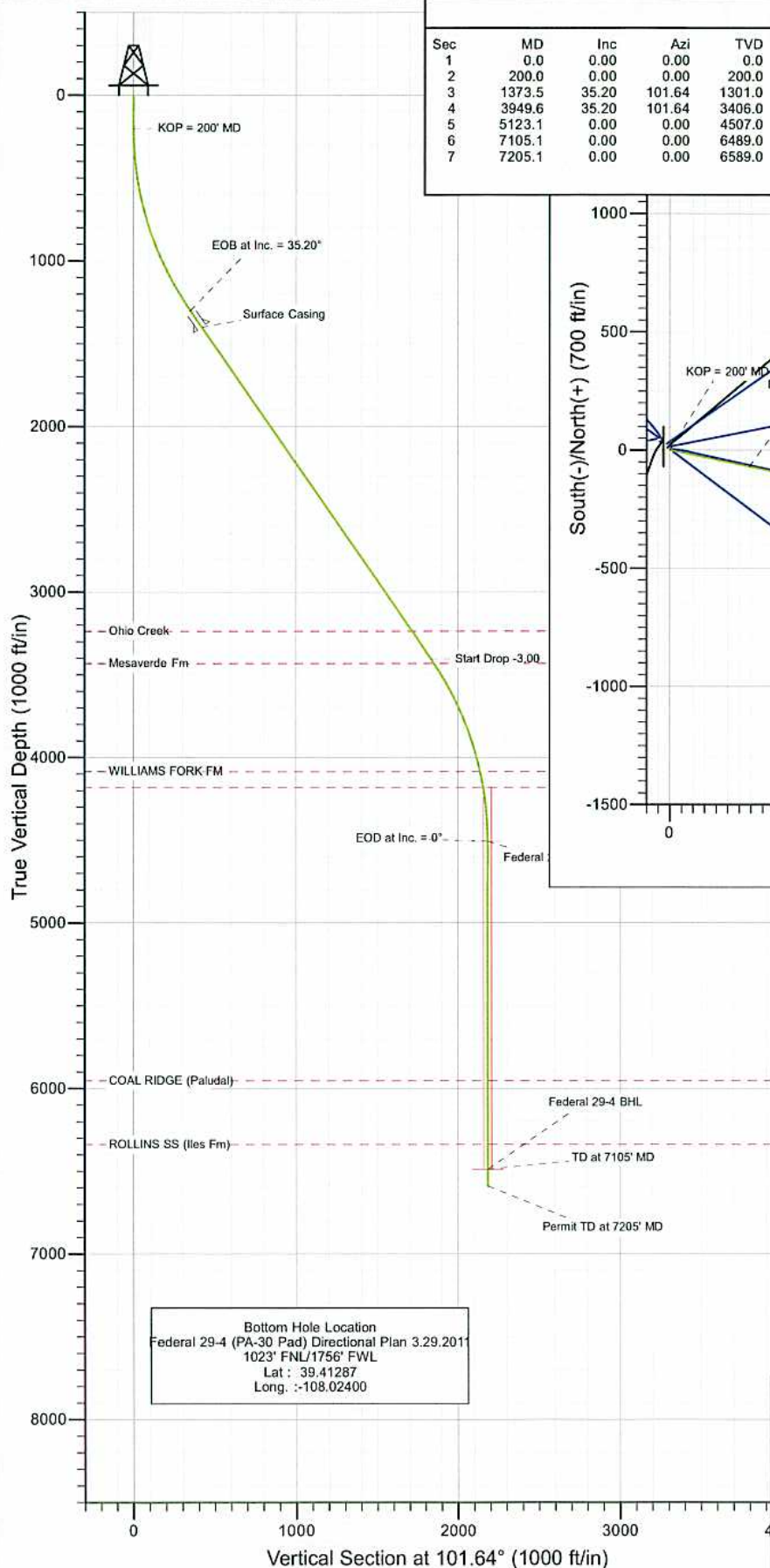
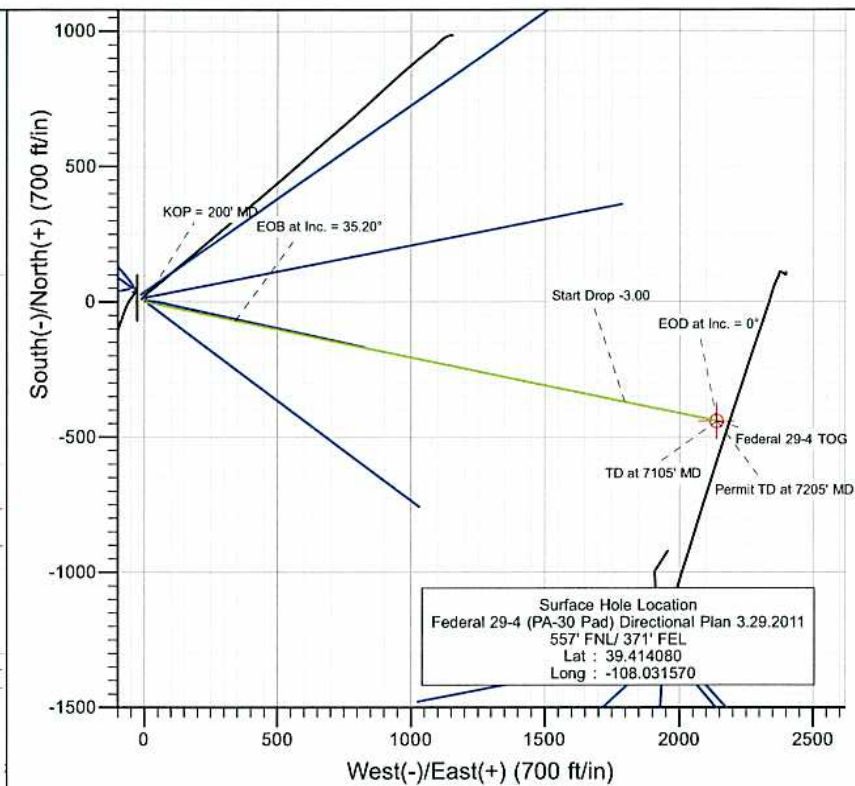




