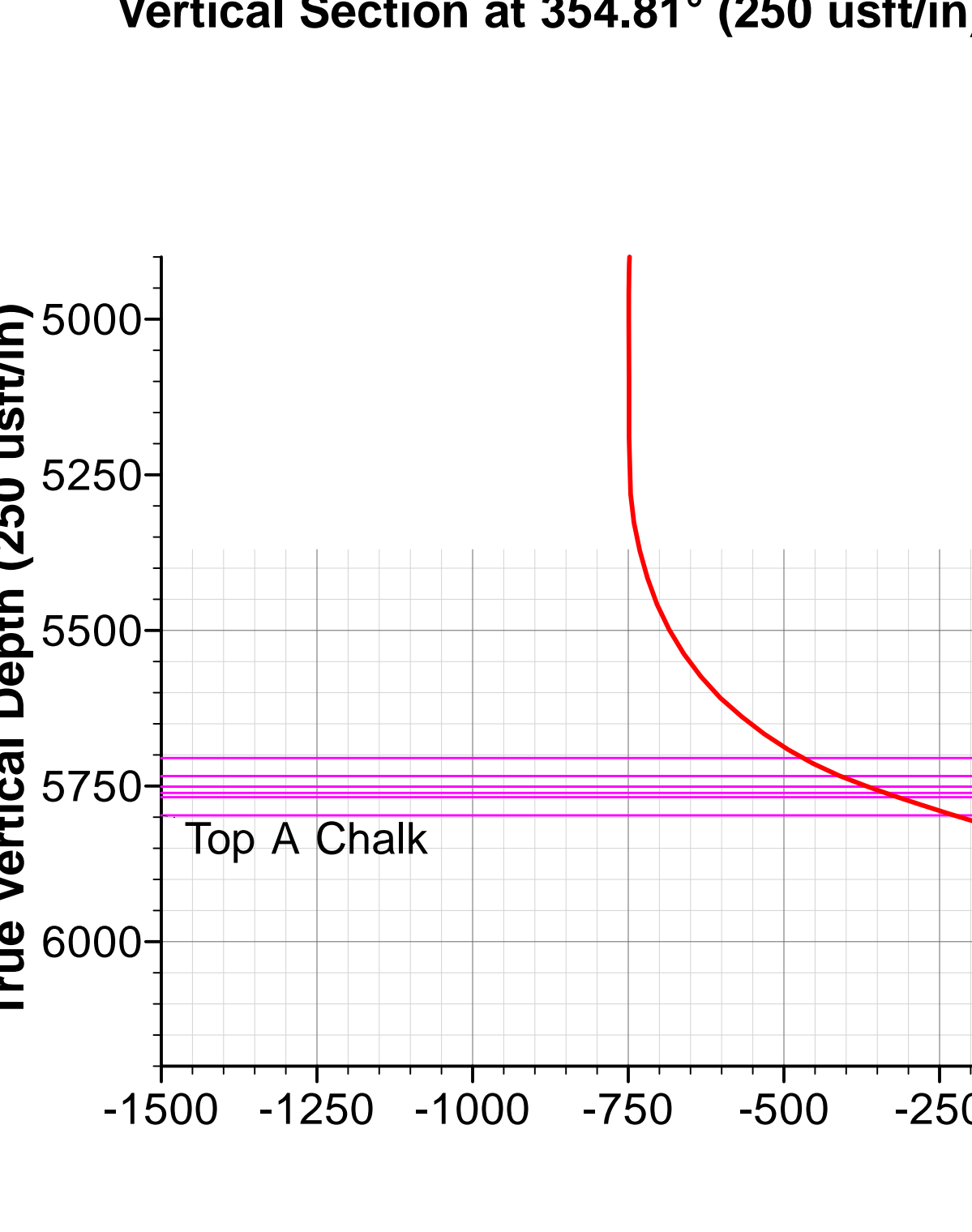
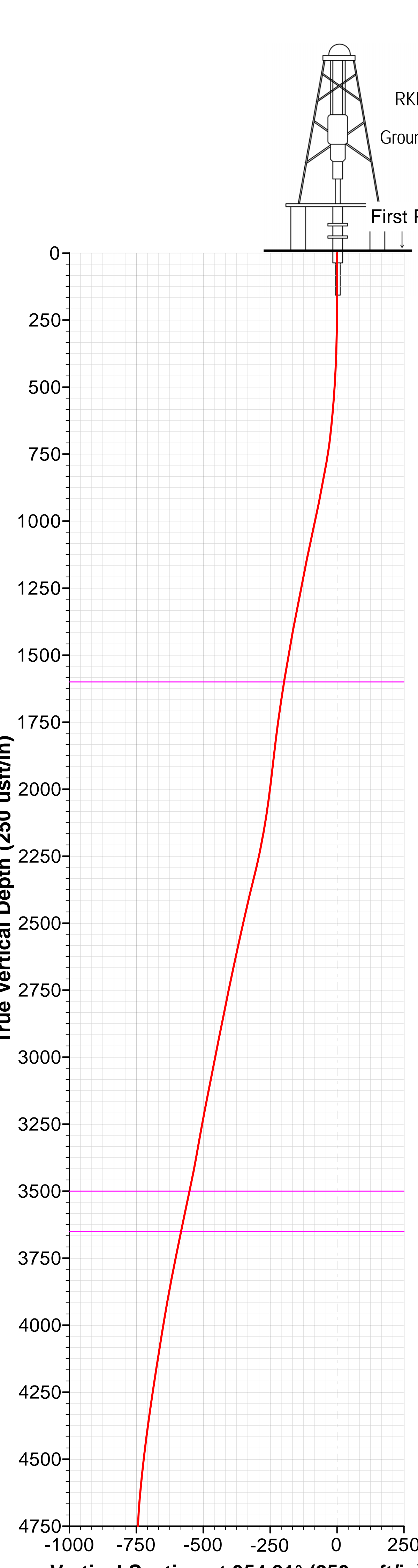




Project: Weld County, Colorado (NAD 83)  
Site: Sec.12-T10N-R58W  
Well: Razor #12F-0103A  
Wellbore: ST01 / Job #1523839  
Design: Plan 3 09-02-15  
Rig: Unit 409



