

State of New Mexico  
Energy, Minerals and Natural Resources Department

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**Susana Martinez**  
Governor

**David Martin**  
Cabinet Secretary-Designate

**Brett F. Woods, Ph.D.**  
Deputy Cabinet Secretary

**Jami Bailey, Division Director**  
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions-approved by BLM on the following 3160-4 or 3160-5 form.

Operator Signature Date: 10/17/2012

Well information:  
Encana Oil & Gas  
Lybrook H01-2206 #1H  
30-043-21122  
Sec1 T22N R6W

Conditions of Approval:

Notify NMOCD 24hrs prior to beginning operations.  
Hold C104 for Directional Survey & As Drilled Plat

\_\_\_\_\_  
NMOCD Approved by Signature

JUL 09 2013

\_\_\_\_\_  
Date

# RECEIVED

Form 3160-5  
(August 2007)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

JUN 20 2013

FORM APPROVED  
OMB No. 1004-0137  
Expires: July 31, 2010

**SUNDRY NOTICES AND REPORTS ON WELLS**  
**Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.**

5. Lease Serial No. NMNM 109385  
6. If Indian, Allottee or Tribe Name N/A

SUBMIT IN TRIPLICATE - Other instructions on page 2.

|                                                                                                                                                                                |                                                   |                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|----------------------------------------------------------|
| 1. Type of Well<br><input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other                                               |                                                   | 7. If Unit of CA/Agreement, Name and/or No. N/A          |
| 2. Name of Operator<br>Encana Oil & Gas (USA) Inc.                                                                                                                             |                                                   | 8. Well Name and No.<br>Lybrook H01-2206 01H             |
| 3a. Address<br>370 17th Street, Suite 1700<br>Denver CO, 80202                                                                                                                 | 3b. Phone No. (include area code)<br>720-876-5331 | 9. API Well No.<br>30-043-21122                          |
| 4. Location of Well (Footage, Sec., T., R., M., or Survey Description)<br>SHL: 2323' FNL and 497' FEL, Section 1, T22N R6W<br>BHL: 2080' FNL and 330' FWL, Section 1, T22N R6W |                                                   | 10. Field and Pool or Exploratory Area<br>Lybrook Gallup |
|                                                                                                                                                                                |                                                   | 11. Country or Parish, State<br>Sandoval, NM             |

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

| TYPE OF SUBMISSION                                   | TYPE OF ACTION                                   |                                           |                                                    |                                                       |
|------------------------------------------------------|--------------------------------------------------|-------------------------------------------|----------------------------------------------------|-------------------------------------------------------|
| <input checked="" type="checkbox"/> Notice of Intent | <input type="checkbox"/> Acidize                 | <input type="checkbox"/> Deepen           | <input type="checkbox"/> Production (Start/Resume) | <input type="checkbox"/> Water Shut-Off               |
| <input type="checkbox"/> Subsequent Report           | <input type="checkbox"/> Alter Casing            | <input type="checkbox"/> Fracture Treat   | <input type="checkbox"/> Reclamation               | <input type="checkbox"/> Well Integrity               |
| <input type="checkbox"/> Final Abandonment Notice    | <input type="checkbox"/> Casing Repair           | <input type="checkbox"/> New Construction | <input type="checkbox"/> Recomplete                | <input checked="" type="checkbox"/> Other <u>Note</u> |
|                                                      | <input checked="" type="checkbox"/> Change Plans | <input type="checkbox"/> Plug and Abandon | <input type="checkbox"/> Temporarily Abandon       | <u>Pool Change</u>                                    |
|                                                      | <input type="checkbox"/> Convert to Injection    | <input type="checkbox"/> Plug Back        | <input type="checkbox"/> Water Disposal            |                                                       |

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Encana Oil & Gas (USA) Inc. (Encana) would like to adjust the C-102 for the Lybrook H01-2206 01H by changing the pool from Wildcat (Gallup) to Lybrook Gallup and adjusting the BHL and POE. Additionally, Encana would like to adjust the 10 Point Drilling Plan, Wellbore Diagram and Directional drilling plan for the Lybrook H01-2206 01H well. Please note, Encana originally submitted the APD for this well on May 21, 2012, and filed a sundry notice of intent, changing well plans on October 17, 2012.

**CONDITIONS OF APPROVAL**  
Adhere to previously issued stipulations.

OIL CONS. DIV DIST. 3  
JUL 02 2013

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

|                                                                                                    |                          |
|----------------------------------------------------------------------------------------------------|--------------------------|
| 14. I hereby certify that the foregoing is true and correct.<br>Name (Printed/Typed)<br>Holly Hill | Title Regulatory Analyst |
| Signature <i>Holly Hill</i>                                                                        | Date 06/19/2013          |

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

|                                                                                                                                                                                                                                                           |                                 |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|
| Approved by <i>William Tambekou</i>                                                                                                                                                                                                                       | Title <i>Petroleum Engineer</i> | Date <i>6/24/2013</i> |
| Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon. | Office <i>FFO</i>               |                       |

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

NMOCD

District I  
1625 N. French Drive, Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720

District II  
811 S. First Street, Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720

District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV  
1220 S. St. Francis Drive, 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 Drive  
Santa Fe, NM 87505

AMENDED REPORT  
RECEIVED

JUN 20 2013

WELL LOCATION AND ACREAGE DEDICATION PLAT

|                                         |                                                           |                                                                                               |
|-----------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <sup>1</sup> API Number<br>30-043-21122 | <sup>2</sup> Pool Code<br>42289                           | <sup>3</sup> Pool Name<br>LYBROOK GALLUP Farmington Field Office<br>Bureau of Land Management |
| <sup>4</sup> Property Code<br>39999     | <sup>5</sup> Property Name<br>LYBROOK H01-2206            | <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>6931'                                                               |