Project: S. Piceance (Parachute)  
 Site: SESE 19-7S-95W (PA-30 Pad)  
 Well: Federal 29-4 (PA-30 Pad) Directional Plan 3.29.2011  
 Wellbore: DD  
 Design: Plan #2



| 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               | 1373.5 | 35.20 | 101.64 | 1301.0 | -70.5  | 342.1  | 3.00 | 101.64 | 349.3  |                  |
| 4               | 3949.6 | 35.20 | 101.64 | 3406.0 | -370.1 | 1796.7 | 0.00 | 0.00   | 1834.4 |                  |
| 5               | 5123.1 | 0.00  | 0.00   | 4507.0 | -440.6 | 2138.8 | 3.00 | 180.00 | 2183.7 | Federal 29-4 TOG |
| 6               | 7105.1 | 0.00  | 0.00   | 6489.0 | -440.6 | 2138.8 | 0.00 | 0.00   | 2183.7 | Federal 29-4 BHL |
| 7               | 7205.1 | 0.00  | 0.00   | 6589.0 | -440.6 | 2138.8 | 0.00 | 0.00   | 2183.7 |                  |



| FORMATION TOP DETAILS |        |                       |
|-----------------------|--------|-----------------------|
| TVDPath               | MDPath | Formation             |
| 3237.0                | 3742.8 | Ohio Creek            |
| 3432.0                | 3981.2 | Mesaverde Fm          |
| 4085.0                | 4697.5 | WILLIAMS FORK FM      |
| 4182.0                | 4796.5 | TOP GAS (Inc. = 6.5°) |
| 5954.0                | 6570.1 | COAL RIDGE (Paludal)  |
| 6339.0                | 6955.1 | ROLLINS SS (Iles Fm)  |



Azimuths to True North  
 Magnetic North: 10.38°

Magnetic Field  
 Strength: 52223.6snT  
 Dip Angle: 65.67°  
 Date: 3/29/2011  
 Model: IGRF2010

DESIGN DETAILS: Plan #2

Job #10xxx: KR  
 WELL @ 5827.0ft (Original Well Elev)

| Target           | Azimuth | Origin | N/S | E/W | From TVD |
|------------------|---------|--------|-----|-----|----------|
| Federal 29-4 BHL | 101.64  | Slot   | 0.0 | 0.0 | 0.0      |

