

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_BARCLAY 15-27 PAD

BARCLAY 27N-27HZ

BARCLAY 27N-27HZ

Plan: BARCLAY 27N-27HZ (wp01)

Standard Planning Report

26 July, 2011



Weatherford®



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M

Azimuths to True North

Magnetic North: 8.83°

Magnetic Field

Strength: 53009.0snT

Dip Angle: 66.88°

Date: 7/25/2011

Model: IGRF2010

Project: COLORADO NORTHERN ZONE - 83

Site: WELD BARCLAY 15-27 PAD

Well: BARCLAY 27N-27HZ

Wellbore: BARCLAY 27N-27HZ

Section: SHL:

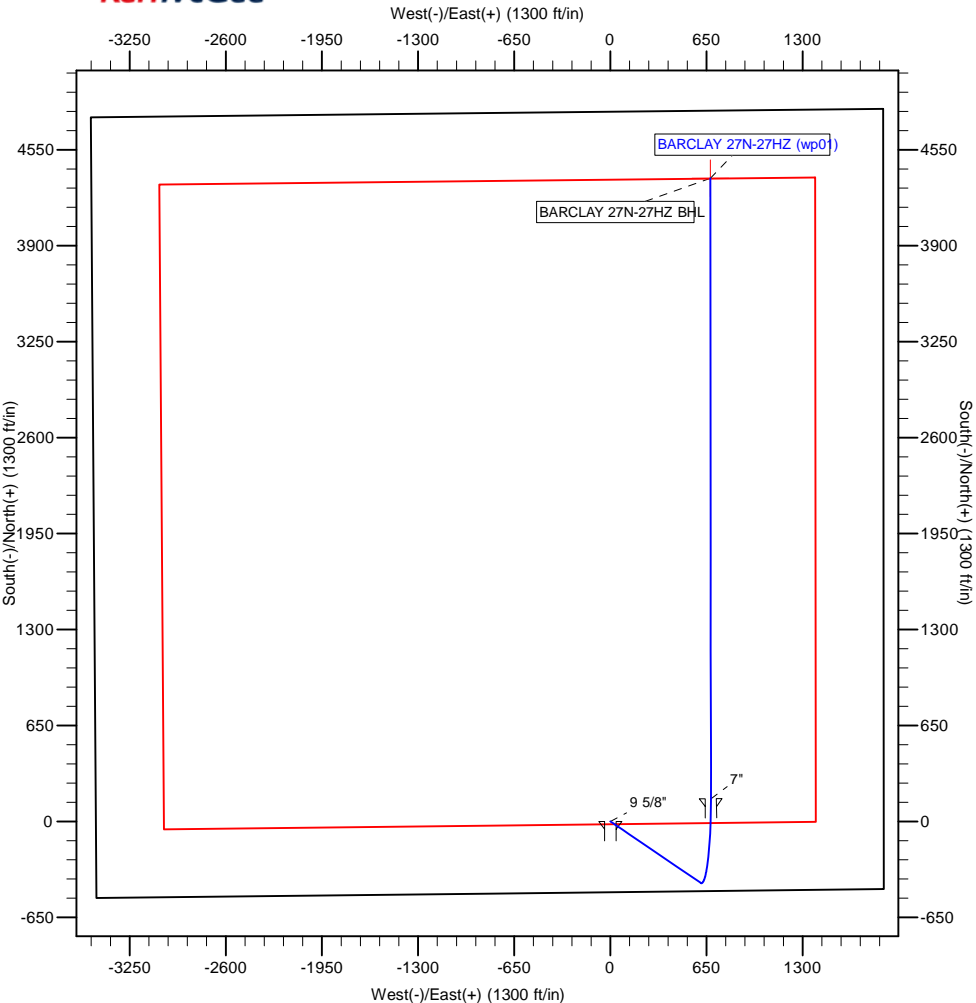
Design: BARCLAY 27N-27HZ (wp01)

Latitude: 40.190206

Longitude: -104.760409

GL: 4956.00

KB: 17" RKB + 4956" GL @ 4973.00ft



| WELL DETAILS: BARCLAY 27N-27HZ | | | | | | |
|--------------------------------|-------|------------|-----------------------|------------------|---------------------|------|
| +N/-S | +E/-W | Northing | Ground Level: Easting | 4956.00 Latitude | 40.190206 Longitude | Slot |
| 0.00 | 0.00 | 1312996.32 | 3206618.79 | | -104.760409 | |

| WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG) | | | | | | |
|---|---------|---------|--------|-----------|-------------|-------|
| Name | TVD | +N/-S | +E/-W | Latitude | Longitude | Shape |
| BARCLAY 27N-27HZ BHL | 7176.00 | 4356.11 | 676.52 | 40.202164 | -104.757987 | Point |

