

# CONFIDENTIAL

**DISTRICT I**

1625 N. French Dr., Hobbs, N.M. 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720

**DISTRICT II**

811 S. First St., Artesia, N.M. 88210  
Phone: (575) 748-1283 Fax: (575) 748-0720

**DISTRICT III**

1000 Rio Brazos Rd., Aztec, N.M. 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170

**DISTRICT IV**

1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department

Form C-102  
Revised August 1, 2011

Submit one copy to appropriate  
District Office

**OIL CONSERVATION DIVISION**

1220 South St. Francis Dr.  
Santa Fe, NM 87505

☐ AMENDED REPORT  
☒ AS-DRILLED

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

|                                         |                                                           |                                 |                                                      |
|-----------------------------------------|-----------------------------------------------------------|---------------------------------|------------------------------------------------------|
| <sup>1</sup> API Number<br>30-039-31219 |                                                           | <sup>2</sup> Pool Code<br>13379 | <sup>3</sup> Pool Name<br>COUNSELORS GALLUP / DAKOTA |
| <sup>4</sup> Property Code<br>313381    | <sup>5</sup> Property Name<br>LYBROOK A12-2306            |                                 | <sup>6</sup> Well Number<br>01H                      |
| <sup>7</sup> OGRID No.<br>282327        | <sup>8</sup> Operator Name<br>ENCANA OIL & GAS (USA) INC. |                                 | <sup>9</sup> Elevation<br>6693'                      |

**<sup>10</sup> Surface Location**

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | WEST/West line | County     |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| A             | 12      | 23N      | 6W    |         | 81'           | NORTH            | 264'          | EAST           | RIO ARRIBA |

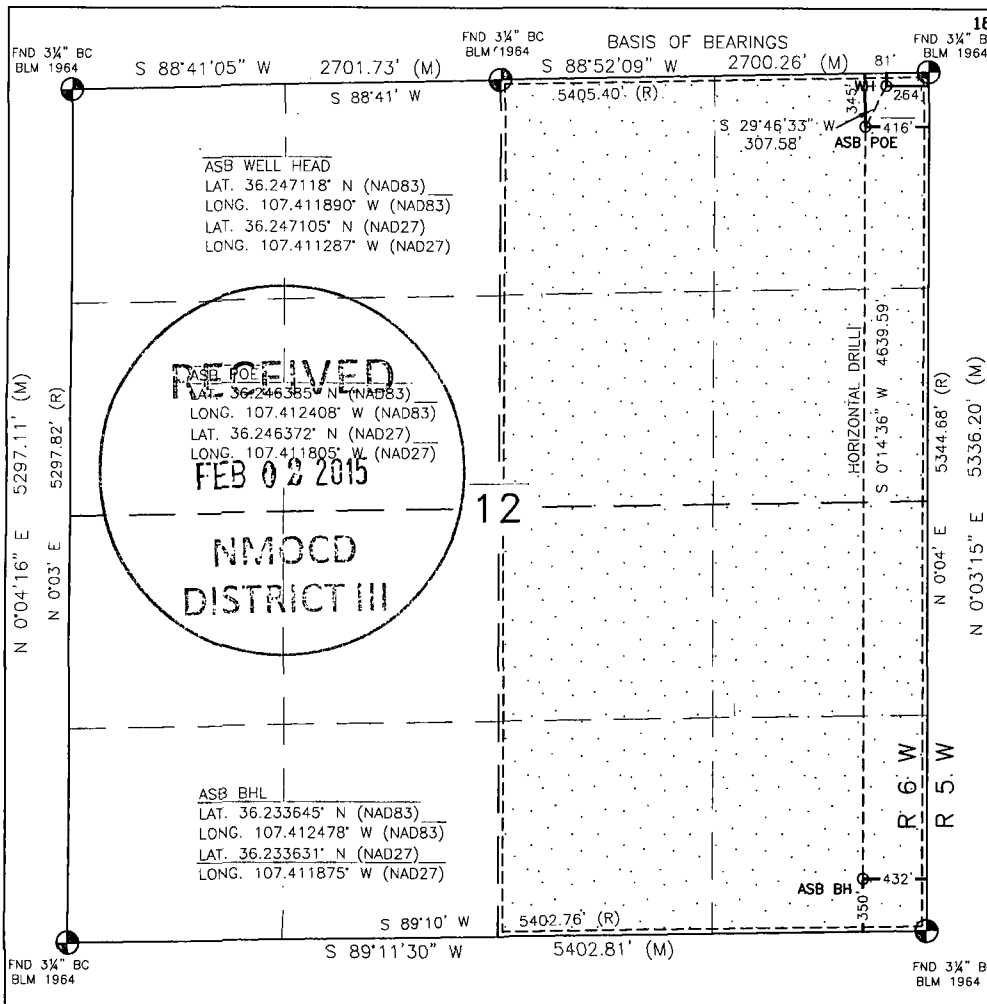
**<sup>11</sup> Bottom Hole Location If Different From Surface**

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | WEST/West line | County     |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| P             | 12      | 23N      | 6W    |         | 350'          | SOUTH            | 432'          | EAST           | RIO ARRIBA |

|                                                           |                               |                                  |                         |
|-----------------------------------------------------------|-------------------------------|----------------------------------|-------------------------|
| <sup>12</sup> Dedicated Acres<br>320.00 ACRES E/2 SEC. 12 | <sup>13</sup> Joint or Infill | <sup>14</sup> Consolidation Code | <sup>15</sup> Order No. |
|-----------------------------------------------------------|-------------------------------|----------------------------------|-------------------------|

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16

**17 OPERATOR CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

*Katie Wegner* 1/29/15  
Signature Date

Katie Wegner  
Printed Name

Katie.Wegner@encana.com  
E-mail Address

**SURVEYOR CERTIFICATION**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of As-Built JANUARY 28, 2015

Date of Survey OCTOBER 29, 2013

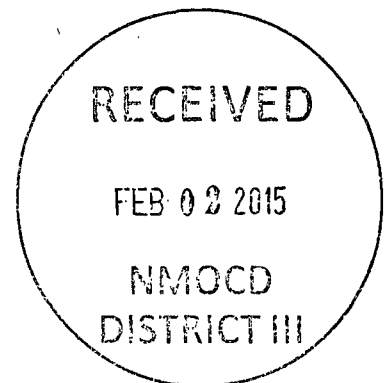
Signature and Seal of Professional Surveyor:

*David R. Russell*  
DAVID R. RUSSELL  
REGISTERED PROFESSIONAL LAND SURVEYOR  
10201  
Certificate Number 10201

**DEVIATION SURVEYS**  
**Lybrook A12-2306 01H**  
**30-039-31219**

CONFIDENTIAL

| MD (Feet) | Inclination<br>(Degree) |
|-----------|-------------------------|
| 723'      | 0.80                    |
| 1039'     | 0.60                    |
| 1355'     | 1.00                    |
| 1671'     | 0.70                    |
| 1987'     | 1.00                    |
| 2302'     | 1.00                    |
| 2618'     | 0.50                    |
| 2934'     | 0.90                    |
| 3250'     | 11.40                   |



**OPERATOR CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Cristi Bauer  
Cristi Bauer, Operations Technician

1/29/15  
Date

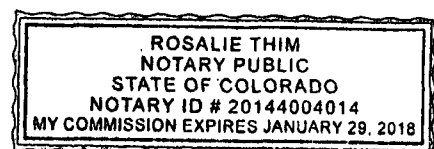
**ACKNOWLEDGMENT**

State of Colorado  
City and County of Denver

This instrument was acknowledged before me on this 29<sup>th</sup> day of January, 2014 by Cristi Bauer as Operations Technician of Encana Oil & Gas (USA) Inc., authorized agent for Encana Oil & Gas (USA) Inc., on behalf of said corporation.

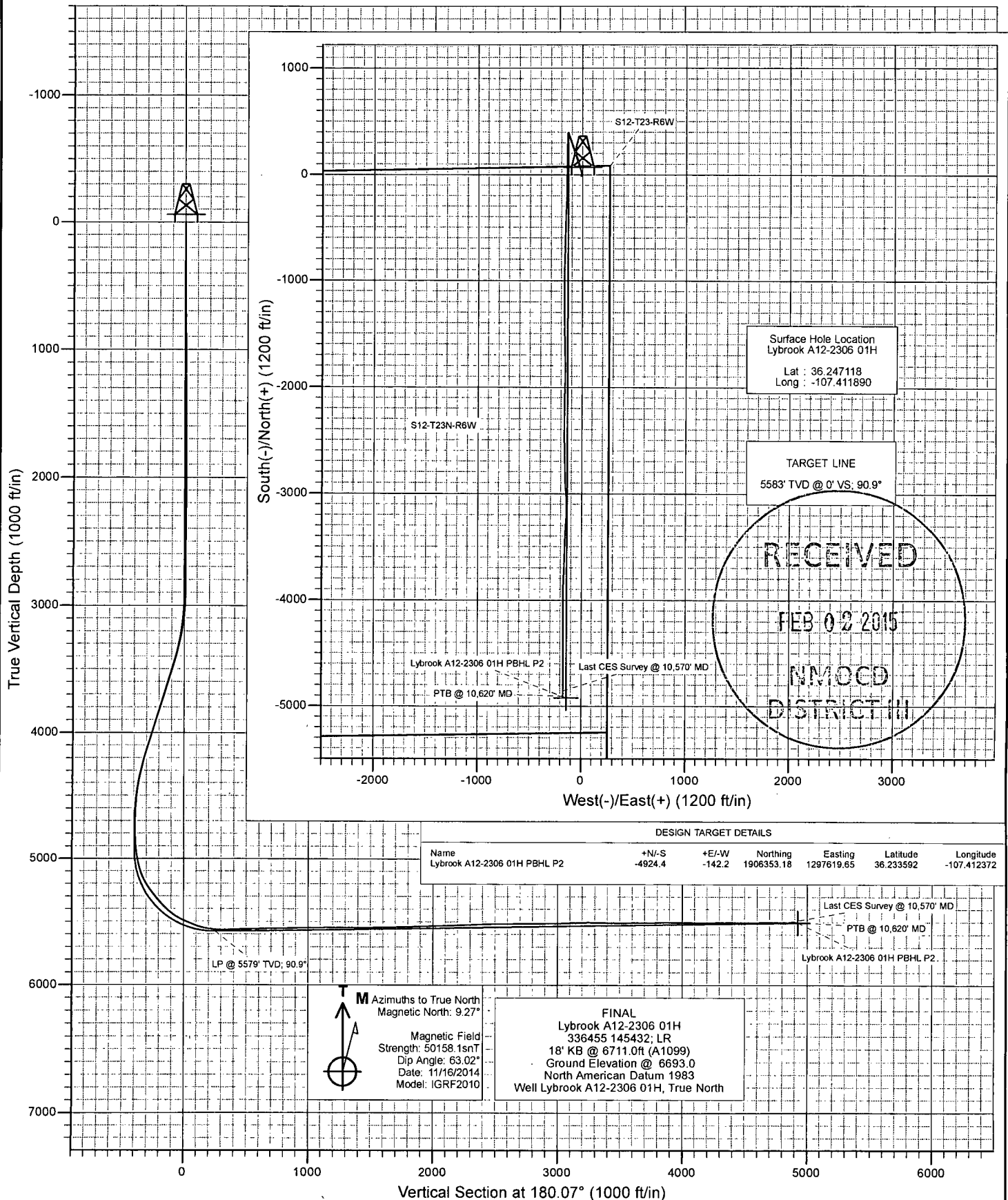
In witness whereof, I hereunto set my hand and official seal.

