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Farmington Field Office
Bureau of Land Management

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

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.*

5. Lease Serial No.
NM NM 109389

6. If Indian, Allottee or Tribe Name

7. If Unit of CA/Agreement, Name and/or No.

1. Type of Well
☑ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
Lybrook D22-2206 02H

2. Name of Operator
Encana Oil & Gas (USA) Inc.

9. API Well No.
30-043-21128

3a. Address
370 17th Street, Suite 1700
Denver, CO 80202

3b. Phone No. *(include area code)*
720-876-3941

10. Field and Pool or Exploratory Area
WC Gallup

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*
SHL: 1160' FNL and 220' FWL Sec 22, T22N, R6W
BHL: 1980' FNL and 330' FWL Sec 21, T22N, R6W

11. Country or Parish, State
Sandoval, 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
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☑ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ 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) would like to revise the vertical hole size and cement plans for the Lybrook D22-2206 02H well. Encana would like to change surface casing from 13 3/8" to 9 5/8", intermediate casing from 9 5/8" to 7", and production liner from 5 1/2" to 4 1/2". Please see attached 10 point drilling plan and wellbore diagram.

RCVD MAR 13 '13
OIL CONS. DIV.
DIST. 3

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.

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

14. I hereby certify that the foregoing is true and correct.
Name *(Printed/Typed)*
Robynn Haden

Title Engineering Technologist

Signature Robynn Haden

Date 3/5/13

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by
Troy L. Salyers

Title Petroleum Eng.

Date 3/11/2013

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: **Sec 22-T22N-R06W**
County: **San Juan**
WELL: **Lybrook D22-2206 02H**

Encana Natural Gas

WELL SUMMARY

encana natural gas

ENG: J. Fox/ A. **3/5/13**
RIG:
GLE: **7188**
RKBE: **7201**

MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH TVD	DEPTH MD		HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			60	60'		**30**	**20" 94#** 100sx Type I Neat 48.8ppg cmt	**Fresh wtr** 8.3-9.2	
Surveys After csg is run	None		**500**	**500**		**12 1/4**	**9 5/8" 36ppf J55 STC** TOC @ surface 178 sks Type III Cmt	**Fresh wtr** 8.4-8.6	Vertical <1°
Surveys every 500'	No OH logs	Ojo Alamo Kirtland Fruitland Coal Pictured Cliffs Ss Lewis Shale Cliffhouse Ss Menefee Fn Point Lookout Ss	1244 1389 1515 1840 1932 2593 3302 4103		Stage tool @1890'	**8 3/4**	**7" 26ppf J55 LTC** TOC @ surface 30% OH excess: 620 sks Total Stage 1 Lead: 269 sks Stage 1 Tail: 184 sks Stage 2 Lead: 167 sks	**Fresh Wtr** 8.5-8.8	Vertical <1°
	Mud logger onsite	Mancos Sh **KICK OFF PT** Mancos Silt Gallup Top	4278 4560 4843 5097						KOP 4560 10 deg/100'
			5316	**6078**		**6 1/8**	200' overlap at liner top		.25deg updip 5300'TVD TD = 10619' MD
		horz target	5316	6078			4541' Lateral	8.6-9.0 OBM	
Surveys every 500' Gyro at CP MWD Gamma Directional	No OH Logs	Base Gallup	5411				**4 1/2" 11.6ppf SB80 LTC** Running external swellable csg packers for isolation of prod string Plan on setting top packer within 100' of intermediate casing shoe	Switch to OBM 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
6) Drill to Kick off at 4560' and start curve at 10deg/100' build rate
7) Drill to casing point of 6078' MD
8) R&C 7" casing, circ cmt to surface, switch to OBM
9) Land at 90deg, drill 4541' lateral to 10619', run 4 1/2" liner with external swellable csg packers

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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)
Ojo Alamo Ss.	1244'
Kirtland	1389'
Fruitland Coal	1515'
Pictured Cliffs	1840'
Lewis	1932'
Cliffhouse	2593'
Menefee	3302'
Point Lookout	4103'
Mancos	4278'
Gallup	5097'

The referenced surface elevation is 7188', KB 7201'

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

Substance	Formation	Depth (TVD)
Gas	Fruitland Coal	1515'
Gas	Pictured Cliffs	1840'
Gas	Cliffhouse	2593'
Gas	Point Lookout	4103'
Oil/Gas	Mancos	4278'

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 either 70 percent of the casings internal yield pressure or 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	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'-6078'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5878'-10619'	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.

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Casing	Depth	Cement Volume (sacks)	Cement Type&Yield	Designed TOC	Centralizers
Conductor	60'	100sk	Redi-mix Construction Grade Cement	Surface	None
Surface	500'	291sk	Type III Cement + 1% CaCl + 0.25lb/sk Cello Flake + 0.2% FL, 14.6ppg, 1.38cuf/sk	Surface	1 per joint on bottom 3 joints
Intermediate	6078'	30% open hole excess Stage 1 Lead: 269sk Stage 1 Tail: 184sk Stage 2 Lead: 167sk	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 per joint for bottom 3 joints, 1 every 3 joints for remaining joints
Production Liner*	5878'-10619'	None – External casing 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 a minimum of 8 hours or 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 horizontal well will have a kick off point of 4560'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5300'/10619'	Gallup

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6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

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"	500-5316' (6078'MD)	Fresh Water LSND	8.5-8.8	40-50	8-10

b) Intermediate Casing Point to TD:

Hole Size (in)	MD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	6078'-10619'	Synthetic Oil Based Mud	8.6-9.0	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, 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 wit the Surface Use Plan of Operations.

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 intermediate casing 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 +/- 2488 psi based on a 9.0 ppg at 5316' TVD of the landing point of the horizontal lateral. 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.

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9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on November 17, 2012. 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.