



Project: Weld County, CO
Site: Sec 29-T10N-R58W
Well: Razor Federal #29G-2044
Wellbore: Hz
Design: APD

PROJECT DETAILS: Weld County, CO
Sectic System: US State Plane 1983
Datum: North American Datum 1
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level



Azimuths to True North
Magnetic North: 7.89°
Magnetic Field
Strength: 52823.1 nT
Dip Angle: 67.35°
Date: 4/29/2016
Model: IGRF2015

| FORMATION TOP DETAILS | | |
|-----------------------|---------|----------------|
| TVDPath | MDPath | Formation |
| 1550.00 | 1580.77 | Upper Pierre |
| 3500.00 | 3617.56 | Hygiene |
| 3650.00 | 3774.24 | Lower Pierre |
| 5668.00 | 5851.10 | P200 Marker |
| 5703.00 | 5893.12 | P300 Marker |
| 5727.00 | 5923.11 | P350 Marker |
| 5739.00 | 5938.53 | Sharon Springs |
| 5742.00 | 5942.43 | Niobrara |
| 5762.00 | 5968.98 | Top A Chalk |
| 5797.00 | 6018.06 | Top A Marl |
| 5818.00 | 6049.57 | Base Upper B |
| 5823.00 | 6057.33 | Top Upper B |
| 5843.00 | 6089.62 | Base Upper B |
| 5855.00 | 6110.08 | Top Lower B |
| 5875.00 | 6146.47 | Base Lower B |
| 5885.00 | 6165.99 | Top B Marl |
| 5937.00 | 6292.85 | Top C Chalk |
| 5944.00 | 6316.15 | Middle C Chalk |
| 5956.00 | 6364.96 | Middle C Marl |
| 5970.00 | 6498.71 | Lower C Chalk |

WELL DETAILS: Razor Federal #29G-2044

| +N/-S | +E/-W | Northing | Ground Level: | 4811.00 | Eastings | 4811.00 | Latitude | 4811.00 | Longitude | 310 |
|-------|-------|------------|---------------|------------------|-------------------|---------|----------|---------|-----------|-----|
| 0.00 | 0.00 | 1542199.78 | 3446061.83 | 40° 48' 38.140 N | 103° 53' 18.790 W | | | | | |

SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSec | Target |
|-----|----------|-------|--------|---------|---------|--------|------|--------|---------|---------------------|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 1139.32 | 16.79 | 144.71 | 1127.37 | -99.64 | 70.52 | 2.00 | 144.71 | -92.96 | |
| 4 | 4459.57 | 16.79 | 144.71 | 4306.13 | -82.36 | 624.48 | 0.00 | 0.00 | -823.14 | |
| 5 | 5298.90 | 0.00 | 0.00 | 5133.50 | -982.00 | 695.00 | 2.00 | 180.00 | -916.10 | |
| 6 | 5498.90 | 0.00 | 0.00 | 5333.50 | -982.00 | 695.00 | 0.00 | 0.00 | -916.10 | |
| 7 | 6498.71 | 90.00 | 359.73 | 5970.00 | -345.51 | 691.99 | 9.00 | 359.73 | -282.41 | |
| 8 | 14166.58 | 90.00 | 359.73 | 5970.00 | 7322.28 | 655.72 | 0.00 | 0.00 | 7351.58 | PBHL Razor 29G-2044 |

ANNOTATIONS

| TVD | MD | Inc | Azi | +N/-S | +E/-W | VSec | Departure | Annotation |
|---------|----------|-------|--------|---------|--------|---------|-----------|--------------------|
| 300.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Build 2°/100' |
| 1127.37 | 1139.32 | 16.79 | 144.71 | -99.64 | 70.52 | -92.96 | 122.08 | Hold 16.79° Inc |
| 4306.13 | 4459.57 | 16.79 | 144.71 | -82.36 | 624.48 | -823.14 | 1080.98 | Drop 2°/100' |
| 5133.50 | 5298.90 | 0.00 | 0.00 | -982.00 | 695.00 | -916.10 | 1203.06 | Hold Vertical |
| 5333.50 | 5498.90 | 0.00 | 0.00 | -982.00 | 695.00 | -916.10 | 1203.06 | KOP Build 9°/100' |
| 5970.00 | 6498.71 | 90.00 | 359.73 | -345.51 | 691.99 | -282.41 | 1839.56 | LP @ 90° Inc, Hold |
| 5970.00 | 14166.58 | 90.00 | 359.73 | 7322.28 | 655.72 | 7351.58 | 9507.43 | TD at 14166.58 |

DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Eastings | Latitude | Longitude |
|---------------------|---------|---------|--------|------------|------------|------------------|-------------------|
| PBHL Razor 29G-2044 | 5970.00 | 7322.28 | 655.72 | 1549532.77 | 3446584.38 | 40° 49' 50.490 N | 103° 53' 10.260 W |
| Nelson Ranches A-7 | 6660.00 | 4449.55 | 82.14 | 1546650.09 | 3446063.10 | 40° 49' 22.105 N | 103° 53' 17.722 W |
| Nelson Ranches A-6 | 6834.00 | 6802.10 | 400.67 | 1549008.05 | 3446338.82 | 40° 49' 45.350 N | 103° 53' 13.578 W |