Notary Public Rosalie Thim  
My Commission Expires: 1/29/18





Project: Rio Arriba County, NM  
 Site: S12-T23N-R6W  
 Well: Lybrook A12-2306 01H  
 Wellbore: Hz  
 Design: FINAL



# Cathedral Energy Services

## Survey Report

|                  |                            |                                     |                             |
|------------------|----------------------------|-------------------------------------|-----------------------------|
| <b>Company:</b>  | EnCana Oil & Gas (USA) Inc | <b>Local Co-ordinate Reference:</b> | Well Lybrook A12-2306 01H   |
| <b>Project:</b>  | Rio Arriba County, NM      | <b>TVD Reference:</b>               | 18' KB @ 6711.0ft (A1099)   |
| <b>Site:</b>     | S12-T23N-R6W               | <b>MD Reference:</b>                | 18' KB @ 6711.0ft (A1099)   |
| <b>Well:</b>     | Lybrook A12-2306 01H       | <b>North Reference:</b>             | True                        |
| <b>Wellbore:</b> | Hz                         | <b>Survey Calculation Method:</b>   | Minimum Curvature           |
| <b>Design:</b>   | FINAL                      | <b>Database:</b>                    | USA EDM 5000 Multi Users DB |

|                    |                           |                      |                |
|--------------------|---------------------------|----------------------|----------------|
| <b>Project</b>     | Rio Arriba County, NM     |                      |                |
| <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>   | New Mexico Central Zone   |                      |                |

|                       |          |              |                 |                   |             |
|-----------------------|----------|--------------|-----------------|-------------------|-------------|
| Site                  |          | S12-T23N-R6W |                 |                   |             |
| Site Position:        |          | Northing:    | 1,911,275.48 ft | Latitude:         | 36.247118   |
| From:                 | Lat/Long | Easting:     | 1,297,820.84 ft | Longitude:        | -107.411890 |
| Position Uncertainty: | 0.0 ft   | Slot Radius: | 13.200 in       | Grid Convergence: | -0.69 °     |

|                      |                      |        |                     |                 |               |             |
|----------------------|----------------------|--------|---------------------|-----------------|---------------|-------------|
| Well                 | Lybrook A12-2306 01H |        |                     |                 |               |             |
| Well Position        | +N/-S                | 0.0 ft | Northing:           | 1,911,275.48 ft | Latitude:     | 36.247118   |
|                      | +E/-W                | 0.0 ft | Easting:            | 1,297,820.84 ft | Longitude:    | -107.411890 |
| Position Uncertainty |                      | 0.0 ft | Wellhead Elevation: | ft              | Ground Level: | 6,693.0 ft  |

|                  |                   |                    |                        |                      |                            |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | Hz                |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | IGRF2010          | 11/16/2014         | 9.27                   | 63.02                | 50,158                     |

|                          |                         |               |              |                      |     |
|--------------------------|-------------------------|---------------|--------------|----------------------|-----|
| <b>Design</b>            | FINAL                   |               |              |                      |     |
| <b>Audit Notes:</b>      |                         |               |              |                      |     |
| <b>Version:</b>          | 1.0                     | <b>Phase:</b> | ACTUAL       | <b>Tie On Depth:</b> | 0.0 |
| <b>Vertical Section:</b> | <b>Depth From (TVD)</b> | <b>+N/-S</b>  | <b>+E/-W</b> | <b>Direction</b>     |     |
|                          | (ft)                    | (ft)          | (ft)         | (°)                  |     |
|                          | 0.0                     | 0.0           | 0.0          | 180.07               |     |

|                       |             |                          |                  |                    |  |
|-----------------------|-------------|--------------------------|------------------|--------------------|--|
| <b>Survey Program</b> | <b>Date</b> | 11/26/2014               |                  |                    |  |
| <b>From</b>           | <b>To</b>   | <b>Survey (Wellbore)</b> | <b>Tool Name</b> | <b>Description</b> |  |
| (ft)                  | (ft)        |                          |                  |                    |  |
| 533.0                 | 10,620.0    | SURVEYS (Hz)             | Geolink MWD      | Geolink MWD        |  |

|                       |                    |                |                       |              |              |                         |                    |                   |                     |  |
|-----------------------|--------------------|----------------|-----------------------|--------------|--------------|-------------------------|--------------------|-------------------|---------------------|--|
| <b>Survey</b>         |                    |                |                       |              |              |                         |                    |                   |                     |  |
| <b>Measured Depth</b> | <b>Inclination</b> | <b>Azimuth</b> | <b>Vertical Depth</b> | <b>+N/-S</b> | <b>+E/-W</b> | <b>Vertical Section</b> | <b>Dogleg Rate</b> | <b>Build Rate</b> | <b>Formations /</b> |  |
| (ft)                  | (°)                | (°)            | (ft)                  | (ft)         | (ft)         | (ft)                    | (°/100ft)          | (°/100ft)         | Comments            |  |
| 0.0                   | 0.00               | 0.00           | 0.0                   | 0.0          | 0.0          | 0.0                     | 0.00               | 0.00              |                     |  |
| 533.0                 | 0.60               | 203.70         | 533.0                 | -2.6         | -1.1         | 2.6                     | 0.11               | 0.11              |                     |  |
| 597.0                 | 0.40               | 177.90         | 597.0                 | -3.1         | -1.2         | 3.1                     | 0.46               | -0.31             |                     |  |
| 660.0                 | 0.80               | 201.90         | 660.0                 | -3.7         | -1.4         | 3.7                     | 0.74               | 0.63              |                     |  |
| 723.0                 | 0.80               | 187.40         | 723.0                 | -4.6         | -1.6         | 4.6                     | 0.32               | 0.00              |                     |  |
| 786.0                 | 0.80               | 194.80         | 786.0                 | -5.4         | -1.8         | 5.4                     | 0.16               | 0.00              |                     |  |
| 849.0                 | 0.80               | 199.50         | 849.0                 | -6.3         | -2.1         | 6.3                     | 0.10               | 0.00              |                     |  |
| 912.0                 | 0.70               | 180.10         | 912.0                 | -7.1         | -2.2         | 7.1                     | 0.43               | -0.16             |                     |  |
| 976.0                 | 0.50               | 173.00         | 976.0                 | -7.7         | -2.2         | 7.7                     | 0.33               | -0.31             |                     |  |
| 1,039.0               | 0.60               | 178.40         | 1,039.0               | -8.3         | -2.1         | 8.3                     | 0.18               | 0.16              |                     |  |
| 1,102.0               | 0.40               | 218.10         | 1,102.0               | -8.8         | -2.3         | 8.8                     | 0.62               | -0.32             |                     |  |
| 1,165.0               | 1.00               | 196.00         | 1,164.9               | -9.5         | -2.5         | 9.5                     | 1.03               | 0.95              |                     |  |
| 1,228.0               | 0.60               | 243.70         | 1,227.9               | -10.2        | -3.0         | 10.2                    | 1.18               | -0.63             |                     |  |

# Cathedral Energy Services

## Survey Report

|                  |                            |                                     |                             |
|------------------|----------------------------|-------------------------------------|-----------------------------|
| <b>Company:</b>  | EnCana Oil & Gas (USA) Inc | <b>Local Co-ordinate Reference:</b> | Well Lybrook A12-2306 01H   |
| <b>Project:</b>  | Rio Arriba County, NM      | <b>TVD Reference:</b>               | 18' KB @ 6711.0ft (A1099)   |
| <b>Site:</b>     | S12-T23N-R6W               | <b>MD Reference:</b>                | 18' KB @ 6711.0ft (A1099)   |
| <b>Well:</b>     | Lybrook A12-2306 01H       | <b>North Reference:</b>             | True                        |
| <b>Wellbore:</b> | Hz                         | <b>Survey Calculation Method:</b>   | Minimum Curvature           |
| <b>Design:</b>   | FINAL                      | <b>Database:</b>                    | USA EDM 5000 Multi Users DB |

### Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Formations / Comments |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|-----------------------|
| 1,292.0             | 0.80            | 262.80      | 1,291.9             | -10.4      | -3.7       | 10.4                  | 0.48                  | 0.31                 |                       |
| 1,355.0             | 1.00            | 245.30      | 1,354.9             | -10.7      | -4.7       | 10.7                  | 0.54                  | 0.32                 |                       |
| 1,418.0             | 0.90            | 239.20      | 1,417.9             | -11.2      | -5.6       | 11.2                  | 0.23                  | -0.16                |                       |
| 1,481.0             | 0.70            | 267.60      | 1,480.9             | -11.4      | -6.4       | 11.5                  | 0.69                  | -0.32                |                       |
| 1,544.0             | 0.70            | 256.10      | 1,543.9             | -11.6      | -7.2       | 11.6                  | 0.22                  | 0.00                 |                       |
| 1,607.0             | 0.80            | 261.70      | 1,606.9             | -11.7      | -8.0       | 11.7                  | 0.20                  | 0.16                 |                       |
| 1,671.0             | 0.70            | 260.40      | 1,670.9             | -11.8      | -8.8       | 11.9                  | 0.16                  | -0.16                |                       |
| 1,734.0             | 0.80            | 242.60      | 1,733.9             | -12.1      | -9.6       | 12.1                  | 0.40                  | 0.16                 |                       |
| 1,797.0             | 0.70            | 263.90      | 1,796.9             | -12.4      | -10.3      | 12.4                  | 0.47                  | -0.16                |                       |
| 1,860.0             | 0.70            | 243.50      | 1,859.9             | -12.6      | -11.1      | 12.6                  | 0.39                  | 0.00                 |                       |
| 1,923.0             | 1.10            | 255.40      | 1,922.9             | -12.9      | -12.0      | 12.9                  | 0.70                  | 0.63                 |                       |
| 1,987.0             | 1.00            | 257.60      | 1,986.9             | -13.2      | -13.1      | 13.2                  | 0.17                  | -0.16                |                       |
| 2,050.0             | 1.00            | 256.70      | 2,049.9             | -13.4      | -14.2      | 13.4                  | 0.02                  | 0.00                 |                       |
| 2,113.0             | 0.70            | 19.50       | 2,112.9             | -13.2      | -14.6      | 13.2                  | 2.38                  | -0.48                |                       |
| 2,176.0             | 1.10            | 46.90       | 2,175.8             | -12.4      | -14.0      | 12.4                  | 0.92                  | 0.63                 |                       |
| 2,239.0             | 1.20            | 33.90       | 2,238.8             | -11.4      | -13.2      | 11.5                  | 0.44                  | 0.16                 |                       |
| 2,302.0             | 1.00            | 39.80       | 2,301.8             | -10.5      | -12.5      | 10.5                  | 0.36                  | -0.32                |                       |
| 2,366.0             | 0.70            | 66.90       | 2,365.8             | -9.9       | -11.8      | 9.9                   | 0.77                  | -0.47                |                       |
| 2,429.0             | 0.50            | 46.20       | 2,428.8             | -9.5       | -11.2      | 9.6                   | 0.46                  | -0.32                |                       |
| 2,492.0             | 0.40            | 62.90       | 2,491.8             | -9.3       | -10.8      | 9.3                   | 0.26                  | -0.16                |                       |
| 2,555.0             | 0.70            | 73.30       | 2,554.8             | -9.0       | -10.3      | 9.1                   | 0.50                  | 0.48                 |                       |
| 2,618.0             | 0.50            | 95.90       | 2,617.8             | -9.0       | -9.6       | 9.0                   | 0.49                  | -0.32                |                       |
| 2,682.0             | 0.70            | 93.20       | 2,681.8             | -9.0       | -9.0       | 9.0                   | 0.32                  | 0.31                 |                       |
| 2,745.0             | 0.40            | 76.00       | 2,744.8             | -9.0       | -8.4       | 9.0                   | 0.54                  | -0.48                |                       |
| 2,808.0             | 0.60            | 84.20       | 2,807.8             | -8.9       | -7.8       | 8.9                   | 0.34                  | 0.32                 |                       |
| 2,871.0             | 0.80            | 104.50      | 2,870.8             | -9.0       | -7.1       | 9.0                   | 0.50                  | 0.32                 |                       |
| 2,934.0             | 0.90            | 99.30       | 2,933.8             | -9.2       | -6.2       | 9.2                   | 0.20                  | 0.16                 |                       |
| 2,997.0             | 2.40            | 358.20      | 2,996.8             | -7.9       | -5.7       | 7.9                   | 4.32                  | 2.38                 |                       |
| 3,060.0             | 6.50            | 350.30      | 3,059.6             | -3.1       | -6.4       | 3.1                   | 6.56                  | 6.51                 |                       |
| 3,124.0             | 8.50            | 352.20      | 3,123.0             | 5.2        | -7.6       | -5.2                  | 3.15                  | 3.12                 |                       |
| 3,187.0             | 9.90            | 350.40      | 3,185.2             | 15.1       | -9.1       | -15.1                 | 2.27                  | 2.22                 |                       |
| 3,250.0             | 11.40           | 350.30      | 3,247.1             | 26.6       | -11.1      | -26.6                 | 2.38                  | 2.38                 |                       |
| 3,313.0             | 13.80           | 346.90      | 3,308.6             | 40.1       | -13.9      | -40.0                 | 3.99                  | 3.81                 |                       |
| 3,376.0             | 15.50           | 342.70      | 3,369.5             | 55.4       | -18.1      | -55.4                 | 3.18                  | 2.70                 |                       |
| 3,439.0             | 17.90           | 341.00      | 3,429.9             | 72.6       | -23.7      | -72.6                 | 3.89                  | 3.81                 |                       |
| 3,503.0             | 18.50           | 341.80      | 3,490.7             | 91.6       | -30.1      | -91.5                 | 1.02                  | 0.94                 |                       |
| 3,566.0             | 17.90           | 342.70      | 3,550.5             | 110.3      | -36.1      | -110.3                | 1.05                  | -0.95                |                       |
| 3,629.0             | 18.40           | 342.30      | 3,610.4             | 129.0      | -42.0      | -129.0                | 0.82                  | 0.79                 |                       |
| 3,692.0             | 17.80           | 342.40      | 3,670.3             | 147.7      | -47.9      | -147.6                | 0.95                  | -0.95                |                       |
| 3,755.0             | 18.90           | 340.90      | 3,730.1             | 166.5      | -54.2      | -166.4                | 1.90                  | 1.75                 |                       |
| 3,819.0             | 19.70           | 341.60      | 3,790.5             | 186.5      | -61.0      | -186.4                | 1.30                  | 1.25                 |                       |
| 3,882.0             | 19.00           | 340.10      | 3,849.9             | 206.2      | -67.8      | -206.2                | 1.36                  | -1.11                |                       |
| 3,945.0             | 19.00           | 340.70      | 3,909.5             | 225.6      | -74.7      | -225.5                | 0.31                  | 0.00                 |                       |
| 4,008.0             | 18.00           | 341.10      | 3,969.2             | 244.4      | -81.2      | -244.3                | 1.60                  | -1.59                |                       |
| 4,071.0             | 19.50           | 338.60      | 4,028.9             | 263.4      | -88.2      | -263.3                | 2.70                  | 2.38                 |                       |
| 4,135.0             | 19.80           | 338.00      | 4,089.2             | 283.4      | -96.2      | -283.3                | 0.56                  | 0.47                 |                       |
| 4,198.0             | 17.70           | 338.90      | 4,148.8             | 302.3      | -103.6     | -302.1                | 3.36                  | -3.33                |                       |
| 4,261.0             | 16.10           | 336.30      | 4,209.1             | 319.2      | -110.6     | -319.1                | 2.81                  | -2.54                |                       |
| 4,324.0             | 13.80           | 339.60      | 4,269.9             | 334.3      | -116.7     | -334.1                | 3.89                  | -3.65                |                       |
| 4,387.0             | 12.70           | 345.10      | 4,331.3             | 348.0      | -121.1     | -347.8                | 2.65                  | -1.75                |                       |
| 4,451.0             | 11.50           | 343.10      | 4,393.8             | 360.9      | -124.8     | -360.7                | 1.99                  | -1.87                |                       |
| 4,514.0             | 8.60            | 334.10      | 4,455.9             | 371.1      | -128.7     | -371.0                | 5.22                  | -4.60                |                       |
| 4,577.0             | 5.50            | 326.40      | 4,518.4             | 377.9      | -132.4     | -377.7                | 5.13                  | -4.92                |                       |

