



Marquez, Cynthia <cmarquez@blm.gov>

Rescind APDs for Lybrook M12-2206 and N12-2206

1 message

Wegner, Katie <Kathryn.Wegner@encana.com>

Mon, Feb 27, 2017 at 3:45 PM

To: "Marquez, Cynthia (cmarquez@blm.gov)" <cmarquez@blm.gov>

Hi Cindy,

Per our phone conversation, Encana would like to rescind the APDs for the Lybrook M12-2206 01H and Lybrook N12-2206 01H wells as these are no longer a part of Encana's development plan.

A request to withdraw the ROWs associated with these pads was submitted on March 19, 2015. I am wondering if withdrawing the APDs was overlooked at that time.

The stakes for these locations were removed March 13, 2015.

If you need anything else to rescind these applications, please let me know.

Thanks,

Katie

Katie Wegner

Regulatory Analyst

t 720.876.3533

c 303.482.6819

Encana Services Company Ltd.

encana.com

Encana Services Company Ltd. provides operational, corporate, administrative and advisory services to Encana Corporation and its subsidiaries.

OIL CONS. DIV DIST. 3

MAR 01 2017

NIWOCD-A cancelled per operators request 2/27/17

48

CONFIDENTIAL

MAR 01 2017

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

APPLICATION FOR PERMIT TO DRILL OR REENTER

SEP 13 2013

5. Lease Serial No.
NMNM 109385 NMNM 117562

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA Agreement, Name and No.
PENDING

8. Lease Name and Well No.
Lybrook M12-2206 01H

9. API Well No.
3004321171

1a. Type of work: DRILL REENTER

1b. Type of Well: Oil Well Gas Well Other Single Zone Multiple Zone

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

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

3b. Phone No. (include area code)
720-876-3989

10. Field and Pool, or Exploratory
Lybrook Gallup

4. Location of Well (Report location clearly and in accordance with any State requirements.)*
At surface 329' FSL and 631' FWL Section 12, T22N, R6W *SWSW*
At proposed prod. zone 330' FSL and 760' FWL Section 13, T22N, R6W *SWSW*

11. Sec., T. R. M. or Blk and Survey or Area
Section 12, T22N, R6W NMPM

14. Distance in miles and direction from nearest town or post office*
+/- 58.3 miles southeast of the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM

12. County or Parish Sandoval 13. State NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
BHL is 330' from south lease line

16. No. of acres in lease
NMNM 109385-1,761 acres
NMNM 117562-2,240 acres *400*

17. Spacing Unit dedicated to this well
160.0 acres - W/2 W/2 Section 13, T22N, R6W

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
Lybrook N12-2206 01H is +/- 1,354 east

19. Proposed Depth
5,355' TVD/10,556' MD

20. BLM/BIA Bond No. on file
COB-000235

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
7,085' GL, 7,101' KB

22. Approximate date work will start*
08/18/2014

23. Estimated duration
25 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

- 1. Well plat certified by a registered surveyor.
- 2. A Drilling Plan.
- 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- 5. Operator certification
- 6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature *Holly Hill*

Name (Printed/Typed)
Holly Hill

Date
9/11/13

Title
Regulatory Analyst

Approved by (Signature)

Name (Printed/Typed)

Date

Title

Office

Application approval 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. Conditions of approval, if any, are attached.

BLM'S APPROVAL OR ACCEPTANCE OF THIS

ACTION DOES NOT RELIEVE THE LESSEE AND

OPERATOR FROM OBTAINING ALL OTHER

AUTHORIZATION REQUIRED FOR OPERATIONS

ON FEDERAL AND INDIAN LANDS

**DRILLING OPERATIONS
AUTHORIZED ARE SUBJECT TO
COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS"**
(Instructions on page 2)

*(Continued on page 2)
This document is subject to technical
and procedure review pursuant to
43 CFR 3165.3 and appeal
pursuant to 43 CFR 3165.4*

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) 476-3450 Fax: (505) 476-3452

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

SEP 13 2013

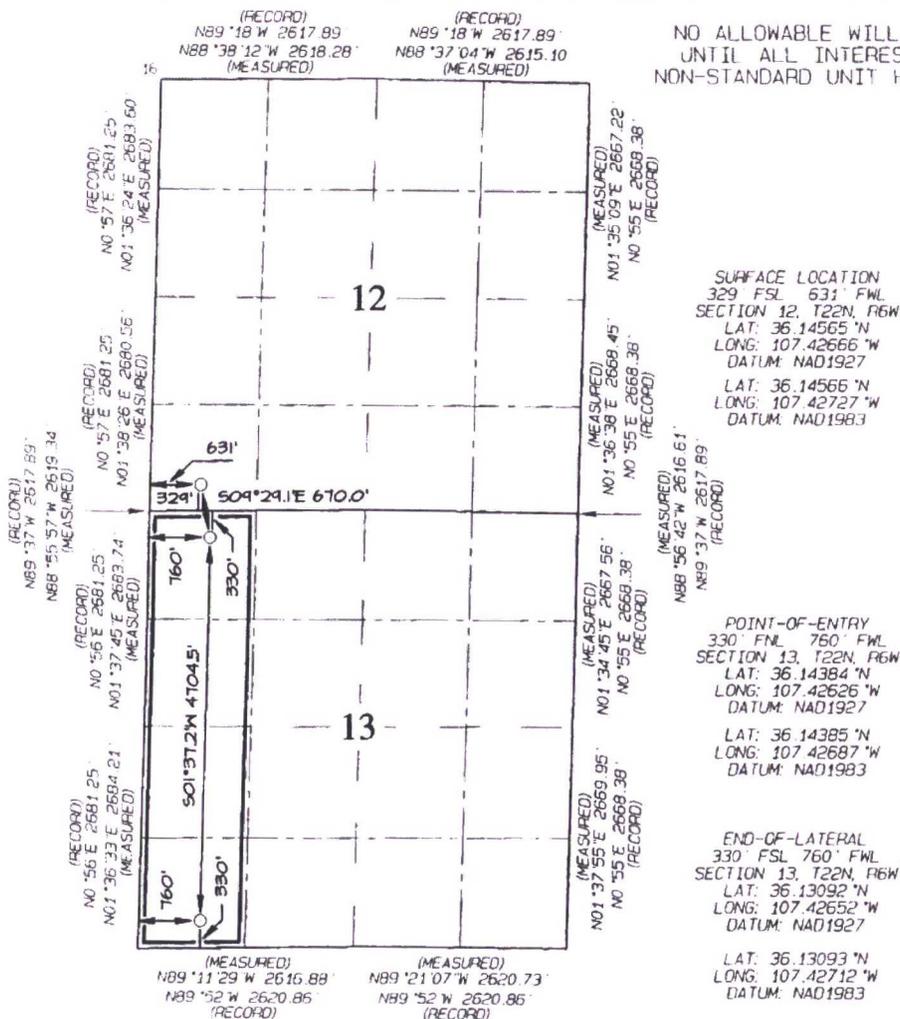
WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number	*Pool Code 42289	*Pool Name LYBROOK GALL
*Property Code 317510	*Property Name LYBROOK M12-2206	Well Number 01H
*CGRID No. 282327	*Operator Name ENCANA OIL & GAS (USA) INC.	*Elevation 7085'

Farmington Field Office
Bureau of Land Management

10 Surface Location									
UA or Lot No.	Section	Township	Range	Lot Idn.	Feet from the	North/South line	Feet from the	East/West line	County
M	12	22N	6W		329	SOUTH	631	WEST	SANDOVAL
11 Bottom Hole Location If Different From Surface									
UA or Lot No.	Section	Township	Range	Lot Idn.	Feet from the	North/South line	Feet from the	East/West line	County
M	13	22N	6W		330	SOUTH	760	WEST	SANDOVAL
12 Dedicated Acres 160.00 Acres W/2 W/2 - Section 13					13 Joint or Infill	14 Consolidation Code	15 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



17 OPERATOR CERTIFICATION

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

Holly Hill 9/11/13
Signature Date

Holly Hill
Printed Name
holly.hill@encana.com
E-mail Address

18 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.

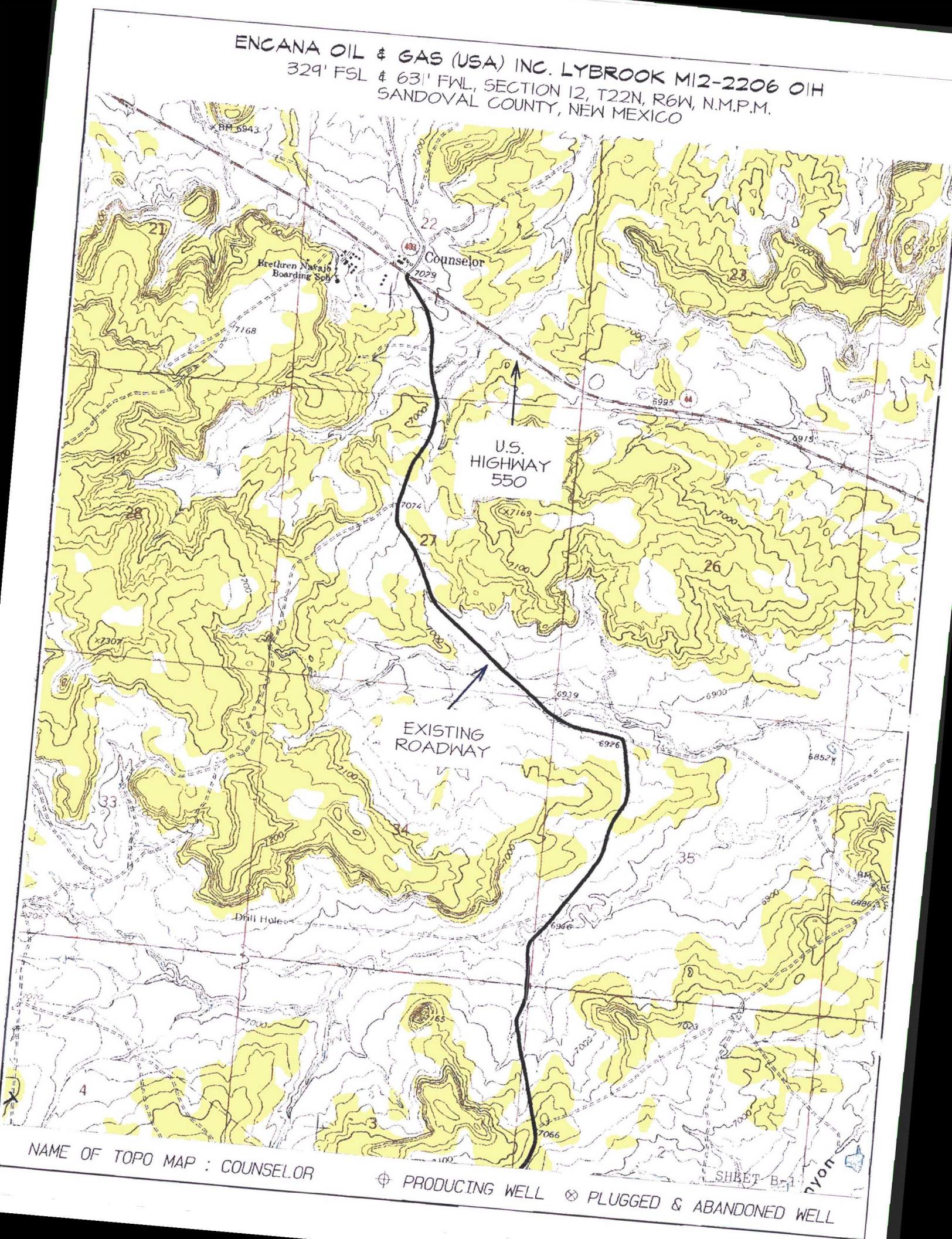
Date Revised: JULY 23, 2013
Date of Survey: MARCH 27, 2013

