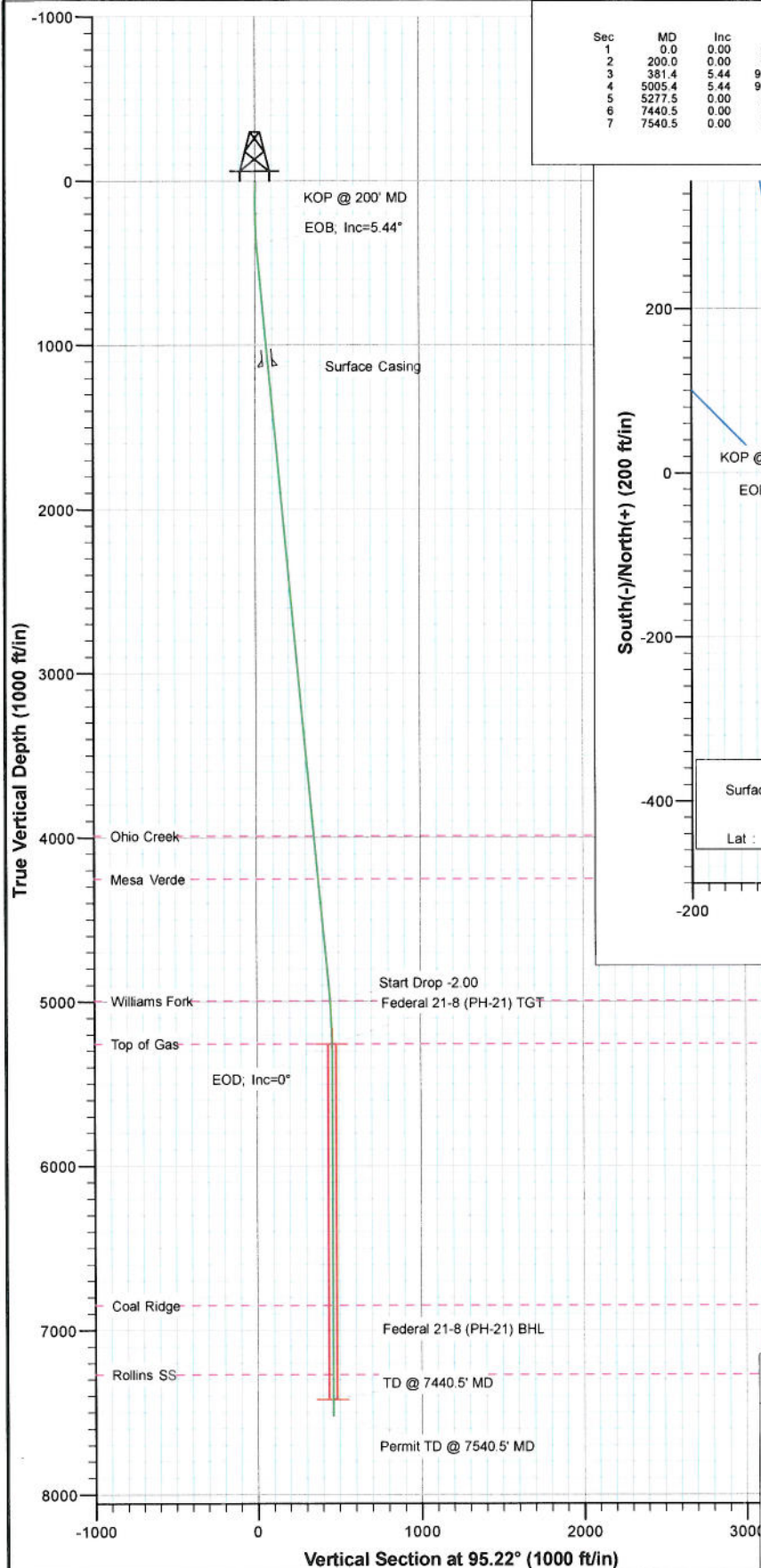
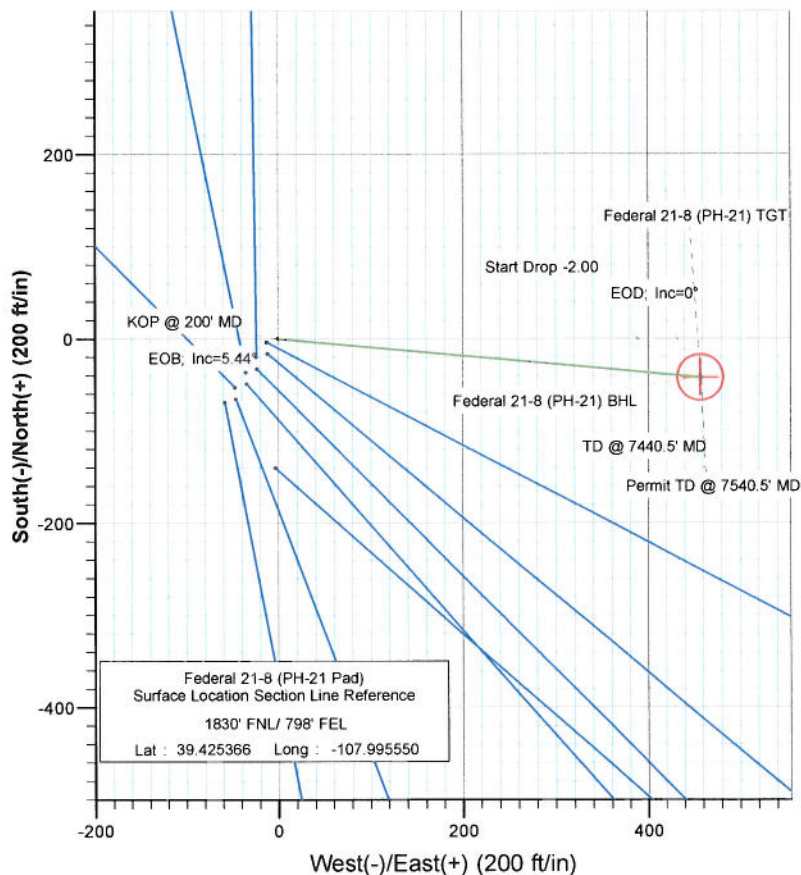