# Cathedral Energy Services

## Survey Report

|                  |                            |                                     |                             |
|------------------|----------------------------|-------------------------------------|-----------------------------|
| <b>Company:</b>  | EnCana Oil & Gas (USA) Inc | <b>Local Co-ordinate Reference:</b> | Well Lybrook A12-2306 01H   |
| <b>Project:</b>  | Rio Arriba County, NM      | <b>TVD Reference:</b>               | 18' KB @ 6711.0ft (A1099)   |
| <b>Site:</b>     | S12-T23N-R6W               | <b>MD Reference:</b>                | 18' KB @ 6711.0ft (A1099)   |
| <b>Well:</b>     | Lybrook A12-2306 01H       | <b>North Reference:</b>             | True                        |
| <b>Wellbore:</b> | Hz                         | <b>Survey Calculation Method:</b>   | Minimum Curvature           |
| <b>Design:</b>   | FINAL                      | <b>Database:</b>                    | USA EDM 5000 Multi Users DB |

### Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Formations / Comments |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|-----------------------|
| 4,640.0             | 5.10            | 325.20      | 4,581.1             | 382.7      | -135.7     | -382.5                | 0.66                  | -0.63                |                       |
| 4,703.0             | 3.10            | 323.50      | 4,644.0             | 386.4      | -138.3     | -386.2                | 3.18                  | -3.17                |                       |
| 4,767.0             | 0.60            | 321.50      | 4,707.9             | 388.0      | -139.5     | -387.9                | 3.91                  | -3.91                |                       |
| 4,830.0             | 0.50            | 171.10      | 4,770.9             | 388.0      | -139.7     | -387.8                | 1.69                  | -0.16                |                       |
| 4,893.0             | 0.50            | 159.60      | 4,833.9             | 387.5      | -139.5     | -387.3                | 0.16                  | 0.00                 |                       |
| 4,956.0             | 2.80            | 176.60      | 4,896.9             | 385.7      | -139.4     | -385.5                | 3.69                  | 3.65                 |                       |
| 4,988.0             | 7.70            | 177.60      | 4,928.7             | 382.8      | -139.2     | -382.6                | 15.31                 | 15.31                |                       |
| 5,019.0             | 9.10            | 177.90      | 4,959.4             | 378.2      | -139.0     | -378.1                | 4.52                  | 4.52                 |                       |
| 5,051.0             | 9.00            | 178.40      | 4,991.0             | 373.2      | -138.9     | -373.0                | 0.40                  | -0.31                |                       |
| 5,082.0             | 11.30           | 180.90      | 5,021.5             | 367.8      | -138.9     | -367.6                | 7.55                  | 7.42                 |                       |
| 5,114.0             | 14.70           | 182.90      | 5,052.7             | 360.6      | -139.1     | -360.4                | 10.72                 | 10.62                |                       |
| 5,146.0             | 16.70           | 183.70      | 5,083.5             | 351.9      | -139.6     | -351.7                | 6.29                  | 6.25                 |                       |
| 5,177.0             | 19.20           | 181.40      | 5,113.0             | 342.4      | -140.0     | -342.2                | 8.38                  | 8.06                 |                       |
| 5,209.0             | 22.90           | 181.50      | 5,142.9             | 330.9      | -140.3     | -330.7                | 11.56                 | 11.56                |                       |
| 5,241.0             | 26.90           | 183.60      | 5,171.9             | 317.4      | -140.9     | -317.3                | 12.80                 | 12.50                |                       |
| 5,272.0             | 30.70           | 183.60      | 5,199.0             | 302.5      | -141.9     | -302.4                | 12.26                 | 12.26                |                       |
| 5,304.0             | 34.60           | 184.90      | 5,226.0             | 285.3      | -143.2     | -285.1                | 12.38                 | 12.19                |                       |
| 5,336.0             | 37.10           | 184.50      | 5,251.9             | 266.6      | -144.7     | -266.5                | 7.85                  | 7.81                 |                       |
| 5,367.0             | 37.10           | 184.10      | 5,276.6             | 248.0      | -146.1     | -247.8                | 0.78                  | 0.00                 |                       |
| 5,399.0             | 38.10           | 181.20      | 5,302.0             | 228.5      | -147.0     | -228.3                | 6.35                  | 3.12                 |                       |
| 5,430.0             | 40.40           | 178.20      | 5,326.0             | 208.9      | -146.9     | -208.7                | 9.62                  | 7.42                 |                       |
| 5,462.0             | 43.40           | 178.50      | 5,349.8             | 187.5      | -146.3     | -187.3                | 9.40                  | 9.37                 |                       |
| 5,494.0             | 44.50           | 178.70      | 5,372.9             | 165.3      | -145.7     | -165.1                | 3.46                  | 3.44                 |                       |
| 5,525.0             | 46.60           | 180.00      | 5,394.6             | 143.2      | -145.5     | -143.0                | 7.41                  | 6.77                 |                       |
| 5,557.0             | 49.40           | 182.10      | 5,416.0             | 119.4      | -145.9     | -119.3                | 10.02                 | 8.75                 |                       |
| 5,589.0             | 52.50           | 182.30      | 5,436.1             | 94.6       | -146.9     | -94.4                 | 9.70                  | 9.69                 |                       |
| 5,620.0             | 55.30           | 180.90      | 5,454.4             | 69.6       | -147.6     | -69.4                 | 9.74                  | 9.03                 |                       |
| 5,652.0             | 59.00           | 179.20      | 5,471.7             | 42.7       | -147.6     | -42.5                 | 12.39                 | 11.56                |                       |
| 5,683.0             | 64.00           | 179.00      | 5,486.5             | 15.5       | -147.2     | -15.3                 | 16.14                 | 16.13                |                       |
| 5,698.0             | 65.90           | 181.10      | 5,492.9             | 1.9        | -147.2     | -1.7                  | 17.92                 | 12.67                |                       |
| 5,761.0             | 68.80           | 185.10      | 5,517.2             | -56.2      | -150.3     | 56.3                  | 7.45                  | 4.60                 |                       |
| 5,793.0             | 68.70           | 180.70      | 5,528.8             | -85.9      | -151.9     | 86.1                  | 12.82                 | -0.31                |                       |
| 5,824.0             | 71.10           | 178.00      | 5,539.4             | -115.0     | -151.5     | 115.2                 | 11.26                 | 7.74                 |                       |
| 5,856.0             | 75.50           | 178.50      | 5,548.6             | -145.7     | -150.6     | 145.9                 | 13.83                 | 13.75                |                       |
| 5,888.0             | 78.70           | 180.00      | 5,555.7             | -176.9     | -150.2     | 177.0                 | 10.99                 | 10.00                |                       |
| 5,918.0             | 81.40           | 180.50      | 5,560.9             | -206.4     | -150.3     | 206.6                 | 9.15                  | 9.00                 |                       |
| 5,948.0             | 84.50           | 182.50      | 5,564.6             | -236.2     | -151.1     | 236.3                 | 12.27                 | 10.33                |                       |
| 5,979.0             | 89.20           | 183.10      | 5,566.3             | -267.1     | -152.6     | 267.3                 | 15.28                 | 15.16                |                       |
| 6,010.0             | 91.10           | 181.60      | 5,566.2             | -298.0     | -153.9     | 298.2                 | 7.81                  | 6.13                 |                       |
| 6,071.0             | 91.60           | 181.70      | 5,564.8             | -359.0     | -155.6     | 359.2                 | 0.84                  | 0.82                 |                       |
| 6,132.0             | 91.80           | 182.50      | 5,563.0             | -419.9     | -157.9     | 420.1                 | 1.35                  | 0.33                 |                       |
| 6,194.0             | 91.80           | 182.20      | 5,561.0             | -481.8     | -160.4     | 482.0                 | 0.48                  | 0.00                 |                       |
| 6,254.0             | 91.80           | 181.60      | 5,559.2             | -541.8     | -162.4     | 542.0                 | 1.00                  | 0.00                 |                       |
| 6,315.0             | 92.00           | 180.80      | 5,557.1             | -602.7     | -163.7     | 602.9                 | 1.35                  | 0.33                 |                       |
| 6,376.0             | 91.00           | 181.60      | 5,555.5             | -663.7     | -164.9     | 663.9                 | 2.10                  | -1.64                |                       |
| 6,437.0             | 90.90           | 181.60      | 5,554.5             | -724.7     | -166.6     | 724.9                 | 0.16                  | -0.16                |                       |
| 6,499.0             | 91.10           | 181.40      | 5,553.4             | -786.6     | -168.3     | 786.8                 | 0.46                  | 0.32                 |                       |
| 6,560.0             | 91.40           | 181.00      | 5,552.1             | -847.6     | -169.5     | 847.8                 | 0.82                  | 0.49                 |                       |
| 6,621.0             | 91.40           | 181.10      | 5,550.6             | -908.6     | -170.7     | 908.8                 | 0.16                  | 0.00                 |                       |
| 6,683.0             | 91.20           | 181.40      | 5,549.2             | -970.6     | -172.0     | 970.8                 | 0.58                  | -0.32                |                       |
| 6,744.0             | 91.20           | 180.60      | 5,547.9             | -1,031.5   | -173.1     | 1,031.7               | 1.31                  | 0.00                 |                       |
| 6,806.0             | 91.20           | 180.40      | 5,546.6             | -1,093.5   | -173.6     | 1,093.7               | 0.32                  | 0.00                 |                       |
| 6,867.0             | 89.90           | 179.30      | 5,546.1             | -1,154.5   | -173.5     | 1,154.7               | 2.79                  | -2.13                |                       |