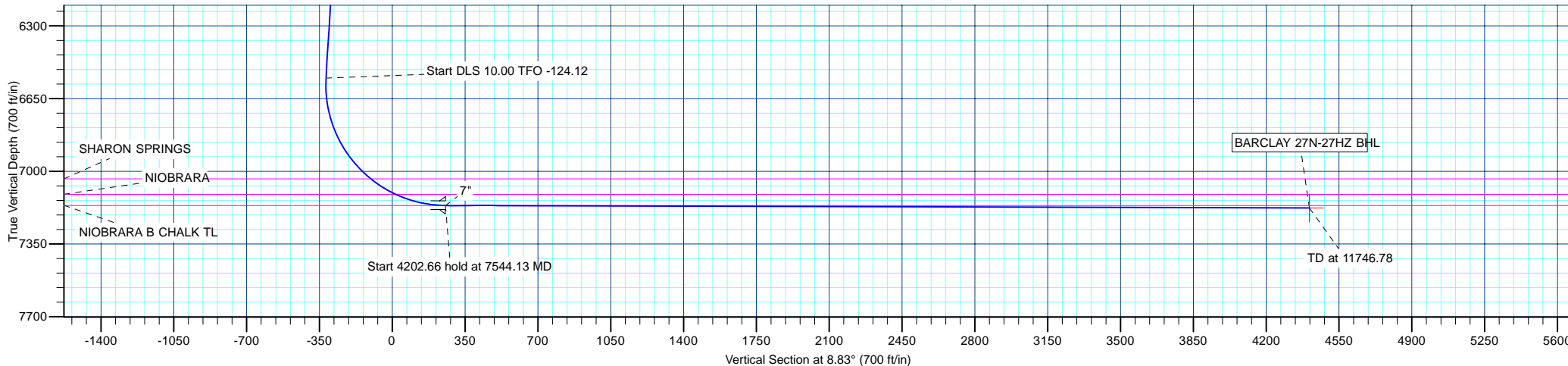
| SECTION DETAILS | | | | | | | | | |
|-----------------|-------|--------|---------|---------|--------|-------|---------|---------|----------------------|
| MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | Target |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1000.00 | 0.00 | 0.00 | 1000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1393.14 | 7.86 | 124.31 | 1391.90 | -15.18 | 22.25 | 2.00 | 124.31 | -11.59 | |
| 6600.96 | 7.86 | 124.31 | 6550.77 | -416.72 | 610.74 | 0.00 | 0.00 | -318.06 | |
| 7543.65 | 89.84 | 359.95 | 7164.00 | 153.00 | 680.00 | 10.00 | -124.12 | 255.54 | |
| 7544.13 | 89.84 | 359.95 | 7164.00 | 153.47 | 680.00 | 1.00 | -163.83 | 256.01 | |
| 11746.78 | 89.84 | 359.95 | 7176.00 | 4356.11 | 676.52 | 0.00 | 0.00 | 4408.33 | BARCLAY 27N-27HZ BHL |

| FORMATION TOP DETAILS | | |
|-----------------------|---------|---------------------|
| TVDPath | MDPath | Formation |
| 3208.00 | 3226.47 | PARKMAN |
| 4386.00 | 4415.65 | SUSSEX |
| 5028.00 | 5063.74 | SHANNON |
| 7036.00 | 7153.44 | SHARON SPRINGS |
| 7111.00 | 7296.05 | NIOBRARA |
| 7164.00 | 7543.65 | NIOBRARA B CHALK TL |

| CASING DETAILS | | | |
|----------------|---------|--------|-------|
| TVD | MD | Name | Size |
| 850.00 | 850.00 | 9 5/8" | 9-5/8 |
| 7164.00 | 7543.65 | 7" | 7 |



