6        | 334.1                  | 314.6                   | 19.45                  | 17.176            |                    |          |
| 4,300.0  | 4,296.4               | 4,282.6               | 4,256.4               | 9.9              | 12.6          | -49.76                | -114.1                              | 451.3        | 343.0                  | 323.0                   | 19.93                  | 17.208            |                    |          |
| 4,400.0  | 4,396.3               | 4,382.3               | 4,355.2               | 10.2             | 12.9          | -49.73                | -117.3                              | 463.0        | 351.9                  | 331.5                   | 20.41                  | 17.239            |                    |          |
| 4,500.0  | 4,496.2               | 4,481.9               | 4,454.1               | 10.4             | 13.2          | -49.70                | -120.5                              | 474.7        | 360.8                  | 339.9                   | 20.89                  | 17.268            |                    |          |
| 4,600.0  | 4,596.1               | 4,581.5               | 4,553.0               | 10.7             | 13.5          | -49.67                | -123.7                              | 486.4        | 369.6                  | 348.3                   | 21.37                  | 17.297            |                    |          |
| 4,700.0  | 4,696.0               | 4,692.0               | 4,662.8               | 10.9             | 13.8          | -49.69                | -126.8                              | 498.2        | 377.4                  | 355.6                   | 21.85                  | 17.274            |                    |          |
| 4,800.0  | 4,796.0               | 4,806.4               | 4,776.9               | 11.1             | 14.1          | -49.83                | -129.0                              | 506.1        | 382.2                  | 359.9                   | 22.26                  | 17.172            |                    |          |
| 4,900.0  | 4,896.0               | 4,921.1               | 4,891.5               | 11.3             | 14.2          | 88.50                 | -130.0                              | 509.7        | 384.9                  | 362.4                   | 22.60                  | 17.036            |                    |          |
| 5,000.0  | 4,996.0               | 5,025.5               | 4,996.0               | 11.5             | 14.4          | 88.51                 | -130.0                              | 509.9        | 385.1                  | 362.2                   | 22.96                  | 16.774            |                    |          |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2412 - 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  | 5,096.0               | 5,125.5               | 5,096.0               | 11.7             | 14.6          | 88.51                 | -130.0                              | 509.9        | 385.1                  | 361.8                   | 23.32                  | 16.516             |          |
| 5,200.0  | 5,195.9               | 5,225.4               | 5,195.9               | 11.8             | 14.7          | 89.35                 | -130.0                              | 509.9        | 385.1                  | 361.4                   | 23.68                  | 16.263             |          |
| 5,235.9  | 5,231.4               | 5,261.0               | 5,231.5               | 11.9             | 14.8          | 90.04                 | -130.0                              | 509.9        | 385.1                  | 361.3                   | 23.75                  | 16.212             |          |
| 5,300.0  | 5,293.9               | 5,325.5               | 5,295.8               | 11.9             | 14.9          | 91.50                 | -125.3                              | 509.8        | 385.2                  | 361.3                   | 23.86                  | 16.140             |          |
| 5,400.0  | 5,386.5               | 5,428.6               | 5,395.9               | 12.0             | 15.0          | 93.76                 | -101.5                              | 509.4        | 385.6                  | 361.6                   | 23.98                  | 16.080             |          |
| 5,500.0  | 5,470.2               | 5,535.0               | 5,492.3               | 12.1             | 15.0          | 95.90                 | -56.9                               | 508.6        | 386.4                  | 362.3                   | 24.14                  | 16.005             |          |
| 5,600.0  | 5,542.1               | 5,644.7               | 5,579.9               | 12.3             | 15.1          | 97.85                 | 8.6                                 | 507.4        | 387.3                  | 362.9                   | 24.45                  | 15.840             |          |
| 5,700.0  | 5,599.4               | 5,757.3               | 5,653.7               | 12.6             | 15.2          | 99.50                 | 93.5                                | 505.8        | 388.2                  | 363.1                   | 25.05                  | 15.497             |          |
| 5,800.0  | 5,640.0               | 5,872.6               | 5,708.6               | 13.3             | 15.4          | 100.78                | 194.5                               | 504.0        | 388.7                  | 362.7                   | 26.06                  | 14.916             |          |
| 5,900.0  | 5,662.5               | 5,989.7               | 5,740.2               | 14.1             | 15.9          | 101.61                | 307.0                               | 501.9        | 388.7                  | 361.1                   | 27.55                  | 14.109             |          |
| 6,000.0  | 5,667.0               | 6,102.5               | 5,747.0               | 15.2             | 16.7          | 101.90                | 419.5                               | 499.8        | 388.0                  | 358.5                   | 29.50                  | 13.150             |          |
| 6,100.0  | 5,667.0               | 6,202.5               | 5,747.0               | 16.3             | 17.7          | 101.93                | 519.5                               | 498.0        | 387.0                  | 355.2                   | 31.77                  | 12.181             |          |
| 6,200.0  | 5,667.0               | 6,302.5               | 5,747.0               | 17.7             | 18.9          | 101.96                | 619.4                               | 496.2        | 386.1                  | 351.7                   | 34.31                  | 11.253             |          |
| 6,300.0  | 5,667.0               | 6,402.5               | 5,747.0               | 19.1             | 20.2          | 101.99                | 719.4                               | 494.4        | 385.1                  | 348.0                   | 37.06                  | 10.392             |          |
| 6,400.0  | 5,667.0               | 6,502.5               | 5,747.0               | 20.6             | 21.6          | 102.02                | 819.4                               | 492.5        | 384.1                  | 344.1                   | 39.97                  | 9.610              |          |
| 6,500.0  | 5,667.0               | 6,602.5               | 5,747.0               | 22.1             | 23.1          | 102.05                | 919.4                               | 490.7        | 383.1                  | 340.1                   | 43.02                  | 8.906              |          |
| 6,600.0  | 5,667.0               | 6,702.5               | 5,747.0               | 23.8             | 24.6          | 102.08                | 1,019.3                             | 488.9        | 382.2                  | 336.0                   | 46.18                  | 8.277              |          |
| 6,700.0  | 5,667.0               | 6,802.5               | 5,747.0               | 25.4             | 26.2          | 102.11                | 1,119.3                             | 487.1        | 381.2                  | 331.8                   | 49.42                  | 7.714              |          |
| 6,800.0  | 5,667.0               | 6,902.5               | 5,747.0               | 27.1             | 27.8          | 102.15                | 1,219.3                             | 485.2        | 380.2                  | 327.5                   | 52.73                  | 7.211              |          |
| 6,900.0  | 5,667.0               | 7,002.5               | 5,747.0               | 28.8             | 29.5          | 102.18                | 1,319.3                             | 483.4        | 379.3                  | 323.2                   | 56.10                  | 6.760              |          |
| 7,000.0  | 5,667.0               | 7,102.5               | 5,747.0               | 30.6             | 31.2          | 102.21                | 1,419.3                             | 481.6        | 378.3                  | 318.8                   | 59.52                  | 6.356              |          |
| 7,100.0  | 5,667.0               | 7,202.5               | 5,747.0               | 32.3             | 32.9          | 102.24                | 1,519.2                             | 479.7        | 377.3                  | 314.4                   | 62.98                  | 5.992              |          |
| 7,200.0  | 5,667.0               | 7,302.5               | 5,747.0               | 34.1             | 34.7          | 102.27                | 1,619.2                             | 477.9        | 376.4                  | 309.9                   | 66.47                  | 5.662              |          |
| 7,300.0  | 5,667.0               | 7,402.5               | 5,747.0               | 35.9             | 36.4          | 102.30                | 1,719.2                             | 476.1        | 375.4                  | 305.4                   | 69.99                  | 5.364              |          |
| 7,400.0  | 5,667.0               | 7,502.5               | 5,747.0               | 37.7             | 38.2          | 102.34                | 1,819.2                             | 474.3        | 374.4                  | 300.9                   | 73.53                  | 5.092              |          |
| 7,500.0  | 5,667.0               | 7,602.5               | 5,747.0               | 39.6             | 40.0          | 102.37                | 1,919.2                             | 472.4        | 373.5                  | 296.4                   | 77.10                  | 4.844              |          |
| 7,600.0  | 5,667.0               | 7,702.4               | 5,747.0               | 41.4             | 41.8          | 102.40                | 2,019.1                             | 470.6        | 372.5                  | 291.8                   | 80.68                  | 4.617              |          |
| 7,700.0  | 5,667.0               | 7,802.4               | 5,747.0               | 43.2             | 43.6          | 102.43                | 2,119.1                             | 468.8        | 371.6                  | 287.3                   | 84.28                  | 4.409              |          |
| 7,800.0  | 5,667.0               | 7,902.4               | 5,747.0               | 45.1             | 45.4          | 102.47                | 2,219.1                             | 466.9        | 370.6                  | 282.7                   | 87.89                  | 4.216              |          |
| 7,900.0  | 5,667.0               | 8,002.4               | 5,747.0               | 46.9             | 47.3          | 102.50                | 2,319.1                             | 465.1        | 369.6                  | 278.1                   | 91.51                  | 4.039              |          |
| 8,000.0  | 5,667.0               | 8,102.4               | 5,747.0               | 48.8             | 49.1          | 102.53                | 2,419.0                             | 463.3        | 368.7                  | 273.5                   | 95.15                  | 3.875              |          |
| 8,100.0  | 5,667.0               | 8,202.4               | 5,747.0               | 50.6             | 50.9          | 102.57                | 2,519.0                             | 461.5        | 367.7                  | 268.9                   | 98.79                  | 3.722              |          |
| 8,200.0  | 5,667.0               | 8,302.4               | 5,747.0               | 52.5             | 52.8          | 102.60                | 2,619.0                             | 459.6        | 366.7                  | 264.3                   | 102.44                 | 3.580              |          |
| 8,300.0  | 5,667.0               | 8,402.4               | 5,747.0               | 54.4             | 54.6          | 102.63                | 2,719.0                             | 457.8        | 365.8                  | 259.7                   | 106.09                 | 3.447              |          |
| 8,400.0  | 5,667.0               | 8,502.4               | 5,747.0               | 56.2             | 56.5          | 102.67                | 2,819.0                             | 456.0        | 364.8                  | 255.0                   | 109.76                 | 3.324              |          |
| 8,500.0  | 5,667.0               | 8,602.4               | 5,747.0               | 58.1             | 58.4          | 102.70                | 2,918.9                             | 454.2        | 363.8                  | 250.4                   | 113.43                 | 3.208              |          |
| 8,600.0  | 5,667.0               | 8,702.4               | 5,747.0               | 60.0             | 60.2          | 102.74                | 3,018.9                             | 452.3        | 362.9                  | 245.8                   | 117.10                 | 3.099              |          |
| 8,700.0  | 5,667.0               | 8,802.4               | 5,747.0               | 61.9             | 62.1          | 102.77                | 3,118.9                             | 450.5        | 361.9                  | 241.1                   | 120.78                 | 2.996              |          |
| 8,800.0  | 5,667.0               | 8,902.4               | 5,747.0               | 63.8             | 64.0          | 102.81                | 3,218.9                             | 448.7        | 360.9                  | 236.5                   | 124.46                 | 2.900              |          |
| 8,900.0  | 5,667.0               | 9,002.4               | 5,747.0               | 65.7             | 65.8          | 102.84                | 3,318.9                             | 446.8        | 360.0                  | 231.8                   | 128.14                 | 2.809              |          |
| 9,000.0  | 5,667.0               | 9,102.4               | 5,747.0               | 67.5             | 67.7          | 102.88                | 3,418.8                             | 445.0        | 359.0                  | 227.2                   | 131.83                 | 2.723              |          |
| 9,100.0  | 5,667.0               | 9,202.4               | 5,747.0               | 69.4             | 69.6          | 102.91                | 3,518.8                             | 443.2        | 358.0                  | 222.5                   | 135.52                 | 2.642              |          |
| 9,200.0  | 5,667.0               | 9,302.4               | 5,747.0               | 71.3             | 71.5          | 102.95                | 3,618.8                             | 441.4        | 357.1                  | 217.9                   | 139.21                 | 2.565              |          |
| 9,300.0  | 5,667.0               | 9,402.4               | 5,747.0               | 73.2             | 73.4          | 102.98                | 3,718.8                             | 439.5        | 356.1                  | 213.2                   | 142.91                 | 2.492              |          |
| 9,400.0  | 5,667.0               | 9,502.4               | 5,747.0               | 75.1             | 75.3          | 103.02                | 3,818.7                             | 437.7        | 355.2                  | 208.5                   | 146.61                 | 2.422              |          |
| 9,500.0  | 5,667.0               | 9,602.4               | 5,747.0               | 77.0             | 77.1          | 103.05                | 3,918.7                             | 435.9        | 354.2                  | 203.9                   | 150.30                 | 2.356              |          |
| 9,600.0  | 5,667.0               | 9,702.4               | 5,747.0               | 78.9             | 79.0          | 103.09                | 4,018.7                             | 434.0        | 353.2                  | 199.2                   | 154.00                 | 2.294              |          |
| 9,700.0  | 5,667.0               | 9,802.3               | 5,747.0               | 80.8             | 80.9          | 103.13                | 4,118.7                             | 432.2        | 352.3                  | 194.6                   | 157.71                 | 2.234              |          |
| 9,800.0  | 5,667.0               | 9,902.3               | 5,747.0               | 82.7             | 82.8          | 103.16                | 4,218.7                             | 430.4        | 351.3                  | 189.9                   | 161.41                 | 2.176              |          |
| 9,900.0  | 5,667.0               | 10,002.3              | 5,747.0               | 84.6             | 84.7          | 103.20                | 4,318.6                             | 428.6        | 350.3                  | 185.2                   | 165.11                 | 2.122              |          |
| 10,000.0   | 5,667.0               | 10,102.3              | 5,747.0               | 86.5             | 86.6          | 103.24                | 4,418.6                             | 426.7        | 349.4                  | 180.6                   | 168.81                 | 2.070              |          |
| 10,100.0   | 5,667.0               | 10,202.3              | 5,747.0               | 88.4             | 88.5          | 103.27                | 4,518.6                             | 424.9        | 348.4                  | 175.9                   | 172.52                 | 2.020              |          |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| <b>Offset Design</b> S25-T10N-R58W - Razor 25B -2412 - HZ - Plan #1 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        | <b>Offset Site Error:</b> | 0.0 usft |
|---|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------|---------------------------|----------|
| Survey Program: 0-ISCSWA MWD  |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        | <b>Offset Well Error:</b> | 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  |
| 10,200.0  | 5,667.0               | 10,302.3              | 5,747.0               | 90.3             | 90.4          | 103.31                | 4,618.6                             | 423.1        | 347.4                  | 171.2                   | 176.22                 | 1.972                     |          |
| 10,300.0  | 5,667.0               | 10,402.3              | 5,747.0               | 92.2             | 92.3          | 103.35                | 4,718.5                             | 421.2        | 346.5                  | 166.6                   | 179.93                 | 1.926                     |          |
| 10,400.0  | 5,667.0               | 10,502.3              | 5,747.0               | 94.1             | 94.2          | 103.39                | 4,818.5                             | 419.4        | 345.5                  | 161.9                   | 183.63                 | 1.882                     |          |
| 10,500.0  | 5,667.0               | 10,602.3              | 5,747.0               | 96.0             | 96.1          | 103.43                | 4,918.5                             | 417.6        | 344.6                  | 157.2                   | 187.34                 | 1.839                     |          |
| 10,600.0  | 5,667.0               | 10,702.3              | 5,747.0               | 97.9             | 98.0          | 103.46                | 5,018.5                             | 415.8        | 343.6                  | 152.6                   | 191.04                 | 1.799                     |          |
| 10,700.0  | 5,667.0               | 10,802.3              | 5,747.0               | 99.9             | 99.9          | 103.50                | 5,118.5                             | 413.9        | 342.6                  | 147.9                   | 194.75                 | 1.759                     |          |
| 10,800.0  | 5,667.0               | 10,902.3              | 5,747.0               | 101.8            | 101.8         | 103.54                | 5,218.4                             | 412.1        | 341.7                  | 143.2                   | 198.45                 | 1.722                     |          |
| 10,900.0  | 5,667.0               | 11,002.3              | 5,747.0               | 103.7            | 103.7         | 103.58                | 5,318.4                             | 410.3        | 340.7                  | 138.6                   | 202.16                 | 1.685                     |          |
| 11,000.0  | 5,667.0               | 11,102.3              | 5,747.0               | 105.6            | 105.6         | 103.62                | 5,418.4                             | 408.5        | 339.8                  | 133.9                   | 205.86                 | 1.650                     |          |
| 11,063.5  | 5,667.0               | 11,162.1              | 5,747.0               | 106.8            | 106.8         | 103.64                | 5,478.2                             | 407.4        | 339.2                  | 131.0                   | 208.15                 | 1.629                     |          |
| 11,064.8  | 5,667.0               | 11,162.1              | 5,747.0               | 106.8            | 106.8         | 103.64                | 5,478.2                             | 407.4        | 339.2                  | 131.0                   | 208.17                 | 1.629 SF                  |          |



# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2549 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        |                   | 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 |                             |         |
| 0.0  | 0.0                   | 0.0                   | 0.0                   | 0.0              | 0.0           | -108.66               | -50.7                               | -150.0       | 158.3                  |                         |                        |                   |                             |         |
| 100.0  | 100.0                 | 100.0                 | 100.0                 | 0.1              | 0.1           | -108.66               | -50.7                               | -150.0       | 158.3                  | 158.2                   | 0.19                   | 848.803           |                             |         |
| 200.0  | 200.0                 | 200.0                 | 200.0                 | 0.3              | 0.3           | -108.66               | -50.7                               | -150.0       | 158.3                  | 157.7                   | 0.64                   | 248.942           |                             |         |
| 300.0  | 300.0                 | 300.0                 | 300.0                 | 0.5              | 0.5           | -108.66               | -50.7                               | -150.0       | 158.3                  | 157.3                   | 1.09                   | 145.861           |                             |         |
| 400.0  | 400.0                 | 400.0                 | 400.0                 | 0.8              | 0.8           | -108.66               | -50.7                               | -150.0       | 158.3                  | 156.8                   | 1.54                   | 103.149           | CC, ES                      |         |
| 500.0  | 500.0                 | 500.0                 | 500.0                 | 1.0              | 1.0           | 113.64                | -50.7                               | -150.0       | 159.0                  | 157.1                   | 1.96                   | 80.991            |                             |         |
| 600.0  | 599.9                 | 595.3                 | 595.3                 | 1.2              | 1.2           | 115.25                | -50.2                               | -151.6       | 162.2                  | 159.8                   | 2.37                   | 68.499            |                             |         |
| 700.0  | 699.8                 | 690.2                 | 690.1                 | 1.4              | 1.4           | 117.37                | -49.0                               | -156.1       | 168.4                  | 165.6                   | 2.79                   | 60.457            |                             |         |
| 800.0  | 799.7                 | 784.5                 | 784.0                 | 1.6              | 1.6           | 119.79                | -46.9                               | -163.6       | 177.8                  | 174.6                   | 3.22                   | 55.252            |                             |         |
| 900.0  | 899.6                 | 877.9                 | 876.8                 | 1.8              | 1.9           | 122.35                | -44.1                               | -174.0       | 190.4                  | 186.8                   | 3.66                   | 52.030            |                             |         |
| 1,000.0  | 999.5                 | 970.2                 | 968.1                 | 2.0              | 2.1           | 124.90                | -40.5                               | -187.2       | 206.4                  | 202.3                   | 4.11                   | 50.229            |                             |         |
| 1,100.0  | 1,099.4               | 1,062.4               | 1,058.8               | 2.3              | 2.4           | 127.35                | -36.1                               | -203.1       | 225.7                  | 221.1                   | 4.57                   | 49.415            |                             |         |
| 1,200.0  | 1,199.3               | 1,159.8               | 1,154.4               | 2.5              | 2.8           | 129.61                | -31.3                               | -220.9       | 246.5                  | 241.4                   | 5.03                   | 49.002            |                             |         |
| 1,300.0  | 1,299.2               | 1,257.2               | 1,250.0               | 2.7              | 3.2           | 131.53                | -26.4                               | -238.8       | 267.6                  | 262.1                   | 5.49                   | 48.716            |                             |         |
| 1,400.0  | 1,399.1               | 1,354.6               | 1,345.7               | 3.0              | 3.6           | 133.16                | -21.5                               | -256.7       | 288.9                  | 282.9                   | 5.96                   | 48.498            |                             |         |
| 1,500.0  | 1,499.0               | 1,452.0               | 1,441.3               | 3.2              | 4.0           | 134.57                | -16.6                               | -274.5       | 310.4                  | 304.0                   | 6.42                   | 48.321            |                             |         |
| 1,600.0  | 1,598.9               | 1,549.4               | 1,536.9               | 3.5              | 4.3           | 135.80                | -11.7                               | -292.4       | 332.1                  | 325.2                   | 6.89                   | 48.191            |                             |         |
| 1,700.0  | 1,698.9               | 1,646.8               | 1,632.5               | 3.7              | 4.7           | 136.88                | -6.8                                | -310.3       | 353.9                  | 346.5                   | 7.36                   | 48.083            |                             |         |
| 1,800.0  | 1,798.8               | 1,744.1               | 1,728.1               | 3.9              | 5.1           | 137.83                | -1.9                                | -328.1       | 375.8                  | 368.0                   | 7.83                   | 47.996            |                             |         |
| 1,900.0  | 1,898.7               | 1,841.5               | 1,823.7               | 4.2              | 5.6           | 138.68                | 3.0                                 | -346.0       | 397.8                  | 389.5                   | 8.30                   | 47.924            |                             |         |
| 2,000.0  | 1,998.6               | 1,938.9               | 1,919.3               | 4.4              | 6.0           | 139.43                | 7.9                                 | -363.9       | 419.9                  | 411.1                   | 8.77                   | 47.865            |                             |         |
| 2,100.0  | 2,098.5               | 2,036.3               | 2,014.9               | 4.7              | 6.4           | 140.12                | 12.7                                | -381.7       | 442.0                  | 432.8                   | 9.24                   | 47.815            |                             |         |
| 2,200.0  | 2,198.4               | 2,133.7               | 2,110.6               | 4.9              | 6.8           | 140.74                | 17.6                                | -399.6       | 464.2                  | 454.5                   | 9.72                   | 47.773            |                             |         |
| 2,300.0  | 2,298.3               | 2,231.1               | 2,206.2               | 5.1              | 7.2           | 141.30                | 22.5                                | -417.5       | 486.4                  | 476.3                   | 10.19                  | 47.738            |                             |         |
| 2,400.0  | 2,398.2               | 2,328.5               | 2,301.8               | 5.4              | 7.6           | 141.81                | 27.4                                | -435.3       | 508.7                  | 498.1                   | 10.66                  | 47.708            |                             |         |
| 2,500.0  | 2,498.1               | 2,425.9               | 2,397.4               | 5.6              | 8.0           | 142.28                | 32.3                                | -453.2       | 531.0                  | 519.9                   | 11.14                  | 47.682            |                             |         |
| 2,600.0  | 2,598.0               | 2,523.3               | 2,493.0               | 5.9              | 8.4           | 142.71                | 37.2                                | -471.1       | 553.4                  | 541.8                   | 11.61                  | 47.661            |                             |         |
| 2,700.0  | 2,697.9               | 2,620.7               | 2,588.6               | 6.1              | 8.8           | 143.11                | 42.1                                | -489.0       | 575.8                  | 563.7                   | 12.08                  | 47.643            |                             |         |
| 2,800.0  | 2,797.8               | 2,718.0               | 2,684.2               | 6.3              | 9.2           | 143.48                | 47.0                                | -506.8       | 598.2                  | 585.6                   | 12.56                  | 47.628            |                             |         |
| 2,900.0  | 2,897.7               | 2,815.4               | 2,779.8               | 6.6              | 9.7           | 143.82                | 51.9                                | -524.7       | 620.6                  | 607.5                   | 13.03                  | 47.616            |                             |         |
| 3,000.0  | 2,997.6               | 2,912.8               | 2,875.4               | 6.8              | 10.1          | 144.14                | 56.7                                | -542.6       | 643.0                  | 629.5                   | 13.51                  | 47.607            |                             |         |
| 3,100.0  | 3,097.5               | 3,010.2               | 2,971.1               | 7.1              | 10.5          | 144.44                | 61.6                                | -560.4       | 665.5                  | 651.5                   | 13.98                  | 47.599            |                             |         |
| 3,200.0  | 3,197.4               | 3,107.6               | 3,066.7               | 7.3              | 10.9          | 144.71                | 66.5                                | -578.3       | 687.9                  | 673.5                   | 14.45                  | 47.593            |                             |         |
| 3,300.0  | 3,297.3               | 3,205.0               | 3,162.3               | 7.5              | 11.3          | 144.97                | 71.4                                | -596.2       | 710.4                  | 695.5                   | 14.93                  | 47.589            |                             |         |
| 3,400.0  | 3,397.3               | 3,302.4               | 3,257.9               | 7.8              | 11.7          | 145.22                | 76.3                                | -614.0       | 732.9                  | 717.5                   | 15.40                  | 47.587            |                             |         |
| 3,500.0  | 3,497.2               | 3,399.8               | 3,353.5               | 8.0              | 12.1          | 145.45                | 81.2                                | -631.9       | 755.4                  | 739.6                   | 15.88                  | 47.586            |                             |         |
| 3,600.0  | 3,597.1               | 3,497.2               | 3,449.1               | 8.3              | 12.6          | 145.66                | 86.1                                | -649.8       | 778.0                  | 761.6                   | 16.35                  | 47.587            |                             |         |
| 3,700.0  | 3,697.0               | 3,594.6               | 3,544.7               | 8.5              | 13.0          | 145.87                | 91.0                                | -667.6       | 800.5                  | 783.7                   | 16.82                  | 47.589            |                             |         |
| 3,800.0  | 3,796.9               | 3,691.9               | 3,640.3               | 8.7              | 13.4          | 146.06                | 95.9                                | -685.5       | 823.0                  | 805.7                   | 17.29                  | 47.592            |                             |         |
| 3,900.0  | 3,896.8               | 3,789.3               | 3,736.0               | 9.0              | 13.8          | 146.24                | 100.8                               | -703.4       | 845.6                  | 827.8                   | 17.77                  | 47.596            |                             |         |
| 4,000.0  | 3,996.7               | 3,886.7               | 3,831.6               | 9.2              | 14.2          | 146.41                | 105.6                               | -721.2       | 868.1                  | 849.9                   | 18.24                  | 47.601            |                             |         |
| 4,100.0  | 4,096.6               | 3,984.1               | 3,927.2               | 9.5              | 14.6          | 146.58                | 110.5                               | -739.1       | 890.7                  | 872.0                   | 18.71                  | 47.607            |                             |         |
| 4,200.0  | 4,196.5               | 4,081.5               | 4,022.8               | 9.7              | 15.1          | 146.74                | 115.4                               | -757.0       | 913.3                  | 894.1                   | 19.18                  | 47.614            |                             |         |
| 4,300.0  | 4,296.4               | 4,178.9               | 4,118.4               | 9.9              | 15.5          | 146.88                | 120.3                               | -774.8       | 935.9                  | 916.2                   | 19.65                  | 47.622            |                             |         |
| 4,400.0  | 4,396.3               | 4,276.3               | 4,214.0               | 10.2             | 15.9          | 147.03                | 125.2                               | -792.7       | 958.4                  | 938.3                   | 20.13                  | 47.619            |                             |         |
| 4,500.0  | 4,496.2               | 4,373.7               | 4,309.6               | 10.4             | 16.3          | 147.16                | 130.1                               | -810.6       | 981.0                  | 960.4                   | 20.61                  | 47.607            |                             |         |
| 4,600.0  | 4,596.1               | 4,471.1               | 4,405.2               | 10.7             | 16.7          | 147.29                | 135.0                               | -828.4       | 1,003.6                | 982.5                   | 21.09                  | 47.596            |                             |         |
| 4,700.0  | 4,696.0               | 4,616.5               | 4,548.5               | 10.9             | 17.2          | 147.47                | 141.5                               | -852.1       | 1,024.2                | 1,002.6                 | 21.62                  | 47.373            |                             |         |
| 4,800.0  | 4,796.0               | 4,771.1               | 4,702.0               | 11.1             | 17.5          | 147.73                | 146.2                               | -869.6       | 1,038.8                | 1,016.6                 | 22.16                  | 46.865            |                             |         |
| 4,900.0  | 4,896.0               | 4,927.9               | 4,858.5               | 11.3             | 17.8          | -73.95                | 148.9                               | -879.2       | 1,045.4                | 1,022.8                 | 22.66                  | 46.138            |                             |         |
| 5,000.0  | 4,996.0               | 5,065.3               | 4,996.0               | 11.5             | 18.0          | -73.95                | 149.3                               | -880.9       | 1,046.6                | 1,023.5                 | 23.07                  | 45.370            |                             |         |
| 5,100.0  | 5,096.0               | 5,165.3               | 5,096.0               | 11.7             | 18.1          | -73.95                | 149.3                               | -880.9       | 1,046.6                | 1,023.2                 | 23.43                  | 44.668            |                             |         |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2549 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        |                   | 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  | 5,195.9               | 5,265.3               | 5,195.9               | 11.8             | 18.3          | -73.67                | 149.3                               | -880.9       | 1,045.9                | 1,022.1                 | 23.83                  | 43.898            |                    |          |
| 5,300.0  | 5,293.9               | 5,417.1               | 5,347.3               | 11.9             | 18.4          | -76.38                | 142.2                               | -880.5       | 1,039.9                | 1,015.6                 | 24.27                  | 42.844            |                    |          |
| 5,400.0  | 5,386.5               | 5,587.8               | 5,508.1               | 12.0             | 18.4          | -84.25                | 87.2                                | -877.3       | 1,023.1                | 998.3                   | 24.74                  | 41.347            |                    |          |
| 5,500.0  | 5,470.2               | 5,658.4               | 5,567.8               | 12.1             | 18.4          | -89.67                | 49.7                                | -875.2       | 1,006.8                | 981.7                   | 25.04                  | 40.206            |                    |          |
| 5,600.0  | 5,542.1               | 5,678.2               | 5,583.6               | 12.3             | 18.4          | -91.68                | 37.7                                | -874.5       | 998.7                  | 973.4                   | 25.29                  | 39.492            |                    |          |
| 5,628.1  | 5,559.7               | 5,678.6               | 5,583.9               | 12.3             | 18.4          | -91.75                | 37.5                                | -874.5       | 998.3                  | 972.9                   | 25.40                  | 39.307            |                    |          |
| 5,700.0  | 5,599.4               | 5,673.0               | 5,579.4               | 12.6             | 18.4          | -91.12                | 40.9                                | -874.7       | 1,001.0                | 975.3                   | 25.69                  | 38.967            |                    |          |
| 5,800.0  | 5,640.0               | 5,650.0               | 5,561.0               | 13.3             | 18.4          | -88.48                | 54.5                                | -875.5       | 1,013.4                | 987.0                   | 26.33                  | 38.481            |                    |          |
| 5,900.0  | 5,662.5               | 5,627.3               | 5,542.1               | 14.1             | 18.4          | -84.95                | 67.2                                | -876.2       | 1,034.1                | 1,006.9                 | 27.17                  | 38.067            |                    |          |
| 6,000.0  | 5,667.0               | 5,600.0               | 5,518.8               | 15.2             | 18.4          | -81.57                | 81.3                                | -877.0       | 1,061.2                | 1,033.1                 | 28.17                  | 37.678            |                    |          |
| 6,100.0  | 5,667.0               | 5,568.4               | 5,490.8               | 16.3             | 18.5          | -80.02                | 96.0                                | -877.9       | 1,095.0                | 1,065.7                 | 29.33                  | 37.331            |                    |          |
| 6,200.0  | 5,667.0               | 5,550.0               | 5,474.2               | 17.7             | 18.5          | -79.10                | 103.8                               | -878.3       | 1,135.7                | 1,105.0                 | 30.65                  | 37.056            |                    |          |
| 6,300.0  | 5,667.0               | 5,526.7               | 5,452.8               | 19.1             | 18.5          | -77.93                | 112.9                               | -878.8       | 1,182.6                | 1,150.6                 | 32.02                  | 36.932            |                    |          |
| 6,400.0  | 5,667.0               | 5,500.0               | 5,427.7               | 20.6             | 18.5          | -76.57                | 122.0                               | -879.4       | 1,235.5                | 1,202.1                 | 33.43                  | 36.957            |                    |          |
| 6,500.0  | 5,667.0               | 5,500.0               | 5,427.7               | 22.1             | 18.5          | -76.57                | 122.0                               | -879.4       | 1,293.4                | 1,258.4                 | 35.05                  | 36.907 SF         |                    |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2550 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        |                   | 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           | -112.91               | -50.7                               | -119.9       | 130.1                  |                         |                        |                   |                             |         |
| 100.0  | 100.0                 | 100.0                 | 100.0                 | 0.1              | 0.1           | -112.91               | -50.7                               | -119.9       | 130.1                  | 129.9                   | 0.19                   | 697.473           |                             |         |
| 200.0  | 200.0                 | 200.0                 | 200.0                 | 0.3              | 0.3           | -112.91               | -50.7                               | -119.9       | 130.1                  | 129.5                   | 0.64                   | 204.559           |                             |         |
| 300.0  | 300.0                 | 300.0                 | 300.0                 | 0.5              | 0.5           | -112.91               | -50.7                               | -119.9       | 130.1                  | 129.0                   | 1.09                   | 119.856           |                             |         |
| 400.0  | 400.0                 | 400.0                 | 400.0                 | 0.8              | 0.8           | -112.91               | -50.7                               | -119.9       | 130.1                  | 128.6                   | 1.54                   | 84.759 CC, ES     |                             |         |
| 500.0  | 500.0                 | 500.0                 | 500.0                 | 1.0              | 1.0           | 109.54                | -50.7                               | -119.9       | 130.7                  | 128.7                   | 1.96                   | 66.568            |                             |         |
| 600.0  | 599.9                 | 598.4                 | 598.4                 | 1.2              | 1.2           | 111.37                | -50.5                               | -120.2       | 132.4                  | 130.1                   | 2.38                   | 55.686            |                             |         |
| 700.0  | 699.8                 | 695.0                 | 695.0                 | 1.4              | 1.4           | 114.04                | -48.9                               | -123.1       | 136.4                  | 133.6                   | 2.80                   | 48.751            |                             |         |
| 800.0  | 799.7                 | 791.1                 | 790.8                 | 1.6              | 1.6           | 117.43                | -45.9                               | -128.8       | 143.2                  | 139.9                   | 3.23                   | 44.277            |                             |         |
| 900.0  | 899.6                 | 886.3                 | 885.6                 | 1.8              | 1.9           | 121.25                | -41.3                               | -137.2       | 153.0                  | 149.3                   | 3.68                   | 41.578            |                             |         |
| 1,000.0  | 999.5                 | 980.6                 | 978.9                 | 2.0              | 2.1           | 125.20                | -35.4                               | -148.3       | 166.1                  | 162.0                   | 4.13                   | 40.184            |                             |         |
| 1,100.0  | 1,099.4               | 1,077.1               | 1,074.3               | 2.3              | 2.4           | 129.06                | -28.1                               | -161.8       | 182.1                  | 177.5                   | 4.60                   | 39.612            |                             |         |
| 1,200.0  | 1,199.3               | 1,175.1               | 1,171.0               | 2.5              | 2.7           | 132.36                | -20.7                               | -175.6       | 198.9                  | 193.9                   | 5.06                   | 39.312            |                             |         |
| 1,300.0  | 1,299.2               | 1,273.1               | 1,267.7               | 2.7              | 3.1           | 135.15                | -13.3                               | -189.4       | 216.3                  | 210.8                   | 5.52                   | 39.170            |                             |         |
| 1,400.0  | 1,399.1               | 1,371.0               | 1,364.4               | 3.0              | 3.4           | 137.52                | -5.9                                | -203.2       | 234.1                  | 228.1                   | 5.98                   | 39.123            |                             |         |
| 1,500.0  | 1,499.0               | 1,469.0               | 1,461.1               | 3.2              | 3.8           | 139.55                | 1.5                                 | -217.0       | 252.3                  | 245.8                   | 6.45                   | 39.132            |                             |         |
| 1,600.0  | 1,598.9               | 1,567.0               | 1,557.8               | 3.5              | 4.1           | 141.32                | 8.9                                 | -230.8       | 270.7                  | 263.8                   | 6.91                   | 39.183            |                             |         |
| 1,700.0  | 1,698.9               | 1,664.9               | 1,654.5               | 3.7              | 4.5           | 142.85                | 16.3                                | -244.6       | 289.3                  | 282.0                   | 7.37                   | 39.255            |                             |         |
| 1,800.0  | 1,798.8               | 1,762.9               | 1,751.3               | 3.9              | 4.8           | 144.20                | 23.7                                | -258.4       | 308.1                  | 300.3                   | 7.83                   | 39.341            |                             |         |
| 1,900.0  | 1,898.7               | 1,860.9               | 1,848.0               | 4.2              | 5.2           | 145.40                | 31.1                                | -272.2       | 327.1                  | 318.8                   | 8.29                   | 39.435            |                             |         |
| 2,000.0  | 1,998.6               | 1,958.8               | 1,944.7               | 4.4              | 5.5           | 146.47                | 38.6                                | -286.0       | 346.2                  | 337.4                   | 8.76                   | 39.531            |                             |         |
| 2,100.0  | 2,098.5               | 2,056.8               | 2,041.4               | 4.7              | 5.9           | 147.42                | 46.0                                | -299.8       | 365.4                  | 356.2                   | 9.22                   | 39.629            |                             |         |
| 2,200.0  | 2,198.4               | 2,154.8               | 2,138.1               | 4.9              | 6.3           | 148.28                | 53.4                                | -313.6       | 384.6                  | 375.0                   | 9.68                   | 39.725            |                             |         |
| 2,300.0  | 2,298.3               | 2,252.8               | 2,234.8               | 5.1              | 6.6           | 149.05                | 60.8                                | -327.4       | 404.0                  | 393.8                   | 10.15                  | 39.820            |                             |         |
| 2,400.0  | 2,398.2               | 2,350.7               | 2,331.5               | 5.4              | 7.0           | 149.76                | 68.2                                | -341.2       | 423.4                  | 412.8                   | 10.61                  | 39.912            |                             |         |
