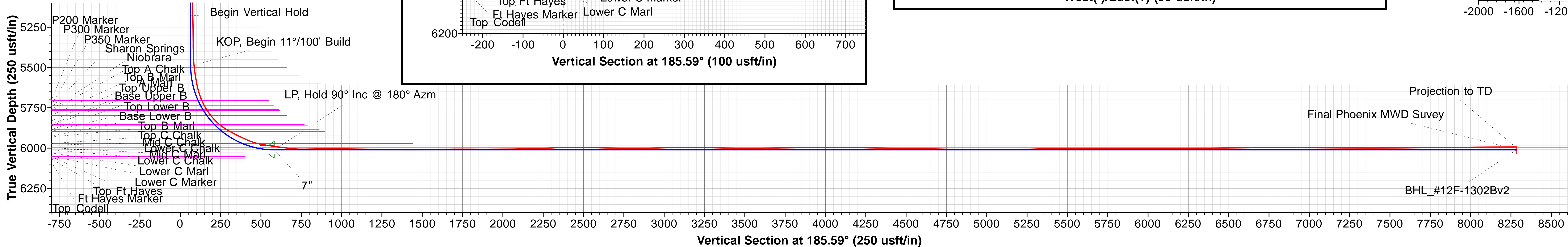
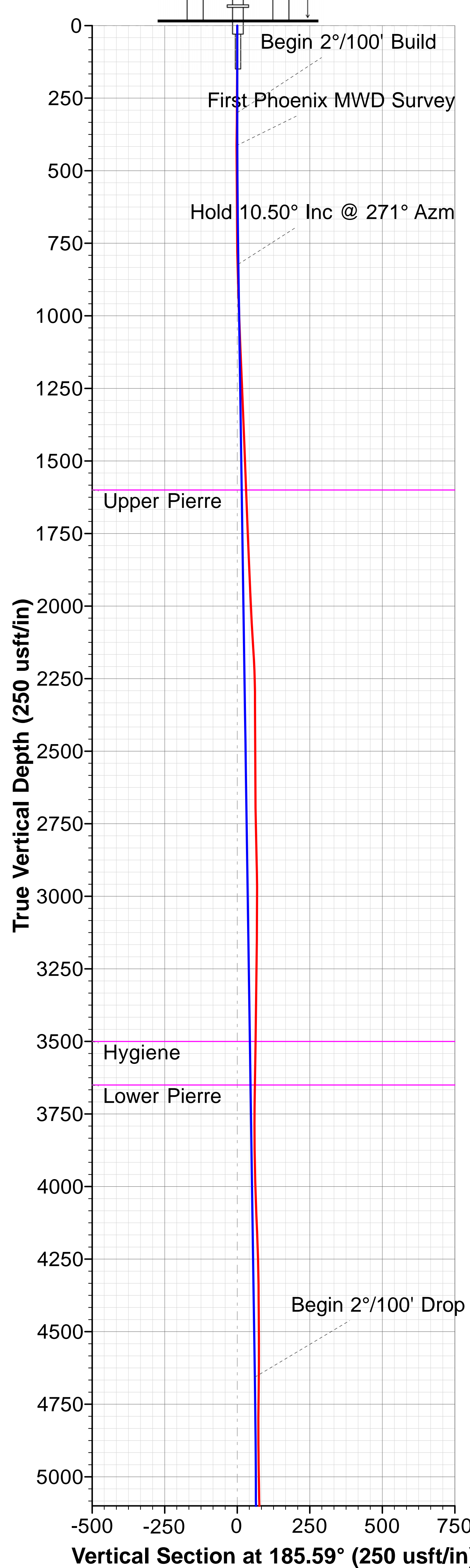




Project: Weld County, Colorado (NAD 83)  
Site: Sec.12-T10N-R58W  
Well: Razor FED #12F-1302B  
Wellbore: OH / Job# 1524098  
Design: Plan 2 08-04-15  
Rig: Unit 409

RKB @ 4957.80usft (Unit 409)  
Ground Level: 4936.80



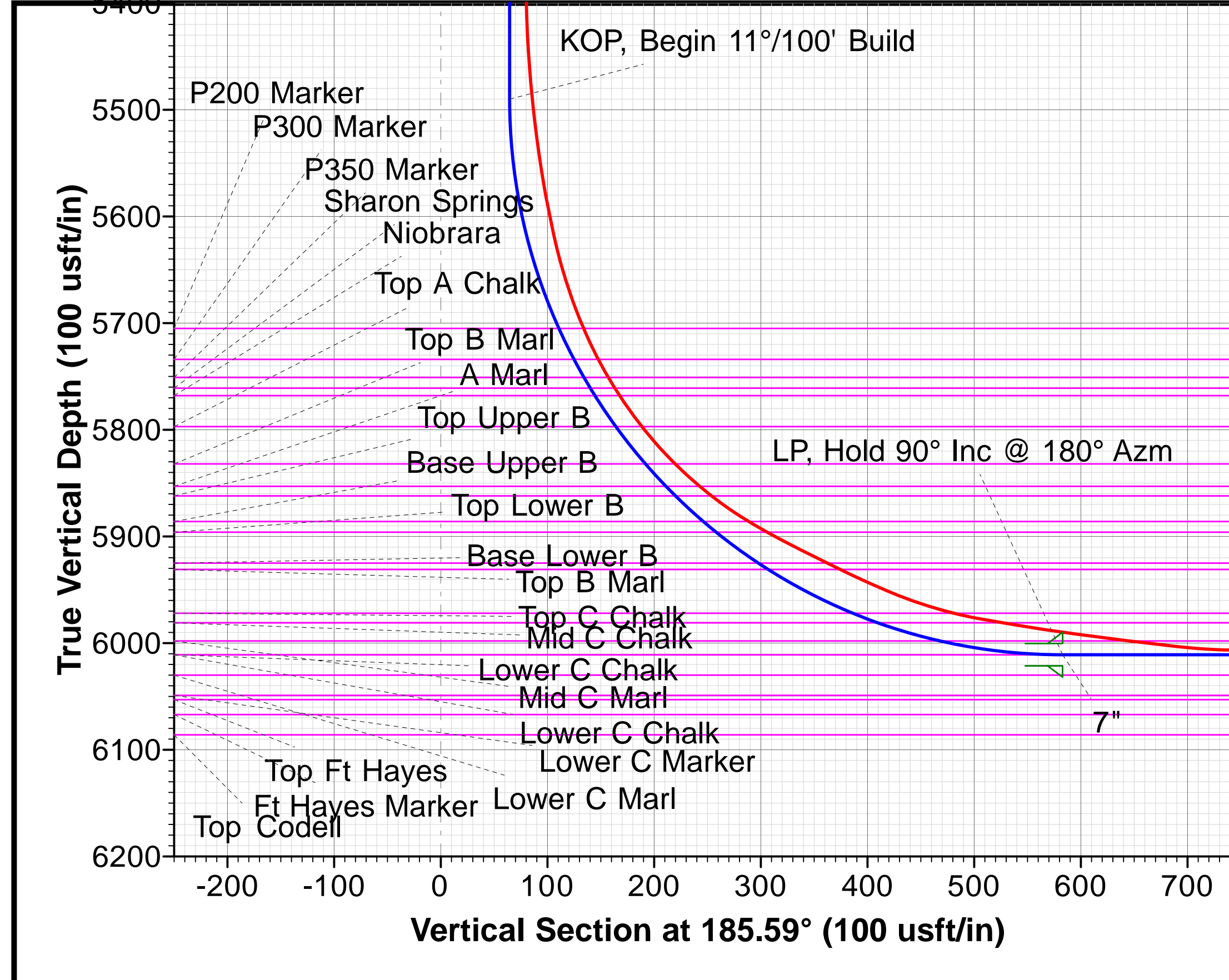
109)