Weatherford®



| | | | |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
| Database: | edm5000p | Local Co-ordinate Reference: | Well BARCLAY 27N-27HZ |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | 17' RKB + 4956' GL @ 4973.00ft |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | 17' RKB + 4956' GL @ 4973.00ft |
| Site: | WELD_BARCLAY 15-27 PAD | North Reference: | True |
| Well: | BARCLAY 27N-27HZ | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | BARCLAY 27N-27HZ | | |
| Design: | BARCLAY 27N-27HZ (wp01) | | |

| | | | |
|--------------------|-----------------------------|----------------------|----------------|
| Project | COLORADO NORTHERN ZONE - 83 | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Northern Zone | | |

| Site | | | | | | WELD_BARCLAY 15-27 PAD | | | | | | | |
|--|--|--|-------------------------|--|--|------------------------|--|-----------------|--|-------------------|--|-------------|--|
| Site Position: From: Position Uncertainty: | | | Lat/Long 0.00 ft | | | Northing: | | 1,312,996.10 ft | | Latitude: | | 40.190205 | |
| | | | | | | Easting: | | 3,206,634.99 ft | | Longitude: | | -104.760351 | |
| | | | | | | Slot Radius: | | 0 " | | Grid Convergence: | | 0.48 | |

| | | | | | | |
|----------------------|------------------|-----------|---------------------|-----------------|---------------|-------------|
| Well | BARCLAY 27N-27HZ | | | | | |
| Well Position | +N-S | 0.36 ft | Northing: | 1,312,996.32 ft | Latitude: | 40.190206 |
| | +E-W | -16.20 ft | Easting: | 3,206,618.79 ft | Longitude: | -104.760409 |
| Position Uncertainty | | 0.00 ft | Wellhead Elevation: | | Ground Level: | 4,956.00 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | BARCLAY 27N-27HZ | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 7/25/2011 | 8.83 | 66.88 | 53,009 |

| | | | | |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|
| Design | BARCLAY 27N-27HZ (wp01) | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PLAN | Tie On Depth: | 0.00 |
| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
| | 0.00 | 0.00 | 0.00 | 8.83 |

| Plan Sections | | | | | | | | | | |
|----------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|----------------------|---------------------|---------|-----------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | 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 | |
| 1,000.00 | 0.00 | 0.00 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,393.14 | 7.86 | 124.31 | 1,391.90 | -15.18 | 22.25 | 2.00 | 2.00 | 0.00 | 124.31 | |
| 6,600.96 | 7.86 | 124.31 | 6,550.77 | -416.72 | 610.74 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,543.65 | 89.84 | 359.95 | 7,164.00 | 153.00 | 680.00 | 10.00 | 8.70 | -13.19 | -124.12 | |
| 7,544.13 | 89.84 | 359.95 | 7,164.00 | 153.47 | 680.00 | 1.00 | -0.96 | -0.28 | -163.83 | |
| 11,746.78 | 89.84 | 359.95 | 7,176.00 | 4,356.11 | 676.52 | 0.00 | 0.00 | 0.00 | 0.00 | BARCLAY 27N-27H |

| | | | |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
| Database: | edm5000p | Local Co-ordinate Reference: | Well BARCLAY 27N-27HZ |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | 17' RKB + 4956' GL @ 4973.00ft |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | 17' RKB + 4956' GL @ 4973.00ft |
| Site: | WELD_BARCLAY 15-27 PAD | North Reference: | True |
| Well: | BARCLAY 27N-27HZ | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | BARCLAY 27N-27HZ | | |
| Design: | BARCLAY 27N-27HZ (wp01) | | |

