



Project: Weld County, CO  
Site: Sec 25-T10N-R58W  
Well: Razor #25P-2448  
Wellbore: Hz  
Design: APD

PROJECT DETAILS: Weld County, CO  
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
System Datum: Mean Sea Level



Azimuths to True North  
Magnetic North: 7.83°  
Magnetic Field  
Strength: 53020.7nT  
Dip Angle: 67.38°  
Date: 5/27/2015  
Model: IGRF2010

#### FORMATION TOP DETAILS

| TVDPath | MDPath  | Formation      |
|---------|---------|----------------|
| 1550.00 | 1551.57 | Upper Pierre   |
| 3500.00 | 3504.23 | Hygiene        |
| 3650.00 | 3654.43 | Lower Pierre   |
| 5454.00 | 5469.08 | P200 Marker    |
| 5474.00 | 5491.77 | P300 Marker    |
| 5490.00 | 5510.34 | P350 Marker    |
| 5504.00 | 5526.91 | Sharon Springs |
| 5508.00 | 5531.71 | Niobrara       |
| 5525.00 | 5552.46 | Top A Chalk    |
| 5555.00 | 5590.65 | Top A Marl     |
| 5567.00 | 5606.59 | A Marl         |
| 5575.00 | 5617.47 | Top Upper B    |
| 5599.00 | 5651.49 | Base Upper B   |
| 5615.00 | 5675.55 | Top Lower B    |
| 5644.00 | 5722.93 | Base Lower B   |
| 5657.00 | 5746.26 | Top B Marl     |
| 5699.00 | 5837.06 | Top C Chalk    |
| 5707.00 | 5858.99 | Middle C Chalk |
| 5721.00 | 5905.20 | Middle C Marl  |
| 5739.00 | 6042.55 | Lower C Chalk  |

#### WELL DETAILS: Razor #25P-2448

| +N/-S | +E/-W | Northing   | Ground Level: | 4741.00    | Longitude        | Slot              |
|-------|-------|------------|---------------|------------|------------------|-------------------|
| 0.00  | 0.00  | 1539999.04 | Easting       | 3469179.03 | 40° 48' 12.140 N | 103° 48' 18.760 W |

#### SECTION DETAILS

| Sec | MD       | Inc   | Azi    | TVD     | +N/-S    | +E/-W  | Dleg  | TFace  | VSec     | Target    |
|-----|----------|-------|--------|---------|----------|--------|-------|--------|----------|-----------|
| 1   | 0.00     | 0.00  | 0.00   | 0.00    | 0.00     | 0.00   | 0.00  | 0.00   | 0.00     |           |
| 2   | 300.00   | 0.00  | 0.00   | 300.00  | 0.00     | 0.00   | 0.00  | 0.00   | 0.00     |           |
| 3   | 449.51   | 2.99  | 154.84 | 449.45  | -3.53    | 1.66   | 2.00  | 154.84 | -3.51    |           |
| 4   | 4874.65  | 2.99  | 154.84 | 4868.55 | -212.47  | 99.81  | 0.00  | 0.00   | -211.46  |           |
| 5   | 5024.16  | 0.00  | 0.00   | 5018.00 | -216.00  | 101.47 | 2.00  | 180.00 | -214.98  |           |
| 6   | 5224.16  | 0.00  | 0.00   | 5218.00 | -216.00  | 101.47 | 0.00  | 0.00   | -214.98  |           |
| 7   | 6042.55  | 90.00 | 0.00   | 5739.00 | 305.00   | 101.47 | 11.00 | 0.00   | 306.00   |           |
| 8   | 15921.87 | 90.00 | 0.00   | 5739.00 | 10184.32 | 101.47 | 0.00  | 0.00   | 10184.82 | PBHL 2448 |

#### ANNOTATIONS

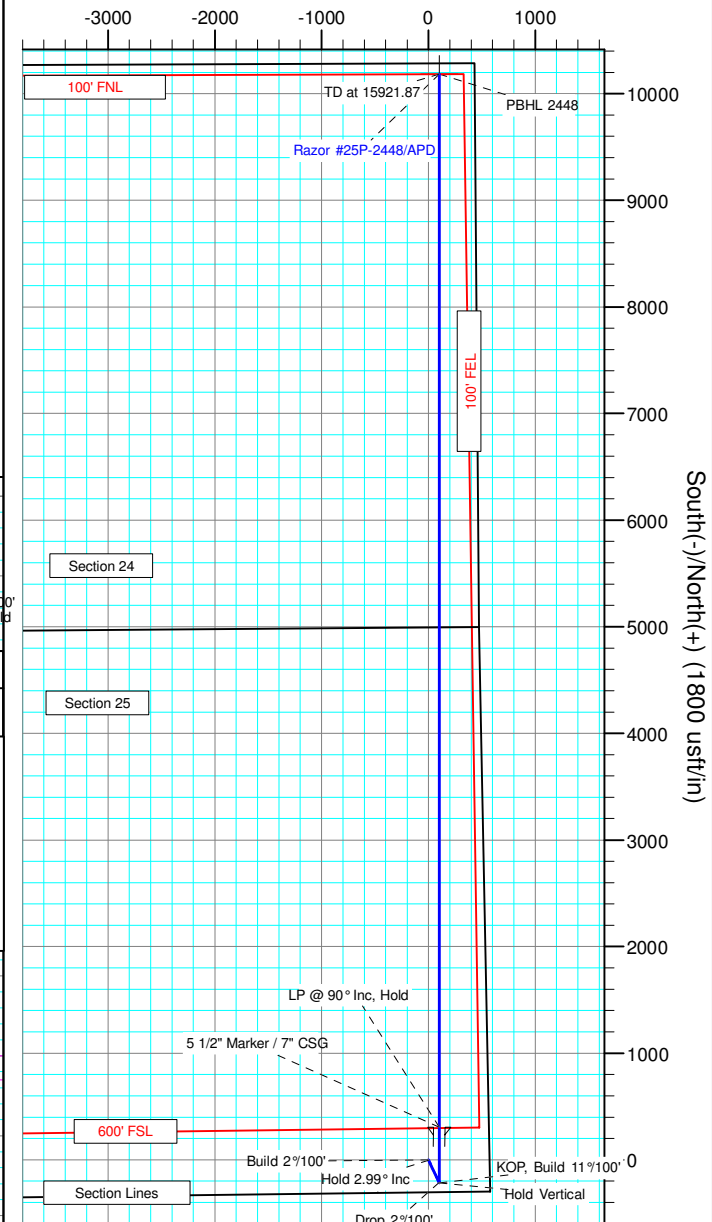
| TVD     | MD       | Inc   | Azi    | +N/-S    | +E/-W  | VSec     | Departure | Annotation          |
|---------|----------|-------|--------|----------|--------|----------|-----------|---------------------|
| 300.00  | 300.00   | 0.00  | 0.00   | 0.00     | 0.00   | 0.00     | 0.00      | Build 2°/100'       |
| 449.45  | 449.51   | 2.99  | 154.84 | -3.53    | 1.66   | -3.51    | 3.90      | Hold 2.99° Inc      |
| 4868.55 | 4874.65  | 2.99  | 154.84 | -212.47  | 99.81  | -211.46  | 234.75    | Drop 2°/100'        |
| 5018.00 | 5024.16  | 0.00  | 0.00   | -216.00  | 101.47 | -214.98  | 238.65    | Hold Vertical       |
| 5218.00 | 5224.16  | 0.00  | 0.00   | -216.00  | 101.47 | -214.98  | 238.65    | KOP, Build 11°/100' |
| 5739.00 | 6042.55  | 90.00 | 0.00   | 305.00   | 101.47 | 306.00   | 759.65    | LP @ 90° Inc, Hold  |
| 5739.00 | 15921.87 | 90.00 | 0.00   | 10184.32 | 101.47 | 10184.82 | 10638.97  | TD at 15921.87      |