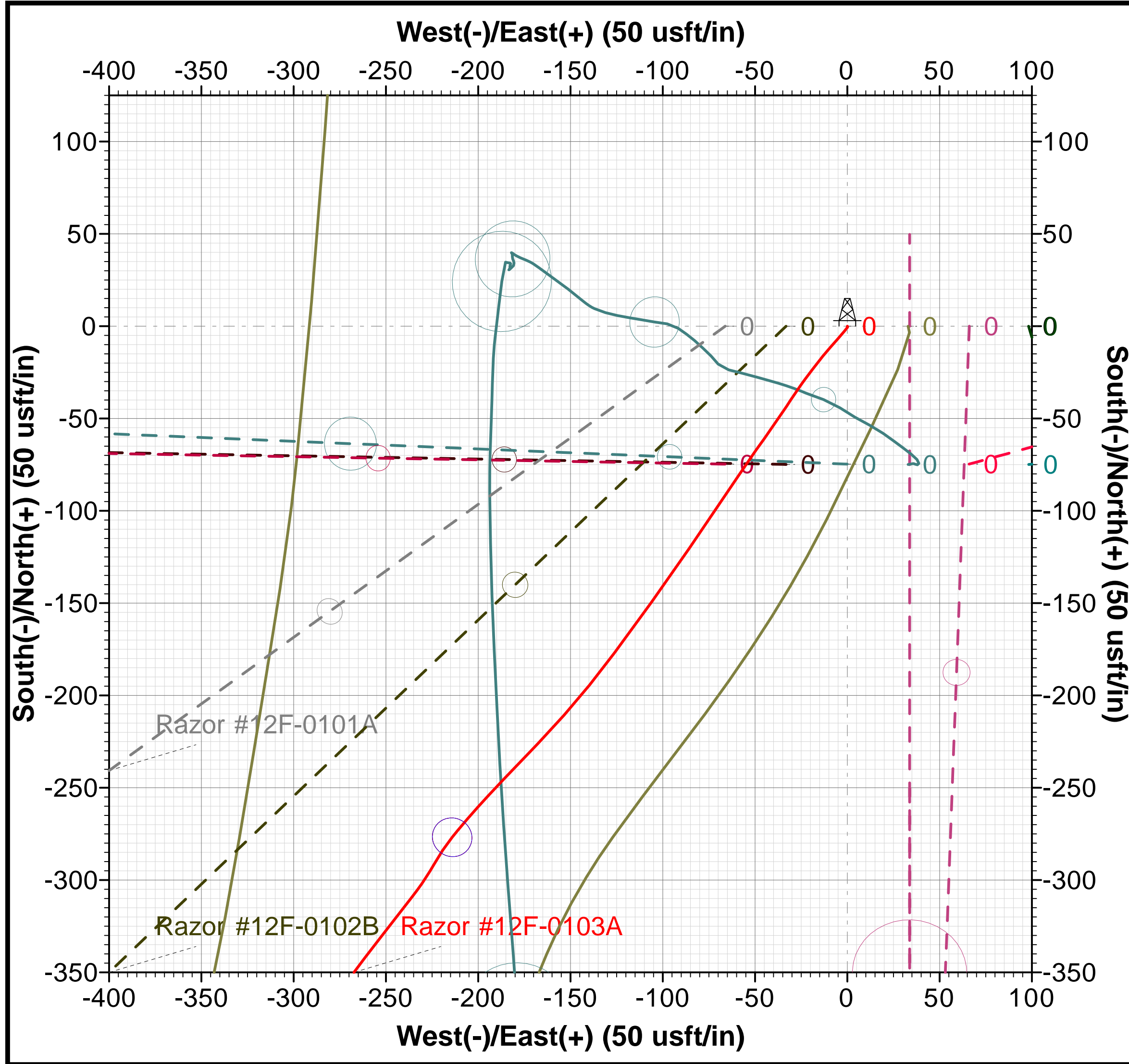
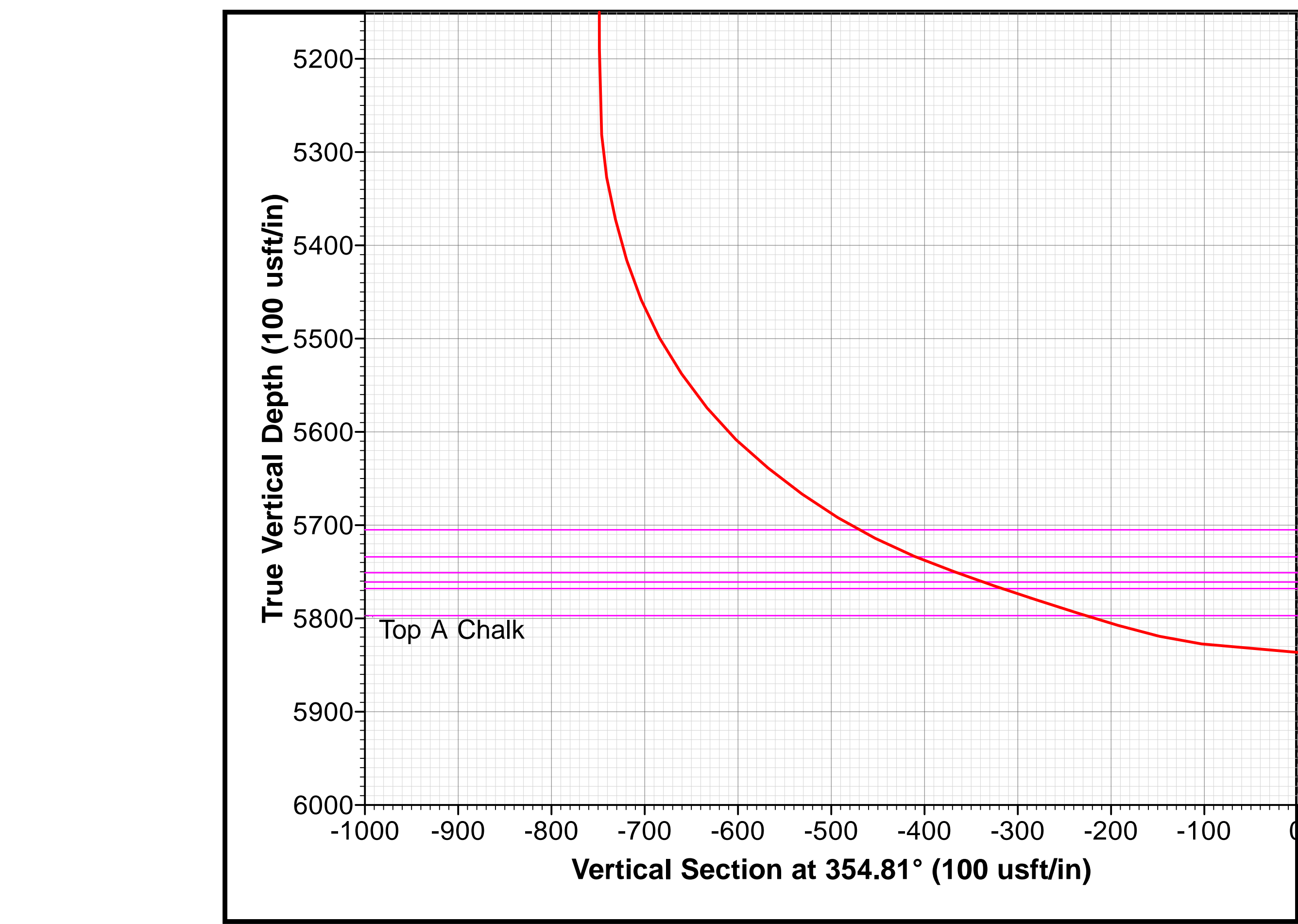
Azimuths to True North  
Magnetic North: 7.62°  
Magnetic Field  
Strength: 52966.3snT  
Dip Angle: 67.35°  
Date: 9/2/2015  
Model: HDGM