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

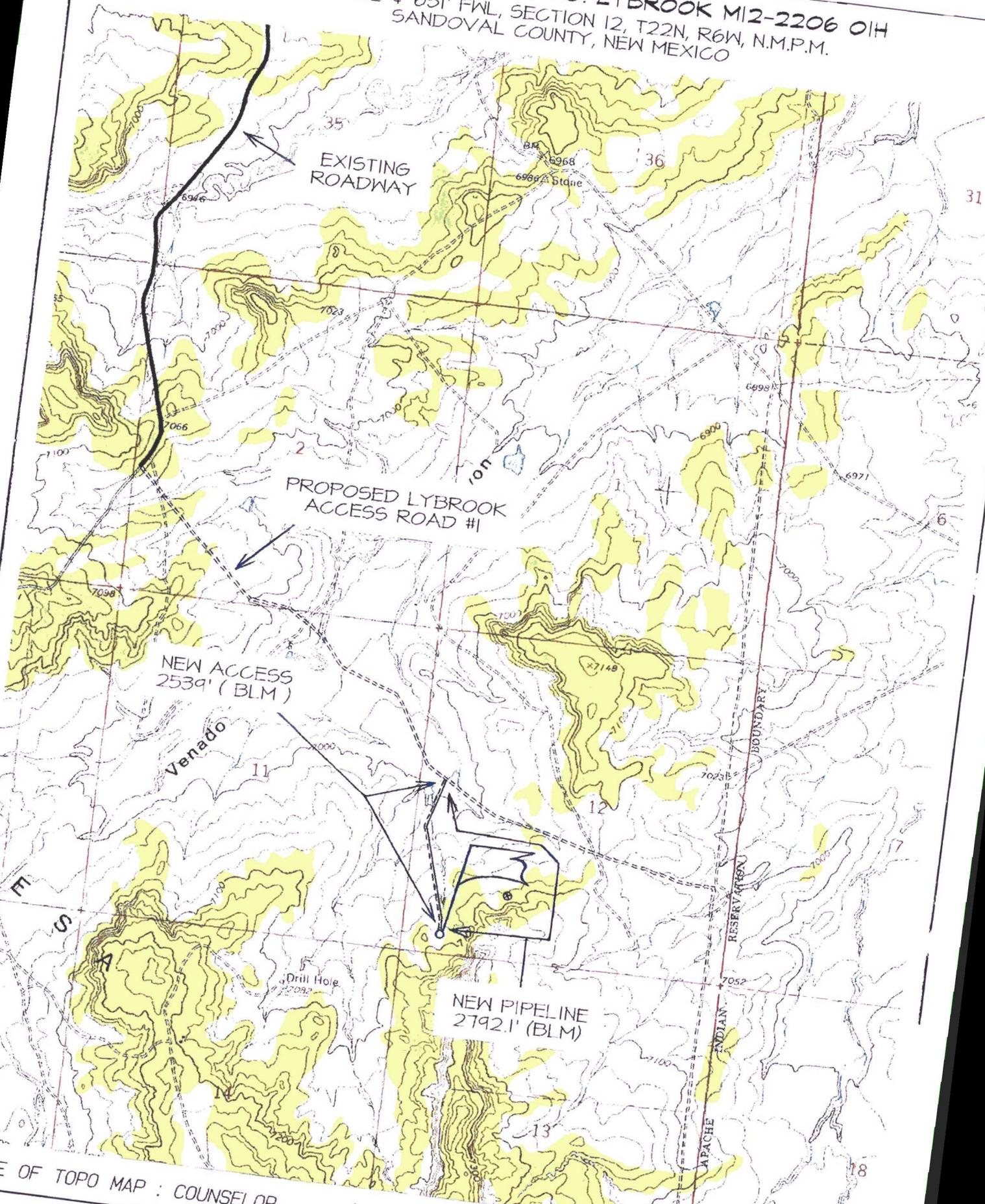
ENCANA OIL & GAS (USA) INC. LYBROOK M12-2206 OIH
329' FSL & 631' FWL, SECTION 12, T22N, R6W, N.M.P.M.
SANDOVAL COUNTY, NEW MEXICO



NAME OF TOPO MAP : COUNSELOR

⊕ PRODUCING WELL ⊗ PLUGGED & ABANDONED WELL

ENCANA OIL & GAS (USA) INC. LYBROOK M12-2206 OIH
329' FSL & 631' FWL, SECTION 12, T22N, R6W, N.M.P.M.
SANDOVAL COUNTY, NEW MEXICO



NAME OF TOPO MAP : COUNSELOR

⊕ PRODUCING WELL ⊗ PLUGGED & ABANDONED WELL

SHEET B-2

Directions from the Intersection of US Hwy 550 & US Hwy 64

in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Lybrook M12-2206 01H

329' FSL & 631' FWL, Section 12, T22N, R6W, N.M.P.M., Sandoval County, NM

Latitude: 36.14566°N Longitude: 107.42727°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 53.6 miles to Mile Marker 97.7;

Go right (South-Easterly) for 3.3 miles to an unimproved roadway;

Go left (South-Easterly) along Lybrook Access Road #1 for 1.4 miles to proposed access on right-hand side which continues for 2539' to staked Encana Lybrook M12-2206 01H location.

encana

SANDOVAL COUNTY,
NEW MEXICO

-  Abandoned
 -  Abandoned Gas
 -  Abandoned Oil
 -  Dry Hole
 -  GAS
 -  Injection
 -  OIL
- 1 inch = 2,167 feet

Basin Mancos
Gas Pool

Lybrook A01-2206 03H Lybrook A01-2206 04H

Lybrook H01-2206 01H

2

1

6

10

11

Lybrook H11-2206 01H
 Lybrook H11-2206 02H
 Lybrook H11-2206 03H
 Lybrook H11-2206 04H

12

7

DOUBLE OUGHT 1

Lybrook M12-2206 01H

Lybrook P12-2206 01H
 Lybrook P12-2206 02H
 Lybrook P12-2206 03H

**22N
6W**

SILVER 1

Lybrook B14-2206 01H
 Lybrook B14-2206 02H

Lybrook
N12-2206 01H

**22N
5W**

15

14

13

18

1000'

22

23

24

19

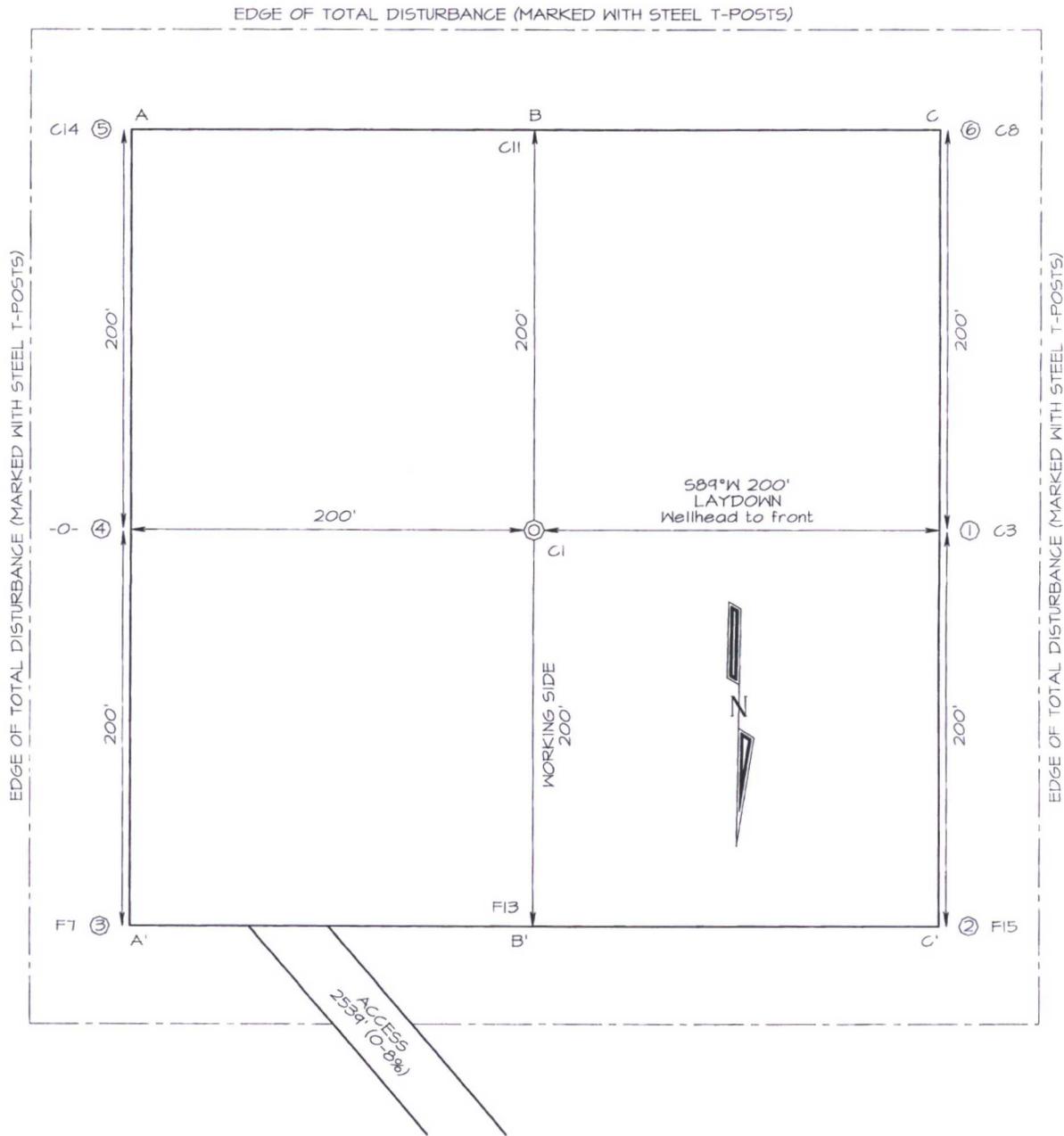
1-1


Lybrook P24-2206 01H

0 0.125 0.25 0.5 Miles



ENCANA OIL & GAS (USA) INC. LYBROOK M12-2206 01H
329 FSL & 631' FWL, SECTION 12, T22N, R6W, NMPM
SANDOVAL COUNTY, NEW MEXICO ELEVATION: 7085'
LAT: 36.14566°N LONG: 107.42727°W DATUM: NAD1983



~ SURFACE OWNER ~
 Bureau of Land Management

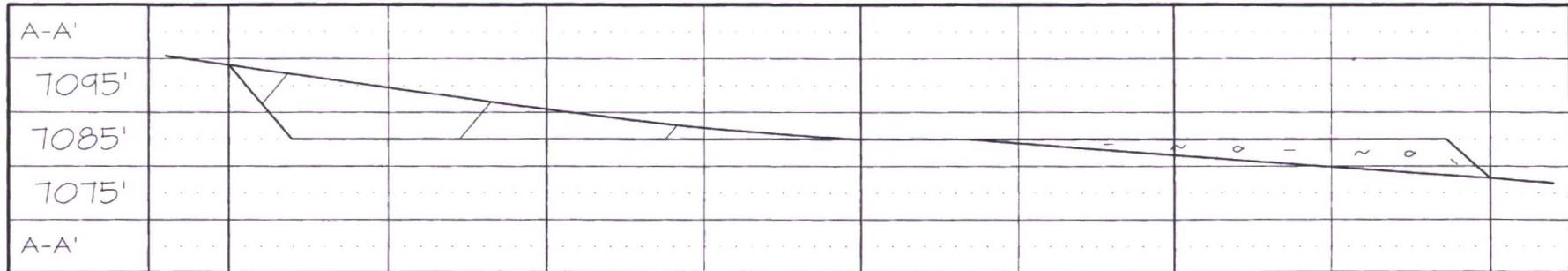
Steel T-Posts have been set to define the Edge of Disturbance limits which are 50' offset from the edge of the staked wellpad.