| Planned Survey | | | | | | | | | |
|----------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | 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 |
| 400.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 600.00 | 0.00 | 0.00 | 600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 700.00 | 0.00 | 0.00 | 700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 800.00 | 0.00 | 0.00 | 800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 850.00 | 0.00 | 0.00 | 850.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 5/8" | | | | | | | | | |
| 900.00 | 0.00 | 0.00 | 900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,000.00 | 0.00 | 0.00 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Start Build 2.00 | | | | | | | | | |
| 1,100.00 | 2.00 | 124.31 | 1,099.98 | -0.98 | 1.44 | -0.75 | 2.00 | 2.00 | 0.00 |
| 1,200.00 | 4.00 | 124.31 | 1,199.84 | -3.93 | 5.76 | -3.00 | 2.00 | 2.00 | 0.00 |
| 1,300.00 | 6.00 | 124.31 | 1,299.45 | -8.85 | 12.96 | -6.75 | 2.00 | 2.00 | 0.00 |
| 1,393.14 | 7.86 | 124.31 | 1,391.90 | -15.18 | 22.25 | -11.59 | 2.00 | 2.00 | 0.00 |
| Start 5207.82 hold at 1393.14 MD | | | | | | | | | |
| 1,400.00 | 7.86 | 124.31 | 1,398.70 | -15.71 | 23.02 | -11.99 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 7.86 | 124.31 | 1,497.76 | -23.42 | 34.32 | -17.87 | 0.00 | 0.00 | 0.00 |
| 1,600.00 | 7.86 | 124.31 | 1,596.82 | -31.13 | 45.62 | -23.76 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 7.86 | 124.31 | 1,695.88 | -38.84 | 56.92 | -29.64 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 7.86 | 124.31 | 1,794.94 | -46.55 | 68.22 | -35.53 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 7.86 | 124.31 | 1,894.00 | -54.26 | 79.52 | -41.41 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 7.86 | 124.31 | 1,993.06 | -61.97 | 90.82 | -47.30 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 7.86 | 124.31 | 2,092.12 | -69.68 | 102.12 | -53.18 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 7.86 | 124.31 | 2,191.18 | -77.39 | 113.42 | -59.07 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 7.86 | 124.31 | 2,290.24 | -85.10 | 124.72 | -64.95 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 7.86 | 124.31 | 2,389.30 | -92.81 | 136.02 | -70.84 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 7.86 | 124.31 | 2,488.36 | -100.52 | 147.32 | -76.72 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 7.86 | 124.31 | 2,587.42 | -108.23 | 158.62 | -82.61 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 7.86 | 124.31 | 2,686.48 | -115.94 | 169.92 | -88.49 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 7.86 | 124.31 | 2,785.54 | -123.65 | 181.22 | -94.38 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 7.86 | 124.31 | 2,884.60 | -131.37 | 192.52 | -100.26 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 7.86 | 124.31 | 2,983.66 | -139.08 | 203.83 | -106.15 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 7.86 | 124.31 | 3,082.72 | -146.79 | 215.13 | -112.03 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 7.86 | 124.31 | 3,181.78 | -154.50 | 226.43 | -117.92 | 0.00 | 0.00 | 0.00 |
| 3,226.47 | 7.86 | 124.31 | 3,208.00 | -156.54 | 229.42 | -119.48 | 0.00 | 0.00 | 0.00 |
| PARKMAN | | | | | | | | | |
| 3,300.00 | 7.86 | 124.31 | 3,280.84 | -162.21 | 237.73 | -123.80 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 7.86 | 124.31 | 3,379.90 | -169.92 | 249.03 | -129.69 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 7.86 | 124.31 | 3,478.96 | -177.63 | 260.33 | -135.57 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 7.86 | 124.31 | 3,578.02 | -185.34 | 271.63 | -141.46 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 7.86 | 124.31 | 3,677.08 | -193.05 | 282.93 | -147.34 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 7.86 | 124.31 | 3,776.14 | -200.76 | 294.23 | -153.23 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 7.86 | 124.31 | 3,875.20 | -208.47 | 305.53 | -159.11 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 7.86 | 124.31 | 3,974.26 | -216.18 | 316.83 | -165.00 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 7.86 | 124.31 | 4,073.32 | -223.89 | 328.13 | -170.88 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 7.86 | 124.31 | 4,172.38 | -231.60 | 339.43 | -176.77 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 7.86 | 124.31 | 4,271.44 | -239.31 | 350.73 | -182.65 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 7.86 | 124.31 | 4,370.50 | -247.02 | 362.03 | -188.54 | 0.00 | 0.00 | 0.00 |
| 4,415.65 | 7.86 | 124.31 | 4,386.00 | -248.23 | 363.80 | -189.46 | 0.00 | 0.00 | 0.00 |
| SUSSEX | | | | | | | | | |

| | | | |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
| Database: | edm5000p | Local Co-ordinate Reference: | Well BARCLAY 27N-27HZ |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | 17' RKB + 4956' GL @ 4973.00ft |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | 17' RKB + 4956' GL @ 4973.00ft |
| Site: | WELD_BARCLAY 15-27 PAD | North Reference: | True |
| Well: | BARCLAY 27N-27HZ | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | BARCLAY 27N-27HZ | | |
| Design: | BARCLAY 27N-27HZ (wp01) | | |