| WELL DETAILS           |          |               |               |                         |  |                       |                          |         |         |                  |                                |
|------------------------|----------|---------------|---------------|-------------------------|--|-----------------------|--------------------------|---------|---------|------------------|--------------------------------|
| 4957.80usft (Unit 409) |          | +N/-S<br>0.00 | +E/-W<br>0.00 | Northing<br>1558614.056 | Ground Level:<br>Easting<br>4936.80<br>3465240.897 | Latitude<br>40.854661 | Longitude<br>-103.818158 |         |         |                  |                                |
| Level:                 | 4936.80  |               |               |                         |  |                       |                          |         |         |                  |                                |
| SECTION DETAILS        |          |               |               |                         |  |                       |                          |         |         |                  |                                |
| Sec                    | MD       | Inc           | Azi           | TVD                     | +N/-S  | +E/-W                 | Dleg                     | TFace   | VSect   | Target           | Annotation                     |
| 1                      | 7261.00  | 90.42         | 2.83          | 5838.97                 | 779.86   | -681.83               | 0.00                     | 0.00    | 838.33  |                  | Tie In to OH @ 7261'MD         |
| 2                      | 7354.00  | 90.31         | 2.82          | 5838.38                 | 872.75   | -677.24               | 0.12                     | -174.81 | 930.42  |                  | KOP, Begin 5°/100' Drop & Turn |
| 3                      | 7568.21  | 89.50         | 13.50         | 5838.73                 | 1084.48  | -646.88               | 5.00                     | 94.33   | 1138.54 |                  | Hold 89.5° Inc at 13.50° Azm   |
| 4                      | 7618.21  | 89.50         | 13.50         | 5839.17                 | 1133.10  | -635.21               | 0.00                     | 0.00    | 1185.90 |                  | Begin 2°/100' Build & Turn     |
| 5                      | 8154.55  | 91.70         | 3.00          | 5833.54                 | 1663.08  | -558.36               | 2.00                     | -78.14  | 1706.76 |                  | Hold 91.7° Inc at 3° Azm       |
| 6                      | 9285.03  | 91.70         | 3.00          | 5800.00                 | 2791.51  | -499.22               | 0.00                     | 0.00    | 2825.22 |                  | Begin 2°/100' Drop & Turn      |
| 7                      | 9539.92  | 90.38         | 358.08        | 5795.38                 | 3046.26  | -496.83               | 2.00                     | -104.98 | 3078.71 |                  | Hold 90.38° Inc at 358.08° Azm |
| 8                      | 13391.17 | 90.38         | 358.08        | 5770.00                 | 6895.26  | -626.14               | 0.00                     | 0.00    | 6923.64 | BHL_#12F-0103Av4 | TD at 13391.16                 |

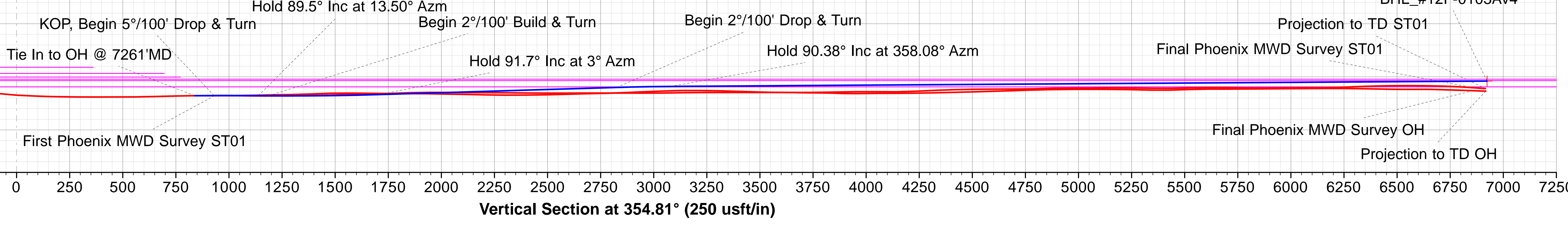
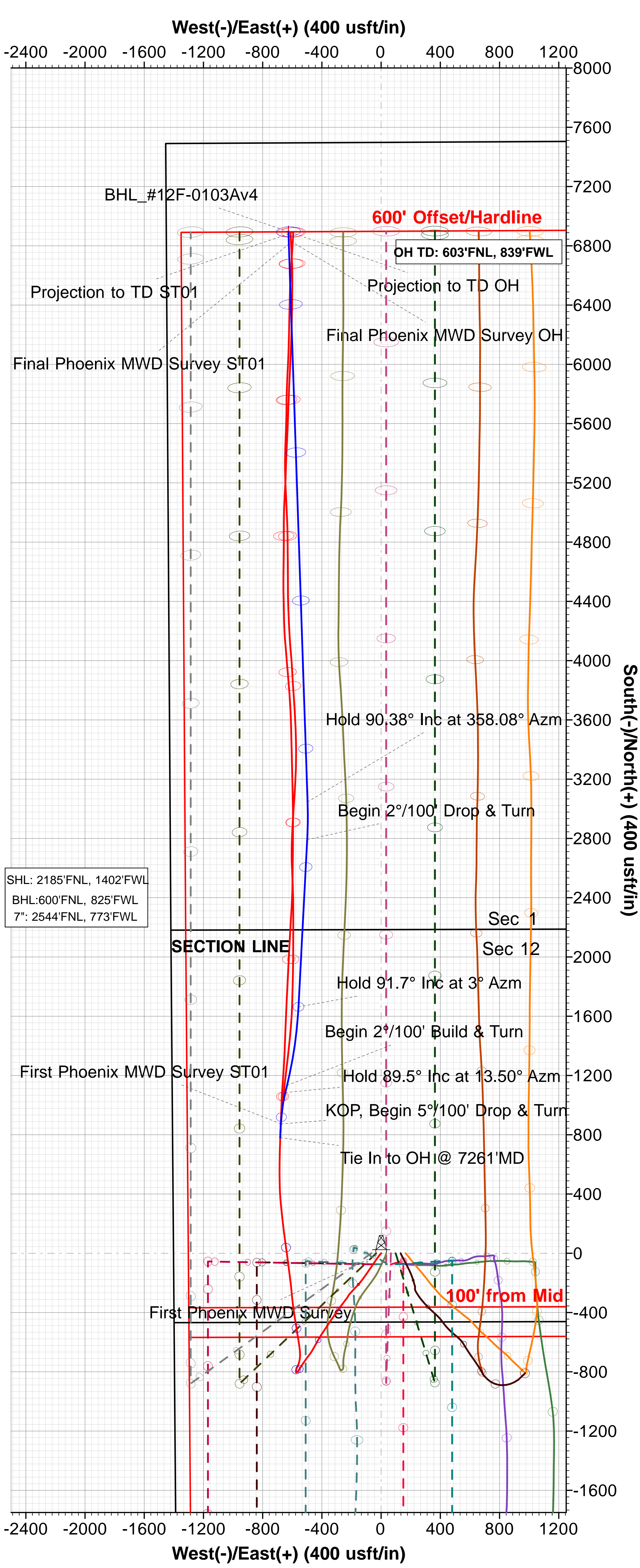
| DESIGN TARGET DETAILS |         |         |         |             |             |           |             |
|-----------------------|---------|---------|---------|-------------|-------------|-----------|-------------|
| Name                  | TVD     | +N/-S   | +E/-W   | Northing    | Easting     | Latitude  | Longitude   |
| BHL_#12F-0103Av4      | 5770.00 | 6895.26 | -626.14 | 1565496.205 | 3464484.097 | 40.873586 | -103.820422 |
|                       |         |         |         | Shape       |             | 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, Plan 2 08-04-15 V0
  - - Razor #12F-0104B, Wellbore #1 / Job #1523838, 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 #1 / Job #1523837, Plan 3 08-30-15 V0
  - - Razor #12F-0107A, Wellbore #2 / Job #1523840, Surveys (Unit 409) V0
  - - Razor #12F-0107A, Wellbore #1 / Job #1523840, 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 3 09-02-15