ENCANA OIL & GAS (USA) INC. LYBROOK M12-2206 01H
 329' FSL & 631' FWL, SECTION 12, T22N, R6W, NMPM
 SANDOVAL COUNTY, NEW MEXICO ELEVATION: 7085'

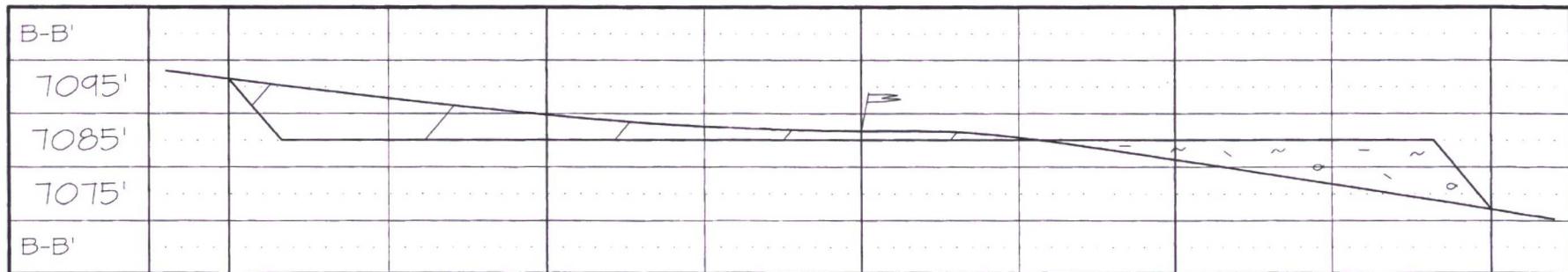
HORIZONTAL SCALE 1"=50'

VERTICAL SCALE 1"=30'

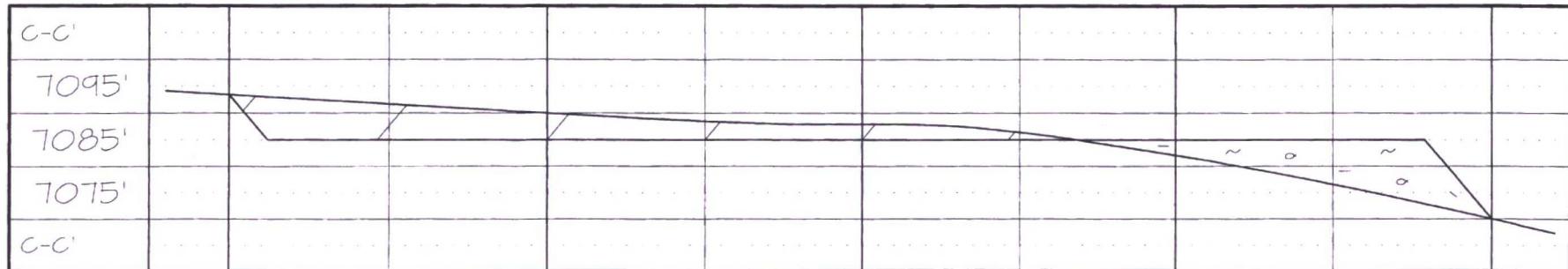
C/L



C/L



C/L



CONTRACTOR SHOULD CONTACT ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED UNDERGROUND UTILITIES OR PIPELINES ON WELLPAD AND/OR ACCESS ROAD AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION.

Lybrook M12-2206 01H
 SHL: SWSW Section 12, T22N, R6W
 329 FSL and 631 FWL
 BHL: SWSW Section 13, T22N, R6W
 330 FSL and 760 FWL
 Sandoval County, New Mexico
 Lease Number: NMNM 109385 & NMNM 117562

**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 Ss.	1428'
Kirtland	1524'
Fruitland Coal	1633'
Pictured Cliffs	1925'
Lewis	2022'
Cliffhouse	2704'
Menefee	3449'
Point Lookout	4157'
Mancos Shale	4387'
Mancos Silt	4920'
Gallup	5201'

The referenced surface elevation is 7085', KB 7101'

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

<u>Substance</u>	<u>Formation</u>	<u>Depth (TVD)</u>
Gas	Fruitland Coal	1633'
Gas	Pictured Cliffs	1925'
Gas	Cliffhouse	2704'
Gas	Point Lookout	4157'
Oil/Gas	Mancos Shale	4387'

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 M12-2206 01H

**SHL: SWSW Section 12, T22N, R6W
329 FSL and 631 FWL**

**BHL: SWSW Section 13, T22N, R6W
330 FSL and 760 FWL**

Sandoval County, New Mexico

Lease Number: NMNM 109385 & NMNM 117562

- 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'-5754'MD	8 3/4"	7"	26#	J55, LTC New
Production Liner	5554'-10556'MD	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 M12-2206 01H

SHL: SWSW Section 12, T22N, R6W
329 FSL and 631 FWL

BHL: SWSW Section 13, T22N, R6W
330 FSL and 760 FWL

Sandoval County, New Mexico

Lease Number: NMNM 109385 & NMNM 117562

Casing	Depth	Cement Volume (sacks)	Cement Type&Yield	Designed TOC	Centralizers
Conductor	60'	100sk	Type I Neat 14.8 ppg	Surface	None
Surface	500'	178sk	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	5754'MD	30% open hole excess Stage 1 Lead: 243sks Stage 1 Tail: 167sks Stage 2 Lead: 174sks	Lead (Stages 1 and 2): PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuf/sk Tail (Stage 1): Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuf/sk	Surface	1 per joint for bottom 3 joints, 1 every 3 joints for remaining joints
Production Liner*	5554'-10556'	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 4854'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5355'/10556'	Gallup

Lybrook M12-2206 01H

**SHL: SWSW Section 12, T22N, R6W
329 FSL and 631 FWL**

**BHL: SWSW Section 13, T22N, R6W
330 FSL and 760 FWL**

Sandoval County, New Mexico

Lease Number: NMNM 109385 & NMNM 117562

6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

Hole Size (in)	Depth (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60' TVD	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0-500' TVD	Fresh Water	8.4-8.6	60-70	NC
8 3/4"	500'TVD- 5428'TVD/5754'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"	5754'-10556'	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 with 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 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 +/- 2541 psi based on a 9.0 ppg at 5429' TVD of the landing point of the horizontal lateral. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H₂S is encountered, the guidelines in Onshore Order No. 6 will be followed.

Lybrook M12-2206 01H
SHL: SWSW Section 12, T22N, R6W
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BHL: SWSW Section 13, T22N, R6W
330 FSL and 760 FWL
Sandoval County, New Mexico
Lease Number: NMNM 109385 & NMNM 117562

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on August 18, 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 25 days.

LOC: Sec 12-T22N-R6W County: Sandoval WELL: Lybrook M12-2206 01H			Encana Natural Gas WELL SUMMARY					ENG: 9/11/13 RIG: GLE: 7085 RKBE: 7101	
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH		HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION	
			TVD	MD					
			60	60'		20" 94# 100sx Type I Neat 48.8ppg cmt	Fresh wtr 8.3-9.2		
Surveys After csg is run	None					9 5/8" 36ppf J55 STC	Fresh wtr 8.4-8.6	Vertical <1°	
			500	500		TOC @ surface 178 sks Type III Cmt			
Surveys every 500'	No OH logs Mud logger onsite	Ojo Alamo Kirtland Fruitland Coal Pictured Cliffs Ss Lewis Shale Cliffhouse Ss Menefee Fn Point Lookout Ss Mancos Sh KICK OFF PT Mancos Silt Gallup Top 7" csg setting	1428 1524 1633 1925 2022 2704 3449 4157 4387 4854 4920 5201 5428		Stage tool @1975'	8 3/4	Fresh Wtr 8.5-8.8 TOC @ surface 30% OH excess: 584 sks Total. Stage 1 Lead: 243sks Stage 1 Tail: 167sks. Stage 2 Lead: 174sks	Vertical <1° KOP 4854 10 deg/100'	
		horz target Base Gallup	5429 5511	5852		6 1/8	200' overlap at liner top 4704' Lateral	8.6-9.0 OBM	.25deg updip 5355'TVD TD = 10556' MD
Surveys every 500' Gyro at CP MWD Gamma Directional	No OH Logs					4 1/2" 11.6ppf SB80 LTC	Switch to OBM 8.6-9.0		
						Running external swellable csg packers for isolation of prod string Plan on setting top packer within 100' of intermediate casing shoe			

NOTES:

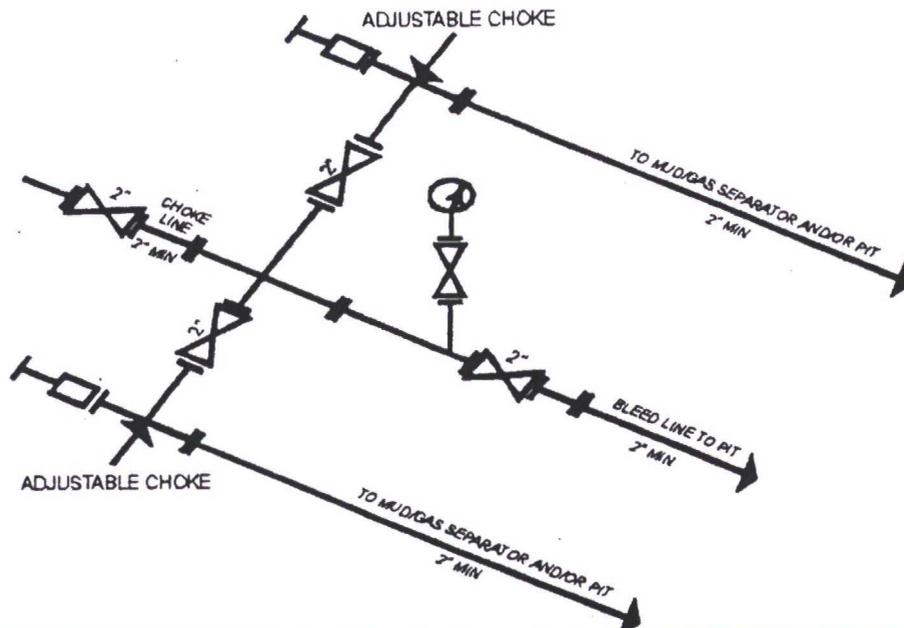
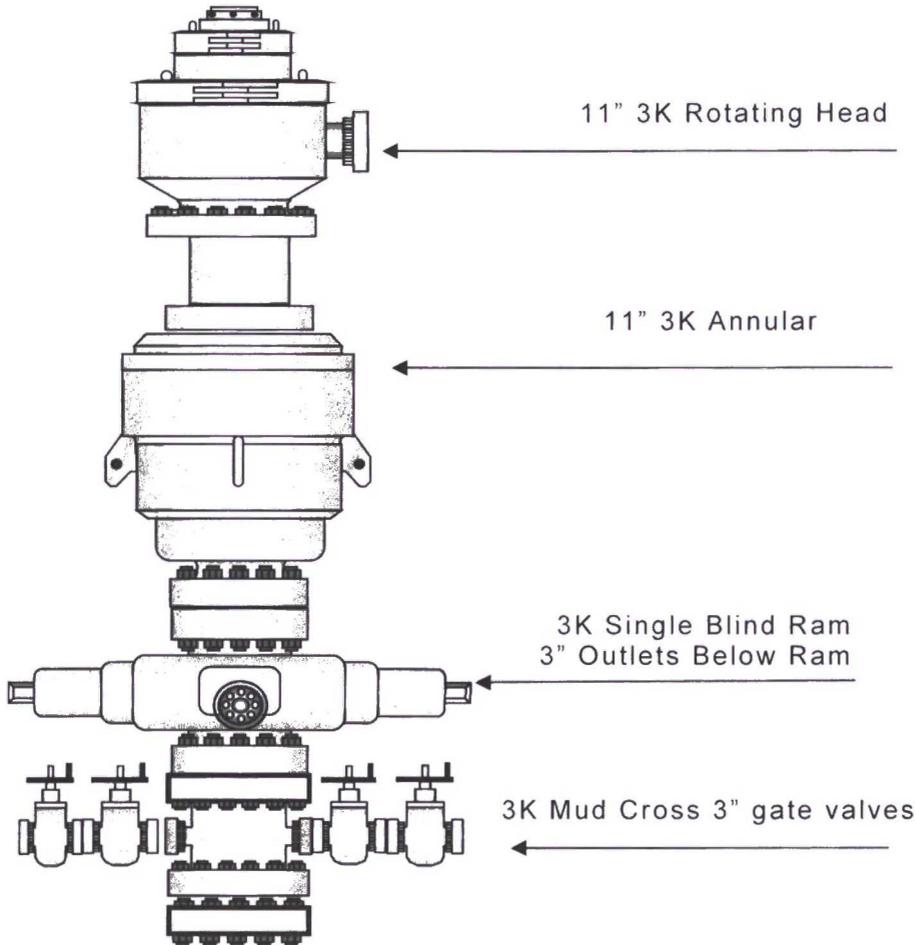
- 1) Drill with 30" bit to 60', set 20" 94# conductor pipe
- 2) Drill surface to 500', R&C 9 5/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to KOP of 4854', 8 3/4" hole size,
- 5) PU directional tools and start curve at 10deg/100' build rate
- 6) Drill to casing point of 5754' MD
- 7) R&C 7" casing, circ cmt to surface, switch to OBM
- 8) Land at 90deg, drill 4704' lateral to 10556', run 4 1/2" liner with external swellable csg packers

WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well name and number:

Lybrook M12-2206 01H





Boomerang Tube LLC

CASING (OR) TUBING DESCRIPTION AND PERFORMANCE PROPERTIES

Pipe Outside Diameter (ins)	_____	4.500
Pipe Wall Thickness (ins)	_____	0.250
Nominal Weight Per Foot (lbs)	_____	11.60
Thread Name	_____	Long Thread CSG
Grade Name	_____	SB-80
Pipe Minimum Yield (psi)	_____	80,000
Pipe Minimum Ultimate (psi)	_____	90,000
Coupling Minimum Yield (psi)	_____	80,000
Coupling Minimum Ultimate (psi)	_____	100,000
Coupling or Joint Outside Diameter (ins)	_____	5.000
Drift Diameter (ins)	_____	3.875
Plain End Weight per Foot (lbs)	_____	11.36
Joint Strength (lbs)	_____	201,000
Internal Yield (psi)	_____	7,780
Collapse Rating (psi)	_____	6,350

MAXIMUM DEPTH/LENGTH BASED ON MUD WTS & SAFETY FACTORS

Drilling Mud Weight (ppg)	_____	9.625
Tension Safety Factor	_____	1.80
Maximum Tension Length (ft)	_____	9,630
Internal Yield Safety Factor	_____	1.10
Maximum Depth for Internal Yield (ft)	_____	14,150
Collapse Safety Factor	_____	1.125
Maximum Collapse Depth (ft)	_____	11,290

API RELATED VALUES and INTERMEDIATE CALCULATION RESULTS

Coupling Thread Fracture Strength	_____	464,000
Pipe Thread Fracture Strength (lbs)	_____	201,000
Pipe Body Plain End Yield (lbs)	_____	267,000
Round Thread Pull-Out (lbs)	_____	219,000
Minimum Make-up Torque (ft-lbs)	_____	1,640
Nominal Make-up Torque (ft-lbs)	_____	2,190
Maximum Make-up Torque (ft-lbs)	_____	2,740
Coupling Internal Yield (psi)	_____	10,660
Pipe Body Internal Yield (psi)	_____	7,780
Leak @ E1 or E7 plane (psi)	_____	17,920
Pipe Hydrostatic Test Pressure @ 80 % SMYS	_____	7,100

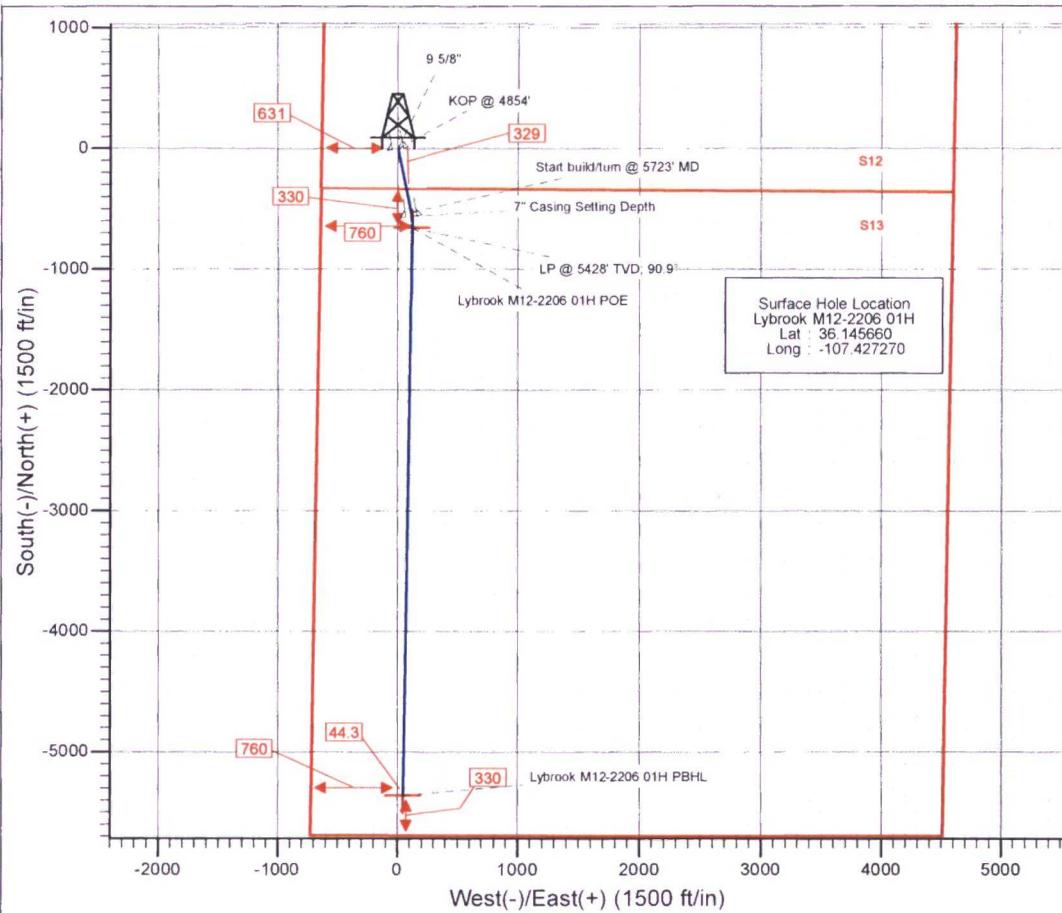
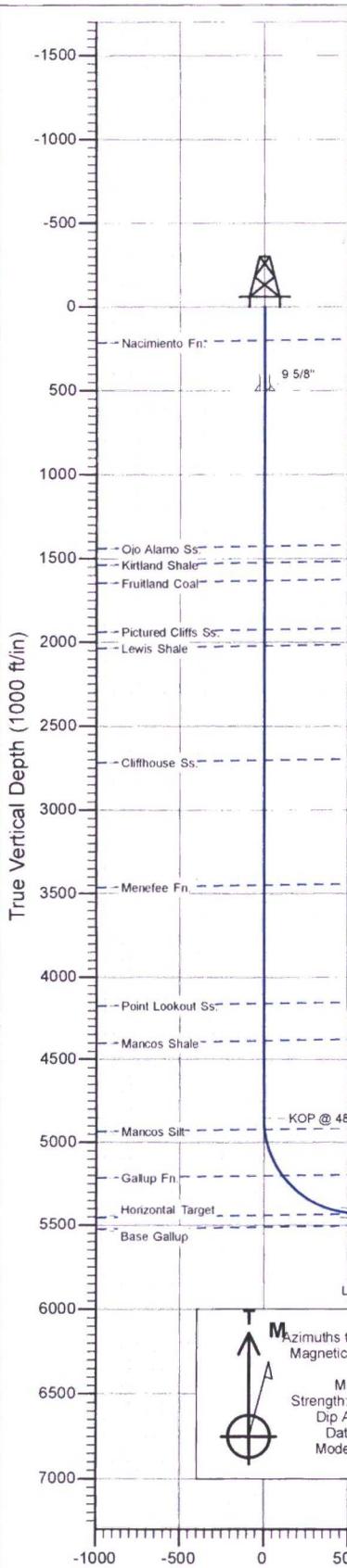


Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook M12-2206 01H
 Wellbore: Hz
 Design: Plan #2



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4854.3	0.00	0.00	4854.3	0.0	0.0	0.00	0.00	0.0	
3	5723.7	86.97	168.67	5426.3	-531.9	106.5	10.00	168.67	530.2	Lybrook M12-2206 01H POE
4	5851.6	90.90	180.90	5428.7	-659.0	118.1	10.04	72.35	657.0	Lybrook M12-2206 01H PBHL
5	10556.4	90.90	180.90	5354.8	-5362.6	44.3	0.00	0.00	5361.3	



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Lybrook M12-2206 01H PBHL	-5362.6	44.3	1869032.92	1292816.72	36.130930	-107.427120
Lybrook M12-2206 01H POE	-659.0	118.1	1873735.35	1292947.53	36.143850	-107.426870

CASING DETAILS

TVD	MD	Name
500.0	500.0	9 5/8"
5427.6	5753.8	7" Casing Setting Depth

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
201.0	201.0	Nacimiento Fn.
1428.0	1428.0	Ojo Alamo Ss.
1524.0	1524.0	Kirtland Shale
1633.0	1633.0	Fruitland Coal
1925.0	1925.0	Pictured Cliffs Ss.
2022.0	2022.0	Lewis Shale
2704.0	2704.0	Cliffhouse Ss.
3449.0	3449.0	Menefee Fn.
4157.0	4157.0	Point Lookout Ss.
4387.0	4387.0	Mancos Shale
4919.9	4920.1	Mancos Silt
5199.2	5224.5	Gallup Fn.

M_A Azimuths to True North
 Magnetic North: 9.43°
 Magnetic Field Strength: 50226.4snT
 Dip Angle: 62.96°
 Date: 7/17/2013
 Model: IGRF2010

Plan #2
 Lybrook M12-2206 01H
 13xxx; LR
 WELL @ 7101.0ft (Original Well Elev)
 Ground Elevation @ 7085.0
 North American Datum 1983
 Well Lybrook M12-2206 01H, True North

Vertical Section at 180.90° (1000 ft/in)

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook M12-2206 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7101.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7101.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook M12-2206 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

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	Latitude:	36.168210
From:	Lat/Long	Easting:	1,287,068.90 ft	Longitude:	-107.447150
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-0.71 °

Well	Lybrook M12-2206 01H					
Well Position	+N-S	0.0 ft	Northing:	1,874,395.68 ft	Latitude:	36.145660
	+E-W	0.0 ft	Easting:	1,292,837.41 ft	Longitude:	-107.427270
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,085.0 ft

Wellbore	Hz				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/17/2013	9.43	62.96	50,226

Design	Plan #2			
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Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0

Vertical Section:	Depth From (TVD) (ft)	+N-S (ft)	+E-W (ft)	Direction (°)
	0.0	0.0	0.0	180.90

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	
4,854.3	0.00	0.00	4,854.3	0.0	0.0	0.00	0.00	0.00	0.00	
5,723.7	86.97	168.67	5,426.3	-531.9	106.5	10.00	10.00	0.00	168.67	
5,851.6	90.90	180.90	5,428.7	-659.0	118.1	10.04	3.08	9.56	72.35	Lybrook M12-2206 01
10,556.4	90.90	180.90	5,354.8	-5,362.6	44.3	0.00	0.00	0.00	0.00	Lybrook M12-2206 01