Project: S. Piceance (Parachute)  
 Site: SENE S21-T7S-R95W (PH-21 Pad)  
 Well: Federal 21-8 (PH-21 Pad)  
 Wellbore: DD  
 Plan: Plan #1



| SECTION DETAILS |        |      |       |        |       |       |      |        |       |                          |
|-----------------|--------|------|-------|--------|-------|-------|------|--------|-------|--------------------------|
| Sec             | MD     | Inc  | Azi   | TVD    | +N/-S | +E/-W | Dleg | TFace  | Vsect | Target                   |
| 1               | 0.0    | 0.00 | 0.00  | 0.0    | 0.0   | 0.0   | 0.00 | 0.00   | 0.0   |                          |
| 2               | 200.0  | 0.00 | 0.00  | 200.0  | 0.0   | 0.0   | 0.00 | 0.00   | 0.0   |                          |
| 3               | 381.4  | 5.44 | 95.22 | 381.1  | -0.8  | 8.6   | 3.00 | 95.22  | 8.6   |                          |
| 4               | 5005.4 | 5.44 | 95.22 | 4984.3 | -40.7 | 445.3 | 0.00 | 0.00   | 447.2 | Federal 21-8 (PH-21) TGT |
| 5               | 5277.5 | 0.00 | 0.00  | 5256.0 | -41.9 | 458.2 | 2.00 | 180.00 | 460.1 | Federal 21-8 (PH-21) BHL |
| 6               | 7440.5 | 0.00 | 0.00  | 7419.0 | -41.9 | 458.2 | 0.00 | 0.00   | 460.1 |                          |
| 7               | 7540.5 | 0.00 | 0.00  | 7519.0 | -41.9 | 458.2 | 0.00 | 0.00   | 460.1 |                          |