SHL:
2180' FNL, 2394' FEL
Sec29-T10N-R58W

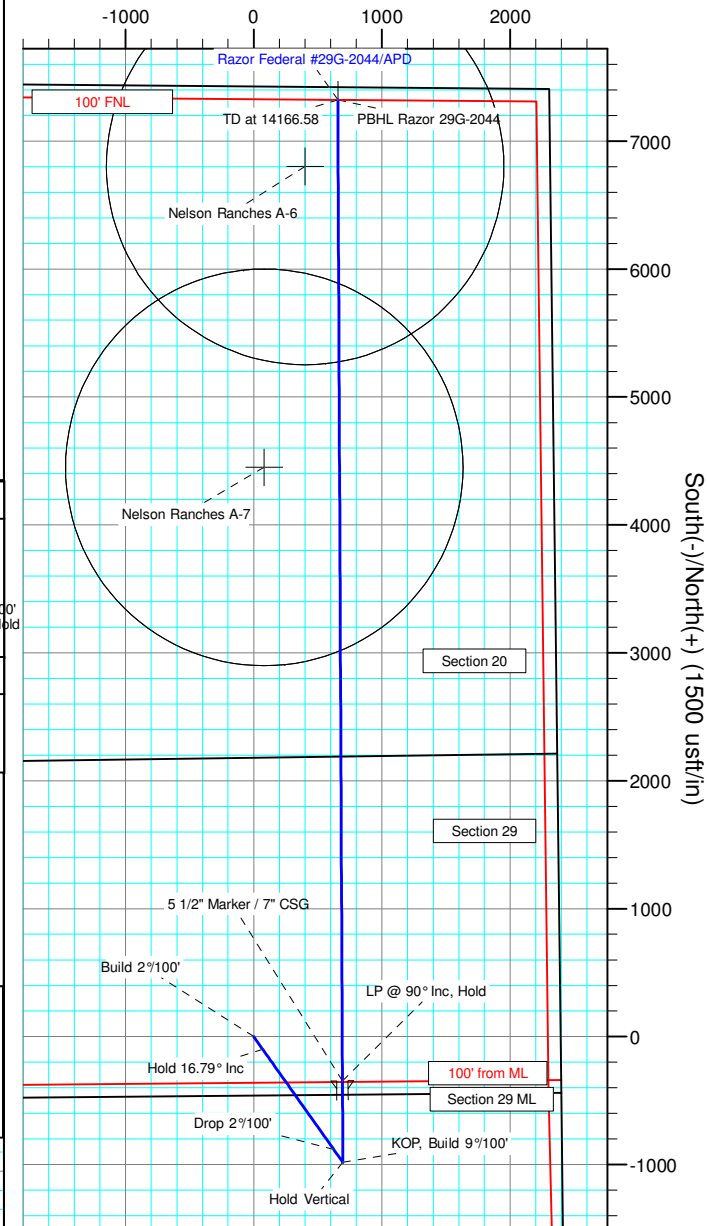
BHL:
100' FNL, 1650' FEL
Sec20-T10N-R58W

5 1/2" Marker / 7" CSG:
2525' FNL, 1702' FEL
Sec29-T10N-R58W

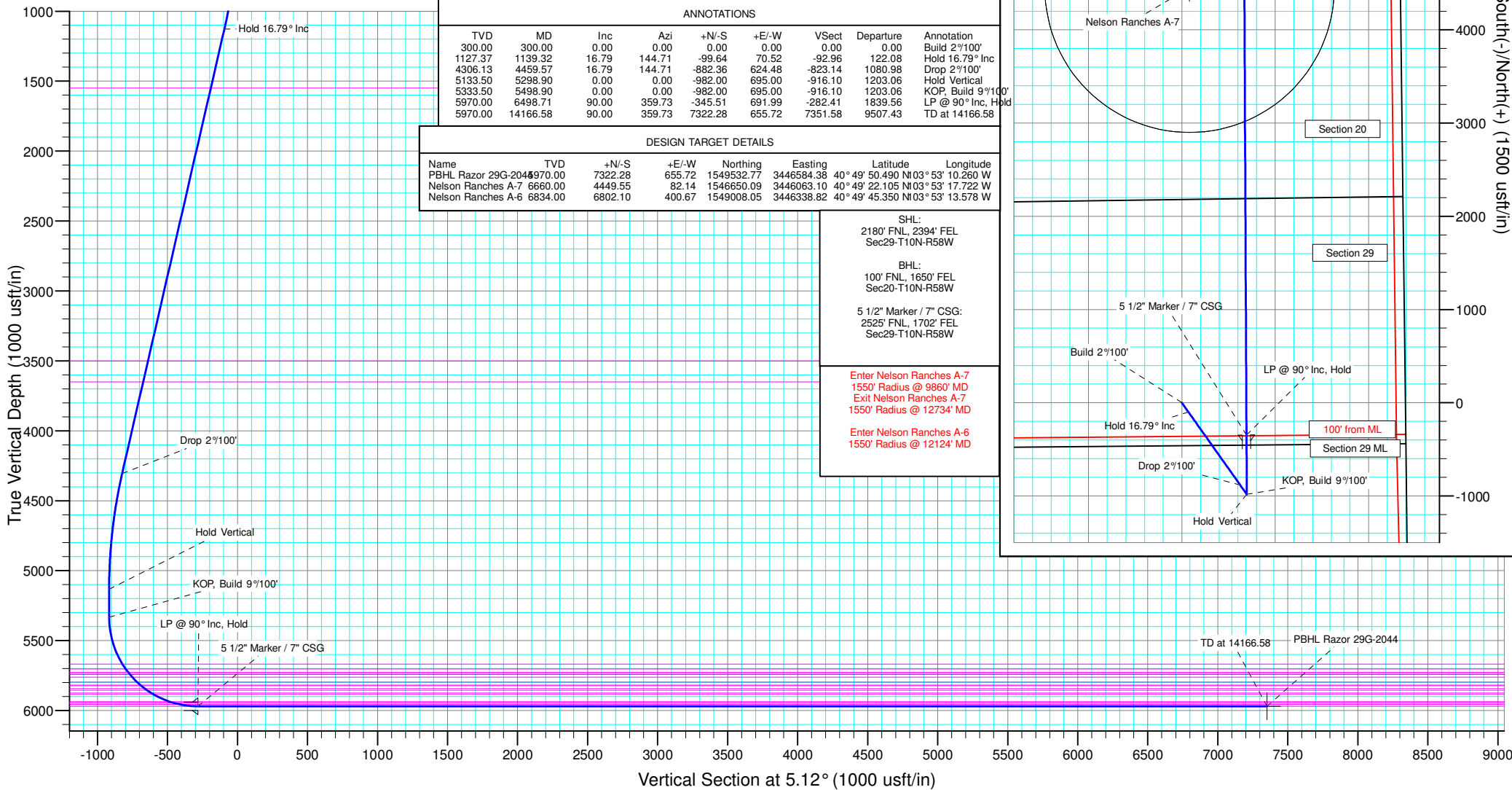
Enter Nelson Ranches A-7
1550' Radius @ 9860' MD
Exit Nelson Ranches A-7
1550' Radius @ 12734' MD

Enter Nelson Ranches A-6
1550' Radius @ 12124' MD

West(-)/East(+) (1500 usft/in)



South(-)/North(+) (1500 usft/in)





Whiting Petroleum Corp.