| Planned Survey | | | | | | | | | |
|---|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 4,500.00 | 7.86 | 124.31 | 4,469.56 | -254.73 | 373.33 | -194.42 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 7.86 | 124.31 | 4,568.62 | -262.44 | 384.63 | -200.31 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 7.86 | 124.31 | 4,667.68 | -270.15 | 395.93 | -206.19 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 7.86 | 124.31 | 4,766.74 | -277.86 | 407.23 | -212.08 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 7.86 | 124.31 | 4,865.80 | -285.57 | 418.53 | -217.96 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 7.86 | 124.31 | 4,964.86 | -293.28 | 429.83 | -223.85 | 0.00 | 0.00 | 0.00 |
| 5,063.74 | 7.86 | 124.31 | 5,028.00 | -298.20 | 437.03 | -227.60 | 0.00 | 0.00 | 0.00 |
| SHANNON | | | | | | | | | |
| 5,100.00 | 7.86 | 124.31 | 5,063.92 | -300.99 | 441.13 | -229.73 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 7.86 | 124.31 | 5,162.98 | -308.70 | 452.43 | -235.62 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 7.86 | 124.31 | 5,262.04 | -316.41 | 463.73 | -241.50 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 7.86 | 124.31 | 5,361.10 | -324.13 | 475.03 | -247.39 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 7.86 | 124.31 | 5,460.16 | -331.84 | 486.33 | -253.27 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 7.86 | 124.31 | 5,559.22 | -339.55 | 497.63 | -259.16 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 7.86 | 124.31 | 5,658.28 | -347.26 | 508.93 | -265.04 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 7.86 | 124.31 | 5,757.34 | -354.97 | 520.23 | -270.93 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 7.86 | 124.31 | 5,856.40 | -362.68 | 531.53 | -276.81 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 7.86 | 124.31 | 5,955.46 | -370.39 | 542.83 | -282.70 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 7.86 | 124.31 | 6,054.52 | -378.10 | 554.13 | -288.58 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 7.86 | 124.31 | 6,153.58 | -385.81 | 565.43 | -294.47 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 7.86 | 124.31 | 6,252.64 | -393.52 | 576.73 | -300.35 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 7.86 | 124.31 | 6,351.70 | -401.23 | 588.03 | -306.23 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 7.86 | 124.31 | 6,450.76 | -408.94 | 599.33 | -312.12 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 7.86 | 124.31 | 6,549.82 | -416.65 | 610.63 | -318.00 | 0.00 | 0.00 | 0.00 |
| 6,600.96 | 7.86 | 124.31 | 6,550.77 | -416.72 | 610.74 | -318.06 | 0.00 | 0.00 | 0.00 |
| Start DLS 10.00 TFO -124.12 | | | | | | | | | |
| 6,700.00 | 8.49 | 49.70 | 6,649.04 | -415.81 | 621.94 | -315.44 | 10.00 | 0.64 | -75.33 |
| 6,800.00 | 16.75 | 22.18 | 6,746.62 | -397.64 | 633.04 | -295.78 | 10.00 | 8.26 | -27.51 |
| 6,900.00 | 26.24 | 13.31 | 6,839.58 | -362.69 | 643.60 | -259.63 | 10.00 | 9.48 | -8.88 |
| 7,000.00 | 35.99 | 8.97 | 6,925.10 | -312.03 | 653.29 | -208.08 | 10.00 | 9.75 | -4.34 |
| 7,100.00 | 45.84 | 6.29 | 7,000.59 | -247.19 | 661.82 | -142.70 | 10.00 | 9.85 | -2.67 |
| 7,153.44 | 51.12 | 5.21 | 7,036.00 | -207.40 | 665.81 | -102.76 | 10.00 | 9.88 | -2.03 |
| SHARON SPRINGS | | | | | | | | | |
| 7,200.00 | 55.73 | 4.39 | 7,063.74 | -170.15 | 668.93 | -65.47 | 10.00 | 9.90 | -1.76 |
| 7,296.05 | 65.25 | 2.95 | 7,111.00 | -86.83 | 674.23 | 17.67 | 10.00 | 9.91 | -1.50 |
| NIOBRARA | | | | | | | | | |
| 7,300.00 | 65.64 | 2.89 | 7,112.64 | -83.24 | 674.41 | 21.25 | 10.00 | 9.92 | -1.37 |
| 7,400.00 | 75.57 | 1.62 | 7,145.81 | 10.90 | 678.09 | 114.83 | 10.00 | 9.93 | -1.28 |
| 7,500.00 | 85.50 | 0.45 | 7,162.23 | 109.39 | 679.85 | 212.43 | 10.00 | 9.93 | -1.17 |
| 7,543.65 | 89.84 | 359.95 | 7,164.00 | 153.00 | 680.00 | 255.54 | 10.00 | 9.94 | -1.13 |
| NIOBRARA B CHALK TL - 7" | | | | | | | | | |
| 7,544.13 | 89.84 | 359.95 | 7,164.00 | 153.47 | 680.00 | 256.01 | 1.00 | -0.96 | -0.28 |
| Start 4202.66 hold at 7544.13 MD | | | | | | | | | |
| 7,600.00 | 89.84 | 359.95 | 7,164.16 | 209.35 | 679.95 | 311.22 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 89.84 | 359.95 | 7,164.45 | 309.35 | 679.87 | 410.02 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 89.84 | 359.95 | 7,164.73 | 409.35 | 679.79 | 508.82 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 89.84 | 359.95 | 7,165.02 | 509.35 | 679.71 | 607.62 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 89.84 | 359.95 | 7,165.30 | 609.35 | 679.62 | 706.43 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 89.84 | 359.95 | 7,165.59 | 709.35 | 679.54 | 805.23 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 89.84 | 359.95 | 7,165.87 | 809.34 | 679.46 | 904.03 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 89.84 | 359.95 | 7,166.16 | 909.34 | 679.37 | 1,002.83 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 89.84 | 359.95 | 7,166.45 | 1,009.34 | 679.29 | 1,101.63 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 89.84 | 359.95 | 7,166.73 | 1,109.34 | 679.21 | 1,200.44 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
| Database: | edm5000p | Local Co-ordinate Reference: | Well BARCLAY 27N-27HZ |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | 17' RKB + 4956' GL @ 4973.00ft |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | 17' RKB + 4956' GL @ 4973.00ft |
| Site: | WELD_BARCLAY 15-27 PAD | North Reference: | True |
| Well: | BARCLAY 27N-27HZ | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | BARCLAY 27N-27HZ | | |
| Design: | BARCLAY 27N-27HZ (wp01) | | |