| 2,500.0  | 2,498.1               | 2,448.7               | 2,428.2               | 5.6              | 7.3           | 150.40                | 75.6                                | -354.9       | 442.9                  | 431.8                   | 11.07                  | 40.002            |                             |         |
| 2,600.0  | 2,598.0               | 2,546.7               | 2,524.9               | 5.9              | 7.7           | 150.99                | 83.0                                | -368.7       | 462.4                  | 450.9                   | 11.53                  | 40.088            |                             |         |
| 2,700.0  | 2,697.9               | 2,644.6               | 2,621.6               | 6.1              | 8.1           | 151.54                | 90.4                                | -382.5       | 482.0                  | 470.0                   | 12.00                  | 40.171            |                             |         |
| 2,800.0  | 2,797.8               | 2,742.6               | 2,718.3               | 6.3              | 8.4           | 152.04                | 97.8                                | -396.3       | 501.6                  | 489.1                   | 12.46                  | 40.252            |                             |         |
| 2,900.0  | 2,897.7               | 2,840.6               | 2,815.1               | 6.6              | 8.8           | 152.50                | 105.3                               | -410.1       | 521.2                  | 508.3                   | 12.92                  | 40.329            |                             |         |
| 3,000.0  | 2,997.6               | 2,938.5               | 2,911.8               | 6.8              | 9.2           | 152.93                | 112.7                               | -423.9       | 540.9                  | 527.5                   | 13.39                  | 40.403            |                             |         |
| 3,100.0  | 3,097.5               | 3,036.5               | 3,008.5               | 7.1              | 9.5           | 153.33                | 120.1                               | -437.7       | 560.6                  | 546.7                   | 13.85                  | 40.475            |                             |         |
| 3,200.0  | 3,197.4               | 3,134.5               | 3,105.2               | 7.3              | 9.9           | 153.70                | 127.5                               | -451.5       | 580.3                  | 566.0                   | 14.31                  | 40.544            |                             |         |
| 3,300.0  | 3,297.3               | 3,232.5               | 3,201.9               | 7.5              | 10.3          | 154.05                | 134.9                               | -465.3       | 600.0                  | 585.2                   | 14.77                  | 40.611            |                             |         |
| 3,400.0  | 3,397.3               | 3,330.4               | 3,298.6               | 7.8              | 10.6          | 154.37                | 142.3                               | -479.1       | 619.8                  | 604.5                   | 15.24                  | 40.676            |                             |         |
| 3,500.0  | 3,497.2               | 3,428.4               | 3,395.3               | 8.0              | 11.0          | 154.68                | 149.7                               | -492.9       | 639.6                  | 623.9                   | 15.70                  | 40.738            |                             |         |
| 3,600.0  | 3,597.1               | 3,526.4               | 3,492.0               | 8.3              | 11.4          | 154.96                | 157.1                               | -506.7       | 659.4                  | 643.2                   | 16.16                  | 40.798            |                             |         |
| 3,700.0  | 3,697.0               | 3,624.3               | 3,588.7               | 8.5              | 11.7          | 155.23                | 164.5                               | -520.5       | 679.2                  | 662.5                   | 16.62                  | 40.857            |                             |         |
| 3,800.0  | 3,796.9               | 3,722.3               | 3,685.4               | 8.7              | 12.1          | 155.49                | 171.9                               | -534.3       | 699.0                  | 681.9                   | 17.08                  | 40.914            |                             |         |
| 3,900.0  | 3,896.8               | 3,820.3               | 3,782.1               | 9.0              | 12.5          | 155.73                | 179.4                               | -548.1       | 718.8                  | 701.3                   | 17.55                  | 40.969            |                             |         |
| 4,000.0  | 3,996.7               | 3,918.2               | 3,878.9               | 9.2              | 12.8          | 155.96                | 186.8                               | -561.9       | 738.7                  | 720.7                   | 18.01                  | 41.012            |                             |         |
| 4,100.0  | 4,096.6               | 4,016.2               | 3,975.6               | 9.5              | 13.2          | 156.17                | 194.2                               | -575.7       | 758.5                  | 740.0                   | 18.48                  | 41.049            |                             |         |
| 4,200.0  | 4,196.5               | 4,114.2               | 4,072.3               | 9.7              | 13.6          | 156.38                | 201.6                               | -589.5       | 778.4                  | 759.4                   | 18.95                  | 41.083            |                             |         |
| 4,300.0  | 4,296.4               | 4,212.1               | 4,169.0               | 9.9              | 13.9          | 156.57                | 209.0                               | -603.3       | 798.3                  | 778.9                   | 19.41                  | 41.117            |                             |         |
| 4,400.0  | 4,396.3               | 4,310.1               | 4,265.7               | 10.2             | 14.3          | 156.76                | 216.4                               | -617.1       | 818.2                  | 798.3                   | 19.88                  | 41.148            |                             |         |
| 4,500.0  | 4,496.2               | 4,408.1               | 4,362.4               | 10.4             | 14.7          | 156.93                | 223.8                               | -630.9       | 838.0                  | 817.7                   | 20.35                  | 41.179            |                             |         |
| 4,600.0  | 4,596.1               | 4,506.1               | 4,459.1               | 10.7             | 15.1          | 157.10                | 231.2                               | -644.7       | 857.9                  | 837.1                   | 20.82                  | 41.208            |                             |         |
| 4,700.0  | 4,696.0               | 4,643.1               | 4,594.9               | 10.9             | 15.5          | 157.32                | 240.3                               | -661.5       | 875.9                  | 854.5                   | 21.33                  | 41.056            |                             |         |
| 4,800.0  | 4,796.0               | 4,786.5               | 4,737.6               | 11.1             | 15.8          | 157.54                | 246.4                               | -673.0       | 888.0                  | 866.2                   | 21.84                  | 40.661            |                             |         |
| 4,900.0  | 4,896.0               | 4,931.4               | 4,882.4               | 11.3             | 16.0          | -64.14                | 249.2                               | -678.2       | 892.5                  | 870.2                   | 22.30                  | 40.023            |                             |         |
| 5,000.0  | 4,996.0               | 5,045.0               | 4,996.0               | 11.5             | 16.2          | -64.14                | 249.4                               | -678.5       | 892.7                  | 870.0                   | 22.69                  | 39.352            |                             |         |
| 5,100.0  | 5,096.0               | 5,145.0               | 5,096.0               | 11.7             | 16.3          | -64.14                | 249.4                               | -678.5       | 892.7                  | 869.7                   | 23.06                  | 38.709            |                             |         |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2550 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        | 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  |
| 5,200.0  | 5,195.9               | 5,244.9               | 5,195.9               | 11.8             | 16.5          | -63.90                | 249.4                               | -678.5       | 891.7                  | 868.2                   | 23.47                  | 37.986             |          |
| 5,300.0  | 5,293.9               | 5,553.8               | 5,491.6               | 11.9             | 16.5          | -73.68                | 176.7                               | -674.9       | 875.0                  | 850.9                   | 24.19                  | 36.178             |          |
| 5,400.0  | 5,386.5               | 5,698.6               | 5,604.4               | 12.0             | 16.3          | -86.09                | 86.7                                | -670.6       | 841.2                  | 816.5                   | 24.74                  | 34.006             |          |
| 5,500.0  | 5,470.2               | 5,728.1               | 5,624.1               | 12.1             | 16.3          | -91.37                | 64.7                                | -669.5       | 813.4                  | 788.4                   | 25.01                  | 32.529             |          |
| 5,600.0  | 5,542.1               | 5,719.9               | 5,618.8               | 12.3             | 16.3          | -92.56                | 70.9                                | -669.8       | 797.4                  | 772.1                   | 25.24                  | 31.594             |          |
| 5,675.5  | 5,586.8               | 5,702.6               | 5,607.2               | 12.5             | 16.3          | -91.74                | 83.7                                | -670.4       | 793.8                  | 768.2                   | 25.54                  | 31.080             |          |
| 5,700.0  | 5,599.4               | 5,695.8               | 5,602.5               | 12.6             | 16.3          | -91.22                | 88.7                                | -670.7       | 794.1                  | 768.5                   | 25.64                  | 30.967             |          |
| 5,800.0  | 5,640.0               | 5,663.5               | 5,579.5               | 13.3             | 16.4          | -88.09                | 111.3                               | -671.8       | 802.8                  | 776.5                   | 26.29                  | 30.534             |          |
| 5,900.0  | 5,662.5               | 5,626.6               | 5,551.5               | 14.1             | 16.4          | -83.71                | 135.3                               | -672.9       | 821.1                  | 794.0                   | 27.09                  | 30.315             |          |
| 6,000.0  | 5,667.0               | 5,587.4               | 5,520.0               | 15.2             | 16.5          | -79.54                | 158.6                               | -674.1       | 846.8                  | 818.8                   | 27.98                  | 30.263             |          |
| 6,100.0  | 5,667.0               | 5,550.0               | 5,488.4               | 16.3             | 16.5          | -77.37                | 178.6                               | -675.0       | 880.1                  | 851.0                   | 29.08                  | 30.260 SF          |          |
| 6,200.0  | 5,667.0               | 5,525.6               | 5,467.0               | 17.7             | 16.5          | -75.93                | 190.3                               | -675.6       | 921.4                  | 891.0                   | 30.32                  | 30.386             |          |
| 6,300.0  | 5,667.0               | 5,500.0               | 5,444.0               | 19.1             | 16.5          | -74.40                | 201.6                               | -676.1       | 970.0                  | 938.4                   | 31.62                  | 30.680             |          |
| 6,400.0  | 5,667.0               | 5,483.1               | 5,428.6               | 20.6             | 16.5          | -73.38                | 208.4                               | -676.5       | 1,025.3                | 992.3                   | 33.02                  | 31.053             |          |
| 6,500.0  | 5,667.0               | 5,466.6               | 5,413.3               | 22.1             | 16.6          | -72.38                | 214.6                               | -676.8       | 1,086.3                | 1,051.8                 | 34.46                  | 31.524             |          |
| 6,600.0  | 5,667.0               | 5,450.0               | 5,397.7               | 23.8             | 16.6          | -71.37                | 220.3                               | -677.0       | 1,152.3                | 1,116.4                 | 35.93                  | 32.074             |          |
| 6,700.0  | 5,667.0               | 5,450.0               | 5,397.7               | 25.4             | 16.6          | -71.37                | 220.3                               | -677.0       | 1,222.7                | 1,185.1                 | 37.60                  | 32.520             |          |
| 6,800.0  | 5,667.0               | 5,429.4               | 5,378.2               | 27.1             | 16.6          | -70.13                | 226.7                               | -677.4       | 1,296.5                | 1,257.4                 | 39.05                  | 33.204             |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2551 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        |                   | 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           | -119.39               | -50.7                               | -90.0        | 103.2                  |                         |                        |                   |                             |         |
| 100.0  | 100.0                 | 100.0                 | 100.0                 | 0.1              | 0.1           | -119.39               | -50.7                               | -90.0        | 103.2                  | 103.1                   | 0.19                   | 553.448           |                             |         |
| 200.0  | 200.0                 | 200.0                 | 200.0                 | 0.3              | 0.3           | -119.39               | -50.7                               | -90.0        | 103.2                  | 102.6                   | 0.64                   | 162.319           |                             |         |
| 300.0  | 300.0                 | 300.0                 | 300.0                 | 0.5              | 0.5           | -119.39               | -50.7                               | -90.0        | 103.2                  | 102.2                   | 1.09                   | 95.106            |                             |         |
| 400.0  | 400.0                 | 400.0                 | 400.0                 | 0.8              | 0.8           | -119.39               | -50.7                               | -90.0        | 103.2                  | 101.7                   | 1.54                   | 67.257 CC         |                             |         |
| 500.0  | 500.0                 | 500.0                 | 500.0                 | 1.0              | 1.0           | 103.28                | -50.7                               | -90.0        | 103.6                  | 101.7                   | 1.96                   | 52.801 ES         |                             |         |
| 600.0  | 599.9                 | 599.9                 | 599.9                 | 1.2              | 1.2           | 105.53                | -50.7                               | -90.0        | 104.7                  | 102.3                   | 2.38                   | 43.906            |                             |         |
| 700.0  | 699.8                 | 697.9                 | 697.9                 | 1.4              | 1.4           | 108.52                | -49.7                               | -91.3        | 106.8                  | 104.0                   | 2.81                   | 37.998            |                             |         |
| 800.0  | 799.7                 | 795.4                 | 795.3                 | 1.6              | 1.7           | 112.78                | -46.8                               | -95.4        | 111.2                  | 108.0                   | 3.25                   | 34.262            |                             |         |
| 900.0  | 899.6                 | 892.2                 | 891.7                 | 1.8              | 1.9           | 117.90                | -42.1                               | -102.1       | 118.4                  | 114.7                   | 3.69                   | 32.070            |                             |         |
| 1,000.0  | 999.5                 | 988.8                 | 987.7                 | 2.0              | 2.1           | 123.39                | -35.5                               | -111.4       | 128.7                  | 124.6                   | 4.15                   | 31.034            |                             |         |
| 1,100.0  | 1,099.4               | 1,087.4               | 1,085.5               | 2.3              | 2.4           | 128.37                | -28.3                               | -121.5       | 140.9                  | 136.2                   | 4.61                   | 30.564            |                             |         |
| 1,200.0  | 1,199.3               | 1,186.0               | 1,183.2               | 2.5              | 2.7           | 132.53                | -21.2                               | -131.7       | 153.9                  | 148.8                   | 5.07                   | 30.359            |                             |         |
| 1,300.0  | 1,299.2               | 1,284.6               | 1,281.0               | 2.7              | 3.0           | 136.04                | -14.0                               | -141.8       | 167.5                  | 162.0                   | 5.53                   | 30.316            |                             |         |
| 1,400.0  | 1,399.1               | 1,383.1               | 1,378.8               | 3.0              | 3.3           | 139.02                | -6.8                                | -152.0       | 181.7                  | 175.8                   | 5.98                   | 30.372            |                             |         |
| 1,500.0  | 1,499.0               | 1,481.7               | 1,476.6               | 3.2              | 3.6           | 141.56                | 0.4                                 | -162.1       | 196.4                  | 189.9                   | 6.44                   | 30.487            |                             |         |
| 1,600.0  | 1,598.9               | 1,580.3               | 1,574.4               | 3.5              | 3.9           | 143.74                | 7.5                                 | -172.3       | 211.3                  | 204.4                   | 6.90                   | 30.637            |                             |         |
| 1,700.0  | 1,698.9               | 1,678.9               | 1,672.2               | 3.7              | 4.2           | 145.64                | 14.7                                | -182.5       | 226.5                  | 219.2                   | 7.35                   | 30.806            |                             |         |
| 1,800.0  | 1,798.8               | 1,777.4               | 1,770.0               | 3.9              | 4.5           | 147.30                | 21.9                                | -192.6       | 242.0                  | 234.2                   | 7.81                   | 30.982            |                             |         |
| 1,900.0  | 1,898.7               | 1,876.0               | 1,867.8               | 4.2              | 4.8           | 148.76                | 29.1                                | -202.8       | 257.6                  | 249.3                   | 8.27                   | 31.160            |                             |         |
| 2,000.0  | 1,998.6               | 1,974.6               | 1,965.5               | 4.4              | 5.1           | 150.05                | 36.3                                | -212.9       | 273.3                  | 264.6                   | 8.72                   | 31.337            |                             |         |
| 2,100.0  | 2,098.5               | 2,073.2               | 2,063.3               | 4.7              | 5.4           | 151.20                | 43.4                                | -223.1       | 289.2                  | 280.0                   | 9.18                   | 31.508            |                             |         |
| 2,200.0  | 2,198.4               | 2,171.7               | 2,161.1               | 4.9              | 5.7           | 152.23                | 50.6                                | -233.2       | 305.2                  | 295.5                   | 9.63                   | 31.674            |                             |         |
| 2,300.0  | 2,298.3               | 2,270.3               | 2,258.9               | 5.1              | 6.1           | 153.16                | 57.8                                | -243.4       | 321.2                  | 311.1                   | 10.09                  | 31.834            |                             |         |
| 2,400.0  | 2,398.2               | 2,368.9               | 2,356.7               | 5.4              | 6.4           | 154.00                | 65.0                                | -253.5       | 337.4                  | 326.8                   | 10.55                  | 31.986            |                             |         |
| 2,500.0  | 2,498.1               | 2,467.5               | 2,454.5               | 5.6              | 6.7           | 154.77                | 72.2                                | -263.7       | 353.6                  | 342.5                   | 11.00                  | 32.132            |                             |         |
| 2,600.0  | 2,598.0               | 2,566.0               | 2,552.3               | 5.9              | 7.0           | 155.46                | 79.3                                | -273.8       | 369.8                  | 358.3                   | 11.46                  | 32.271            |                             |         |
| 2,700.0  | 2,697.9               | 2,664.6               | 2,650.0               | 6.1              | 7.3           | 156.10                | 86.5                                | -284.0       | 386.1                  | 374.2                   | 11.92                  | 32.403            |                             |         |
| 2,800.0  | 2,797.8               | 2,763.2               | 2,747.8               | 6.3              | 7.6           | 156.69                | 93.7                                | -294.1       | 402.5                  | 390.1                   | 12.37                  | 32.530            |                             |         |
| 2,900.0  | 2,897.7               | 2,861.8               | 2,845.6               | 6.6              | 8.0           | 157.23                | 100.9                               | -304.3       | 418.8                  | 406.0                   | 12.83                  | 32.650            |                             |         |
| 3,000.0  | 2,997.6               | 2,960.3               | 2,943.4               | 6.8              | 8.3           | 157.73                | 108.1                               | -314.5       | 435.3                  | 422.0                   | 13.28                  | 32.765            |                             |         |
| 3,100.0  | 3,097.5               | 3,058.9               | 3,041.2               | 7.1              | 8.6           | 158.19                | 115.2                               | -324.6       | 451.7                  | 438.0                   | 13.74                  | 32.875            |                             |         |
| 3,200.0  | 3,197.4               | 3,157.5               | 3,139.0               | 7.3              | 8.9           | 158.63                | 122.4                               | -334.8       | 468.2                  | 454.0                   | 14.20                  | 32.980            |                             |         |
| 3,300.0  | 3,297.3               | 3,256.1               | 3,236.8               | 7.5              | 9.2           | 159.03                | 129.6                               | -344.9       | 484.7                  | 470.0                   | 14.65                  | 33.081            |                             |         |
| 3,400.0  | 3,397.3               | 3,354.6               | 3,334.6               | 7.8              | 9.6           | 159.40                | 136.8                               | -355.1       | 501.2                  | 486.1                   | 15.11                  | 33.177            |                             |         |
| 3,500.0  | 3,497.2               | 3,453.2               | 3,432.3               | 8.0              | 9.9           | 159.75                | 144.0                               | -365.2       | 517.7                  | 502.2                   | 15.56                  | 33.269            |                             |         |
| 3,600.0  | 3,597.1               | 3,551.8               | 3,530.1               | 8.3              | 10.2          | 160.08                | 151.1                               | -375.4       | 534.3                  | 518.3                   | 16.02                  | 33.358            |                             |         |
| 3,700.0  | 3,697.0               | 3,650.4               | 3,627.9               | 8.5              | 10.5          | 160.39                | 158.3                               | -385.5       | 550.9                  | 534.4                   | 16.47                  | 33.443            |                             |         |
| 3,800.0  | 3,796.9               | 3,748.9               | 3,725.7               | 8.7              | 10.8          | 160.69                | 165.5                               | -395.7       | 567.4                  | 550.5                   | 16.93                  | 33.525            |                             |         |
| 3,900.0  | 3,896.8               | 3,847.5               | 3,823.5               | 9.0              | 11.2          | 160.96                | 172.7                               | -405.8       | 584.1                  | 566.7                   | 17.38                  | 33.604            |                             |         |
| 4,000.0  | 3,996.7               | 3,946.1               | 3,921.3               | 9.2              | 11.5          | 161.22                | 179.9                               | -416.0       | 600.7                  | 582.8                   | 17.84                  | 33.669            |                             |         |
| 4,100.0  | 4,096.6               | 4,044.7               | 4,019.1               | 9.5              | 11.8          | 161.47                | 187.0                               | -426.1       | 617.3                  | 599.0                   | 18.30                  | 33.730            |                             |         |
| 4,200.0  | 4,196.5               | 4,143.2               | 4,116.9               | 9.7              | 12.1          | 161.70                | 194.2                               | -436.3       | 633.9                  | 615.2                   | 18.76                  | 33.789            |                             |         |
| 4,300.0  | 4,296.4               | 4,241.8               | 4,214.6               | 9.9              | 12.4          | 161.92                | 201.4                               | -446.5       | 650.6                  | 631.3                   | 19.22                  | 33.846            |                             |         |
| 4,400.0  | 4,396.3               | 4,340.4               | 4,312.4               | 10.2             | 12.8          | 162.13                | 208.6                               | -456.6       | 667.2                  | 647.5                   | 19.68                  | 33.899            |                             |         |
| 4,500.0  | 4,496.2               | 4,439.0               | 4,410.2               | 10.4             | 13.1          | 162.33                | 215.8                               | -466.8       | 683.9                  | 663.7                   | 20.14                  | 33.951            |                             |         |
| 4,600.0  | 4,596.1               | 4,537.5               | 4,508.0               | 10.7             | 13.4          | 162.52                | 222.9                               | -476.9       | 700.6                  | 680.0                   | 20.60                  | 34.001            |                             |         |
| 4,700.0  | 4,696.0               | 4,636.1               | 4,605.8               | 10.9             | 13.7          | 162.70                | 230.1                               | -487.1       | 717.2                  | 696.2                   | 21.07                  | 34.048            |                             |         |
| 4,800.0  | 4,796.0               | 4,740.4               | 4,709.2               | 11.1             | 14.0          | 162.93                | 237.7                               | -497.7       | 733.0                  | 711.4                   | 21.55                  | 34.019            |                             |         |