| WELL DETAILS |  |  |       |  |               |  |             |  |           |  |             |  |
|--------------|--|--|-------|--|---------------|--|-------------|--|-----------|--|-------------|--|
|              |  |  |       |  | Ground Level: |  | 4936.80     |  |           |  |             |  |
| +N/-S        |  |  | +E/-W |  | Northing      |  | Easting     |  | Latitude  |  | Longitude   |  |
| 0.00         |  |  | 0.00  |  | 1558538.590   |  | 3465209.190 |  | 40.854456 |  | -103.818278 |  |

| SECTION DETAILS |          |       |        |         |          |         |       |        |         |                  |                             |
|-----------------|----------|-------|--------|---------|----------|---------|-------|--------|---------|------------------|-----------------------------|
| Sec             | MD       | Inc   | Azi    | TVD     | +N/-S    | +E/-W   | Dleg  | TFace  | VSect   | Target           | Annotation                  |
| 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    |                  | Begin 2°/100' Build         |
| 3               | 825.00   | 10.50 | 271.00 | 822.07  | 0.84     | -47.96  | 2.00  | 271.00 | 3.84    |                  | Hold 10.50° Inc @ 271° Azm  |
| 4               | 4724.99  | 10.50 | 271.00 | 4656.75 | 13.24    | -758.58 | 0.00  | 0.00   | 60.73   |                  | Begin 2°/100' Drop          |
| 5               | 5249.99  | 0.00  | 0.00   | 5178.82 | 14.08    | -806.54 | 2.00  | 180.00 | 64.58   |                  | Begin Vertical Hold         |
| 6               | 5561.30  | 0.00  | 0.00   | 5490.13 | 14.08    | -806.54 | 0.00  | 0.00   | 64.58   |                  | KOP, Begin 11°/100' Build   |
| 7               | 6379.48  | 90.00 | 180.00 | 6011.00 | -506.79  | -806.58 | 11.00 | 180.00 | 582.97  |                  | LP, Hold 90° Inc @ 180° Azm |
| 8               | 14116.95 | 90.00 | 180.00 | 6011.00 | -8244.26 | -807.15 | 0.00  | 0.00   | 8283.67 | BHL_#12F-1302Bv2 | TD at 14116.95 MD           |

| DESIGN TARGET DETAILS |         |          |         |             |             |           |             |
|-----------------------|---------|----------|---------|-------------|-------------|-----------|-------------|
| Name                  | TVD     | +N/-S    | +E/-W   | Northing    | Easting     | Latitude  | Longitude   |
| BHL_#12F-1302Bv2      | 6011.00 | -8244.26 | -807.15 | 1550280.510 | 3464558.530 | 40.831828 | -103.821194 |
|                       |         |          |         |             |             |           | Point       |

- LEGEND**
- Razor FED #12F-1305A, OH / Job# 1524099, Plan 2 08-04-15 V0
  - Razor FED #12F-1308B, Wellbore #1 / Job #1523835, Surveys (Unit 409) V0
  - Razor #12F-0105A, OH / Job# 1524095, Plan 2 08-04-15 V0
  - Razor #12F-0106B, OH / Job# 1524096, Plan 2 08-04-15 V0
  - Razor FED #12F-1302B, OH / Job# 1524098, Surveys (Unit 409) V0
  - Razor #12F-0104B, Wellbore #1 / Job #1523838, Surveys (Unit 409) V0
  - Razor #12F-0107A, Wellbore #2 / Job #1523840, Surveys (Unit 409) V0
  - Razor #12F-0107A, Wellbore #1 / Job #1523840, Surveys (Unit 409) V0
  - Razor #12F-0102B, OH / Job# 1524094, Plan 2 08-04-15 V0
  - Razor #12F-0108B, Wellbore #1 / Job #1523841, Surveys (Unit 409) V0
  - Razor FED #12F-1307A, Wellbore #1 / Job #1523836, Surveys (Unit 409) V0
  - Razor FED #12F-1303A, Wellbore #2 / Job #1523837, Surveys (Unit 409) V0
  - Razor FED #12F-1303A, Wellbore #1 / Job #1523837, Surveys (Unit 409) V0
  - Razor FED #12F-1303A, Wellbore #3 / Job # 1523837, Surveys (Unit 409) V0
  - Razor FED #12F-1301A, OH / Job# 1524097, Plan 2 08-04-15 V0
  - Razor FED #12F-1304B, Wellbore #1, Surveys V0
  - Razor #12F-0101A, OH / Job# 1524093, Plan 2 08-04-15 V0
  - Razor FED #12F-1306B, OH / Job# 1524100, Plan 2 08-04-15 V0
  - Razor #12F-0103A, ST01 / Job #1523839, Surveys (Unit 409) V0
  - Razor #12F-0103A, OH / Job #1523839, Surveys (Unit 409) V0
  - Plan 2 08-04-15



| FORMATION TOP DETAILS |         |                |          |        |
|-----------------------|---------|----------------|----------|--------|
| TVDPath               | MDPath  | Formation      | DipAngle | DipDir |
| 1600.00               | 1616.18 | Upper Pierre   | 0.00     | 185.59 |
| 3500.00               | 3548.54 | Hygiene        | 0.00     | 185.59 |
| 3650.00               | 3701.09 | Lower Pierre   | 0.00     | 185.59 |
| 5705.00               | 5782.79 | P200 Marker    | 0.00     | 185.59 |
| 5734.00               | 5815.10 | P300 Marker    | 0.00     | 185.59 |
| 5751.00               | 5834.53 | P350 Marker    | 0.00     | 185.59 |
| 5761.00               | 5846.16 | Sharon Springs | 0.00     | 185.59 |
| 5768.00               | 5854.40 | Niobrara       | 0.00     | 185.59 |
| 5797.00               | 5889.46 | Top A Chalk    | 0.00     | 185.59 |
| 5832.00               | 5934.23 | Top B Marl     | 0.00     | 185.59 |
| 5853.00               | 5962.76 | A Marl         | 0.00     | 185.59 |
| 5862.00               | 5975.45 | Top Upper B    | 0.00     | 185.59 |
| 5886.00               | 6010.99 | Base Upper B   | 0.00     | 185.59 |
| 5896.00               | 6026.66 | Top Lower B    | 0.00     | 185.59 |
| 5925.00               | 6075.89 | Base Lower B   | 0.00     | 185.59 |
| 5931.00               | 6086.97 | Top B Marl     | 0.00     | 185.59 |
| 5972.00               | 6176.65 | Top C Chalk    | 0.00     | 185.59 |
| 5981.00               | 6201.85 | Mid C Chalk    | 0.00     | 185.59 |
| 5998.00               | 6262.88 | Mid C Marl     | 0.00     | 185.59 |
| 6011.00               | 6379.48 | Lower C Chalk  | 0.00     | 185.59 |