Weld County, CO

Sec 29-T10N-R58W

Razor Federal #29G-2044

Hz

Plan: APD

Standard Planning Report

02 May, 2016



WOG

Planning Report

| | | | |
|------------------|-------------------------|-------------------------------------|------------------------------|
| Database: | LandmarkEDM | Local Co-ordinate Reference: | Well Razor Federal #29G-2044 |
| Company: | Whiting Petroleum Corp. | TVD Reference: | KBE @ 4832.00usft |
| Project: | Weld County, CO | MD Reference: | KBE @ 4832.00usft |
| Site: | Sec 29-T10N-R58W | North Reference: | True |
| Well: | Razor Federal #29G-2044 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Hz | | |
| Design: | APD | | |

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

| | | | | | |
|-----------------------|-----------|------------------|-------------------|-------------------|-------------------|
| Site | | Sec 29-T10N-R58W | | | |
| Site Position: | | Northing: | 1,544,286.15 usft | Latitude: | 40° 48' 59.281 N |
| From: | Lat/Long | Easting: | 3,443,100.91 usft | Longitude: | 103° 53' 56.800 W |
| Position Uncertainty: | 0.00 usft | Slot Radius: | 13.200 in | Grid Convergence: | 1.03 ° |

| Well | Razor Federal #29G-2044 | | | | | |
|----------------------|-------------------------|----------------|---------------------|-------------------|---------------|-------------------|
| Well Position | +N/-S | -2,139.47 usft | Northing: | 1,542,199.79 usft | Latitude: | 40° 48' 38.140 N |
| | +E/-W | 2,922.76 usft | Easting: | 3,446,061.82 usft | Longitude: | 103° 53' 18.790 W |
| Position Uncertainty | | 0.00 usft | Wellhead Elevation: | 0.00 usft | Ground Level: | 4,811.00 usft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Hz | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2015 | 4/29/2016 | 7.89 | 67.35 | 52,823 |

| | | | | |
|--------------------------|--------------------------------|---------------------|----------------------|----------------------|
| Design | APD | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PROTOTYPE | Tie On Depth: | 0.00 |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) |
| | 0.00 | 0.00 | 0.00 | 5.12 |

| Plan Sections | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-----------------------|----------------------|---------------------|---------|--------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,139.32 | 16.79 | 144.71 | 1,127.37 | -99.64 | 70.52 | 2.00 | 2.00 | 0.00 | 144.71 | |
| 4,459.57 | 16.79 | 144.71 | 4,306.13 | -882.36 | 624.48 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,298.90 | 0.00 | 0.00 | 5,133.50 | -982.00 | 695.00 | 2.00 | -2.00 | 0.00 | 180.00 | |
| 5,498.90 | 0.00 | 0.00 | 5,333.50 | -982.00 | 695.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,498.71 | 90.00 | 359.73 | 5,970.00 | -345.51 | 691.99 | 9.00 | 9.00 | 0.00 | 359.73 | |
| 14,166.58 | 90.00 | 359.73 | 5,970.00 | 7,322.28 | 655.72 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL Razor 29G-204 |



WOG

Planning Report

| | | | |
|------------------|-------------------------|-------------------------------------|------------------------------|
| Database: | LandmarkEDM | Local Co-ordinate Reference: | Well Razor Federal #29G-2044 |
| Company: | Whiting Petroleum Corp. | TVD Reference: | KBE @ 4832.00usft |
| Project: | Weld County, CO | MD Reference: | KBE @ 4832.00usft |
| Site: | Sec 29-T10N-R58W | North Reference: | True |
| Well: | Razor Federal #29G-2044 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | HZ | | |
| Design: | APD | | |