| 4,900.0  | 4,896.0               | 4,874.3               | 4,842.5               | 11.3             | 14.4          | -58.69                | 245.0                               | -508.2       | 742.9                  | 720.9                   | 22.01                  | 33.755            |                             |         |
| 5,000.0  | 4,996.0               | 5,009.2               | 4,977.3               | 11.5             | 14.6          | -58.66                | 248.8                               | -513.5       | 747.7                  | 725.3                   | 22.42                  | 33.348            |                             |         |
| 5,100.0  | 5,096.0               | 5,127.9               | 5,096.0               | 11.7             | 14.8          | -58.65                | 249.3                               | -514.3       | 748.4                  | 725.6                   | 22.82                  | 32.798            |                             |         |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2551 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        |                   | 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  | 5,195.9               | 5,227.8               | 5,195.9               | 11.8             | 14.9          | -58.44                | 249.3                               | -514.3       | 747.1                  | 723.9                   | 23.22                  | 32.173            |                    |          |
| 5,300.0  | 5,293.9               | 5,325.9               | 5,293.9               | 11.9             | 15.1          | -60.62                | 249.3                               | -514.3       | 737.3                  | 713.8                   | 23.50                  | 31.376            |                    |          |
| 5,400.0  | 5,386.5               | 5,500.8               | 5,467.8               | 12.0             | 15.3          | -68.65                | 235.6                               | -513.6       | 717.0                  | 692.9                   | 24.05                  | 29.808            |                    |          |
| 5,500.0  | 5,470.2               | 5,649.3               | 5,605.7               | 12.1             | 15.2          | -82.51                | 181.8                               | -511.0       | 681.9                  | 657.0                   | 24.90                  | 27.384            |                    |          |
| 5,600.0  | 5,542.1               | 5,692.5               | 5,642.3               | 12.3             | 15.2          | -89.73                | 159.1                               | -509.9       | 651.6                  | 626.3                   | 25.37                  | 25.684            |                    |          |
| 5,700.0  | 5,599.4               | 5,694.1               | 5,643.7               | 12.6             | 15.2          | -91.74                | 158.2                               | -509.8       | 635.0                  | 609.2                   | 25.79                  | 24.617            |                    |          |
| 5,755.1  | 5,624.0               | 5,686.1               | 5,637.0               | 13.0             | 15.2          | -91.29                | 162.6                               | -510.0       | 632.5                  | 606.4                   | 26.14                  | 24.199            |                    |          |
| 5,800.0  | 5,640.0               | 5,676.8               | 5,629.2               | 13.3             | 15.2          | -90.29                | 167.7                               | -510.3       | 634.1                  | 607.7                   | 26.43                  | 23.994            |                    |          |
| 5,900.0  | 5,662.5               | 5,650.0               | 5,606.3               | 14.1             | 15.2          | -86.45                | 181.5                               | -511.0       | 648.0                  | 620.7                   | 27.31                  | 23.727 SF         |                    |          |
| 6,000.0  | 5,667.0               | 5,617.0               | 5,577.1               | 15.2             | 15.3          | -81.93                | 196.9                               | -511.7       | 673.8                  | 645.5                   | 28.28                  | 23.829            |                    |          |
| 6,100.0  | 5,667.0               | 5,589.1               | 5,551.7               | 16.3             | 15.3          | -79.70                | 208.4                               | -512.3       | 710.5                  | 681.1                   | 29.39                  | 24.173            |                    |          |
| 6,200.0  | 5,667.0               | 5,566.9               | 5,531.0               | 17.7             | 15.3          | -77.91                | 216.6                               | -512.7       | 757.5                  | 726.8                   | 30.62                  | 24.740            |                    |          |
| 6,300.0  | 5,667.0               | 5,550.0               | 5,515.1               | 19.1             | 15.3          | -76.55                | 222.2                               | -512.9       | 813.2                  | 781.2                   | 31.95                  | 25.453            |                    |          |
| 6,400.0  | 5,667.0               | 5,533.8               | 5,499.7               | 20.6             | 15.3          | -75.24                | 227.1                               | -513.2       | 876.2                  | 842.9                   | 33.33                  | 26.291            |                    |          |
| 6,500.0  | 5,667.0               | 5,521.2               | 5,487.6               | 22.1             | 15.3          | -74.23                | 230.6                               | -513.3       | 945.2                  | 910.4                   | 34.78                  | 27.173            |                    |          |
| 6,600.0  | 5,667.0               | 5,500.0               | 5,467.0               | 23.8             | 15.3          | -72.53                | 235.8                               | -513.6       | 1,019.1                | 983.0                   | 36.15                  | 28.194            |                    |          |
| 6,700.0  | 5,667.0               | 5,500.0               | 5,467.0               | 25.4             | 15.3          | -72.53                | 235.8                               | -513.6       | 1,096.8                | 1,059.0                 | 37.83                  | 28.994            |                    |          |
| 6,800.0  | 5,667.0               | 5,500.0               | 5,467.0               | 27.1             | 15.3          | -72.53                | 235.8                               | -513.6       | 1,177.8                | 1,138.3                 | 39.54                  | 29.787            |                    |          |
| 6,900.0  | 5,667.0               | 5,500.0               | 5,467.0               | 28.8             | 15.3          | -72.53                | 235.8                               | -513.6       | 1,261.5                | 1,220.3                 | 41.28                  | 30.560            |                    |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2552 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        |                   | 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           | -130.15               | -50.7                               | -60.1        | 78.6                   |                         |                        |                   |                             |         |
| 100.0  | 100.0                 | 100.0                 | 100.0                 | 0.1              | 0.1           | -130.15               | -50.7                               | -60.1        | 78.6                   | 78.4                    | 0.19                   | 421.221           |                             |         |
| 200.0  | 200.0                 | 200.0                 | 200.0                 | 0.3              | 0.3           | -130.15               | -50.7                               | -60.1        | 78.6                   | 77.9                    | 0.64                   | 123.538           |                             |         |
| 300.0  | 300.0                 | 300.0                 | 300.0                 | 0.5              | 0.5           | -130.15               | -50.7                               | -60.1        | 78.6                   | 77.5                    | 1.09                   | 72.384            |                             |         |
| 400.0  | 400.0                 | 400.0                 | 400.0                 | 0.8              | 0.8           | -130.15               | -50.7                               | -60.1        | 78.6                   | 77.0                    | 1.54                   | 51.188 CC         |                             |         |
| 500.0  | 500.0                 | 500.0                 | 500.0                 | 1.0              | 1.0           | 92.86                 | -50.7                               | -60.1        | 78.6                   | 76.7                    | 1.96                   | 40.079            |                             |         |
| 600.0  | 599.9                 | 599.9                 | 599.9                 | 1.2              | 1.2           | 95.92                 | -50.7                               | -60.1        | 79.0                   | 76.6                    | 2.38                   | 33.126 ES         |                             |         |
| 700.0  | 699.8                 | 699.5                 | 699.5                 | 1.4              | 1.4           | 99.32                 | -50.4                               | -60.4        | 79.6                   | 76.8                    | 2.82                   | 28.259            |                             |         |
| 800.0  | 799.7                 | 798.5                 | 798.5                 | 1.6              | 1.7           | 104.67                | -47.9                               | -62.7        | 81.4                   | 78.1                    | 3.25                   | 25.007            |                             |         |
| 900.0  | 899.6                 | 896.9                 | 896.6                 | 1.8              | 1.9           | 111.83                | -43.0                               | -67.5        | 85.2                   | 81.5                    | 3.70                   | 23.017            |                             |         |
| 1,000.0  | 999.5                 | 995.2                 | 994.4                 | 2.0              | 2.1           | 119.89                | -36.0                               | -74.3        | 91.8                   | 87.7                    | 4.16                   | 22.081            |                             |         |
| 1,100.0  | 1,099.4               | 1,094.1               | 1,092.7               | 2.3              | 2.4           | 127.04                | -28.6                               | -81.4        | 100.4                  | 95.8                    | 4.62                   | 21.734            |                             |         |
| 1,200.0  | 1,199.3               | 1,193.0               | 1,191.1               | 2.5              | 2.6           | 132.99                | -21.2                               | -88.6        | 110.3                  | 105.2                   | 5.08                   | 21.714            |                             |         |
| 1,300.0  | 1,299.2               | 1,291.9               | 1,289.5               | 2.7              | 2.9           | 137.94                | -13.7                               | -95.8        | 121.1                  | 115.6                   | 5.53                   | 21.885            |                             |         |
| 1,400.0  | 1,399.1               | 1,390.8               | 1,387.8               | 3.0              | 3.2           | 142.05                | -6.3                                | -103.0       | 132.7                  | 126.7                   | 5.99                   | 22.162            |                             |         |
| 1,500.0  | 1,499.0               | 1,489.7               | 1,486.2               | 3.2              | 3.5           | 145.50                | 1.1                                 | -110.2       | 144.9                  | 138.5                   | 6.44                   | 22.493            |                             |         |
| 1,600.0  | 1,598.9               | 1,588.6               | 1,584.6               | 3.5              | 3.7           | 148.40                | 8.5                                 | -117.3       | 157.5                  | 150.6                   | 6.90                   | 22.846            |                             |         |
| 1,700.0  | 1,698.9               | 1,687.5               | 1,682.9               | 3.7              | 4.0           | 150.87                | 16.0                                | -124.5       | 170.5                  | 163.2                   | 7.35                   | 23.204            |                             |         |
| 1,800.0  | 1,798.8               | 1,786.4               | 1,781.3               | 3.9              | 4.3           | 152.99                | 23.4                                | -131.7       | 183.7                  | 175.9                   | 7.80                   | 23.555            |                             |         |
| 1,900.0  | 1,898.7               | 1,885.3               | 1,879.7               | 4.2              | 4.6           | 154.82                | 30.8                                | -138.9       | 197.2                  | 188.9                   | 8.25                   | 23.894            |                             |         |
| 2,000.0  | 1,998.6               | 1,984.2               | 1,978.0               | 4.4              | 4.9           | 156.42                | 38.2                                | -146.0       | 210.8                  | 202.1                   | 8.70                   | 24.217            |                             |         |
| 2,100.0  | 2,098.5               | 2,083.1               | 2,076.4               | 4.7              | 5.2           | 157.82                | 45.6                                | -153.2       | 224.6                  | 215.4                   | 9.16                   | 24.525            |                             |         |
| 2,200.0  | 2,198.4               | 2,182.0               | 2,174.8               | 4.9              | 5.4           | 159.06                | 53.1                                | -160.4       | 238.4                  | 228.8                   | 9.61                   | 24.815            |                             |         |
| 2,300.0  | 2,298.3               | 2,281.0               | 2,273.1               | 5.1              | 5.7           | 160.17                | 60.5                                | -167.6       | 252.4                  | 242.3                   | 10.06                  | 25.088            |                             |         |
| 2,400.0  | 2,398.2               | 2,379.9               | 2,371.5               | 5.4              | 6.0           | 161.16                | 67.9                                | -174.8       | 266.5                  | 256.0                   | 10.51                  | 25.346            |                             |         |
| 2,500.0  | 2,498.1               | 2,478.8               | 2,469.9               | 5.6              | 6.3           | 162.05                | 75.3                                | -181.9       | 280.6                  | 269.6                   | 10.97                  | 25.589            |                             |         |
| 2,600.0  | 2,598.0               | 2,577.7               | 2,568.2               | 5.9              | 6.6           | 162.85                | 82.7                                | -189.1       | 294.8                  | 283.4                   | 11.42                  | 25.818            |                             |         |
| 2,700.0  | 2,697.9               | 2,676.6               | 2,666.6               | 6.1              | 6.9           | 163.58                | 90.2                                | -196.3       | 309.0                  | 297.2                   | 11.87                  | 26.034            |                             |         |
| 2,800.0  | 2,797.8               | 2,775.5               | 2,765.0               | 6.3              | 7.2           | 164.25                | 97.6                                | -203.5       | 323.3                  | 311.0                   | 12.32                  | 26.238            |                             |         |
| 2,900.0  | 2,897.7               | 2,874.4               | 2,863.3               | 6.6              | 7.5           | 164.86                | 105.0                               | -210.7       | 337.6                  | 324.9                   | 12.77                  | 26.430            |                             |         |
| 3,000.0  | 2,997.6               | 2,973.3               | 2,961.7               | 6.8              | 7.8           | 165.42                | 112.4                               | -217.8       | 352.0                  | 338.8                   | 13.23                  | 26.613            |                             |         |
| 3,100.0  | 3,097.5               | 3,072.2               | 3,060.1               | 7.1              | 8.0           | 165.93                | 119.9                               | -225.0       | 366.4                  | 352.7                   | 13.68                  | 26.785            |                             |         |
| 3,200.0  | 3,197.4               | 3,171.1               | 3,158.4               | 7.3              | 8.3           | 166.41                | 127.3                               | -232.2       | 380.8                  | 366.7                   | 14.13                  | 26.949            |                             |         |
| 3,300.0  | 3,297.3               | 3,270.0               | 3,256.8               | 7.5              | 8.6           | 166.85                | 134.7                               | -239.4       | 395.2                  | 380.7                   | 14.58                  | 27.105            |                             |         |
| 3,400.0  | 3,397.3               | 3,368.9               | 3,355.2               | 7.8              | 8.9           | 167.26                | 142.1                               | -246.6       | 409.7                  | 394.7                   | 15.03                  | 27.252            |                             |         |
| 3,500.0  | 3,497.2               | 3,467.8               | 3,453.5               | 8.0              | 9.2           | 167.65                | 149.5                               | -253.7       | 424.2                  | 408.7                   | 15.48                  | 27.393            |                             |         |
| 3,600.0  | 3,597.1               | 3,566.8               | 3,551.9               | 8.3              | 9.5           | 168.01                | 157.0                               | -260.9       | 438.7                  | 422.7                   | 15.94                  | 27.528            |                             |         |
| 3,700.0  | 3,697.0               | 3,665.7               | 3,650.3               | 8.5              | 9.8           | 168.34                | 164.4                               | -268.1       | 453.2                  | 436.8                   | 16.39                  | 27.656            |                             |         |
| 3,800.0  | 3,796.9               | 3,764.6               | 3,748.6               | 8.7              | 10.1          | 168.65                | 171.8                               | -275.3       | 467.7                  | 450.9                   | 16.84                  | 27.779            |                             |         |
| 3,900.0  | 3,896.8               | 3,863.5               | 3,847.0               | 9.0              | 10.4          | 168.95                | 179.2                               | -282.5       | 482.3                  | 465.0                   | 17.29                  | 27.891            |                             |         |
| 4,000.0  | 3,996.7               | 3,962.4               | 3,945.4               | 9.2              | 10.7          | 169.23                | 186.7                               | -289.6       | 496.8                  | 479.1                   | 17.75                  | 27.994            |                             |         |
| 4,100.0  | 4,096.6               | 4,061.3               | 4,043.7               | 9.5              | 11.0          | 169.49                | 194.1                               | -296.8       | 511.4                  | 493.2                   | 18.20                  | 28.093            |                             |         |
| 4,200.0  | 4,196.5               | 4,160.2               | 4,142.1               | 9.7              | 11.3          | 169.74                | 201.5                               | -304.0       | 525.9                  | 507.3                   | 18.66                  | 28.187            |                             |         |
| 4,300.0  | 4,296.4               | 4,259.1               | 4,240.5               | 9.9              | 11.5          | 169.97                | 208.9                               | -311.2       | 540.5                  | 521.4                   | 19.12                  | 28.277            |                             |         |
| 4,400.0  | 4,396.3               | 4,358.0               | 4,338.8               | 10.2             | 11.8          | 170.19                | 216.3                               | -318.3       | 555.1                  | 535.5                   | 19.57                  | 28.363            |                             |         |
| 4,500.0  | 4,496.2               | 4,456.9               | 4,437.2               | 10.4             | 12.1          | 170.40                | 223.8                               | -325.5       | 569.7                  | 549.7                   | 20.03                  | 28.446            |                             |         |
| 4,600.0  | 4,596.1               | 4,555.8               | 4,535.6               | 10.7             | 12.4          | 170.60                | 231.2                               | -332.7       | 584.3                  | 563.8                   | 20.48                  | 28.524            |                             |         |
| 4,700.0  | 4,696.0               | 4,656.6               | 4,635.8               | 10.9             | 12.7          | 170.80                | 238.7                               | -340.0       | 598.9                  | 578.0                   | 20.94                  | 28.597            |                             |         |
| 4,800.0  | 4,796.0               | 4,782.3               | 4,761.1               | 11.1             | 13.0          | 171.00                | 245.9                               | -347.0       | 610.1                  | 588.7                   | 21.41                  | 28.697            |                             |         |
| 4,900.0  | 4,896.0               | 4,909.1               | 4,887.8               | 11.3             | 13.2          | -50.67                | 249.2                               | -350.1       | 614.1                  | 592.3                   | 21.83                  | 28.129            |                             |         |
| 5,000.0  | 4,996.0               | 5,017.3               | 4,996.0               | 11.5             | 13.4          | -50.67                | 249.3                               | -350.3       | 614.3                  | 592.1                   | 22.21                  | 27.654            |                             |         |
| 5,100.0  | 5,096.0               | 5,117.3               | 5,096.0               | 11.7             | 13.6          | -50.67                | 249.3                               | -350.3       | 614.3                  | 591.7                   | 22.61                  | 27.175            |                             |         |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2552 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        | 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  |
| 5,200.0  | 5,195.9               | 5,217.2               | 5,195.9               | 11.8             | 13.7          | -50.49                | 249.3                               | -350.3       | 612.8                  | 589.8                   | 23.00                  | 26.646             |          |
| 5,300.0  | 5,293.9               | 5,497.5               | 5,466.7               | 11.9             | 13.8          | -61.86                | 190.5                               | -347.4       | 590.2                  | 566.6                   | 23.57                  | 25.038             |          |
| 5,400.0  | 5,386.5               | 5,645.2               | 5,586.3               | 12.0             | 13.7          | -80.70                | 104.9                               | -343.2       | 541.5                  | 517.2                   | 24.26                  | 22.323             |          |
| 5,500.0  | 5,470.2               | 5,681.4               | 5,611.6               | 12.1             | 13.6          | -90.26                | 79.0                                | -341.9       | 498.2                  | 473.6                   | 24.63                  | 20.224             |          |
| 5,600.0  | 5,542.1               | 5,677.8               | 5,609.2               | 12.3             | 13.6          | -92.84                | 81.6                                | -342.1       | 471.9                  | 447.0                   | 24.88                  | 18.963             |          |
| 5,676.1  | 5,587.1               | 5,662.8               | 5,598.9               | 12.5             | 13.6          | -91.71                | 92.4                                | -342.6       | 465.7                  | 440.5                   | 25.20                  | 18.485             |          |
| 5,700.0  | 5,599.4               | 5,656.8               | 5,594.6               | 12.6             | 13.7          | -90.92                | 96.7                                | -342.8       | 466.3                  | 441.0                   | 25.30                  | 18.434 SF          |          |
| 5,800.0  | 5,640.0               | 5,626.8               | 5,572.8               | 13.3             | 13.7          | -85.86                | 117.3                               | -343.8       | 480.7                  | 454.8                   | 25.88                  | 18.574             |          |
| 5,900.0  | 5,662.5               | 5,591.7               | 5,545.9               | 14.1             | 13.7          | -78.68                | 139.8                               | -344.9       | 510.6                  | 484.1                   | 26.43                  | 19.321             |          |
| 6,000.0  | 5,667.0               | 5,550.0               | 5,512.0               | 15.2             | 13.8          | -71.69                | 164.0                               | -346.1       | 550.7                  | 524.0                   | 26.73                  | 20.600             |          |
| 6,100.0  | 5,667.0               | 5,521.0               | 5,487.3               | 16.3             | 13.8          | -69.04                | 179.2                               | -346.8       | 600.7                  | 573.1                   | 27.54                  | 21.809             |          |
| 6,200.0  | 5,667.0               | 5,500.0               | 5,468.9               | 17.7             | 13.8          | -67.13                | 189.3                               | -347.3       | 659.8                  | 631.3                   | 28.52                  | 23.133             |          |
| 6,300.0  | 5,667.0               | 5,471.5               | 5,443.4               | 19.1             | 13.9          | -64.55                | 201.9                               | -347.9       | 726.4                  | 697.0                   | 29.39                  | 24.711             |          |
| 6,400.0  | 5,667.0               | 5,450.0               | 5,423.6               | 20.6             | 13.9          | -62.64                | 210.5                               | -348.4       | 798.8                  | 768.4                   | 30.40                  | 26.277             |          |
| 6,500.0  | 5,667.0               | 5,450.0               | 5,423.6               | 22.1             | 13.9          | -62.64                | 210.5                               | -348.4       | 876.2                  | 844.3                   | 31.90                  | 27.465             |          |
| 6,600.0  | 5,667.0               | 5,422.7               | 5,398.1               | 23.8             | 13.9          | -60.26                | 220.2                               | -348.8       | 956.8                  | 924.0                   | 32.78                  | 29.190             |          |
| 6,700.0  | 5,667.0               | 5,400.0               | 5,376.5               | 25.4             | 13.9          | -58.34                | 227.2                               | -349.2       | 1,040.7                | 1,007.0                 | 33.73                  | 30.852             |          |
| 6,800.0  | 5,667.0               | 5,400.0               | 5,376.5               | 27.1             | 13.9          | -58.34                | 227.2                               | -349.2       | 1,126.7                | 1,091.4                 | 35.30                  | 31.919             |          |
| 6,900.0  | 5,667.0               | 5,400.0               | 5,376.5               | 28.8             | 13.9          | -58.34                | 227.2                               | -349.2       | 1,214.8                | 1,177.9                 | 36.89                  | 32.933             |          |
| 7,000.0  | 5,667.0               | 5,400.0               | 5,376.5               | 30.6             | 13.9          | -58.34                | 227.2                               | -349.2       | 1,304.6                | 1,266.1                 | 38.49                  | 33.890             |          |



# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2553 - 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 |                             |         |
| 0.0  | 0.0                   | 0.0                   | 0.0                   | 0.0              | 0.0           | -149.45               | -50.6                               | -29.9        | 58.8                   |                         |                        |                   |                             |         |
| 100.0  | 100.0                 | 100.0                 | 100.0                 | 0.1              | 0.1           | -149.45               | -50.6                               | -29.9        | 58.8                   | 58.6                    | 0.19                   | 315.231           |                             |         |
| 200.0  | 200.0                 | 200.0                 | 200.0                 | 0.3              | 0.3           | -149.45               | -50.6                               | -29.9        | 58.8                   | 58.2                    | 0.64                   | 92.453            |                             |         |
| 300.0  | 300.0                 | 300.0                 | 300.0                 | 0.5              | 0.5           | -149.45               | -50.6                               | -29.9        | 58.8                   | 57.7                    | 1.09                   | 54.170            |                             |         |
| 400.0  | 400.0                 | 400.0                 | 400.0                 | 0.8              | 0.8           | -149.45               | -50.6                               | -29.9        | 58.8                   | 57.3                    | 1.54                   | 38.308            |                             |         |
| 500.0  | 500.0                 | 500.0                 | 500.0                 | 1.0              | 1.0           | 73.93                 | -50.6                               | -29.9        | 58.3                   | 56.3                    | 1.96                   | 29.700            |                             |         |
| 600.0  | 599.9                 | 599.9                 | 599.9                 | 1.2              | 1.2           | 78.01                 | -50.6                               | -29.9        | 57.3                   | 54.9                    | 2.38                   | 24.025            |                             |         |
| 700.0  | 699.8                 | 699.8                 | 699.8                 | 1.4              | 1.4           | 82.31                 | -50.6                               | -29.9        | 56.5                   | 53.7                    | 2.82                   | 20.050            |                             |         |
| 800.0  | 799.7                 | 800.4                 | 800.4                 | 1.6              | 1.7           | 88.41                 | -49.0                               | -30.6        | 55.5                   | 52.2                    | 3.26                   | 16.997            |                             |         |
| 900.0  | 899.6                 | 900.5                 | 900.3                 | 1.8              | 1.9           | 98.22                 | -44.2                               | -32.7        | 54.4                   | 50.6                    | 3.71                   | 14.631            |                             |         |
| 931.7  | 931.3                 | 932.0                 | 931.8                 | 1.9              | 2.0           | 102.12                | -42.0                               | -33.6        | 54.2                   | 50.4                    | 3.86                   | 14.053 CC, ES     |                             |         |
| 1,000.0  | 999.5                 | 999.8                 | 999.3                 | 2.0              | 2.1           | 110.99                | -36.8                               | -35.8        | 54.9                   | 50.7                    | 4.17                   | 13.158            |                             |         |
| 1,100.0  | 1,099.4               | 1,099.0               | 1,098.2               | 2.3              | 2.4           | 123.16                | -29.2                               | -39.1        | 58.1                   | 53.5                    | 4.63                   | 12.549            |                             |         |
| 1,200.0  | 1,199.3               | 1,198.2               | 1,197.1               | 2.5              | 2.6           | 133.66                | -21.6                               | -42.3        | 63.7                   | 58.6                    | 5.09                   | 12.513            |                             |         |
| 1,300.0  | 1,299.2               | 1,297.5               | 1,295.9               | 2.7              | 2.9           | 142.24                | -14.1                               | -45.6        | 71.0                   | 65.5                    | 5.54                   | 12.814            |                             |         |
| 1,400.0  | 1,399.1               | 1,396.7               | 1,394.8               | 3.0              | 3.1           | 149.11                | -6.5                                | -48.8        | 79.7                   | 73.7                    | 6.00                   | 13.290            |                             |         |
| 1,500.0  | 1,499.0               | 1,495.9               | 1,493.7               | 3.2              | 3.4           | 154.59                | 1.1                                 | -52.1        | 89.2                   | 82.8                    | 6.45                   | 13.845            |                             |         |
| 1,600.0  | 1,598.9               | 1,595.1               | 1,592.6               | 3.5              | 3.6           | 158.98                | 8.7                                 | -55.3        | 99.4                   | 92.6                    | 6.89                   | 14.423            |                             |         |
| 1,700.0  | 1,698.9               | 1,694.3               | 1,691.4               | 3.7              | 3.9           | 162.54                | 16.3                                | -58.6        | 110.1                  | 102.8                   | 7.34                   | 14.995            |                             |         |
| 1,800.0  | 1,798.8               | 1,793.5               | 1,790.3               | 3.9              | 4.1           | 165.46                | 23.9                                | -61.8        | 121.2                  | 113.4                   | 7.79                   | 15.545            |                             |         |
| 1,900.0  | 1,898.7               | 1,892.8               | 1,889.2               | 4.2              | 4.4           | 167.89                | 31.5                                | -65.1        | 132.4                  | 124.2                   | 8.24                   | 16.066            |                             |         |
| 2,000.0  | 1,998.6               | 1,992.0               | 1,988.0               | 4.4              | 4.7           | 169.94                | 39.1                                | -68.3        | 143.9                  | 135.2                   | 8.69                   | 16.555            |                             |         |
| 2,100.0  | 2,098.5               | 2,091.2               | 2,086.9               | 4.7              | 4.9           | 171.69                | 46.7                                | -71.6        | 155.6                  | 146.4                   | 9.14                   | 17.013            |                             |         |
| 2,200.0  | 2,198.4               | 2,190.4               | 2,185.8               | 4.9              | 5.2           | 173.19                | 54.3                                | -74.8        | 167.3                  | 157.7                   | 9.59                   | 17.440            |                             |         |
| 2,300.0  | 2,298.3               | 2,289.6               | 2,284.7               | 5.1              | 5.5           | 174.49                | 61.9                                | -78.1        | 179.2                  | 169.1                   | 10.05                  | 17.838            |                             |         |
| 2,400.0  | 2,398.2               | 2,388.8               | 2,383.5               | 5.4              | 5.7           | 175.63                | 69.4                                | -81.3        | 191.1                  | 180.6                   | 10.50                  | 18.209            |                             |         |
| 2,500.0  | 2,498.1               | 2,488.1               | 2,482.4               | 5.6              | 6.0           | 176.64                | 77.0                                | -84.6        | 203.1                  | 192.2                   | 10.95                  | 18.555            |                             |         |
| 2,600.0  | 2,598.0               | 2,587.3               | 2,581.3               | 5.9              | 6.2           | 177.53                | 84.6                                | -87.8        | 215.2                  | 203.8                   | 11.40                  | 18.879            |                             |         |
| 2,700.0  | 2,697.9               | 2,686.5               | 2,680.2               | 6.1              | 6.5           | 178.33                | 92.2                                | -91.1        | 227.3                  | 215.5                   | 11.85                  | 19.182            |                             |         |
| 2,800.0  | 2,797.8               | 2,785.7               | 2,779.0               | 6.3              | 6.8           | 179.05                | 99.8                                | -94.3        | 239.5                  | 227.2                   | 12.30                  | 19.467            |                             |         |
| 2,900.0  | 2,897.7               | 2,884.9               | 2,877.9               | 6.6              | 7.0           | 179.70                | 107.4                               | -97.6        | 251.6                  | 238.9                   | 12.75                  | 19.733            |                             |         |
| 3,000.0  | 2,997.6               | 2,984.1               | 2,976.8               | 6.8              | 7.3           | -179.71               | 115.0                               | -100.8       | 263.8                  | 250.6                   | 13.20                  | 19.984            |                             |         |
| 3,100.0  | 3,097.5               | 3,083.4               | 3,075.6               | 7.1              | 7.6           | -179.18               | 122.6                               | -104.1       | 276.1                  | 262.4                   | 13.65                  | 20.221            |                             |         |
| 3,200.0  | 3,197.4               | 3,182.6               | 3,174.5               | 7.3              | 7.8           | -178.69               | 130.2                               | -107.3       | 288.3                  | 274.2                   | 14.10                  | 20.444            |                             |         |
| 3,300.0  | 3,297.3               | 3,281.8               | 3,273.4               | 7.5              | 8.1           | -178.23               | 137.8                               | -110.6       | 300.6                  | 286.1                   | 14.55                  | 20.654            |                             |         |
| 3,400.0  | 3,397.3               | 3,381.0               | 3,372.3               | 7.8              | 8.4           | -177.82               | 145.4                               | -113.9       | 312.9                  | 297.9                   | 15.00                  | 20.854            |                             |         |
| 3,500.0  | 3,497.2               | 3,480.2               | 3,471.1               | 8.0              | 8.6           | -177.43               | 153.0                               | -117.1       | 325.2                  | 309.8                   | 15.45                  | 21.043            |                             |         |
| 3,600.0  | 3,597.1               | 3,579.4               | 3,570.0               | 8.3              | 8.9           | -177.08               | 160.5                               | -120.4       | 337.5                  | 321.6                   | 15.90                  | 21.222            |                             |         |
| 3,700.0  | 3,697.0               | 3,678.7               | 3,668.9               | 8.5              | 9.2           | -176.75               | 168.1                               | -123.6       | 349.9                  | 333.5                   | 16.35                  | 21.393            |                             |         |
| 3,800.0  | 3,796.9               | 3,777.9               | 3,767.8               | 8.7              | 9.4           | -176.44               | 175.7                               | -126.9       | 362.2                  | 345.4                   | 16.80                  | 21.554            |                             |         |
| 3,900.0  | 3,896.8               | 3,877.1               | 3,866.6               | 9.0              | 9.7           | -176.15               | 183.3                               | -130.1       | 374.6                  | 357.3                   | 17.26                  | 21.703            |                             |         |
| 4,000.0  | 3,996.7               | 3,976.3               | 3,965.5               | 9.2              | 10.0          | -175.88               | 190.9                               | -133.4       | 386.9                  | 369.2                   | 17.71                  | 21.844            |                             |         |
| 4,100.0  | 4,096.6               | 4,075.5               | 4,064.4               | 9.5              | 10.2          | -175.63               | 198.5                               | -136.6       | 399.3                  | 381.1                   | 18.17                  | 21.978            |                             |         |
| 4,200.0  | 4,196.5               | 4,174.7               | 4,163.2               | 9.7              | 10.5          | -175.39               | 206.1                               | -139.9       | 411.7                  | 393.1                   | 18.62                  | 22.106            |                             |         |
| 4,300.0  | 4,296.4               | 4,274.0               | 4,262.1               | 9.9              | 10.8          | -175.17               | 213.7                               | -143.1       | 424.1                  | 405.0                   | 19.08                  | 22.228            |                             |         |
| 4,400.0  | 4,396.3               | 4,373.2               | 4,361.0               | 10.2             | 11.0          | -174.95               | 221.3                               | -146.4       | 436.5                  | 416.9                   | 19.53                  | 22.345            |                             |         |
| 4,500.0  | 4,496.2               | 4,472.4               | 4,459.9               | 10.4             | 11.3          | -174.75               | 228.9                               | -149.6       | 448.8                  | 428.9                   | 19.99                  | 22.457            |                             |         |
| 4,600.0  | 4,596.1               | 4,571.6               | 4,558.7               | 10.7             | 11.6          | -174.57               | 236.5                               | -152.9       | 461.2                  | 440.8                   | 20.44                  | 22.564            |                             |         |
| 4,700.0  | 4,696.0               | 4,680.5               | 4,667.2               | 10.9             | 11.9          | -174.39               | 244.2                               | -156.2       | 473.1                  | 452.2                   | 20.90                  | 22.637            |                             |         |
| 4,800.0  | 4,796.0               | 4,799.5               | 4,786.2               | 11.1             | 12.1          | -174.31               | 248.8                               | -158.1       | 480.6                  | 459.2                   | 21.34                  | 22.520            |                             |         |
| 4,900.0  | 4,896.0               | 4,909.3               | 4,896.0               | 11.3             | 12.3          | -36.04                | 249.4                               | -158.4       | 481.5                  | 459.8                   | 21.74                  | 22.149            |                             |         |
| 5,000.0  | 4,996.0               | 5,009.3               | 4,996.0               | 11.5             | 12.5          | -36.04                | 249.4                               | -158.4       | 481.5                  | 459.4                   | 22.14                  | 21.752            |                             |         |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2553 - 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 |
| 5,100.0  | 5,096.0               | 5,109.3               | 5,096.0               | 11.7             | 12.6          | -36.04                | 249.4                               | -158.4       | 481.5                  | 459.0                   |         | 22.54                  | 21.366            |
| 5,200.0  | 5,195.9               | 5,361.2               | 5,342.8               | 11.8             | 12.8          | -39.75                | 210.8                               | -156.7       | 471.5                  | 448.4                   |         | 23.10                  | 20.408            |
| 5,300.0  | 5,293.9               | 5,580.7               | 5,522.9               | 11.9             | 12.6          | -63.71                | 88.3                                | -151.4       | 414.1                  | 390.6                   |         | 23.56                  | 17.575            |
| 5,400.0  | 5,386.5               | 5,645.0               | 5,564.4               | 12.0             | 12.6          | -84.41                | 39.1                                | -149.3       | 347.9                  | 323.7                   |         | 24.17                  | 14.393            |
| 5,500.0  | 5,470.2               | 5,653.2               | 5,569.2               | 12.1             | 12.6          | -92.80                | 32.5                                | -149.0       | 296.4                  | 272.0                   |         | 24.42                  | 12.135            |
| 5,600.0  | 5,542.1               | 5,638.2               | 5,560.2               | 12.3             | 12.6          | -92.30                | 44.6                                | -149.6       | 273.5                  | 248.9                   |         | 24.65                  | 11.098            |
| 5,615.6  | 5,552.1               | 5,634.6               | 5,558.1               | 12.3             | 12.6          | -91.62                | 47.4                                | -149.7       | 273.1                  | 248.4                   |         | 24.71                  | 11.052 SF         |
| 5,700.0  | 5,599.4               | 5,611.7               | 5,543.6               | 12.6             | 12.6          | -85.70                | 65.2                                | -150.5       | 284.9                  | 260.0                   |         | 24.98                  | 11.407            |
| 5,800.0  | 5,640.0               | 5,578.7               | 5,521.6               | 13.3             | 12.6          | -75.09                | 89.7                                | -151.5       | 323.4                  | 298.5                   |         | 24.95                  | 12.962            |
| 5,900.0  | 5,662.5               | 5,541.9               | 5,495.1               | 14.1             | 12.7          | -62.98                | 115.3                               | -152.6       | 376.7                  | 352.9                   |         | 23.85                  | 15.796            |
| 6,000.0  | 5,667.0               | 5,500.0               | 5,462.9               | 15.2             | 12.7          | -53.55                | 142.0                               | -153.8       | 435.8                  | 413.3                   |         | 22.46                  | 19.400            |
| 6,100.0  | 5,667.0               | 5,468.6               | 5,437.5               | 16.3             | 12.7          | -50.35                | 160.3                               | -154.6       | 501.8                  | 479.2                   |         | 22.60                  | 22.203            |
| 6,200.0  | 5,667.0               | 5,450.0               | 5,421.8               | 17.7             | 12.8          | -48.52                | 170.5                               | -155.0       | 574.8                  | 551.6                   |         | 23.16                  | 24.813            |
| 6,300.0  | 5,667.0               | 5,415.7               | 5,392.2               | 19.1             | 12.8          | -45.32                | 187.6                               | -155.7       | 652.6                  | 629.3                   |         | 23.26                  | 28.059            |
| 6,400.0  | 5,667.0               | 5,400.0               | 5,378.2               | 20.6             | 12.8          | -43.92                | 194.8                               | -156.0       | 734.5                  | 710.5                   |         | 23.96                  | 30.653            |
| 6,500.0  | 5,667.0               | 5,377.3               | 5,357.7               | 22.1             | 12.8          | -42.00                | 204.5                               | -156.5       | 819.3                  | 794.9                   |         | 24.44                  | 33.526            |
| 6,600.0  | 5,667.0               | 5,350.0               | 5,332.4               | 23.8             | 12.8          | -39.81                | 214.9                               | -156.9       | 906.7                  | 882.0                   |         | 24.75                  | 36.629            |
| 6,700.0  | 5,667.0               | 5,350.0               | 5,332.4               | 25.4             | 12.8          | -39.81                | 214.9                               | -156.9       | 995.6                  | 969.6                   |         | 26.01                  | 38.283            |
| 6,800.0  | 5,667.0               | 5,350.0               | 5,332.4               | 27.1             | 12.8          | -39.81                | 214.9                               | -156.9       | 1,086.4                | 1,059.1                 |         | 27.28                  | 39.824            |
| 6,900.0  | 5,667.0               | 5,326.2               | 5,310.0               | 28.8             | 12.8          | -38.02                | 222.9                               | -157.3       | 1,177.9                | 1,150.2                 |         | 27.68                  | 42.558            |
| 7,000.0  | 5,667.0               | 5,300.0               | 5,285.0               | 30.6             | 12.9          | -36.18                | 230.5                               | -157.6       | 1,271.1                | 1,243.1                 |         | 27.98                  | 45.424            |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2554 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        |                   | 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           | 180.00                | -50.7                               | 0.0          | 50.7                   |                         |                        |                   |                             |         |
| 100.0  | 100.0                 | 100.0                 | 100.0                 | 0.1              | 0.1           | 180.00                | -50.7                               | 0.0          | 50.7                   | 50.5                    | 0.19                   | 271.506           |                             |         |
| 200.0  | 200.0                 | 200.0                 | 200.0                 | 0.3              | 0.3           | 180.00                | -50.7                               | 0.0          | 50.7                   | 50.0                    | 0.64                   | 79.629            |                             |         |
| 300.0  | 300.0                 | 300.0                 | 300.0                 | 0.5              | 0.5           | 180.00                | -50.7                               | 0.0          | 50.7                   | 49.6                    | 1.09                   | 46.656            |                             |         |
| 400.0  | 400.0                 | 400.0                 | 400.0                 | 0.8              | 0.8           | 180.00                | -50.7                               | 0.0          | 50.7                   | 49.1                    | 1.54                   | 32.994            |                             |         |
| 500.0  | 500.0                 | 500.0                 | 500.0                 | 1.0              | 1.0           | 43.10                 | -50.7                               | 0.0          | 49.4                   | 47.4                    | 1.97                   | 25.094            |                             |         |
| 600.0  | 599.9                 | 599.9                 | 599.9                 | 1.2              | 1.2           | 46.69                 | -50.7                               | 0.0          | 46.4                   | 44.0                    | 2.39                   | 19.428            |                             |         |
| 700.0  | 699.8                 | 701.3                 | 701.3                 | 1.4              | 1.4           | 51.03                 | -48.9                               | 0.2          | 41.7                   | 38.9                    | 2.82                   | 14.785            |                             |         |
| 800.0  | 799.7                 | 802.2                 | 802.1                 | 1.6              | 1.7           | 57.27                 | -43.6                               | 0.8          | 33.9                   | 30.6                    | 3.27                   | 10.363            |                             |         |
| 900.0  | 899.6                 | 901.7                 | 901.3                 | 1.8              | 1.9           | 68.40                 | -36.3                               | 1.6          | 24.8                   | 21.1                    | 3.73                   | 6.663             |                             |         |
| 1,000.0  | 999.5                 | 1,001.2               | 1,000.5               | 2.0              | 2.1           | 90.15                 | -29.1                               | 2.4          | 17.6                   | 13.4                    | 4.18                   | 4.208             |                             |         |
| 1,083.8  | 1,083.3               | 1,084.5               | 1,083.6               | 2.2              | 2.3           | 120.61                | -23.1                               | 3.1          | 15.2                   | 10.6                    | 4.58                   | 3.311 CC, ES      |                             |         |
| 1,100.0  | 1,099.4               | 1,100.6               | 1,099.6               | 2.3              | 2.4           | 127.08                | -21.9                               | 3.2          | 15.3                   | 10.6                    | 4.65                   | 3.280 SF          |                             |         |
| 1,200.0  | 1,199.3               | 1,200.0               | 1,198.8               | 2.5              | 2.6           | 159.78                | -14.7                               | 4.0          | 19.6                   | 14.5                    | 5.09                   | 3.847             |                             |         |
| 1,300.0  | 1,299.2               | 1,299.5               | 1,298.0               | 2.7              | 2.9           | 177.20                | -7.4                                | 4.8          | 27.6                   | 22.1                    | 5.54                   | 4.992             |                             |         |
| 1,400.0  | 1,399.1               | 1,398.9               | 1,397.1               | 3.0              | 3.1           | -173.66               | -0.2                                | 5.6          | 37.1                   | 31.1                    | 5.99                   | 6.189             |                             |         |
| 1,500.0  | 1,499.0               | 1,498.3               | 1,496.3               | 3.2              | 3.4           | -168.30               | 7.0                                 | 6.4          | 47.0                   | 40.6                    | 6.44                   | 7.300             |                             |         |
| 1,600.0  | 1,598.9               | 1,597.7               | 1,595.4               | 3.5              | 3.6           | -164.83               | 14.3                                | 7.2          | 57.2                   | 50.3                    | 6.90                   | 8.302             |                             |         |
| 1,700.0  | 1,698.9               | 1,697.2               | 1,694.6               | 3.7              | 3.9           | -162.42               | 21.5                                | 8.1          | 67.6                   | 60.3                    | 7.35                   | 9.197             |                             |         |
| 1,800.0  | 1,798.8               | 1,796.6               | 1,793.8               | 3.9              | 4.1           | -160.65               | 28.7                                | 8.9          | 78.1                   | 70.3                    | 7.81                   | 9.999             |                             |         |
| 1,900.0  | 1,898.7               | 1,896.0               | 1,892.9               | 4.2              | 4.4           | -159.30               | 35.9                                | 9.7          | 88.6                   | 80.3                    | 8.27                   | 10.718            |                             |         |
| 2,000.0  | 1,998.6               | 1,995.4               | 1,992.1               | 4.4              | 4.6           | -158.24               | 43.2                                | 10.5         | 99.1                   | 90.4                    | 8.72                   | 11.366            |                             |         |
| 2,100.0  | 2,098.5               | 2,094.9               | 2,091.2               | 4.7              | 4.9           | -157.38               | 50.4                                | 11.3         | 109.7                  | 100.5                   | 9.18                   | 11.952            |                             |         |
| 2,200.0  | 2,198.4               | 2,194.3               | 2,190.4               | 4.9              | 5.1           | -156.67               | 57.6                                | 12.1         | 120.3                  | 110.7                   | 9.64                   | 12.484            |                             |         |
| 2,300.0  | 2,298.3               | 2,293.7               | 2,289.6               | 5.1              | 5.4           | -156.08               | 64.8                                | 12.9         | 130.9                  | 120.8                   | 10.10                  | 12.970            |                             |         |
| 2,400.0  | 2,398.2               | 2,393.1               | 2,388.7               | 5.4              | 5.7           | -155.58               | 72.1                                | 13.7         | 141.6                  | 131.0                   | 10.55                  | 13.414            |                             |         |
| 2,500.0  | 2,498.1               | 2,492.6               | 2,487.9               | 5.6              | 5.9           | -155.14               | 79.3                                | 14.5         | 152.2                  | 141.2                   | 11.01                  | 13.823            |                             |         |
| 2,600.0  | 2,598.0               | 2,592.0               | 2,587.0               | 5.9              | 6.2           | -154.77               | 86.5                                | 15.3         | 162.8                  | 151.4                   | 11.47                  | 14.199            |                             |         |
| 2,700.0  | 2,697.9               | 2,691.4               | 2,686.2               | 6.1              | 6.4           | -154.44               | 93.7                                | 16.1         | 173.5                  | 161.6                   | 11.93                  | 14.548            |                             |         |
| 2,800.0  | 2,797.8               | 2,790.9               | 2,785.4               | 6.3              | 6.7           | -154.14               | 101.0                               | 16.9         | 184.2                  | 171.8                   | 12.38                  | 14.871            |                             |         |
| 2,900.0  | 2,897.7               | 2,890.3               | 2,884.5               | 6.6              | 6.9           | -153.88               | 108.2                               | 17.7         | 194.8                  | 182.0                   | 12.84                  | 15.172            |                             |         |
| 3,000.0  | 2,997.6               | 2,989.7               | 2,983.7               | 6.8              | 7.2           | -153.65               | 115.4                               | 18.5         | 205.5                  | 192.2                   | 13.30                  | 15.452            |                             |         |
| 3,100.0  | 3,097.5               | 3,089.1               | 3,082.8               | 7.1              | 7.5           | -153.44               | 122.7                               | 19.4         | 216.1                  | 202.4                   | 13.75                  | 15.715            |                             |         |
| 3,200.0  | 3,197.4               | 3,188.6               | 3,182.0               | 7.3              | 7.7           | -153.25               | 129.9                               | 20.2         | 226.8                  | 212.6                   | 14.21                  | 15.960            |                             |         |
| 3,300.0  | 3,297.3               | 3,288.0               | 3,281.2               | 7.5              | 8.0           | -153.08               | 137.1                               | 21.0         | 237.5                  | 222.8                   | 14.67                  | 16.191            |                             |         |
| 3,400.0  | 3,397.3               | 3,387.4               | 3,380.3               | 7.8              | 8.2           | -152.92               | 144.3                               | 21.8         | 248.2                  | 233.0                   | 15.12                  | 16.409            |                             |         |
| 3,500.0  | 3,497.2               | 3,486.8               | 3,479.5               | 8.0              | 8.5           | -152.77               | 151.6                               | 22.6         | 258.8                  | 243.3                   | 15.58                  | 16.613            |                             |         |