| FORMATION TOP DETAILS |        |               |
|-----------------------|--------|---------------|
| TVDPath               | MDPath | Formation     |
| 3990.0                | 4006.6 | Ohio Creek    |
| 4253.0                | 4270.8 | Mesa Verde    |
| 4994.0                | 5015.2 | Williams Fork |
| 5256.0                | 5277.5 | Top of Gas    |
| 6848.0                | 6869.5 | Coal Ridge    |
| 7269.0                | 7290.5 | Rollins SS    |



Azimuths to True North  
 Magnetic North: 10.39°

Magnetic Field  
 Strength: 52248.1nT  
 Dip Angle: 65.69°  
 Date: 1/24/2011  
 Model: IGRF2010

| Plan #1<br>Federal 21-8 (PH-21 Pad)<br>115XXX; BH   |             |             |       |
|---|-------------|-------------|-------|
| KBE @ 6342.0ft (Original Well Elev)<br>North American Datum 1983<br>Well Federal 21-8 (PH-21 Pad), True North |             |             |       |
| Target  | Azimuth     | Origin Type | N/S   |
| Federal 21-8 (PH-21) BHL  | 95.22       | Slot        | 0.0   |
| Name  | TVD         | +N/-S       | +E/-W |
| Federal 21-8 (PH-21) TGT  | 5256.0      | -41.9       | 458.2 |
| Federal 21-8 (PH-21) BHL  | 7419.0      | -41.9       | 458.2 |
| Latitude  | Longitude   |             |       |
| 39.425251   | -107.993928 |             |       |
| 39.425251   | -107.993928 |             |       |

# Cathedral Energy Services

## Planning Report

**Database:** EDM 5000.1 US Multi Users DB  
**Company:** EnCana Oil & Gas (USA) Inc  
**Project:** S. Piceance (Parachute)  
**Site:** SENE S21-T7S-R95W (PH-21 Pad)  
**Well:** Federal 21-8 (PH-21 Pad)  
**Wellbore:** DD  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Federal 21-8 (PH-21 Pad)  
**TVD Reference:** KBE @ 6342.0ft (Original Well Elev)  
**MD Reference:** KBE @ 6342.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

|                    |  |                      |                |
|--------------------|--|----------------------|----------------|
| <b>Project</b>     | S. Piceance (Parachute), Garfield County, CO |                      |                |
| <b>Map System:</b> | US State Plane 1983                          | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | North American Datum 1983                    |                      |                |
| <b>Map Zone:</b>   | Colorado Central Zone                        |                      |                |

|                              |                               |                          |                 |
|------------------------------|-------------------------------|--------------------------|-----------------|
| <b>Site</b>                  | SENE S21-T7S-R95W (PH-21 Pad) |                          |                 |
| <b>Site Position:</b>        |                               | <b>Northing:</b>         | 1,589,456.28 ft |
| <b>From:</b>                 | Lat/Long                      | <b>Easting:</b>          | 2,295,105.61 ft |
| <b>Position Uncertainty:</b> | 0.0 ft                        | <b>Slot Radius:</b>      | 13.200 in       |
|                              |                               | <b>Latitude:</b>         | 39.425231       |
|                              |                               | <b>Longitude:</b>        | -107.995671     |
|                              |                               | <b>Grid Convergence:</b> | -1.57 °         |