| Planned Survey | | | | | | | | | |
|------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Build 2°/100' | | | | | | | | | |
| 400.00 | 2.00 | 144.71 | 399.98 | -1.42 | 1.01 | -1.33 | 2.00 | 2.00 | 0.00 |
| 500.00 | 4.00 | 144.71 | 499.84 | -5.70 | 4.03 | -5.31 | 2.00 | 2.00 | 0.00 |
| 600.00 | 6.00 | 144.71 | 599.45 | -12.81 | 9.07 | -11.95 | 2.00 | 2.00 | 0.00 |
| 700.00 | 8.00 | 144.71 | 698.70 | -22.76 | 16.11 | -21.23 | 2.00 | 2.00 | 0.00 |
| 800.00 | 10.00 | 144.71 | 797.47 | -35.53 | 25.14 | -33.14 | 2.00 | 2.00 | 0.00 |
| 900.00 | 12.00 | 144.71 | 895.62 | -51.10 | 36.17 | -47.67 | 2.00 | 2.00 | 0.00 |
| 1,000.00 | 14.00 | 144.71 | 993.06 | -69.46 | 49.16 | -64.80 | 2.00 | 2.00 | 0.00 |
| 1,100.00 | 16.00 | 144.71 | 1,089.64 | -90.59 | 64.11 | -84.51 | 2.00 | 2.00 | 0.00 |
| 1,139.32 | 16.79 | 144.71 | 1,127.37 | -99.64 | 70.52 | -92.96 | 2.00 | 2.00 | 0.00 |
| Hold 16.79° Inc | | | | | | | | | |
| 1,200.00 | 16.79 | 144.71 | 1,185.46 | -113.95 | 80.65 | -106.30 | 0.00 | 0.00 | 0.00 |
| 1,300.00 | 16.79 | 144.71 | 1,281.20 | -137.52 | 97.33 | -128.29 | 0.00 | 0.00 | 0.00 |
| 1,400.00 | 16.79 | 144.71 | 1,376.94 | -161.10 | 114.01 | -150.28 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 16.79 | 144.71 | 1,472.67 | -184.67 | 130.70 | -172.28 | 0.00 | 0.00 | 0.00 |
| 1,580.77 | 16.79 | 144.71 | 1,550.00 | -203.71 | 144.17 | -190.04 | 0.00 | 0.00 | 0.00 |
| Upper Pierre | | | | | | | | | |
| 1,600.00 | 16.79 | 144.71 | 1,568.41 | -208.24 | 147.38 | -194.27 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 16.79 | 144.71 | 1,664.15 | -231.82 | 164.07 | -216.26 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 16.79 | 144.71 | 1,759.89 | -255.39 | 180.75 | -238.25 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 16.79 | 144.71 | 1,855.63 | -278.97 | 197.43 | -260.24 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 16.79 | 144.71 | 1,951.37 | -302.54 | 214.12 | -282.24 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 16.79 | 144.71 | 2,047.11 | -326.11 | 230.80 | -304.23 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 16.79 | 144.71 | 2,142.85 | -349.69 | 247.49 | -326.22 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 16.79 | 144.71 | 2,238.58 | -373.26 | 264.17 | -348.21 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 16.79 | 144.71 | 2,334.32 | -396.83 | 280.86 | -370.20 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 16.79 | 144.71 | 2,430.06 | -420.41 | 297.54 | -392.19 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 16.79 | 144.71 | 2,525.80 | -443.98 | 314.22 | -414.19 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 16.79 | 144.71 | 2,621.54 | -467.56 | 330.91 | -436.18 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 16.79 | 144.71 | 2,717.28 | -491.13 | 347.59 | -458.17 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 16.79 | 144.71 | 2,813.02 | -514.70 | 364.28 | -480.16 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 16.79 | 144.71 | 2,908.76 | -538.28 | 380.96 | -502.15 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 16.79 | 144.71 | 3,004.49 | -561.85 | 397.64 | -524.14 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 16.79 | 144.71 | 3,100.23 | -585.43 | 414.33 | -546.14 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 16.79 | 144.71 | 3,195.97 | -609.00 | 431.01 | -568.13 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 16.79 | 144.71 | 3,291.71 | -632.57 | 447.70 | -590.12 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 16.79 | 144.71 | 3,387.45 | -656.15 | 464.38 | -612.11 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 16.79 | 144.71 | 3,483.19 | -679.72 | 481.07 | -634.10 | 0.00 | 0.00 | 0.00 |
| 3,617.56 | 16.79 | 144.71 | 3,500.00 | -683.86 | 484.00 | -637.97 | 0.00 | 0.00 | 0.00 |
| Hygiene | | | | | | | | | |
| 3,700.00 | 16.79 | 144.71 | 3,578.93 | -703.30 | 497.75 | -656.10 | 0.00 | 0.00 | 0.00 |
| 3,774.24 | 16.79 | 144.71 | 3,650.00 | -720.80 | 510.14 | -672.42 | 0.00 | 0.00 | 0.00 |
| Lower Pierre | | | | | | | | | |
| 3,800.00 | 16.79 | 144.71 | 3,674.67 | -726.87 | 514.43 | -678.09 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 16.79 | 144.71 | 3,770.41 | -750.44 | 531.12 | -700.08 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 16.79 | 144.71 | 3,866.14 | -774.02 | 547.80 | -722.07 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 16.79 | 144.71 | 3,961.88 | -797.59 | 564.49 | -744.06 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 16.79 | 144.71 | 4,057.62 | -821.16 | 581.17 | -766.05 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 16.79 | 144.71 | 4,153.36 | -844.74 | 597.85 | -788.05 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 16.79 | 144.71 | 4,249.10 | -868.31 | 614.54 | -810.04 | 0.00 | 0.00 | 0.00 |



WOG Planning Report

| | | | |
|------------------|-------------------------|-------------------------------------|------------------------------|
| Database: | LandmarkEDM | Local Co-ordinate Reference: | Well Razor Federal #29G-2044 |
| Company: | Whiting Petroleum Corp. | TVD Reference: | KBE @ 4832.00usft |
| Project: | Weld County, CO | MD Reference: | KBE @ 4832.00usft |
| Site: | Sec 29-T10N-R58W | North Reference: | True |
| Well: | Razor Federal #29G-2044 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Hz | | |
| Design: | APD | | |