<sup>10</sup>Surface Location

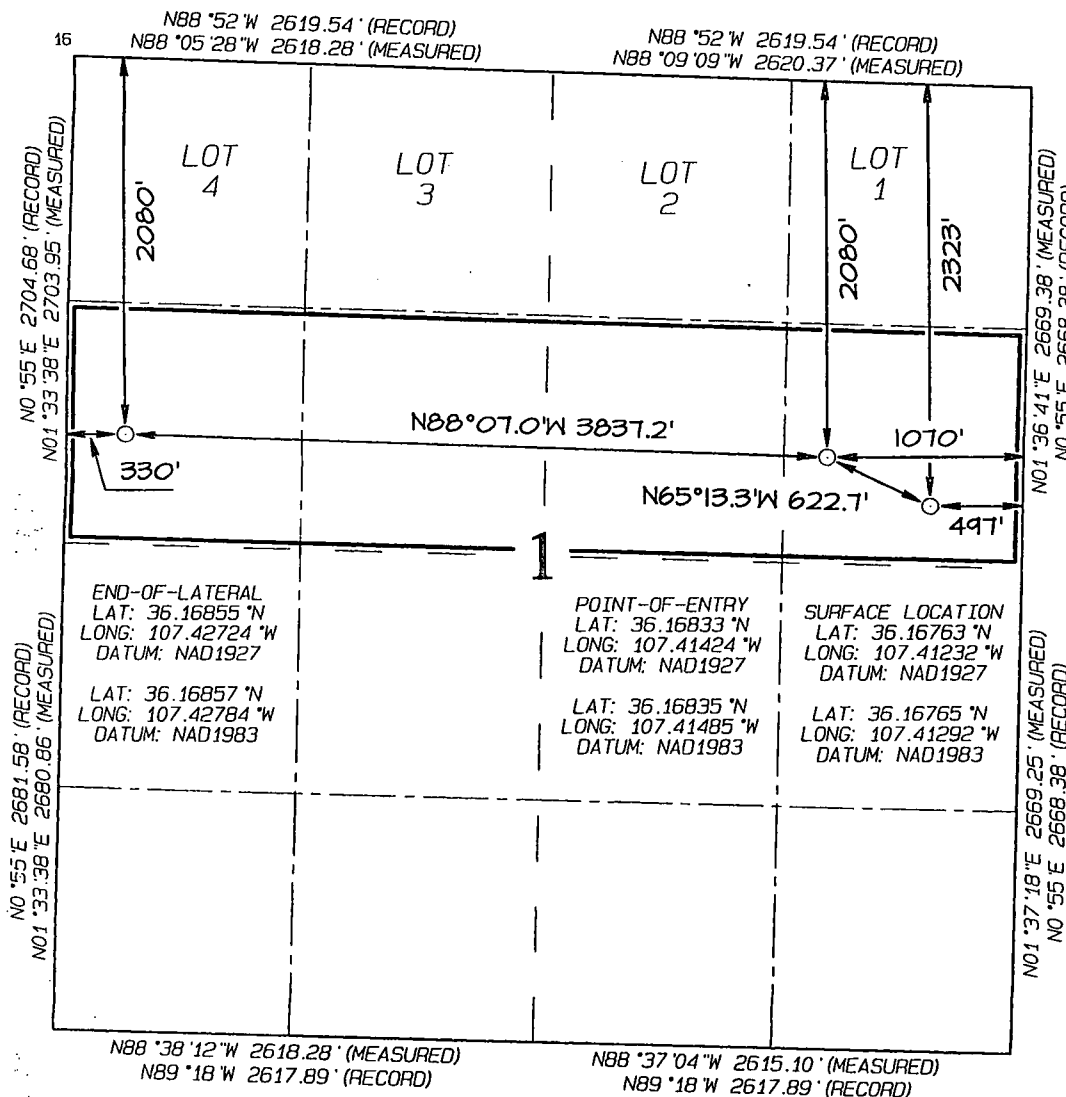
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County   |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|----------|
| H             | 1       | 22N      | 6W    |         | 2323          | NORTH            | 497           | EAST           | SANDOVAL |

<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 | East/West line | County   |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|----------|
| E             | 1       | 22N      | 6W    |         | 2080          | NORTH            | 330           | WEST           | SANDOVAL |

|                                                          |                               |                                  |                         |
|----------------------------------------------------------|-------------------------------|----------------------------------|-------------------------|
| <sup>12</sup> Dedicated Acres<br>160.0 Acres - (S/2 N/2) | <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



<sup>17</sup> 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.

Signature Holly Hill Date 6/17/13  
Printed Name  
holly.hill@encana.com  
E-mail Address

<sup>18</sup> 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 Revised: APRIL 10, 2013  
Date of Survey: AUGUST 24, 2012  
Signature and Seal of Professional Surveyor



JASON C. EDWARDS  
Certificate Number 15269

Lybrook H01-2206 01H  
SHL: SENE Section 1, T22N, R6W  
2323 FNL and 497 FEL  
BHL: SWNW Section 1, T22N, R6W  
2080 FNL and 339 FWL  
Sandoval County, New Mexico  
Lease Number: NMNM 109385

**Encana Oil & Gas (USA) Inc.  
Drilling Plan**

**1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)**

The estimated tops of important geologic markers are as follows:

| <u>Formation</u> | <u>Depth (TVD)</u> |
|------------------|--------------------|
| Ojo Alamo        | 1362'              |
| Kirtland         | 1491'              |
| Fruitland Coal   | 1579'              |
| Pictured Cliffs  | 1880'              |
| Lewis            | 2004'              |
| Cliffhouse       | 2677'              |
| Menefee          | 3443'              |
| Point Lookout    | 4111'              |
| Mancos           | 4314'              |
| Gallup           | 5151'              |

The referenced surface elevation is 6931', KB 6944'

**2. ESTIMATED DEPTH OF POTENTIAL WATER, OIL, GAS, & OTHER MINERAL BEARING FORMATIONS**

| <u>Substance</u> | <u>Formation</u> | <u>Depth (TVD)</u> |
|------------------|------------------|--------------------|
| Water            | Ojo Alamo        | 1362'              |
| Gas              | Fruitland Coal   | 1579'              |
| Gas              | Pictured Cliffs  | 1880'              |
| Gas              | Cliffhouse       | 2677'              |
| Gas              | Point Lookout    | 4111'              |
| Oil/Gas          | Mancos           | 4314'              |

All shows of fresh water and minerals will be reported and protected.

**3. PRESSURE CONTROL**

- a) Pressure control equipment and configuration will be designed to meet 2M standards.
- b) Working pressure on rams and BOPE will be 3,000 psi
- c) Function test and visual inspection of the BOP will be conducted daily and noted in the IADC Daily Drilling Report.
- d) The Annular BOP will be pressure tested to a minimum of 50 percent of its rated working pressure.
- e) Blind and Pipe Rams/BOP will be tested against a test plug to 100 percent of rated working pressure.
- f) Pressure tests are required before drilling out from under all casing strings set and cemented in place.
- g) BOP controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.
- h) BOP testing procedures and testing frequency will conform to Onshore Order No. 2.

**Lybrook H01-2206 01H****SHL: SENE Section 1, T22N, R6W  
2323 FNL and 497 FEL****BHL: SWNW Section 1, T22N, R6W  
2080 FNL and 339 FWL****Sandoval County, New Mexico****Lease Number: NMNM 109385**

- i) BOP remote controls shall be located on the rig floor at a location readily accessible to the driller. Master controls shall be on the ground at the accumulator and shall have the capability to function all preventers.
- j) The kill line shall be 2-inch minimum and contain two kill line valves, one of which shall be a check valve.
- k) The choke line shall be a 2-inch minimum and contain two choke line valves (2-inch minimum).
- l) The choke and manifold shall contain two adjustable chokes.
- m) Hand wheels shall be installed on all ram preventers.
- n) Safety valves and wrenches (with subs for drill string connections) shall be available on the rig floor at all times.
- o) Inside BOP or float sub shall also be available on the rig floor at all times.

Proposed BOP and choke manifold arrangements are attached.

**4. CASING & CEMENTING PROGRAM**

The proposed casing and cementing program has been designed to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. All indications of useable water shall be reported.

- a) The proposed casing design is as follows:

| Casing           | Depth       | Hole Size | Csg Size | Weight | Grade         |
|------------------|-------------|-----------|----------|--------|---------------|
| Conductor        | 0-60'       | 30"       | 20"      | 94#    | H40, STC New  |
| Surface          | 0'-500'     | 12 1/4"   | 9 5/8"   | 36#    | J55, STC New  |
| Intermediate     | 0'-5580'MD  | 8 3/4"    | 7"       | 26#    | J55, LTC New  |
| Production Liner | 5380'-9602' | 6 1/8"    | 4 1/2"   | 11.6#  | B80*, LTC New |

| Casing String |                |       |            | Casing Strength Properties |             |                  | Minimum Design Factors |       |         |
|---------------|----------------|-------|------------|----------------------------|-------------|------------------|------------------------|-------|---------|
| Size          | Weight (lb/ft) | Grade | Connection | Collapse (psi)             | Burst (psi) | Tensile (1000lb) | Collapse               | Burst | Tension |
| 9 5/8"        | 36             | J55   | STC        | 2020                       | 3520        | 394              | 1.125                  | 1.1   | 1.5     |
| 7"            | 26             | J55   | LTC        | 4320                       | 4980        | 367              | 1.125                  | 1.1   | 1.5     |
| 4 1/2"        | 11.6           | B80   | LTC        | 6350                       | 7780        | 201              | 1.125                  | 1.1   | 1.5     |

\*B80 pipe specifications are attached

Casing design is subject to revision based on geologic conditions encountered.