#### DESIGN TARGET DETAILS

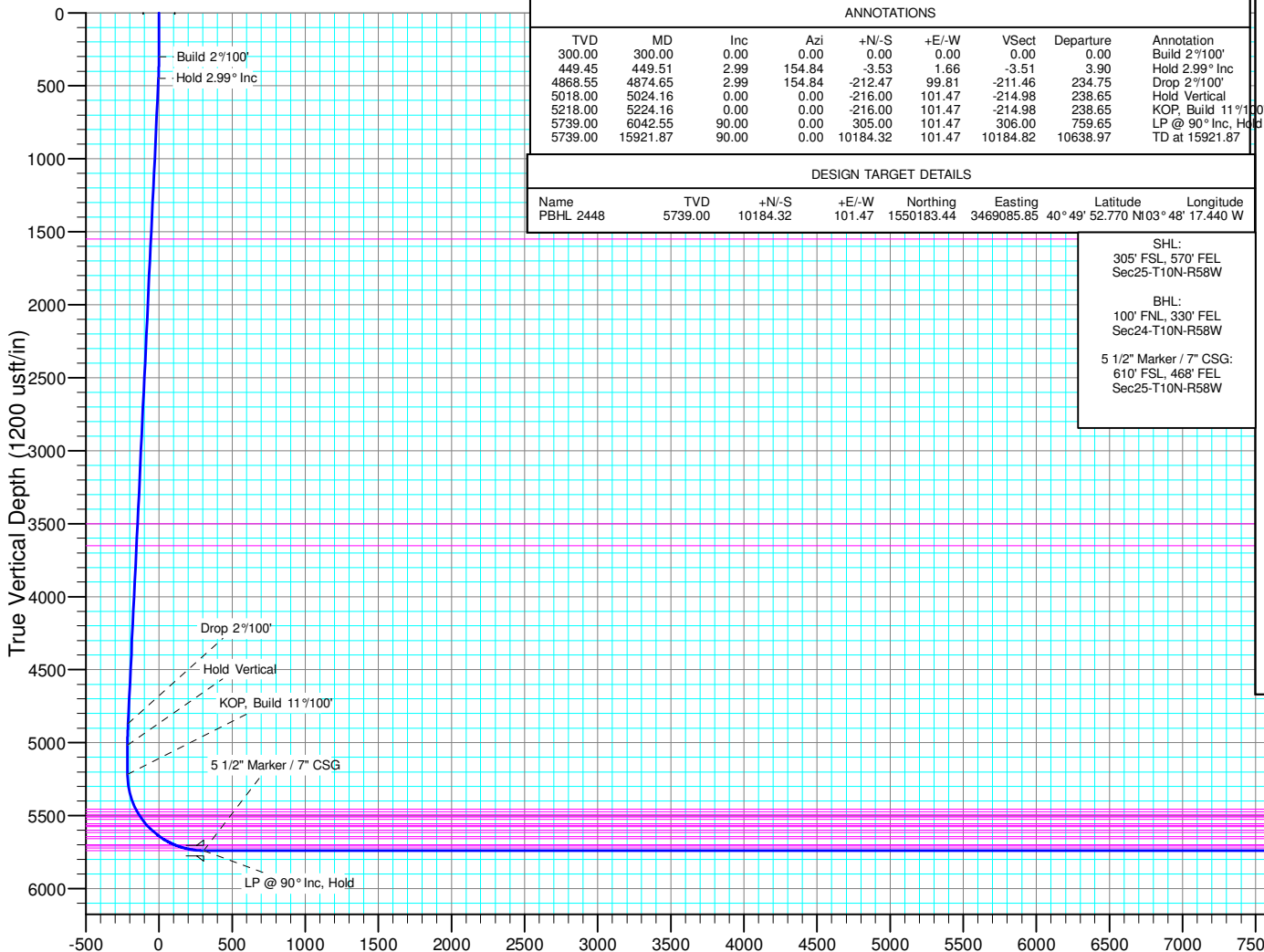
| Name      | TVD     | +N/-S    | +E/-W  | Northing   | Easting    | Latitude         | Longitude         |
|-----------|---------|----------|--------|------------|------------|------------------|-------------------|
| PBHL 2448 | 5739.00 | 10184.32 | 101.47 | 1550183.44 | 3469085.85 | 40° 49' 52.770 N | 103° 48' 17.440 W |

SHL:  
305' FSL, 570' FEL  
Sec25-T10N-R58W  
  
BHL:  
100' FNL, 330' FEL  
Sec24-T10N-R58W  
  
5 1/2" Marker / 7" CSG:  
610' FSL, 468' FEL  
Sec25-T10N-R58W

#### West(-)/East(+) (1800 usft/in)



South(-)/North(+) (1800 usft/in)



Vertical Section at 0.57° (1200 usft/in)



# **Whiting Petroleum Corp.**

**Weld County, CO  
Sec 25-T10N-R58W  
Razor #25P-2448**

**Hz**

**Plan: APD**

## **Standard Planning Report**

**22 February, 2016**



# WOG

## Planning Report

|                  |                         |                                     |  |
|------------------|-------------------------|-------------------------------------|--|
| <b>Database:</b> | LandmarkEDM             | <b>Local Co-ordinate Reference:</b> | Well Razor #25P-2448                   |
| <b>Company:</b>  | Whiting Petroleum Corp. | <b>TVD Reference:</b>               | KBE @ 4762.00usft (Original Well Elev) |
| <b>Project:</b>  | Weld County, CO         | <b>MD Reference:</b>                | KBE @ 4762.00usft (Original Well Elev) |
| <b>Site:</b>     | Sec 25-T10N-R58W        | <b>North Reference:</b>             | True                                   |
| <b>Well:</b>     | Razor #25P-2448         | <b>Survey Calculation Method:</b>   | Minimum Curvature                      |
| <b>Wellbore:</b> | Hz                      |                                     |  |
| <b>Design:</b>   | APD                     |                                     |  |

|                    |                           |                      |                |
|--------------------|---------------------------|----------------------|----------------|
| <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    |                      |                |

|                              |                  |                     |                   |                                     |
|------------------------------|------------------|---------------------|-------------------|-------------------------------------|
| <b>Site</b>                  | Sec 25-T10N-R58W |                     |                   |                                     |
| <b>Site Position:</b>        |                  | <b>Northing:</b>    | 1,544,564.45 usft | <b>Latitude:</b> 40° 48' 58.050 N   |
| <b>From:</b>                 | Lat/Long         | <b>Easting:</b>     | 3,464,883.62 usft | <b>Longitude:</b> 103° 49' 13.480 W |
| <b>Position Uncertainty:</b> | 0.00 usft        | <b>Slot Radius:</b> | 13.200 in         | <b>Grid Convergence:</b> 1.09 °     |

|                             |                 |                            |                  |                                    |
|-----------------------------|-----------------|----------------------------|------------------|------------------------------------|
| <b>Well</b>                 | Razor #25P-2448 |                            |                  |                                    |
| <b>Well Position</b>        | <b>+N/-S</b>    | -4,645.95 usft             | <b>Northing:</b> | 1,539,999.04 usft                  |
|                             | <b>+E/-W</b>    | 4,208.17 usft              | <b>Easting:</b>  | 3,469,179.03 usft                  |
| <b>Position Uncertainty</b> | 0.00 usft       | <b>Wellhead Elevation:</b> |                  | <b>Ground Level:</b> 4,741.00 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 (nT)</b> |
|                  | IGRF2010          | 5/27/2015          | 7.83                   | 67.38                | 53,021                     |