| Planned Survey | | | | | | | | | |
|---------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 4,459.57 | 16.79 | 144.71 | 4,306.13 | -882.36 | 624.48 | -823.14 | 0.00 | 0.00 | 0.00 |
| Drop 2°/100' | | | | | | | | | |
| 4,500.00 | 15.98 | 144.71 | 4,344.92 | -891.66 | 631.06 | -831.82 | 2.00 | -2.00 | 0.00 |
| 4,600.00 | 13.98 | 144.71 | 4,441.52 | -912.76 | 645.99 | -851.50 | 2.00 | -2.00 | 0.00 |
| 4,700.00 | 11.98 | 144.71 | 4,538.96 | -931.09 | 658.97 | -868.60 | 2.00 | -2.00 | 0.00 |
| 4,800.00 | 9.98 | 144.71 | 4,637.12 | -946.63 | 669.97 | -883.10 | 2.00 | -2.00 | 0.00 |
| 4,900.00 | 7.98 | 144.71 | 4,735.89 | -959.37 | 678.98 | -894.98 | 2.00 | -2.00 | 0.00 |
| 5,000.00 | 5.98 | 144.71 | 4,835.15 | -969.28 | 686.00 | -904.23 | 2.00 | -2.00 | 0.00 |
| 5,100.00 | 3.98 | 144.71 | 4,934.76 | -976.37 | 691.01 | -910.84 | 2.00 | -2.00 | 0.00 |
| 5,200.00 | 1.98 | 144.71 | 5,034.62 | -980.61 | 694.01 | -914.80 | 2.00 | -2.00 | 0.00 |
| 5,298.90 | 0.00 | 0.00 | 5,133.50 | -982.00 | 695.00 | -916.10 | 2.00 | -2.00 | 0.00 |
| Hold Vertical | | | | | | | | | |
| 5,300.00 | 0.00 | 0.00 | 5,134.60 | -982.00 | 695.00 | -916.10 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 0.00 | 0.00 | 5,234.60 | -982.00 | 695.00 | -916.10 | 0.00 | 0.00 | 0.00 |
| 5,498.90 | 0.00 | 0.00 | 5,333.50 | -982.00 | 695.00 | -916.10 | 0.00 | 0.00 | 0.00 |
| KOP, Build 9°/100' | | | | | | | | | |
| 5,500.00 | 0.10 | 359.73 | 5,334.60 | -982.00 | 695.00 | -916.09 | 9.00 | 9.00 | 0.00 |
| 5,600.00 | 9.10 | 359.73 | 5,434.18 | -973.99 | 694.96 | -908.12 | 9.00 | 9.00 | 0.00 |
| 5,700.00 | 18.10 | 359.73 | 5,531.28 | -950.49 | 694.85 | -884.73 | 9.00 | 9.00 | 0.00 |
| 5,800.00 | 27.10 | 359.73 | 5,623.50 | -912.10 | 694.67 | -846.50 | 9.00 | 9.00 | 0.00 |
| 5,851.10 | 31.70 | 359.73 | 5,668.00 | -887.02 | 694.55 | -821.53 | 9.00 | 9.00 | 0.00 |
| P200 Marker | | | | | | | | | |
| 5,893.12 | 35.49 | 359.73 | 5,703.00 | -863.77 | 694.44 | -798.39 | 9.00 | 9.00 | 0.00 |
| P300 Marker | | | | | | | | | |
| 5,900.00 | 36.11 | 359.73 | 5,708.58 | -859.75 | 694.42 | -794.38 | 9.00 | 9.00 | 0.00 |
| 5,923.11 | 38.19 | 359.73 | 5,727.00 | -845.79 | 694.36 | -780.49 | 9.00 | 9.00 | 0.00 |
| P350 Marker | | | | | | | | | |
| 5,938.53 | 39.57 | 359.73 | 5,739.00 | -836.12 | 694.31 | -770.85 | 9.00 | 9.00 | 0.00 |
| Sharon Springs | | | | | | | | | |
| 5,942.43 | 39.93 | 359.73 | 5,742.00 | -833.62 | 694.30 | -768.37 | 9.00 | 9.00 | 0.00 |
| Niobrara | | | | | | | | | |
| 5,968.98 | 42.32 | 359.73 | 5,762.00 | -816.16 | 694.22 | -750.99 | 9.00 | 9.00 | 0.00 |
| Top A Chalk | | | | | | | | | |
| 6,000.00 | 45.11 | 359.73 | 5,784.42 | -794.73 | 694.11 | -729.65 | 9.00 | 9.00 | 0.00 |
| 6,018.08 | 46.74 | 359.73 | 5,797.00 | -781.74 | 694.05 | -716.71 | 9.00 | 9.00 | 0.00 |
| Top A Marl | | | | | | | | | |
| 6,049.57 | 49.57 | 359.73 | 5,818.00 | -758.29 | 693.94 | -693.37 | 9.00 | 9.00 | 0.00 |
| A Marl | | | | | | | | | |
| 6,057.33 | 50.27 | 359.73 | 5,823.00 | -752.35 | 693.91 | -687.45 | 9.00 | 9.00 | 0.00 |
| Top Upper B | | | | | | | | | |
| 6,089.62 | 53.18 | 359.73 | 5,843.00 | -727.00 | 693.79 | -662.22 | 9.00 | 9.00 | 0.00 |
| Base Upper B | | | | | | | | | |
| 6,100.00 | 54.11 | 359.73 | 5,849.15 | -718.64 | 693.75 | -653.90 | 9.00 | 9.00 | 0.00 |
| 6,110.08 | 55.02 | 359.73 | 5,855.00 | -710.43 | 693.72 | -645.72 | 9.00 | 9.00 | 0.00 |
| Top Lower B | | | | | | | | | |
| 6,146.47 | 58.29 | 359.73 | 5,875.00 | -680.03 | 693.57 | -615.46 | 9.00 | 9.00 | 0.00 |
| Base Lower B | | | | | | | | | |
| 6,165.99 | 60.05 | 359.73 | 5,885.00 | -663.28 | 693.49 | -598.78 | 9.00 | 9.00 | 0.00 |
| Top B Marl | | | | | | | | | |
| 6,200.00 | 63.11 | 359.73 | 5,901.19 | -633.37 | 693.35 | -569.00 | 9.00 | 9.00 | 0.00 |
| 6,292.85 | 71.47 | 359.73 | 5,937.00 | -547.79 | 692.95 | -483.80 | 9.00 | 9.00 | 0.00 |
| Top C Chalk | | | | | | | | | |



WOG

Planning Report

| | | | |
|------------------|-------------------------|-------------------------------------|------------------------------|
| Database: | LandmarkEDM | Local Co-ordinate Reference: | Well Razor Federal #29G-2044 |
| Company: | Whiting Petroleum Corp. | TVD Reference: | KBE @ 4832.00usft |
| Project: | Weld County, CO | MD Reference: | KBE @ 4832.00usft |
| Site: | Sec 29-T10N-R58W | North Reference: | True |
| Well: | Razor Federal #29G-2044 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Hz | | |
| Design: | APD | | |