|                             |                          |                            |                                  |
|-----------------------------|--------------------------|----------------------------|----------------------------------|
| <b>Well</b>                 | Federal 21-8 (PH-21 Pad) |                            |                                  |
| <b>Well Position</b>        | +N/-S                    | 0.0 ft                     | <b>Northing:</b> 1,589,504.48 ft |
|                             | +E/-W                    | 0.0 ft                     | <b>Easting:</b> 2,295,141.13 ft  |
| <b>Position Uncertainty</b> | 0.0 ft                   | <b>Wellhead Elevation:</b> | ft                               |
|                             |                          | <b>Latitude:</b>           | 39.425366                        |
|                             |                          | <b>Longitude:</b>          | -107.995550                      |
|                             |                          | <b>Ground Level:</b>       | 6,320.0 ft                       |

|                  |                   |                    |                    |
|------------------|-------------------|--------------------|--------------------|
| <b>Wellbore</b>  | DD                |                    |                    |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination</b> |
|                  | IGRF2010          | 1/24/2011          | (°)                |
|                  |                   |                    | 10.39              |
|                  |                   |                    | Dip Angle          |
|                  |                   |                    | (°)                |
|                  |                   |                    | 65.69              |
|                  |                   |                    | Field Strength     |
|                  |                   |                    | (nT)               |
|                  |                   |                    | 52,248             |

|                          |                         |              |                          |
|--------------------------|-------------------------|--------------|--------------------------|
| <b>Design</b>            | Plan #1                 |              |                          |
| <b>Audit Notes:</b>      |                         |              |                          |
| <b>Version:</b>          | <b>Phase:</b>           | PLAN         | <b>Tie On Depth:</b> 0.0 |
| <b>Vertical Section:</b> | <b>Depth From (TVD)</b> | <b>+N/-S</b> | <b>+E/-W</b>             |
|                          | (ft)                    | (ft)         | (ft)                     |
|                          | 0.0                     | 0.0          | 0.0                      |
|                          |                         |              | <b>Direction</b>         |
|                          |                         |              | (°)                      |
|                          |                         |              | 95.22                    |

| 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               |
| 0.0                 | 0.00            | 0.00        | 0.0                 | 0.0        | 0.0        | 0.00                  | 0.00                 | 0.00                | 0.00    |                      |
| 200.0               | 0.00            | 0.00        | 200.0               | 0.0        | 0.0        | 0.00                  | 0.00                 | 0.00                | 0.00    |                      |
| 381.4               | 5.44            | 95.22       | 381.1               | -0.8       | 8.6        | 3.00                  | 3.00                 | 0.00                | 95.22   |                      |
| 5,005.4             | 5.44            | 95.22       | 4,984.3             | -40.7      | 445.3      | 0.00                  | 0.00                 | 0.00                | 0.00    |                      |
| 5,277.5             | 0.00            | 0.00        | 5,256.0             | -41.9      | 458.2      | 2.00                  | -2.00                | 0.00                | 180.00  | Federal 21-8 (PH-21) |
| 7,440.5             | 0.00            | 0.00        | 7,419.0             | -41.9      | 458.2      | 0.00                  | 0.00                 | 0.00                | 0.00    | Federal 21-8 (PH-21) |
| 7,540.5             | 0.00            | 0.00        | 7,519.0             | -41.9      | 458.2      | 0.00                  | 0.00                 | 0.00                | 0.00    |                      |



# Cathedral Energy Services

## Planning Report

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 Project: S. Piceance (Parachute)  
 Site: SENE S21-T7S-R95W (PH-21 Pad)  
 Well: Federal 21-8 (PH-21 Pad)  
 Wellbore: DD  
 Design: Plan #1

Local Co-ordinate Reference: Well Federal 21-8 (PH-21 Pad)  
 TVD Reference: KBE @ 6342.0ft (Original Well Elev)  
 MD Reference: KBE @ 6342.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