| 3,600.0  | 3,597.1               | 3,586.3               | 3,578.6               | 8.3              | 8.7           | -152.64               | 158.8                               | 23.4         | 269.5                  | 253.5                   | 16.04                  | 16.807            |                             |         |
| 3,700.0  | 3,697.0               | 3,685.7               | 3,677.8               | 8.5              | 9.0           | -152.51               | 166.0                               | 24.2         | 280.2                  | 263.7                   | 16.49                  | 16.990            |                             |         |
| 3,800.0  | 3,796.9               | 3,785.1               | 3,777.0               | 8.7              | 9.3           | -152.40               | 173.2                               | 25.0         | 290.9                  | 273.9                   | 16.95                  | 17.164            |                             |         |
| 3,900.0  | 3,896.8               | 3,884.5               | 3,876.1               | 9.0              | 9.5           | -152.29               | 180.5                               | 25.8         | 301.5                  | 284.1                   | 17.40                  | 17.328            |                             |         |
| 4,000.0  | 3,996.7               | 3,984.0               | 3,975.3               | 9.2              | 9.8           | -152.19               | 187.7                               | 26.6         | 312.2                  | 294.4                   | 17.86                  | 17.480            |                             |         |
| 4,100.0  | 4,096.6               | 4,083.4               | 4,074.4               | 9.5              | 10.0          | -152.10               | 194.9                               | 27.4         | 322.9                  | 304.6                   | 18.32                  | 17.625            |                             |         |
| 4,200.0  | 4,196.5               | 4,182.8               | 4,173.6               | 9.7              | 10.3          | -152.01               | 202.2                               | 28.2         | 333.6                  | 314.8                   | 18.78                  | 17.762            |                             |         |
| 4,300.0  | 4,296.4               | 4,282.2               | 4,272.8               | 9.9              | 10.5          | -151.93               | 209.4                               | 29.0         | 344.3                  | 325.0                   | 19.24                  | 17.893            |                             |         |
| 4,400.0  | 4,396.3               | 4,381.7               | 4,371.9               | 10.2             | 10.8          | -151.86               | 216.6                               | 29.8         | 355.0                  | 335.3                   | 19.70                  | 18.017            |                             |         |
| 4,500.0  | 4,496.2               | 4,481.1               | 4,471.1               | 10.4             | 11.1          | -151.78               | 223.8                               | 30.7         | 365.6                  | 345.5                   | 20.16                  | 18.136            |                             |         |
| 4,600.0  | 4,596.1               | 4,580.5               | 4,570.2               | 10.7             | 11.3          | -151.72               | 231.1                               | 31.5         | 376.3                  | 355.7                   | 20.62                  | 18.250            |                             |         |
| 4,700.0  | 4,696.0               | 4,680.0               | 4,669.4               | 10.9             | 11.6          | -151.65               | 238.3                               | 32.3         | 387.0                  | 365.9                   | 21.08                  | 18.359            |                             |         |
| 4,800.0  | 4,796.0               | 4,787.3               | 4,776.5               | 11.1             | 11.8          | -151.61               | 245.5                               | 33.1         | 396.3                  | 374.8                   | 21.54                  | 18.402            |                             |         |
| 4,900.0  | 4,896.0               | 4,902.3               | 4,891.4               | 11.3             | 12.0          | -13.22                | 249.1                               | 33.5         | 399.8                  | 377.8                   | 21.94                  | 18.225            |                             |         |
| 5,000.0  | 4,996.0               | 5,006.8               | 4,996.0               | 11.5             | 12.2          | -13.21                | 249.3                               | 33.5         | 399.9                  | 377.6                   | 22.31                  | 17.928            |                             |         |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2554 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                  |                   | Offset Site Error: | 0.0 usft |
|--|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------|-------------------|--------------------|----------|
| Survey Program: 0-ISCSWA MWD                                 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                  |                   | Offset Well Error: | 0.0 usft |
| Reference  |                       | Offset                |                       | Semi Major Axis  |               |                       | Distance                            |              |                        |                         | Total            |                   | 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 | Separation Factor |                    |          |
| 5,100.0  | 5,096.0               | 5,106.8               | 5,096.0               | 11.7             | 12.4          | -13.21                | 249.3                               | 33.5         | 399.9                  | 377.2                   | 22.71            | 17.612            |                    |          |
| 5,200.0  | 5,195.9               | 5,206.8               | 5,195.9               | 11.8             | 12.6          | -12.86                | 249.3                               | 33.5         | 397.6                  | 374.6                   | 23.04            | 17.258            |                    |          |
| 5,300.0  | 5,293.9               | 5,458.4               | 5,440.9               | 11.9             | 12.7          | -17.98                | 203.0                               | 35.2         | 364.8                  | 341.8                   | 22.94            | 15.902            |                    |          |
| 5,400.0  | 5,386.5               | 5,606.0               | 5,565.1               | 12.0             | 12.6          | -40.10                | 124.1                               | 38.2         | 285.4                  | 262.7                   | 22.68            | 12.583            |                    |          |
| 5,500.0  | 5,470.2               | 5,648.9               | 5,596.4               | 12.1             | 12.6          | -78.31                | 94.9                                | 39.3         | 194.7                  | 170.4                   | 24.31            | 8.010             |                    |          |
| 5,600.0  | 5,542.1               | 5,650.4               | 5,597.5               | 12.3             | 12.6          | -95.65                | 93.8                                | 39.3         | 113.0                  | 88.2                    | 24.77            | 4.561             |                    |          |
| 5,676.5  | 5,587.3               | 5,638.2               | 5,588.8               | 12.5             | 12.6          | -91.18                | 102.4                               | 39.0         | 83.9                   | 58.7                    | 25.21            | 3.328             |                    |          |
| 5,700.0  | 5,599.4               | 5,633.0               | 5,585.0               | 12.6             | 12.6          | -87.38                | 106.0                               | 38.9         | 87.0                   | 61.7                    | 25.28            | 3.440             |                    |          |
| 5,800.0  | 5,640.0               | 5,605.6               | 5,564.8               | 13.3             | 12.6          | -63.22                | 124.3                               | 38.2         | 144.9                  | 121.4                   | 23.48            | 6.169             |                    |          |
| 5,900.0  | 5,662.5               | 5,572.5               | 5,538.9               | 14.1             | 12.6          | -40.21                | 145.0                               | 37.4         | 224.5                  | 206.8                   | 17.71            | 12.676            |                    |          |
| 6,000.0  | 5,667.0               | 5,536.3               | 5,509.3               | 15.2             | 12.7          | -28.52                | 165.7                               | 36.6         | 304.6                  | 290.9                   | 13.75            | 22.146            |                    |          |
| 6,100.0  | 5,667.0               | 5,500.0               | 5,478.1               | 16.3             | 12.7          | -24.54                | 184.4                               | 35.9         | 387.7                  | 374.7                   | 12.98            | 29.869            |                    |          |
| 6,200.0  | 5,667.0               | 5,478.7               | 5,459.3               | 17.7             | 12.7          | -22.62                | 194.3                               | 35.6         | 474.3                  | 461.3                   | 13.04            | 36.383            |                    |          |
| 6,300.0  | 5,667.0               | 5,450.0               | 5,433.2               | 19.1             | 12.7          | -20.39                | 206.4                               | 35.1         | 563.6                  | 550.6                   | 12.98            | 43.407            |                    |          |
| 6,400.0  | 5,667.0               | 5,450.0               | 5,433.2               | 20.6             | 12.7          | -20.39                | 206.4                               | 35.1         | 654.7                  | 640.9                   | 13.85            | 47.262            |                    |          |
| 6,500.0  | 5,667.0               | 5,423.1               | 5,408.3               | 22.1             | 12.8          | -18.63                | 216.5                               | 34.7         | 747.0                  | 733.0                   | 13.98            | 53.416            |                    |          |
| 6,600.0  | 5,667.0               | 5,400.0               | 5,386.5               | 23.8             | 12.8          | -17.31                | 224.1                               | 34.4         | 840.8                  | 826.5                   | 14.30            | 58.804            |                    |          |
| 6,700.0  | 5,667.0               | 5,400.0               | 5,386.5               | 25.4             | 12.8          | -17.31                | 224.1                               | 34.4         | 935.1                  | 919.9                   | 15.17            | 61.627            |                    |          |
| 6,800.0  | 5,667.0               | 5,400.0               | 5,386.5               | 27.1             | 12.8          | -17.31                | 224.1                               | 34.4         | 1,030.5                | 1,014.5                 | 16.06            | 64.176            |                    |          |
| 6,900.0  | 5,667.0               | 5,378.7               | 5,366.1               | 28.8             | 12.8          | -16.23                | 230.2                               | 34.2         | 1,126.1                | 1,109.7                 | 16.44            | 68.492            |                    |          |
| 7,000.0  | 5,667.0               | 5,370.6               | 5,358.3               | 30.6             | 12.8          | -15.85                | 232.3                               | 34.1         | 1,222.4                | 1,205.2                 | 17.14            | 71.315            |                    |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2555 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                  |              | 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           | 149.45                | -50.7                               | 29.9         | 58.8                   |                         |                  |              |                    |          |
| 100.0  | 100.0                 | 100.0                 | 100.0                 | 0.1              | 0.1           | 149.45                | -50.7                               | 29.9         | 58.8                   | 58.6                    | 0.19             | 315.304      |                    |          |
| 200.0  | 200.0                 | 200.0                 | 200.0                 | 0.3              | 0.3           | 149.45                | -50.7                               | 29.9         | 58.8                   | 58.2                    | 0.64             | 92.474       |                    |          |
| 300.0  | 300.0                 | 300.0                 | 300.0                 | 0.5              | 0.5           | 149.45                | -50.7                               | 29.9         | 58.8                   | 57.7                    | 1.09             | 54.183       |                    |          |
| 400.0  | 400.0                 | 400.0                 | 400.0                 | 0.8              | 0.8           | 149.45                | -50.7                               | 29.9         | 58.8                   | 57.3                    | 1.54             | 38.317       |                    |          |
| 500.0  | 500.0                 | 500.0                 | 500.0                 | 1.0              | 1.0           | 11.54                 | -50.7                               | 29.9         | 57.1                   | 55.1                    | 1.97             | 28.985       |                    |          |
| 600.0  | 599.9                 | 600.3                 | 600.3                 | 1.2              | 1.2           | 12.04                 | -50.3                               | 30.1         | 52.8                   | 50.4                    | 2.39             | 22.093       |                    |          |
| 700.0  | 699.8                 | 700.9                 | 700.8                 | 1.4              | 1.4           | 9.31                  | -47.3                               | 32.1         | 47.0                   | 44.2                    | 2.81             | 16.694       |                    |          |
| 800.0  | 799.7                 | 801.0                 | 800.7                 | 1.6              | 1.7           | 1.16                  | -41.5                               | 35.9         | 40.2                   | 36.9                    | 3.25             | 12.364       |                    |          |
| 900.0  | 899.6                 | 900.4                 | 899.7                 | 1.8              | 1.9           | -12.87                | -34.1                               | 40.7         | 34.4                   | 30.7                    | 3.70             | 9.295        |                    |          |
| 1,000.0  | 999.5                 | 999.9                 | 998.8                 | 2.0              | 2.2           | -30.92                | -26.8                               | 45.5         | 31.4                   | 27.2                    | 4.17             | 7.529        |                    |          |
| 1,035.5  | 1,035.0               | 1,035.2               | 1,033.9               | 2.1              | 2.2           | -37.89                | -24.1                               | 47.2         | 31.1                   | 26.8                    | 4.34             | 7.182 CC, ES |                    |          |
| 1,100.0  | 1,099.4               | 1,099.3               | 1,097.8               | 2.3              | 2.4           | -50.42                | -19.4                               | 50.3         | 31.9                   | 27.3                    | 4.64             | 6.877        |                    |          |
| 1,200.0  | 1,199.3               | 1,198.7               | 1,196.8               | 2.5              | 2.7           | -67.43                | -12.1                               | 55.0         | 35.8                   | 30.7                    | 5.11             | 7.021        |                    |          |
| 1,300.0  | 1,299.2               | 1,298.1               | 1,295.8               | 2.7              | 2.9           | -80.23                | -4.7                                | 59.8         | 42.2                   | 36.7                    | 5.57             | 7.586        |                    |          |
| 1,400.0  | 1,399.1               | 1,397.5               | 1,394.9               | 3.0              | 3.2           | -89.36                | 2.6                                 | 64.6         | 50.2                   | 44.1                    | 6.03             | 8.319        |                    |          |
| 1,500.0  | 1,499.0               | 1,496.9               | 1,493.9               | 3.2              | 3.5           | -95.89                | 10.0                                | 69.4         | 59.0                   | 52.5                    | 6.49             | 9.088        |                    |          |
| 1,600.0  | 1,598.9               | 1,596.4               | 1,592.9               | 3.5              | 3.7           | -100.68               | 17.3                                | 74.2         | 68.4                   | 61.5                    | 6.96             | 9.835        |                    |          |
| 1,700.0  | 1,698.9               | 1,695.8               | 1,692.0               | 3.7              | 4.0           | -104.29               | 24.7                                | 79.0         | 78.2                   | 70.7                    | 7.42             | 10.534       |                    |          |
| 1,800.0  | 1,798.8               | 1,795.2               | 1,791.0               | 3.9              | 4.3           | -107.10               | 32.0                                | 83.8         | 88.2                   | 80.3                    | 7.89             | 11.180       |                    |          |
| 1,900.0  | 1,898.7               | 1,894.6               | 1,890.0               | 4.2              | 4.5           | -109.33               | 39.4                                | 88.6         | 98.3                   | 90.0                    | 8.35             | 11.773       |                    |          |
| 2,000.0  | 1,998.6               | 1,994.0               | 1,989.0               | 4.4              | 4.8           | -111.14               | 46.7                                | 93.4         | 108.6                  | 99.8                    | 8.82             | 12.315       |                    |          |
| 2,100.0  | 2,098.5               | 2,093.4               | 2,088.1               | 4.7              | 5.1           | -112.64               | 54.1                                | 98.1         | 119.0                  | 109.7                   | 9.29             | 12.812       |                    |          |
| 2,200.0  | 2,198.4               | 2,192.8               | 2,187.1               | 4.9              | 5.3           | -113.89               | 61.4                                | 102.9        | 129.4                  | 119.7                   | 9.76             | 13.268       |                    |          |
| 2,300.0  | 2,298.3               | 2,292.3               | 2,286.1               | 5.1              | 5.6           | -114.96               | 68.8                                | 107.7        | 139.9                  | 129.7                   | 10.23            | 13.686       |                    |          |
| 2,400.0  | 2,398.2               | 2,391.7               | 2,385.2               | 5.4              | 5.9           | -115.88               | 76.1                                | 112.5        | 150.5                  | 139.8                   | 10.69            | 14.072       |                    |          |
| 2,500.0  | 2,498.1               | 2,491.1               | 2,484.2               | 5.6              | 6.2           | -116.68               | 83.5                                | 117.3        | 161.1                  | 149.9                   | 11.16            | 14.427       |                    |          |
| 2,600.0  | 2,598.0               | 2,590.5               | 2,583.2               | 5.9              | 6.4           | -117.38               | 90.8                                | 122.1        | 171.7                  | 160.0                   | 11.63            | 14.757       |                    |          |
| 2,700.0  | 2,697.9               | 2,689.9               | 2,682.2               | 6.1              | 6.7           | -118.00               | 98.2                                | 126.9        | 182.3                  | 170.2                   | 12.10            | 15.062       |                    |          |
| 2,800.0  | 2,797.8               | 2,789.3               | 2,781.3               | 6.3              | 7.0           | -118.55               | 105.5                               | 131.7        | 192.9                  | 180.3                   | 12.57            | 15.347       |                    |          |
| 2,900.0  | 2,897.7               | 2,888.8               | 2,880.3               | 6.6              | 7.2           | -119.04               | 112.9                               | 136.5        | 203.6                  | 190.5                   | 13.04            | 15.612       |                    |          |
| 3,000.0  | 2,997.6               | 2,988.2               | 2,979.3               | 6.8              | 7.5           | -119.49               | 120.2                               | 141.2        | 214.2                  | 200.7                   | 13.51            | 15.860       |                    |          |
| 3,100.0  | 3,097.5               | 3,087.6               | 3,078.4               | 7.1              | 7.8           | -119.89               | 127.6                               | 146.0        | 224.9                  | 210.9                   | 13.98            | 16.092       |                    |          |
| 3,200.0  | 3,197.4               | 3,187.0               | 3,177.4               | 7.3              | 8.1           | -120.25               | 134.9                               | 150.8        | 235.6                  | 221.2                   | 14.45            | 16.309       |                    |          |
| 3,300.0  | 3,297.3               | 3,286.4               | 3,276.4               | 7.5              | 8.3           | -120.59               | 142.3                               | 155.6        | 246.3                  | 231.4                   | 14.92            | 16.514       |                    |          |
| 3,400.0  | 3,397.3               | 3,385.8               | 3,375.4               | 7.8              | 8.6           | -120.89               | 149.6                               | 160.4        | 257.0                  | 241.6                   | 15.38            | 16.707       |                    |          |
| 3,500.0  | 3,497.2               | 3,485.3               | 3,474.5               | 8.0              | 8.9           | -121.17               | 157.0                               | 165.2        | 267.7                  | 251.9                   | 15.85            | 16.889       |                    |          |
| 3,600.0  | 3,597.1               | 3,584.7               | 3,573.5               | 8.3              | 9.2           | -121.43               | 164.3                               | 170.0        | 278.5                  | 262.1                   | 16.32            | 17.061       |                    |          |
| 3,700.0  | 3,697.0               | 3,684.1               | 3,672.5               | 8.5              | 9.4           | -121.67               | 171.7                               | 174.8        | 289.2                  | 272.4                   | 16.79            | 17.225       |                    |          |
| 3,800.0  | 3,796.9               | 3,783.5               | 3,771.6               | 8.7              | 9.7           | -121.90               | 179.0                               | 179.6        | 299.9                  | 282.7                   | 17.26            | 17.379       |                    |          |
| 3,900.0  | 3,896.8               | 3,882.9               | 3,870.6               | 9.0              | 10.0          | -122.11               | 186.3                               | 184.3        | 310.6                  | 292.9                   | 17.72            | 17.526       |                    |          |
| 4,000.0  | 3,996.7               | 3,982.3               | 3,969.6               | 9.2              | 10.2          | -122.30               | 193.7                               | 189.1        | 321.4                  | 303.2                   | 18.19            | 17.666       |                    |          |
| 4,100.0  | 4,096.6               | 4,081.8               | 4,068.6               | 9.5              | 10.5          | -122.48               | 201.0                               | 193.9        | 332.1                  | 313.5                   | 18.66            | 17.797       |                    |          |
| 4,200.0  | 4,196.5               | 4,181.2               | 4,167.7               | 9.7              | 10.8          | -122.65               | 208.4                               | 198.7        | 342.9                  | 323.7                   | 19.13            | 17.920       |                    |          |
| 4,300.0  | 4,296.4               | 4,280.6               | 4,266.7               | 9.9              | 11.1          | -122.81               | 215.7                               | 203.5        | 353.6                  | 334.0                   | 19.61            | 18.036       |                    |          |
| 4,400.0  | 4,396.3               | 4,380.0               | 4,365.7               | 10.2             | 11.3          | -122.96               | 223.1                               | 208.3        | 364.4                  | 344.3                   | 20.08            | 18.148       |                    |          |
| 4,500.0  | 4,496.2               | 4,479.4               | 4,464.8               | 10.4             | 11.6          | -123.10               | 230.4                               | 213.1        | 375.1                  | 354.6                   | 20.55            | 18.254       |                    |          |
| 4,600.0  | 4,596.1               | 4,578.8               | 4,563.8               | 10.7             | 11.9          | -123.24               | 237.8                               | 217.9        | 385.9                  | 364.8                   | 21.02            | 18.355       |                    |          |
| 4,700.0  | 4,696.0               | 4,688.8               | 4,673.4               | 10.9             | 12.2          | -123.43               | 245.0                               | 222.5        | 395.7                  | 374.2                   | 21.49            | 18.411       |                    |          |
| 4,800.0  | 4,796.0               | 4,803.8               | 4,788.3               | 11.1             | 12.4          | -123.74               | 248.9                               | 225.1        | 401.4                  | 379.5                   | 21.92            | 18.313       |                    |          |
| 4,900.0  | 4,896.0               | 4,911.5               | 4,896.0               | 11.3             | 12.5          | 14.47                 | 249.3                               | 225.4        | 402.1                  | 379.8                   | 22.30            | 18.029       |                    |          |
| 5,000.0  | 4,996.0               | 5,011.5               | 4,996.0               | 11.5             | 12.7          | 14.47                 | 249.3                               | 225.4        | 402.1                  | 379.4                   | 22.69            | 17.720       |                    |          |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2555 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        |                   | 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 |                    |          |
| 5,100.0  | 5,096.0               | 5,111.5               | 5,096.0               | 11.7             | 12.9          | 14.47                 | 249.3                               | 225.4        | 402.1                  | 379.0                   | 23.08                  | 17.420            |                    |          |
| 5,200.0  | 5,195.9               | 5,342.8               | 5,323.7               | 11.8             | 13.1          | 17.03                 | 218.1                               | 226.4        | 391.4                  | 367.8                   | 23.62                  | 16.569            |                    |          |
| 5,300.0  | 5,293.9               | 5,556.1               | 5,504.0               | 11.9             | 12.9          | 34.49                 | 107.0                               | 229.9        | 325.7                  | 302.0                   | 23.73                  | 13.726            |                    |          |
| 5,400.0  | 5,386.5               | 5,626.5               | 5,551.7               | 12.0             | 12.9          | 67.84                 | 55.3                                | 231.5        | 239.6                  | 215.5                   | 24.13                  | 9.929             |                    |          |
| 5,500.0  | 5,470.2               | 5,639.6               | 5,559.8               | 12.1             | 12.9          | 90.06                 | 45.1                                | 231.8        | 157.6                  | 133.1                   | 24.44                  | 6.448             |                    |          |
| 5,600.0  | 5,542.1               | 5,627.9               | 5,552.6               | 12.3             | 12.9          | 90.46                 | 54.3                                | 231.6        | 109.3                  | 84.7                    | 24.68                  | 4.431             |                    |          |
| 5,615.7  | 5,552.1               | 5,624.7               | 5,550.6               | 12.3             | 12.9          | 88.95                 | 56.8                                | 231.5        | 108.2                  | 83.5                    | 24.75                  | 4.374 SF          |                    |          |
| 5,700.0  | 5,599.4               | 5,603.8               | 5,537.0               | 12.6             | 12.9          | 75.23                 | 72.8                                | 231.0        | 135.1                  | 110.5                   | 24.61                  | 5.492             |                    |          |
| 5,800.0  | 5,640.0               | 5,572.6               | 5,515.8               | 13.3             | 12.9          | 53.50                 | 95.5                                | 230.3        | 203.9                  | 182.1                   | 21.77                  | 9.363             |                    |          |
| 5,900.0  | 5,662.5               | 5,537.2               | 5,490.0               | 14.1             | 13.0          | 36.23                 | 119.8                               | 229.5        | 280.6                  | 263.5                   | 17.11                  | 16.402            |                    |          |
| 6,000.0  | 5,667.0               | 5,500.0               | 5,461.2               | 15.2             | 13.0          | 27.30                 | 143.3                               | 228.7        | 355.8                  | 341.4                   | 14.38                  | 24.748            |                    |          |
| 6,100.0  | 5,667.0               | 5,466.0               | 5,433.5               | 16.3             | 13.0          | 24.37                 | 162.9                               | 228.1        | 434.2                  | 420.2                   | 14.00                  | 31.008            |                    |          |
| 6,200.0  | 5,667.0               | 5,450.0               | 5,420.0               | 17.7             | 13.0          | 23.14                 | 171.6                               | 227.9        | 517.1                  | 502.8                   | 14.31                  | 36.137            |                    |          |
| 6,300.0  | 5,667.0               | 5,414.5               | 5,389.2               | 19.1             | 13.1          | 20.73                 | 189.2                               | 227.3        | 602.6                  | 588.4                   | 14.16                  | 42.552            |                    |          |
| 6,400.0  | 5,667.0               | 5,400.0               | 5,376.3               | 20.6             | 13.1          | 19.86                 | 195.8                               | 227.1        | 690.7                  | 676.1                   | 14.63                  | 47.203            |                    |          |
| 6,500.0  | 5,667.0               | 5,377.0               | 5,355.4               | 22.1             | 13.1          | 18.59                 | 205.5                               | 226.8        | 780.6                  | 765.6                   | 14.94                  | 52.242            |                    |          |
| 6,600.0  | 5,667.0               | 5,350.0               | 5,330.4               | 23.8             | 13.1          | 17.26                 | 215.7                               | 226.5        | 872.1                  | 856.9                   | 15.22                  | 57.292            |                    |          |
| 6,700.0  | 5,667.0               | 5,350.0               | 5,330.4               | 25.4             | 13.1          | 17.26                 | 215.7                               | 226.5        | 964.5                  | 948.4                   | 16.06                  | 60.046            |                    |          |
| 6,800.0  | 5,667.0               | 5,350.0               | 5,330.4               | 27.1             | 13.1          | 17.26                 | 215.7                               | 226.5        | 1,058.2                | 1,041.3                 | 16.91                  | 62.575            |                    |          |
| 6,900.0  | 5,667.0               | 5,326.8               | 5,308.5               | 28.8             | 13.1          | 16.23                 | 223.4                               | 226.2        | 1,152.2                | 1,134.9                 | 17.30                  | 66.600            |                    |          |
| 7,000.0  | 5,667.0               | 5,300.0               | 5,282.9               | 30.6             | 13.1          | 15.18                 | 231.1                               | 226.0        | 1,247.5                | 1,229.9                 | 17.67                  | 70.619            |                    |          |

