State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

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

David R. Catanach Division Director
Oil Conservation Division

New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: 3-25-15
Well information;
Operator Encana, Well Name and Number Lybrook P12 2206 #2H
API# 30-043-21272, Section 12, Township 22 (N)/S, Range 6 E/(W)

Conditions of Approval:
(See the below checked and handwritten conditions)

- Notify Aztec OCD 24hrs prior to casing & cement.
- Hold C-104 for directional survey & "As Drilled" Plat
- Hold C-104 for NSL, NSP, DHC
- o Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- o Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
  - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
  - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
  - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- o Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ✓ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84
- ✓ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- ✓ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.

Chris Perea
NMOCD Approved by Signature

7-20-2015
Date

1220 South St. Francis Drive • Santa Fe, New Mexico 87505
Phone (505) 476-3460 • Fax (505) 476-3462 • www.emnrd.state.nm.us/ocd

OIL CONS. DIV DIST. 3

JUL 08 2015

RECEIVED

MAR 27 2015

Farmington Field Office
Bureau of Land Management

Form 3160-3
(August 2007)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. NMNM 117562 & NMNM 109390

6. If Indian, Allotee or Tribe Name: N/A

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.: Pending

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

8. Lease Name and Well No.: Lybrook P12-2206 02H

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

9. API Well No.: 30-043-21272

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

3b. Phone No. (include area code): 720-876-5994

10. Field and Pool, or Exploratory: Lybrook Gallup

4. Location of Well (Report location clearly and in accordance with any State requirements.*)
At surface P 159' FSL and 1197' FEL Section 12, T22N, R6W SESE
At proposed prod. zone H 2310' FNL and 400' FEL Section 24, T22N, R6W SENE

11. Sec., T. R. M. or Blk. and Survey or Area: SHL: Section 12, T22N, R6W NMPM; BHL Sec 24, T22N, R6W

14. Distance in miles and direction from nearest town or post office*
+/- 60.2 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): POE is 330' from north line of Sec. 13

16. No. of acres in lease: NM 117562 - 2,240.0; NM 109390 - 800.0

17. Spacing Unit dedicated to this well: 240.0 acres - E2E2 of Section 13 and E2NE4 of Section 24

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: Lybrook P12-2206 01H is +/- 30' SW of SHL

19. Proposed Depth: 5,290' TVD/13,248' MD

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

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 7,067' GL; 7,083' KB

22. Approximate date work will start*: 11/05/2015

23. Estimated duration: 20 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	Name (Printed/Typed)	Date
[signature]	Shawn Turk	3/25/15
Title: Regulatory Analyst		
Approved by (Signature) [signature]	Name (Printed/Typed)	Date 7/1/15
Title: AFM	Office: FFO	

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.

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.

(Continued on page 2)

*(Instructions on page 2)

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

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

NMOCD AV

District I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., 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 Dr., Santa Fe, NM 87505
Phone (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-043-21212	42289	LYBROOK GALLUP

4 Property Code	5 Property Name	6 Well Number
315098	LYBROOK P12-2206	02H

7 OGRID No.	8 Operator Name	9 Elevation
282327	ENCANA OIL & GAS (USA) INC.	7067.2'

10 Surface Location

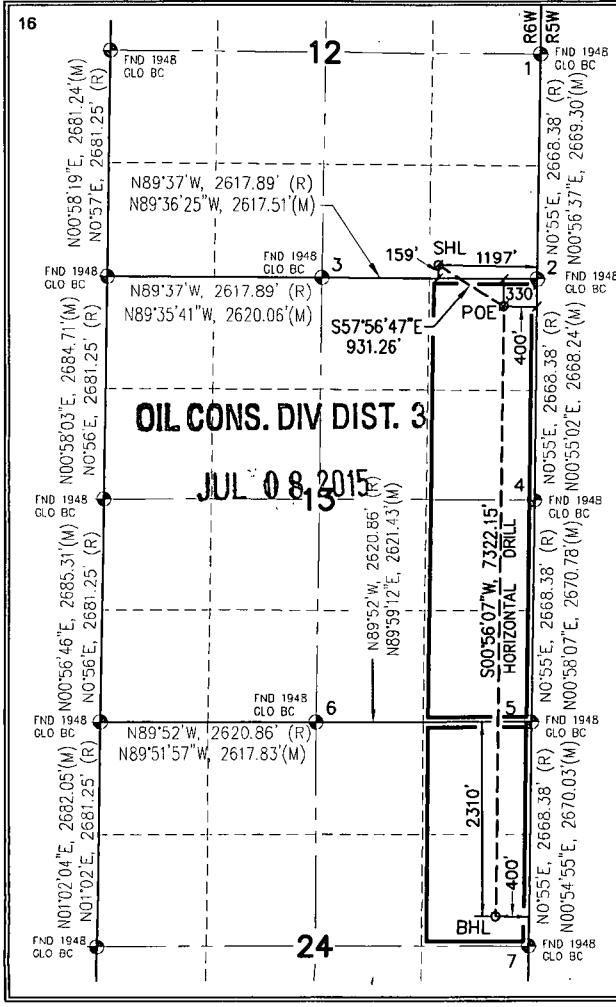
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West Line	County
P	12	22N	6W		159	SOUTH	1197	EAST	SANDOVAL