### 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) | Comments / Formations |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|-----------------------|
| 0.0                 | 0.00            | 0.00        | 0.0                 | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 |                       |
| 100.0               | 0.00            | 0.00        | 100.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 |                       |
| 200.0               | 0.00            | 0.00        | 200.0               | 0.0        | 0.0        | 0.0                   | 0.00                  | 0.00                 | KOP @ 200' MD         |
| 300.0               | 3.00            | 95.22       | 300.0               | -0.2       | 2.6        | 2.6                   | 3.00                  | 3.00                 |                       |
| 381.4               | 5.44            | 95.22       | 381.1               | -0.8       | 8.6        | 8.6                   | 3.00                  | 3.00                 | EOB; Inc=5.44°        |
| 400.0               | 5.44            | 95.22       | 399.6               | -0.9       | 10.3       | 10.4                  | 0.00                  | 0.00                 |                       |
| 500.0               | 5.44            | 95.22       | 499.2               | -1.8       | 19.8       | 19.9                  | 0.00                  | 0.00                 |                       |
| 600.0               | 5.44            | 95.22       | 598.7               | -2.7       | 29.2       | 29.3                  | 0.00                  | 0.00                 |                       |
| 700.0               | 5.44            | 95.22       | 698.3               | -3.5       | 38.7       | 38.8                  | 0.00                  | 0.00                 |                       |
| 800.0               | 5.44            | 95.22       | 797.8               | -4.4       | 48.1       | 48.3                  | 0.00                  | 0.00                 |                       |
| 900.0               | 5.44            | 95.22       | 897.4               | -5.3       | 57.6       | 57.8                  | 0.00                  | 0.00                 |                       |
| 1,000.0             | 5.44            | 95.22       | 996.9               | -6.1       | 67.0       | 67.3                  | 0.00                  | 0.00                 |                       |
| 1,100.0             | 5.44            | 95.22       | 1,096.5             | -7.0       | 76.4       | 76.8                  | 0.00                  | 0.00                 |                       |
| 1,131.0             | 5.44            | 95.22       | 1,127.3             | -7.3       | 79.4       | 79.7                  | 0.00                  | 0.00                 | Surface Casing        |
| 1,200.0             | 5.44            | 95.22       | 1,196.0             | -7.8       | 85.9       | 86.3                  | 0.00                  | 0.00                 |                       |
| 1,300.0             | 5.44            | 95.22       | 1,295.6             | -8.7       | 95.3       | 95.7                  | 0.00                  | 0.00                 |                       |
| 1,400.0             | 5.44            | 95.22       | 1,395.1             | -9.6       | 104.8      | 105.2                 | 0.00                  | 0.00                 |                       |
| 1,500.0             | 5.44            | 95.22       | 1,494.7             | -10.4      | 114.2      | 114.7                 | 0.00                  | 0.00                 |                       |
| 1,600.0             | 5.44            | 95.22       | 1,594.2             | -11.3      | 123.7      | 124.2                 | 0.00                  | 0.00                 |                       |
| 1,700.0             | 5.44            | 95.22       | 1,693.8             | -12.2      | 133.1      | 133.7                 | 0.00                  | 0.00                 |                       |
| 1,800.0             | 5.44            | 95.22       | 1,793.3             | -13.0      | 142.6      | 143.2                 | 0.00                  | 0.00                 |                       |
| 1,900.0             | 5.44            | 95.22       | 1,892.9             | -13.9      | 152.0      | 152.6                 | 0.00                  | 0.00                 |                       |
| 2,000.0             | 5.44            | 95.22       | 1,992.4             | -14.8      | 161.5      | 162.1                 | 0.00                  | 0.00                 |                       |
| 2,100.0             | 5.44            | 95.22       | 2,092.0             | -15.6      | 170.9      | 171.6                 | 0.00                  | 0.00                 |                       |
| 2,200.0             | 5.44            | 95.22       | 2,191.5             | -16.5      | 180.3      | 181.1                 | 0.00                  | 0.00                 |                       |
| 2,300.0             | 5.44            | 95.22       | 2,291.1             | -17.3      | 189.8      | 190.6                 | 0.00                  | 0.00                 |                       |