# Cathedral Energy Services

## Survey Report

|                  |                            |                                     |                             |
|------------------|----------------------------|-------------------------------------|-----------------------------|
| <b>Company:</b>  | EnCana Oil & Gas (USA) Inc | <b>Local Co-ordinate Reference:</b> | Well Lybrook A12-2306 01H   |
| <b>Project:</b>  | Rio Arriba County, NM      | <b>TVD Reference:</b>               | 18' KB @ 6711.0ft (A1099)   |
| <b>Site:</b>     | S12-T23N-R6W               | <b>MD Reference:</b>                | 18' KB @ 6711.0ft (A1099)   |
| <b>Well:</b>     | Lybrook A12-2306 01H       | <b>North Reference:</b>             | True                        |
| <b>Wellbore:</b> | Hz                         | <b>Survey Calculation Method:</b>   | Minimum Curvature           |
| <b>Design:</b>   | FINAL                      | <b>Database:</b>                    | USA EDM 5000 Multi Users DB |

### Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Formations / Comments |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|-----------------------|
| 6,929.0             | 90.00           | 178.50      | 5,546.1             | -1,216.5   | -172.3     | 1,216.7               | 1.30                  | 0.16                 |                       |
| 6,990.0             | 90.00           | 179.30      | 5,546.1             | -1,277.5   | -171.1     | 1,277.7               | 1.31                  | 0.00                 |                       |
| 7,052.0             | 90.00           | 178.60      | 5,546.1             | -1,339.5   | -170.0     | 1,339.7               | 1.13                  | 0.00                 |                       |
| 7,113.0             | 89.90           | 178.70      | 5,546.2             | -1,400.5   | -168.5     | 1,400.7               | 0.23                  | -0.16                |                       |
| 7,174.0             | 91.00           | 178.80      | 5,545.7             | -1,461.4   | -167.2     | 1,461.6               | 1.81                  | 1.80                 |                       |
| 7,235.0             | 90.70           | 179.10      | 5,544.8             | -1,522.4   | -166.1     | 1,522.6               | 0.70                  | -0.49                |                       |
| 7,297.0             | 91.00           | 179.50      | 5,543.9             | -1,584.4   | -165.3     | 1,584.6               | 0.81                  | 0.48                 |                       |
| 7,358.0             | 91.00           | 178.60      | 5,542.8             | -1,645.4   | -164.3     | 1,645.6               | 1.48                  | 0.00                 |                       |
| 7,419.0             | 90.70           | 178.50      | 5,541.9             | -1,706.4   | -162.8     | 1,706.6               | 0.52                  | -0.49                |                       |
| 7,482.0             | 91.00           | 178.30      | 5,541.0             | -1,769.3   | -161.0     | 1,769.5               | 0.57                  | 0.48                 |                       |
| 7,545.0             | 92.70           | 180.70      | 5,538.9             | -1,832.3   | -160.5     | 1,832.5               | 4.67                  | 2.70                 |                       |
| 7,608.0             | 91.90           | 182.00      | 5,536.4             | -1,895.2   | -161.9     | 1,895.4               | 2.42                  | -1.27                |                       |
| 7,672.0             | 91.70           | 180.70      | 5,534.4             | -1,959.2   | -163.4     | 1,959.4               | 2.05                  | -0.31                |                       |
| 7,735.0             | 91.50           | 181.10      | 5,532.6             | -2,022.1   | -164.4     | 2,022.3               | 0.71                  | -0.32                |                       |
| 7,798.0             | 91.40           | 180.00      | 5,531.0             | -2,085.1   | -165.0     | 2,085.3               | 1.75                  | -0.16                |                       |
| 7,861.0             | 92.20           | 181.40      | 5,529.1             | -2,148.1   | -165.8     | 2,148.3               | 2.56                  | 1.27                 |                       |
| 7,925.0             | 92.20           | 181.20      | 5,526.6             | -2,212.0   | -167.3     | 2,212.2               | 0.31                  | 0.00                 |                       |
| 7,988.0             | 92.20           | 180.90      | 5,524.2             | -2,275.0   | -168.4     | 2,275.2               | 0.48                  | 0.00                 |                       |
| 8,051.0             | 91.90           | 180.00      | 5,521.9             | -2,337.9   | -168.9     | 2,338.1               | 1.50                  | -0.48                |                       |
| 8,114.0             | 91.80           | 179.60      | 5,519.9             | -2,400.9   | -168.7     | 2,401.1               | 0.65                  | -0.16                |                       |
| 8,178.0             | 91.90           | 179.00      | 5,517.8             | -2,464.8   | -167.9     | 2,465.0               | 0.95                  | 0.16                 |                       |
| 8,241.0             | 91.40           | 179.90      | 5,516.0             | -2,527.8   | -167.3     | 2,528.0               | 1.63                  | -0.79                |                       |
| 8,304.0             | 89.70           | 178.10      | 5,515.4             | -2,590.8   | -166.2     | 2,591.0               | 3.93                  | -2.70                |                       |
| 8,367.0             | 90.20           | 178.70      | 5,515.5             | -2,653.8   | -164.4     | 2,654.0               | 1.24                  | 0.79                 |                       |
| 8,430.0             | 91.80           | 179.70      | 5,514.4             | -2,716.7   | -163.6     | 2,716.9               | 2.99                  | 2.54                 |                       |
| 8,494.0             | 89.90           | 177.80      | 5,513.4             | -2,780.7   | -162.2     | 2,780.9               | 4.20                  | -2.97                |                       |
| 8,557.0             | 89.30           | 177.40      | 5,513.8             | -2,843.7   | -159.5     | 2,843.9               | 1.14                  | -0.95                |                       |
| 8,620.0             | 91.40           | 177.10      | 5,513.5             | -2,906.6   | -156.5     | 2,906.8               | 3.37                  | 3.33                 |                       |
| 8,683.0             | 90.00           | 175.80      | 5,512.7             | -2,969.5   | -152.6     | 2,969.6               | 3.03                  | -2.22                |                       |
| 8,746.0             | 89.50           | 175.80      | 5,513.0             | -3,032.3   | -148.0     | 3,032.5               | 0.79                  | -0.79                |                       |
| 8,810.0             | 92.30           | 178.50      | 5,512.0             | -3,096.2   | -144.8     | 3,096.4               | 6.08                  | 4.37                 |                       |
| 8,841.0             | 92.80           | 181.10      | 5,510.6             | -3,127.2   | -144.7     | 3,127.3               | 8.53                  | 1.61                 |                       |
| 8,873.0             | 93.30           | 181.70      | 5,508.9             | -3,159.1   | -145.5     | 3,159.3               | 2.44                  | 1.56                 |                       |
| 8,936.0             | 91.60           | 182.80      | 5,506.2             | -3,222.0   | -148.0     | 3,222.2               | 3.21                  | -2.70                |                       |
| 9,000.0             | 87.60           | 184.20      | 5,506.6             | -3,285.9   | -151.9     | 3,286.0               | 6.62                  | -6.25                |                       |
| 9,063.0             | 89.20           | 183.70      | 5,508.4             | -3,348.7   | -156.2     | 3,348.9               | 2.66                  | 2.54                 |                       |
| 9,126.0             | 89.90           | 181.20      | 5,508.9             | -3,411.6   | -158.9     | 3,411.8               | 4.12                  | 1.11                 |                       |
| 9,189.0             | 89.20           | 180.20      | 5,509.4             | -3,474.6   | -159.7     | 3,474.8               | 1.94                  | -1.11                |                       |
| 9,252.0             | 90.40           | 181.50      | 5,509.6             | -3,537.6   | -160.6     | 3,537.8               | 2.81                  | 1.90                 |                       |
| 9,315.0             | 91.30           | 181.50      | 5,508.7             | -3,600.6   | -162.2     | 3,600.8               | 1.43                  | 1.43                 |                       |
| 9,379.0             | 91.20           | 183.40      | 5,507.3             | -3,664.5   | -165.0     | 3,664.7               | 2.97                  | -0.16                |                       |
| 9,442.0             | 89.00           | 182.00      | 5,507.2             | -3,727.4   | -167.9     | 3,727.6               | 4.14                  | -3.49                |                       |
| 9,505.0             | 89.80           | 182.60      | 5,507.8             | -3,790.4   | -170.5     | 3,790.6               | 1.59                  | 1.27                 |                       |
| 9,568.0             | 90.30           | 180.30      | 5,507.8             | -3,853.3   | -172.1     | 3,853.5               | 3.74                  | 0.79                 |                       |
| 9,632.0             | 90.80           | 181.40      | 5,507.2             | -3,917.3   | -173.0     | 3,917.5               | 1.89                  | 0.78                 |                       |
| 9,695.0             | 89.90           | 180.40      | 5,506.8             | -3,980.3   | -174.0     | 3,980.5               | 2.14                  | -1.43                |                       |
| 9,758.0             | 90.20           | 180.60      | 5,506.7             | -4,043.3   | -174.6     | 4,043.5               | 0.57                  | 0.48                 |                       |
| 9,821.0             | 90.20           | 179.40      | 5,506.5             | -4,106.3   | -174.6     | 4,106.5               | 1.90                  | 0.00                 |                       |
| 9,884.0             | 90.20           | 180.00      | 5,506.3             | -4,169.3   | -174.2     | 4,169.5               | 0.95                  | 0.00                 |                       |
| 9,948.0             | 90.70           | 179.60      | 5,505.8             | -4,233.3   | -174.0     | 4,233.5               | 1.00                  | 0.78                 |                       |
| 10,011.0            | 90.90           | 178.60      | 5,504.9             | -4,296.3   | -173.0     | 4,296.5               | 1.62                  | 0.32                 |                       |
| 10,074.0            | 90.40           | 180.00      | 5,504.2             | -4,359.3   | -172.2     | 4,359.5               | 2.36                  | -0.79                |                       |
| 10,137.0            | 90.70           | 180.30      | 5,503.6             | -4,422.3   | -172.4     | 4,422.5               | 0.67                  | 0.48                 |                       |

# Cathedral Energy Services

## Survey Report

|                  |                            |                                     |                             |
|------------------|----------------------------|-------------------------------------|-----------------------------|
| <b>Company:</b>  | EnCana Oil & Gas (USA) Inc | <b>Local Co-ordinate Reference:</b> | Well Lybrook A12-2306 01H   |
| <b>Project:</b>  | Rio Arriba County, NM      | <b>TVD Reference:</b>               | 18' KB @ 6711.0ft (A1099)   |
| <b>Site:</b>     | S12-T23N-R6W               | <b>MD Reference:</b>                | 18' KB @ 6711.0ft (A1099)   |
| <b>Well:</b>     | Lybrook A12-2306 01H       | <b>North Reference:</b>             | True                        |
| <b>Wellbore:</b> | Hz                         | <b>Survey Calculation Method:</b>   | Minimum Curvature           |
| <b>Design:</b>   | FINAL                      | <b>Database:</b>                    | USA EDM 5000 Multi Users DB |

### Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Formations / Comments        |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|------------------------------|
| 10,200.0            | 90.50           | 180.50      | 5,502.9             | -4,485.3   | -172.9     | 4,485.5               | 0.45                  | -0.32                |                              |
| 10,263.0            | 89.70           | 180.70      | 5,502.8             | -4,548.3   | -173.5     | 4,548.5               | 1.31                  | -1.27                |                              |
| 10,327.0            | 89.60           | 179.90      | 5,503.2             | -4,612.3   | -173.8     | 4,612.5               | 1.26                  | -0.16                |                              |
| 10,390.0            | 90.00           | 179.80      | 5,503.4             | -4,675.3   | -173.7     | 4,675.5               | 0.65                  | 0.63                 |                              |
| 10,453.0            | 90.40           | 180.30      | 5,503.2             | -4,738.3   | -173.7     | 4,738.5               | 1.02                  | 0.63                 |                              |
| 10,516.0            | 90.50           | 179.40      | 5,502.7             | -4,801.3   | -173.6     | 4,801.5               | 1.44                  | 0.16                 |                              |
| 10,570.0            | 91.10           | 180.00      | 5,501.9             | -4,855.3   | -173.3     | 4,855.5               | 1.57                  | 1.11                 | Last CES Survey @ 10,570' MD |
| 10,620.0            | 91.10           | 180.00      | 5,501.0             | -4,905.2   | -173.3     | 4,905.5               | 0.00                  | 0.00                 | PTB @ 10,620' MD             |

### Targets

#### Target Name

| - hit/miss target<br>- Shape                                                                                                            | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude  | Longitude   |
|-----------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|----------|------------|------------|---------------|--------------|-----------|-------------|
| Lybrook A12-2306 01H F<br>- actual wellpath misses target center by 71.8ft at 10620.0ft MD (5501.0 TVD, -4905.2 N, -173.3 E)<br>- Point | 0.00          | 0.00         | 5,562.8  | -4,924.4   | -142.2     | 1,906,353.18  | 1,297,619.65 | 36.233592 | -107.412372 |
| Lybrook A12-2306 01H F<br>- actual wellpath misses target center by 20.4ft at 5963.8ft MD (5565.8 TVD, -251.9 N, -151.8 E)<br>- Point   | 0.00          | 0.00         | 5,579.0  | -251.9     | -136.2     | 1,911,025.20  | 1,297,681.59 | 36.246426 | -107.412352 |
| Lybrook A12-2306 01H F<br>- actual wellpath misses target center by 36.8ft at 10620.0ft MD (5501.0 TVD, -4905.2 N, -173.3 E)<br>- Point | 0.00          | 0.00         | 5,505.6  | -4,924.4   | -142.2     | 1,906,353.18  | 1,297,619.65 | 36.233592 | -107.412372 |

### Design Annotations

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates |            | Comment                      |
|---------------------|---------------------|-------------------|------------|------------------------------|
|                     |                     | +N/-S (ft)        | +E/-W (ft) |                              |
| 10,570.0            | 5,501.9             | -4,855.3          | -173.3     | Last CES Survey @ 10,570' MD |
| 10,620.0            | 5,501.0             | -4,905.2          | -173.3     | PTB @ 10,620' MD             |

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

# **EnCana Oil & Gas (USA) Inc**

Rio Arriba County, NM

S12-T23N-R6W

Lybrook A12-2306 01H

Hz

Design: FINAL

## **Survey Report - Geographic**

26 November, 2014

# Cathedral Energy Services

## Survey Report - Geographic

|                  |                            |                                     |                             |
|------------------|----------------------------|-------------------------------------|-----------------------------|
| <b>Company:</b>  | EnCana Oil & Gas (USA) Inc | <b>Local Co-ordinate Reference:</b> | Well Lybrook A12-2306 01H   |
| <b>Project:</b>  | Rio Arriba County, NM      | <b>TVD Reference:</b>               | 18' KB @ 6711.0ft (A1099)   |
| <b>Site:</b>     | S12-T23N-R6W               | <b>MD Reference:</b>                | 18' KB @ 6711.0ft (A1099)   |
| <b>Well:</b>     | Lybrook A12-2306 01H       | <b>North Reference:</b>             | True                        |
| <b>Wellbore:</b> | Hz                         | <b>Survey Calculation Method:</b>   | Minimum Curvature           |
| <b>Design:</b>   | FINAL                      | <b>Database:</b>                    | USA EDM 5000 Multi Users DB |

|                    |                           |                      |                |
|--------------------|---------------------------|----------------------|----------------|
| <b>Project</b>     | Rio Arriba County, NM     |                      |                |
| <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>   | New Mexico Central Zone   |                      |                |

|                       |          |              |                 |                   |             |
|-----------------------|----------|--------------|-----------------|-------------------|-------------|
| Site                  |          | S12-T23N-R6W |                 |                   |             |
| Site Position:        |          | Northing:    | 1,911,275.48 ft | Latitude:         | 36.247118   |
| From:                 | Lat/Long | Easting:     | 1,297,820.84 ft | Longitude:        | -107.411890 |
| Position Uncertainty: | 0.0 ft   | Slot Radius: | 13.200 in       | Grid Convergence: | -0.69 °     |

|                      |                      |        |                     |                 |               |             |
|----------------------|----------------------|--------|---------------------|-----------------|---------------|-------------|
| Well                 | Lybrook A12-2306 01H |        |                     |                 |               |             |
| Well Position        | +N/-S                | 0.0 ft | Northing:           | 1,911,275.48 ft | Latitude:     | 36.247118   |
|                      | +E/-W                | 0.0 ft | Easting:            | 1,297,820.84 ft | Longitude:    | -107.411890 |
| Position Uncertainty |                      | 0.0 ft | Wellhead Elevation: | ft              | Ground Level: | 6,693.0 ft  |

|                  |                   |                    |                        |                      |                            |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| <b>Wellbore</b>  | Hz                |                    |                        |                      |                            |
| <b>Magnetics</b> | <b>Model Name</b> | <b>Sample Date</b> | <b>Declination (°)</b> | <b>Dip Angle (°)</b> | <b>Field Strength (nT)</b> |
|                  | IGRF2010          | 11/16/2014         | 9.27                   | 63.02                | 50,158                     |

|                          |                              |                   |                   |                      |     |
|--------------------------|------------------------------|-------------------|-------------------|----------------------|-----|
| <b>Design</b>            | FINAL                        |                   |                   |                      |     |
| <b>Audit Notes:</b>      |                              |                   |                   |                      |     |
| <b>Version:</b>          | 1.0                          | <b>Phase:</b>     | ACTUAL            | <b>Tie On Depth:</b> | 0.0 |
| <b>Vertical Section:</b> | <b>Depth From (TVD) (ft)</b> | <b>+N/-S (ft)</b> | <b>+E/-W (ft)</b> | <b>Direction (°)</b> |     |
|                          | 0.0                          | 0.0               | 0.0               | 180.07               |     |

|                       |                |                          |                  |                    |  |
|-----------------------|----------------|--------------------------|------------------|--------------------|--|
| <b>Survey Program</b> | <b>Date</b>    | 11/26/2014               |                  |                    |  |
| <b>From (ft)</b>      | <b>To (ft)</b> | <b>Survey (Wellbore)</b> | <b>Tool Name</b> | <b>Description</b> |  |
| 533.0                 | 10,620.0       | SURVEYS (Hz)             | Geolink MWD      | Geolink MWD        |  |

|                            |                        |                    |                            |                   |                   |                          |                         |                 |                  |  |
|----------------------------|------------------------|--------------------|----------------------------|-------------------|-------------------|--------------------------|-------------------------|-----------------|------------------|--|
| <b>Survey</b>              |                        |                    |                            |                   |                   |                          |                         |                 |                  |  |
| <b>Measured Depth (ft)</b> | <b>Inclination (°)</b> | <b>Azimuth (°)</b> | <b>Vertical Depth (ft)</b> | <b>+N/-S (ft)</b> | <b>+E/-W (ft)</b> | <b>Map Northing (ft)</b> | <b>Map Easting (ft)</b> | <b>Latitude</b> | <b>Longitude</b> |  |
| 0.0                        | 0.00                   | 0.00               | 0.0                        | 0.0               | 0.0               | 1,911,275.48             | 1,297,820.84            | 36.247118       | -107.411890      |  |
| 533.0                      | 0.60                   | 203.70             | 533.0                      | -2.6              | -1.1              | 1,911,272.94             | 1,297,819.69            | 36.247111       | -107.411894      |  |
| 597.0                      | 0.40                   | 177.90             | 597.0                      | -3.1              | -1.2              | 1,911,272.41             | 1,297,819.56            | 36.247110       | -107.411895      |  |
| 660.0                      | 0.80                   | 201.90             | 660.0                      | -3.7              | -1.4              | 1,911,271.79             | 1,297,819.40            | 36.247108       | -107.411895      |  |
| 723.0                      | 0.80                   | 187.40             | 723.0                      | -4.6              | -1.6              | 1,911,270.94             | 1,297,819.16            | 36.247106       | -107.411896      |  |
| 786.0                      | 0.80                   | 194.80             | 786.0                      | -5.4              | -1.8              | 1,911,270.08             | 1,297,818.99            | 36.247103       | -107.411896      |  |
| 849.0                      | 0.80                   | 199.50             | 849.0                      | -6.3              | -2.1              | 1,911,269.25             | 1,297,818.72            | 36.247101       | -107.411897      |  |
| 912.0                      | 0.70                   | 180.10             | 912.0                      | -7.1              | -2.2              | 1,911,268.45             | 1,297,818.56            | 36.247099       | -107.411898      |  |
| 976.0                      | 0.50                   | 173.00             | 976.0                      | -7.7              | -2.2              | 1,911,267.78             | 1,297,818.58            | 36.247097       | -107.411898      |  |
| 1,039.0                    | 0.60                   | 178.40             | 1,039.0                    | -8.3              | -2.1              | 1,911,267.18             | 1,297,818.62            | 36.247095       | -107.411897      |  |
| 1,102.0                    | 0.40                   | 218.10             | 1,102.0                    | -8.8              | -2.3              | 1,911,266.68             | 1,297,818.49            | 36.247094       | -107.411898      |  |
| 1,165.0                    | 1.00                   | 196.00             | 1,164.9                    | -9.5              | -2.5              | 1,911,265.98             | 1,297,818.19            | 36.247092       | -107.411899      |  |

# Cathedral Energy Services

## Survey Report - Geographic

|                  |                            |                                     |                             |
|------------------|----------------------------|-------------------------------------|-----------------------------|
| <b>Company:</b>  | EnCana Oil & Gas (USA) Inc | <b>Local Co-ordinate Reference:</b> | Well Lybrook A12-2306 01H   |
| <b>Project:</b>  | Rio Arriba County, NM      | <b>TVD Reference:</b>               | 18' KB @ 6711.0ft (A1099)   |
| <b>Site:</b>     | S12-T23N-R6W               | <b>MD Reference:</b>                | 18' KB @ 6711.0ft (A1099)   |
| <b>Well:</b>     | Lybrook A12-2306 01H       | <b>North Reference:</b>             | True                        |
| <b>Wellbore:</b> | Hz                         | <b>Survey Calculation Method:</b>   | Minimum Curvature           |
| <b>Design:</b>   | FINAL                      | <b>Database:</b>                    | USA EDM 5000 Multi Users DB |