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West Line	County
H	24	22N	6W		2310	NORTH	400	EAST	SANDOVAL

12 Dedicated Acres	PROJECT AREA	13 Joint or Infill	14 Consolidation Code	15 Order No.
240.00 Acres (RECORD)	E/2 E/2 – Section 13 E/2 NE/4 – Section 24			

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.



OIL CONS. DIV DIST. 3
JUL 08 2015

LYBROOK P12-2206 02H WELL
SHL (WELL FLAG)
LAT. 36.145132°N (NAD83)
LONG. 107.415734°W (NAD83)
LAT. 36.145118°N (NAD27)
LONG. 107.415131°W (NAD27)
POE (POINT OF ENTRY)
LAT. 36.143776°N (NAD83)
LONG. 107.413061°W (NAD83)
LAT. 36.143761°N (NAD27)
LONG. 107.412458°W (NAD27)
BHL (BOTTOM HOLE LOCATION)
LAT. 36.123672°N (NAD83)
LONG. 107.413456°W (NAD83)
LAT. 36.123657°N (NAD27)
LONG. 107.412853°W (NAD27)

SECTION CORNERS
1 LAT. 36.152004 °N (NAD83)
LONG. 107.411544 °W (NAD83)
LAT. 36.151989 °N (NAD27)
LONG. 107.410941 °W (NAD27)
2 LAT. 36.144675 °N (NAD83)
LONG. 107.411689 °W (NAD83)
LAT. 36.144660 °N (NAD27)
LONG. 107.411086 °W (NAD27)
3 LAT. 36.144721 °N (NAD83)
LONG. 107.420551 °W (NAD83)
LAT. 36.144707 °N (NAD27)
LONG. 107.419948 °W (NAD27)
4 LAT. 36.137349 °N (NAD83)
LONG. 107.411831 °W (NAD83)
LAT. 36.137334 °N (NAD27)
LONG. 107.411228 °W (NAD27)
5 LAT. 36.130016 °N (NAD83)
LONG. 107.411980 °W (NAD83)
LAT. 36.130001 °N (NAD27)
LONG. 107.411377 °W (NAD27)
6 LAT. 36.130011°N (NAD83)
LONG. 107.420854°W (NAD83)
LAT. 36.129996 °N (NAD27)
LONG. 107.420250°W (NAD27)
7 LAT. 36.122685°N (NAD83)
LONG. 107.412121°W (NAD83)
LAT. 36.122670 °N (NAD27)
LONG. 107.411518°W (NAD27)

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.

Signature 3/25/15 Date

Shawn Turk
Printed Name

shawn.turk@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.

November 3, 2014
Date of Survey

Signature and Seal of Professional Surveyor:

RICHARD L. MULLIKEN
NEW MEXICO
16873
3-10-15
PROFESSIONAL SURVEYOR

RICHARD L. MULLIKEN
Certificate Number 16873

Sheet A

Lybrook P12-2206 02H
SHL: 159' FSL, 1197' FEL Sec 12, T22N, R6W
BHL: 2310' FNL, 400' FEL Sec 24, T22N R6W
Sandoval, New Mexico
Lease Number: NMNM 117562 & NMNM 109390

Encana Oil & Gas (USA) Inc.
Drilling Plan

1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

Formation	Depth (TVD) units = feet
San Jose Fn.	n/a
Nacimiento Fn.	surface
Ojo Alamo Ss.	1,418
Kirtland Shale	1,515
Fruitland Coal	1,702
Pictured Cliffs Ss.	1,911
Lewis Shale	2,019
Cliffhouse Ss.	2,743
Menefee Fn.	3,437
Point Lookout Ss.	4,138
Mancos Shale	4,317
Mancos Silt	4,909
Gallup Fn.	5,192
Base Gallup	5,491