|                          |                                |                     |                      |                      |
|--------------------------|--------------------------------|---------------------|----------------------|----------------------|
| <b>Design</b>            | APD                            |                     |                      |                      |
| <b>Audit Notes:</b>      |                                |                     |                      |                      |
| <b>Version:</b>          | <b>Phase:</b>                  | PROTOTYPE           | <b>Tie On Depth:</b> | 0.00                 |
| <b>Vertical Section:</b> | <b>Depth From (TVD) (usft)</b> | <b>+N/-S (usft)</b> | <b>+E/-W (usft)</b>  | <b>Direction (°)</b> |
|                          | 0.00                           | 0.00                | 0.00                 | 0.57                 |

|                              |                        |                    |                              |                     |                     |                              |                             |                            |                |               |
|------------------------------|------------------------|--------------------|------------------------------|---------------------|---------------------|------------------------------|-----------------------------|----------------------------|----------------|---------------|
| <b>Plan Sections</b>         |                        |                    |                              |                     |                     |                              |                             |                            |                |               |
| <b>Measured Depth (usft)</b> | <b>Inclination (°)</b> | <b>Azimuth (°)</b> | <b>Vertical Depth (usft)</b> | <b>+N/-S (usft)</b> | <b>+E/-W (usft)</b> | <b>Dogleg Rate (°/100ft)</b> | <b>Build Rate (°/100ft)</b> | <b>Turn Rate (°/100ft)</b> | <b>TFO (°)</b> | <b>Target</b> |
| 0.00                         | 0.00                   | 0.00               | 0.00                         | 0.00                | 0.00                | 0.00                         | 0.00                        | 0.00                       | 0.00           |               |
| 300.00                       | 0.00                   | 0.00               | 300.00                       | 0.00                | 0.00                | 0.00                         | 0.00                        | 0.00                       | 0.00           |               |
| 449.51                       | 2.99                   | 154.84             | 449.45                       | -3.53               | 1.66                | 2.00                         | 2.00                        | 0.00                       | 154.84         |               |
| 4,874.65                     | 2.99                   | 154.84             | 4,868.55                     | -212.47             | 99.81               | 0.00                         | 0.00                        | 0.00                       | 0.00           |               |
| 5,024.16                     | 0.00                   | 0.00               | 5,018.00                     | -216.00             | 101.47              | 2.00                         | -2.00                       | 0.00                       | 180.00         |               |
| 5,224.16                     | 0.00                   | 0.00               | 5,218.00                     | -216.00             | 101.47              | 0.00                         | 0.00                        | 0.00                       | 0.00           |               |
| 6,042.55                     | 90.00                  | 0.00               | 5,739.00                     | 305.00              | 101.47              | 11.00                        | 11.00                       | 0.00                       | 0.00           |               |
| 15,921.87                    | 90.00                  | 0.00               | 5,739.00                     | 10,184.32           | 101.47              | 0.00                         | 0.00                        | 0.00                       | 0.00           | PBHL 2448     |



# WOG

## Planning Report

|                  |                         |                                     |  |
|------------------|-------------------------|-------------------------------------|--|
| <b>Database:</b> | LandmarkEDM             | <b>Local Co-ordinate Reference:</b> | Well Razor #25P-2448                   |
| <b>Company:</b>  | Whiting Petroleum Corp. | <b>TVD Reference:</b>               | KBE @ 4762.00usft (Original Well Elev) |
| <b>Project:</b>  | Weld County, CO         | <b>MD Reference:</b>                | KBE @ 4762.00usft (Original Well Elev) |
| <b>Site:</b>     | Sec 25-T10N-R58W        | <b>North Reference:</b>             | True                                   |
| <b>Well:</b>     | Razor #25P-2448         | <b>Survey Calculation Method:</b>   | Minimum Curvature                      |
| <b>Wellbore:</b> | HZ                      |                                     |  |
| <b>Design:</b>   | APD                     |                                     |  |