| Planned Survey | | | | | | | | | | |
|---|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-----------------------------|----------------------------|---------------------------|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | |
| 6,300.00 | 72.11 | 359.73 | 5,939.23 | -541.00 | 692.91 | -477.04 | 9.00 | 9.00 | 0.00 | |
| 6,316.15 | 73.57 | 359.73 | 5,944.00 | -525.57 | 692.84 | -461.67 | 9.00 | 9.00 | 0.00 | |
| Middle C Chalk | | | | | | | | | | |
| 6,364.96 | 77.96 | 359.73 | 5,956.00 | -478.27 | 692.62 | -414.58 | 9.00 | 9.00 | 0.00 | |
| Middle C Marl | | | | | | | | | | |
| 6,400.00 | 81.11 | 359.73 | 5,962.36 | -443.82 | 692.45 | -380.29 | 9.00 | 9.00 | 0.00 | |
| 6,498.71 | 90.00 | 359.73 | 5,970.00 | -345.50 | 691.99 | -282.41 | 9.00 | 9.00 | 0.00 | |
| LP @ 90° Inc, Hold - Lower C Chalk - 5 1/2" Marker / 7" CSG | | | | | | | | | | |
| 6,500.00 | 90.00 | 359.73 | 5,970.00 | -344.21 | 691.98 | -281.12 | 0.00 | 0.00 | 0.00 | |
| 6,600.00 | 90.00 | 359.73 | 5,970.00 | -244.22 | 691.51 | -181.56 | 0.00 | 0.00 | 0.00 | |
| 6,700.00 | 90.00 | 359.73 | 5,970.00 | -144.22 | 691.04 | -82.01 | 0.00 | 0.00 | 0.00 | |
| 6,800.00 | 90.00 | 359.73 | 5,970.00 | -44.22 | 690.56 | 17.55 | 0.00 | 0.00 | 0.00 | |
| 6,900.00 | 90.00 | 359.73 | 5,970.00 | 55.78 | 690.09 | 117.11 | 0.00 | 0.00 | 0.00 | |
| 7,000.00 | 90.00 | 359.73 | 5,970.00 | 155.78 | 689.62 | 216.67 | 0.00 | 0.00 | 0.00 | |
| 7,100.00 | 90.00 | 359.73 | 5,970.00 | 255.78 | 689.15 | 316.23 | 0.00 | 0.00 | 0.00 | |
| 7,200.00 | 90.00 | 359.73 | 5,970.00 | 355.78 | 688.67 | 415.79 | 0.00 | 0.00 | 0.00 | |
| 7,300.00 | 90.00 | 359.73 | 5,970.00 | 455.78 | 688.20 | 515.34 | 0.00 | 0.00 | 0.00 | |
| 7,400.00 | 90.00 | 359.73 | 5,970.00 | 555.78 | 687.73 | 614.90 | 0.00 | 0.00 | 0.00 | |
| 7,500.00 | 90.00 | 359.73 | 5,970.00 | 655.77 | 687.25 | 714.46 | 0.00 | 0.00 | 0.00 | |
| 7,600.00 | 90.00 | 359.73 | 5,970.00 | 755.77 | 686.78 | 814.02 | 0.00 | 0.00 | 0.00 | |
| 7,700.00 | 90.00 | 359.73 | 5,970.00 | 855.77 | 686.31 | 913.58 | 0.00 | 0.00 | 0.00 | |
| 7,800.00 | 90.00 | 359.73 | 5,970.00 | 955.77 | 685.83 | 1,013.13 | 0.00 | 0.00 | 0.00 | |
| 7,900.00 | 90.00 | 359.73 | 5,970.00 | 1,055.77 | 685.36 | 1,112.69 | 0.00 | 0.00 | 0.00 | |
| 8,000.00 | 90.00 | 359.73 | 5,970.00 | 1,155.77 | 684.89 | 1,212.25 | 0.00 | 0.00 | 0.00 | |
| 8,100.00 | 90.00 | 359.73 | 5,970.00 | 1,255.77 | 684.42 | 1,311.81 | 0.00 | 0.00 | 0.00 | |
| 8,200.00 | 90.00 | 359.73 | 5,970.00 | 1,355.77 | 683.94 | 1,411.37 | 0.00 | 0.00 | 0.00 | |
| 8,300.00 | 90.00 | 359.73 | 5,970.00 | 1,455.77 | 683.47 | 1,510.92 | 0.00 | 0.00 | 0.00 | |
| 8,400.00 | 90.00 | 359.73 | 5,970.00 | 1,555.76 | 683.00 | 1,610.48 | 0.00 | 0.00 | 0.00 | |
| 8,500.00 | 90.00 | 359.73 | 5,970.00 | 1,655.76 | 682.52 | 1,710.04 | 0.00 | 0.00 | 0.00 | |
| 8,600.00 | 90.00 | 359.73 | 5,970.00 | 1,755.76 | 682.05 | 1,809.60 | 0.00 | 0.00 | 0.00 | |
| 8,700.00 | 90.00 | 359.73 | 5,970.00 | 1,855.76 | 681.58 | 1,909.16 | 0.00 | 0.00 | 0.00 | |
| 8,800.00 | 90.00 | 359.73 | 5,970.00 | 1,955.76 | 681.10 | 2,008.72 | 0.00 | 0.00 | 0.00 | |
| 8,900.00 | 90.00 | 359.73 | 5,970.00 | 2,055.76 | 680.63 | 2,108.27 | 0.00 | 0.00 | 0.00 | |
| 9,000.00 | 90.00 | 359.73 | 5,970.00 | 2,155.76 | 680.16 | 2,207.83 | 0.00 | 0.00 | 0.00 | |
| 9,100.00 | 90.00 | 359.73 | 5,970.00 | 2,255.76 | 679.69 | 2,307.39 | 0.00 | 0.00 | 0.00 | |
| 9,200.00 | 90.00 | 359.73 | 5,970.00 | 2,355.76 | 679.21 | 2,406.95 | 0.00 | 0.00 | 0.00 | |
| 9,300.00 | 90.00 | 359.73 | 5,970.00 | 2,455.75 | 678.74 | 2,506.51 | 0.00 | 0.00 | 0.00 | |
| 9,400.00 | 90.00 | 359.73 | 5,970.00 | 2,555.75 | 678.27 | 2,606.06 | 0.00 | 0.00 | 0.00 | |
| 9,500.00 | 90.00 | 359.73 | 5,970.00 | 2,655.75 | 677.79 | 2,705.62 | 0.00 | 0.00 | 0.00 | |
| 9,600.00 | 90.00 | 359.73 | 5,970.00 | 2,755.75 | 677.32 | 2,805.18 | 0.00 | 0.00 | 0.00 | |
| 9,700.00 | 90.00 | 359.73 | 5,970.00 | 2,855.75 | 676.85 | 2,904.74 | 0.00 | 0.00 | 0.00 | |
| 9,800.00 | 90.00 | 359.73 | 5,970.00 | 2,955.75 | 676.38 | 3,004.30 | 0.00 | 0.00 | 0.00 | |
| 9,900.00 | 90.00 | 359.73 | 5,970.00 | 3,055.75 | 675.90 | 3,103.85 | 0.00 | 0.00 | 0.00 | |
| 10,000.00 | 90.00 | 359.73 | 5,970.00 | 3,155.75 | 675.43 | 3,203.41 | 0.00 | 0.00 | 0.00 | |
| 10,100.00 | 90.00 | 359.73 | 5,970.00 | 3,255.75 | 674.96 | 3,302.97 | 0.00 | 0.00 | 0.00 | |
| 10,200.00 | 90.00 | 359.73 | 5,970.00 | 3,355.74 | 674.48 | 3,402.53 | 0.00 | 0.00 | 0.00 | |
| 10,300.00 | 90.00 | 359.73 | 5,970.00 | 3,455.74 | 674.01 | 3,502.09 | 0.00 | 0.00 | 0.00 | |
| 10,400.00 | 90.00 | 359.73 | 5,970.00 | 3,555.74 | 673.54 | 3,601.65 | 0.00 | 0.00 | 0.00 | |
| 10,500.00 | 90.00 | 359.73 | 5,970.00 | 3,655.74 | 673.06 | 3,701.20 | 0.00 | 0.00 | 0.00 | |
| 10,600.00 | 90.00 | 359.73 | 5,970.00 | 3,755.74 | 672.59 | 3,800.76 | 0.00 | 0.00 | 0.00 | |
| 10,700.00 | 90.00 | 359.73 | 5,970.00 | 3,855.74 | 672.12 | 3,900.32 | 0.00 | 0.00 | 0.00 | |
| 10,800.00 | 90.00 | 359.73 | 5,970.00 | 3,955.74 | 671.65 | 3,999.88 | 0.00 | 0.00 | 0.00 | |
| 10,900.00 | 90.00 | 359.73 | 5,970.00 | 4,055.74 | 671.17 | 4,099.44 | 0.00 | 0.00 | 0.00 | |