| 2,400.0             | 5.44            | 95.22       | 2,390.6             | -18.2      | 199.2      | 200.1                 | 0.00                  | 0.00                 |                       |
| 2,500.0             | 5.44            | 95.22       | 2,490.2             | -19.1      | 208.7      | 209.6                 | 0.00                  | 0.00                 |                       |
| 2,600.0             | 5.44            | 95.22       | 2,589.7             | -19.9      | 218.1      | 219.0                 | 0.00                  | 0.00                 |                       |
| 2,700.0             | 5.44            | 95.22       | 2,689.3             | -20.8      | 227.6      | 228.5                 | 0.00                  | 0.00                 |                       |
| 2,800.0             | 5.44            | 95.22       | 2,788.8             | -21.7      | 237.0      | 238.0                 | 0.00                  | 0.00                 |                       |
| 2,900.0             | 5.44            | 95.22       | 2,888.4             | -22.5      | 246.5      | 247.5                 | 0.00                  | 0.00                 |                       |
| 3,000.0             | 5.44            | 95.22       | 2,987.9             | -23.4      | 255.9      | 257.0                 | 0.00                  | 0.00                 |                       |
| 3,100.0             | 5.44            | 95.22       | 3,087.5             | -24.3      | 265.4      | 266.5                 | 0.00                  | 0.00                 |                       |
| 3,200.0             | 5.44            | 95.22       | 3,187.0             | -25.1      | 274.8      | 275.9                 | 0.00                  | 0.00                 |                       |
| 3,300.0             | 5.44            | 95.22       | 3,286.6             | -26.0      | 284.2      | 285.4                 | 0.00                  | 0.00                 |                       |
| 3,400.0             | 5.44            | 95.22       | 3,386.1             | -26.8      | 293.7      | 294.9                 | 0.00                  | 0.00                 |                       |
| 3,500.0             | 5.44            | 95.22       | 3,485.7             | -27.7      | 303.1      | 304.4                 | 0.00                  | 0.00                 |                       |
| 3,600.0             | 5.44            | 95.22       | 3,585.2             | -28.6      | 312.6      | 313.9                 | 0.00                  | 0.00                 |                       |
| 3,700.0             | 5.44            | 95.22       | 3,684.8             | -29.4      | 322.0      | 323.4                 | 0.00                  | 0.00                 |                       |
| 3,800.0             | 5.44            | 95.22       | 3,784.3             | -30.3      | 331.5      | 332.9                 | 0.00                  | 0.00                 |                       |
| 3,900.0             | 5.44            | 95.22       | 3,883.9             | -31.2      | 340.9      | 342.3                 | 0.00                  | 0.00                 |                       |
| 4,000.0             | 5.44            | 95.22       | 3,983.4             | -32.0      | 350.4      | 351.8                 | 0.00                  | 0.00                 |                       |
| 4,006.6             | 5.44            | 95.22       | 3,990.0             | -32.1      | 351.0      | 352.5                 | 0.00                  | 0.00                 | Ohio Creek            |
| 4,100.0             | 5.44            | 95.22       | 4,083.0             | -32.9      | 359.8      | 361.3                 | 0.00                  | 0.00                 |                       |
| 4,200.0             | 5.44            | 95.22       | 4,182.5             | -33.7      | 369.3      | 370.8                 | 0.00                  | 0.00                 |                       |
| 4,270.8             | 5.44            | 95.22       | 4,253.0             | -34.4      | 375.9      | 377.5                 | 0.00                  | 0.00                 | Mesa Verde            |
| 4,300.0             | 5.44            | 95.22       | 4,282.1             | -34.6      | 378.7      | 380.3                 | 0.00                  | 0.00                 |                       |
| 4,400.0             | 5.44            | 95.22       | 4,381.6             | -35.5      | 388.1      | 389.8                 | 0.00                  | 0.00                 |                       |
| 4,500.0             | 5.44            | 95.22       | 4,481.2             | -36.3      | 397.6      | 399.2                 | 0.00                  | 0.00                 |                       |
| 4,600.0             | 5.44            | 95.22       | 4,580.7             | -37.2      | 407.0      | 408.7                 | 0.00                  | 0.00                 |                       |
| 4,700.0             | 5.44            | 95.22       | 4,680.3             | -38.1      | 416.5      | 418.2                 | 0.00                  | 0.00                 |                       |