| Planned Survey        |                 |             |                       |              |              |                         |                       |                      |                     |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 0.00                  | 0.00            | 0.00        | 0.00                  | 0.00         | 0.00         | 0.00                    | 0.00                  | 0.00                 | 0.00                |
| 100.00                | 0.00            | 0.00        | 100.00                | 0.00         | 0.00         | 0.00                    | 0.00                  | 0.00                 | 0.00                |
| 200.00                | 0.00            | 0.00        | 200.00                | 0.00         | 0.00         | 0.00                    | 0.00                  | 0.00                 | 0.00                |
| 300.00                | 0.00            | 0.00        | 300.00                | 0.00         | 0.00         | 0.00                    | 0.00                  | 0.00                 | 0.00                |
| <b>Build 2°/100'</b>  |                 |             |                       |              |              |                         |                       |                      |                     |
| 400.00                | 2.00            | 154.84      | 399.98                | -1.58        | 0.74         | -1.57                   | 2.00                  | 2.00                 | 0.00                |
| 449.51                | 2.99            | 154.84      | 449.45                | -3.53        | 1.66         | -3.51                   | 2.00                  | 2.00                 | 0.00                |
| <b>Hold 2.99° Inc</b> |                 |             |                       |              |              |                         |                       |                      |                     |
| 500.00                | 2.99            | 154.84      | 499.86                | -5.91        | 2.78         | -5.89                   | 0.00                  | 0.00                 | 0.00                |
| 600.00                | 2.99            | 154.84      | 599.73                | -10.64       | 5.00         | -10.59                  | 0.00                  | 0.00                 | 0.00                |
| 700.00                | 2.99            | 154.84      | 699.59                | -15.36       | 7.21         | -15.28                  | 0.00                  | 0.00                 | 0.00                |
| 800.00                | 2.99            | 154.84      | 799.45                | -20.08       | 9.43         | -19.98                  | 0.00                  | 0.00                 | 0.00                |
| 900.00                | 2.99            | 154.84      | 899.32                | -24.80       | 11.65        | -24.68                  | 0.00                  | 0.00                 | 0.00                |
| 1,000.00              | 2.99            | 154.84      | 999.18                | -29.52       | 13.87        | -29.38                  | 0.00                  | 0.00                 | 0.00                |
| 1,100.00              | 2.99            | 154.84      | 1,099.05              | -34.24       | 16.09        | -34.08                  | 0.00                  | 0.00                 | 0.00                |
| 1,200.00              | 2.99            | 154.84      | 1,198.91              | -38.97       | 18.31        | -38.78                  | 0.00                  | 0.00                 | 0.00                |
| 1,300.00              | 2.99            | 154.84      | 1,298.77              | -43.69       | 20.52        | -43.48                  | 0.00                  | 0.00                 | 0.00                |
| 1,400.00              | 2.99            | 154.84      | 1,398.64              | -48.41       | 22.74        | -48.18                  | 0.00                  | 0.00                 | 0.00                |
| 1,500.00              | 2.99            | 154.84      | 1,498.50              | -53.13       | 24.96        | -52.88                  | 0.00                  | 0.00                 | 0.00                |
| 1,551.57              | 2.99            | 154.84      | 1,550.00              | -55.57       | 26.10        | -55.30                  | 0.00                  | 0.00                 | 0.00                |
| <b>Upper Pierre</b>   |                 |             |                       |              |              |                         |                       |                      |                     |
| 1,600.00              | 2.99            | 154.84      | 1,598.37              | -57.85       | 27.18        | -57.58                  | 0.00                  | 0.00                 | 0.00                |
| 1,700.00              | 2.99            | 154.84      | 1,698.23              | -62.57       | 29.40        | -62.28                  | 0.00                  | 0.00                 | 0.00                |
| 1,800.00              | 2.99            | 154.84      | 1,798.09              | -67.30       | 31.61        | -66.98                  | 0.00                  | 0.00                 | 0.00                |
| 1,900.00              | 2.99            | 154.84      | 1,897.96              | -72.02       | 33.83        | -71.68                  | 0.00                  | 0.00                 | 0.00                |
| 2,000.00              | 2.99            | 154.84      | 1,997.82              | -76.74       | 36.05        | -76.38                  | 0.00                  | 0.00                 | 0.00                |
| 2,100.00              | 2.99            | 154.84      | 2,097.68              | -81.46       | 38.27        | -81.08                  | 0.00                  | 0.00                 | 0.00                |
| 2,200.00              | 2.99            | 154.84      | 2,197.55              | -86.18       | 40.49        | -85.77                  | 0.00                  | 0.00                 | 0.00                |
| 2,300.00              | 2.99            | 154.84      | 2,297.41              | -90.90       | 42.70        | -90.47                  | 0.00                  | 0.00                 | 0.00                |
| 2,400.00              | 2.99            | 154.84      | 2,397.28              | -95.63       | 44.92        | -95.17                  | 0.00                  | 0.00                 | 0.00                |
| 2,500.00              | 2.99            | 154.84      | 2,497.14              | -100.35      | 47.14        | -99.87                  | 0.00                  | 0.00                 | 0.00                |
| 2,600.00              | 2.99            | 154.84      | 2,597.00              | -105.07      | 49.36        | -104.57                 | 0.00                  | 0.00                 | 0.00                |
| 2,700.00              | 2.99            | 154.84      | 2,696.87              | -109.79      | 51.58        | -109.27                 | 0.00                  | 0.00                 | 0.00                |
| 2,800.00              | 2.99            | 154.84      | 2,796.73              | -114.51      | 53.79        | -113.97                 | 0.00                  | 0.00                 | 0.00                |
| 2,900.00              | 2.99            | 154.84      | 2,896.60              | -119.23      | 56.01        | -118.67                 | 0.00                  | 0.00                 | 0.00                |
| 3,000.00              | 2.99            | 154.84      | 2,996.46              | -123.96      | 58.23        | -123.37                 | 0.00                  | 0.00                 | 0.00                |
| 3,100.00              | 2.99            | 154.84      | 3,096.32              | -128.68      | 60.45        | -128.07                 | 0.00                  | 0.00                 | 0.00                |
| 3,200.00              | 2.99            | 154.84      | 3,196.19              | -133.40      | 62.67        | -132.77                 | 0.00                  | 0.00                 | 0.00                |
| 3,300.00              | 2.99            | 154.84      | 3,296.05              | -138.12      | 64.89        | -137.47                 | 0.00                  | 0.00                 | 0.00                |
| 3,400.00              | 2.99            | 154.84      | 3,395.91              | -142.84      | 67.10        | -142.17                 | 0.00                  | 0.00                 | 0.00                |
| 3,500.00              | 2.99            | 154.84      | 3,495.78              | -147.56      | 69.32        | -146.87                 | 0.00                  | 0.00                 | 0.00                |
| 3,504.23              | 2.99            | 154.84      | 3,500.00              | -147.76      | 69.41        | -147.06                 | 0.00                  | 0.00                 | 0.00                |
| <b>Hygiene</b>        |                 |             |                       |              |              |                         |                       |                      |                     |
| 3,600.00              | 2.99            | 154.84      | 3,595.64              | -152.29      | 71.54        | -151.56                 | 0.00                  | 0.00                 | 0.00                |
| 3,654.43              | 2.99            | 154.84      | 3,650.00              | -154.86      | 72.75        | -154.12                 | 0.00                  | 0.00                 | 0.00                |
| <b>Lower Pierre</b>   |                 |             |                       |              |              |                         |                       |                      |                     |
| 3,700.00              | 2.99            | 154.84      | 3,695.51              | -157.01      | 73.76        | -156.26                 | 0.00                  | 0.00                 | 0.00                |
| 3,800.00              | 2.99            | 154.84      | 3,795.37              | -161.73      | 75.98        | -160.96                 | 0.00                  | 0.00                 | 0.00                |
| 3,900.00              | 2.99            | 154.84      | 3,895.23              | -166.45      | 78.19        | -165.66                 | 0.00                  | 0.00                 | 0.00                |
| 4,000.00              | 2.99            | 154.84      | 3,995.10              | -171.17      | 80.41        | -170.36                 | 0.00                  | 0.00                 | 0.00                |
| 4,100.00              | 2.99            | 154.84      | 4,094.96              | -175.89      | 82.63        | -175.06                 | 0.00                  | 0.00                 | 0.00                |
| 4,200.00              | 2.99            | 154.84      | 4,194.83              | -180.62      | 84.85        | -179.76                 | 0.00                  | 0.00                 | 0.00                |
| 4,300.00              | 2.99            | 154.84      | 4,294.69              | -185.34      | 87.07        | -184.46                 | 0.00                  | 0.00                 | 0.00                |
| 4,400.00              | 2.99            | 154.84      | 4,394.55              | -190.06      | 89.28        | -189.16                 | 0.00                  | 0.00                 | 0.00                |



# WOG Planning Report

|                  |                         |                                     |  |
|------------------|-------------------------|-------------------------------------|--|
| <b>Database:</b> | LandmarkEDM             | <b>Local Co-ordinate Reference:</b> | Well Razor #25P-2448                   |
| <b>Company:</b>  | Whiting Petroleum Corp. | <b>TVD Reference:</b>               | KBE @ 4762.00usft (Original Well Elev) |
| <b>Project:</b>  | Weld County, CO         | <b>MD Reference:</b>                | KBE @ 4762.00usft (Original Well Elev) |
| <b>Site:</b>     | Sec 25-T10N-R58W        | <b>North Reference:</b>             | True                                   |
| <b>Well:</b>     | Razor #25P-2448         | <b>Survey Calculation Method:</b>   | Minimum Curvature                      |
| <b>Wellbore:</b> | Hz                      |                                     |  |
| <b>Design:</b>   | APD                     |                                     |  |