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook M12-2206 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7101.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7101.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook M12-2206 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
201.0	0.00	0.00	201.0	0.0	0.0	0.0	0.00	0.00	Nacimiento Fn.
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	9 5/8"
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	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,428.0	0.00	0.00	1,428.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,524.0	0.00	0.00	1,524.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,633.0	0.00	0.00	1,633.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
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	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
1,925.0	0.00	0.00	1,925.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,022.0	0.00	0.00	2,022.0	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	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,704.0	0.00	0.00	2,704.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
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	
3,449.0	0.00	0.00	3,449.0	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	
4,157.0	0.00	0.00	4,157.0	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	Local Co-ordinate Reference:	Well Lybrook M12-2206 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7101.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7101.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook M12-2206 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	
4,387.0	0.00	0.00	4,387.0	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	
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	
4,854.3	0.00	0.00	4,854.3	0.0	0.0	0.0	0.00	0.00	KOP @ 4854'
4,900.0	4.57	168.67	4,900.0	-1.8	0.4	1.8	10.00	10.00	
4,920.1	6.58	168.67	4,919.9	-3.7	0.7	3.7	10.00	10.00	Mancos Silt
5,000.0	14.57	168.67	4,998.4	-18.1	3.6	18.0	10.00	10.00	
5,100.0	24.58	168.67	5,092.5	-50.9	10.2	50.7	10.00	10.00	
5,200.0	34.58	168.67	5,179.4	-99.2	19.9	98.9	10.00	10.00	
5,224.5	37.03	168.67	5,199.2	-113.3	22.7	112.9	10.00	10.00	Gallup Fn.
5,300.0	44.58	168.67	5,256.4	-161.6	32.4	161.1	10.00	10.00	
5,400.0	54.59	168.67	5,321.1	-236.2	47.3	235.4	10.00	10.00	
5,500.0	64.59	168.67	5,371.7	-320.6	64.2	319.6	10.00	10.00	
5,600.0	74.59	168.67	5,406.5	-412.4	82.6	411.1	10.00	10.00	
5,700.0	84.60	168.67	5,424.5	-508.7	101.9	507.1	10.00	10.00	
5,723.7	86.97	168.67	5,426.3	-531.9	106.5	530.2	10.00	10.00	Start build/tum @ 5723' MD
5,753.8	87.89	171.55	5,427.6	-561.5	111.7	559.7	10.04	3.06	7" Casing Setting Depth
5,800.0	89.31	175.97	5,428.8	-607.4	116.7	605.5	10.04	3.08	
5,851.6	90.90	180.90	5,428.7	-659.0	118.1	657.0	10.04	3.09	LP @ 5428' TVD; 90.9°
5,900.0	90.90	180.90	5,427.9	-707.4	117.4	705.4	0.00	0.00	
6,000.0	90.90	180.90	5,426.3	-807.4	115.8	805.4	0.00	0.00	
6,100.0	90.90	180.90	5,424.8	-907.3	114.2	905.4	0.00	0.00	
6,200.0	90.90	180.90	5,423.2	-1,007.3	112.6	1,005.4	0.00	0.00	
6,300.0	90.90	180.90	5,421.6	-1,107.3	111.1	1,105.4	0.00	0.00	
6,400.0	90.90	180.90	5,420.1	-1,207.3	109.5	1,205.4	0.00	0.00	
6,500.0	90.90	180.90	5,418.5	-1,307.2	107.9	1,305.4	0.00	0.00	
6,600.0	90.90	180.90	5,416.9	-1,407.2	106.4	1,405.4	0.00	0.00	
6,700.0	90.90	180.90	5,415.3	-1,507.2	104.8	1,505.3	0.00	0.00	
6,800.0	90.90	180.90	5,413.8	-1,607.2	103.2	1,605.3	0.00	0.00	
6,900.0	90.90	180.90	5,412.2	-1,707.1	101.7	1,705.3	0.00	0.00	
7,000.0	90.90	180.90	5,410.6	-1,807.1	100.1	1,805.3	0.00	0.00	
7,100.0	90.90	180.90	5,409.1	-1,907.1	98.5	1,905.3	0.00	0.00	
7,200.0	90.90	180.90	5,407.5	-2,007.1	97.0	2,005.3	0.00	0.00	
7,300.0	90.90	180.90	5,405.9	-2,107.0	95.4	2,105.3	0.00	0.00	
7,400.0	90.90	180.90	5,404.3	-2,207.0	93.8	2,205.3	0.00	0.00	
7,500.0	90.90	180.90	5,402.8	-2,307.0	92.3	2,305.3	0.00	0.00	
7,600.0	90.90	180.90	5,401.2	-2,407.0	90.7	2,405.2	0.00	0.00	
7,700.0	90.90	180.90	5,399.6	-2,506.9	89.1	2,505.2	0.00	0.00	
7,800.0	90.90	180.90	5,398.1	-2,606.9	87.6	2,605.2	0.00	0.00	
7,900.0	90.90	180.90	5,396.5	-2,706.9	86.0	2,705.2	0.00	0.00	
8,000.0	90.90	180.90	5,394.9	-2,806.9	84.4	2,805.2	0.00	0.00	
8,100.0	90.90	180.90	5,393.4	-2,906.8	82.8	2,905.2	0.00	0.00	
8,200.0	90.90	180.90	5,391.8	-3,006.8	81.3	3,005.2	0.00	0.00	
8,300.0	90.90	180.90	5,390.2	-3,106.8	79.7	3,105.2	0.00	0.00	
8,400.0	90.90	180.90	5,388.6	-3,206.8	78.1	3,205.1	0.00	0.00	
8,500.0	90.90	180.90	5,387.1	-3,306.7	76.6	3,305.1	0.00	0.00	
8,600.0	90.90	180.90	5,385.5	-3,406.7	75.0	3,405.1	0.00	0.00	
8,700.0	90.90	180.90	5,383.9	-3,506.7	73.4	3,505.1	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook M12-2206 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7101.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7101.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook M12-2206 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,800.0	90.90	180.90	5,382.4	-3,606.7	71.9	3,605.1	0.00	0.00	
8,900.0	90.90	180.90	5,380.8	-3,706.6	70.3	3,705.1	0.00	0.00	
9,000.0	90.90	180.90	5,379.2	-3,806.6	68.7	3,805.1	0.00	0.00	
9,100.0	90.90	180.90	5,377.6	-3,906.6	67.2	3,905.1	0.00	0.00	
9,200.0	90.90	180.90	5,376.1	-4,006.6	65.6	4,005.0	0.00	0.00	
9,300.0	90.90	180.90	5,374.5	-4,106.5	64.0	4,105.0	0.00	0.00	
9,400.0	90.90	180.90	5,372.9	-4,206.5	62.5	4,205.0	0.00	0.00	
9,500.0	90.90	180.90	5,371.4	-4,306.5	60.9	4,305.0	0.00	0.00	
9,600.0	90.90	180.90	5,369.8	-4,406.5	59.3	4,405.0	0.00	0.00	
9,700.0	90.90	180.90	5,368.2	-4,506.4	57.7	4,505.0	0.00	0.00	
9,800.0	90.90	180.90	5,366.7	-4,606.4	56.2	4,605.0	0.00	0.00	
9,900.0	90.90	180.90	5,365.1	-4,706.4	54.6	4,705.0	0.00	0.00	
10,000.0	90.90	180.90	5,363.5	-4,806.4	53.0	4,804.9	0.00	0.00	
10,100.0	90.90	180.90	5,361.9	-4,906.3	51.5	4,904.9	0.00	0.00	
10,200.0	90.90	180.90	5,360.4	-5,006.3	49.9	5,004.9	0.00	0.00	
10,300.0	90.90	180.90	5,358.8	-5,106.3	48.3	5,104.9	0.00	0.00	
10,400.0	90.90	180.90	5,357.2	-5,206.3	46.8	5,204.9	0.00	0.00	
10,500.0	90.90	180.90	5,355.7	-5,306.2	45.2	5,304.9	0.00	0.00	
10,556.4	90.90	180.90	5,354.8	-5,362.6	44.3	5,361.3	0.00	0.00	TD at 10556.4

Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
Lybrook M12-2206 01H - hit/miss target - Shape - Point	0.00	0.00	5,354.8	-5,362.6	44.3	1,869,032.92	1,292,816.72	36.130930	-107.427120	
Lybrook M12-2206 01H - plan hits target center - Point	0.00	0.00	5,428.7	-659.0	118.1	1,873,735.35	1,292,947.53	36.143850	-107.426870	

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
5,753.8	5,427.6	7" Casing Setting Depth	0.000	0.000	
500.0	500.0	9 5/8"	0.000	0.000	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook M12-2206 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7101.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7101.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook M12-2206 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
201.0	201.0	Nacimiento Fn.		-0.90	180.90	
1,428.0	1,428.0	Ojo Alamo Ss.		-0.90	180.90	
1,524.0	1,524.0	Kirtland Shale		-0.90	180.90	
1,633.0	1,633.0	Fruitland Coal		-0.90	180.90	
1,925.0	1,925.0	Pictured Cliffs Ss.		-0.90	180.90	
2,022.0	2,022.0	Lewis Shale		-0.90	180.90	
2,704.0	2,704.0	Cliffhouse Ss.		-0.90	180.90	
3,449.0	3,449.0	Menefee Fn.		-0.90	180.90	
4,157.0	4,157.0	Point Lookout Ss.		-0.90	180.90	
4,387.0	4,387.0	Mancos Shale		-0.90	180.90	
4,920.1	4,920.0	Mancos Silt		-0.90	180.90	
5,224.5	5,201.0	Gallup Fn.		-0.90	180.90	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
4,854.3	4,854.3	0.0	0.0	KOP @ 4854'	
5,723.7	5,426.3	-531.9	106.5	Start build/turn @ 5723' MD	
5,851.6	5,428.7	-659.0	118.1	LP @ 5428' TVD; 90.9°	
10,556.4	5,354.8	-5,362.6	44.3	TD at 10556.4	

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Encana Oil & Gas (USA) Inc.
Surface Use Plan of Operations

Please see attached survey package and supporting documents:

Survey Package:

Sheet A - Form C-102
Sheet B-1 and B-2 - Topo Map Depicting Well Site, Access Roads, and Pipeline
Sheet C- Directions to Site
Sheet D- Adjacent Wells
Sheet E - Proposed Pipeline Survey
Sheet F-1 and F-2- Proposed Well Site Plan and Profile
Sheets G-1 and G-2- Proposed Well Site Layout

Appendix A- Reclamation Plan

Appendix B- Road Maintenance Plan

1. EXISTING ROADS

- A. Existing access roads are shown on Sheets B-1 and B-2.
- B. Directions to the site are provided on Sheet C.
- C. The existing road that will be used to access the location was identified at the onsite as a Local Road in good condition and regularly maintained. This road will not need any upgrades.
- D. Roads will be maintained in the same or better condition as existed prior to the commencement of operations and said maintenance will continue until final abandonment and reclamation of the well location. Encana will inspect and maintain the roads as outlined in the attached Road Maintenance Plan (Appendix B).
- E. Dust emissions will be controlled on the roads and locations, as necessary, with the application of dust suppressants (e.g. magnesium chloride) and/or water. Dust control will be implemented when dust plumes become larger than normal road use conditions or when directed by the BLM Authorized Officer.
- F. If the well is commercially viable, Encana will schedule a meeting with the BLM to discuss which portions of the existing roads may require upgrades and/or surfacing to prevent soil erosion and accommodate year-round traffic.

2. NEW OR RECONSTRUCTED ACCESS ROADS

- A. The proposed access road is staked as shown on Sheets B-1 and B-2. Approximately 2,539 feet of new resource road will be constructed entirely on BLM lands.
- B. The proposed well pad access road was defined as a Resource Road during the onsite conducted on July 9, 2013.
- C. Maximum width will be a 30-foot overall right-of-way with a 14-foot road running surface. During drilling and subsequent operations, all equipment and vehicles will be confined to the 14-foot driving surface.

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- D. As indicated during the onsite, 24-inch culverts will be installed as needed during construction of the new access road.
- E. Maximum grade will average 4-6 percent.
- F. Construction materials and methods – See Item 6.A.
- G. Encana will be responsible for road maintenance from the beginning of construction to completion of operations and the well is plugged and abandoned. See attached Road Maintenance Plan (Appendix B).
- H. Dust emissions will be controlled on the roads and locations, as necessary, with the application of dust suppressants (e.g. magnesium chloride) and/or water. Dust control will be implemented when dust plumes become larger than normal road use conditions or when directed by the BLM Authorized Officer.

3. LOCATION OF EXISTING WELLS

Please refer to Sheet D.