# Cathedral Energy Services

## Planning Report

**Database:** EDM 5000.1 US Multi Users DB  
**Company:** EnCana Oil & Gas (USA) Inc  
**Project:** S. Piceance (Parachute)  
**Site:** SESE 19-7S-95W (PA-30 Pad)  
**Well:** Federal 29-4 (PA-30 Pad) Directional Plan 3.29.2011  
**Wellbore:** DD  
**Design:** Plan #2

**Local Co-ordinate Reference:** Well Federal 29-4 (PA-30 Pad) Directional Plan 3  
**TVD Reference:** WELL @ 5827.0ft (Original Well Elev)  
**MD Reference:** WELL @ 5827.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

**Project** S. Piceance (Parachute), Garfield County, CO

**Map System:** US State Plane 1983  
**Geo Datum:** North American Datum 1983  
**Map Zone:** Colorado Central Zone  
**System Datum:** Mean Sea Level

**Site** SESE 19-7S-95W (PA-30 Pad)

**Site Position:** Northing: 1,585,669.17 ft Latitude: 39.414060  
**From:** Lat/Long Easting: 2,284,869.32 ft Longitude: -108.031520  
**Position Uncertainty:** 0.0 ft Slot Radius: 13.200in Grid Convergence: -1.60 °

**Well** Federal 29-4 (PA-30 Pad) Directional Plan 3.29.2011

**Well Position** +N/-S 0.0 ft Northing: 1,585,676.83 ft Latitude: 39.414080  
 +E/-W 0.0 ft Easting: 2,284,855.40 ft Longitude: -108.031570  
**Position Uncertainty** 0.0 ft Wellhead Elevation: ft Ground Level: 5,805.0 ft

**Wellbore** DD

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|-----------|------------|-------------|-----------------|---------------|---------------------|
|           | IGRF2010   | 3/29/2011   | 10.39           | 65.67         | 52,224              |

**Design** Plan #2

**Audit Notes:**

**Version:** Phase: PLAN Tie On Depth: 0.0

| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
|-------------------|-----------------------|------------|------------|---------------|
|                   | 0.0                   | 0.0        | 0.0        | 101.64        |

**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    |                  |
| 1,373.5             | 35.20           | 101.64      | 1,301.0             | -70.5      | 342.1      | 3.00                  | 3.00                 | 0.00                | 101.64  |                  |
| 3,949.6             | 35.20           | 101.64      | 3,406.0             | -370.1     | 1,796.7    | 0.00                  | 0.00                 | 0.00                | 0.00    |                  |
| 5,123.1             | 0.00            | 0.00        | 4,507.0             | -440.6     | 2,138.8    | 3.00                  | -3.00                | 0.00                | 180.00  | Federal 29-4 TOG |
| 7,105.1             | 0.00            | 0.00        | 6,489.0             | -440.6     | 2,138.8    | 0.00                  | 0.00                 | 0.00                | 0.00    | Federal 29-4 BHL |
| 7,205.1             | 0.00            | 0.00        | 6,589.0             | -440.6     | 2,138.8    | 0.00                  | 0.00                 | 0.00                | 0.00    |                  |



# Cathedral Energy Services

## Planning Report

|                  |   |                                     |  |
|------------------|---|-------------------------------------|--|
| <b>Database:</b> | EDM 5000.1 US Multi Users DB                        | <b>Local Co-ordinate Reference:</b> | Well Federal 29-4 (PA-30 Pad) Directional Plan 3 |
| <b>Company:</b>  | EnCana Oil & Gas (USA) Inc                          | <b>TVD Reference:</b>               | WELL @ 5827.0ft (Original Well Elev)             |
| <b>Project:</b>  | S. Piceance (Parachute)                             | <b>MD Reference:</b>                | WELL @ 5827.0ft (Original Well Elev)             |
| <b>Site:</b>     | SESE 19-7S-95W (PA-30 Pad)                          | <b>North Reference:</b>             | True   |
| <b>Well:</b>     | Federal 29-4 (PA-30 Pad) Directional Plan 3.29.2011 | <b>Survey Calculation Method:</b>   | Minimum Curvature                                |
| <b>Wellbore:</b> | DD  |                                     |  |
| <b>Design:</b>   | Plan #2   |                                     |  |