The referenced surface elevation is 7067', KB 7083'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,702
Oil/Gas	Pictured Cliffs Ss.	1,911
Oil/Gas	Cliffhouse Ss.	2,743
Gas	Menefee Fn.	3,437
Oil/Gas	Point Lookout Ss.	4,138
Oil/Gas	Mancos Shale	4,317
Oil/Gas	Mancos Silt	4,909
Oil/Gas	Gallup Fn.	5,192

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

Lybrook P12-2206 02H
SHL: 159' FSL, 1197' FEL Sec 12, T22N, R6W
BHL: 2310' FNL, 400' FEL Sec 24, T22N R6W
Sandoval, New Mexico
Lease Number: NMNM 117562 & NMNM 109390

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

Proposed BOP and choke manifold arrangements are attached.

4. CASING & CEMENTING PROGRAM

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

a) The proposed casing design is as follows:

Casing	Depth (MD)	Hole Size	Csg Size	Weight	Grade
Conductor	0'-60'	26"	16"	42.09#	
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5519'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5419'-13248'	6 1/8"	4 1/2"	11.6#	B80*, LTC New

Casing String				Casing Strength Properties			Minimum Design Factors		
Size	Weight (ppf)	Grade	Connection	Collapse (psi)	Burst (psi)	Tensile (1000lbs)	Collapse	Burst	Tension
9 5/8"	36	J55	STC	2020	3520	394	1.125	1.1	1.5
7"	26	J55	LTC	4320	4980	367	1.125	1.1	1.5
4.5"	11.6	B80	LTC	6350	7780	201	1.125	1.1	1.5

*B80 pipe specifications are attached.

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

Lybrook P12-2206 02H
SHL: 159' FSL, 1197' FEL Sec 12, T22N, R6W
BHL: 2310' FNL, 400' FEL Sec 24, T22N R6W
Sandoval, New Mexico
Lease Number: NMNM 117562 & NMNM 109390

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

b) The proposed cementing program is as follows:

Casing	Depth (MD)	Cement Volume (sacks)	Cement Type & Yield	Designed TOC	Centralizers
Conductor	0'-60'	100 sks	Type I Neat 16 ppg	Surface	None
Surface	0'-500'	228 sks	Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water	Surface	1 per joint on bottom 3 joints
Intermediate	0'-5519'	100% open hole excess Stage 1 Lead: 514 sks Stage 1 Tail: 392 sks	Lead: PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuft/sk Tail: Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuft/sk	Surface	1 every 3 joints through water bearing zones
Production Liner	5419'-13248'	50% OH excess Stage 1 Blend Total: 435sks	Blend: Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk	Liner Hanger	N/A

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

All waiting on cement times shall be a minimum of 8 hours or adequate to achieve minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed horizontal well will have a kick off point of 600'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5290'/13248'	Gallup

Lybrook P12-2206 02H
SHL: 159' FSL, 1197' FEL Sec 12, T22N, R6W
BHL: 2310' FNL, 400' FEL Sec 24, T22N R6W
Sandoval, New Mexico
Lease Number: NMNM 117562 & NMNM 109390

6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60'/60'	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0'-500'/500'	Fresh Water	8.3-10	60-70	NC
8 3/4"	500'/500'-5312'/5519'	Fresh Water LSND	8.3-10	40-50	8-10

b) Intermediate Casing Point to TD:

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	5312'/5519'-5290'/13248'	Fresh Water LSND	8.3-10	15-25	<15

c) There will be sufficient mud on location to control a blowout should one occur. Mud flow and volume will be monitored both visually and with electronic pit volume totalizers. Mud tests shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

✓d) A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water. Waste will be disposed of properly at an EPA-approved hazardous waste facility. Fresh water cuttings will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystems, Inc. The location will be lined in accordance with the Surface Use Plan of Operations.

7. TESTING, CORING, & LOGGING

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

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

8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

The anticipated bottom hole pressure is +/- 2546 psi based on a 9.0 ppg at 5440' TVD of the horizontal lateral target. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H_2S is encountered, the guidelines in Onshore Order No. 6 will be followed.

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on November 5, 2015. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

It is anticipated that the drilling of this well will take approximately 20 days.