| Planned Survey             |                 |             |                       |              |              |                         |                       |                      |                     |
|----------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft)      | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 4,500.00                   | 2.99            | 154.84      | 4,494.42              | -194.78      | 91.50        | -193.86                 | 0.00                  | 0.00                 | 0.00                |
| 4,600.00                   | 2.99            | 154.84      | 4,594.28              | -199.50      | 93.72        | -198.56                 | 0.00                  | 0.00                 | 0.00                |
| 4,700.00                   | 2.99            | 154.84      | 4,694.14              | -204.22      | 95.94        | -203.26                 | 0.00                  | 0.00                 | 0.00                |
| 4,800.00                   | 2.99            | 154.84      | 4,794.01              | -208.94      | 98.16        | -207.96                 | 0.00                  | 0.00                 | 0.00                |
| 4,874.65                   | 2.99            | 154.84      | 4,868.55              | -212.47      | 99.81        | -211.46                 | 0.00                  | 0.00                 | 0.00                |
| <b>Drop 2°/100'</b>        |                 |             |                       |              |              |                         |                       |                      |                     |
| 4,900.00                   | 2.48            | 154.84      | 4,893.88              | -213.57      | 100.33       | -212.55                 | 2.00                  | -2.00                | 0.00                |
| 5,000.00                   | 0.48            | 154.84      | 4,993.84              | -215.91      | 101.43       | -214.89                 | 2.00                  | -2.00                | 0.00                |
| 5,024.16                   | 0.00            | 0.00        | 5,018.00              | -216.00      | 101.47       | -214.98                 | 2.00                  | -2.00                | 0.00                |
| <b>Hold Vertical</b>       |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,100.00                   | 0.00            | 0.00        | 5,093.84              | -216.00      | 101.47       | -214.98                 | 0.00                  | 0.00                 | 0.00                |
| 5,200.00                   | 0.00            | 0.00        | 5,193.84              | -216.00      | 101.47       | -214.98                 | 0.00                  | 0.00                 | 0.00                |
| 5,224.16                   | 0.00            | 0.00        | 5,218.00              | -216.00      | 101.47       | -214.98                 | 0.00                  | 0.00                 | 0.00                |
| <b>KOP, Build 11°/100'</b> |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,300.00                   | 8.34            | 0.00        | 5,293.57              | -210.49      | 101.47       | -209.47                 | 11.00                 | 11.00                | 0.00                |
| 5,400.00                   | 19.34           | 0.00        | 5,390.52              | -186.61      | 101.47       | -185.59                 | 11.00                 | 11.00                | 0.00                |
| 5,469.08                   | 26.93           | 0.00        | 5,454.00              | -159.48      | 101.47       | -158.46                 | 11.00                 | 11.00                | 0.00                |
| <b>P200 Marker</b>         |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,491.77                   | 29.43           | 0.00        | 5,474.00              | -148.77      | 101.47       | -147.75                 | 11.00                 | 11.00                | 0.00                |
| <b>P300 Marker</b>         |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,500.00                   | 30.33           | 0.00        | 5,481.13              | -144.67      | 101.47       | -143.65                 | 11.00                 | 11.00                | 0.00                |
| 5,510.34                   | 31.47           | 0.00        | 5,490.00              | -139.36      | 101.47       | -138.34                 | 11.00                 | 11.00                | 0.00                |
| <b>P350 Marker</b>         |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,526.91                   | 33.29           | 0.00        | 5,504.00              | -130.48      | 101.47       | -129.47                 | 11.00                 | 11.00                | 0.00                |
| <b>Sharon Springs</b>      |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,531.71                   | 33.82           | 0.00        | 5,508.00              | -127.83      | 101.47       | -126.81                 | 11.00                 | 11.00                | 0.00                |
| <b>Niobrara</b>            |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,552.46                   | 36.10           | 0.00        | 5,525.00              | -115.94      | 101.47       | -114.93                 | 11.00                 | 11.00                | 0.00                |
| <b>Top A Chalk</b>         |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,590.65                   | 40.30           | 0.00        | 5,555.00              | -92.33       | 101.47       | -91.32                  | 11.00                 | 11.00                | 0.00                |
| <b>Top A Marl</b>          |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,600.00                   | 41.33           | 0.00        | 5,562.08              | -86.22       | 101.47       | -85.20                  | 11.00                 | 11.00                | 0.00                |
| 5,606.59                   | 42.06           | 0.00        | 5,567.00              | -81.83       | 101.47       | -80.82                  | 11.00                 | 11.00                | 0.00                |
| <b>A Marl</b>              |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,617.47                   | 43.25           | 0.00        | 5,575.00              | -74.46       | 101.47       | -73.45                  | 11.00                 | 11.00                | 0.00                |
| <b>Top Upper B</b>         |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,651.49                   | 46.99           | 0.00        | 5,599.00              | -50.36       | 101.47       | -49.35                  | 11.00                 | 11.00                | 0.00                |
| <b>Base Upper B</b>        |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,675.55                   | 49.64           | 0.00        | 5,615.00              | -32.39       | 101.47       | -31.38                  | 11.00                 | 11.00                | 0.00                |
| <b>Top Lower B</b>         |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,700.00                   | 52.33           | 0.00        | 5,630.39              | -13.39       | 101.47       | -12.38                  | 11.00                 | 11.00                | 0.00                |
| 5,722.93                   | 54.85           | 0.00        | 5,644.00              | 5.06         | 101.47       | 6.07                    | 11.00                 | 11.00                | 0.00                |
| <b>Base Lower B</b>        |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,746.26                   | 57.42           | 0.00        | 5,657.00              | 24.43        | 101.47       | 25.44                   | 11.00                 | 11.00                | 0.00                |
| <b>Top B Marl</b>          |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,800.00                   | 63.33           | 0.00        | 5,683.56              | 71.12        | 101.47       | 72.13                   | 11.00                 | 11.00                | 0.00                |
| 5,837.06                   | 67.40           | 0.00        | 5,699.00              | 104.80       | 101.47       | 105.81                  | 11.00                 | 11.00                | 0.00                |
| <b>Top C Chalk</b>         |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,858.99                   | 69.81           | 0.00        | 5,707.00              | 125.22       | 101.47       | 126.23                  | 11.00                 | 11.00                | 0.00                |
| <b>Middle C Chalk</b>      |                 |             |                       |              |              |                         |                       |                      |                     |
| 5,900.00                   | 74.32           | 0.00        | 5,719.62              | 164.23       | 101.47       | 165.23                  | 11.00                 | 11.00                | 0.00                |
| 5,905.20                   | 74.90           | 0.00        | 5,721.00              | 169.24       | 101.47       | 170.24                  | 11.00                 | 11.00                | 0.00                |



# WOG

## Planning Report

|                  |                         |                                     |  |
|------------------|-------------------------|-------------------------------------|--|
| <b>Database:</b> | LandmarkEDM             | <b>Local Co-ordinate Reference:</b> | Well Razor #25P-2448                   |
| <b>Company:</b>  | Whiting Petroleum Corp. | <b>TVD Reference:</b>               | KBE @ 4762.00usft (Original Well Elev) |
| <b>Project:</b>  | Weld County, CO         | <b>MD Reference:</b>                | KBE @ 4762.00usft (Original Well Elev) |
| <b>Site:</b>     | Sec 25-T10N-R58W        | <b>North Reference:</b>             | True                                   |
| <b>Well:</b>     | Razor #25P-2448         | <b>Survey Calculation Method:</b>   | Minimum Curvature                      |
| <b>Wellbore:</b> | Hz                      |                                     |  |
| <b>Design:</b>   | APD                     |                                     |  |