Map System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone Name: Colorado Northern Zone

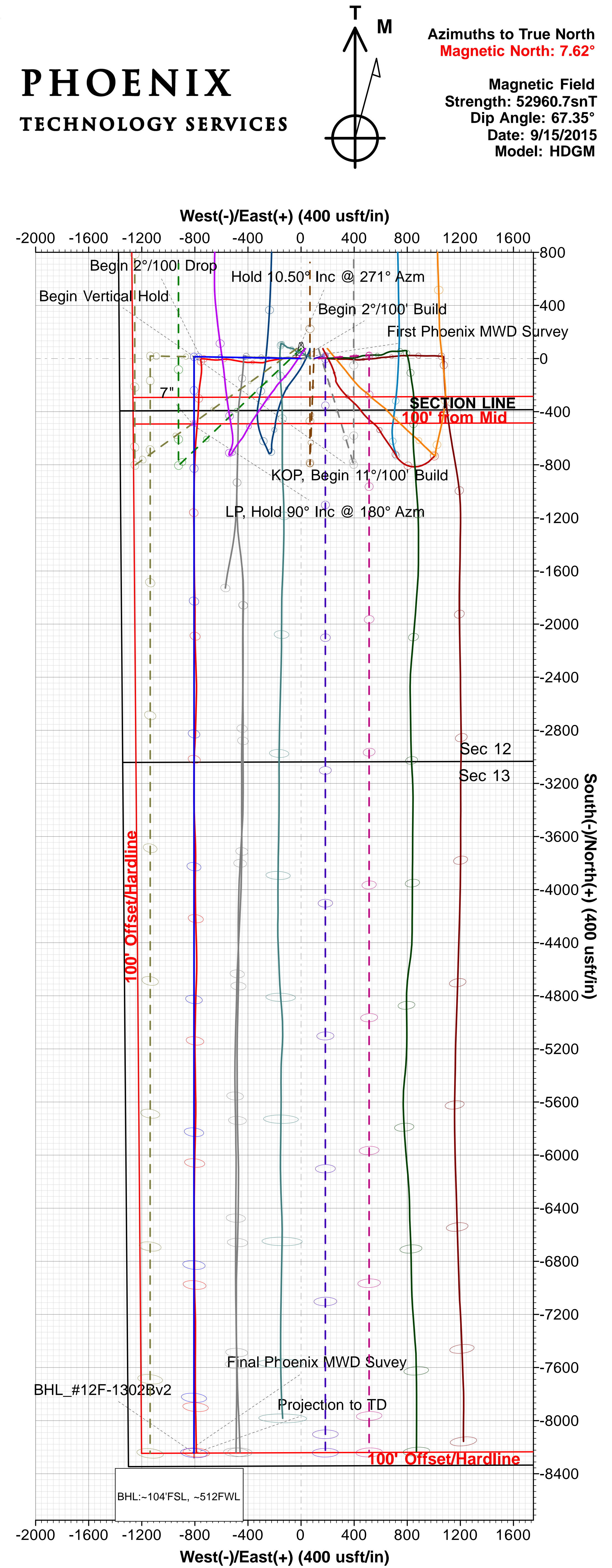
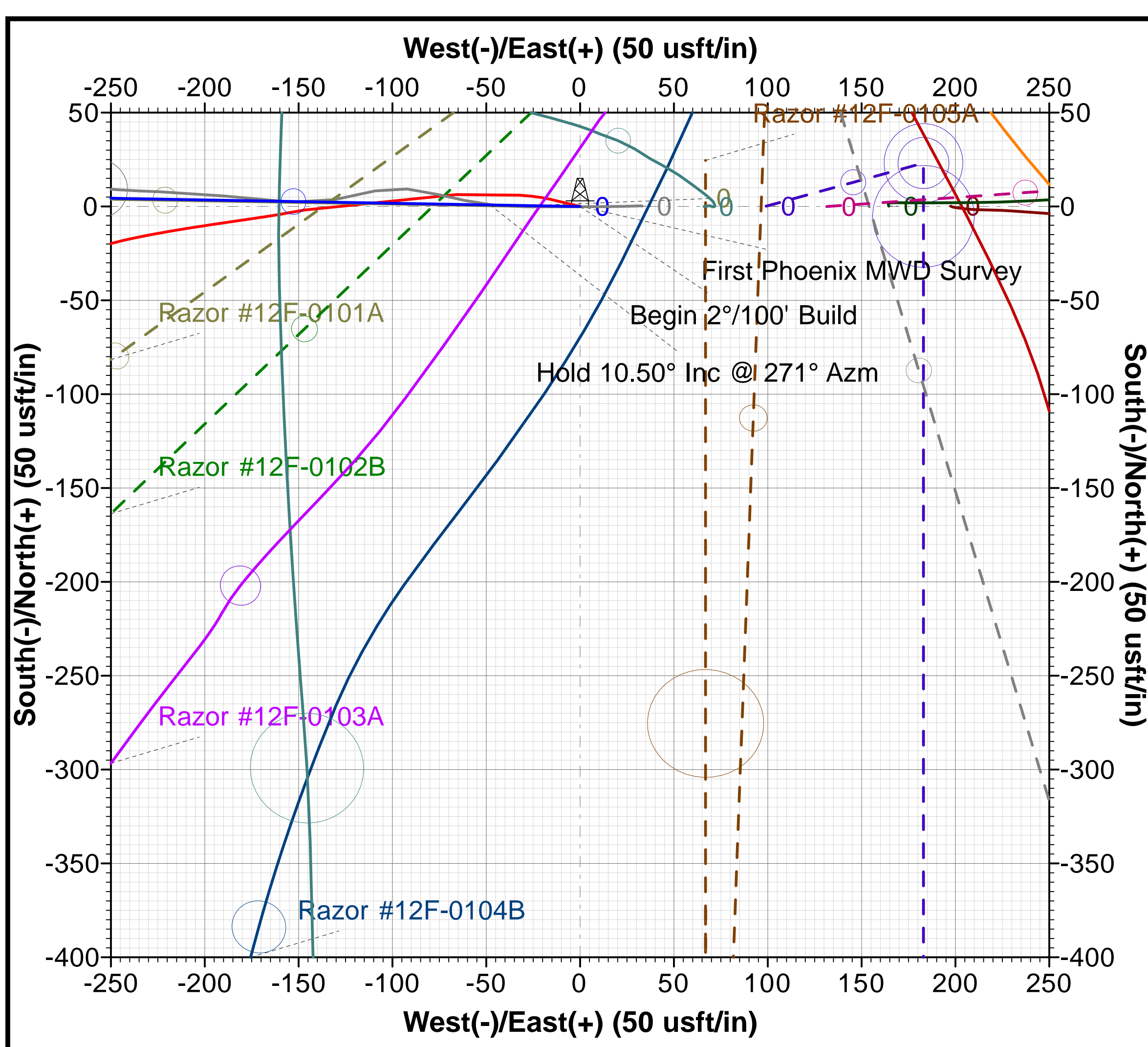
Local Origin: Well Razor FED #12F-1302B, True North