LOC: 159' FSL, 1197' FEL Sec 12, T22N, R6W County: Sandoval WELL: Lybrook P12-2206 02H	Encana Oil & Gas (USA) Inc. WELL SUMMARY			ENG: Michael Sanch 3-25-15 RIG: Unassigned GLE: 7067 RKBE: 7083

MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH TVD	DEPTH MD	HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			60	60'	26	16" 42.09# 100sx Type I Neat 16.0ppg cmt	Fresh wtr 8.3-9.2	
Multi-Well pad - take survey every stand and run anti-collision report prior to spud	None	San Jose Fn.	0		12 1/4	9 5/8" 36ppf J55 LTC TOC Surface with 100% OH Excess: 228 sks Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water.	Fresh wtr 8.3-10	Vertical <1°
		Nacimiento Fn.	surface					
		9 5/8" Csg	500	500.00				
		Ojo Alamo Ss.	1,418					
		Kirtland Shale	1,515					
	No OH logs	Fruitland Coal	1,702			7" 26ppf J55 LTC	Fresh Wtr	
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5		Pictured Cliffs Ss.	1,911		8 3/4	TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 906sks	8.3-10	Vertical <1°
		Lewis Shale	2,019					
		Cliffhouse Ss.	2,743					
		Menefee Fn.	3,437			Stage 1 Lead: 514 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL-52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk.		
		Point Lookout Ss.	4,138					
		Mancos Shale	4,317					
	Mud logger onsite	KOP	600	600		Stage 1 Tail: 392 sks Type III Cement + 1% CaCl2 + 0.25#/sk Cello Flake + 0.2% FL-52A. Mixed at 14.6 ppg. Yield 1.38 cuft/sk.		
Surveys every 30' through the curve		Mancos Silt	4,909					
		Gallup Fn.	5,192					
		7" Csg	5,312	5,519'				
					6 1/8	100' overlap at liner top		Horz Inc/TVD 91.1deg/5440ft
Surveys every stand to TD unless directed otherwise by Geologist		Horizontal Target	5,440					
		TD	5,290	13,248		7728' Drilled Lateral		TD = 13247.6 MD
	No OH Logs	Base Gallup	5,491			4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 435sks Stage 1 Blend: 435 sks Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk.	WBM 8.3-10	
MWD Gamma Directional								

NOTES:

1) Drill with 26" bit to 60', set 16" 42.09ppf 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 600', 8 3/4 inch holesize
5) Start curve at 10deg/100' build rate
6) Drill to csg point of 5519' MD
7) R&C 7" csg, circ cmt to surface
8) Land at ~55 deg, drill lateral to 13248' run 4 1/2 inch cemented liner