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES

A. Survey Monuments

Encana will protect all survey monuments, witness corners, reference monuments and bearing trees in the affected areas against disturbance during construction, operation, maintenance and termination of the facilities authorized herein.

Encana will immediately notify the BLM Authorized Officer in the event that any corners, monuments or markers are disturbed or are anticipated to be disturbed. If any monuments, corner or accessories are destroyed, obliterated or damaged during construction, operation or maintenance, Encana will secure the services of a Registered Land Surveyor to restore the disturbed monuments, corner or accessories, at the same location, using surveying procedures found in the Manual of Surveying Instructions for the Survey of the Public Lands of the United States, latest edition. Encana will ensure that the Registered Land Surveyor properly records the survey in compliance with 12.8.2 NMAC and will send a copy to the BLM.

B. Pipeline

- 1. A 2,792 foot (0.5 miles), up to 6-inch outside diameter, steel gas pipeline, is proposed. The entire length of the pipeline will be co-located with the proposed access road. This well will be connected to the proposed Encana Lybrook Trunk #1 pipeline in the SWNW of Section 12, T22N R6W. Please refer to Sheets B-1, B-2 and E.
- 2. Encana will request a 40-foot right-of-way for the pipeline. Construction width of the pipeline workspace will be restricted to 50 feet of disturbance, including the access road and will be designated as 20 feet of disturbance adjacent to the road and 30 feet of disturbance on the road.
- 3. All buried pipelines will be buried to a depth of 3 feet, except at road crossings where they will be buried to a depth of 4 feet.
- 4. Pipeline location warning signs will be installed within 90 days after construction is completed.

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5. The pipeline right-of-way will be conditioned in a manner to preclude vehicular travel upon said right-of-way, except for access to pipeline above-ground appurtenances.

C. Production Facility

1. The production equipment and facility layout will be deferred until the facility and reclamation onsite with the BLM prior to setting any equipment.
2. Production equipment will be placed on location in such a manner to minimize long-term disturbance and maximize interim reclamation. As practical, access will be provided by a teardrop-shaped road through the production area so that the center may be revegetated.
3. A berm will be constructed completely around any production facilities which contain fluids (i.e. production tanks, produced water tanks, etc.) These berms will be constructed of compacted subsoil, corrugated metal, or equivalent, be impervious, and hold 110 percent of the capacity of the largest tank.
4. All permanent (onsite for 6 months or longer) above-ground equipment constructed or installed, including pumping units, will be painted Juniper Green. All production facilities will be painted within 6 months of installation. Facilities that are required to comply with Occupation Health and Safety Act Rules and Regulations will be excluded from this painting requirement.

5. LOCATION AND TYPES OF WATER SUPPLY

- A. Water to be used for the drilling and completing of this well will be hauled by truck over the roads described in Items 1 and 2. The water source will be from an existing private water well located in the SWNE of Section 32, T25N, 9W. The well has been assigned the POD Number SJ 01979-S4 by the New Mexico Office of the State Engineer. To access the well pad from this water well, travel NE on Highway 57 approximately 0.1 miles to Highway 550. Turn right onto Highway 550 and travel 25.7 miles to MP 97.7 Indian Service Route 46. Turn right onto ISR 46 and travel 3.3 miles to a "T" intersection. Turn left on the Lybrook Access Road #1 and travel 1.4 miles and turn right on the Lybrook M12-2206 access road. Travel 2,539' to the Lybrook M12-2206 01H well pad. Encana does not plan to drill a water well.

6. CONSTRUCTION MATERIALS AND METHODS

A. Access Road

1. The access road will be designed and constructed as a Resource Road in accordance with the BLM Gold Book Standards and BLM 9113-1 (Roads Design Handbook) and BLM 9113-2 (Roads National Inventory and Condition Assessment Guidance and Instructions Handbook). Construction will include ditching, draining, installing culverts, crowning and capping or sloping and dipping the roadbed, as necessary, to provide a well-constructed and safe road.

The proposed access road will not be constructed to all-weather standards prior to drilling and completing the proposed well. If the well is commercially viable, Encana will schedule a meeting with the BLM to discuss which portions of the roads (proposed access road and existing access roads) may require upgrades and/or surfacing to prevent soil erosion, and accommodate year-round traffic. All other construction requirements will be completed prior to drilling.

2. No fence lines will be affected by the proposed project.

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3. Any trees larger than 3-inches in diameter will be cut at ground level and delimited. The trunks will be stacked whole along the access road, well pad, and/or pipeline for wood gathering. Stumps will be cut as close to the ground as possible. Stumps and root balls will be hauled to an approved disposal site or stockpiled at the edge of the well pad and buried in the cut slopes of the pad during interim reclamation.

Any trees smaller than 3-inches in diameter, slash and brush will be chipped, shredded or mulched and incorporated into the topsoil for later use in interim reclamation.

Remaining brush will be brush-hogged or scalped at ground-level prior to ground disturbance.

4. After removal of vegetation, topsoil will be segregated and windrowed on the edge of the access road. Topsoil will be defined as the top six (6) inches of soil. The stockpiled topsoil will be free of brush and tree limbs, trunks and root balls, but may include chipped or mulched material so long as it is incorporated into the topsoil stockpile.

Topsoil will not be stripped when soils are moisture-saturated or frozen below the stripping depth.

5. All construction materials for the access road will consist of native borrow and subsoil accumulated during road construction. If additional fill or surfacing material is required, it will be obtained from existing permitted or private sources and will be hauled in by trucks over existing access roads to the area.
6. The proposed access road will be crowned and ditched or sloped and dipped, and water turnouts installed as necessary to provide proper drainage. Drainage design will be in accordance with BLM Gold Book standards and BLM 9113-1 (Roads Design Handbook) and BLM 9113-2 (Roads National Inventory and Condition Assessment Guidance and Instructions Handbook).
7. If needed, 24-inch culverts will be installed as necessary during construction of the access road. See Sheets B-1 and B-2. Culverts will be sized and installed in accordance with BLM Gold Book standards and BLM 9113-1 (Roads Design Handbook) and BLM 9113-2 (Roads National Inventory and Condition Assessment Guidance and Instructions Handbook).
8. Construction equipment may include chain saws, a brush hog, scraper, maintainer, excavator, and dozer. Construction of the access road and well pad will take approximately 2 to 3 weeks.

B. Well Pad

1. Any trees larger than 3-inches in diameter will be cut at ground level and delimited. The trunks will be stacked whole along the access road, well pad, and/or pipeline for wood gathering. Stumps will be cut as close to the ground as possible. Stumps and root balls will be hauled to an approved disposal site or stockpiled at the edge of the well pad and buried in the cut slopes of the pad during interim reclamation.

Any trees smaller than 3-inches in diameter, slash and brush will be chipped, shredded or mulched and incorporated into the topsoil for later use in interim reclamation.

Remaining brush will be brush-hogged or scalped at ground-level prior to ground disturbance.

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2. After removal of vegetation, topsoil will be segregated and windrowed on the edge of the. Topsoil will be defined as the top six (6) inches of soil. The stockpiled topsoil will be free of brush and tree limbs, trunks and root balls, but may include chipped or mulched material so long as it is incorporated into the topsoil stockpile.

Topsoil will be stockpiled separate from subsoil with a noticeable gap left between the stockpiles. Vehicle/equipment traffic will be prevented from crossing topsoil stockpiles.

Topsoil will not be stripped when soils are moisture-saturated or frozen below the stripping depth.

If the location becomes prone to wind or water erosion, Encana will take appropriate measures to prevent topsoil loss from wind. Such measures may include using tackifiers or water to wet the topsoil stockpile so that a crust is created across the exposed soil to prevent soil loss.

3. All construction materials for the well pad will consist of native borrow and subsoil accumulated during well pad construction. If additional fill or surfacing material is required, it will be obtained from existing permitted or private sources and will be hauled in by trucks over existing access roads.

The maximum cut will be approximately 14 feet on the southeast corner (corner 5) and the maximum fill will be approximately 15 feet on the northwest corner (corner 2).

4. As determined during the onsite on July 9, 2013, the following best management practices will be implemented:
 - a. Water will be diverted around the pad and silt traps installed as needed upon interim reclamation.
5. Construction equipment may include chain saws, a brush hog, scraper, maintainer, excavator, and dozer. Construction for the access road and well pad will take approximately 2 to 4 weeks.

C. Pipeline

See the Plan of Development submitted with the final Standard SF-299 Application for authorization to construct, operate, maintain and terminate a 2,792 foot, up to 6-inch buried, steel well connect pipeline that was submitted to the BLM concurrently with the APD.

7. METHODS FOR HANDLING WASTE

A. Cuttings

1. A closed-loop system will be used. Cuttings will be moved through a shaker system on the drill rig that separates drilling fluids from the cuttings. Cuttings will be stored onsite in above-ground storage tanks. Cuttings will be pulled from the storage tanks, mixed with saw dust or similar absorbent material, and disposed of at the Envirotech, Inc. and/or Industrial Ecosystem, Inc. waste disposal facilities.
2. The closed-loop system storage tanks will be adequately sized to ensure confinement of all fluids and will provide sufficient freeboard to prevent uncontrolled releases.
3. A 20-mil liner will be installed under tanks, pumps, ancillary facilities, and truck loading/unloading areas associated with the closed-loop system.

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B. Drilling Fluids

1. A closed-loop system will be used. Drilling fluids will be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids will be recycled and transferred to other permitted closed-loop systems or returned to the vendor for reuse, as practical. Residual fluids will be vacuumed from the storage tanks and disposed of at Basin Disposal, Inc. and/or Industrial Ecosystem, Inc. waste disposal facilities.
2. The closed-loop system storage tanks will be adequately sized to ensure confinement of all fluids and will provide sufficient freeboard to prevent uncontrolled releases.
3. The closed-loop system storage tanks will be placed in bermed secondary containment sized to accommodate a minimum of 110 percent of the volume of the largest storage tank.
4. A 20-mil liner will be installed under tanks, pumps, ancillary facilities, and truck loading/unloading areas associated with the closed-loop system.

C. Flowback Water

1. The water-based solution that flows back to the surface during and after completion operations will be placed in storage tanks on the location.
2. Flowback water will be confined to a storage tank for a period not to exceed 90 days after initial production and will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystem, Inc. waste disposal facilities.

D. Spills – any spills of non-freshwater fluids will be immediately cleaned up and removed to an approved disposal site.

E. Sewage – self-contained, chemical toilets will be provided for human waste disposal. The toilet holding tanks will be pumped, as needed, and the contents thereof disposed of in an approved sewage disposal facility. The toilets will be onsite during all operations.

F. Garbage and other waste material – garbage, trash and other waste materials will be collected in a portable, self-contained and fully-enclosed trash container during drilling and completion operations. The accumulated trash will be removed, as needed, and will be disposed of at an authorized sanitary landfill. No trash will be buried or burned on location.

G. Immediately after removal of the drilling rig, all debris and other waste materials not contained in the trash container will be cleaned up and removed from the well location.

H. No chemicals subject to reporting under SARA Title III in an amount equal to or greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the drilling, testing or completing of this well.

I. No extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, will be used, produced, stored, transported, or disposed of in association with the drilling, testing, or completing of this well.

8. ANCILLARY FACILITIES

- A. Standard drilling operation equipment that will be on location includes: drilling rig with associated equipment, temporary office trailers equipped with sleeping quarters for essential company personnel, toilet facilities, and trash containers.

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9. WELL SITE LAYOUT

- A. The proposed well pad layout is shown on Sheets F-1, F-2, G-1, and G-2. Cross sections have been drafted to visualize the planned cuts and fills across the location. Refer to Item 6 for construction materials and methods.
- B. No permanent living facilities are planned. Office trailers equipped with living quarters will be provided on location during drilling and completions operations.
- C. The production facility layout is being deferred until the Facility and Reclamation onsite with the BLM Representative.

10. PLANS FOR SURFACE RECLAMATION

At the July 9, 2013 pre-disturbance onsite, it was determined that the project area was within the sagebrush vegetation community. Therefore, during reclamation activities, a seed mix was selected from the BLM Standard Sagebrush seed mix. This seed mix selected is shown in the Reclamation Plan (Appendix A).