Latitude: 40.854456  
Longitude: -103.818278

Grid East: 3465209.190  
Grid North: 1558538.590  
Scale Factor: 1.000

Geomagnetic Model: HDGM  
Sample Date: 15-Sep-15  
Magnetic Declination: 7.62°  
Dip Angle from Horizontal: 67.35°  
Magnetic Field Strength: 52961

To convert a Magnetic Direction to a Grid Direction, Add 6.53°  
To convert a Magnetic Direction to a True Direction, Add 7.62° East  
To convert a True Direction to a Grid Direction, Subtract 1.09°







# **Whiting Oil & Gas Corporation**

**Weld County, Colorado (NAD 83)**

**Sec.12-T10N-R58W**

**Razor FED #12F-1302B**

**OH / Job# 1524098**

**Survey: Phoenix MWD Surveys**

## **Standard Survey Report**

**01 October, 2015**





## Phoenix Technology Services LP

## Survey Report



|                  |                                |                                     |                              |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | Whiting Oil & Gas Corporation  | <b>Local Co-ordinate Reference:</b> | Well Razor FED #12F-1302B    |
| <b>Project:</b>  | Weld County, Colorado (NAD 83) | <b>TVD Reference:</b>               | RKB @ 4957.80usft (Unit 409) |
| <b>Site:</b>     | Sec.12-T10N-R58W               | <b>MD Reference:</b>                | RKB @ 4957.80usft (Unit 409) |
| <b>Well:</b>     | Razor FED #12F-1302B           | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | OH / Job# 1524098              | <b>Survey Calculation Method:</b>   | Minimum Curvature            |
| <b>Design:</b>   | Surveys (Unit 409)             | <b>Database:</b>                    | Compass 5000 RMR             |

|                    |                                |                      |                |
|--------------------|--------------------------------|----------------------|----------------|
| <b>Project</b>     | Weld County, Colorado (NAD 83) |                      |                |
| <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                  |           | Sec.12-T10N-R58W |                    |                   |             |
| Site Position:        |           | Northing:        | 1,558,542.326 usft | Latitude:         | 40.854456   |
| From:                 | Lat/Long  | Easting:         | 3,465,406.640 usft | Longitude:        | -103.817564 |
| Position Uncertainty: | 0.00 usft | Slot Radius:     | 13-3/16 "          | Grid Convergence: | 1.09 °      |

| Well                 |       | Razor FED #12F-1302B |                     |                    |               |               |
|----------------------|-------|----------------------|---------------------|--------------------|---------------|---------------|
| Well Position        | +N/-S | 0.00 usft            | Northing:           | 1,558,538.590 usft | Latitude:     | 40.854456     |
|                      | +E/-W | 0.00 usft            | Easting:            | 3,465,209.190 usft | Longitude:    | -103.818278   |
| Position Uncertainty |       | 0.00 usft            | Wellhead Elevation: | 0.00 usft          | Ground Level: | 4,936.80 usft |

|                  |                   |                    |                        |                      |                            |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | OH / Job# 1524098 |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | HDGM              | 9/15/2015          | 7.62                   | 67.35                | 52,961                     |

|                          |                                |                     |                     |                      |      |
|--------------------------|--------------------------------|---------------------|---------------------|----------------------|------|
| <b>Design</b>            | Surveys (Unit 409)             |                     |                     |                      |      |
| <b>Audit Notes:</b>      |                                |                     |                     |                      |      |
| <b>Version:</b>          | 1.0                            | <b>Phase:</b>       | ACTUAL              | <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                | 185.59               |      |

|                       |                  |                                       |                     |   |  |
|-----------------------|------------------|---------------------------------------|---------------------|---|--|
| <b>Survey Program</b> | <b>Date</b>      | 10/1/2015                             |                     |   |  |
| <b>From (usft)</b>    | <b>To (usft)</b> | <b>Survey (Wellbore)</b>              | <b>Tool Name</b>    | <b>Description</b>                              |  |
| 414.00                | 14,064.00        | Phoenix MWD Surveys (OH / Job# 152409 | PHX+MWD+IFR1+SAG+MS | PHX+OWSG MWD + IFR1 + Sag + Multi-Station Corre |  |

|                                 |                        |                    |                              |                     |                     |                                |                                |                               |                              |
|---------------------------------|------------------------|--------------------|------------------------------|---------------------|---------------------|--------------------------------|--------------------------------|-------------------------------|------------------------------|
| <b>Survey</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>Vertical Section (usft)</b> | <b>Dogleg Rate (°/100usft)</b> | <b>Build Rate (°/100usft)</b> | <b>Turn Rate (°/100usft)</b> |
| 0.00                            | 0.00                   | 0.00               | 0.00                         | 0.00                | 0.00                | 0.00                           | 0.00                           | 0.00                          | 0.00                         |
| 414.00                          | 4.54                   | 283.68             | 413.57                       | 3.88                | -15.93              | -2.31                          | 1.10                           | 1.10                          | 0.00                         |
| <b>First Phoenix MWD Survey</b> |                        |                    |                              |                     |                     |                                |                                |                               |                              |
| 784.00                          | 11.14                  | 268.45             | 779.94                       | 6.38                | -65.95              | 0.08                           | 1.85                           | 1.78                          | -4.12                        |
| 1,247.00                        | 9.22                   | 259.09             | 1,235.66                     | -1.86               | -147.09             | 16.17                          | 0.55                           | -0.41                         | -2.02                        |
| 1,433.00                        | 8.20                   | 262.06             | 1,419.51                     | -6.51               | -174.86             | 23.51                          | 0.60                           | -0.55                         | 1.60                         |
| 1,711.00                        | 9.53                   | 260.65             | 1,694.19                     | -12.99              | -217.21             | 34.08                          | 0.48                           | 0.48                          | -0.51                        |
| 1,805.00                        | 8.09                   | 258.80             | 1,787.08                     | -15.53              | -231.37             | 38.00                          | 1.56                           | -1.53                         | -1.97                        |
| 1,986.00                        | 6.93                   | 255.19             | 1,966.52                     | -20.80              | -254.43             | 45.48                          | 0.69                           | -0.64                         | -1.99                        |
| 2,170.00                        | 8.11                   | 247.72             | 2,148.94                     | -28.56              | -277.17             | 55.42                          | 0.83                           | 0.64                          | -4.06                        |
| 2,355.00                        | 9.79                   | 277.01             | 2,331.77                     | -31.59              | -304.87             | 61.14                          | 2.59                           | 0.91                          | 15.83                        |