| FORMATION TOP DETAILS |         |                |          |        |
|-----------------------|---------|----------------|----------|--------|
| TVDPPath              | MDPath  | Formation      | DipAngle | DipDir |
| 1600.00               | 1630.10 | Upper Pierre   | 0.00     | 354.54 |
| 3500.00               | 3588.80 | Hygiene        | 0.00     | 354.54 |
| 3650.00               | 3743.50 | Lower Pierre   | 0.00     | 354.54 |
| 5705.00               | 5928.68 | P200 Marker    | 0.00     | 354.54 |
| 5734.00               | 5995.80 | P300 Marker    | 0.00     | 354.54 |
| 5751.00               | 6043.28 | P350 Marker    | 0.00     | 354.54 |
| 5761.00               | 6072.74 | Sharon Springs | 0.00     | 354.54 |
| 5768.00               | 6094.69 | Niobrara       | 0.00     | 354.54 |
| 5797.00               | 6189.03 | Top A Chalk    | 0.00     | 354.54 |

Map System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone Name: Colorado Northern Zone  
Local Origin: Well Razor #12F-0103A, True North  
Latitude: 40.854661  
Longitude: -103.818158  
Grid East: 3465240.897  
Grid North: 1558614.056  
Scale Factor: 1.000  
Geomagnetic Model: HDGM  
Sample Date: 02-Sep-15  
Magnetic Declination: 7.62°  
Dip Angle from Horizontal: 67.35°  
Magnetic Field Strength: 52966  
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-0103A**

**Wellbore #1 / Job #1523839**

**Survey: Phoenix MWD Surveys**

## **Standard Survey Report**

**30 August, 2015**





## Phoenix Technology Services LP

## Survey Report



|                  |                                |                                     |                              |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | Whiting Oil & Gas Corporation  | <b>Local Co-ordinate Reference:</b> | Well Razor FED #12F-0103A    |
| <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-0103A           | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | Wellbore #1 / Job #1523839     | <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-0103A |                     |                    |               |               |
|----------------------|-------|----------------------|---------------------|--------------------|---------------|---------------|
| Well Position        | +N/-S | 0.00 usft            | Northing:           | 1,558,614.075 usft | Latitude:     | 40.854661     |
|                      | +E/-W | 0.00 usft            | Easting:            | 3,465,240.897 usft | Longitude:    | -103.818158   |
| Position Uncertainty |       | 0.00 usft            | Wellhead Elevation: | 0.00 usft          | Ground Level: | 4,936.80 usft |

|                  |                            |                    |                        |                      |                            |
|------------------|----------------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | Wellbore #1 / Job #1523839 |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b>          | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | HDGM                       | 8/4/2015           | 7.63                   | 67.35                | 52,976                     |

|                          |                                |                     |                     |                      |      |
|--------------------------|--------------------------------|---------------------|---------------------|----------------------|------|
| <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                | 354.81               |      |

|                       |                  |  |                     |   |  |
|-----------------------|------------------|--|---------------------|---|--|
| <b>Survey Program</b> | <b>Date</b>      | 8/30/2015                              |                     |   |  |
| <b>From (usft)</b>    | <b>To (usft)</b> | <b>Survey (Wellbore)</b>               | <b>Tool Name</b>    | <b>Description</b>                              |  |
| 114.00                | 13,378.00        | Phoenix MWD Surveys (Wellbore #1 / Job | 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                         |  |
| 105.00                          | 0.15                   | 151.14             | 105.00                       | -0.12               | 0.07                | -0.12                          | 0.14                           | 0.14                          | 0.00                         |  |
| <b>First Phoenix MWD Survey</b> |                        |                    |                              |                     |                     |                                |                                |                               |                              |  |
| 114.00                          | 0.16                   | 151.14             | 114.00                       | -0.14               | 0.08                | -0.15                          | 0.14                           | 0.14                          | 0.00                         |  |
| 232.00                          | 0.17                   | 179.40             | 232.00                       | -0.46               | 0.16                | -0.47                          | 0.07                           | 0.01                          | 23.95                        |  |
| 509.00                          | 5.44                   | 221.50             | 508.57                       | -10.71              | -8.54               | -9.89                          | 1.92                           | 1.90                          | 15.20                        |  |
| 694.00                          | 8.85                   | 216.64             | 692.11                       | -28.70              | -22.85              | -26.52                         | 1.87                           | 1.84                          | -2.63                        |  |
| 786.00                          | 13.42                  | 212.92             | 782.36                       | -43.35              | -32.88              | -40.20                         | 5.03                           | 4.97                          | -4.04                        |  |
| 879.00                          | 13.41                  | 216.19             | 872.82                       | -61.11              | -45.12              | -56.78                         | 0.82                           | -0.01                         | 3.52                         |  |
| 971.00                          | 15.64                  | 213.72             | 961.88                       | -80.04              | -58.30              | -74.44                         | 2.52                           | 2.42                          | -2.68                        |  |
| 1,156.00                        | 15.02                  | 214.63             | 1,140.29                     | -120.51             | -85.77              | -112.26                        | 0.36                           | -0.34                         | 0.49                         |  |