All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1,500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.

- b) The proposed cementing program is as follows:
- Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

Lybrook H01-2206 01H

SHL: SENE Section 1, T22N, R6W  
2323 FNL and 497 FEL

BHL: SWNW Section 1, T22N, R6W  
2080 FNL and 339 FWL

Sandoval County, New Mexico

Lease Number: NMNM 109385

| Casing               | Depth                | Cement Volume (sacks)                                                | Cement Type&Yield                                                                                                                                                                              | Designed TOC | Centralizers                                                                    |
|----------------------|----------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------|
| Conductor            | 60'                  | 100sk                                                                | Type I Neat 14.8ppg                                                                                                                                                                            | Surface      | None                                                                            |
| Surface              | 500'                 | 178sk                                                                | Type III Cement +<br>1% CaCl + 0.25lb/sk<br>Cello Flake + 0.2%<br>FL, 14.6ppg,<br>1.38cuf/sk                                                                                                   | Surface      | 1 turbolizer per<br>joint on bottom 3<br>joints                                 |
| Intermediate         | 5374'TVD/<br>5580'MD | 30% open<br>hole excess<br>Lead: 234sk<br>Tail: 161sk<br>Lead: 170sk | <b>Lead:</b> PremLite +<br>3% CaCl + 0.25lb/sk<br>CelloFlake + 5lb/sk<br>LCM, 12.1ppg<br>2.13cuf/sk<br><b>Tail:</b> Type III Cmt +<br>1% CaCl + 0.25lb/sk<br>Cello Flake 14.5ppg<br>1.38cuf/sk | Surface      | 1 per joint for<br>bottom 3 joints, 1<br>every 3 joints for<br>remaining joints |
| Production<br>Liner* | 5380'MD-<br>9602'MD  | None –<br>External<br>casing<br>packers                              | N/A                                                                                                                                                                                            | N/A          | N/A                                                                             |

\*Production liner clarification: Utilizing external swell casing packer system for zonal isolation will not use cement in the production liner.

Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above or equivalent slurries depending on service provider selected. Cement yields may change depending on slurries selected.

All waiting on cement times shall be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

## 5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed well will be drilled in two phases. A pilot hole will be drilled in the first phase, followed by kicking off a horizontal lateral in the existing wellbore in the second phase. The intent of drilling a pilot hole is to obtain open hole log data. The intent of the second phase of the well is to plug back the pilot hole with cement to the kick off point. After plugging back, the plan is to drill a horizontal lateral from the kick off point in the existing wellbore to the proposed bottom hole location.

Directional plans are attached.

| Well Phase | Description         | Proposed Depth (TVD/MD) | Formation |
|------------|---------------------|-------------------------|-----------|
| 1          | Vertical Pilot Hole | 5702'/5702'             | Gallup    |
| 2          | Horizontal Lateral  | 5392'/9602'             | Gallup    |

**Lybrook H01-2206 01H****SHL: SENE Section 1, T22N, R6W  
2323 FNL and 497 FEL****BHL: SWNW Section 1, T22N, R6W  
2080 FNL and 339 FWL****Sandoval County, New Mexico****Lease Number: NMNM 109385****Proposed Plug Back Procedure:****KOP 4800'**

Set kick plug at KOP

1. Spot 300' kick plug from 4600' – 5000'
  - a. 91sx of Class A cement with salt (1.3ft<sup>3</sup>/sk yield)
  - b. Spot tuned spacer
2. Pull uphole and reverse out
3. Pump bottoms up 2 times, pull uphole
4. Tag plug, drill ahead to KOP when cement is solid

**6. DRILLING FLUIDS PROGRAM**

a) Vertical Pilot Hole:

| Hole Size (in) | TVD (ft)  | Mud Type            | Density (lb/gal) | Viscosity (sec/qt) | Fluid Loss (cc) |
|----------------|-----------|---------------------|------------------|--------------------|-----------------|
| 30"            | 0-60'     | Fresh Water         | 8.3-9.2          | 38-100             | 4-28            |
| 12 1/4"        | 0-500'    | Fresh Water         | 8.4-8.6          | 60-70              | NC              |
| 8 3/4"         | 500-5702' | Fresh Water<br>LSND | 8.5-8.8          | 40-50              | 8-10            |

b) Kick off Point to Intermediate Casing Point:

| Hole Size (in) | TVD (ft)                        | Mud Type            | Density (lb/gal) | Viscosity (sec/qt) | Fluid Loss (cc) |
|----------------|---------------------------------|---------------------|------------------|--------------------|-----------------|
| 8 3/4"         | 4800' (KOP)-<br>5374' (5580'MD) | Fresh Water<br>LSND | 8.5-8.8          | 40-50              | 8-10            |

c) Intermediate Casing Point to TD:

| Hole Size (in) | Depth (ft)          | Mud Type                   | Density (lb/gal) | Viscosity (sec/qt) | Fluid Loss (cc) |
|----------------|---------------------|----------------------------|------------------|--------------------|-----------------|
| 6 1/8"         | 5580'MD-<br>9602'MD | Synthetic Oil<br>Based Mud | 8.6-9.0          | 15-25              | <15             |

- d) There will be sufficient mud on location to control a blowout should one occur. Mud flow and volume will be monitored both visually and with electronic pit volume totalizers. Mud tests shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.
- e) A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals, including fresh water and oil-based operations. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water. Waste will be disposed of properly at an EPA-approved hazardous waste facility. Fresh water cuttings will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystems, Inc. The location will be lined in accordance with the Surface Use Plan of Operations.

**Lybrook H01-2206 01H**

**SHL: SENE Section 1, T22N, R6W  
2323 FNL and 497 FEL**

**BHL: SWNW Section 1, T22N, R6W  
2080 FNL and 339 FWL**

**Sandoval County, New Mexico**

**Lease Number: NMNM 109385**

## **7. TESTING, CORING and LOGGING**

- a) Drill Stem Testing – None anticipated.
- b) Coring – None anticipated.
- c) Mud Logging – Mud loggers will be on location from kick off point to TD.
- d) Logging – See Below

Open Hole:

Triple combo with Spectral Gamma TD to surface casing  
Specialty logs will be decided real time by onsite geologists

Cased Hole:

CBL/CCL/GR/VDL will be run as needed for perforating control

## **8. ABNORMAL PRESSURES & HYDROGEN SULFIDE**

The anticipated bottom hole pressure is +/- 2,667 psi based on a 9.0 ppg at 5702' TVD of the vertical pilot hole. No abnormal pressure or temperatures are anticipated.

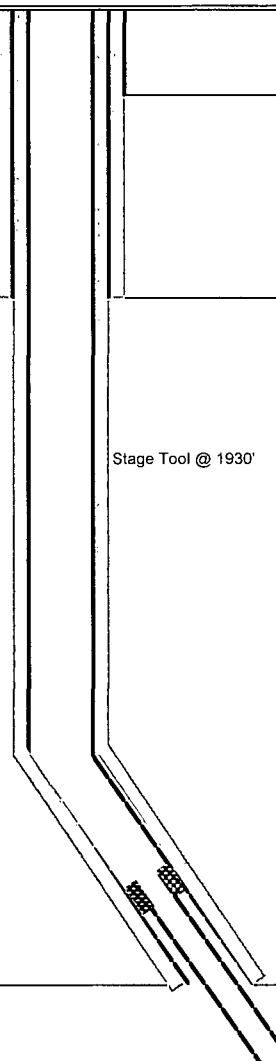
No hydrogen sulfide gas is anticipated, however, if H<sub>2</sub>S is encountered, the guidelines in Onshore Order No. 6 will be followed.