## Phoenix Technology Services LP

## Survey Report



|                  |                                |                                     |                              |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | Whiting Oil & Gas Corporation  | <b>Local Co-ordinate Reference:</b> | Well Razor FED #12F-1302B    |
| <b>Project:</b>  | Weld County, Colorado (NAD 83) | <b>TVD Reference:</b>               | RKB @ 4957.80usft (Unit 409) |
| <b>Site:</b>     | Sec. 12-T10N-R58W              | <b>MD Reference:</b>                | RKB @ 4957.80usft (Unit 409) |
| <b>Well:</b>     | Razor FED #12F-1302B           | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | OH / Job# 1524098              | <b>Survey Calculation Method:</b>   | Minimum Curvature            |
| <b>Design:</b>   | Surveys (Unit 409)             | <b>Database:</b>                    | Compass 5000 RMR             |

| Survey                |                 |             |                       |              |              |                         |                         |                        |                       |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 2,723.00              | 8.87            | 269.80      | 2,694.91              | -27.87       | -364.30      | 63.22                   | 0.40                    | -0.25                  | -1.96                 |
| 2,815.00              | 8.52            | 268.22      | 2,785.86              | -28.10       | -378.20      | 64.81                   | 0.46                    | -0.38                  | -1.72                 |
| 2,907.00              | 8.35            | 265.47      | 2,876.86              | -28.84       | -391.67      | 66.86                   | 0.48                    | -0.18                  | -2.99                 |
| 2,999.00              | 9.82            | 273.89      | 2,967.71              | -28.84       | -406.16      | 68.27                   | 2.15                    | 1.60                   | 9.15                  |
| 3,091.00              | 10.54           | 278.61      | 3,058.26              | -27.05       | -422.31      | 68.06                   | 1.20                    | 0.78                   | 5.13                  |
| 3,184.00              | 9.49            | 276.34      | 3,149.84              | -24.93       | -438.34      | 67.51                   | 1.21                    | -1.13                  | -2.44                 |
| 3,555.00              | 9.21            | 283.45      | 3,515.93              | -14.64       | -497.62      | 63.05                   | 0.32                    | -0.08                  | 1.92                  |
| 3,741.00              | 11.55           | 278.45      | 3,698.87              | -8.44        | -530.52      | 60.08                   | 1.35                    | 1.26                   | -2.69                 |
| 3,834.00              | 10.90           | 276.33      | 3,790.10              | -6.11        | -548.46      | 59.50                   | 0.83                    | -0.70                  | -2.28                 |
| 3,926.00              | 9.83            | 271.51      | 3,880.59              | -4.94        | -564.96      | 59.95                   | 1.50                    | -1.16                  | -5.24                 |
| 4,019.00              | 10.02           | 267.06      | 3,972.20              | -5.15        | -580.98      | 61.71                   | 0.85                    | 0.20                   | -4.78                 |
| 4,112.00              | 8.09            | 258.67      | 4,064.04              | -6.85        | -595.48      | 64.82                   | 2.51                    | -2.08                  | -9.02                 |
| 4,205.00              | 9.23            | 263.23      | 4,155.98              | -9.01        | -609.30      | 68.32                   | 1.43                    | 1.23                   | 4.90                  |
| 4,298.00              | 10.21           | 264.35      | 4,247.65              | -10.70       | -624.91      | 71.52                   | 1.07                    | 1.05                   | 1.20                  |
| 4,390.00              | 10.86           | 273.76      | 4,338.10              | -10.94       | -641.67      | 73.39                   | 2.00                    | 0.71                   | 10.23                 |
| 4,483.00              | 9.21            | 271.60      | 4,429.68              | -10.16       | -657.86      | 74.19                   | 1.82                    | -1.77                  | -2.32                 |
| 4,576.00              | 9.52            | 276.54      | 4,521.44              | -9.07        | -672.94      | 74.58                   | 0.93                    | 0.33                   | 5.31                  |
| 4,669.00              | 9.39            | 275.13      | 4,613.18              | -7.52        | -688.13      | 74.51                   | 0.29                    | -0.14                  | -1.52                 |
| 4,762.00              | 10.53           | 280.56      | 4,704.77              | -5.28        | -704.04      | 73.84                   | 1.59                    | 1.23                   | 5.84                  |
| 4,855.00              | 8.37            | 276.69      | 4,796.51              | -2.94        | -719.12      | 72.97                   | 2.42                    | -2.32                  | -4.16                 |
| 4,948.00              | 7.39            | 273.34      | 4,888.63              | -1.80        | -731.82      | 73.08                   | 1.16                    | -1.05                  | -3.60                 |
| 5,042.00              | 4.93            | 265.35      | 4,982.08              | -1.77        | -741.88      | 74.03                   | 2.77                    | -2.62                  | -8.50                 |
| 5,134.00              | 3.49            | 257.54      | 5,073.83              | -2.70        | -748.55      | 75.60                   | 1.68                    | -1.57                  | -8.49                 |
| 5,227.00              | 2.47            | 241.05      | 5,166.71              | -4.28        | -753.07      | 77.61                   | 1.42                    | -1.10                  | -17.73                |
| 5,320.00              | 1.13            | 242.09      | 5,259.66              | -5.68        | -755.64      | 79.26                   | 1.44                    | -1.44                  | 1.12                  |
| 5,412.00              | 0.57            | 275.39      | 5,351.65              | -6.06        | -756.89      | 79.76                   | 0.79                    | -0.61                  | 36.20                 |
| 5,459.00              | 1.19            | 165.83      | 5,398.64              | -6.51        | -757.01      | 80.22                   | 3.15                    | 1.32                   | -233.11               |
| 5,505.00              | 3.75            | 167.96      | 5,444.60              | -8.45        | -756.58      | 82.10                   | 5.57                    | 5.57                   | 4.63                  |
| 5,552.00              | 5.95            | 173.49      | 5,491.43              | -12.37       | -755.98      | 85.95                   | 4.78                    | 4.68                   | 11.77                 |
| 5,598.00              | 7.97            | 174.00      | 5,537.09              | -17.91       | -755.38      | 91.41                   | 4.39                    | 4.39                   | 1.11                  |
| 5,627.00              | 9.93            | 172.33      | 5,565.73              | -22.39       | -754.83      | 95.81                   | 6.82                    | 6.76                   | -5.76                 |
| 5,692.00              | 13.88           | 169.89      | 5,629.32              | -35.62       | -752.71      | 108.78                  | 6.12                    | 6.08                   | -3.75                 |
| 5,723.00              | 17.77           | 172.60      | 5,659.14              | -43.98       | -751.45      | 116.97                  | 12.77                   | 12.55                  | 8.74                  |
| 5,785.00              | 24.93           | 177.86      | 5,716.85              | -66.45       | -749.74      | 139.17                  | 11.94                   | 11.55                  | 8.48                  |
| 5,832.00              | 31.88           | 182.24      | 5,758.17              | -88.78       | -749.86      | 161.40                  | 15.43                   | 14.79                  | 9.32                  |
| 5,878.00              | 37.81           | 185.73      | 5,795.91              | -114.97      | -751.74      | 187.65                  | 13.60                   | 12.89                  | 7.59                  |
| 5,908.00              | 42.64           | 187.93      | 5,818.81              | -134.20      | -754.06      | 207.01                  | 16.78                   | 16.10                  | 7.33                  |
| 5,971.00              | 51.88           | 188.49      | 5,861.52              | -179.94      | -760.68      | 253.18                  | 14.68                   | 14.67                  | 0.89                  |
| 6,017.00              | 59.36           | 186.16      | 5,887.48              | -217.57      | -765.48      | 291.10                  | 16.79                   | 16.26                  | -5.07                 |
| 6,064.00              | 63.25           | 183.48      | 5,910.05              | -258.64      | -768.93      | 332.31                  | 9.67                    | 8.28                   | -5.70                 |
| 6,111.00              | 64.02           | 181.89      | 5,930.92              | -300.70      | -770.90      | 374.37                  | 3.45                    | 1.64                   | -3.38                 |
| 6,157.00              | 66.73           | 181.59      | 5,950.09              | -342.50      | -772.17      | 416.08                  | 5.92                    | 5.89                   | -0.65                 |
| 6,204.00              | 72.93           | 182.77      | 5,966.29              | -386.56      | -773.85      | 460.10                  | 13.40                   | 13.19                  | 2.51                  |