### 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            | 101.64      | 300.0               | -0.5       | 2.6        | 2.6                   | 3.00                  | 3.00                 |                       |
| 400.0               | 6.00            | 101.64      | 399.6               | -2.1       | 10.2       | 10.5                  | 3.00                  | 3.00                 |                       |
| 500.0               | 9.00            | 101.64      | 498.8               | -4.7       | 23.0       | 23.5                  | 3.00                  | 3.00                 |                       |
| 600.0               | 12.00           | 101.64      | 597.1               | -8.4       | 40.9       | 41.7                  | 3.00                  | 3.00                 |                       |
| 700.0               | 15.00           | 101.64      | 694.3               | -13.1      | 63.7       | 65.1                  | 3.00                  | 3.00                 |                       |
| 800.0               | 18.00           | 101.64      | 790.2               | -18.9      | 91.6       | 93.5                  | 3.00                  | 3.00                 |                       |
| 900.0               | 21.00           | 101.64      | 884.4               | -25.6      | 124.2      | 126.9                 | 3.00                  | 3.00                 |                       |
| 1,000.0             | 24.00           | 101.64      | 976.8               | -33.3      | 161.7      | 165.1                 | 3.00                  | 3.00                 |                       |
| 1,100.0             | 27.00           | 101.64      | 1,067.1             | -42.0      | 203.9      | 208.2                 | 3.00                  | 3.00                 |                       |
| 1,200.0             | 30.00           | 101.64      | 1,154.9             | -51.6      | 250.6      | 255.9                 | 3.00                  | 3.00                 |                       |
| 1,300.0             | 33.00           | 101.64      | 1,240.2             | -62.2      | 301.8      | 308.1                 | 3.00                  | 3.00                 |                       |
| 1,373.5             | 35.20           | 101.64      | 1,301.0             | -70.5      | 342.1      | 349.3                 | 3.00                  | 3.00                 | EOB at Inc. = 35.20°  |
| 1,400.0             | 35.20           | 101.64      | 1,322.7             | -73.6      | 357.1      | 364.6                 | 0.00                  | 0.00                 |                       |
| 1,494.6             | 35.20           | 101.64      | 1,400.0             | -84.6      | 410.5      | 419.1                 | 0.00                  | 0.00                 | Surface Casing        |
| 1,500.0             | 35.20           | 101.64      | 1,404.4             | -85.2      | 413.6      | 422.2                 | 0.00                  | 0.00                 |                       |
| 1,600.0             | 35.20           | 101.64      | 1,486.1             | -96.8      | 470.0      | 479.9                 | 0.00                  | 0.00                 |                       |
| 1,700.0             | 35.20           | 101.64      | 1,567.8             | -108.5     | 526.5      | 537.5                 | 0.00                  | 0.00                 |                       |
| 1,800.0             | 35.20           | 101.64      | 1,649.5             | -120.1     | 583.0      | 595.2                 | 0.00                  | 0.00                 |                       |
| 1,900.0             | 35.20           | 101.64      | 1,731.2             | -131.7     | 639.4      | 652.8                 | 0.00                  | 0.00                 |                       |
| 2,000.0             | 35.20           | 101.64      | 1,813.0             | -143.4     | 695.9      | 710.5                 | 0.00                  | 0.00                 |                       |
| 2,100.0             | 35.20           | 101.64      | 1,894.7             | -155.0     | 752.3      | 768.1                 | 0.00                  | 0.00                 |                       |
| 2,200.0             | 35.20           | 101.64      | 1,976.4             | -166.6     | 808.8      | 825.8                 | 0.00                  | 0.00                 |                       |
| 2,300.0             | 35.20           | 101.64      | 2,058.1             | -178.3     | 865.3      | 883.4                 | 0.00                  | 0.00                 |                       |
| 2,400.0             | 35.20           | 101.64      | 2,139.8             | -189.9     | 921.7      | 941.1                 | 0.00                  | 0.00                 |                       |