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2556 - HZ - Plan #2 |                             |                             |                             |                     |                  |                             |   |                 |                              |                               |       |                              | Offset Site Error:   | 0.0 usft |
|--|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|---|-----------------|------------------------------|-------------------------------|-------|------------------------------|----------------------|----------|
| Survey Program: 0-ISCSWA MWD                                 |                             |                             |                             |                     |                  |                             |   |                 |                              |                               |       |                              | Offset Well Error:   | 0.0 usft |
| Reference  |                             | Offset                      |                             | Semi Major Axis     |                  |                             | Distance                                  |                 |                              |                               |       | Total<br>Uncertainty<br>Axis | Separation<br>Factor | Warning  |
| Measured<br>Depth<br>(usft)                                  | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) | Highside<br>Toolface<br>(°) | Offset Wellbore Centre<br>+N/-S<br>(usft) | +E/-W<br>(usft) | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) |       |                              |                      |          |
| 0.0  | 0.0                         | 0.0                         | 0.0                         | 0.0                 | 0.0              | 130.15                      | -50.7                                     | 60.1            | 78.6                         |                               |       |                              |                      |          |
| 100.0  | 100.0                       | 100.0                       | 100.0                       | 0.1                 | 0.1              | 130.15                      | -50.7                                     | 60.1            | 78.6                         | 78.4                          | 0.19  | 421.221                      |                      |          |
| 200.0  | 200.0                       | 200.0                       | 200.0                       | 0.3                 | 0.3              | 130.15                      | -50.7                                     | 60.1            | 78.6                         | 77.9                          | 0.64  | 123.538                      |                      |          |
| 300.0  | 300.0                       | 300.0                       | 300.0                       | 0.5                 | 0.5              | 130.15                      | -50.7                                     | 60.1            | 78.6                         | 77.5                          | 1.09  | 72.384                       |                      |          |
| 400.0  | 400.0                       | 400.0                       | 400.0                       | 0.8                 | 0.8              | 130.15                      | -50.7                                     | 60.1            | 78.6                         | 77.0                          | 1.54  | 51.188                       |                      |          |
| 500.0  | 500.0                       | 500.0                       | 500.0                       | 1.0                 | 1.0              | -8.30                       | -50.7                                     | 60.1            | 76.9                         | 74.9                          | 1.97  | 39.009                       |                      |          |
| 600.0  | 599.9                       | 599.4                       | 599.4                       | 1.2                 | 1.2              | -10.12                      | -49.6                                     | 61.4            | 73.0                         | 70.6                          | 2.38  | 30.663                       |                      |          |
| 700.0  | 699.8                       | 698.6                       | 698.4                       | 1.4                 | 1.4              | -14.87                      | -46.2                                     | 65.3            | 70.0                         | 67.2                          | 2.80  | 25.023                       |                      |          |
| 791.0  | 790.7                       | 788.4                       | 788.0                       | 1.6                 | 1.6              | -21.79                      | -41.3                                     | 71.2            | 68.9                         | 65.8                          | 3.20  | 21.559 CC                    |                      |          |
| 800.0  | 799.7                       | 797.3                       | 796.7                       | 1.6                 | 1.7              | -22.59                      | -40.8                                     | 71.9            | 69.0                         | 65.7                          | 3.24  | 21.300 ES                    |                      |          |
| 900.0  | 899.6                       | 896.3                       | 895.1                       | 1.8                 | 1.9              | -32.16                      | -33.6                                     | 80.3            | 70.6                         | 66.9                          | 3.70  | 19.087                       |                      |          |
| 1,000.0  | 999.5                       | 995.6                       | 993.8                       | 2.0                 | 2.2              | -41.16                      | -26.4                                     | 88.9            | 74.2                         | 70.0                          | 4.16  | 17.808                       |                      |          |
| 1,100.0  | 1,099.4                     | 1,094.9                     | 1,092.4                     | 2.3                 | 2.5              | -49.16                      | -19.2                                     | 97.5            | 79.4                         | 74.8                          | 4.63  | 17.147                       |                      |          |
| 1,200.0  | 1,199.3                     | 1,194.1                     | 1,191.1                     | 2.5                 | 2.8              | -56.07                      | -12.0                                     | 106.1           | 86.0                         | 80.9                          | 5.10  | 16.879                       |                      |          |
| 1,300.0  | 1,299.2                     | 1,293.4                     | 1,289.7                     | 2.7                 | 3.0              | -61.93                      | -4.8                                      | 114.7           | 93.7                         | 88.1                          | 5.56  | 16.853                       |                      |          |
| 1,400.0  | 1,399.1                     | 1,392.7                     | 1,388.4                     | 3.0                 | 3.3              | -66.86                      | 2.4                                       | 123.3           | 102.2                        | 96.2                          | 6.03  | 16.962                       |                      |          |
| 1,500.0  | 1,499.0                     | 1,492.0                     | 1,487.0                     | 3.2                 | 3.6              | -71.02                      | 9.7                                       | 131.9           | 111.3                        | 104.9                         | 6.49  | 17.148                       |                      |          |
| 1,600.0  | 1,598.9                     | 1,591.3                     | 1,585.7                     | 3.5                 | 3.9              | -74.53                      | 16.9                                      | 140.5           | 121.0                        | 114.0                         | 6.96  | 17.378                       |                      |          |
| 1,700.0  | 1,698.9                     | 1,690.5                     | 1,684.3                     | 3.7                 | 4.2              | -77.52                      | 24.1                                      | 149.0           | 131.0                        | 123.6                         | 7.43  | 17.628                       |                      |          |
| 1,800.0  | 1,798.8                     | 1,789.8                     | 1,782.9                     | 3.9                 | 4.5              | -80.08                      | 31.3                                      | 157.6           | 141.3                        | 133.4                         | 7.90  | 17.884                       |                      |          |
| 1,900.0  | 1,898.7                     | 1,889.1                     | 1,881.6                     | 4.2                 | 4.8              | -82.28                      | 38.5                                      | 166.2           | 151.9                        | 143.5                         | 8.38  | 18.136                       |                      |          |
| 2,000.0  | 1,998.6                     | 1,988.4                     | 1,980.2                     | 4.4                 | 5.1              | -84.20                      | 45.7                                      | 174.8           | 162.7                        | 153.8                         | 8.85  | 18.382                       |                      |          |
| 2,100.0  | 2,098.5                     | 2,087.7                     | 2,078.9                     | 4.7                 | 5.4              | -85.88                      | 52.9                                      | 183.4           | 173.6                        | 164.3                         | 9.32  | 18.617                       |                      |          |
| 2,200.0  | 2,198.4                     | 2,186.9                     | 2,177.5                     | 4.9                 | 5.7              | -87.36                      | 60.2                                      | 192.0           | 184.7                        | 174.8                         | 9.80  | 18.841                       |                      |          |
| 2,300.0  | 2,298.3                     | 2,286.2                     | 2,276.2                     | 5.1                 | 6.0              | -88.68                      | 67.4                                      | 200.6           | 195.8                        | 185.5                         | 10.28 | 19.054                       |                      |          |
| 2,400.0  | 2,398.2                     | 2,385.5                     | 2,374.8                     | 5.4                 | 6.3              | -89.85                      | 74.6                                      | 209.2           | 207.1                        | 196.3                         | 10.75 | 19.255                       |                      |          |
| 2,500.0  | 2,498.1                     | 2,484.8                     | 2,473.5                     | 5.6                 | 6.6              | -90.90                      | 81.8                                      | 217.8           | 218.4                        | 207.2                         | 11.23 | 19.445                       |                      |          |
| 2,600.0  | 2,598.0                     | 2,584.1                     | 2,572.1                     | 5.9                 | 6.9              | -91.84                      | 89.0                                      | 226.3           | 229.8                        | 218.1                         | 11.71 | 19.624                       |                      |          |
| 2,700.0  | 2,697.9                     | 2,683.3                     | 2,670.7                     | 6.1                 | 7.2              | -92.70                      | 96.2                                      | 234.9           | 241.2                        | 229.0                         | 12.19 | 19.793                       |                      |          |
| 2,800.0  | 2,797.8                     | 2,782.6                     | 2,769.4                     | 6.3                 | 7.5              | -93.48                      | 103.5                                     | 243.5           | 252.7                        | 240.1                         | 12.67 | 19.953                       |                      |          |
| 2,900.0  | 2,897.7                     | 2,881.9                     | 2,868.0                     | 6.6                 | 7.8              | -94.19                      | 110.7                                     | 252.1           | 264.3                        | 251.1                         | 13.15 | 20.103                       |                      |          |
| 3,000.0  | 2,997.6                     | 2,981.2                     | 2,966.7                     | 6.8                 | 8.1              | -94.84                      | 117.9                                     | 260.7           | 275.9                        | 262.2                         | 13.62 | 20.246                       |                      |          |
| 3,100.0  | 3,097.5                     | 3,080.5                     | 3,065.3                     | 7.1                 | 8.4              | -95.44                      | 125.1                                     | 269.3           | 287.5                        | 273.4                         | 14.10 | 20.381                       |                      |          |
| 3,200.0  | 3,197.4                     | 3,179.7                     | 3,164.0                     | 7.3                 | 8.7              | -95.99                      | 132.3                                     | 277.9           | 299.1                        | 284.5                         | 14.58 | 20.509                       |                      |          |
| 3,300.0  | 3,297.3                     | 3,279.0                     | 3,262.6                     | 7.5                 | 9.0              | -96.50                      | 139.5                                     | 286.5           | 310.8                        | 295.7                         | 15.06 | 20.631                       |                      |          |
| 3,400.0  | 3,397.3                     | 3,378.3                     | 3,361.3                     | 7.8                 | 9.3              | -96.98                      | 146.7                                     | 295.1           | 322.4                        | 306.9                         | 15.54 | 20.746                       |                      |          |
| 3,500.0  | 3,497.2                     | 3,477.6                     | 3,459.9                     | 8.0                 | 9.6              | -97.42                      | 154.0                                     | 303.6           | 334.2                        | 318.1                         | 16.02 | 20.856                       |                      |          |
| 3,600.0  | 3,597.1                     | 3,576.9                     | 3,558.6                     | 8.3                 | 9.9              | -97.83                      | 161.2                                     | 312.2           | 345.9                        | 329.4                         | 16.50 | 20.961                       |                      |          |
| 3,700.0  | 3,697.0                     | 3,676.2                     | 3,657.2                     | 8.5                 | 10.2             | -98.21                      | 168.4                                     | 320.8           | 357.6                        | 340.6                         | 16.98 | 21.061                       |                      |          |
| 3,800.0  | 3,796.9                     | 3,775.4                     | 3,755.8                     | 8.7                 | 10.5             | -98.57                      | 175.6                                     | 329.4           | 369.4                        | 351.9                         | 17.46 | 21.156                       |                      |          |
| 3,900.0  | 3,896.8                     | 3,874.7                     | 3,854.5                     | 9.0                 | 10.9             | -98.91                      | 182.8                                     | 338.0           | 381.1                        | 363.2                         | 17.94 | 21.247                       |                      |          |
| 4,000.0  | 3,996.7                     | 3,974.0                     | 3,953.1                     | 9.2                 | 11.2             | -99.23                      | 190.0                                     | 346.6           | 392.9                        | 374.5                         | 18.42 | 21.334                       |                      |          |
| 4,100.0  | 4,096.6                     | 4,073.3                     | 4,051.8                     | 9.5                 | 11.5             | -99.53                      | 197.3                                     | 355.2           | 404.7                        | 385.8                         | 18.90 | 21.418                       |                      |          |
| 4,200.0  | 4,196.5                     | 4,172.6                     | 4,150.4                     | 9.7                 | 11.8             | -99.81                      | 204.5                                     | 363.8           | 416.5                        | 397.1                         | 19.37 | 21.498                       |                      |          |
| 4,300.0  | 4,296.4                     | 4,271.8                     | 4,249.1                     | 9.9                 | 12.1             | -100.07                     | 211.7                                     | 372.4           | 428.3                        | 408.5                         | 19.86 | 21.572                       |                      |          |
| 4,400.0  | 4,396.3                     | 4,371.1                     | 4,347.7                     | 10.2                | 12.4             | -100.33                     | 218.9                                     | 380.9           | 440.2                        | 419.8                         | 20.34 | 21.640                       |                      |          |
| 4,500.0  | 4,496.2                     | 4,470.4                     | 4,446.4                     | 10.4                | 12.7             | -100.57                     | 226.1                                     | 389.5           | 452.0                        | 431.2                         | 20.82 | 21.706                       |                      |          |
| 4,600.0  | 4,596.1                     | 4,569.7                     | 4,545.0                     | 10.7                | 13.0             | -100.79                     | 233.3                                     | 398.1           | 463.8                        | 442.5                         | 21.31 | 21.769                       |                      |          |
| 4,700.0  | 4,696.0                     | 4,677.0                     | 4,651.6                     | 10.9                | 13.3             | -101.04                     | 240.9                                     | 407.1           | 475.3                        | 453.5                         | 21.79 | 21.809                       |                      |          |
| 4,800.0  | 4,796.0                     | 4,796.0                     | 4,770.4                     | 11.1                | 13.5             | -101.38                     | 246.6                                     | 413.9           | 483.3                        | 461.1                         | 22.24 | 21.735                       |                      |          |
| 4,900.0  | 4,896.0                     | 4,915.7                     | 4,890.0                     | 11.3                | 13.7             | 36.89                       | 249.2                                     | 417.0           | 486.6                        | 464.0                         | 22.62 | 21.516                       |                      |          |
| 5,000.0  | 4,996.0                     | 5,021.7                     | 4,996.0                     | 11.5                | 13.9             | 36.89                       | 249.3                                     | 417.2           | 486.8                        | 463.8                         | 22.99 | 21.180                       |                      |          |