| Survey              |                 |             |                     |            |            |                   |                  |           |             |
|---------------------|-----------------|-------------|---------------------|------------|------------|-------------------|------------------|-----------|-------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (ft) | Map Easting (ft) | Latitude  | Longitude   |
| 1,228.0             | 0.60            | 243.70      | 1,227.9             | -10.2      | -3.0       | 1,911,265.31      | 1,297,817.74     | 36.247090 | -107.411900 |
| 1,292.0             | 0.80            | 262.80      | 1,291.9             | -10.4      | -3.7       | 1,911,265.11      | 1,297,816.99     | 36.247089 | -107.411903 |
| 1,355.0             | 1.00            | 245.30      | 1,354.9             | -10.7      | -4.7       | 1,911,264.84      | 1,297,816.05     | 36.247089 | -107.411906 |
| 1,418.0             | 0.90            | 239.20      | 1,417.9             | -11.2      | -5.6       | 1,911,264.37      | 1,297,815.12     | 36.247087 | -107.411909 |
| 1,481.0             | 0.70            | 267.60      | 1,480.9             | -11.4      | -6.4       | 1,911,264.11      | 1,297,814.31     | 36.247087 | -107.411912 |
| 1,544.0             | 0.70            | 256.10      | 1,543.9             | -11.6      | -7.2       | 1,911,264.01      | 1,297,813.55     | 36.247086 | -107.411915 |
| 1,607.0             | 0.80            | 261.70      | 1,606.9             | -11.7      | -8.0       | 1,911,263.86      | 1,297,812.74     | 36.247086 | -107.411917 |
| 1,671.0             | 0.70            | 260.40      | 1,670.9             | -11.8      | -8.8       | 1,911,263.74      | 1,297,811.91     | 36.247086 | -107.411920 |
| 1,734.0             | 0.80            | 242.60      | 1,733.9             | -12.1      | -9.6       | 1,911,263.49      | 1,297,811.14     | 36.247085 | -107.411923 |
| 1,797.0             | 0.70            | 263.90      | 1,796.9             | -12.4      | -10.3      | 1,911,263.25      | 1,297,810.36     | 36.247084 | -107.411925 |
| 1,860.0             | 0.70            | 243.50      | 1,859.9             | -12.6      | -11.1      | 1,911,263.05      | 1,297,809.63     | 36.247084 | -107.411928 |
| 1,923.0             | 1.10            | 255.40      | 1,922.9             | -12.9      | -12.0      | 1,911,262.74      | 1,297,808.70     | 36.247083 | -107.411931 |
| 1,987.0             | 1.00            | 257.60      | 1,986.9             | -13.2      | -13.1      | 1,911,262.47      | 1,297,807.55     | 36.247082 | -107.411935 |
| 2,050.0             | 1.00            | 256.70      | 2,049.9             | -13.4      | -14.2      | 1,911,262.24      | 1,297,806.48     | 36.247081 | -107.411938 |
| 2,113.0             | 0.70            | 19.50       | 2,112.9             | -13.2      | -14.6      | 1,911,262.48      | 1,297,806.08     | 36.247082 | -107.411940 |
| 2,176.0             | 1.10            | 46.90       | 2,175.8             | -12.4      | -14.0      | 1,911,263.25      | 1,297,806.65     | 36.247084 | -107.411938 |
| 2,239.0             | 1.20            | 33.90       | 2,238.8             | -11.4      | -13.2      | 1,911,264.20      | 1,297,807.48     | 36.247087 | -107.411935 |
| 2,302.0             | 1.00            | 39.80       | 2,301.8             | -10.5      | -12.5      | 1,911,265.17      | 1,297,808.21     | 36.247089 | -107.411933 |
| 2,366.0             | 0.70            | 66.90       | 2,365.8             | -9.9       | -11.8      | 1,911,265.74      | 1,297,808.93     | 36.247091 | -107.411930 |
| 2,429.0             | 0.50            | 46.20       | 2,428.8             | -9.5       | -11.2      | 1,911,266.07      | 1,297,809.49     | 36.247092 | -107.411928 |
| 2,492.0             | 0.40            | 62.90       | 2,491.8             | -9.3       | -10.8      | 1,911,266.36      | 1,297,809.89     | 36.247093 | -107.411927 |
| 2,555.0             | 0.70            | 73.30       | 2,554.8             | -9.0       | -10.3      | 1,911,266.56      | 1,297,810.45     | 36.247093 | -107.411925 |
| 2,618.0             | 0.50            | 95.90       | 2,617.8             | -9.0       | -9.6       | 1,911,266.64      | 1,297,811.10     | 36.247093 | -107.411923 |
| 2,682.0             | 0.70            | 93.20       | 2,681.8             | -9.0       | -9.0       | 1,911,266.58      | 1,297,811.76     | 36.247093 | -107.411921 |
| 2,745.0             | 0.40            | 76.00       | 2,744.8             | -9.0       | -8.4       | 1,911,266.60      | 1,297,812.36     | 36.247093 | -107.411919 |
| 2,808.0             | 0.60            | 84.20       | 2,807.8             | -8.9       | -7.8       | 1,911,266.68      | 1,297,812.90     | 36.247094 | -107.411917 |
| 2,871.0             | 0.80            | 104.50      | 2,870.8             | -9.0       | -7.1       | 1,911,266.60      | 1,297,813.66     | 36.247093 | -107.411914 |
| 2,934.0             | 0.90            | 99.30       | 2,933.8             | -9.2       | -6.2       | 1,911,266.40      | 1,297,814.57     | 36.247093 | -107.411911 |
| 2,997.0             | 2.40            | 358.20      | 2,996.8             | -7.9       | -5.7       | 1,911,267.63      | 1,297,815.03     | 36.247096 | -107.411910 |
| 3,060.0             | 6.50            | 350.30      | 3,059.6             | -3.1       | -6.4       | 1,911,272.47      | 1,297,814.44     | 36.247110 | -107.411912 |
| 3,124.0             | 8.50            | 352.20      | 3,123.0             | 5.2        | -7.6       | 1,911,280.75      | 1,297,813.29     | 36.247132 | -107.411916 |
| 3,187.0             | 9.90            | 350.40      | 3,185.2             | 15.1       | -9.1       | 1,911,290.72      | 1,297,811.88     | 36.247160 | -107.411921 |
| 3,250.0             | 11.40           | 350.30      | 3,247.1             | 26.6       | -11.1      | 1,911,302.22      | 1,297,810.06     | 36.247191 | -107.411928 |
| 3,313.0             | 13.80           | 346.90      | 3,308.6             | 40.1       | -13.9      | 1,911,315.71      | 1,297,807.47     | 36.247228 | -107.411937 |
| 3,376.0             | 15.50           | 342.70      | 3,369.5             | 55.4       | -18.1      | 1,911,331.11      | 1,297,803.45     | 36.247270 | -107.411952 |
| 3,439.0             | 17.90           | 341.00      | 3,429.9             | 72.6       | -23.7      | 1,911,348.37      | 1,297,798.00     | 36.247318 | -107.411971 |
| 3,503.0             | 18.50           | 341.80      | 3,490.7             | 91.6       | -30.1      | 1,911,367.39      | 1,297,791.85     | 36.247370 | -107.411992 |
| 3,566.0             | 17.90           | 342.70      | 3,550.5             | 110.3      | -36.1      | 1,911,386.20      | 1,297,786.08     | 36.247421 | -107.412013 |
| 3,629.0             | 18.40           | 342.30      | 3,610.4             | 129.0      | -42.0      | 1,911,404.99      | 1,297,780.40     | 36.247472 | -107.412033 |
| 3,692.0             | 17.80           | 342.40      | 3,670.3             | 147.7      | -47.9      | 1,911,423.71      | 1,297,774.69     | 36.247524 | -107.412053 |
| 3,755.0             | 18.90           | 340.90      | 3,730.1             | 166.5      | -54.2      | 1,911,442.60      | 1,297,768.66     | 36.247575 | -107.412074 |
| 3,819.0             | 19.70           | 341.60      | 3,790.5             | 186.5      | -61.0      | 1,911,462.72      | 1,297,762.11     | 36.247630 | -107.412097 |
| 3,882.0             | 19.00           | 340.10      | 3,849.9             | 206.2      | -67.8      | 1,911,482.52      | 1,297,755.50     | 36.247685 | -107.412120 |
| 3,945.0             | 19.00           | 340.70      | 3,909.5             | 225.6      | -74.7      | 1,911,501.92      | 1,297,748.85     | 36.247738 | -107.412144 |
| 4,008.0             | 18.00           | 341.10      | 3,969.2             | 244.4      | -81.2      | 1,911,520.88      | 1,297,742.54     | 36.247790 | -107.412166 |
| 4,071.0             | 19.50           | 338.60      | 4,028.9             | 263.4      | -88.2      | 1,911,539.97      | 1,297,735.78     | 36.247842 | -107.412189 |
| 4,135.0             | 19.80           | 338.00      | 4,089.2             | 283.4      | -96.2      | 1,911,560.06      | 1,297,728.06     | 36.247897 | -107.412216 |
| 4,198.0             | 17.70           | 338.90      | 4,148.8             | 302.3      | -103.6     | 1,911,578.98      | 1,297,720.84     | 36.247948 | -107.412242 |
| 4,261.0             | 16.10           | 336.30      | 4,209.1             | 319.2      | -110.6     | 1,911,595.99      | 1,297,714.08     | 36.247995 | -107.412265 |
| 4,324.0             | 13.80           | 339.60      | 4,269.9             | 334.3      | -116.7     | 1,911,611.11      | 1,297,708.13     | 36.248036 | -107.412286 |
| 4,387.0             | 12.70           | 345.10      | 4,331.3             | 348.0      | -121.1     | 1,911,624.90      | 1,297,703.90     | 36.248074 | -107.412301 |
| 4,451.0             | 11.50           | 343.10      | 4,393.8             | 360.9      | -124.8     | 1,911,637.84      | 1,297,700.39     | 36.248109 | -107.412313 |
| 4,514.0             | 8.60            | 334.10      | 4,455.9             | 371.1      | -128.7     | 1,911,648.14      | 1,297,696.63     | 36.248138 | -107.412327 |
| 4,577.0             | 5.50            | 326.40      | 4,518.4             | 377.9      | -132.4     | 1,911,654.94      | 1,297,692.98     | 36.248156 | -107.412339 |
| 4,640.0             | 5.10            | 325.20      | 4,581.1             | 382.7      | -135.7     | 1,911,659.79      | 1,297,689.77     | 36.248169 | -107.412350 |

# Cathedral Energy Services

## Survey Report - Geographic

|                  |                            |                                     |                             |
|------------------|----------------------------|-------------------------------------|-----------------------------|
| <b>Company:</b>  | EnCana Oil & Gas (USA) Inc | <b>Local Co-ordinate Reference:</b> | Well Lybrook A12-2306 01H   |
| <b>Project:</b>  | Rio Arriba County, NM      | <b>TVD Reference:</b>               | 18' KB @ 6711.0ft (A1099)   |
| <b>Site:</b>     | S12-T23N-R6W               | <b>MD Reference:</b>                | 18' KB @ 6711.0ft (A1099)   |
| <b>Well:</b>     | Lybrook A12-2306 01H       | <b>North Reference:</b>             | True                        |
| <b>Wellbore:</b> | HZ                         | <b>Survey Calculation Method:</b>   | Minimum Curvature           |
| <b>Design:</b>   | FINAL                      | <b>Database:</b>                    | USA EDM 5000 Multi Users DB |