## **9. ANTICIPATED START DATE AND DURATION OF OPERATIONS**

Drilling is estimated to commence on September 25, 2013. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

It is anticipated that the drilling of this well will take approximately 25 days.



| LOC: Sec 1, T22N, R6W<br>County: Sandoval<br>WELL: Lybrook H01-2206 01H |                      |                                                                                                                                                                                                  | Encana Natural Gas<br><br>WELL SUMMARY                                                               |      |                                                                                    | <div>encana</div> <div>natural gas</div> |                                                                                                                                         | ENG: 6/18/13<br>RIG:<br>GLE: 6931<br>RKBE: 6944 |                                          |
|-------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------|
| MWD<br>LWD                                                              | OPEN HOLE<br>LOGGING | FORM                                                                                                                                                                                             | DEPTH                                                                                                |      |                                                                                    | HOLE<br>SIZE                             | CASING<br>SPECS                                                                                                                         | MW<br>MUD TYPE                                  | DEVIATION<br>INFORMATION                 |
|                                                                         |                      |                                                                                                                                                                                                  | TVD                                                                                                  | MD   |                                                                                    |                                          |                                                                                                                                         |                                                 |                                          |
|                                                                         |                      |                                                                                                                                                                                                  | 60                                                                                                   | 60'  |  | 30                                       | 20" 94#<br>100sx Type I Neat 48.8ppg cmt                                                                                                | Fresh wtr<br>8.3-9.2                            |                                          |
| Surveys<br>After csg is run                                             | None                 | Nacimiento                                                                                                                                                                                       | 154                                                                                                  |      |                                                                                    | 12 1/4                                   | 9 5/8" 36ppf J55 STC<br><br>TOC @ surface                                                                                               | Fresh wtr<br>8.4-8.6                            | Vertical<br><1°                          |
| Surveys<br>every 500'                                                   | No OH logs           | Ojo Alamo<br>Kirtland Shale<br><br>Fruitland Coal<br><br>Pictured Cliffs Ss<br>Lewis Shale<br><br>Cliffhouse Ss<br>Menefee Fn<br>Point Lookout Ss<br>Mancos Sh<br>Mancos Silt<br><br>KICK OFF PT | 1362<br>1491<br><br>1579<br><br>1880<br>2004<br><br>2677<br>3443<br>4111<br>4314<br>4902<br><br>4800 |      |                                                                                    | 8 3/4                                    | 7" 26ppf J55 LTC<br><br>TOC @ surface<br>30% OH excess: 566 sks<br>Stage 1 Lead 234 sks<br>Stage 1 Tail 161 sks<br>Stage 2 Lead 170 sks | Fresh Wtr<br>8.5-8.8                            | Vertical<br><1°                          |
|                                                                         | Mud logger<br>onsite | Gallup Top                                                                                                                                                                                       | 5151<br><br>5374                                                                                     | 5580 |                                                                                    |                                          |                                                                                                                                         |                                                 | KOP<br>4800<br>10 deg/100'               |
| Surveys<br>every 500'<br>Gyro<br>at CP<br>MWD<br>Gamma<br>Directional   | No OH Logs           | horz target<br>Base Gallup<br><br>Pilot Hole TD                                                                                                                                                  | 5404<br>5502<br><br>5702                                                                             | 5800 |                                                                                    | 6 1/8                                    | 200' overlap at liner top<br><br>3802' Lateral                                                                                          | 8.6-9.0 OBM                                     | .5deg updip<br>5392'TVD<br>TD = 9602' MD |
|                                                                         |                      |                                                                                                                                                                                                  |                                                                                                      |      |                                                                                    |                                          | 4 1/2" 11.6ppf SB80 LTC<br><br>Running external swellable csg packers for<br>isolation of prod string                                   | OBM<br>8.6-9.0                                  |                                          |

**NOTES:**

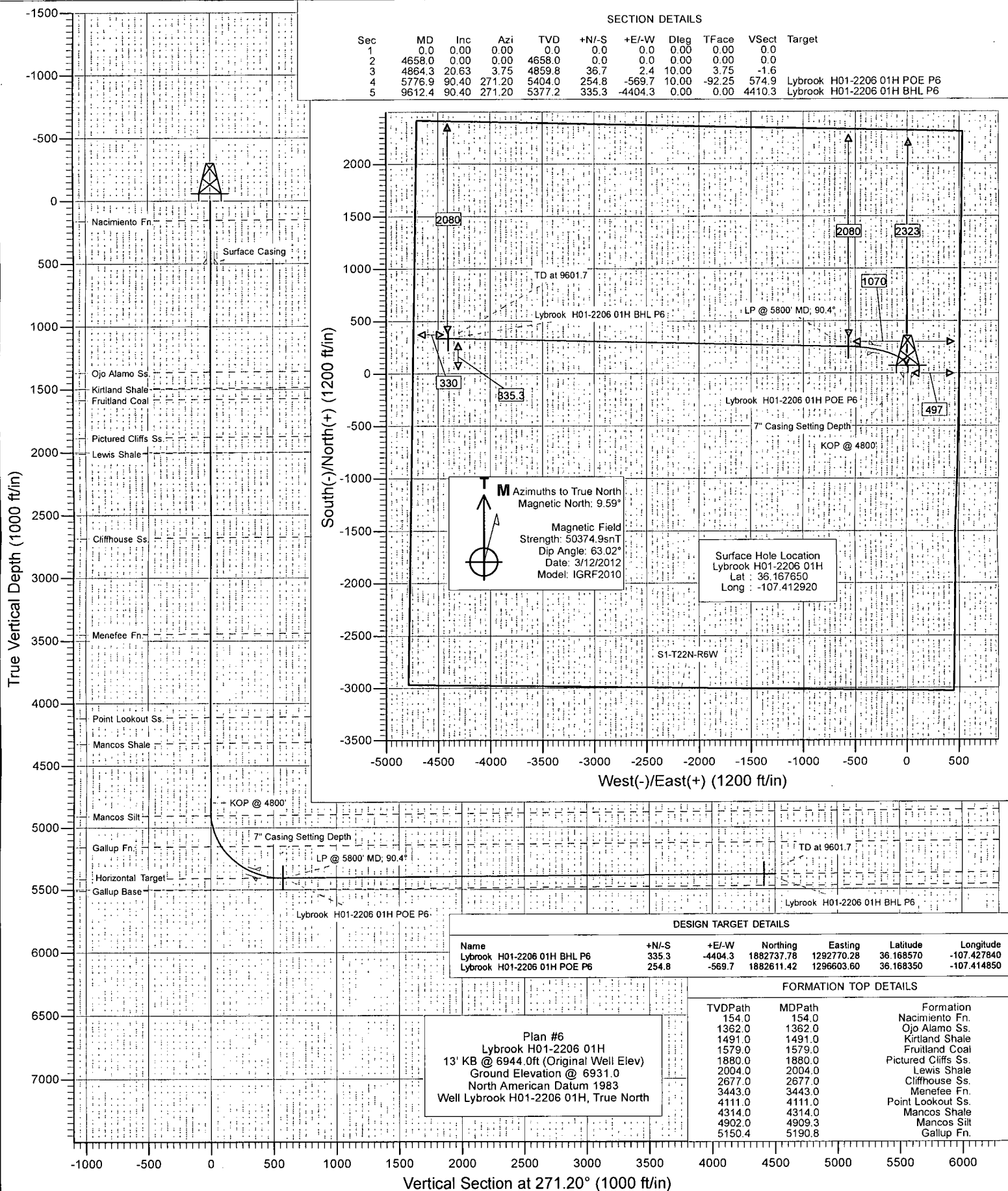
- 1) Drill with 30" bit to 60', set 20" 94# conductor pipe
- 2) Drill surface to 500', R&C 9 5/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to pilot hole TD of 5702' and run OH logs.
- 5) Spot cement kick plug
- 6) Kick off at 4800' and start curve at 10deg/100' build rate
- 7) Drill to casing point of 5580' MD
- 8) R&C 7" casing, circ cmt to surface, switch to OBM
- 9) Land at 90deg, drill 3802' lateral to 9602', run 4 1/2" liner with external swellable csg packers

