Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SEP 10 2014

## 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.***

***SUBMIT IN TRIPLICATE*** *– Other instructions on page 2.*

| | |
|---|---|
| 1. Type of Well<br>☑ Oil Well ☐ Gas Well ☐ Other | 5. Lease Serial No.<br>NM 048989A |
| | 6. If Indian, Allottee or Tribe Name<br>N/A |
| | 7. If Unit of CA/Agreement, Name and/or No.<br>Pending |
| | 8. Well Name and No.<br>Lybrook M35-2308 02H |
| 2. Name of Operator<br>Encana Oil & Gas (USA) Inc. | 9. API Well No.<br>30-045-35527 |
| 3a. Address<br>370 17th Street, Suite 1700<br>Denver, CO 80202<br>3b. Phone No. *(include area code)*<br>720-876-5867 | 10. Field and Pool or Exploratory Area<br>Amamito-Gallup |
| 4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*<br>SHL: 344' FSL and 1329' FWL Sec 35, T23N, R8W<br>BHL: 330' FSL and 2240' FWL Sec 2, T22N, R8W | 11. Country or Parish, State<br>San Juan, NM |

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

| TYPE OF SUBMISSION | TYPE OF ACTION | | | |
|---|---|---|---|---|
| ☑ Notice of Intent | ☐ Acidize | ☐ Deepen | ☐ Production (Start/Resume) | ☐ Water Shut-Off |
| | ☐ Alter Casing | ☐ Fracture Treat | ☐ Reclamation | ☐ Well Integrity |
| ☐ Subsequent Report | ☐ Casing Repair | ☐ New Construction | ☐ Recomplete | ☐ Other _____ |
| | ☑ Change Plans | ☐ Plug and Abandon | ☐ Temporarily Abandon | |
| ☐ Final Abandonment Notice | ☐ Convert to Injection | ☐ Plug Back | ☐ 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) submitted a sundry on September 2, 2014 to modify the drilling plan for the Lybrook M35-2308 02H well to cement the 4 1/2" production liner, instead of running open hole swell packers. The 10-Point Drilling Plan and Wellbore Diagram attached to that sundry showed the liner hanger set 50' into the 7" casing. Since submitting the sundry, it was determined that the liner hanger should be set 100' into the 7" casing resulting in a 100' overlap. Attached is an updated 10-Point Drilling Plan and Wellbore Diagram reflecting this change.

RCVD SEP 15 '14
OIL CONS. DIV.
DIST. 3

## CONDITIONS OF APPROVAL

**Adhere to previously issued stipulations**

**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>Katie Wegner | Title Regulatory Analyst |
| Signature | Date 09/02/2014 |

### THIS SPACE FOR FEDERAL OR STATE OFFICE USE

| | | |
|---|---|---|
| Approved by William Tambekou | Title Petroleum Engineer | Date 9/11/2014 |
| 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 FFO | |

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

| LOC: Lybrook M35-2308 02H<br>County: San Juan<br>WELL: Lybrook M35-2308 02H | Encana Natural Gas<br>WELL SUMMARY | | ENG: Jeff Villalobos 9/9/14<br>RIG: Aztec 950<br>GLE: 6879<br>RKBE: 6895 |
|---|---|---|---|

| MWD<br>LWD | OPEN HOLE<br>LOGGING | FORM | DEPTH<br>TVD | DEPTH<br>MD | HOLE<br>SIZE | CASING<br>SPECS | MW<br>MUD TYPE | DEVIATION<br>INFORMATION |
|---|---|---|---|---|---|---|---|---|
| | | | 60 | 60' | 26 | 16" 42.09#<br>100sx Type I Neat 16.0ppg cmt | Fresh wtr<br>8.3-9.2 | |
| Multi-Well pad take survey every stand and run anti-collision report prior to spud | None | San Jose Fn.<br>Nacimiento Fn.<br>9 5/8" Csg | 0<br>0<br>500 | 500.00 | 12 1/4 | 9 5/8" 36ppf J55 STC<br>TOC Surface with 100% OH Excess: 276 sks Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water. | Fresh wtr<br>8.3-10 | Vertical<br><1° |
| Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5 | No OH logs<br>Mud logger onsite | Ojo Alamo Ss.<br>Kirtland Shale<br>Fruitland Coal<br>Pictured Cliffs Ss.<br>Lewis Shale<br>Cliffhouse Ss.<br>Menefee Fn.<br>Point Lookout Ss.<br>Mancos Shale<br>KOP | 600<br>791<br>1,131<br>1,271<br>1,367<br>2,009<br>2,720<br>3,658<br>3,802<br>2,600 | 2,600 | 8 3/4 | 7" 26ppf J55 LTC<br>TOC @ surface (100% OH excess - 70% Lead 30% Tail)<br>Stage 1 Total: 697sks<br>Stage 1 Lead: 378 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL-52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk.<br>Stage 1 Tail: 319 sks Type III Cement + 1% CaCl2 + 0.25#/sk Cello Flake + 0.2% FL-52A. Mixed at 14.6 ppg. Yield 1.38 cuft/sk. | Fresh Wtr<br>8.3-10 | Vertical<br><1° |
| Surveys every 30' through the curve | | Mancos Silt<br>Gallup Fn.<br>7" Csg | 4,312<br>4,571<br>4,746 | 4,994' | | | | |
| Surveys every stand to TD unless directed otherwise by Geologist<br>MWD<br>Gamma<br>Directional | No OH Logs | Horizontal Target<br>TD<br>Base Gallup | 4,875<br>4,800<br>4,908 | 10,081 | 6 1/8 | 100' overlap at liner top<br>5086' Drilled Lateral<br>4 1/2" 11.6ppf SB80 LTC<br>TOC @ hanger (50% OH excess)<br>Stage 1 Total: 277sks<br>Stage 1 Blend: 277 sks Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk. | WBM<br>8.3-10 | Horz Inc/TVD<br>90.8 degdeg/4875ft<br>TD = 10080.7 MD |