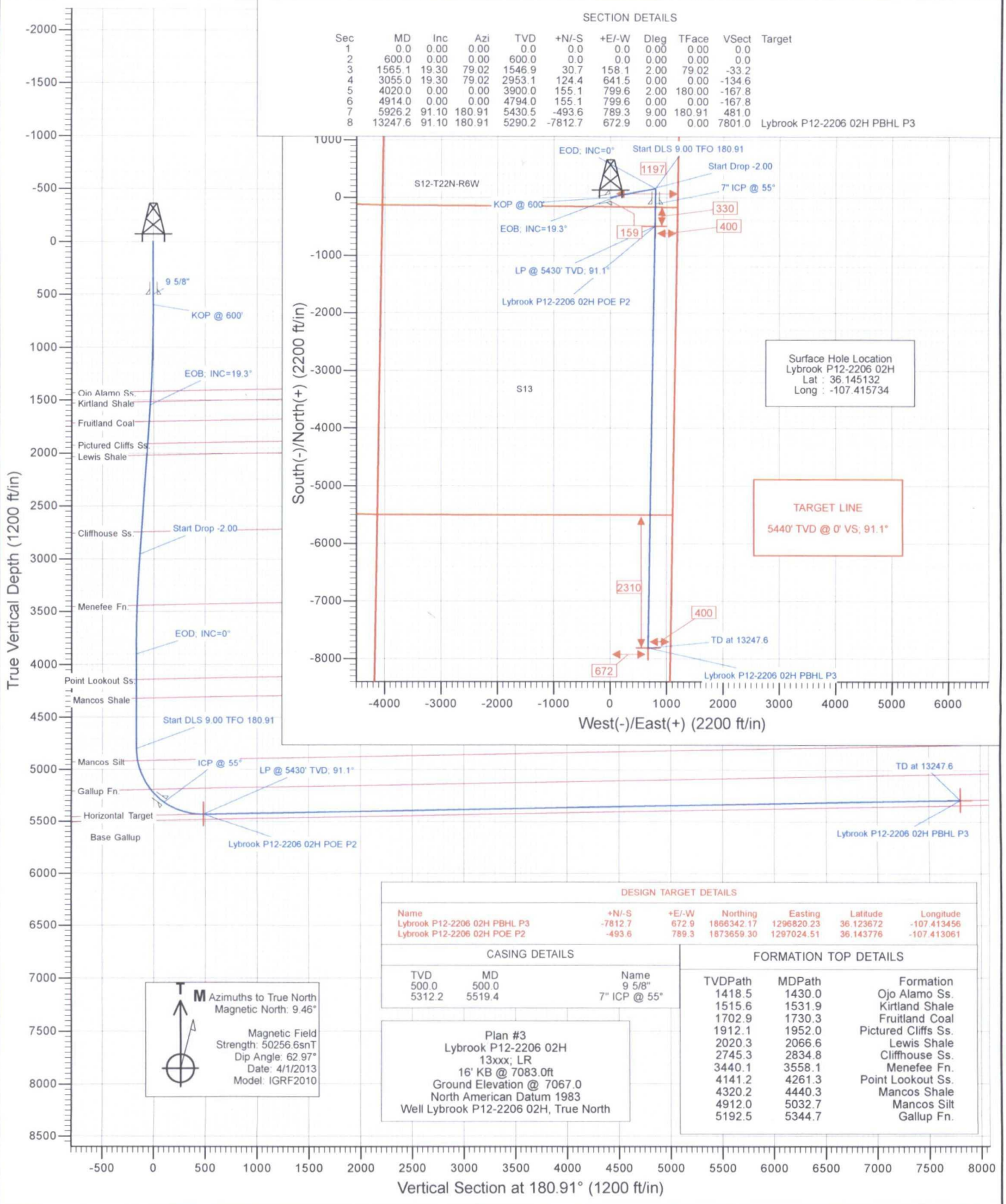
encana natural gas

Project: Sandoval County, NM
Site: S12-T22N-R6W
Well: Lybrook P12-2206 02H
Wellbore: Hz
Design: Plan #3

CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0	
3	1565.1	19.30	79.02	1546.9	30.7	158.1	2.00	79.02	-33.2	
4	3055.0	19.30	79.02	2953.1	124.4	641.5	0.00	0.00	-134.6	
5	4020.0	0.00	0.00	3900.0	155.1	799.6	2.00	180.00	-167.8	
6	4914.0	0.00	0.00	4794.0	155.1	799.6	0.00	0.00	-167.8	
7	5926.2	91.10	180.91	5430.5	-493.6	789.3	9.00	180.91	481.0	
8	13247.6	91.10	180.91	5290.2	-7812.7	672.9	0.00	0.00	7801.0	Lybrook P12-2206 02H PBHL P3



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Lybrook P12-2206 02H PBHL P3	-7812.7	672.9	1866342.17	1296820.23	36.123672	-107.413456
Lybrook P12-2206 02H POE P2	-493.6	789.3	1873659.30	1297024.51	36.143776	-107.413061

CASING DETAILS

TVD	MD	Name
500.0	500.0	9 5/8"
5312.2	5519.4	7" ICP @ 55°

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1418.5	1430.0	Ojo Alamo Ss.
1515.6	1531.9	Kirtland Shale
1702.9	1730.3	Fruitland Coal
1912.1	1952.0	Pictured Cliffs Ss.
2020.3	2066.6	Lewis Shale
2745.3	2834.8	Cliffhouse Ss.
3440.1	3558.1	Menefee Fn.
4141.2	4261.3	Point Lookout Ss.
4320.2	4440.3	Mancos Shale
4912.0	5032.7	Mancos Silt
5192.5	5344.7	Gallup Fn.

T M Azimuths to True North
Magnetic North: 9.46°

Magnetic Field
Strength: 50256.6snT
Dip Angle: 62.97°
Date: 4/1/2013
Model: IGRF2010

Plan #3
Lybrook P12-2206 02H
13xxx; LR
16' KB @ 7083.0ft
Ground Elevation @ 7067.0
North American Datum 1983
Well Lybrook P12-2206 02H, True North

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook P12-2206 02H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	16' KB @ 7083.0ft
Project:	Sandoval County, NM	**MD Reference:**	16' KB @ 7083.0ft
Site:	S12-T22N-R6W	**North Reference:**	True
Well:	Lybrook P12-2206 02H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

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	S12-T22N-R6W				
Site Position:		**Northing:**	1,874,151.44 ft	**Latitude:**	36.145101
From:	Lat/Long	**Easting:**	1,296,213.30 ft	**Longitude:**	-107.415828
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	-0.69 °