## Phoenix Technology Services LP

## Survey Report



|                  |                                |                                     |                              |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | Whiting Oil & Gas Corporation  | <b>Local Co-ordinate Reference:</b> | Well Razor FED #12F-0103A    |
| <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-0103A           | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | Wellbore #1 / Job #1523839     | <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) |
| 1,433.00              | 14.05           | 216.65      | 1,408.43              | -177.02      | -126.24      | -164.88                 | 0.40                    | -0.35                  | 0.73                  |
| 1,617.00              | 13.22           | 221.47      | 1,587.24              | -210.71      | -153.50      | -195.96                 | 0.76                    | -0.45                  | 2.62                  |
| 1,709.00              | 12.79           | 223.99      | 1,676.88              | -225.92      | -167.54      | -209.83                 | 0.77                    | -0.47                  | 2.74                  |
| 1,801.00              | 11.48           | 223.43      | 1,766.83              | -239.89      | -180.91      | -222.54                 | 1.43                    | -1.42                  | -0.61                 |
| 1,841.00              | 10.73           | 223.68      | 1,806.08              | -245.48      | -186.22      | -227.62                 | 1.88                    | -1.88                  | 0.63                  |
| 1,990.00              | 9.18            | 221.56      | 1,952.83              | -264.40      | -203.68      | -244.89                 | 1.07                    | -1.04                  | -1.42                 |
| 2,083.00              | 10.87           | 218.68      | 2,044.41              | -276.80      | -214.09      | -256.30                 | 1.89                    | 1.82                   | -3.10                 |
| 2,175.00              | 11.60           | 209.32      | 2,134.65              | -291.64      | -224.04      | -270.18                 | 2.13                    | 0.79                   | -10.17                |
| 2,267.00              | 15.17           | 217.54      | 2,224.15              | -309.25      | -235.91      | -286.65                 | 4.39                    | 3.88                   | 8.93                  |
| 2,359.00              | 18.75           | 218.23      | 2,312.13              | -330.42      | -252.40      | -306.23                 | 3.90                    | 3.89                   | 0.75                  |
| 2,451.00              | 17.77           | 216.02      | 2,399.50              | -353.39      | -269.80      | -327.54                 | 1.30                    | -1.07                  | -2.40                 |
| 2,543.00              | 16.81           | 216.95      | 2,487.34              | -375.38      | -286.06      | -347.96                 | 1.09                    | -1.04                  | 1.01                  |
| 2,636.00              | 15.78           | 213.84      | 2,576.60              | -396.63      | -301.18      | -367.76                 | 1.45                    | -1.11                  | -3.34                 |
| 2,729.00              | 15.47           | 213.72      | 2,666.17              | -417.45      | -315.11      | -387.23                 | 0.34                    | -0.33                  | -0.13                 |
| 2,821.00              | 14.94           | 215.02      | 2,754.95              | -437.37      | -328.73      | -405.84                 | 0.68                    | -0.58                  | 1.41                  |
| 2,913.00              | 14.67           | 214.04      | 2,843.89              | -456.73      | -342.05      | -423.92                 | 0.40                    | -0.29                  | -1.07                 |
| 3,005.00              | 14.52           | 213.49      | 2,932.92              | -476.00      | -354.94      | -441.95                 | 0.22                    | -0.16                  | -0.60                 |
| 3,098.00              | 13.76           | 214.27      | 3,023.11              | -494.87      | -367.60      | -459.59                 | 0.84                    | -0.82                  | 0.84                  |
| 3,189.00              | 14.56           | 212.46      | 3,111.34              | -513.46      | -379.83      | -477.00                 | 1.00                    | 0.88                   | -1.99                 |
| 3,373.00              | 12.87           | 213.66      | 3,290.09              | -550.04      | -403.61      | -511.27                 | 0.93                    | -0.92                  | 0.65                  |
| 3,465.00              | 12.73           | 212.29      | 3,379.80              | -567.13      | -414.70      | -527.30                 | 0.36                    | -0.15                  | -1.49                 |
| 3,557.00              | 14.52           | 209.21      | 3,469.21              | -585.77      | -425.74      | -544.86                 | 2.10                    | 1.95                   | -3.35                 |
| 3,741.00              | 13.92           | 208.98      | 3,647.57              | -625.27      | -447.72      | -582.20                 | 0.33                    | -0.33                  | -0.13                 |
| 3,833.00              | 13.62           | 207.89      | 3,736.93              | -644.52      | -458.15      | -600.43                 | 0.43                    | -0.33                  | -1.18                 |
| 3,925.00              | 13.55           | 211.62      | 3,826.36              | -663.27      | -468.87      | -618.14                 | 0.96                    | -0.08                  | 4.05                  |
| 4,017.00              | 13.75           | 219.41      | 3,915.76              | -680.90      | -481.46      | -634.55                 | 2.01                    | 0.22                   | 8.47                  |
| 4,201.00              | 11.78           | 215.33      | 4,095.21              | -713.12      | -506.21      | -664.41                 | 1.18                    | -1.07                  | -2.22                 |
| 4,293.00              | 11.29           | 213.69      | 4,185.35              | -728.28      | -516.64      | -678.56                 | 0.64                    | -0.53                  | -1.78                 |
| 4,385.00              | 11.12           | 213.98      | 4,275.60              | -743.13      | -526.59      | -692.44                 | 0.19                    | -0.18                  | 0.32                  |
| 4,477.00              | 9.50            | 213.25      | 4,366.11              | -756.83      | -535.71      | -705.27                 | 1.77                    | -1.76                  | -0.79                 |
| 4,569.00              | 8.95            | 213.85      | 4,456.92              | -769.12      | -543.86      | -716.77                 | 0.61                    | -0.60                  | 0.65                  |
| 4,661.00              | 8.02            | 212.10      | 4,547.91              | -780.51      | -551.26      | -727.44                 | 1.05                    | -1.01                  | -1.90                 |
| 4,753.00              | 5.90            | 206.85      | 4,639.23              | -790.16      | -556.81      | -736.55                 | 2.40                    | -2.30                  | -5.71                 |
| 4,845.00              | 4.31            | 222.45      | 4,730.87              | -796.93      | -561.27      | -742.89                 | 2.28                    | -1.73                  | 16.96                 |
| 4,937.00              | 2.62            | 232.20      | 4,822.70              | -800.77      | -565.27      | -746.36                 | 1.94                    | -1.84                  | 10.60                 |
| 5,028.00              | 2.23            | 232.87      | 4,913.62              | -803.12      | -568.32      | -748.41                 | 0.43                    | -0.43                  | 0.74                  |
| 5,120.00              | 0.99            | 282.08      | 5,005.58              | -804.03      | -570.53      | -749.12                 | 1.90                    | -1.35                  | 53.49                 |
| 5,212.00              | 1.13            | 275.17      | 5,097.57              | -803.78      | -572.21      | -748.72                 | 0.21                    | 0.15                   | -7.51                 |
| 5,304.00              | 1.02            | 269.28      | 5,189.55              | -803.71      | -573.93      | -748.50                 | 0.17                    | -0.12                  | -6.40                 |
| 5,396.00              | 3.07            | 336.36      | 5,281.49              | -801.46      | -575.74      | -746.10                 | 3.08                    | 2.23                   | 72.91                 |
| 5,442.00              | 10.53           | 359.78      | 5,327.14              | -796.12      | -576.25      | -740.73                 | 16.97                   | 16.22                  | 50.91                 |
| 5,488.00              | 14.38           | 19.31       | 5,372.07              | -786.52      | -574.38      | -731.34                 | 12.30                   | 8.37                   | 42.46                 |
| 5,534.00              | 20.60           | 25.72       | 5,415.93              | -773.83      | -568.97      | -719.19                 | 14.14                   | 13.52                  | 13.93                 |