| 2,500.0             | 35.20           | 101.64      | 2,221.5             | -201.5     | 978.2      | 998.7                 | 0.00                  | 0.00                 |                       |
| 2,600.0             | 35.20           | 101.64      | 2,303.2             | -213.2     | 1,034.7    | 1,056.4               | 0.00                  | 0.00                 |                       |
| 2,700.0             | 35.20           | 101.64      | 2,384.9             | -224.8     | 1,091.1    | 1,114.0               | 0.00                  | 0.00                 |                       |
| 2,800.0             | 35.20           | 101.64      | 2,466.6             | -236.4     | 1,147.6    | 1,171.7               | 0.00                  | 0.00                 |                       |
| 2,900.0             | 35.20           | 101.64      | 2,548.4             | -248.0     | 1,204.0    | 1,229.3               | 0.00                  | 0.00                 |                       |
| 3,000.0             | 35.20           | 101.64      | 2,630.1             | -259.7     | 1,260.5    | 1,287.0               | 0.00                  | 0.00                 |                       |
| 3,100.0             | 35.20           | 101.64      | 2,711.8             | -271.3     | 1,317.0    | 1,344.6               | 0.00                  | 0.00                 |                       |
| 3,200.0             | 35.20           | 101.64      | 2,793.5             | -282.9     | 1,373.4    | 1,402.3               | 0.00                  | 0.00                 |                       |
| 3,300.0             | 35.20           | 101.64      | 2,875.2             | -294.6     | 1,429.9    | 1,459.9               | 0.00                  | 0.00                 |                       |
| 3,400.0             | 35.20           | 101.64      | 2,956.9             | -306.2     | 1,486.4    | 1,517.6               | 0.00                  | 0.00                 |                       |
| 3,500.0             | 35.20           | 101.64      | 3,038.6             | -317.8     | 1,542.8    | 1,575.2               | 0.00                  | 0.00                 |                       |
| 3,600.0             | 35.20           | 101.64      | 3,120.3             | -329.5     | 1,599.3    | 1,632.9               | 0.00                  | 0.00                 |                       |
| 3,700.0             | 35.20           | 101.64      | 3,202.0             | -341.1     | 1,655.7    | 1,690.5               | 0.00                  | 0.00                 |                       |
| 3,742.8             | 35.20           | 101.64      | 3,237.0             | -346.1     | 1,679.9    | 1,715.2               | 0.00                  | 0.00                 | Ohio Creek            |
| 3,800.0             | 35.20           | 101.64      | 3,283.8             | -352.7     | 1,712.2    | 1,748.2               | 0.00                  | 0.00                 |                       |
| 3,900.0             | 35.20           | 101.64      | 3,365.5             | -364.4     | 1,768.7    | 1,805.8               | 0.00                  | 0.00                 |                       |
| 3,949.6             | 35.20           | 101.64      | 3,406.0             | -370.1     | 1,796.7    | 1,834.4               | 0.00                  | 0.00                 | Start Drop -3.00      |
| 3,981.2             | 34.25           | 101.64      | 3,432.0             | -373.8     | 1,814.3    | 1,852.4               | 3.00                  | -3.00                | Mesaverde Fm          |
| 4,000.0             | 33.69           | 101.64      | 3,447.6             | -375.9     | 1,824.6    | 1,862.9               | 3.00                  | -3.00                |                       |
| 4,100.0             | 30.69           | 101.64      | 3,532.2             | -386.6     | 1,876.8    | 1,916.2               | 3.00                  | -3.00                |                       |
| 4,200.0             | 27.69           | 101.64      | 3,619.5             | -396.5     | 1,924.5    | 1,964.9               | 3.00                  | -3.00                |                       |
| 4,300.0             | 24.69           | 101.64      | 3,709.2             | -405.4     | 1,967.8    | 2,009.1               | 3.00                  | -3.00                |                       |
| 4,400.0             | 21.69           | 101.64      | 3,801.1             | -413.3     | 2,006.3    | 2,048.5               | 3.00                  | -3.00                |                       |
| 4,500.0             | 18.69           | 101.64      | 3,894.9             | -420.3     | 2,040.1    | 2,083.0               | 3.00                  | -3.00                |                       |
| 4,600.0             | 15.69           | 101.64      | 3,990.5             | -426.3     | 2,069.1    | 2,112.5               | 3.00                  | -3.00                |                       |