| Planned Survey   |                 |             |                       |              |              |                         |                       |                      |                     |  |
|--|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|--|
| Measured Depth (usft)  | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |  |
| <b>Middle C Marl</b>   |                 |             |                       |              |              |                         |                       |                      |                     |  |
| 6,000.00   | 85.32           | 0.00        | 5,737.26              | 262.50       | 101.47       | 263.50                  | 11.00                 | 11.00                | 0.00                |  |
| 6,042.55   | 90.00           | 0.00        | 5,739.00              | 305.00       | 101.47       | 306.00                  | 11.00                 | 11.00                | 0.00                |  |
| <b>LP @ 90° Inc, Hold - Lower C Chalk - 5 1/2" Marker / 7" CSG</b> |                 |             |                       |              |              |                         |                       |                      |                     |  |
| 6,100.00   | 90.00           | 0.00        | 5,739.00              | 362.45       | 101.47       | 363.45                  | 0.00                  | 0.00                 | 0.00                |  |
| 6,200.00   | 90.00           | 0.00        | 5,739.00              | 462.45       | 101.47       | 463.44                  | 0.00                  | 0.00                 | 0.00                |  |
| 6,300.00   | 90.00           | 0.00        | 5,739.00              | 562.45       | 101.47       | 563.44                  | 0.00                  | 0.00                 | 0.00                |  |
| 6,400.00   | 90.00           | 0.00        | 5,739.00              | 662.45       | 101.47       | 663.43                  | 0.00                  | 0.00                 | 0.00                |  |
| 6,500.00   | 90.00           | 0.00        | 5,739.00              | 762.45       | 101.47       | 763.43                  | 0.00                  | 0.00                 | 0.00                |  |
| 6,600.00   | 90.00           | 0.00        | 5,739.00              | 862.45       | 101.47       | 863.42                  | 0.00                  | 0.00                 | 0.00                |  |
| 6,700.00   | 90.00           | 0.00        | 5,739.00              | 962.45       | 101.47       | 963.42                  | 0.00                  | 0.00                 | 0.00                |  |
| 6,800.00   | 90.00           | 0.00        | 5,739.00              | 1,062.45     | 101.47       | 1,063.41                | 0.00                  | 0.00                 | 0.00                |  |
| 6,900.00   | 90.00           | 0.00        | 5,739.00              | 1,162.45     | 101.47       | 1,163.41                | 0.00                  | 0.00                 | 0.00                |  |
| 7,000.00   | 90.00           | 0.00        | 5,739.00              | 1,262.45     | 101.47       | 1,263.40                | 0.00                  | 0.00                 | 0.00                |  |
| 7,100.00   | 90.00           | 0.00        | 5,739.00              | 1,362.45     | 101.47       | 1,363.40                | 0.00                  | 0.00                 | 0.00                |  |
| 7,200.00   | 90.00           | 0.00        | 5,739.00              | 1,462.45     | 101.47       | 1,463.39                | 0.00                  | 0.00                 | 0.00                |  |
| 7,300.00   | 90.00           | 0.00        | 5,739.00              | 1,562.45     | 101.47       | 1,563.39                | 0.00                  | 0.00                 | 0.00                |  |
| 7,400.00   | 90.00           | 0.00        | 5,739.00              | 1,662.45     | 101.47       | 1,663.38                | 0.00                  | 0.00                 | 0.00                |  |
| 7,500.00   | 90.00           | 0.00        | 5,739.00              | 1,762.45     | 101.47       | 1,763.38                | 0.00                  | 0.00                 | 0.00                |  |
| 7,600.00   | 90.00           | 0.00        | 5,739.00              | 1,862.45     | 101.47       | 1,863.37                | 0.00                  | 0.00                 | 0.00                |  |
| 7,700.00   | 90.00           | 0.00        | 5,739.00              | 1,962.45     | 101.47       | 1,963.37                | 0.00                  | 0.00                 | 0.00                |  |
| 7,800.00   | 90.00           | 0.00        | 5,739.00              | 2,062.45     | 101.47       | 2,063.36                | 0.00                  | 0.00                 | 0.00                |  |
| 7,900.00   | 90.00           | 0.00        | 5,739.00              | 2,162.45     | 101.47       | 2,163.36                | 0.00                  | 0.00                 | 0.00                |  |
| 8,000.00   | 90.00           | 0.00        | 5,739.00              | 2,262.45     | 101.47       | 2,263.35                | 0.00                  | 0.00                 | 0.00                |  |
| 8,100.00   | 90.00           | 0.00        | 5,739.00              | 2,362.45     | 101.47       | 2,363.35                | 0.00                  | 0.00                 | 0.00                |  |
| 8,200.00   | 90.00           | 0.00        | 5,739.00              | 2,462.45     | 101.47       | 2,463.34                | 0.00                  | 0.00                 | 0.00                |  |
| 8,300.00   | 90.00           | 0.00        | 5,739.00              | 2,562.45     | 101.47       | 2,563.34                | 0.00                  | 0.00                 | 0.00                |  |
| 8,400.00   | 90.00           | 0.00        | 5,739.00              | 2,662.45     | 101.47       | 2,663.33                | 0.00                  | 0.00                 | 0.00                |  |
| 8,500.00   | 90.00           | 0.00        | 5,739.00              | 2,762.45     | 101.47       | 2,763.33                | 0.00                  | 0.00                 | 0.00                |  |
| 8,600.00   | 90.00           | 0.00        | 5,739.00              | 2,862.45     | 101.47       | 2,863.32                | 0.00                  | 0.00                 | 0.00                |  |
| 8,700.00   | 90.00           | 0.00        | 5,739.00              | 2,962.45     | 101.47       | 2,963.32                | 0.00                  | 0.00                 | 0.00                |  |
| 8,800.00   | 90.00           | 0.00        | 5,739.00              | 3,062.45     | 101.47       | 3,063.31                | 0.00                  | 0.00                 | 0.00                |  |
| 8,900.00   | 90.00           | 0.00        | 5,739.00              | 3,162.45     | 101.47       | 3,163.31                | 0.00                  | 0.00                 | 0.00                |  |
| 9,000.00   | 90.00           | 0.00        | 5,739.00              | 3,262.45     | 101.47       | 3,263.30                | 0.00                  | 0.00                 | 0.00                |  |
| 9,100.00   | 90.00           | 0.00        | 5,739.00              | 3,362.45     | 101.47       | 3,363.30                | 0.00                  | 0.00                 | 0.00                |  |
| 9,200.00   | 90.00           | 0.00        | 5,739.00              | 3,462.45     | 101.47       | 3,463.29                | 0.00                  | 0.00                 | 0.00                |  |
| 9,300.00   | 90.00           | 0.00        | 5,739.00              | 3,562.45     | 101.47       | 3,563.29                | 0.00                  | 0.00                 | 0.00                |  |
| 9,400.00   | 90.00           | 0.00        | 5,739.00              | 3,662.45     | 101.47       | 3,663.28                | 0.00                  | 0.00                 | 0.00                |  |
| 9,500.00   | 90.00           | 0.00        | 5,739.00              | 3,762.45     | 101.47       | 3,763.28                | 0.00                  | 0.00                 | 0.00                |  |
| 9,600.00   | 90.00           | 0.00        | 5,739.00              | 3,862.45     | 101.47       | 3,863.27                | 0.00                  | 0.00                 | 0.00                |  |
| 9,700.00   | 90.00           | 0.00        | 5,739.00              | 3,962.45     | 101.47       | 3,963.27                | 0.00                  | 0.00                 | 0.00                |  |
| 9,800.00   | 90.00           | 0.00        | 5,739.00              | 4,062.45     | 101.47       | 4,063.26                | 0.00                  | 0.00                 | 0.00                |  |
| 9,900.00   | 90.00           | 0.00        | 5,739.00              | 4,162.45     | 101.47       | 4,163.26                | 0.00                  | 0.00                 | 0.00                |  |
| 10,000.00  | 90.00           | 0.00        | 5,739.00              | 4,262.45     | 101.47       | 4,263.25                | 0.00                  | 0.00                 | 0.00                |  |
| 10,100.00  | 90.00           | 0.00        | 5,739.00              | 4,362.45     | 101.47       | 4,363.25                | 0.00                  | 0.00                 | 0.00                |  |
| 10,200.00  | 90.00           | 0.00        | 5,739.00              | 4,462.45     | 101.47       | 4,463.24                | 0.00                  | 0.00                 | 0.00                |  |
| 10,300.00  | 90.00           | 0.00        | 5,739.00              | 4,562.45     | 101.47       | 4,563.24                | 0.00                  | 0.00                 | 0.00                |  |
| 10,400.00  | 90.00           | 0.00        | 5,739.00              | 4,662.45     | 101.47       | 4,663.23                | 0.00                  | 0.00                 | 0.00                |  |
| 10,500.00  | 90.00           | 0.00        | 5,739.00              | 4,762.45     | 101.47       | 4,763.23                | 0.00                  | 0.00                 | 0.00                |  |
| 10,600.00  | 90.00           | 0.00        | 5,739.00              | 4,862.45     | 101.47       | 4,863.22                | 0.00                  | 0.00                 | 0.00                |  |
| 10,700.00  | 90.00           | 0.00        | 5,739.00              | 4,962.45     | 101.47       | 4,963.22                | 0.00                  | 0.00                 | 0.00                |  |
| 10,800.00  | 90.00           | 0.00        | 5,739.00              | 5,062.45     | 101.47       | 5,063.21                | 0.00                  | 0.00                 | 0.00                |  |
| 10,900.00  | 90.00           | 0.00        | 5,739.00              | 5,162.45     | 101.47       | 5,163.21                | 0.00                  | 0.00                 | 0.00                |  |
| 11,000.00  | 90.00           | 0.00        | 5,739.00              | 5,262.45     | 101.47       | 5,263.20                | 0.00                  | 0.00                 | 0.00                |  |