## Phoenix Technology Services LP

## Survey Report



|                  |                                |                                     |                              |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | Whiting Oil & Gas Corporation  | <b>Local Co-ordinate Reference:</b> | Well Razor FED #12F-1302B    |
| <b>Project:</b>  | Weld County, Colorado (NAD 83) | <b>TVD Reference:</b>               | RKB @ 4957.80usft (Unit 409) |
| <b>Site:</b>     | Sec.12-T10N-R58W               | <b>MD Reference:</b>                | RKB @ 4957.80usft (Unit 409) |
| <b>Well:</b>     | Razor FED #12F-1302B           | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | OH / Job# 1524098              | <b>Survey Calculation Method:</b>   | Minimum Curvature            |
| <b>Design:</b>   | Surveys (Unit 409)             | <b>Database:</b>                    | Compass 5000 RMR             |

| Survey                |                 |             |                       |              |              |                         |                         |                        |                       |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 6,250.00              | 79.72           | 184.37      | 5,977.15              | -431.14      | -776.64      | 504.74                  | 15.14                   | 14.76                  | 3.48                  |
| 6,343.00              | 82.24           | 185.33      | 5,991.73              | -522.65      | -784.41      | 596.58                  | 2.90                    | 2.71                   | 1.03                  |
| 6,436.00              | 83.64           | 184.46      | 6,003.16              | -614.61      | -792.29      | 688.86                  | 1.77                    | 1.51                   | -0.94                 |
| 6,517.00              | 91.41           | 181.84      | 6,006.66              | -695.34      | -796.72      | 769.64                  | 10.12                   | 9.59                   | -3.23                 |
| 6,610.00              | 90.18           | 182.65      | 6,005.37              | -788.26      | -800.37      | 862.47                  | 1.58                    | -1.32                  | 0.87                  |
| 6,704.00              | 89.84           | 181.93      | 6,005.35              | -882.18      | -804.12      | 956.32                  | 0.85                    | -0.36                  | -0.77                 |
| 6,797.00              | 89.39           | 181.37      | 6,005.98              | -975.14      | -806.80      | 1,049.09                | 0.77                    | -0.48                  | -0.60                 |
| 6,983.00              | 89.62           | 179.68      | 6,007.59              | -1,161.12    | -808.50      | 1,234.35                | 0.92                    | 0.12                   | -0.91                 |
| 7,076.00              | 88.21           | 178.91      | 6,009.35              | -1,254.09    | -807.36      | 1,326.77                | 1.73                    | -1.52                  | -0.83                 |
| 7,169.00              | 89.87           | 178.98      | 6,010.90              | -1,347.06    | -805.65      | 1,419.13                | 1.79                    | 1.78                   | 0.08                  |
| 7,262.00              | 91.39           | 180.10      | 6,009.88              | -1,440.05    | -804.90      | 1,511.61                | 2.03                    | 1.63                   | 1.20                  |
| 7,355.00              | 91.12           | 179.85      | 6,007.85              | -1,533.03    | -804.86      | 1,604.14                | 0.40                    | -0.29                  | -0.27                 |
| 7,448.00              | 90.24           | 179.45      | 6,006.74              | -1,626.02    | -804.29      | 1,696.63                | 1.04                    | -0.95                  | -0.43                 |
| 7,542.00              | 89.88           | 178.73      | 6,006.64              | -1,720.00    | -802.80      | 1,790.02                | 0.86                    | -0.38                  | -0.77                 |
| 7,634.00              | 89.59           | 178.08      | 6,007.07              | -1,811.97    | -800.24      | 1,881.30                | 0.77                    | -0.32                  | -0.71                 |
| 7,727.00              | 90.85           | 180.50      | 6,006.71              | -1,904.95    | -799.09      | 1,973.73                | 2.93                    | 1.35                   | 2.60                  |
| 7,821.00              | 89.96           | 179.73      | 6,006.05              | -1,998.95    | -799.28      | 2,067.30                | 1.25                    | -0.95                  | -0.82                 |
| 7,913.00              | 92.10           | 179.22      | 6,004.39              | -2,090.92    | -798.43      | 2,158.75                | 2.39                    | 2.33                   | -0.55                 |
| 8,006.00              | 91.95           | 178.86      | 6,001.11              | -2,183.85    | -796.88      | 2,251.09                | 0.42                    | -0.16                  | -0.39                 |
| 8,099.00              | 92.35           | 177.93      | 5,997.62              | -2,276.75    | -794.27      | 2,343.29                | 1.09                    | 0.43                   | -1.00                 |
| 8,192.00              | 89.36           | 177.06      | 5,996.23              | -2,369.64    | -790.21      | 2,435.34                | 3.35                    | -3.22                  | -0.94                 |