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

# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

| Offset Design S25-T10N-R58W - Razor 25B -2556 - HZ - Plan #2 |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                        |                   | 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 |                    |          |
| 5,100.0  | 5,096.0               | 5,121.7               | 5,096.0               | 11.7             | 14.1          | 36.89                 | 249.3                               | 417.2        | 486.8                  | 463.5                   | 23.37                  | 20.835            |                    |          |
| 5,200.0  | 5,195.9               | 5,221.6               | 5,195.9               | 11.8             | 14.2          | 37.67                 | 249.3                               | 417.2        | 484.9                  | 461.2                   | 23.75                  | 20.416            |                    |          |
| 5,300.0  | 5,293.9               | 5,459.9               | 5,428.6               | 11.9             | 14.4          | 47.35                 | 208.4                               | 418.2        | 459.6                  | 435.6                   | 23.93                  | 19.203            |                    |          |
| 5,400.0  | 5,386.5               | 5,606.4               | 5,553.9               | 12.0             | 14.3          | 69.58                 | 133.3                               | 420.2        | 401.9                  | 377.6                   | 24.26                  | 16.565            |                    |          |
| 5,500.0  | 5,470.2               | 5,652.3               | 5,588.2               | 12.1             | 14.2          | 84.98                 | 102.9                               | 421.0        | 344.9                  | 320.2                   | 24.69                  | 13.972            |                    |          |
| 5,600.0  | 5,542.1               | 5,656.2               | 5,591.1               | 12.3             | 14.2          | 90.27                 | 100.1                               | 421.0        | 307.1                  | 282.2                   | 24.96                  | 12.304            |                    |          |
| 5,675.2  | 5,586.6               | 5,645.8               | 5,583.5               | 12.5             | 14.2          | 89.30                 | 107.4                               | 420.9        | 298.0                  | 272.8                   | 25.28                  | 11.789            |                    |          |
| 5,700.0  | 5,599.4               | 5,640.7               | 5,579.8               | 12.6             | 14.2          | 88.23                 | 110.9                               | 420.8        | 299.0                  | 273.6                   | 25.39                  | 11.778 SF         |                    |          |
| 5,800.0  | 5,640.0               | 5,614.8               | 5,560.4               | 13.3             | 14.3          | 81.03                 | 128.0                               | 420.3        | 321.0                  | 295.1                   | 25.86                  | 12.412            |                    |          |
| 5,900.0  | 5,662.5               | 5,582.7               | 5,535.2               | 14.1             | 14.3          | 70.67                 | 147.8                               | 419.8        | 364.2                  | 338.4                   | 25.81                  | 14.112            |                    |          |
| 6,000.0  | 5,667.0               | 5,550.0               | 5,508.2               | 15.2             | 14.3          | 61.88                 | 166.3                               | 419.3        | 418.6                  | 393.2                   | 25.41                  | 16.477            |                    |          |
| 6,100.0  | 5,667.0               | 5,516.5               | 5,479.5               | 16.3             | 14.4          | 57.71                 | 183.6                               | 418.9        | 482.7                  | 457.2                   | 25.58                  | 18.872            |                    |          |
| 6,200.0  | 5,667.0               | 5,500.0               | 5,465.0               | 17.7             | 14.4          | 55.74                 | 191.3                               | 418.7        | 555.2                  | 529.0                   | 26.25                  | 21.153            |                    |          |
| 6,300.0  | 5,667.0               | 5,469.7               | 5,437.7               | 19.1             | 14.4          | 52.27                 | 204.4                               | 418.3        | 633.3                  | 606.8                   | 26.50                  | 23.898            |                    |          |
| 6,400.0  | 5,667.0               | 5,450.0               | 5,419.5               | 20.6             | 14.4          | 50.12                 | 212.1                               | 418.1        | 715.9                  | 688.8                   | 27.08                  | 26.434            |                    |          |
| 6,500.0  | 5,667.0               | 5,450.0               | 5,419.5               | 22.1             | 14.4          | 50.12                 | 212.1                               | 418.1        | 801.9                  | 773.6                   | 28.36                  | 28.276            |                    |          |
| 6,600.0  | 5,667.0               | 5,423.2               | 5,394.4               | 23.8             | 14.4          | 47.36                 | 221.4                               | 417.9        | 889.8                  | 861.1                   | 28.68                  | 31.022            |                    |          |
| 6,700.0  | 5,667.0               | 5,400.0               | 5,372.3               | 25.4             | 14.4          | 45.12                 | 228.4                               | 417.7        | 980.0                  | 950.9                   | 29.11                  | 33.662            |                    |          |
| 6,800.0  | 5,667.0               | 5,400.0               | 5,372.3               | 27.1             | 14.4          | 45.12                 | 228.4                               | 417.7        | 1,071.4                | 1,040.9                 | 30.41                  | 35.226            |                    |          |
| 6,900.0  | 5,667.0               | 5,400.0               | 5,372.3               | 28.8             | 14.4          | 45.12                 | 228.4                               | 417.7        | 1,164.1                | 1,132.4                 | 31.73                  | 36.683            |                    |          |
| 7,000.0  | 5,667.0               | 5,400.0               | 5,372.3               | 30.6             | 14.4          | 45.12                 | 228.4                               | 417.7        | 1,258.0                | 1,224.9                 | 33.07                  | 38.038            |                    |          |



# Cathedral Energy Services

## Anticollision Report

|                           |                               |                                     |                                |
|---------------------------|-------------------------------|-------------------------------------|--------------------------------|
| <b>Company:</b>           | Whiting Petroleum Corporation | <b>Local Co-ordinate Reference:</b> | Well Razor 25B -2411           |
| <b>Project:</b>           | Weld County, CO               | <b>TVD Reference:</b>               | KB=17' @ 4773.4usft (Cade #23) |
| <b>Reference Site:</b>    | S25-T10N-R58W                 | <b>MD Reference:</b>                | KB=17' @ 4773.4usft (Cade #23) |
| <b>Site Error:</b>        | 0.0usft                       | <b>North Reference:</b>             | True                           |
| <b>Reference Well:</b>    | Razor 25B -2411               | <b>Survey Calculation Method:</b>   | Minimum Curvature              |
| <b>Well Error:</b>        | 0.0usft                       | <b>Output errors are at</b>         | 2.00 sigma                     |
| <b>Reference Wellbore</b> | HZ                            | <b>Database:</b>                    | USA EDM 5000 Multi Users DB    |
| <b>Reference Design:</b>  | Plan #1                       | <b>Offset TVD Reference:</b>        | Offset Datum                   |

Reference Depths are relative to KB=17' @ 4773.4usft (Cade #23)

Offset Depths are relative to Offset Datum

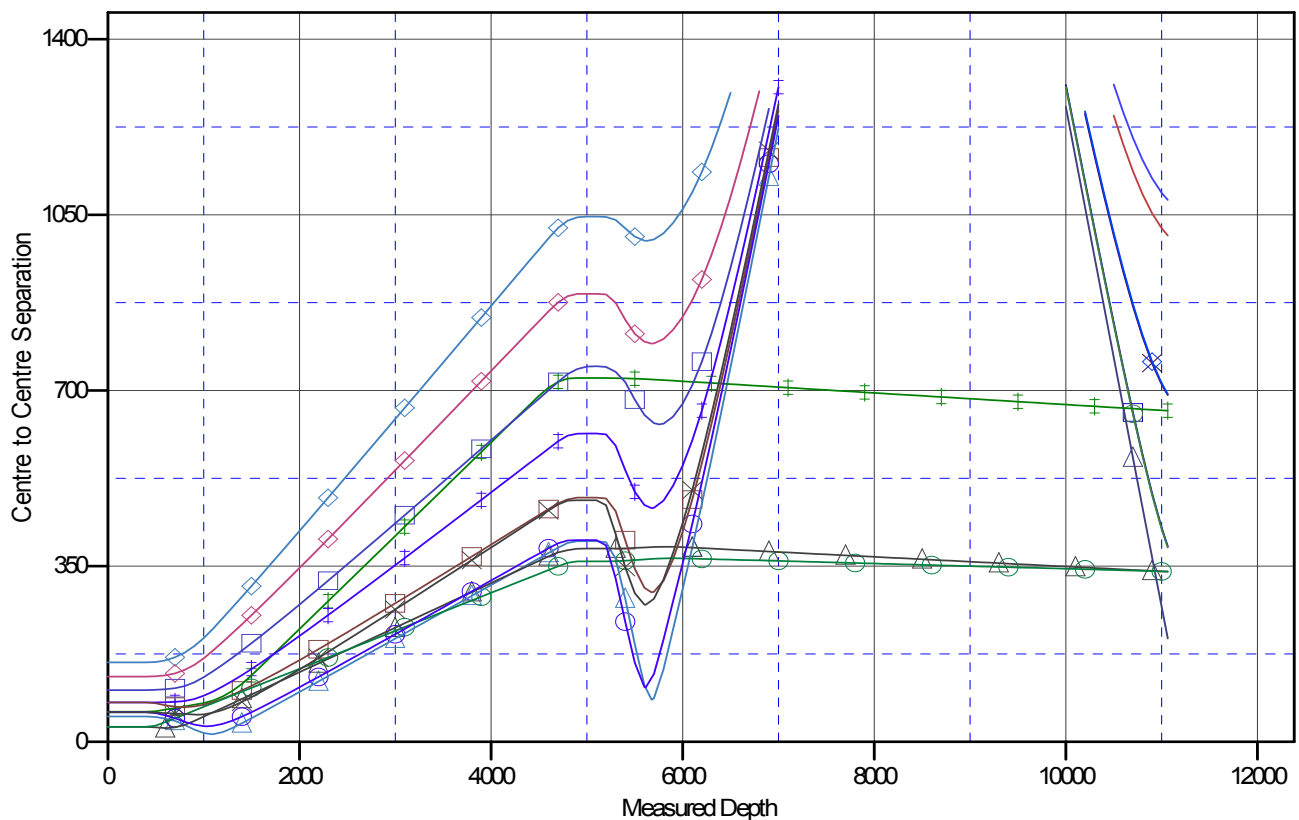
Central Meridian is -105.500000 °

Coordinates are relative to: Razor 25B -2411

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 1.09°

### Ladder Plot



### LEGEND

|   |   |                                   |
|---|---|-----------------------------------|
| ✕ Razor Federal#12H-1313A, HZ, Plan #1 V0 | ✕ Razor Federal#12H-1314B, HZ, Plan #1 V0 | ▢ Razor 25B -2556, HZ, Plan #2 V0 |
| ▢ Razor Federal#12G-1310B, HZ, Plan #1 V0 | ▢ Razor 25B -2554, HZ, Plan #2 V0         | ○ Razor 25B -2410, HZ, Plan #1 V0 |
| ▢ Razor Federal#12G-1311A, HZ, Plan #1 V0 | ▢ Razor 25B -2409, HZ, Plan #1 V0         | ○ Razor 25B -2555, HZ, Plan #2 V0 |
| ○ Razor Federal#12G-1312B, HZ, Plan #1 V0 | ▢ Razor 25B -2412, HZ, Plan #1 V0         | ▢ Razor 25B -2549, HZ, Plan #2 V0 |
| ▢ Razor Federal#12F-1308B, HZ, Plan #3 V0 | ▢ Razor 25B -2552, HZ, Plan #2 V0         | ✕ Razor 25B -2553, HZ, Plan #1 V0 |
| ▢ Razor Federal#12G-1309A, HZ, Plan #1 V0 | ▢ Razor 25B -2551, HZ, Plan #2 V0         | ▢ Razor 25B -2550, HZ, Plan #2 V0 |