The well pad, road and pipeline will fall under the BLM Vegetation Reclamation Procedure B. A site-specific Reclamation Plan is located in Appendix A. The BLM will be contacted 48 hours prior to construction and reclamation.

11. SURFACE OWNERSHIP

Bureau of Land Management

12. OTHER INFORMATION

- A. A Standard Form SF-299 Application for authorization to construct, operate, maintain and terminate a 30-foot overall right-of-way access road with a 14-foot road running surface was submitted to the Bureau of Land Management on June 12, 2013. A Surface Use Plan of Operation was submitted to the Bureau of Land Management concurrently with the APD reflecting a 2,539' access road. Issued Serial Number NMNM 130684.
- B. A Standard Form SF-299 Application for authorization to construct, operate, maintain and terminate a 400-foot by 400-foot right-of-way well pad access was submitted to the Bureau of Land Management on June 12, 2013. Issued Serial Number NMNM 130683. A Surface Use Plan of Operation was submitted to the Bureau of Land Management concurrently with the APD.
- C. A final Standard SF-299 Application and Plan of Development for authorization to construct, operate, maintain and terminate a 2,792 foot, up to 6-inch buried, steel well connect pipeline was submitted to the Bureau of Land Management concurrently with the APD. Issued Serial Number NMNM 130685.
- D. A Class III Cultural Resource Inventory of the proposed well pad, access road, and pipeline route will be conducted and filed with the BLM-Farmington Field Office.
- E. Construction contractors will call New Mexico One-Call (or equivalent) to identify the location of any marked or unmarked pipelines or cables located in proximity to the proposed well pad, access road, and pipeline at least two working days prior to ground disturbance.
- F. All operations will be conducted in such a manner that full compliance is made with the applicable laws and regulations, the approved Application for Permit to Drill, and applicable Notice(s) to Lessees.

Encana Oil & Gas (USA) Inc.

Reclamation Plan

Lybrook M12-2206 Number 01H

August 2013

encana®

370 17th Street, Suite 1700
Denver, Colorado 80202
303-623-2300

Developed by:



835 East Second Avenue, Suite 250
Durango, Colorado 81301
970-375-9703

600 Reilly Avenue
Farmington, New Mexico 87401
505-327-6331

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1. INTRODUCTION

Encana Oil & Gas (USA) Inc. (Encana) is providing this Lybrook M12-2206 Number (No.) 01H Reclamation Plan (Plan) to the Bureau of Land Management – Farmington Field Office (BLM-FFO) as part of their Surface Use Plan of Operations (SUPO). This Plan describes reclamation procedures for the surface disturbance approved by the Application for Permit to Drill (APD).

During interim reclamation, subsequent ground-disturbing activities within reclaimed areas, and final reclamation, Encana will meet the reclamation standards provided in this Plan to reestablish vegetation and control noxious weeds. The reclamation standards provided in this Plan are habitat-specific and meet standards established in *The Gold Book: Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (Gold Book)*, BLM Manual 9113, and BLM-FFO Bare Soil Reclamation Procedures (Procedures).

Encana will be responsible for all areas authorized for surface-disturbing activities under the APD until Encana transfers the permit or abandons the project and obtains a Final Abandonment Notice (FAN) or relinquishment from the BLM-FFO.

2. SITE DESCRIPTION

New disturbance associated with the project will encompass 8.92 acres. Of the 8.92 acres, 0.92 acre will be considered the Working Area (area necessary for the routine, long-term operation and maintenance of an authorized site [the tear drop]), 1.75 acres will be the long-term access road, and 6.25 acres will be reclaimed during interim reclamation. A depiction of the surface-disturbing activity locations (production facility layout) will be deferred until the facility on-site meeting is held with the BLM-FFO. The surface disturbance dimensions for each project feature (access road, well pad, and pipeline tie) are described further below.

The access road will be 30.00 feet in width and 2539.00 feet in length, or 1.75 acres.

The well pad will measure 400.00 feet by 400.00 feet (3.67 acres). The construction zone of the well pad will be 50.00 feet wide (2.07 acres). Approximately 0.03 acre of the construction zone overlaps the access road. Therefore, the well pad and construction zone will add an additional 5.71 acres of new disturbance to the project.

The pipeline tie corridor will be 40.00 feet in width and 2792.10 feet in length, or 2.56 acres. Approximately 247.50 feet of the pipeline tie will be located within the well pad. The remainder of the pipeline tie (approximately 2544.60 feet) will be co-located along the access road. Along the 2544.60-foot-long segment of the pipeline tie, the pipeline tie centerline will be located 20.00 feet from the access road centerline. Because 15.00 feet of the 2544.60-foot-long segment of the pipeline tie corridor width will overlap the access road, the new disturbance area associated with this segment of the pipeline tie will be 25.00 feet wide (1.46 acres).

Photographs of the pre-disturbance project area are provided in Table 1, below.

Table 1. Pre-Disturbance Photographs of the Project Area

Photograph No. and Description	Photograph
1. View from wellhead looking east.	
2. View from wellhead looking north.	
3. View from wellhead looking south.	

Photograph No. and Description	Photograph
4. View from wellhead looking west.	

Vegetation Community

A pre-disturbance site visit was held with the BLM-FFO, Encana, and an environmental consultant (Nelson Consulting, Inc. [NCI]) on July 9, 2013. During this site visit, of the eight most common BLM-FFO vegetation communities, it was determined that the Sagebrush Community best represents the project area. A detailed description of this vegetation community is available on the New Mexico BLM web page (http://www.blm.gov/nm/st/en/fo/Farmington_Field_Office/ffo_planning/surface_use_plan_of.html).

3. RECLAMATION

Vegetation Reclamation Procedure B (for the revegetation of bare mineral soil areas [excluding the Working Area] that are equal to or greater than 1.0 acre in size) will apply to the project. Vegetation Procedure B is described further in the Procedures.

3.1. Seed Mixture

During the site visit, plant species were picked from the Sagebrush/Grass Community Seed List; these species will be used in the revegetation seed mixture. The plant species picked during the site visit are provided in Table 2, below.

Table 2. Lybrook M12-2206 No. 01H Revegetation Seed Mixture

Common Name	Scientific Name	Pure Live Seed (Pounds/Acre*)
Fourwing saltbush	<i>Atriplex canescens</i>	2.0
Winterfat	<i>Krascheninnikovia lanata</i>	2.0
Indian ricegrass	<i>Achnatherum hymenoides</i>	4.0
Blue grama	<i>Bouteloua gracilis</i>	2.0
Sand dropseed	<i>Sporobolus cryptandrus</i>	0.5
Bottlebrush squirreltail	<i>Elymus elymoides</i>	3.0
Small burnet	<i>Sanguisorba minor</i>	2.0
Lewis flax	<i>Linum lewisii</i>	0.25

* Based on 60 pure live seeds per square foot if drill seeded. This rate would be doubled (120 pure live seeds per square foot) if broadcasted or hydroseeded.

3.2. State of New Mexico Noxious Weeds

During the pre-disturbance site visit, a noxious weed survey was conducted by the BLM-FFO, Encana, and NCI for species listed on the New Mexico Department of Agriculture (NMDA) A and B lists. The weed survey was conducted according to the BLM-FFO Pre-Disturbance Weed Management Procedure guidelines provided in Appendix D of the Procedures.

No State of New Mexico noxious weeds included on the NMDA's A or B lists were identified within the project area. During the pre-disturbance site visit, the Onsite Noxious Weed Form was completed and is available as an attachment to this Plan.

3.3. Reclamation Techniques

3.3.1. Interim Reclamation Techniques

If the Lybrook M12-2206 No. 01H well proves to be productive, portions of the project area that are not required for production (non-working areas [outside of the tear drop and access road]) will be reclaimed during interim reclamation.

The BLM-FFO Environmental Protection Staff will be notified (505-564-7600) at least 48 hours prior to the start of interim reclamation activities associated with this project. Interim reclamation areas will be re-contoured and re-seeded within 120 days of final construction. If drilling has not been initiated on the well pad within 120 days of the well pad being constructed, Encana will submit a site-stabilization plan to the BLM-FFO.

Vegetation removed during construction, including trees that measure less than 3 inches in diameter (at ground level) and slash/brush, will be chipped or mulched and incorporated into the topsoil as additional organic matter. Trees 3 inches in diameter or greater (at ground level) will be cut to ground level and delimbed. Tree trunks (left whole) and cut limbs will be placed along the access road in a manner so as to not create additional disturbance or degrade new/existing reclamation, if present. The subsurface portion of the trees (tree stumps) will be buried in the pipeline ROW, placed in adjacent areas needing soil stabilization, or hauled to an approved disposal facility.

Following the removal of vegetation during construction of the project, the top 6 inches of topsoil will be stripped. The topsoil will be stored separately from subsoil or other excavated material within the construction zone approved by the APD. The topsoil will be free of brush and tree limbs, trunks, and roots. Vehicle/equipment traffic will not be allowed to cross topsoil stockpiles. The topsoil will be protected so that wind and water erosion are minimized. During monthly, voluntary stormwater inspections, topsoil will be inspected for signs of wind and/or water erosion. If sign of such erosion is observed, mitigation will be designed and implemented to halt erosion.

During interim reclamation, surface disturbance areas will be recontoured to match pre-disturbance conditions or to blend with the surrounding landform, as close as possible. Within these areas, stockpiled topsoil will be evenly redistributed prior to final seedbed preparation. Topsoil will not be redistributed when the ground or topsoil is frozen or wet. Seedbed preparation for compacted areas will be ripped to a minimum depth of 12 inches, furrows will be spaced 2 feet apart, and ripping will be conducted perpendicularly in two phases, where practicable. If large clumps/clods result from the ripping process, disking will be conducted to a depth of 6 inches and perpendicular to slopes in order to minimize runoff and erosion.

The interim reclamation area will be seeded with plant species from the Sagebrush/Grass Community Seed List, as described in Section 3.1 (Seed Mixture). A disc-type seed drill with two boxes for various seed sizes will be utilized for seeding the reclamation area. The drill rows will be 8.00 to 10.00 inches apart. Where practicable with the seeding equipment being used, planting depths for small seeds will be 0.25 inch, for intermediate seeds will be 0.50 inch, and for large seeds will be 1.00 to 2.00 inches. Where the aforementioned depths are impracticable with the seeding equipment being used, planting depths will

be no more than 0.25 inch. A drag, packer, or roller will follow the seeder to ensure uniform seed coverage and adequate compaction. Seeding will be run perpendicular to slopes in order to minimize runoff and erosion. In areas where the slope is too steep for a seed drill, hand or broadcast seeding methods will be utilized, and the seeds will be covered to the depths described above. The establishment of vegetation will assist in stabilizing the soil and minimizing erosion within the project area.

During the July 9, 2013, pre-disturbance site visit, the placement of water diversions, such as culverts and silt traps, within the proposed project area was not determined. Water diversions, if needed, will be installed upon interim reclamation. These water-management measures will reduce soil erosion caused by stormwater runoff and assist with revegetation success during reclamation.

From initial construction to final reclamation, Encana will strive to minimize surface damage by utilizing Best Management Practices, including maintaining proper drainage and controlling traffic within the project area.

3.3.2. Final Reclamation Techniques

If the Lybrook M12-2206 No. 01H well proves to be unproductive, or when the well is no longer commercially viable, the well will be abandoned and final reclamation activities will take place.

The BLM-FFO Environmental Protection Staff will be notified (505-564-7600) at least 48 hours prior to the start of final reclamation activities associated with this project.

Downhole well abandonment will be carried out under current BLM-FFO and state of New Mexico regulations. The bore will be plugged with cement and the production facilities will be removed. An aboveground marker will be placed over the plugged hole. The marker will contain individual well identification information.

The underground pipeline tie will typically be plugged and left in place.

Encana will reclaim the access road, unless the BLM-FFO requests that the access road be left unreclaimed. In the instance that the access road is reclaimed, it will be ripped to a minimum of 12 inches and waterbars will be installed. This reclaimed area will be protected from vehicular travel by the construction of a dead-end ditch and earthen barricade at the entrance of the ripped area.