| 8,285.00              | 89.44           | 180.06      | 5,997.20              | -2,462.59    | -787.87      | 2,527.63                | 3.23                    | 0.09                   | 3.23                  |
| 8,378.00              | 88.65           | 181.57      | 5,998.75              | -2,555.57    | -789.19      | 2,620.29                | 1.83                    | -0.85                  | 1.62                  |
| 8,471.00              | 89.38           | 181.35      | 6,000.35              | -2,648.52    | -791.56      | 2,713.03                | 0.82                    | 0.78                   | -0.24                 |
| 8,564.00              | 89.75           | 181.13      | 6,001.06              | -2,741.50    | -793.58      | 2,805.76                | 0.46                    | 0.40                   | -0.24                 |
| 8,657.00              | 90.79           | 182.69      | 6,000.62              | -2,834.44    | -796.68      | 2,898.56                | 2.02                    | 1.12                   | 1.68                  |
| 8,749.00              | 91.62           | 183.17      | 5,998.69              | -2,926.30    | -801.38      | 2,990.44                | 1.04                    | 0.90                   | 0.52                  |
| 8,842.00              | 90.36           | 181.37      | 5,997.08              | -3,019.21    | -805.06      | 3,083.27                | 2.36                    | -1.35                  | -1.94                 |
| 9,118.00              | 88.72           | 179.40      | 5,999.30              | -3,295.17    | -806.91      | 3,358.10                | 0.93                    | -0.59                  | -0.71                 |
| 9,211.00              | 89.65           | 179.14      | 6,000.62              | -3,388.15    | -805.73      | 3,450.52                | 1.04                    | 1.00                   | -0.28                 |
| 9,303.00              | 90.07           | 177.58      | 6,000.84              | -3,480.11    | -803.10      | 3,541.79                | 1.76                    | 0.46                   | -1.70                 |
| 9,395.00              | 90.88           | 177.98      | 6,000.08              | -3,572.04    | -799.53      | 3,632.93                | 0.98                    | 0.88                   | 0.43                  |
| 9,488.00              | 90.45           | 177.15      | 5,999.00              | -3,664.94    | -795.58      | 3,725.01                | 1.01                    | -0.46                  | -0.89                 |
| 9,581.00              | 90.38           | 181.51      | 5,998.33              | -3,757.91    | -794.49      | 3,817.43                | 4.69                    | -0.08                  | 4.69                  |
| 9,673.00              | 90.72           | 180.83      | 5,997.44              | -3,849.89    | -796.37      | 3,909.15                | 0.83                    | 0.37                   | -0.74                 |
| 9,766.00              | 90.53           | 180.42      | 5,996.43              | -3,942.88    | -797.39      | 4,001.80                | 0.49                    | -0.20                  | -0.44                 |
| 9,950.00              | 88.89           | 178.22      | 5,997.36              | -4,126.84    | -795.20      | 4,184.68                | 1.49                    | -0.89                  | -1.20                 |
| 10,042.00             | 89.30           | 179.66      | 5,998.81              | -4,218.81    | -793.50      | 4,276.05                | 1.63                    | 0.45                   | 1.57                  |
| 10,134.00             | 89.36           | 178.34      | 5,999.89              | -4,310.79    | -791.90      | 4,367.43                | 1.44                    | 0.07                   | -1.43                 |
| 10,226.00             | 89.24           | 177.52      | 6,001.01              | -4,402.72    | -788.57      | 4,458.60                | 0.90                    | -0.13                  | -0.89                 |
| 10,318.00             | 88.65           | 179.99      | 6,002.71              | -4,494.68    | -786.58      | 4,549.92                | 2.76                    | -0.64                  | 2.68                  |
| 10,410.00             | 88.72           | 180.02      | 6,004.82              | -4,586.66    | -786.58      | 4,641.46                | 0.08                    | 0.08                   | 0.03                  |
| 10,502.00             | 89.00           | 182.13      | 6,006.65              | -4,678.62    | -788.31      | 4,733.15                | 2.31                    | 0.30                   | 2.29                  |



## Phoenix Technology Services LP

## Survey Report



|                  |                                |                                     |                              |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | Whiting Oil & Gas Corporation  | <b>Local Co-ordinate Reference:</b> | Well Razor FED #12F-1302B    |
| <b>Project:</b>  | Weld County, Colorado (NAD 83) | <b>TVD Reference:</b>               | RKB @ 4957.80usft (Unit 409) |
| <b>Site:</b>     | Sec.12-T10N-R58W               | <b>MD Reference:</b>                | RKB @ 4957.80usft (Unit 409) |
| <b>Well:</b>     | Razor FED #12F-1302B           | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | OH / Job# 1524098              | <b>Survey Calculation Method:</b>   | Minimum Curvature            |
| <b>Design:</b>   | Surveys (Unit 409)             | <b>Database:</b>                    | Compass 5000 RMR             |