# Cathedral Energy Services

## Planning Report

|                  |   |                                     |  |
|------------------|---|-------------------------------------|--|
| <b>Database:</b> | EDM 5000.1 US Multi Users DB                        | <b>Local Co-ordinate Reference:</b> | Well Federal 29-4 (PA-30 Pad) Directional Plan 3 |
| <b>Company:</b>  | EnCana Oil & Gas (USA) Inc                          | <b>TVD Reference:</b>               | WELL @ 5827.0ft (Original Well Elev)             |
| <b>Project:</b>  | S. Piceance (Parachute)                             | <b>MD Reference:</b>                | WELL @ 5827.0ft (Original Well Elev)             |
| <b>Site:</b>     | SESE 19-7S-95W (PA-30 Pad)                          | <b>North Reference:</b>             | True   |
| <b>Well:</b>     | Federal 29-4 (PA-30 Pad) Directional Plan 3.29.2011 | <b>Survey Calculation Method:</b>   | Minimum Curvature                                |
| <b>Wellbore:</b> | DD  |                                     |  |
| <b>Design:</b>   | Plan #2   |                                     |  |

### 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               |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|-------------------------------------|
| 4,697.5             | 12.77           | 101.64      | 4,085.0             | -431.1     | 2,092.6    | 2,136.5               | 3.00                  | -3.00                | WILLIAMS FORK FM                    |
| 4,700.0             | 12.69           | 101.64      | 4,087.4             | -431.2     | 2,093.1    | 2,137.0               | 3.00                  | -3.00                |                                     |
| 4,796.5             | 9.80            | 101.64      | 4,182.0             | -435.0     | 2,111.5    | 2,155.8               | 3.00                  | -3.00                | TOP GAS (Inc.= 6.5°)                |
| 4,800.0             | 9.69            | 101.64      | 4,185.5             | -435.1     | 2,112.1    | 2,156.4               | 3.00                  | -3.00                |                                     |
| 4,900.0             | 6.69            | 101.64      | 4,284.5             | -438.0     | 2,126.0    | 2,170.7               | 3.00                  | -3.00                |                                     |
| 5,000.0             | 3.69            | 101.64      | 4,384.0             | -439.8     | 2,134.9    | 2,179.7               | 3.00                  | -3.00                |                                     |
| 5,100.0             | 0.69            | 101.64      | 4,483.9             | -440.6     | 2,138.6    | 2,183.6               | 3.00                  | -3.00                |                                     |
| 5,123.1             | 0.00            | 0.00        | 4,507.0             | -440.6     | 2,138.8    | 2,183.7               | 3.00                  | -3.00                | EOD at Inc. = 0° - Federal 29-4 TOG |
| 5,200.0             | 0.00            | 0.00        | 4,583.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 5,300.0             | 0.00            | 0.00        | 4,683.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 5,400.0             | 0.00            | 0.00        | 4,783.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 5,500.0             | 0.00            | 0.00        | 4,883.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 5,600.0             | 0.00            | 0.00        | 4,983.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 5,700.0             | 0.00            | 0.00        | 5,083.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 5,800.0             | 0.00            | 0.00        | 5,183.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 5,900.0             | 0.00            | 0.00        | 5,283.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 6,000.0             | 0.00            | 0.00        | 5,383.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 6,100.0             | 0.00            | 0.00        | 5,483.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 6,200.0             | 0.00            | 0.00        | 5,583.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 6,300.0             | 0.00            | 0.00        | 5,683.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 6,400.0             | 0.00            | 0.00        | 5,783.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 6,500.0             | 0.00            | 0.00        | 5,883.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 6,570.1             | 0.00            | 0.00        | 5,954.0             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 | COAL RIDGE (Paludal)                |
| 6,600.0             | 0.00            | 0.00        | 5,983.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 6,700.0             | 0.00            | 0.00        | 6,083.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 6,800.0             | 0.00            | 0.00        | 6,183.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 6,900.0             | 0.00            | 0.00        | 6,283.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 6,955.1             | 0.00            | 0.00        | 6,339.0             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 | ROLLINS SS (Iles Fm)                |
| 7,000.0             | 0.00            | 0.00        | 6,383.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 7,100.0             | 0.00            | 0.00        | 6,483.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 7,105.1             | 0.00            | 0.00        | 6,489.0             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 | TD at 7105' MD - Federal 29-4 BHL   |
| 7,200.0             | 0.00            | 0.00        | 6,583.9             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |
| 7,205.1             | 0.00            | 0.00        | 6,589.0             | -440.6     | 2,138.8    | 2,183.7               | 0.00                  | 0.00                 |                                     |