# WOG

## Planning Report

|                  |                         |                                     |  |
|------------------|-------------------------|-------------------------------------|--|
| <b>Database:</b> | LandmarkEDM             | <b>Local Co-ordinate Reference:</b> | Well Razor #25P-2448                   |
| <b>Company:</b>  | Whiting Petroleum Corp. | <b>TVD Reference:</b>               | KBE @ 4762.00usft (Original Well Elev) |
| <b>Project:</b>  | Weld County, CO         | <b>MD Reference:</b>                | KBE @ 4762.00usft (Original Well Elev) |
| <b>Site:</b>     | Sec 25-T10N-R58W        | <b>North Reference:</b>             | True                                   |
| <b>Well:</b>     | Razor #25P-2448         | <b>Survey Calculation Method:</b>   | Minimum Curvature                      |
| <b>Wellbore:</b> | HZ                      |                                     |  |
| <b>Design:</b>   | APD                     |                                     |  |

| Planned Survey        |                 |             |                       |              |              |                         |                       |                      |                     |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 11,100.00             | 90.00           | 0.00        | 5,739.00              | 5,362.45     | 101.47       | 5,363.20                | 0.00                  | 0.00                 | 0.00                |
| 11,200.00             | 90.00           | 0.00        | 5,739.00              | 5,462.45     | 101.47       | 5,463.19                | 0.00                  | 0.00                 | 0.00                |
| 11,300.00             | 90.00           | 0.00        | 5,739.00              | 5,562.45     | 101.47       | 5,563.19                | 0.00                  | 0.00                 | 0.00                |
| 11,400.00             | 90.00           | 0.00        | 5,739.00              | 5,662.45     | 101.47       | 5,663.18                | 0.00                  | 0.00                 | 0.00                |
| 11,500.00             | 90.00           | 0.00        | 5,739.00              | 5,762.45     | 101.47       | 5,763.18                | 0.00                  | 0.00                 | 0.00                |
| 11,600.00             | 90.00           | 0.00        | 5,739.00              | 5,862.45     | 101.47       | 5,863.17                | 0.00                  | 0.00                 | 0.00                |
| 11,700.00             | 90.00           | 0.00        | 5,739.00              | 5,962.45     | 101.47       | 5,963.17                | 0.00                  | 0.00                 | 0.00                |
| 11,800.00             | 90.00           | 0.00        | 5,739.00              | 6,062.45     | 101.47       | 6,063.16                | 0.00                  | 0.00                 | 0.00                |
| 11,900.00             | 90.00           | 0.00        | 5,739.00              | 6,162.45     | 101.47       | 6,163.16                | 0.00                  | 0.00                 | 0.00                |
| 12,000.00             | 90.00           | 0.00        | 5,739.00              | 6,262.45     | 101.47       | 6,263.15                | 0.00                  | 0.00                 | 0.00                |
| 12,100.00             | 90.00           | 0.00        | 5,739.00              | 6,362.45     | 101.47       | 6,363.15                | 0.00                  | 0.00                 | 0.00                |
| 12,200.00             | 90.00           | 0.00        | 5,739.00              | 6,462.45     | 101.47       | 6,463.14                | 0.00                  | 0.00                 | 0.00                |
| 12,300.00             | 90.00           | 0.00        | 5,739.00              | 6,562.45     | 101.47       | 6,563.14                | 0.00                  | 0.00                 | 0.00                |
| 12,400.00             | 90.00           | 0.00        | 5,739.00              | 6,662.45     | 101.47       | 6,663.13                | 0.00                  | 0.00                 | 0.00                |
| 12,500.00             | 90.00           | 0.00        | 5,739.00              | 6,762.45     | 101.47       | 6,763.13                | 0.00                  | 0.00                 | 0.00                |
| 12,600.00             | 90.00           | 0.00        | 5,739.00              | 6,862.45     | 101.47       | 6,863.12                | 0.00                  | 0.00                 | 0.00                |
| 12,700.00             | 90.00           | 0.00        | 5,739.00              | 6,962.45     | 101.47       | 6,963.12                | 0.00                  | 0.00                 | 0.00                |
| 12,800.00             | 90.00           | 0.00        | 5,739.00              | 7,062.45     | 101.47       | 7,063.11                | 0.00                  | 0.00                 | 0.00                |
| 12,900.00             | 90.00           | 0.00        | 5,739.00              | 7,162.45     | 101.47       | 7,163.11                | 0.00                  | 0.00                 | 0.00                |
| 13,000.00             | 90.00           | 0.00        | 5,739.00              | 7,262.45     | 101.47       | 7,263.10                | 0.00                  | 0.00                 | 0.00                |
| 13,100.00             | 90.00           | 0.00        | 5,739.00              | 7,362.45     | 101.47       | 7,363.10                | 0.00                  | 0.00                 | 0.00                |
| 13,200.00             | 90.00           | 0.00        | 5,739.00              | 7,462.45     | 101.47       | 7,463.09                | 0.00                  | 0.00                 | 0.00                |
| 13,300.00             | 90.00           | 0.00        | 5,739.00              | 7,562.45     | 101.47       | 7,563.09                | 0.00                  | 0.00                 | 0.00                |
| 13,400.00             | 90.00           | 0.00        | 5,739.00              | 7,662.45     | 101.47       | 7,663.08                | 0.00                  | 0.00                 | 0.00                |
| 13,500.00             | 90.00           | 0.00        | 5,739.00              | 7,762.45     | 101.47       | 7,763.08                | 0.00                  | 0.00                 | 0.00                |
| 13,600.00             | 90.00           | 0.00        | 5,739.00              | 7,862.45     | 101.47       | 7,863.07                | 0.00                  | 0.00                 | 0.00                |
| 13,700.00             | 90.00           | 0.00        | 5,739.00              | 7,962.45     | 101.47       | 7,963.07                | 0.00                  | 0.00                 | 0.00                |
| 13,800.00             | 90.00           | 0.00        | 5,739.00              | 8,062.45     | 101.47       | 8,063.07                | 0.00                  | 0.00                 | 0.00                |
| 13,900.00             | 90.00           | 0.00        | 5,739.00              | 8,162.45     | 101.47       | 8,163.06                | 0.00                  | 0.00                 | 0.00                |
| 14,000.00             | 90.00           | 0.00        | 5,739.00              | 8,262.45     | 101.47       | 8,263.06                | 0.00                  | 0.00                 | 0.00                |
| 14,100.00             | 90.00           | 0.00        | 5,739.00              | 8,362.45     | 101.47       | 8,363.05                | 0.00                  | 0.00                 | 0.00                |
| 14,200.00             | 90.00           | 0.00        | 5,739.00              | 8,462.45     | 101.47       | 8,463.05                | 0.00                  | 0.00                 | 0.00                |
| 14,300.00             | 90.00           | 0.00        | 5,739.00              | 8,562.45     | 101.47       | 8,563.04                | 0.00                  | 0.00                 | 0.00                |
| 14,400.00             | 90.00           | 0.00        | 5,739.00              | 8,662.45     | 101.47       | 8,663.04                | 0.00                  | 0.00                 | 0.00                |
| 14,500.00             | 90.00           | 0.00        | 5,739.00              | 8,762.45     | 101.47       | 8,763.03                | 0.00                  | 0.00                 | 0.00                |
| 14,600.00             | 90.00           | 0.00        | 5,739.00              | 8,862.45     | 101.47       | 8,863.03                | 0.00                  | 0.00                 | 0.00                |
| 14,700.00             | 90.00           | 0.00        | 5,739.00              | 8,962.45     | 101.47       | 8,963.02                | 0.00                  | 0.00                 | 0.00                |
| 14,800.00             | 90.00           | 0.00        | 5,739.00              | 9,062.45     | 101.47       | 9,063.02                | 0.00                  | 0.00                 | 0.00                |
| 14,900.00             | 90.00           | 0.00        | 5,739.00              | 9,162.45     | 101.47       | 9,163.01                | 0.00                  | 0.00                 | 0.00                |
| 15,000.00             | 90.00           | 0.00        | 5,739.00              | 9,262.45     | 101.47       | 9,263.01                | 0.00                  | 0.00                 | 0.00                |
| 15,100.00             | 90.00           | 0.00        | 5,739.00              | 9,362.45     | 101.47       | 9,363.00                | 0.00                  | 0.00                 | 0.00                |
| 15,200.00             | 90.00           | 0.00        | 5,739.00              | 9,462.45     | 101.47       | 9,463.00                | 0.00                  | 0.00                 | 0.00                |
| 15,300.00             | 90.00           | 0.00        | 5,739.00              | 9,562.45     | 101.47       | 9,562.99                | 0.00                  | 0.00                 | 0.00                |
| 15,400.00             | 90.00           | 0.00        | 5,739.00              | 9,662.45     | 101.47       | 9,662.99                | 0.00                  | 0.00                 | 0.00                |
| 15,500.00             | 90.00           | 0.00        | 5,739.00              | 9,762.45     | 101.47       | 9,762.98                | 0.00                  | 0.00                 | 0.00                |
| 15,600.00             | 90.00           | 0.00        | 5,739.00              | 9,862.45     | 101.47       | 9,862.98                | 0.00                  | 0.00                 | 0.00                |
| 15,700.00             | 90.00           | 0.00        | 5,739.00              | 9,962.45     | 101.47       | 9,962.97                | 0.00                  | 0.00                 | 0.00                |
| 15,800.00             | 90.00           | 0.00        | 5,739.00              | 10,062.45    | 101.47       | 10,062.97               | 0.00                  | 0.00                 | 0.00                |
| 15,900.00             | 90.00           | 0.00        | 5,739.00              | 10,162.45    | 101.47       | 10,162.96               | 0.00                  | 0.00                 | 0.00                |
| 15,921.87             | 90.00           | 0.00        | 5,739.00              | 10,184.32    | 101.47       | 10,184.83               | 0.00                  | 0.00                 | 0.00                |
| TD at 15921.87        |                 |             |                       |              |              |                         |                       |                      |                     |