# encana

natural gas

Project: Sandoval County, NM  
Site: Lybrook  
Well: Lybrook H01-2206 01H  
Wellbore: HZ  
Design: Plan #6

**CATHEDRAL**



# Planning Report

|           |                             |                              |                                        |
|-----------|-----------------------------|------------------------------|----------------------------------------|
| Database: | USA EDM 5000 Multi Users DB | Local Co-ordinate Reference: | Well Lybrook H01-2206 01H              |
| Company:  | EnCana Oil & Gas (USA) Inc  | TVD Reference:               | 13' KB @ 6944.0ft (Original Well Elev) |
| Project:  | Sandoval County, NM         | MD Reference:                | 13' KB @ 6944.0ft (Original Well Elev) |
| Site:     | Lybrook                     | North Reference:             | True                                   |
| Well:     | Lybrook H01-2206 01H        | Survey Calculation Method:   | Minimum Curvature                      |
| Wellbore: | HZ                          |                              |                                        |
| Design:   | Plan #6                     |                              |                                        |

|             |                           |               |                |
|-------------|---------------------------|---------------|----------------|
| Project     | Sandoval County, NM       |               |                |
| Map System: | US State Plane 1983       | System Datum: | Mean Sea Level |
| Geo Datum:  | North American Datum 1983 |               |                |
| Map Zone:   | New Mexico Central Zone   |               |                |

|                       |          |                   |                 |
|-----------------------|----------|-------------------|-----------------|
| Site                  | Lybrook  |                   |                 |
| Site Position:        |          | Northing:         | 1,882,676.45 ft |
| From:                 | Lat/Long | Easting:          | 1,287,068.90 ft |
| Position Uncertainty: | 0.0 ft   | Slot Radius:      | 13.200 in       |
|                       |          | Grid Convergence: | -0.71 °         |

|                      |                      |                     |           |                 |            |             |
|----------------------|----------------------|---------------------|-----------|-----------------|------------|-------------|
| Well                 | Lybrook H01-2206 01H |                     |           |                 |            |             |
| Well Position        | +N/-S                | 0.0 ft              | Northing: | 1,882,349.77 ft | Latitude:  | 36.167650   |
|                      | +E/-W                | 0.0 ft              | Easting:  | 1,297,170.23 ft | Longitude: | -107.412920 |
| Position Uncertainty | 0.0 ft               | Wellhead Elevation: | ft        | Ground Level:   | 6,931.0 ft |             |

|           |            |             |                    |                  |                        |
|-----------|------------|-------------|--------------------|------------------|------------------------|
| Wellbore  | HZ         |             |                    |                  |                        |
| Magnetics | Model Name | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|           | IGRF2010   | 3/12/2012   | 9.59               | 63.02            | 50,375                 |

|                   |                  |       |               |           |
|-------------------|------------------|-------|---------------|-----------|
| Design            | Plan #6          |       |               |           |
| Audit Notes:      |                  |       |               |           |
| Version:          | Phase:           | PLAN  | Tie On Depth: | 0.0       |
| Vertical Section: | Depth From (TVD) | +N/-S | +E/-W         | Direction |
|                   | (ft)             | (ft)  | (ft)          | (°)       |
|                   | 0.0              | 0.0   | 0.0           | 271.20    |

| Plan Sections       |                 |             |                     |            |            |                       |                      |                     |         |                     |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|----------------------|---------------------|---------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target              |
| 0.0                 | 0.00            | 0.00        | 0.0                 | 0.0        | 0.0        | 0.00                  | 0.00                 | 0.00                | 0.00    |                     |
| 4,658.0             | 0.00            | 0.00        | 4,658.0             | 0.0        | 0.0        | 0.00                  | 0.00                 | 0.00                | 0.00    |                     |
| 4,864.3             | 20.63           | 3.75        | 4,859.8             | 36.7       | 2.4        | 10.00                 | 10.00                | 0.00                | 3.75    |                     |
| 5,776.9             | 90.40           | 271.20      | 5,404.0             | 254.8      | -569.7     | 10.00                 | 7.65                 | -10.14              | -92.25  | Lybrook H01-2206 01 |
| 9,612.4             | 90.40           | 271.20      | 5,377.2             | 335.3      | -4,404.3   | 0.00                  | 0.00                 | 0.00                | 0.00    | Lybrook H01-2206 01 |

$$Y \rightarrow (2323 - 335.3)_{ft} = 1987.7 \approx 1988 \text{ ft} / N$$

$$BHL \left\{ \begin{aligned} X \rightarrow [(2620.37 + 2618.28) - (4404 + 497)]_{ft} &= 337.65 \approx 338 \text{ ft} / W \end{aligned} \right.$$

William Tambekou  
6/24/2013

# Planning Report

**Database:** USA EDM 5000 Multi Users DB  
**Company:** EnCana Oil & Gas (USA) Inc  
**Project:** Sandoval County, NM  
**Site:** Lybrook  
**Well:** Lybrook H01-2206 01H  
**Wellbore:** HZ  
**Design:** Plan #6

**Local Co-ordinate Reference:** Well Lybrook H01-2206 01H  
**TVD Reference:** 13' KB @ 6944.0ft (Original Well Elev)  
**MD Reference:** 13' KB @ 6944.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