### Targets

| Target Name   | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude  | Longitude   |
|---|---------------|--------------|----------|------------|------------|---------------|--------------|-----------|-------------|
| <b>- hit/miss target</b>  |               |              |          |            |            |               |              |           |             |
| <b>- Shape</b>  |               |              |          |            |            |               |              |           |             |
| Federal 29-4 BHL<br>- plan hits target center<br>- Circle (radius 25.0) | 0.00          | 0.00         | 6,489.0  | -440.6     | 2,138.8    | 1,585,176.80  | 2,286,981.08 | 39.412870 | -108.024000 |
| Federal 29-4 TOG<br>- plan hits target center<br>- Point                | 0.00          | 0.00         | 4,507.0  | -440.6     | 2,138.8    | 1,585,176.80  | 2,286,981.08 | 39.412870 | -108.024000 |



# Cathedral Energy Services

## Planning Report

|                  |   |                                     |  |
|------------------|---|-------------------------------------|--|
| <b>Database:</b> | EDM 5000.1 US Multi Users DB                        | <b>Local Co-ordinate Reference:</b> | Well Federal 29-4 (PA-30 Pad) Directional Plan 3 |
| <b>Company:</b>  | EnCana Oil & Gas (USA) Inc                          | <b>TVD Reference:</b>               | WELL @ 5827.0ft (Original Well Elev)             |
| <b>Project:</b>  | S. Piceance (Parachute)                             | <b>MD Reference:</b>                | WELL @ 5827.0ft (Original Well Elev)             |
| <b>Site:</b>     | SESE 19-7S-95W (PA-30 Pad)                          | <b>North Reference:</b>             | True   |
| <b>Well:</b>     | Federal 29-4 (PA-30 Pad) Directional Plan 3.29.2011 | <b>Survey Calculation Method:</b>   | Minimum Curvature                                |
| <b>Wellbore:</b> | DD  |                                     |  |
| <b>Design:</b>   | Plan #2   |                                     |  |

### Casing Points

| Measured Depth (ft) | Vertical Depth (ft) | Name           | Casing Diameter (in) | Hole Diameter (in) |
|---------------------|---------------------|----------------|----------------------|--------------------|
| 1,494.6             | 1,400.0             | Surface Casing | 5.500                | 6.000              |

### Formations

| Measured Depth (ft) | Vertical Depth (ft) | Name                 | Lithology | Dip (°) | Dip Direction (°) |
|---------------------|---------------------|----------------------|-----------|---------|-------------------|
| 3,742.8             | 3,237.0             | Ohio Creek           |           |         |                   |
| 3,981.2             | 3,432.0             | Mesaverde Fm         |           |         |                   |
| 4,697.5             | 4,085.0             | WILLIAMS FORK FM     |           |         |                   |
| 4,796.5             | 4,182.0             | TOP GAS (Inc.= 6.5°) |           |         |                   |
| 6,570.1             | 5,954.0             | COAL RIDGE (Paludal) |           |         |                   |
| 6,955.1             | 6,339.0             | ROLLINS SS (Iles Fm) |           |         |                   |

### 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         |
| 1,373.5             | 1,301.0             | -70.5             | 342.1      | EOB at Inc. = 35.20°  |
| 3,949.6             | 3,406.0             | -370.1            | 1,796.7    | Start Drop -3.00      |
| 5,123.1             | 4,507.0             | -440.6            | 2,138.8    | EOD at Inc. = 0°      |
| 7,105.1             | 6,489.0             | -440.6            | 2,138.8    | TD at 7105' MD        |
| 7,205.1             | 6,589.0             | -440.6            | 2,138.8    | Permit TD at 7205' MD |