## Phoenix Technology Services LP

## Survey Report



|                  |                                |                                     |                              |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | Whiting Oil & Gas Corporation  | <b>Local Co-ordinate Reference:</b> | Well Razor FED #12F-0103A    |
| <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-0103A           | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | Wellbore #1 / Job #1523839     | <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) |  |
| 5,580.00              | 24.68           | 22.42       | 5,458.38              | -757.65      | -561.79      | -703.73                 | 9.29                    | 8.87                   | -7.17                 |  |
| 5,626.00              | 31.02           | 17.18       | 5,499.03              | -737.43      | -554.62      | -684.23                 | 14.76                   | 13.78                  | -11.39                |  |
| 5,672.00              | 34.67           | 8.75        | 5,537.69              | -713.15      | -549.12      | -660.55                 | 12.70                   | 7.93                   | -18.33                |  |
| 5,718.00              | 39.64           | 359.06      | 5,574.38              | -685.51      | -547.37      | -633.18                 | 16.67                   | 10.80                  | -21.07                |  |
| 5,764.00              | 45.28           | 355.04      | 5,608.31              | -654.52      | -549.03      | -602.17                 | 13.60                   | 12.26                  | -8.74                 |  |
| 5,810.00              | 51.87           | 350.92      | 5,638.73              | -620.33      | -553.30      | -567.73                 | 15.82                   | 14.33                  | -8.96                 |  |
| 5,856.00              | 53.27           | 350.74      | 5,666.69              | -584.27      | -559.12      | -531.30                 | 3.06                    | 3.04                   | -0.39                 |  |
| 5,902.00              | 60.13           | 351.03      | 5,691.93              | -546.33      | -565.20      | -492.96                 | 14.92                   | 14.91                  | 0.63                  |  |
| 5,948.00              | 61.99           | 350.77      | 5,714.19              | -506.58      | -571.57      | -452.80                 | 4.07                    | 4.04                   | -0.57                 |  |
| 5,994.00              | 68.75           | 350.77      | 5,733.35              | -465.33      | -578.28      | -411.11                 | 14.70                   | 14.70                  | 0.00                  |  |
| 6,040.00              | 69.23           | 350.85      | 5,749.84              | -422.94      | -585.13      | -368.28                 | 1.06                    | 1.04                   | 0.17                  |  |
| 6,086.00              | 71.60           | 352.52      | 5,765.26              | -380.06      | -591.40      | -325.01                 | 6.18                    | 5.15                   | 3.63                  |  |
| 6,132.00              | 71.80           | 352.82      | 5,779.70              | -336.75      | -596.97      | -281.36                 | 0.76                    | 0.43                   | 0.65                  |  |
| 6,179.00              | 72.71           | 354.52      | 5,794.03              | -292.26      | -601.90      | -236.61                 | 3.95                    | 1.94                   | 3.62                  |  |
| 6,225.00              | 73.30           | 354.21      | 5,807.47              | -248.48      | -606.22      | -192.62                 | 1.44                    | 1.28                   | -0.67                 |  |
| 6,271.00              | 77.03           | 354.17      | 5,819.25              | -204.25      | -610.72      | -148.17                 | 8.11                    | 8.11                   | -0.09                 |  |
| 6,317.00              | 82.57           | 353.19      | 5,827.39              | -159.27      | -615.71      | -102.92                 | 12.22                   | 12.04                  | -2.13                 |  |
| 6,424.00              | 87.34           | 351.41      | 5,836.80              | -53.68       | -629.99      | 3.53                    | 4.76                    | 4.46                   | -1.66                 |  |
| 6,517.00              | 87.62           | 352.65      | 5,840.89              | 38.33        | -642.87      | 96.33                   | 1.37                    | 0.30                   | 1.33                  |  |
| 6,610.00              | 88.91           | 352.61      | 5,843.70              | 130.52       | -654.79      | 189.21                  | 1.39                    | 1.39                   | -0.04                 |  |
| 6,703.00              | 89.69           | 353.98      | 5,844.84              | 222.87       | -665.65      | 282.17                  | 1.70                    | 0.84                   | 1.47                  |  |
| 6,796.00              | 89.86           | 353.84      | 5,845.21              | 315.35       | -675.52      | 375.16                  | 0.24                    | 0.18                   | -0.15                 |  |
| 6,981.00              | 90.50           | 359.76      | 5,844.62              | 499.97       | -685.84      | 559.96                  | 3.22                    | 0.35                   | 3.20                  |  |
| 7,074.00              | 91.51           | 0.77        | 5,842.99              | 592.96       | -685.41      | 652.53                  | 1.54                    | 1.09                   | 1.09                  |  |
| 7,166.00              | 91.51           | 0.38        | 5,840.57              | 684.92       | -684.49      | 744.03                  | 0.42                    | 0.00                   | -0.42                 |  |
| 7,261.00              | 90.42           | 2.83        | 5,838.97              | 779.86       | -681.83      | 838.34                  | 2.82                    | -1.15                  | 2.58                  |  |
| 7,354.00              | 90.31           | 2.82        | 5,838.38              | 872.75       | -677.24      | 930.43                  | 0.12                    | -0.12                  | -0.01                 |  |
| 7,446.00              | 89.11           | 0.85        | 5,838.84              | 964.69       | -674.30      | 1,021.73                | 2.51                    | -1.30                  | -2.14                 |  |
| 7,539.00              | 89.61           | 3.19        | 5,839.88              | 1,057.62     | -671.02      | 1,113.98                | 2.57                    | 0.54                   | 2.52                  |  |
| 7,632.00              | 90.14           | 4.49        | 5,840.08              | 1,150.41     | -664.79      | 1,205.83                | 1.51                    | 0.57                   | 1.40                  |  |
| 7,725.00              | 90.53           | 3.79        | 5,839.54              | 1,243.16     | -658.08      | 1,297.60                | 0.86                    | 0.42                   | -0.75                 |  |
| 7,817.00              | 91.43           | 2.41        | 5,837.97              | 1,335.01     | -653.10      | 1,388.62                | 1.79                    | 0.98                   | -1.50                 |  |
| 7,910.00              | 91.23           | 2.22        | 5,835.81              | 1,427.91     | -649.35      | 1,480.80                | 0.30                    | -0.22                  | -0.20                 |  |
| 8,003.00              | 91.45           | 2.17        | 5,833.63              | 1,520.82     | -645.79      | 1,573.00                | 0.24                    | 0.24                   | -0.05                 |  |
| 8,096.00              | 91.54           | 2.30        | 5,831.21              | 1,613.72     | -642.16      | 1,665.19                | 0.17                    | 0.10                   | 0.14                  |  |
| 8,189.00              | 91.87           | 2.87        | 5,828.44              | 1,706.58     | -637.97      | 1,757.29                | 0.71                    | 0.35                   | 0.61                  |  |
| 8,282.00              | 92.07           | 2.91        | 5,825.24              | 1,799.41     | -633.28      | 1,849.31                | 0.22                    | 0.22                   | 0.04                  |  |
| 8,375.00              | 90.17           | 2.81        | 5,823.43              | 1,892.27     | -628.64      | 1,941.38                | 2.05                    | -2.04                  | -0.11                 |  |
| 8,467.00              | 89.72           | 2.84        | 5,823.51              | 1,984.16     | -624.11      | 2,032.48                | 0.49                    | -0.49                  | 0.03                  |  |
| 8,559.00              | 89.66           | 2.92        | 5,824.01              | 2,076.04     | -619.49      | 2,123.57                | 0.11                    | -0.07                  | 0.09                  |  |
| 8,652.00              | 89.66           | 3.50        | 5,824.56              | 2,168.89     | -614.28      | 2,215.57                | 0.62                    | 0.00                   | 0.62                  |  |
| 8,744.00              | 89.58           | 3.28        | 5,825.17              | 2,260.73     | -608.84      | 2,306.53                | 0.25                    | -0.09                  | -0.24                 |  |
| 8,836.00              | 89.19           | 3.54        | 5,826.16              | 2,352.56     | -603.37      | 2,397.49                | 0.51                    | -0.42                  | 0.28                  |  |