## Planned Survey

| Measured<br>Depth<br>(ft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Vertical<br>Section<br>(ft) | Dogleg<br>Rate<br>(°/100ft) | Build<br>Rate<br>(°/100ft) | Comments /<br>Formations |
|---------------------------|--------------------|----------------|---------------------------|---------------|---------------|-----------------------------|-----------------------------|----------------------------|--------------------------|
| 0.0                       | 0.00               | 0.00           | 0.0                       | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 100.0                     | 0.00               | 0.00           | 100.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 154.0                     | 0.00               | 0.00           | 154.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | Nacimiento Fn.           |
| 200.0                     | 0.00               | 0.00           | 200.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 300.0                     | 0.00               | 0.00           | 300.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 400.0                     | 0.00               | 0.00           | 400.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 500.0                     | 0.00               | 0.00           | 500.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | Surface Casing           |
| 600.0                     | 0.00               | 0.00           | 600.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 700.0                     | 0.00               | 0.00           | 700.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 800.0                     | 0.00               | 0.00           | 800.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 900.0                     | 0.00               | 0.00           | 900.0                     | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 1,000.0                   | 0.00               | 0.00           | 1,000.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 1,100.0                   | 0.00               | 0.00           | 1,100.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 1,200.0                   | 0.00               | 0.00           | 1,200.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 1,300.0                   | 0.00               | 0.00           | 1,300.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 1,362.0                   | 0.00               | 0.00           | 1,362.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | Ojo Alamo Ss.            |
| 1,400.0                   | 0.00               | 0.00           | 1,400.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 1,491.0                   | 0.00               | 0.00           | 1,491.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | Kirtland Shale           |
| 1,500.0                   | 0.00               | 0.00           | 1,500.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 1,579.0                   | 0.00               | 0.00           | 1,579.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | Fruitland Coal           |
| 1,600.0                   | 0.00               | 0.00           | 1,600.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 1,700.0                   | 0.00               | 0.00           | 1,700.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 1,800.0                   | 0.00               | 0.00           | 1,800.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 1,880.0                   | 0.00               | 0.00           | 1,880.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | Pictured Cliffs Ss.      |
| 1,900.0                   | 0.00               | 0.00           | 1,900.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 2,000.0                   | 0.00               | 0.00           | 2,000.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 2,004.0                   | 0.00               | 0.00           | 2,004.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | Lewis Shale              |
| 2,100.0                   | 0.00               | 0.00           | 2,100.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 2,200.0                   | 0.00               | 0.00           | 2,200.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 2,300.0                   | 0.00               | 0.00           | 2,300.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 2,400.0                   | 0.00               | 0.00           | 2,400.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 2,500.0                   | 0.00               | 0.00           | 2,500.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 2,600.0                   | 0.00               | 0.00           | 2,600.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 2,677.0                   | 0.00               | 0.00           | 2,677.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | Cliffhouse Ss.           |
| 2,700.0                   | 0.00               | 0.00           | 2,700.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 2,800.0                   | 0.00               | 0.00           | 2,800.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 2,900.0                   | 0.00               | 0.00           | 2,900.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 3,000.0                   | 0.00               | 0.00           | 3,000.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 3,100.0                   | 0.00               | 0.00           | 3,100.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 3,200.0                   | 0.00               | 0.00           | 3,200.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 3,300.0                   | 0.00               | 0.00           | 3,300.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 3,400.0                   | 0.00               | 0.00           | 3,400.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 3,443.0                   | 0.00               | 0.00           | 3,443.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | Menefee Fn.              |
| 3,500.0                   | 0.00               | 0.00           | 3,500.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 3,600.0                   | 0.00               | 0.00           | 3,600.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 3,700.0                   | 0.00               | 0.00           | 3,700.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 3,800.0                   | 0.00               | 0.00           | 3,800.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 3,900.0                   | 0.00               | 0.00           | 3,900.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 4,000.0                   | 0.00               | 0.00           | 4,000.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 4,100.0                   | 0.00               | 0.00           | 4,100.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |
| 4,111.0                   | 0.00               | 0.00           | 4,111.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | Point Lookout Ss.        |
| 4,200.0                   | 0.00               | 0.00           | 4,200.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                          |

# Planning Report

Database: USA EDM 5000 Multi Users DB  
 Company: EnCana Oil & Gas (USA) Inc  
 Project: Sandoval County, NM  
 Site: Lybrook  
 Well: Lybrook H01-2206 01H  
 Wellbore: HZ  
 Design: Plan #6

Local Co-ordinate Reference: Well Lybrook H01-2206 01H  
 TVD Reference: 13' KB @ 6944.0ft (Original Well Elev)  
 MD Reference: 13' KB @ 6944.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