| Survey                    |                    |                |                           |               |               |                         |                        |           |             |
|---------------------------|--------------------|----------------|---------------------------|---------------|---------------|-------------------------|------------------------|-----------|-------------|
| Measured<br>Depth<br>(ft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Map<br>Northing<br>(ft) | Map<br>Easting<br>(ft) | Latitude  | Longitude   |
| 4,703.0                   | 3.10               | 323.50         | 4,644.0                   | 386.4         | -138.3        | 1,911,663.49            | 1,297,687.20           | 36.248179 | -107.412359 |
| 4,767.0                   | 0.60               | 321.50         | 4,707.9                   | 388.0         | -139.5        | 1,911,665.16            | 1,297,685.98           | 36.248184 | -107.412363 |
| 4,830.0                   | 0.50               | 171.10         | 4,770.9                   | 388.0         | -139.7        | 1,911,665.15            | 1,297,685.82           | 36.248184 | -107.412364 |
| 4,893.0                   | 0.50               | 159.60         | 4,833.9                   | 387.5         | -139.5        | 1,911,664.61            | 1,297,685.95           | 36.248182 | -107.412363 |
| 4,956.0                   | 2.80               | 176.60         | 4,896.9                   | 385.7         | -139.4        | 1,911,662.82            | 1,297,686.12           | 36.248177 | -107.412363 |
| 4,988.0                   | 7.70               | 177.60         | 4,928.7                   | 382.8         | -139.2        | 1,911,659.89            | 1,297,686.22           | 36.248169 | -107.412362 |
| 5,019.0                   | 9.10               | 177.90         | 4,959.4                   | 378.2         | -139.0        | 1,911,655.37            | 1,297,686.34           | 36.248157 | -107.412362 |
| 5,051.0                   | 9.00               | 178.40         | 4,991.0                   | 373.2         | -138.9        | 1,911,650.33            | 1,297,686.44           | 36.248143 | -107.412361 |
| 5,082.0                   | 11.30              | 180.90         | 5,021.5                   | 367.8         | -138.9        | 1,911,644.87            | 1,297,686.40           | 36.248128 | -107.412361 |
| 5,114.0                   | 14.70              | 182.90         | 5,052.7                   | 360.6         | -139.1        | 1,911,637.68            | 1,297,686.06           | 36.248108 | -107.412362 |
| 5,146.0                   | 16.70              | 183.70         | 5,083.5                   | 351.9         | -139.6        | 1,911,629.05            | 1,297,685.45           | 36.248085 | -107.412364 |
| 5,177.0                   | 19.20              | 181.40         | 5,113.0                   | 342.4         | -140.0        | 1,911,619.51            | 1,297,684.93           | 36.248059 | -107.412365 |
| 5,209.0                   | 22.90              | 181.50         | 5,142.9                   | 330.9         | -140.3        | 1,911,608.03            | 1,297,684.50           | 36.248027 | -107.412366 |
| 5,241.0                   | 26.90              | 183.60         | 5,171.9                   | 317.4         | -140.9        | 1,911,594.58            | 1,297,683.72           | 36.247990 | -107.412368 |
| 5,272.0                   | 30.70              | 183.60         | 5,199.0                   | 302.5         | -141.9        | 1,911,579.69            | 1,297,682.60           | 36.247949 | -107.412371 |
| 5,304.0                   | 34.60              | 184.90         | 5,226.0                   | 285.3         | -143.2        | 1,911,562.50            | 1,297,681.11           | 36.247902 | -107.412376 |
| 5,336.0                   | 37.10              | 184.50         | 5,251.9                   | 266.6         | -144.7        | 1,911,543.84            | 1,297,679.35           | 36.247850 | -107.412381 |
| 5,367.0                   | 37.10              | 184.10         | 5,276.6                   | 248.0         | -146.1        | 1,911,525.21            | 1,297,677.72           | 36.247799 | -107.412386 |
| 5,399.0                   | 38.10              | 181.20         | 5,302.0                   | 228.5         | -147.0        | 1,911,505.72            | 1,297,676.59           | 36.247746 | -107.412389 |
| 5,430.0                   | 40.40              | 178.20         | 5,326.0                   | 208.9         | -146.9        | 1,911,486.12            | 1,297,676.47           | 36.247692 | -107.412388 |
| 5,462.0                   | 43.40              | 178.50         | 5,349.8                   | 187.5         | -146.3        | 1,911,464.75            | 1,297,676.83           | 36.247633 | -107.412386 |
| 5,494.0                   | 44.50              | 178.70         | 5,372.9                   | 165.3         | -145.7        | 1,911,442.54            | 1,297,677.11           | 36.247572 | -107.412384 |
| 5,525.0                   | 46.60              | 180.00         | 5,394.6                   | 143.2         | -145.5        | 1,911,420.42            | 1,297,677.09           | 36.247511 | -107.412384 |
| 5,557.0                   | 49.40              | 182.10         | 5,416.0                   | 119.4         | -145.9        | 1,911,396.65            | 1,297,676.36           | 36.247446 | -107.412385 |
| 5,589.0                   | 52.50              | 182.30         | 5,436.1                   | 94.6          | -146.9        | 1,911,371.84            | 1,297,675.10           | 36.247378 | -107.412388 |
| 5,620.0                   | 55.30              | 180.90         | 5,454.4                   | 69.6          | -147.6        | 1,911,346.81            | 1,297,674.11           | 36.247309 | -107.412391 |
| 5,652.0                   | 59.00              | 179.20         | 5,471.7                   | 42.7          | -147.6        | 1,911,319.94            | 1,297,673.77           | 36.247235 | -107.412391 |
| 5,683.0                   | 64.00              | 179.00         | 5,486.5                   | 15.5          | -147.2        | 1,911,292.70            | 1,297,673.87           | 36.247161 | -107.412389 |
| 5,698.0                   | 65.90              | 181.10         | 5,492.9                   | 1.9           | -147.2        | 1,911,279.12            | 1,297,673.70           | 36.247123 | -107.412389 |
| 5,761.0                   | 68.80              | 185.10         | 5,517.2                   | -56.2         | -150.3        | 1,911,221.12            | 1,297,669.84           | 36.246964 | -107.412400 |
| 5,793.0                   | 68.70              | 180.70         | 5,528.8                   | -85.9         | -151.9        | 1,911,191.37            | 1,297,667.97           | 36.246882 | -107.412405 |
| 5,824.0                   | 71.10              | 178.00         | 5,539.4                   | -115.0        | -151.5        | 1,911,162.26            | 1,297,667.96           | 36.246802 | -107.412404 |
| 5,856.0                   | 75.50              | 178.50         | 5,548.6                   | -145.7        | -150.6        | 1,911,131.62            | 1,297,668.53           | 36.246718 | -107.412401 |
| 5,888.0                   | 78.70              | 180.00         | 5,555.7                   | -176.9        | -150.2        | 1,911,100.44            | 1,297,668.56           | 36.246632 | -107.412400 |
| 5,918.0                   | 81.40              | 180.50         | 5,560.9                   | -206.4        | -150.3        | 1,911,070.89            | 1,297,668.07           | 36.246551 | -107.412400 |
| 5,948.0                   | 84.50              | 182.50         | 5,564.6                   | -236.2        | -151.1        | 1,911,041.15            | 1,297,666.94           | 36.246469 | -107.412403 |
| 5,979.0                   | 89.20              | 183.10         | 5,566.3                   | -267.1        | -152.6        | 1,911,010.26            | 1,297,665.05           | 36.246385 | -107.412408 |
| 6,010.0                   | 91.10              | 181.60         | 5,566.2                   | -298.0        | -153.9        | 1,910,979.31            | 1,297,663.41           | 36.246299 | -107.412412 |
| 6,071.0                   | 91.60              | 181.70         | 5,564.8                   | -359.0        | -155.6        | 1,910,918.38            | 1,297,660.92           | 36.246132 | -107.412418 |
| 6,132.0                   | 91.80              | 182.50         | 5,563.0                   | -419.9        | -157.9        | 1,910,857.47            | 1,297,657.96           | 36.245965 | -107.412426 |
| 6,194.0                   | 91.80              | 182.20         | 5,561.0                   | -481.8        | -160.4        | 1,910,795.59            | 1,297,654.68           | 36.245795 | -107.412434 |
| 6,254.0                   | 91.80              | 181.60         | 5,559.2                   | -541.8        | -162.4        | 1,910,735.68            | 1,297,651.97           | 36.245630 | -107.412441 |
| 6,315.0                   | 92.00              | 180.80         | 5,557.1                   | -602.7        | -163.7        | 1,910,674.75            | 1,297,649.96           | 36.245463 | -107.412445 |
| 6,376.0                   | 91.00              | 181.60         | 5,555.5                   | -663.7        | -164.9        | 1,910,613.81            | 1,297,647.95           | 36.245295 | -107.412450 |
| 6,437.0                   | 90.90              | 181.60         | 5,554.5                   | -724.7        | -166.6        | 1,910,552.86            | 1,297,645.52           | 36.245128 | -107.412455 |
| 6,499.0                   | 91.10              | 181.40         | 5,553.4                   | -786.6        | -168.3        | 1,910,490.92            | 1,297,643.15           | 36.244957 | -107.412461 |
| 6,560.0                   | 91.40              | 181.00         | 5,552.1                   | -847.6        | -169.5        | 1,910,429.97            | 1,297,641.15           | 36.244790 | -107.412465 |
| 6,621.0                   | 91.40              | 181.10         | 5,550.6                   | -908.6        | -170.7        | 1,910,369.01            | 1,297,639.30           | 36.244622 | -107.412469 |
| 6,683.0                   | 91.20              | 181.40         | 5,549.2                   | -970.6        | -172.0        | 1,910,307.06            | 1,297,637.20           | 36.244452 | -107.412474 |
| 6,744.0                   | 91.20              | 180.60         | 5,547.9                   | -1,031.5      | -173.1        | 1,910,246.10            | 1,297,635.41           | 36.244285 | -107.412477 |
| 6,806.0                   | 91.20              | 180.40         | 5,546.6                   | -1,093.5      | -173.6        | 1,910,184.13            | 1,297,634.12           | 36.244114 | -107.412479 |
| 6,867.0                   | 89.90              | 179.30         | 5,546.1                   | -1,154.5      | -173.5        | 1,910,123.14            | 1,297,633.55           | 36.243947 | -107.412478 |
| 6,929.0                   | 90.00              | 178.50         | 5,546.1                   | -1,216.5      | -172.3        | 1,910,061.14            | 1,297,634.00           | 36.243777 | -107.412474 |
| 6,990.0                   | 90.00              | 179.30         | 5,546.1                   | -1,277.5      | -171.1        | 1,910,000.14            | 1,297,634.44           | 36.243609 | -107.412470 |
| 7,052.0                   | 90.00              | 178.60         | 5,546.1                   | -1,339.5      | -170.0        | 1,909,938.14            | 1,297,634.83           | 36.243439 | -107.412467 |

# Cathedral Energy Services

## Survey Report - Geographic

|           |                            |                              |                             |
|-----------|----------------------------|------------------------------|-----------------------------|
| Company:  | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well Lybrook A12-2306 01H   |
| Project:  | Rio Arriba County, NM      | TVD Reference:               | 18' KB @ 6711.0ft (A1099)   |
| Site:     | S12-T23N-R6W               | MD Reference:                | 18' KB @ 6711.0ft (A1099)   |
| Well:     | Lybrook A12-2306 01H       | North Reference:             | True                        |
| Wellbore: | Hz                         | Survey Calculation Method:   | Minimum Curvature           |
| Design:   | FINAL                      | Database:                    | USA EDM 5000 Multi Users DB |

### Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (ft) | Map Easting (ft) | Latitude  | Longitude   |
|---------------------|-----------------|-------------|---------------------|------------|------------|-------------------|------------------|-----------|-------------|
| 7,113.0             | 89.90           | 178.70      | 5,546.2             | -1,400.5   | -168.5     | 1,909,877.15      | 1,297,635.53     | 36.243271 | -107.412462 |
| 7,174.0             | 91.00           | 178.80      | 5,545.7             | -1,461.4   | -167.2     | 1,909,816.15      | 1,297,636.13     | 36.243104 | -107.412457 |
| 7,235.0             | 90.70           | 179.10      | 5,544.8             | -1,522.4   | -166.1     | 1,909,755.16      | 1,297,636.52     | 36.242936 | -107.412453 |
| 7,297.0             | 91.00           | 179.50      | 5,543.9             | -1,584.4   | -165.3     | 1,909,693.17      | 1,297,636.53     | 36.242766 | -107.412451 |
| 7,358.0             | 91.00           | 178.60      | 5,542.8             | -1,645.4   | -164.3     | 1,909,632.18      | 1,297,636.81     | 36.242599 | -107.412447 |
| 7,419.0             | 90.70           | 178.50      | 5,541.9             | -1,706.4   | -162.8     | 1,909,571.19      | 1,297,637.63     | 36.242431 | -107.412442 |
| 7,482.0             | 91.00           | 178.30      | 5,541.0             | -1,769.3   | -161.0     | 1,909,508.21      | 1,297,638.63     | 36.242258 | -107.412436 |
| 7,545.0             | 92.70           | 180.70      | 5,538.9             | -1,832.3   | -160.5     | 1,909,445.25      | 1,297,638.43     | 36.242085 | -107.412434 |
| 7,608.0             | 91.90           | 182.00      | 5,536.4             | -1,895.2   | -161.9     | 1,909,382.34      | 1,297,636.19     | 36.241912 | -107.412439 |
| 7,672.0             | 91.70           | 180.70      | 5,534.4             | -1,959.2   | -163.4     | 1,909,318.41      | 1,297,633.91     | 36.241737 | -107.412444 |
| 7,735.0             | 91.50           | 181.10      | 5,532.6             | -2,022.1   | -164.4     | 1,909,255.46      | 1,297,632.17     | 36.241564 | -107.412448 |
| 7,798.0             | 91.40           | 180.00      | 5,531.0             | -2,085.1   | -165.0     | 1,909,192.50      | 1,297,630.81     | 36.241391 | -107.412450 |
| 7,861.0             | 92.20           | 181.40      | 5,529.0             | -2,148.1   | -165.8     | 1,909,129.55      | 1,297,629.29     | 36.241218 | -107.412453 |
| 7,925.0             | 92.20           | 181.20      | 5,526.6             | -2,212.0   | -167.3     | 1,909,065.63      | 1,297,627.07     | 36.241042 | -107.412457 |
| 7,988.0             | 92.20           | 180.90      | 5,524.2             | -2,275.0   | -168.4     | 1,909,002.71      | 1,297,625.16     | 36.240869 | -107.412461 |
| 8,051.0             | 91.90           | 180.00      | 5,521.9             | -2,337.9   | -168.9     | 1,908,939.76      | 1,297,623.91     | 36.240696 | -107.412463 |
| 8,114.0             | 91.80           | 179.60      | 5,519.9             | -2,400.9   | -168.7     | 1,908,876.80      | 1,297,623.38     | 36.240523 | -107.412462 |
| 8,178.0             | 91.90           | 179.00      | 5,517.8             | -2,464.8   | -167.9     | 1,908,812.83      | 1,297,623.39     | 36.240348 | -107.412460 |
| 8,241.0             | 91.40           | 179.90      | 5,516.0             | -2,527.8   | -167.3     | 1,908,749.86      | 1,297,623.24     | 36.240175 | -107.412458 |
| 8,304.0             | 89.70           | 178.10      | 5,515.4             | -2,590.8   | -166.2     | 1,908,686.87      | 1,297,623.58     | 36.240002 | -107.412454 |
| 8,367.0             | 90.20           | 178.70      | 5,515.5             | -2,653.8   | -164.4     | 1,908,623.88      | 1,297,624.59     | 36.239829 | -107.412448 |
| 8,430.0             | 91.80           | 179.70      | 5,514.4             | -2,716.7   | -163.6     | 1,908,560.89      | 1,297,624.71     | 36.239656 | -107.412445 |
| 8,494.0             | 89.90           | 177.80      | 5,513.4             | -2,780.7   | -162.2     | 1,908,496.90      | 1,297,625.34     | 36.239480 | -107.412440 |
| 8,557.0             | 89.30           | 177.40      | 5,513.8             | -2,843.7   | -159.5     | 1,908,433.94      | 1,297,627.22     | 36.239307 | -107.412431 |
| 8,620.0             | 91.40           | 177.10      | 5,513.5             | -2,906.6   | -156.5     | 1,908,370.98      | 1,297,629.49     | 36.239134 | -107.412421 |
| 8,683.0             | 90.00           | 175.80      | 5,512.7             | -2,969.5   | -152.6     | 1,908,308.07      | 1,297,632.64     | 36.238962 | -107.412408 |
| 8,746.0             | 89.50           | 175.80      | 5,513.0             | -3,032.3   | -148.0     | 1,908,245.19      | 1,297,636.50     | 36.238789 | -107.412392 |
| 8,810.0             | 92.30           | 178.50      | 5,512.0             | -3,096.2   | -144.8     | 1,908,181.25      | 1,297,638.91     | 36.238614 | -107.412381 |
| 8,841.0             | 92.80           | 181.10      | 5,510.6             | -3,127.2   | -144.7     | 1,908,150.29      | 1,297,638.65     | 36.238529 | -107.412381 |
| 8,873.0             | 93.30           | 181.70      | 5,508.9             | -3,159.1   | -145.5     | 1,908,118.35      | 1,297,637.49     | 36.238441 | -107.412384 |
| 8,936.0             | 91.60           | 182.80      | 5,506.2             | -3,222.0   | -148.0     | 1,908,055.50      | 1,297,634.26     | 36.238268 | -107.412392 |
| 9,000.0             | 87.60           | 184.20      | 5,506.6             | -3,285.9   | -151.9     | 1,907,991.68      | 1,297,629.59     | 36.238093 | -107.412405 |
| 9,063.0             | 89.20           | 183.70      | 5,508.4             | -3,348.7   | -156.2     | 1,907,928.92      | 1,297,624.50     | 36.237920 | -107.412420 |
| 9,126.0             | 89.90           | 181.20      | 5,508.9             | -3,411.6   | -158.9     | 1,907,866.02      | 1,297,621.05     | 36.237747 | -107.412429 |
| 9,189.0             | 89.20           | 180.20      | 5,509.4             | -3,474.6   | -159.7     | 1,907,803.04      | 1,297,619.53     | 36.237574 | -107.412432 |
| 9,252.0             | 90.40           | 181.50      | 5,509.6             | -3,537.6   | -160.6     | 1,907,740.07      | 1,297,617.84     | 36.237401 | -107.412435 |
| 9,315.0             | 91.30           | 181.50      | 5,508.7             | -3,600.6   | -162.2     | 1,907,677.12      | 1,297,615.43     | 36.237228 | -107.412440 |
| 9,379.0             | 91.20           | 183.40      | 5,507.3             | -3,664.5   | -165.0     | 1,907,613.23      | 1,297,611.93     | 36.237053 | -107.412450 |
| 9,442.0             | 89.00           | 182.00      | 5,507.2             | -3,727.4   | -167.9     | 1,907,550.35      | 1,297,608.21     | 36.236880 | -107.412460 |
| 9,505.0             | 89.80           | 182.60      | 5,507.8             | -3,790.4   | -170.5     | 1,907,487.44      | 1,297,604.93     | 36.236707 | -107.412468 |
| 9,568.0             | 90.30           | 180.30      | 5,507.8             | -3,853.3   | -172.1     | 1,907,424.49      | 1,297,602.58     | 36.236534 | -107.412474 |
| 9,632.0             | 90.80           | 181.40      | 5,507.2             | -3,917.3   | -173.0     | 1,907,360.51      | 1,297,600.86     | 36.236358 | -107.412477 |
| 9,695.0             | 89.90           | 180.40      | 5,506.8             | -3,980.3   | -174.0     | 1,907,297.54      | 1,297,599.11     | 36.236185 | -107.412480 |
| 9,758.0             | 90.20           | 180.60      | 5,506.7             | -4,043.3   | -174.6     | 1,907,234.55      | 1,297,597.81     | 36.236012 | -107.412482 |
| 9,821.0             | 90.20           | 179.40      | 5,506.5             | -4,106.3   | -174.6     | 1,907,171.56      | 1,297,597.05     | 36.235839 | -107.412482 |
| 9,884.0             | 90.20           | 180.00      | 5,506.3             | -4,169.3   | -174.2     | 1,907,108.56      | 1,297,596.63     | 36.235666 | -107.412481 |
| 9,948.0             | 90.70           | 179.60      | 5,505.8             | -4,233.3   | -174.0     | 1,907,044.57      | 1,297,596.08     | 36.235490 | -107.412480 |
| 10,011.0            | 90.90           | 178.60      | 5,504.9             | -4,296.3   | -173.0     | 1,906,981.57      | 1,297,596.32     | 36.235317 | -107.412477 |
| 10,074.0            | 90.40           | 180.00      | 5,504.2             | -4,359.3   | -172.2     | 1,906,918.58      | 1,297,596.33     | 36.235144 | -107.412474 |
| 10,137.0            | 90.70           | 180.30      | 5,503.6             | -4,422.3   | -172.4     | 1,906,855.59      | 1,297,595.41     | 36.234971 | -107.412475 |
| 10,200.0            | 90.50           | 180.50      | 5,502.9             | -4,485.3   | -172.9     | 1,906,792.60      | 1,297,594.22     | 36.234798 | -107.412476 |
| 10,263.0            | 89.70           | 180.70      | 5,502.8             | -4,548.3   | -173.5     | 1,906,729.62      | 1,297,592.80     | 36.234625 | -107.412479 |
| 10,327.0            | 89.60           | 179.90      | 5,503.2             | -4,612.3   | -173.8     | 1,906,665.63      | 1,297,591.70     | 36.234449 | -107.412480 |
| 10,390.0            | 90.00           | 179.80      | 5,503.4             | -4,675.3   | -173.7     | 1,906,602.64      | 1,297,591.11     | 36.234276 | -107.412479 |
| 10,453.0            | 90.40           | 180.30      | 5,503.2             | -4,738.3   | -173.7     | 1,906,539.64      | 1,297,590.30     | 36.234103 | -107.412479 |

# Cathedral Energy Services

## Survey Report - Geographic

|                  |                            |                                     |                             |
|------------------|----------------------------|-------------------------------------|-----------------------------|
| <b>Company:</b>  | EnCana Oil & Gas (USA) Inc | <b>Local Co-ordinate Reference:</b> | Well Lybrook A12-2306 01H   |
| <b>Project:</b>  | Rio Arriba County, NM      | <b>TVD Reference:</b>               | 18' KB @ 6711.0ft (A1099)   |
| <b>Site:</b>     | S12-T23N-R6W               | <b>MD Reference:</b>                | 18' KB @ 6711.0ft (A1099)   |
| <b>Well:</b>     | Lybrook A12-2306 01H       | <b>North Reference:</b>             | True                        |
| <b>Wellbore:</b> | Hz                         | <b>Survey Calculation Method:</b>   | Minimum Curvature           |
| <b>Design:</b>   | FINAL                      | <b>Database:</b>                    | USA EDM 5000 Multi Users DB |

### Survey

| Measured<br>Depth<br>(ft)           | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Map<br>Northing<br>(ft) | Map<br>Easting<br>(ft) | Latitude  | Longitude   |
|-------------------------------------|--------------------|----------------|---------------------------|---------------|---------------|-------------------------|------------------------|-----------|-------------|
| 10,516.0                            | 90.50              | 179.40         | 5,502.7                   | -4,801.3      | -173.6        | 1,906,476.65            | 1,297,589.71           | 36.233930 | -107.412479 |
| 10,570.0                            | 91.10              | 180.00         | 5,501.9                   | -4,855.3      | -173.3        | 1,906,422.65            | 1,297,589.34           | 36.233782 | -107.412478 |
| <b>Last CES Survey @ 10,570' MD</b> |                    |                |                           |               |               |                         |                        |           |             |
| 10,620.0                            | 91.10              | 180.00         | 5,501.0                   | -4,905.2      | -173.3        | 1,906,372.67            | 1,297,588.74           | 36.233645 | -107.412478 |
| <b>PTB @ 10,620' MD</b>             |                    |                |                           |               |               |                         |                        |           |             |

### Design Targets

| Target Name                                                                                        | Dip Angle<br>(°) | Dip Dir.<br>(°) | TVD<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Northing<br>(ft) | Easting<br>(ft) | Latitude  | Longitude   |
|----------------------------------------------------------------------------------------------------|------------------|-----------------|-------------|---------------|---------------|------------------|-----------------|-----------|-------------|
| - hit/miss target                                                                                  |                  |                 |             |               |               |                  |                 |           |             |
| - Shape                                                                                            |                  |                 |             |               |               |                  |                 |           |             |
| Lybrook A12-2306 01H F                                                                             | 0.00             | 0.00            | 5,505.6     | -4,924.4      | -142.2        | 1,906,353.18     | 1,297,619.65    | 36.233592 | -107.412372 |
| - actual wellpath misses target center by 36.8ft at 10620.0ft MD (5501.0 TVD, -4905.2 N, -173.3 E) |                  |                 |             |               |               |                  |                 |           |             |
| - Point                                                                                            |                  |                 |             |               |               |                  |                 |           |             |

### Design Annotations

| Measured<br>Depth<br>(ft) | Vertical<br>Depth<br>(ft) | Local Coordinates |               | Comment                      |
|---------------------------|---------------------------|-------------------|---------------|------------------------------|
|                           |                           | +N/-S<br>(ft)     | +E/-W<br>(ft) |                              |
| 10,570.0                  | 5,501.9                   | -4,855.3          | -173.3        | Last CES Survey @ 10,570' MD |
| 10,620.0                  | 5,501.0                   | -4,905.2          | -173.3        | PTB @ 10,620' MD             |

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