| Planned Survey | | | | | | | | | |
|---------------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 8,600.00 | 89.84 | 359.95 | 7,167.02 | 1,209.34 | 679.13 | 1,299.24 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 89.84 | 359.95 | 7,167.30 | 1,309.34 | 679.04 | 1,398.04 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 89.84 | 359.95 | 7,167.59 | 1,409.34 | 678.96 | 1,496.84 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 89.84 | 359.95 | 7,167.87 | 1,509.34 | 678.88 | 1,595.65 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 89.84 | 359.95 | 7,168.16 | 1,609.34 | 678.79 | 1,694.45 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 89.84 | 359.95 | 7,168.44 | 1,709.34 | 678.71 | 1,793.25 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 89.84 | 359.95 | 7,168.73 | 1,809.34 | 678.63 | 1,892.05 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 89.84 | 359.95 | 7,169.01 | 1,909.34 | 678.55 | 1,990.85 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 89.84 | 359.95 | 7,169.30 | 2,009.34 | 678.46 | 2,089.66 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 89.84 | 359.95 | 7,169.59 | 2,109.34 | 678.38 | 2,188.46 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 89.84 | 359.95 | 7,169.87 | 2,209.34 | 678.30 | 2,287.26 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 89.84 | 359.95 | 7,170.16 | 2,309.34 | 678.21 | 2,386.06 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 89.84 | 359.95 | 7,170.44 | 2,409.34 | 678.13 | 2,484.87 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 89.84 | 359.95 | 7,170.73 | 2,509.34 | 678.05 | 2,583.67 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 89.84 | 359.95 | 7,171.01 | 2,609.34 | 677.97 | 2,682.47 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 89.84 | 359.95 | 7,171.30 | 2,709.34 | 677.88 | 2,781.27 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 89.84 | 359.95 | 7,171.58 | 2,809.34 | 677.80 | 2,880.08 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 89.84 | 359.95 | 7,171.87 | 2,909.34 | 677.72 | 2,978.88 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 89.84 | 359.95 | 7,172.16 | 3,009.34 | 677.64 | 3,077.68 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 89.84 | 359.95 | 7,172.44 | 3,109.33 | 677.55 | 3,176.48 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 89.84 | 359.95 | 7,172.73 | 3,209.33 | 677.47 | 3,275.28 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 89.84 | 359.95 | 7,173.01 | 3,309.33 | 677.39 | 3,374.09 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 89.84 | 359.95 | 7,173.30 | 3,409.33 | 677.30 | 3,472.89 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 89.84 | 359.95 | 7,173.58 | 3,509.33 | 677.22 | 3,571.69 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 89.84 | 359.95 | 7,173.87 | 3,609.33 | 677.14 | 3,670.49 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 89.84 | 359.95 | 7,174.15 | 3,709.33 | 677.06 | 3,769.30 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 89.84 | 359.95 | 7,174.44 | 3,809.33 | 676.97 | 3,868.10 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 89.84 | 359.95 | 7,174.72 | 3,909.33 | 676.89 | 3,966.90 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 89.84 | 359.95 | 7,175.01 | 4,009.33 | 676.81 | 4,065.70 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 89.84 | 359.95 | 7,175.30 | 4,109.33 | 676.72 | 4,164.51 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 89.84 | 359.95 | 7,175.58 | 4,209.33 | 676.64 | 4,263.31 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 89.84 | 359.95 | 7,175.87 | 4,309.33 | 676.56 | 4,362.11 | 0.00 | 0.00 | 0.00 |
| 11,746.78 | 89.84 | 359.95 | 7,176.00 | 4,356.11 | 676.52 | 4,408.33 | 0.00 | 0.00 | 0.00 |
| TD at 11746.78 - BARCLAY 27N-27HZ BHL | | | | | | | | | |