# Cathedral Energy Services

## Planning Report

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 Design: Plan #1

Local Co-ordinate Reference: Well Federal 21-8 (PH-21 Pad)  
 TVD Reference: KBE @ 6342.0ft (Original Well Elev)  
 MD Reference: KBE @ 6342.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

### 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) | Comments / Formations                          |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|--|
| 4,800.0             | 5.44            | 95.22       | 4,779.8             | -38.9      | 425.9      | 427.7                 | 0.00                  | 0.00                 |  |
| 4,900.0             | 5.44            | 95.22       | 4,879.4             | -39.8      | 435.4      | 437.2                 | 0.00                  | 0.00                 |  |
| 5,000.0             | 5.44            | 95.22       | 4,978.9             | -40.7      | 444.8      | 446.7                 | 0.00                  | 0.00                 |  |
| 5,005.4             | 5.44            | 95.22       | 4,984.3             | -40.7      | 445.3      | 447.2                 | 0.00                  | 0.00                 | Start Drop -2.00                               |
| 5,015.2             | 5.25            | 95.22       | 4,994.0             | -40.8      | 446.2      | 448.1                 | 2.00                  | -2.00                | Williams Fork                                  |
| 5,100.0             | 3.55            | 95.22       | 5,078.6             | -41.4      | 452.7      | 454.6                 | 2.00                  | -2.00                |  |
| 5,200.0             | 1.55            | 95.22       | 5,178.5             | -41.8      | 457.1      | 459.1                 | 2.00                  | -2.00                |  |
| 5,277.5             | 0.00            | 0.00        | 5,256.0             | -41.9      | 458.2      | 460.1                 | 2.00                  | -2.00                | EOD; Inc=0° - Top of Gas - Federal 21-8 (PH-2) |
| 5,300.0             | 0.00            | 0.00        | 5,278.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 5,400.0             | 0.00            | 0.00        | 5,378.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 5,500.0             | 0.00            | 0.00        | 5,478.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 5,600.0             | 0.00            | 0.00        | 5,578.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 5,700.0             | 0.00            | 0.00        | 5,678.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 5,800.0             | 0.00            | 0.00        | 5,778.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 5,900.0             | 0.00            | 0.00        | 5,878.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 6,000.0             | 0.00            | 0.00        | 5,978.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 6,100.0             | 0.00            | 0.00        | 6,078.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 6,200.0             | 0.00            | 0.00        | 6,178.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 6,300.0             | 0.00            | 0.00        | 6,278.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 6,400.0             | 0.00            | 0.00        | 6,378.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 6,500.0             | 0.00            | 0.00        | 6,478.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 6,600.0             | 0.00            | 0.00        | 6,578.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 6,700.0             | 0.00            | 0.00        | 6,678.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 6,800.0             | 0.00            | 0.00        | 6,778.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 6,869.5             | 0.00            | 0.00        | 6,848.0             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 | Coal Ridge                                     |
| 6,900.0             | 0.00            | 0.00        | 6,878.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 7,000.0             | 0.00            | 0.00        | 6,978.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 7,100.0             | 0.00            | 0.00        | 7,078.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 7,200.0             | 0.00            | 0.00        | 7,178.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 7,290.5             | 0.00            | 0.00        | 7,269.0             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 | Rollins SS                                     |
| 7,300.0             | 0.00            | 0.00        | 7,278.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 7,400.0             | 0.00            | 0.00        | 7,378.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 7,440.5             | 0.00            | 0.00        | 7,419.0             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 | TD @ 7440.5' MD - Federal 21-8 (PH-21) BHL     |
| 7,500.0             | 0.00            | 0.00        | 7,478.5             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 |  |
| 7,540.5             | 0.00            | 0.00        | 7,519.0             | -41.9      | 458.2      | 460.1                 | 0.00                  | 0.00                 | Permit TD @ 7540.5' MD                         |