During final reclamation, disturbed areas will be recontoured to match pre-disturbance conditions or to blend with the surrounding landform, as close as possible. Within these areas, stockpiled topsoil will be evenly redistributed prior to final seedbed preparation. Topsoil will not be redistributed when the ground or topsoil is frozen or wet. Compacted areas will be ripped to a minimum depth of 12 inches, furrows will be spaced 2 feet apart, and ripping will be conducted perpendicularly in two phases, where practicable. If large clumps/clods result from the ripping process, disking will be conducted to a depth of 6 inches and perpendicular to slopes in order to minimize runoff and erosion.

The reclamation area will be seeded with plant species from the Sagebrush/Grass Community Seed List, as described in Section 3.1 (Seed Mixture). A disc-type seed drill with two boxes for various seed sizes will be utilized for seeding the reclamation area. The drill rows will be 8.00 to 10.00 inches apart. Where practicable with the seeding equipment being used, planting depths for small seeds will be 0.25 inch, for intermediate seeds will be 0.50 inch, and for large seeds will be 1.00 to 2.00 inches. Where the aforementioned depths are impracticable with the seeding equipment being used, planting depths will be no more than 0.25 inch. A drag, packer, or roller will follow the seeder to ensure uniform seed coverage and adequate compaction. Seeding will be run perpendicular to slopes in order to minimize runoff and erosion. In areas where the slope is too steep for a seed drill, hand or broadcast seeding methods will be utilized, and the seeds will be covered to the depths described above. The establishment of vegetation will assist in stabilizing the soil and minimizing erosion within the project area.

During final abandonment, Encana will strive to minimize surface damage by utilizing Best Management Practices, including maintaining proper drainage and controlling traffic within the project area.

3.4. Challenges

According to the Natural Resources Conservation Service, two soil types are located within the Lybrook M12-2206 No. 01H project area: Orlie-Sparham association (0- to 5-percent slopes) and Vessilla-Menefee-Orlie association (0- to 33-percent slopes). The Orlie-Sparham soil association has a low potential for water erosion and high potential for wind erosion. The Vessilla-Menefee-Orlie soil type has a high potential for water erosion and very high potential for wind erosion. The water and wind erosion potentials associated with these two soil types could potentially affect reclamation success within the project area.

4. MONITORING AND REPORTING

4.1. Interim Reclamation Monitoring and Reporting

4.1.1. *Interim Reclamation Monitoring*

Per the Procedures - Procedure B guidelines, monitoring is required to document attainment of the vegetation percent cover standard for the Sagebrush Vegetation Community and to document successful interim reclamation.

The monitoring sites will be established by the BLM-FFO, in collaboration with Encana, during the required earthwork and/or seeding inspection. The initial monitoring tasks will be conducted by the BLM-FFO.

Per the Procedures, annual monitoring is required starting two calendar years after BLM-FFO approval of required earthwork and/or seeding. Annual monitoring will continue until the vegetation percent cover standard has been attained and approved by the BLM-FFO, or until an exception has been issued by the BLM-FFO. The vegetation percent cover standard and exception is described further in Section 4.1.2 (Interim Reclamation Attainment).

4.1.2. *Interim Reclamation Attainment*

Each of the eight BLM-FFO vegetation communities included in the Procedures has been assigned a vegetation percent cover standard for plant species classified as non-invasive and desirable and plant species classified as invasive or undesirable. The vegetation percent cover standard for non-invasive/desirable plant species within the Sagebrush Vegetation Community is equal to or greater than 35%. The vegetation percent cover standard for invasive/undesirable plant species is equal to or less than 10%. Per the Procedures, this vegetation percent cover standard must be attained for interim reclamation to be considered successful.

If, during the interim reclamation process, a reclaimed area has not met the vegetation percent cover standard, a conference will be held with Encana, the BLM-FFO, and any other effected parties to analyze the issues affecting reclamation success. This process (including reclamation exception requests) is outlined in the Procedures.

4.1.3. *Interim Reclamation Reporting*

The BLM-FFO will submit the initial monitoring report to Encana within 60 days of the earthwork and/or seeding inspection approval. Per the Procedures, Encana is required to report to the BLM-FFO starting two calendar years after interim reclamation earthwork and/or seeding. A completed BLM-FFO monitoring form is due to the BLM-FFO by December 31 of each monitoring year.

Once monitoring results indicate that the project area has reached attainment, Encana will request concurrence from the BLM-FFO following the reporting guidelines outlined in the Procedures. Once the BLM-FFO concurs that the vegetation percent cover standard has been attained, Encana will submit long-term monitoring reports to the BLM-FFO following the guidelines outlined in the Procedures. The long-term monitoring report will be required every five years until final reclamation takes place.

4.2. Final Reclamation Monitoring and Reporting

4.2.1. Final Reclamation Monitoring

Per the Procedures - Procedure B guidelines, monitoring is required to document attainment of the vegetation percent cover standard for the Sagebrush Vegetation Community and to document successful reclamation for receipt of a FAN or relinquishment from the BLM-FFO. The monitoring sites will be established by the BLM-FFO, in collaboration with Encana, during the required earthwork and/or seeding inspection.

Per the Procedures, annual monitoring is required starting two calendar years after BLM-FFO approval of required earthwork and/or seeding. Annual monitoring will continue until the vegetation percent cover standard has been attained and approved by the BLM-FFO, or until an exception has been issued by the BLM-FFO. The vegetation percent cover standard and exception is described further in Section 4.2.2 (Final Reclamation Attainment).

4.2.2. Final Reclamation Attainment

The vegetation percent cover standard for the Sagebrush Vegetation Community is described in Section 4.1.2 (Interim Reclamation Attainment). Per the Procedures, this vegetation percent cover standard must be attained before the BLM-FFO will issue a FAN or a relinquishment for the Lybrook M12-2206 No. 01H.

If, during the final reclamation process, a reclaimed area has not met the vegetation percent cover standard, a conference will be held with Encana, the BLM-FFO, and any other effected parties to analyze the issues affecting reclamation success. This process (including reclamation exception requests) is outlined in the Procedures.

4.2.3. Final Reclamation Reporting

The BLM-FFO will submit the initial monitoring report to Encana within 60 days of the earthwork and/or seeding inspection approval. Per the Procedures, Encana is required to report to the BLM-FFO starting two calendar years after earthwork and/or seeding. A completed BLM-FFO monitoring form is due to the BLM-FFO by December 31 of each monitoring year.

Once monitoring results indicate that the project area has reached attainment, Encana will request concurrence from the BLM-FFO following the reporting guidelines outlined in the Procedures. Once the BLM-FFO concurs that the vegetation percent cover standard has been attained, Encana will submit long-term monitoring reports to the BLM-FFO following the guidelines outlined in the Procedures. The long-term monitoring report will be required every five years until all associated project facilities and infrastructure are abandoned by established Procedures and a FAN or relinquishment is issued by the BLM-FFO.

ATTACHMENT. ONSITE NOXIOUS WEED FORM

Onsite Noxious Weed Form

If noxious weeds are found during the onsite, fill out form and submit to FFO weed coordinator
 Operator ENCANA OIL & GAS (USA) INC. Surveyor(s) Holmes (NG), Herrera (BLM), Eckman (Encana)
 Well Name and Number Lybrook #11 2206 M12-2206 Date 3/9/13
 Location: Township, Range, Section T22N, R06W, S14 S12
 Location of Project NAD 83 Decimal Degrees _____

Class A Noxious Weed – Check Box if Found

	Alfombrilla	Diffuse knapweed	Hydrilla	Purple starthistle	Yellow toadflax
	Black henbane	Dyer's woad	Leafy spurge	Ravenna grass	
	Camelthorn	Eurasian watermilfoil	Oxeye daisy	Scotch thistle	
	Canada thistle	Giant salvinia	Parrotfeather	Spotted knapweed	
	Dalmatian toadflax	Hoary cress	Purple loosestrife	Yellow starthistle	

Class B Noxious Weed – Check Box if Found

	African rue	Perennial pepperweed	Russian knapweed	Tree of heaven
	Chicory	Musk thistle	Poison hemlock	
	Halogeton	Malta starthistle	Teasel	

Comments:

∅
Chert grass

FFO Representative: Roger Herrera
 Operator Representative: Roger Eckman

Appendix B Road Maintenance Plan

The following Road Maintenance Plan will be implemented and followed by Encana Oil & Gas (USA) Inc. (Encana) for roads utilized in its San Juan Basin Operations. All roads will be constructed and maintained to meet the Bureau of Land Management (BLM) Gold Book Standards and BLM Manuals 9113-1 (Roads Design Handbook) and BLM Manuals 9113-2 (Roads National Inventory and Condition Assessment Guidance and Instructions Handbook).

Road Inspection

1. An Encana representative or designated inspector will inspect all newly constructed or reconstructed roads that will be used to construct, operate, maintain and terminate Encana's oil and gas operations.
2. Road inspections will be conducted monthly or within 72 hours of a major storm event. The Inspector will observe road conditions as they drive to and from locations.
3. Inspectors will examine the roadways and document the inspection using the attached checklist during each inspection. Inspections will consist of road crowns, culverts, ditches, silt traps and/or any other water control structures.
4. Inspection records will be kept on file and will be provided to the BLM upon request.

Maintenance Procedures

Corrections will be documented on the attached inspection checklist and Encana will contact one of its authorized contractors to correct the problem.

1. **Road Crown**
If the road crown surface becomes rutted, not adequately draining, or in a roughened condition, Encana's contractor will utilize a maintainer to re-grade and/or resurface the road crown.
2. **Culverts**
If culverts or silt traps are plugged, Encana's contractor will use hand tools or a backhoe to excavate and remove debris or sediment impeding the function of the culvert. If the culvert is damaged by having its inlet or outlet crushed, the culvert will be replaced.
3. **Ditches**
If road side ditches become blocked or not functioning properly, Encana's contractor will use a maintainer or the necessary equipment to clear or blade the ditch to allow it to function properly.
4. **Silt Traps or Water Control Structures**
If silt traps or water control structures are found to be filled with sediment or not functioning properly, Encana's contractor will use the appropriate equipment to clean out sediment or repair/modify the structure to allow it to function properly. Sediment removed from silt traps or water control structures will be disposed of at an approved facility.
5. **Disturbances from Maintenance**
If areas are disturbed from implementation of this plan, they will be mitigated and reseeded if necessary.

Encana Road Inspection and Maintenance Report Form

Road Inspected (Site ID): _____

Title of Inspector:	Name of Inspector:	Date:
Type of Area: <input type="checkbox"/> Access Road to Well Pad		
Type of Inspection: <input type="checkbox"/> Daily <input type="checkbox"/> Monthly <input type="checkbox"/> Within 72 hours of a rain/snowmelt event <input type="checkbox"/> Inter Conditions Exist		

Site Specific Information

□

Road Condition Check List

Road:	Good	Poor	Action Needed	Comments
Surface Condition (slopes/gravel/etc)				
Surface Drainage				
Culvert(s)				
Culvert(s) Inlet Protection				
Culvert(S) Outlet Protection				
Roadside Ditches and Turnouts				
Run On Diversion				
Revegetation				
Sediment Control:	Good	Poor	Action Needed	Comments
Check Dam				
Silt Trap/Pond				
Filter Berm				
Sediment Basin				
Sediment Trap				
Wattles				
Silt Fence				

Actions Taken		Date Work Was Performed	
Date	Signature	Type of Inspection	

Signature certifying that the site is in compliance (after all necessary repairs, maintenance, and changes)

 Date Signature

Lybrook M12-2206 01H
SHL: SWSW Section 12, T22N, R6W
329 FSL and 631 FWL
BHL: SWSW Section 13, T22N, R6W
330 FSL and 760 FWL
Sandoval County, New Mexico
Lease Number: NMNM 109385 & NMNM 117562

**Encana Oil & Gas (USA) Inc.
Certification**

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Holly Hill

9/11/13

Holly Hill
Regulatory Analyst
Encana Oil & Gas (USA) Inc.
370 17th Street, Suite 1700
Denver, CO 80202
Phone: (720) 876-5331
Cell: (303) 521-2835

Date