## Phoenix Technology Services LP

## Survey Report



|                  |                                |                                     |                              |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | Whiting Oil & Gas Corporation  | <b>Local Co-ordinate Reference:</b> | Well Razor FED #12F-0103A    |
| <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-0103A           | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | Wellbore #1 / Job #1523839     | <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) |  |
| 8,928.00              | 89.81           | 1.07        | 5,826.96              | 2,444.47     | -599.67      | 2,488.70                | 2.77                    | 0.67                   | -2.68                 |  |
| 9,021.00              | 90.45           | 0.89        | 5,826.75              | 2,537.46     | -598.08      | 2,581.16                | 0.71                    | 0.69                   | -0.19                 |  |
| 9,115.00              | 89.94           | 0.66        | 5,826.43              | 2,631.45     | -596.81      | 2,674.65                | 0.60                    | -0.54                  | -0.24                 |  |
| 9,207.00              | 89.97           | 0.56        | 5,826.51              | 2,723.44     | -595.83      | 2,766.18                | 0.11                    | 0.03                   | -0.11                 |  |
| 9,300.00              | 89.86           | 0.11        | 5,826.64              | 2,816.44     | -595.28      | 2,858.74                | 0.50                    | -0.12                  | -0.48                 |  |
| 9,392.00              | 89.75           | 0.16        | 5,826.96              | 2,908.44     | -595.07      | 2,950.35                | 0.13                    | -0.12                  | 0.05                  |  |
| 9,485.00              | 91.01           | 358.92      | 5,826.34              | 3,001.43     | -595.81      | 3,043.02                | 1.90                    | 1.35                   | -1.33                 |  |
| 9,577.00              | 90.81           | 358.99      | 5,824.88              | 3,093.41     | -597.49      | 3,134.77                | 0.23                    | -0.22                  | 0.08                  |  |
| 9,670.00              | 90.09           | 358.70      | 5,824.15              | 3,186.38     | -599.37      | 3,227.54                | 0.83                    | -0.77                  | -0.31                 |  |
| 9,854.00              | 90.09           | 358.62      | 5,823.86              | 3,370.33     | -603.67      | 3,411.12                | 0.04                    | 0.00                   | -0.04                 |  |
| 9,946.00              | 89.89           | 358.37      | 5,823.87              | 3,462.30     | -606.08      | 3,502.93                | 0.35                    | -0.22                  | -0.27                 |  |
| 10,039.00             | 90.11           | 358.86      | 5,823.87              | 3,555.27     | -608.33      | 3,595.73                | 0.58                    | 0.24                   | 0.53                  |  |
| 10,131.00             | 88.99           | 357.17      | 5,824.60              | 3,647.21     | -611.52      | 3,687.58                | 2.20                    | -1.22                  | -1.84                 |  |
| 10,223.00             | 89.52           | 356.47      | 5,825.79              | 3,739.06     | -616.62      | 3,779.51                | 0.95                    | 0.58                   | -0.76                 |  |
| 10,315.00             | 87.96           | 354.88      | 5,827.82              | 3,830.77     | -623.56      | 3,871.47                | 2.42                    | -1.70                  | -1.73                 |  |
| 10,407.00             | 90.67           | 355.65      | 5,828.92              | 3,922.44     | -631.15      | 3,963.45                | 3.06                    | 2.95                   | 0.84                  |  |
| 10,500.00             | 90.48           | 355.28      | 5,827.98              | 4,015.14     | -638.50      | 4,056.44                | 0.45                    | -0.20                  | -0.40                 |  |
| 10,592.00             | 90.03           | 354.95      | 5,827.57              | 4,106.81     | -646.34      | 4,148.44                | 0.61                    | -0.49                  | -0.36                 |  |
| 10,684.00             | 90.73           | 356.96      | 5,826.96              | 4,198.57     | -652.83      | 4,240.41                | 2.31                    | 0.76                   | 2.18                  |  |
| 10,777.00             | 91.56           | 358.90      | 5,825.10              | 4,291.49     | -656.18      | 4,333.25                | 2.27                    | 0.89                   | 2.09                  |  |
| 10,869.00             | 91.31           | 359.07      | 5,822.80              | 4,383.44     | -657.81      | 4,424.98                | 0.33                    | -0.27                  | 0.18                  |  |
| 10,960.00             | 91.51           | 358.66      | 5,820.56              | 4,474.40     | -659.62      | 4,515.72                | 0.50                    | 0.22                   | -0.45                 |  |
| 11,052.00             | 91.79           | 0.92        | 5,817.91              | 4,566.35     | -659.95      | 4,607.33                | 2.47                    | 0.30                   | 2.46                  |  |
| 11,144.00             | 91.79           | 1.01        | 5,815.04              | 4,658.30     | -658.40      | 4,698.76                | 0.10                    | 0.00                   | 0.10                  |  |
| 11,236.00             | 91.71           | 0.41        | 5,812.23              | 4,750.25     | -657.27      | 4,790.23                | 0.66                    | -0.09                  | -0.65                 |  |
| 11,328.00             | 90.95           | 359.23      | 5,810.09              | 4,842.22     | -657.55      | 4,881.85                | 1.53                    | -0.83                  | -1.28                 |  |
| 11,420.00             | 90.42           | 1.47        | 5,808.99              | 4,934.20     | -656.99      | 4,973.41                | 2.50                    | -0.58                  | 2.43                  |  |
| 11,512.00             | 89.55           | 0.71        | 5,809.02              | 5,026.19     | -655.24      | 5,064.85                | 1.26                    | -0.95                  | -0.83                 |  |