| Survey                   |                 |             |                       |              |              |                         |                         |                        |                       |
|--------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft)    | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 10,594.00                | 89.09           | 182.08      | 6,008.18              | -4,770.54    | -791.69      | 4,824.97                | 0.11                    | 0.10                   | -0.05                 |
| 10,687.00                | 89.70           | 181.56      | 6,009.17              | -4,863.49    | -794.64      | 4,917.76                | 0.86                    | 0.66                   | -0.56                 |
| 10,779.00                | 90.10           | 181.12      | 6,009.33              | -4,955.46    | -796.79      | 5,009.51                | 0.65                    | 0.43                   | -0.48                 |
| 10,871.00                | 90.35           | 180.80      | 6,008.96              | -5,047.45    | -798.33      | 5,101.21                | 0.44                    | 0.27                   | -0.35                 |
| 10,963.00                | 90.56           | 180.40      | 6,008.23              | -5,139.44    | -799.30      | 5,192.86                | 0.49                    | 0.23                   | -0.43                 |
| 11,055.00                | 91.42           | 179.62      | 6,006.64              | -5,231.42    | -799.31      | 5,284.41                | 1.26                    | 0.93                   | -0.85                 |
| 11,147.00                | 91.84           | 179.04      | 6,004.03              | -5,323.38    | -798.24      | 5,375.82                | 0.78                    | 0.46                   | -0.63                 |
| 11,239.00                | 89.92           | 178.92      | 6,002.61              | -5,415.35    | -796.60      | 5,467.19                | 2.09                    | -2.09                  | -0.13                 |
| 11,331.00                | 89.82           | 179.47      | 6,002.82              | -5,507.34    | -795.31      | 5,558.62                | 0.61                    | -0.11                  | 0.60                  |
| 11,423.00                | 89.78           | 178.28      | 6,003.14              | -5,599.32    | -793.50      | 5,649.99                | 1.29                    | -0.04                  | -1.29                 |
| 11,515.00                | 89.62           | 181.44      | 6,003.63              | -5,691.31    | -793.28      | 5,741.52                | 3.44                    | -0.17                  | 3.43                  |
| 11,607.00                | 89.13           | 181.00      | 6,004.63              | -5,783.28    | -795.24      | 5,833.24                | 0.72                    | -0.53                  | -0.48                 |
| 11,699.00                | 90.47           | 181.24      | 6,004.95              | -5,875.26    | -797.03      | 5,924.96                | 1.48                    | 1.46                   | 0.26                  |
| 11,791.00                | 90.41           | 181.97      | 6,004.24              | -5,967.22    | -799.61      | 6,016.73                | 0.80                    | -0.07                  | 0.79                  |
| 11,883.00                | 90.48           | 180.95      | 6,003.53              | -6,059.19    | -801.96      | 6,108.49                | 1.11                    | 0.08                   | -1.11                 |
| 11,974.00                | 90.50           | 180.44      | 6,002.75              | -6,150.18    | -803.06      | 6,199.16                | 0.56                    | 0.02                   | -0.56                 |
| 12,066.00                | 90.85           | 180.83      | 6,001.67              | -6,242.17    | -804.08      | 6,290.80                | 0.57                    | 0.38                   | 0.42                  |
| 12,158.00                | 90.79           | 180.76      | 6,000.35              | -6,334.15    | -805.35      | 6,382.47                | 0.10                    | -0.07                  | -0.08                 |
| 12,250.00                | 90.38           | 179.51      | 5,999.41              | -6,426.14    | -805.57      | 6,474.05                | 1.43                    | -0.45                  | -1.36                 |
| 12,342.00                | 90.35           | 179.84      | 5,998.83              | -6,518.14    | -805.05      | 6,565.56                | 0.36                    | -0.03                  | 0.36                  |
| 12,433.00                | 90.61           | 179.00      | 5,998.06              | -6,609.13    | -804.13      | 6,656.03                | 0.97                    | 0.29                   | -0.92                 |
| 12,525.00                | 89.95           | 179.97      | 5,997.61              | -6,701.12    | -803.30      | 6,747.50                | 1.28                    | -0.72                  | 1.05                  |
| 12,617.00                | 89.81           | 180.05      | 5,997.81              | -6,793.12    | -803.32      | 6,839.07                | 0.18                    | -0.15                  | 0.09                  |
| 12,709.00                | 89.79           | 179.36      | 5,998.13              | -6,885.12    | -802.84      | 6,930.58                | 0.75                    | -0.02                  | -0.75                 |
| 12,802.00                | 89.96           | 179.90      | 5,998.33              | -6,978.12    | -802.24      | 7,023.08                | 0.61                    | 0.18                   | 0.58                  |
| 12,893.00                | 89.53           | 178.50      | 5,998.74              | -7,069.10    | -800.97      | 7,113.51                | 1.61                    | -0.47                  | -1.54                 |
| 12,986.00                | 89.67           | 177.87      | 5,999.39              | -7,162.05    | -798.03      | 7,205.73                | 0.69                    | 0.15                   | -0.68                 |
| 13,078.00                | 90.02           | 179.53      | 5,999.63              | -7,254.03    | -795.94      | 7,297.06                | 1.84                    | 0.38                   | 1.80                  |
| 13,170.00                | 90.21           | 180.34      | 5,999.45              | -7,346.03    | -795.84      | 7,388.61                | 0.90                    | 0.21                   | 0.88                  |
| 13,262.00                | 90.25           | 180.46      | 5,999.08              | -7,438.02    | -796.48      | 7,480.24                | 0.14                    | 0.04                   | 0.13                  |
| 13,354.00                | 90.09           | 179.78      | 5,998.81              | -7,530.02    | -796.67      | 7,571.82                | 0.76                    | -0.17                  | -0.74                 |
| 13,446.00                | 90.22           | 180.58      | 5,998.56              | -7,622.02    | -796.96      | 7,663.40                | 0.88                    | 0.14                   | 0.87                  |
| 13,538.00                | 90.61           | 179.53      | 5,997.89              | -7,714.02    | -797.05      | 7,754.97                | 1.22                    | 0.42                   | -1.14                 |
| 13,630.00                | 90.58           | 179.21      | 5,996.94              | -7,806.01    | -796.04      | 7,846.42                | 0.35                    | -0.03                  | -0.35                 |
| 13,722.00                | 90.75           | 179.37      | 5,995.87              | -7,897.99    | -794.90      | 7,937.86                | 0.25                    | 0.18                   | 0.17                  |
| 13,814.00                | 90.67           | 178.44      | 5,994.73              | -7,989.97    | -793.14      | 8,029.23                | 1.01                    | -0.09                  | -1.01                 |
| 13,908.00                | 90.16           | 179.79      | 5,993.40              | -8,173.94    | -790.30      | 8,212.05                | 0.78                    | -0.28                  | 0.73                  |
| 14,011.00                | 90.13           | 178.79      | 5,993.36              | -8,186.93    | -790.14      | 8,224.97                | 7.70                    | -0.23                  | -7.69                 |
| Final Phoenix MWD Survey |                 |             |                       |              |              |                         |                         |                        |                       |
| 14,064.00                | 90.13           | 178.79      | 5,993.24              | -8,239.92    | -789.02      | 8,277.59                | 0.00                    | 0.00                   | 0.00                  |
| Projection to TD         |                 |             |                       |              |              |                         |                         |                        |                       |



|                  |                                |                                     |                              |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | Whiting Oil & Gas Corporation  | <b>Local Co-ordinate Reference:</b> | Well Razor FED #12F-1302B    |
| <b>Project:</b>  | Weld County, Colorado (NAD 83) | <b>TVD Reference:</b>               | RKB @ 4957.80usft (Unit 409) |
| <b>Site:</b>     | Sec.12-T10N-R58W               | <b>MD Reference:</b>                | RKB @ 4957.80usft (Unit 409) |
| <b>Well:</b>     | Razor FED #12F-1302B           | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | OH / Job# 1524098              | <b>Survey Calculation Method:</b>   | Minimum Curvature            |
| <b>Design:</b>   | Surveys (Unit 409)             | <b>Database:</b>                    | Compass 5000 RMR             |

| Survey Annotations          |                             |                   |                 |                          |
|-----------------------------|-----------------------------|-------------------|-----------------|--------------------------|
| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment                  |
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |                          |
| 414.00                      | 413.57                      | 3.88              | -15.93          | First Phoenix MWD Survey |
| 14,011.00                   | 5,993.36                    | -8,186.93         | -790.14         | Final Phoenix MWD Survey |
| 14,064.00                   | 5,993.24                    | -8,239.92         | -789.02         | Projection to TD         |

|                   |                    |             |
|-------------------|--------------------|-------------|
| Checked By: _____ | Approved By: _____ | Date: _____ |
|-------------------|--------------------|-------------|