## Planned Survey

| Measured<br>Depth<br>(ft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Vertical<br>Section<br>(ft) | Dogleg<br>Rate<br>(°/100ft) | Build<br>Rate<br>(°/100ft) | Comments /<br>Formations       |
|---------------------------|--------------------|----------------|---------------------------|---------------|---------------|-----------------------------|-----------------------------|----------------------------|--------------------------------|
| 4,300.0                   | 0.00               | 0.00           | 4,300.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                                |
| 4,314.0                   | 0.00               | 0.00           | 4,314.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       | Mancos Shale                   |
| 4,400.0                   | 0.00               | 0.00           | 4,400.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                                |
| 4,500.0                   | 0.00               | 0.00           | 4,500.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                                |
| 4,600.0                   | 0.00               | 0.00           | 4,600.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                                |
| 4,658.0                   | 0.00               | 0.00           | 4,658.0                   | 0.0           | 0.0           | 0.0                         | 0.00                        | 0.00                       |                                |
| 4,700.0                   | 4.20               | 3.75           | 4,700.0                   | 1.5           | 0.1           | -0.1                        | 10.00                       | 10.00                      |                                |
| 4,800.0                   | 14.20              | 3.75           | 4,798.6                   | 17.5          | 1.1           | -0.8                        | 10.00                       | 10.00                      | KOP @ 4800'                    |
| 4,864.3                   | 20.63              | 3.75           | 4,859.8                   | 36.7          | 2.4           | -1.6                        | 10.00                       | 10.00                      |                                |
| 4,900.0                   | 20.78              | 353.64         | 4,893.3                   | 49.2          | 2.1           | -1.1                        | 10.00                       | 0.43                       |                                |
| 4,909.3                   | 20.92              | 351.05         | 4,902.0                   | 52.5          | 1.7           | -0.6                        | 10.00                       | 1.47                       | Mancos Silt                    |
| 5,000.0                   | 24.08              | 328.66         | 4,985.9                   | 84.4          | -10.5         | 12.3                        | 10.00                       | 3.48                       |                                |
| 5,100.0                   | 30.31              | 311.39         | 5,074.9                   | 118.6         | -40.1         | 42.6                        | 10.00                       | 6.23                       |                                |
| 5,190.8                   | 37.31              | 300.93         | 5,150.4                   | 147.9         | -81.0         | 84.1                        | 10.00                       | 7.70                       | Gallup Fn.                     |
| 5,200.0                   | 38.06              | 300.06         | 5,157.7                   | 150.8         | -85.8         | 89.0                        | 10.00                       | 8.18                       |                                |
| 5,300.0                   | 46.57              | 292.21         | 5,231.6                   | 180.0         | -146.3        | 150.0                       | 10.00                       | 8.51                       |                                |
| 5,400.0                   | 55.47              | 286.35         | 5,294.5                   | 205.4         | -219.6        | 223.9                       | 10.00                       | 8.91                       |                                |
| 5,500.0                   | 64.61              | 281.64         | 5,344.4                   | 226.2         | -303.6        | 308.3                       | 10.00                       | 9.13                       |                                |
| 5,579.9                   | 72.00              | 278.37         | 5,373.9                   | 239.0         | -376.6        | 381.6                       | 10.00                       | 9.25                       | 7" Casing Setting Depth        |
| 5,600.0                   | 73.87              | 277.60         | 5,379.8                   | 241.7         | -395.7        | 400.6                       | 10.00                       | 9.30                       |                                |
| 5,700.0                   | 83.20              | 273.92         | 5,399.7                   | 251.4         | -493.1        | 498.2                       | 10.00                       | 9.33                       |                                |
| 5,776.9                   | 90.40              | 271.20         | 5,404.0                   | 254.8         | -569.7        | 574.9                       | 10.00                       | 9.36                       | Lybrook H01-2206 01H POE P6    |
| 5,800.0                   | 90.40              | 271.20         | 5,403.8                   | 255.3         | -592.8        | 598.0                       | 0.00                        | 0.00                       | LP @ 5800' MD; 90.4°           |
| 5,803.3                   | 90.40              | 271.20         | 5,403.8                   | 255.4         | -596.1        | 601.3                       | 0.00                        | 0.00                       | Lybrook H01-2206 01H LP (2.24) |
| 5,803.3                   | 90.40              | 271.20         | 5,403.8                   | 255.4         | -596.1        | 601.4                       | 0.00                        | 0.00                       | Lybrook H01-2206 01H LP        |
| 5,900.0                   | 90.40              | 271.20         | 5,403.1                   | 257.4         | -692.8        | 698.0                       | 0.00                        | 0.00                       |                                |
| 6,000.0                   | 90.40              | 271.20         | 5,402.4                   | 259.5         | -792.8        | 798.0                       | 0.00                        | 0.00                       |                                |
| 6,100.0                   | 90.40              | 271.20         | 5,401.7                   | 261.6         | -892.7        | 898.0                       | 0.00                        | 0.00                       |                                |
| 6,200.0                   | 90.40              | 271.20         | 5,401.0                   | 263.7         | -992.7        | 998.0                       | 0.00                        | 0.00                       |                                |
| 6,300.0                   | 90.40              | 271.20         | 5,400.3                   | 265.8         | -1,092.7      | 1,098.0                     | 0.00                        | 0.00                       |                                |
| 6,400.0                   | 90.40              | 271.20         | 5,399.6                   | 267.9         | -1,192.7      | 1,198.0                     | 0.00                        | 0.00                       |                                |
| 6,500.0                   | 90.40              | 271.20         | 5,398.9                   | 270.0         | -1,292.6      | 1,298.0                     | 0.00                        | 0.00                       |                                |
| 6,600.0                   | 90.40              | 271.20         | 5,398.2                   | 272.1         | -1,392.6      | 1,398.0                     | 0.00                        | 0.00                       |                                |
| 6,700.0                   | 90.40              | 271.20         | 5,397.5                   | 274.2         | -1,492.6      | 1,498.0                     | 0.00                        | 0.00                       |                                |
| 6,800.0                   | 90.40              | 271.20         | 5,396.8                   | 276.3         | -1,592.6      | 1,598.0                     | 0.00                        | 0.00                       |                                |
| 6,900.0                   | 90.40              | 271.20         | 5,396.1                   | 278.4         | -1,692.5      | 1,698.0                     | 0.00                        | 0.00                       |                                |
| 7,000.0                   | 90.40              | 271.20         | 5,395.4                   | 280.5         | -1,792.5      | 1,798.0                     | 0.00                        | 0.00                       |                                |
| 7,100.0                   | 90.40              | 271.20         | 5,394.7                   | 282.6         | -1,892.5      | 1,898.0                     | 0.00                        | 0.00                       |                                |
| 7,200.0                   | 90.40              | 271.20         | 5,394.0                   | 284.7         | -1,992.5      | 1,998.0                     | 0.00                        | 0.00                       |                                |
| 7,300.0                   | 90.40              | 271.20         | 5,393.3                   | 286.8         | -2,092.4      | 2,098.0                     | 0.00                        | 0.00                       |                                |
| 7,400.0                   | 90.40              | 271.20         | 5,392.6                   | 288.9         | -2,192.4      | 2,198.0                     | 0.00                        | 0.00                       |                                |
| 7,500.0                   | 90.40              | 271.20         | 5,391.9                   | 291.0         | -2,292.4      | 2,298.0                     | 0.00                        | 0.00                       |                                |
| 7,600.0                   | 90.40              | 271.20         | 5,391.3                   | 293.1         | -2,392.4      | 2,398.0                     | 0.00                        | 0.00                       |                                |
| 7,700.0                   | 90.40              | 271.20         | 5,390.6                   | 295.2         | -2,492.3      | 2,498.0                     | 0.00                        | 0.00                       |                                |
| 7,800.0                   | 90.40              | 271.20         | 5,389.9                   | 297.3         | -2,592.3      | 2,598.0                     | 0.00                        | 0.00                       |                                |
| 7,900.0                   | 90.40              | 271.20         | 5,389.2                   | 299.4         | -2,692.3      | 2,698.0                     | 0.00                        | 0.00                       |                                |
| 8,000.0                   | 90.40              | 271.20         | 5,388.5                   | 301.5         | -2,792.3      | 2,798.0                     | 0.00                        | 0.00                       |                                |
| 8,100.0                   | 90.40              | 271.20         | 5,387.8                   | 303.6         | -2,892.2      | 2,898.0                     | 0.00                        | 0.00                       |                                |
| 8,200.0                   | 90.40              | 271.20         | 5,387.1                   | 305.7         | -2,992.2      | 2,998.0                     | 0.00                        | 0.00                       |                                |
| 8,300.0                   | 90.40              | 271.20         | 5,386.4                   | 307.8         | -3,092.2      | 3,098.0                     | 0.00                        | 0.00                       |                                |
| 8,400.0                   | 90.40              | 271.20         | 5,385.7                   | 309.9         | -3,192.2      | 3,198.0                     | 0.00                        | 0.00                       |                                |
| 8,500.0                   | 90.40              | 271.20         | 5,385.0                   | 311.9         | -3,292.1      | 3,298.0                     | 0.00                        | 0.00                       |                                |

# Planning Report

Database: USA EDM 5000 Multi Users DB  
 Company: EnCana Oil & Gas (USA) Inc  
 Project: Sandoval County, NM  
 Site: Lybrook  
 Well: Lybrook H01-2206 01H  
 Wellbore: HZ  
 Design: Plan #6

Local Co-ordinate Reference: Well Lybrook H01-2206 01H  
 TVD Reference: 13' KB @ 6944.0ft (Original Well Elev)  
 MD Reference: 13' KB @ 6944.0ft (Original Well Elev)  
 North Reference: True  
 Survey Calculation Method: Minimum Curvature

## Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Comments / Formations                      |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|--------------------------------------------|
| 8,600.0             | 90.40           | 271.20      | 5,384.3             | 314.0      | -3,392.1   | 3,397.9               | 0.00                  | 0.00                 |                                            |
| 8,700.0             | 90.40           | 271.20      | 5,383.6             | 316.1      | -3,492.1   | 3,497.9               | 0.00                  | 0.00                 |                                            |
| 8,800.0             | 90.40           | 271.20      | 5,382.9             | 318.2      | -3,592.1   | 3,597.9               | 0.00                  | 0.00                 |                                            |
| 8,900.0             | 90.40           | 271.20      | 5,382.2             | 320.3      | -3,692.0   | 3,697.9               | 0.00                  | 0.00                 |                                            |
| 9,000.0             | 90.40           | 271.20      | 5,381.5             | 322.4      | -3,792.0   | 3,797.9               | 0.00                  | 0.00                 |                                            |
| 9,100.0             | 90.40           | 271.20      | 5,380.8             | 324.5      | -3,892.0   | 3,897.9               | 0.00                  | 0.00                 |                                            |
| 9,200.0             | 90.40           | 271.20      | 5,380.1             | 326.6      | -3,992.0   | 3,997.9               | 0.00                  | 0.00                 |                                            |
| 9,300.0             | 90.40           | 271.20      | 5,379.4             | 328.7      | -4,091.9   | 4,097.9               | 0.00                  | 0.00                 |                                            |
| 9,400.0             | 90.40           | 271.20      | 5,378.7             | 330.8      | -4,191.9   | 4,197.9               | 0.00                  | 0.00                 |                                            |
| 9,500.0             | 90.40           | 271.20      | 5,378.0             | 332.9      | -4,291.9   | 4,297.9               | 0.00                  | 0.00                 |                                            |
| 9,600.0             | 90.40           | 271.20      | 5,377.3             | 335.0      | -4,391.9   | 4,397.9               | 0.00                  | 0.00                 |                                            |
| 9,601.7             | 90.40           | 271.20      | 5,377.3             | 335.0      | -4,393.6   | 4,399.6               | 0.00                  | 0.00                 | TD at 9601.7 - Lybrook H01-2206 01H BHL NE |
| 9,612.4             | 90.40           | 271.20      | 5,377.2             | 335.3      | -4,404.3   | 4,410.3               | 0.00                  | 0.00                 | Lybrook H01-2206 01H BHL P6                |