WOG

Planning Report

| | | | |
|------------------|-------------------------|-------------------------------------|------------------------------|
| Database: | LandmarkEDM | Local Co-ordinate Reference: | Well Razor Federal #29G-2044 |
| Company: | Whiting Petroleum Corp. | TVD Reference: | KBE @ 4832.00usft |
| Project: | Weld County, CO | MD Reference: | KBE @ 4832.00usft |
| Site: | Sec 29-T10N-R58W | North Reference: | True |
| Well: | Razor Federal #29G-2044 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Hz | | |
| Design: | APD | | |

| Planned Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 11,000.00 | 90.00 | 359.73 | 5,970.00 | 4,155.74 | 670.70 | 4,198.99 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 90.00 | 359.73 | 5,970.00 | 4,255.73 | 670.23 | 4,298.55 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 90.00 | 359.73 | 5,970.00 | 4,355.73 | 669.75 | 4,398.11 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 90.00 | 359.73 | 5,970.00 | 4,455.73 | 669.28 | 4,497.67 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 90.00 | 359.73 | 5,970.00 | 4,555.73 | 668.81 | 4,597.23 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 90.00 | 359.73 | 5,970.00 | 4,655.73 | 668.33 | 4,696.78 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 90.00 | 359.73 | 5,970.00 | 4,755.73 | 667.86 | 4,796.34 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 90.00 | 359.73 | 5,970.00 | 4,855.73 | 667.39 | 4,895.90 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 90.00 | 359.73 | 5,970.00 | 4,955.73 | 666.92 | 4,995.46 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 90.00 | 359.73 | 5,970.00 | 5,055.73 | 666.44 | 5,095.02 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 90.00 | 359.73 | 5,970.00 | 5,155.72 | 665.97 | 5,194.58 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 90.00 | 359.73 | 5,970.00 | 5,255.72 | 665.50 | 5,294.13 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 90.00 | 359.73 | 5,970.00 | 5,355.72 | 665.02 | 5,393.69 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 90.00 | 359.73 | 5,970.00 | 5,455.72 | 664.55 | 5,493.25 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 90.00 | 359.73 | 5,970.00 | 5,555.72 | 664.08 | 5,592.81 | 0.00 | 0.00 | 0.00 |
| 12,500.00 | 90.00 | 359.73 | 5,970.00 | 5,655.72 | 663.60 | 5,692.37 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 90.00 | 359.73 | 5,970.00 | 5,755.72 | 663.13 | 5,791.92 | 0.00 | 0.00 | 0.00 |
| 12,700.00 | 90.00 | 359.73 | 5,970.00 | 5,855.72 | 662.66 | 5,891.48 | 0.00 | 0.00 | 0.00 |
| 12,800.00 | 90.00 | 359.73 | 5,970.00 | 5,955.71 | 662.19 | 5,991.04 | 0.00 | 0.00 | 0.00 |
| 12,900.00 | 90.00 | 359.73 | 5,970.00 | 6,055.71 | 661.71 | 6,090.60 | 0.00 | 0.00 | 0.00 |
| 13,000.00 | 90.00 | 359.73 | 5,970.00 | 6,155.71 | 661.24 | 6,190.16 | 0.00 | 0.00 | 0.00 |
| 13,100.00 | 90.00 | 359.73 | 5,970.00 | 6,255.71 | 660.77 | 6,289.71 | 0.00 | 0.00 | 0.00 |
| 13,200.00 | 90.00 | 359.73 | 5,970.00 | 6,355.71 | 660.29 | 6,389.27 | 0.00 | 0.00 | 0.00 |
| 13,300.00 | 90.00 | 359.73 | 5,970.00 | 6,455.71 | 659.82 | 6,488.83 | 0.00 | 0.00 | 0.00 |
| 13,400.00 | 90.00 | 359.73 | 5,970.00 | 6,555.71 | 659.35 | 6,588.39 | 0.00 | 0.00 | 0.00 |
| 13,500.00 | 90.00 | 359.73 | 5,970.00 | 6,655.71 | 658.87 | 6,687.95 | 0.00 | 0.00 | 0.00 |
| 13,600.00 | 90.00 | 359.73 | 5,970.00 | 6,755.71 | 658.40 | 6,787.51 | 0.00 | 0.00 | 0.00 |
| 13,700.00 | 90.00 | 359.73 | 5,970.00 | 6,855.70 | 657.93 | 6,887.06 | 0.00 | 0.00 | 0.00 |
| 13,800.00 | 90.00 | 359.73 | 5,970.00 | 6,955.70 | 657.46 | 6,986.62 | 0.00 | 0.00 | 0.00 |
| 13,900.00 | 90.00 | 359.73 | 5,970.00 | 7,055.70 | 656.98 | 7,086.18 | 0.00 | 0.00 | 0.00 |
| 14,000.00 | 90.00 | 359.73 | 5,970.00 | 7,155.70 | 656.51 | 7,185.74 | 0.00 | 0.00 | 0.00 |
| 14,100.00 | 90.00 | 359.73 | 5,970.00 | 7,255.70 | 656.04 | 7,285.30 | 0.00 | 0.00 | 0.00 |
| 14,166.58 | 90.00 | 359.73 | 5,970.00 | 7,322.28 | 655.72 | 7,351.58 | 0.00 | 0.00 | 0.00 |
| TD at 14166.58 | | | | | | | | | |