| 11,604.00             | 90.03           | 4.08        | 5,809.36              | 5,118.09     | -651.40      | 5,156.03                | 3.70                    | 0.52                   | 3.66                  |  |
| 11,696.00             | 88.83           | 2.83        | 5,810.27              | 5,209.92     | -645.85      | 5,246.98                | 1.88                    | -1.30                  | -1.36                 |  |
| 11,788.00             | 88.38           | 0.89        | 5,812.51              | 5,301.84     | -642.87      | 5,338.25                | 2.16                    | -0.49                  | -2.11                 |  |
| 11,880.00             | 91.56           | 2.89        | 5,812.56              | 5,393.77     | -639.84      | 5,429.53                | 4.08                    | 3.46                   | 2.17                  |  |
| 11,972.00             | 91.96           | 2.64        | 5,809.73              | 5,485.62     | -635.40      | 5,520.61                | 0.51                    | 0.43                   | -0.27                 |  |
| 12,064.00             | 90.22           | 2.35        | 5,807.98              | 5,577.51     | -631.40      | 5,611.76                | 1.92                    | -1.89                  | -0.32                 |  |
| 12,156.00             | 90.06           | 1.79        | 5,807.76              | 5,669.45     | -628.07      | 5,703.02                | 0.63                    | -0.17                  | -0.61                 |  |
| 12,248.00             | 90.42           | 2.46        | 5,807.37              | 5,761.39     | -624.66      | 5,794.27                | 0.83                    | 0.39                   | 0.73                  |  |
| 12,340.00             | 90.59           | 2.25        | 5,806.56              | 5,853.30     | -620.88      | 5,885.47                | 0.29                    | 0.18                   | -0.23                 |  |
| 12,432.00             | 90.42           | 2.97        | 5,805.75              | 5,945.20     | -616.69      | 5,976.62                | 0.80                    | -0.18                  | 0.78                  |  |
| 12,524.00             | 90.11           | 2.60        | 5,805.33              | 6,037.09     | -612.22      | 6,067.72                | 0.52                    | -0.34                  | -0.40                 |  |
| 12,616.00             | 90.17           | 2.25        | 5,805.10              | 6,129.01     | -608.33      | 6,158.91                | 0.39                    | 0.07                   | -0.38                 |  |
| 12,708.00             | 89.83           | 1.60        | 5,805.10              | 6,220.96     | -605.24      | 6,250.20                | 0.80                    | -0.37                  | -0.71                 |  |
| 12,800.00             | 89.02           | 1.18        | 5,806.02              | 6,312.93     | -603.01      | 6,341.59                | 0.99                    | -0.88                  | -0.46                 |  |
| 12,891.00             | 88.63           | 0.68        | 5,807.89              | 6,403.89     | -601.53      | 6,432.05                | 0.70                    | -0.43                  | -0.55                 |  |
| 12,983.00             | 89.97           | 0.69        | 5,809.01              | 6,495.88     | -600.43      | 6,523.56                | 1.46                    | 1.46                   | 0.01                  |  |



## Phoenix Technology Services LP

## Survey Report



|                  |                                |                                     |                              |
|------------------|--------------------------------|-------------------------------------|------------------------------|
| <b>Company:</b>  | Whiting Oil & Gas Corporation  | <b>Local Co-ordinate Reference:</b> | Well Razor FED #12F-0103A    |
| <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-0103A           | <b>North Reference:</b>             | True                         |
| <b>Wellbore:</b> | Wellbore #1 / Job #1523839     | <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) |
| 13,075.00                       | 89.94           | 0.26        | 5,809.09              | 6,587.88     | -599.67      | 6,615.11                | 0.47                    | -0.03                  | -0.47                 |
| 13,167.00                       | 88.27           | 357.42      | 5,810.52              | 6,679.83     | -601.53      | 6,706.86                | 3.58                    | -1.82                  | -3.09                 |
| 13,259.00                       | 88.16           | 356.92      | 5,813.39              | 6,771.68     | -606.07      | 6,798.74                | 0.56                    | -0.12                  | -0.54                 |
| 13,318.00                       | 87.96           | 356.71      | 5,815.39              | 6,830.55     | -609.35      | 6,857.67                | 0.49                    | -0.34                  | -0.36                 |
| <b>Final Phoenix MWD Survey</b> |                 |             |                       |              |              |                         |                         |                        |                       |
| 13,378.00                       | 87.96           | 356.71      | 5,817.52              | 6,890.41     | -612.79      | 6,917.60                | 0.00                    | 0.00                   | 0.00                  |
| <b>Projection to TD</b>         |                 |             |                       |              |              |                         |                         |                        |                       |

| Survey Annotations    |                       |                   |              |                          |
|-----------------------|-----------------------|-------------------|--------------|--------------------------|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              | Comment                  |
|                       |                       | +N/-S (usft)      | +E/-W (usft) |                          |
| 105.00                | 105.00                | -0.12             | 0.07         | First Phoenix MWD Survey |
| 13,318.00             | 5,815.35              | 6,830.58          | -608.35      | Final Phoenix MWD Survey |
| 13,378.00             | 5,817.49              | 6,890.45          | -611.80      | Projection to TD         |

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_