**NOTES:**

1) Drill with 26" bit to 60', set 16" 42.09# conductor pipe
2) Drill surface to 500', R&C 9 5/8" casing
3) N/U BOP and surface equipment
4) Drill to KOP of 2600', 8 3/4 inch holesize
5) Start curve at 10deg/100' build rate
6) Drill to csg point of 4994' MD
7) R&C 7" csg, circ cmt to surface
8) Land at ~90 deg, drill lateral to 10081' run 4 1/2 inch cemented liner

**Lybrook M35-2308 02H**
**SHL: SE/4 SW/4 Sec 35 T23N R8W, 344' FSL, 1329' FWL**
**BHL: SE/4 SE/4 Sec 2 T22N R8W, 330' FSL, 2240' FWL**
**San Juan, New Mexico**

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

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

The estimated tops of important geologic markers are as follows:

| Formation | Depth (TVD) units = feet |
|---|---|
| Nacimiento Fn. | 0 |
| Ojo Alamo Ss. | 600 |
| Kirtland Shale | 791 |
| Fruitland Coal | 1,131 |
| Pictured Cliffs Ss. | 1,271 |
| Lewis Shale | 1,367 |
| Cliffhouse Ss. | 2,009 |
| Menefee Fn. | 2,720 |
| Point Lookout Ss. | 3,658 |
| Mancos Shale | 3,802 |
| Mancos Silt | 4,312 |
| Gallup Fn. | 4,571 |
| Horizontal Target | 4,875 |
| | |

The referenced surface elevation is 6879', KB 6895'

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

| Substance | Formation | Depth (TVD) units = feet |
|---|---|---|
| Water/Gas | Fruitland Coal | 1,131 |
| Oil/Gas | Pictured Cliffs Ss. | 1,271 |
| Oil/Gas | Cliffhouse Ss. | 2,009 |
| Gas | Menefee Fn. | 2,720 |
| Oil/Gas | Point Lookout Ss. | 3,658 |
| Oil/Gas | Mancos Shale | 3,802 |
| Oil/Gas | Mancos Silt | 4,312 |
| Oil/Gas | Gallup Fn. | 4,571 |

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

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**San Juan, New Mexico**

## 3. PRESSURE CONTROL

a) Pressure contol 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.
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 (MD) | Hole Size | Csg Size | Weight | Grade |
|---|---|---|---|---|---|
| Conductor | 0'-60' | 26" | 16" | 42.09# | |
| Surface | 0'-500' | 12 1/4" | 9 5/8" | 36# | J55, STC New |
| Intermediate | 0'-4994' | 8 3/4" | 7" | 26# | J55, LTC New |
| Production Liner | 4894'-10081' | 6 1/8" | 4 1/2" | 11.6# | B80*, LTC New |

| Casing String | | | | Casing Strength Properties | | | Minimum Design Factors | | |
|---|---|---|---|---|---|---|---|---|---|
| Size | Weight (ppf) | Grade | Connection | Collapse (psi) | Burst (psi) | Tensile (1000lbs) | 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 |
| 4.5" | 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

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**San Juan, New Mexico**

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

| Casing | Depth (MD) | Cement Volume (sacks) | Cement Type & Yield | Designed | Centralizers |
|---|---|---|---|---|---|
| Conductor | 0'-60' | 100 sks | Type I Neat 16 ppg | Surface | None |
| Surface | 0'-500' | 276 sks | Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water | Surface | 1 per joint on bottom 3 joints |
| Intermediate | 0'-4994' | 100% open hole excess Stage 1 Lead: 378 sks Stage 1 Tail: 319 sks | Lead: PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuft/sk Tail: Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuft/sk | Surface | 1 every 3 joints through water bearing zones |
| Production Liner | 4894'-10081' | 50% OH excess Stage 1 Blend Total: 277sks | Blend: Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. | Liner Hanger | N/A |

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 a minimum of 8 hours or adequate to achieve minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

**5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM**

The proposed horizontal well will have a kick off point of 2600'. Directional plans are attached.

| Description | Proposed Depth (TVD/MD) | Formation |
|---|---|---|
| Horizontal Lateral TD | 4800'/10081' | Gallup |

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**San Juan, New Mexico**

6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

| Hole Size (in) | Depth (TVD/MD) | Mud Type | Density (ppg) | Viscosity (sec/qt) | Fluid Loss (cc) |
|---|---|---|---|---|---|
| 30" | 0-60'/60' | Fresh Water | 8.3-9.2 | 38-100 | 4-28 |
| 12 1/4" | 0'-500'/500' | Fresh Water | 8.3-10 | 60-70 | NC |
| 8 3/4" | 500'/500'-4746'/4994' | Fresh Water LSND | 8.3-10 | 40-50 | 8-10 |

b) Intermediate Casing Point to TD:

| Hole Size (in) | Depth (TVD/MD) | Mud Type | Density (ppg) | Viscosity (sec/qt) | Fluid Loss (cc) |
|---|---|---|---|---|---|
| 6 1/8" | 4746'/4994'-4800'/10081' | Fresh Water LSND | 8.3-10 | 15-25 | <15 |

c) 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.

d) 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. 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.

**7. TESTING, CORING, & LOGGING**

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

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 +/- 2282 psi based on a 9.0 ppg at 4875' TVD of the horizontal lateral target. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if $H_2S$ 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 October 7, 2014. 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 20 days.