### Targets

| Target Name               | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude  | Longitude   |
|---------------------------|---------------|--------------|----------|------------|------------|---------------|--------------|-----------|-------------|
| Federal 21-8 (PH-21) Bt   | 0.00          | 0.00         | 7,419.0  | -41.9      | 458.2      | 1,589,450.04  | 2,295,597.99 | 39.425251 | -107.993928 |
| - hit/miss target         |               |              |          |            |            |               |              |           |             |
| - plan hits target center |               |              |          |            |            |               |              |           |             |
| - Circle (radius 25.0)    |               |              |          |            |            |               |              |           |             |
| Federal 21-8 (PH-21) TC   | 0.00          | 0.00         | 5,256.0  | -41.9      | 458.2      | 1,589,450.04  | 2,295,597.99 | 39.425251 | -107.993928 |
| - hit/miss target         |               |              |          |            |            |               |              |           |             |
| - plan hits target center |               |              |          |            |            |               |              |           |             |
| - Circle (radius 25.0)    |               |              |          |            |            |               |              |           |             |

# Cathedral Energy Services

## Planning Report

**Database:** EDM 5000.1 US Multi Users DB  
**Company:** EnCana Oil & Gas (USA) Inc  
**Project:** S. Piceance (Parachute)  
**Site:** SENE S21-T7S-R95W (PH-21 Pad)  
**Well:** Federal 21-8 (PH-21 Pad)  
**Wellbore:** DD  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Federal 21-8 (PH-21 Pad)  
**TVD Reference:** KBE @ 6342.0ft (Original Well Elev)  
**MD Reference:** KBE @ 6342.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

### Casing Points

| Measured Depth (ft) | Vertical Depth (ft) | Name           | Casing Diameter (in) | Hole Diameter (in) |
|---------------------|---------------------|----------------|----------------------|--------------------|
| 1,131.0             | 1,127.3             | Surface Casing | 0.000                | 0.000              |

### Formations

| Measured Depth (ft) | Vertical Depth (ft) | Name          | Lithology | Dip (°) | Dip Direction (°) |
|---------------------|---------------------|---------------|-----------|---------|-------------------|
| 4,006.6             | 3,990.0             | Ohio Creek    |           | 0.00    |                   |
| 4,270.8             | 4,253.0             | Mesa Verde    |           | 0.00    |                   |
| 5,015.2             | 4,994.0             | Williams Fork |           | 0.00    |                   |
| 5,277.5             | 5,256.0             | Top of Gas    |           | 0.00    |                   |
| 6,869.5             | 6,848.0             | Coal Ridge    |           | 0.00    |                   |
| 7,290.5             | 7,269.0             | Rollins SS    |           | 0.00    |                   |

### Plan Annotations

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates |            | Comment                |
|---------------------|---------------------|-------------------|------------|------------------------|
|                     |                     | +N/-S (ft)        | +E/-W (ft) |                        |
| 200.0               | 200.0               | 0.0               | 0.0        | KOP @ 200' MD          |
| 381.4               | 381.1               | -0.8              | 8.6        | EOB; Inc=5.44°         |
| 5,005.4             | 4,984.3             | -40.7             | 445.3      | Start Drop -2.00       |
| 5,277.5             | 5,256.0             | -41.9             | 458.2      | EOD; Inc=0°            |
| 7,440.5             | 7,419.0             | -41.9             | 458.2      | TD @ 7440.5' MD        |
| 7,540.5             | 7,519.0             | -41.9             | 458.2      | Permit TD @ 7540.5' MD |