## Targets

| Target Name                                                                            | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude  | Longitude   |
|----------------------------------------------------------------------------------------|---------------|--------------|----------|------------|------------|---------------|--------------|-----------|-------------|
| - hit/miss target                                                                      |               |              |          |            |            |               |              |           |             |
| - Shape                                                                                |               |              |          |            |            |               |              |           |             |
| Lybrook H01-2206 01H                                                                   | 0.00          | 359.30       | 5,391.5  | 455.4      | -4,392.4   | 1,882,857.77  | 1,292,783.55 | 36.168900 | -107.427800 |
| - plan misses target center by 121.2ft at 9601.7ft MD (5377.3 TVD, 335.0 N, -4393.6 E) |               |              |          |            |            |               |              |           |             |
| - Polygon                                                                              |               |              |          |            |            |               |              |           |             |
| Point 1                                                                                |               |              | 5,391.5  | 1,996.0    | -339.0     | 1,884,853.71  | 1,292,444.24 |           |             |
| Point 2                                                                                |               |              | 5,391.5  | -500.0     | -339.0     | 1,882,357.71  | 1,292,444.63 |           |             |
| Lybrook H01-2206 01H                                                                   | 0.00          | 359.30       | 5,377.2  | 335.3      | -4,404.3   | 1,882,737.78  | 1,292,770.28 | 36.168570 | -107.427840 |
| - plan hits target center                                                              |               |              |          |            |            |               |              |           |             |
| - Polygon                                                                              |               |              |          |            |            |               |              |           |             |
| Point 1                                                                                |               |              | 5,377.2  | 1,996.0    | -339.0     | 1,884,733.72  | 1,292,430.98 |           |             |
| Point 2                                                                                |               |              | 5,377.2  | -500.0     | -339.0     | 1,882,237.72  | 1,292,431.36 |           |             |
| Lybrook H01-2206 01H                                                                   | 0.00          | 359.30       | 5,404.0  | 254.8      | -569.7     | 1,882,611.42  | 1,296,603.60 | 36.168350 | -107.414850 |
| - plan hits target center                                                              |               |              |          |            |            |               |              |           |             |
| - Polygon                                                                              |               |              |          |            |            |               |              |           |             |
| Point 1                                                                                |               |              | 5,404.0  | 1,996.0    | -339.0     | 1,884,607.37  | 1,296,264.29 |           |             |
| Point 2                                                                                |               |              | 5,404.0  | -500.0     | -339.0     | 1,882,111.37  | 1,296,264.67 |           |             |
| Lybrook H01-2206 01H                                                                   | 0.00          | 359.30       | 5,424.7  | 251.2      | -596.3     | 1,882,608.10  | 1,296,576.99 | 36.168340 | -107.414940 |
| - plan misses target center by 21.3ft at 5803.3ft MD (5403.8 TVD, 255.4 N, -596.1 E)   |               |              |          |            |            |               |              |           |             |
| - Point                                                                                |               |              |          |            |            |               |              |           |             |
| Lybrook H01-2206 01H                                                                   | 0.00          | 359.30       | 5,412.7  | 251.2      | -596.3     | 1,882,608.10  | 1,296,576.99 | 36.168340 | -107.414940 |
| - plan misses target center by 9.9ft at 5803.3ft MD (5403.8 TVD, 255.4 N, -596.1 E)    |               |              |          |            |            |               |              |           |             |
| - Point                                                                                |               |              |          |            |            |               |              |           |             |
| Lybrook H01-2206 01H                                                                   | 0.00          | 359.30       | 5,386.2  | 455.4      | -4,392.4   | 1,882,857.77  | 1,292,783.55 | 36.168900 | -107.427800 |
| - plan misses target center by 120.7ft at 9601.7ft MD (5377.3 TVD, 335.0 N, -4393.6 E) |               |              |          |            |            |               |              |           |             |
| - Polygon                                                                              |               |              |          |            |            |               |              |           |             |
| Point 1                                                                                |               |              | 5,386.2  | 1,996.0    | -339.0     | 1,884,853.71  | 1,292,444.24 |           |             |
| Point 2                                                                                |               |              | 5,386.2  | -500.0     | -339.0     | 1,882,357.71  | 1,292,444.63 |           |             |

# Planning Report

**Database:** USA EDM 5000 Multi Users DB  
**Company:** EnCana Oil & Gas (USA) Inc  
**Project:** Sandoval County, NM  
**Site:** Lybrook  
**Well:** Lybrook H01-2206 01H  
**Wellbore:** HZ  
**Design:** Plan #6

**Local Co-ordinate Reference:** Well Lybrook H01-2206 01H  
**TVD Reference:** 13' KB @ 6944.0ft (Original Well Elev)  
**MD Reference:** 13' KB @ 6944.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

## Casing Points

| Measured Depth (ft) | Vertical Depth (ft) | Name                    | Casing Diameter (in) | Hole Diameter (in) |
|---------------------|---------------------|-------------------------|----------------------|--------------------|
| 500.0               | 500.0               | Surface Casing          | 0.000                | 0.000              |
| 5,579.9             | 5,373.9             | 7" Casing Setting Depth | 0.000                | 0.000              |

## Formations

| Measured Depth (ft) | Vertical Depth (ft) | Name                | Lithology | Dip (°) | Dip Direction (°) |
|---------------------|---------------------|---------------------|-----------|---------|-------------------|
| 154.0               | 154.0               | Nacimiento Fn.      |           | -0.40   | 271.20            |
| 1,362.0             | 1,362.0             | Ojo Alamo Ss.       |           | -0.40   | 271.20            |
| 1,491.0             | 1,491.0             | Kirtland Shale      |           | -0.40   | 271.20            |
| 1,579.0             | 1,579.0             | Fruitland Coal      |           | -0.40   | 271.20            |
| 1,880.0             | 1,880.0             | Pictured Cliffs Ss. |           | -0.40   | 271.20            |
| 2,004.0             | 2,004.0             | Lewis Shale         |           | -0.40   | 271.20            |
| 2,677.0             | 2,677.0             | Cliffhouse Ss.      |           | -0.40   | 271.20            |
| 3,443.0             | 3,443.0             | Menefee Fn.         |           | -0.40   | 271.20            |
| 4,111.0             | 4,111.0             | Point Lookout Ss.   |           | -0.40   | 271.20            |
| 4,314.0             | 4,314.0             | Mancos Shale        |           | -0.40   | 271.20            |
| 4,909.3             | 4,902.0             | Mancos Silt         |           | -0.40   | 271.20            |
| 5,190.8             | 5,151.0             | Gallup Fn.          |           | -0.40   | 271.20            |

## Plan Annotations

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates |            | Comment              |
|---------------------|---------------------|-------------------|------------|----------------------|
|                     |                     | +N/-S (ft)        | +E/-W (ft) |                      |
| 4,800.0             | 4,800.0             | 0.0               | 0.0        | KOP @ 4800'          |
| 5,800.0             | 5,424.7             | 250.5             | -584.5     | LP @ 5800' MD; 90.4° |
| 9,601.7             | 5,391.6             | 454.8             | -4,380.6   | TD at 9601.7         |