# WOG

## Planning Report

|                  |                         |                                     |  |
|------------------|-------------------------|-------------------------------------|--|
| <b>Database:</b> | LandmarkEDM             | <b>Local Co-ordinate Reference:</b> | Well Razor #25P-2448                   |
| <b>Company:</b>  | Whiting Petroleum Corp. | <b>TVD Reference:</b>               | KBE @ 4762.00usft (Original Well Elev) |
| <b>Project:</b>  | Weld County, CO         | <b>MD Reference:</b>                | KBE @ 4762.00usft (Original Well Elev) |
| <b>Site:</b>     | Sec 25-T10N-R58W        | <b>North Reference:</b>             | True                                   |
| <b>Well:</b>     | Razor #25P-2448         | <b>Survey Calculation Method:</b>   | Minimum Curvature                      |
| <b>Wellbore:</b> | Hz                      |                                     |  |
| <b>Design:</b>   | APD                     |                                     |  |

| Design Targets            |           |          |          |           |        |              |              |                  |                   |
|---------------------------|-----------|----------|----------|-----------|--------|--------------|--------------|------------------|-------------------|
| Target Name               |           |          |          |           |        |              |              |                  |                   |
| - hit/miss target         | Dip Angle | Dip Dir. | TVD      | +N/-S     | +E/-W  | Northing     | Easting      | Latitude         | Longitude         |
| - Shape                   | (°)       | (°)      | (usft)   | (usft)    | (usft) | (usft)       | (usft)       |                  |                   |
| PBHL 2448                 | 0.00      | 0.00     | 5,739.00 | 10,184.32 | 101.47 | 1,550,183.44 | 3,469,085.85 | 40° 49' 52.770 N | 103° 48' 17.440 W |
| - plan hits target center |           |          |          |           |        |              |              |                  |                   |
| - Point                   |           |          |          |           |        |              |              |                  |                   |

| Casing Points  |                |                        |  |                 |               |
|----------------|----------------|------------------------|--|-----------------|---------------|
| Measured Depth | Vertical Depth |                        |  | Casing Diameter | Hole Diameter |
| (usft)         | (usft)         | Name                   |  | (in)            | (in)          |
| 6,042.55       | 5,739.00       | 5 1/2" Marker / 7" CSG |  | 7.000           | 8.750         |

| Formations     |                |                |  |           |     |               |
|----------------|----------------|----------------|--|-----------|-----|---------------|
| Measured Depth | Vertical Depth |                |  |           | Dip | Dip Direction |
| (usft)         | (usft)         | Name           |  | Lithology | (°) | (°)           |
| 1,551.57       | 1,550.00       | Upper Pierre   |  |           |     |               |
| 3,504.23       | 3,500.00       | Hygiene        |  |           |     |               |
| 3,654.43       | 3,650.00       | Lower Pierre   |  |           |     |               |
| 5,469.08       | 5,454.00       | P200 Marker    |  |           |     |               |
| 5,491.77       | 5,474.00       | P300 Marker    |  |           |     |               |
| 5,510.34       | 5,490.00       | P350 Marker    |  |           |     |               |
| 5,526.91       | 5,504.00       | Sharon Springs |  |           |     |               |
| 5,531.71       | 5,508.00       | Niobrara       |  |           |     |               |
| 5,552.46       | 5,525.00       | Top A Chalk    |  |           |     |               |
| 5,590.65       | 5,555.00       | Top A Marl     |  |           |     |               |
| 5,606.59       | 5,567.00       | A Marl         |  |           |     |               |
| 5,617.47       | 5,575.00       | Top Upper B    |  |           |     |               |
| 5,651.49       | 5,599.00       | Base Upper B   |  |           |     |               |
| 5,675.55       | 5,615.00       | Top Lower B    |  |           |     |               |
| 5,722.93       | 5,644.00       | Base Lower B   |  |           |     |               |
| 5,746.26       | 5,657.00       | Top B Marl     |  |           |     |               |
| 5,837.06       | 5,699.00       | Top C Chalk    |  |           |     |               |
| 5,858.99       | 5,707.00       | Middle C Chalk |  |           |     |               |
| 5,905.20       | 5,721.00       | Middle C Marl  |  |           |     |               |
| 6,042.55       | 5,739.00       | Lower C Chalk  |  |           |     |               |

| Plan Annotations |                |                   |        |                     |  |
|------------------|----------------|-------------------|--------|---------------------|--|
| Measured Depth   | Vertical Depth | Local Coordinates |        |                     |  |
| (usft)           | (usft)         | +N/-S             | +E/-W  | Comment             |  |
| (usft)           | (usft)         | (usft)            | (usft) |                     |  |
| 300.00           | 300.00         | 0.00              | 0.00   | Build 2°/100'       |  |
| 449.51           | 449.45         | -3.53             | 1.66   | Hold 2.99° Inc      |  |
| 4,874.65         | 4,868.55       | -212.47           | 99.81  | Drop 2°/100'        |  |
| 5,024.16         | 5,018.00       | -216.00           | 101.47 | Hold Vertical       |  |
| 5,224.16         | 5,218.00       | -216.00           | 101.47 | KOP, Build 11°/100' |  |
| 6,042.55         | 5,739.00       | 305.00            | 101.47 | LP @ 90° Inc, Hold  |  |
| 15,921.87        | 5,739.00       | 10,184.32         | 101.47 | TD at 15921.87      |  |