| Design Targets | | | | | | | | | |
|---------------------------|---------------|--------------|----------|------------|------------|---------------|--------------|-----------|-------------|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude | Longitude |
| BARCLAY 27N-27HZ | 0.00 | 0.00 | 7,176.00 | 4,356.11 | 676.52 | 1,317,357.92 | 3,207,258.95 | 40.202164 | -104.757987 |
| - hit/miss target | | | | | | | | | |
| - Shape | | | | | | | | | |
| - plan hits target center | | | | | | | | | |
| - Point | | | | | | | | | |

| Casing Points | | | | | |
|---------------------|---------------------|--------|---------------------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (") | Hole Diameter (") | |
| 850.00 | 850.00 | 9 5/8" | 9-5/8 | 12-1/4 | |
| 7,543.65 | 7,164.00 | 7" | 7 | 8-3/4 | |

| | | | |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
| Database: | edm5000p | Local Co-ordinate Reference: | Well BARCLAY 27N-27HZ |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | 17' RKB + 4956' GL @ 4973.00ft |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | 17' RKB + 4956' GL @ 4973.00ft |
| Site: | WELD_BARCLAY 15-27 PAD | North Reference: | True |
| Well: | BARCLAY 27N-27HZ | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | BARCLAY 27N-27HZ | | |
| Design: | BARCLAY 27N-27HZ (wp01) | | |

| Formations | | | | | | |
|---------------------|---------------------|---------------------|-----------|---------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) | |
| 3,226.47 | 3,208.00 | PARKMAN | | 0.00 | | |
| 4,415.65 | 4,386.00 | SUSSEX | | 0.00 | | |
| 5,063.74 | 5,028.00 | SHANNON | | 0.00 | | |
| 7,153.44 | 7,036.00 | SHARON SPRINGS | | 0.00 | | |
| 7,296.05 | 7,111.00 | NIOBRARA | | 0.00 | | |
| 7,543.65 | 7,164.00 | NIOBRARA B CHALK TL | | 0.00 | | |

| Plan Annotations | | | | | |
|---------------------|---------------------|-------------------|------------|----------------------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | | |
| | | +N/-S (ft) | +E/-W (ft) | Comment | |
| 1,000.00 | 1,000.00 | 0.00 | 0.00 | Start Build 2.00 | |
| 1,393.14 | 1,391.90 | -15.18 | 22.25 | Start 5207.82 hold at 1393.14 MD | |
| 6,600.96 | 6,550.77 | -416.72 | 610.74 | Start DLS 10.00 TFO -124.12 | |
| 7,544.13 | 7,164.00 | 153.47 | 680.00 | Start 4202.66 hold at 7544.13 MD | |
| 11,746.78 | 7,176.00 | 4,356.11 | 676.52 | TD at 11746.78 | |