| Design Targets | | | | | | | | | |
|---|---------------|--------------|------------|--------------|--------------|-----------------|----------------|------------------|-------------------|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
| - hit/miss target | | | | | | | | | |
| - Shape | | | | | | | | | |
| PBHL Razor 29G-2044 | 0.00 | 0.00 | 5,970.00 | 7,322.28 | 655.72 | 1,549,532.77 | 3,446,584.38 | 40° 49' 50.490 N | 103° 53' 10.260 W |
| - plan hits target center | | | | | | | | | |
| - Point | | | | | | | | | |
| Nelson Ranches A-7 | 0.00 | 0.00 | 6,660.00 | 4,449.55 | 82.14 | 1,546,650.10 | 3,446,063.09 | 40° 49' 22.105 N | 103° 53' 17.722 W |
| - plan misses target center by 906.01usft at 11296.60usft MD (5970.00 TVD, 4452.33 N, 669.30 E) | | | | | | | | | |
| - Circle (radius 1,550.00) | | | | | | | | | |
| Nelson Ranches A-6 | 0.00 | 0.00 | 6,834.00 | 6,802.10 | 400.67 | 1,549,008.05 | 3,446,338.82 | 40° 49' 45.350 N | 103° 53' 13.578 W |
| - plan misses target center by 901.56usft at 13647.62usft MD (5970.00 TVD, 6803.32 N, 658.18 E) | | | | | | | | | |
| - Circle (radius 1,550.00) | | | | | | | | | |



WOG Planning Report

| | | | |
|------------------|-------------------------|-------------------------------------|------------------------------|
| Database: | LandmarkEDM | Local Co-ordinate Reference: | Well Razor Federal #29G-2044 |
| Company: | Whiting Petroleum Corp. | TVD Reference: | KBE @ 4832.00usft |
| Project: | Weld County, CO | MD Reference: | KBE @ 4832.00usft |
| Site: | Sec 29-T10N-R58W | North Reference: | True |
| Well: | Razor Federal #29G-2044 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Hz | | |
| Design: | APD | | |

| Casing Points | | | | | |
|-----------------------|-----------------------|------------------------|----------------------|--------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (in) | Hole Diameter (in) | |
| 6,498.71 | 5,970.00 | 5 1/2" Marker / 7" CSG | 7.000 | 8.750 | |

| Formations | | | | | | |
|-----------------------|-----------------------|----------------|-----------|---------|-------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) | |
| 1,580.77 | 1,550.00 | Upper Pierre | | | | |
| 3,617.56 | 3,500.00 | Hygiene | | | | |
| 3,774.24 | 3,650.00 | Lower Pierre | | | | |
| 5,851.10 | 5,668.00 | P200 Marker | | | | |
| 5,893.12 | 5,703.00 | P300 Marker | | | | |
| 5,923.11 | 5,727.00 | P350 Marker | | | | |
| 5,938.53 | 5,739.00 | Sharon Springs | | | | |
| 5,942.43 | 5,742.00 | Niobrara | | | | |
| 5,968.98 | 5,762.00 | Top A Chalk | | | | |
| 6,018.08 | 5,797.00 | Top A Marl | | | | |
| 6,049.57 | 5,818.00 | A Marl | | | | |
| 6,057.33 | 5,823.00 | Top Upper B | | | | |
| 6,089.62 | 5,843.00 | Base Upper B | | | | |
| 6,110.08 | 5,855.00 | Top Lower B | | | | |
| 6,146.47 | 5,875.00 | Base Lower B | | | | |
| 6,165.99 | 5,885.00 | Top B Marl | | | | |
| 6,292.85 | 5,937.00 | Top C Chalk | | | | |
| 6,316.15 | 5,944.00 | Middle C Chalk | | | | |
| 6,364.96 | 5,956.00 | Middle C Marl | | | | |
| 6,498.71 | 5,970.00 | Lower C Chalk | | | | |

| Plan Annotations | | | | | |
|-----------------------|-----------------------|-------------------|--------------|--------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | | |
| | | +N/-S (usft) | +E/-W (usft) | Comment | |
| 300.00 | 300.00 | 0.00 | 0.00 | Build 2°/100' | |
| 1,139.32 | 1,127.37 | -99.64 | 70.52 | Hold 16.79° Inc | |
| 4,459.57 | 4,306.13 | -882.36 | 624.48 | Drop 2°/100' | |
| 5,298.90 | 5,133.50 | -982.00 | 695.00 | Hold Vertical | |
| 5,498.90 | 5,333.50 | -982.00 | 695.00 | KOP, Build 9°/100' | |
| 6,498.71 | 5,970.00 | -345.51 | 691.99 | LP @ 90° Inc, Hold | |
| 14,166.58 | 5,970.00 | 7,322.28 | 655.72 | TD at 14166.58 | |