Well	Lybrook P12-2206 02H					
Well Position	**+N/-S**	0.0 ft	**Northing:**	1,874,162.37 ft	**Latitude:**	36.145132
	+E/-W	0.0 ft	**Easting:**	1,296,241.19 ft	**Longitude:**	-107.415734
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	7,067.0 ft

Wellbore	Hz				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	4/1/2013	9.46	62.97	50,257

Design	Plan #3				
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	180.91	

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	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,565.1	19.30	79.02	1,546.9	30.7	158.1	2.00	2.00	0.00	79.02	
3,055.0	19.30	79.02	2,953.1	124.4	641.5	0.00	0.00	0.00	0.00	
4,020.0	0.00	0.00	3,900.0	155.1	799.6	2.00	-2.00	0.00	180.00	
4,914.0	0.00	0.00	4,794.0	155.1	799.6	0.00	0.00	0.00	0.00	
5,926.2	91.10	180.91	5,430.5	-493.6	789.3	9.00	9.00	-17.69	180.91	
13,247.6	91.10	180.91	5,290.2	-7,812.7	672.9	0.00	0.00	0.00	0.00	Lybrook P12-2206 02

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook P12-2206 02H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	16' KB @ 7083.0ft
Project:	Sandoval County, NM	**MD Reference:**	16' KB @ 7083.0ft
Site:	S12-T22N-R6W	**North Reference:**	True
Well:	Lybrook P12-2206 02H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

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	
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	KOP @ 600'
700.0	2.00	79.02	700.0	0.3	1.7	-0.4	2.00	2.00	
800.0	4.00	79.02	799.8	1.3	6.9	-1.4	2.00	2.00	
900.0	6.00	79.02	899.5	3.0	15.4	-3.2	2.00	2.00	
1,000.0	8.00	79.02	998.7	5.3	27.4	-5.7	2.00	2.00	
1,100.0	10.00	79.02	1,097.5	8.3	42.7	-9.0	2.00	2.00	
1,200.0	12.00	79.02	1,195.6	11.9	61.5	-12.9	2.00	2.00	
1,300.0	14.00	79.02	1,293.1	16.2	83.5	-17.5	2.00	2.00	
1,400.0	16.00	79.02	1,389.6	21.1	108.9	-22.9	2.00	2.00	
1,430.0	16.60	79.02	1,418.5	22.7	117.2	-24.6	2.00	2.00	Ojo Alamo Ss.
1,500.0	18.00	79.02	1,485.3	26.7	137.6	-28.9	2.00	2.00	
1,531.9	18.64	79.02	1,515.6	28.6	147.5	-31.0	2.00	2.00	Kirtland Shale
1,565.1	19.30	79.02	1,546.9	30.7	158.1	-33.2	2.00	2.00	EOB; INC=19.3°
1,600.0	19.30	79.02	1,579.9	32.9	169.4	-35.5	0.00	0.00	
1,700.0	19.30	79.02	1,674.3	39.2	201.9	-42.4	0.00	0.00	
1,730.3	19.30	79.02	1,702.9	41.1	211.7	-44.4	0.00	0.00	Fruitland Coal
1,800.0	19.30	79.02	1,768.6	45.4	234.3	-49.2	0.00	0.00	
1,900.0	19.30	79.02	1,863.0	51.7	266.8	-56.0	0.00	0.00	
1,952.0	19.30	79.02	1,912.1	55.0	283.6	-59.5	0.00	0.00	Pictured Cliffs Ss.
2,000.0	19.30	79.02	1,957.4	58.0	299.2	-62.8	0.00	0.00	
2,066.6	19.30	79.02	2,020.3	62.2	320.8	-67.3	0.00	0.00	Lewis Shale
2,100.0	19.30	79.02	2,051.8	64.3	331.7	-69.6	0.00	0.00	
2,200.0	19.30	79.02	2,146.2	70.6	364.1	-76.4	0.00	0.00	
2,300.0	19.30	79.02	2,240.5	76.9	396.6	-83.2	0.00	0.00	
2,400.0	19.30	79.02	2,334.9	83.2	429.0	-90.0	0.00	0.00	
2,500.0	19.30	79.02	2,429.3	89.5	461.4	-96.8	0.00	0.00	
2,600.0	19.30	79.02	2,523.7	95.8	493.9	-103.6	0.00	0.00	
2,700.0	19.30	79.02	2,618.1	102.1	526.3	-110.4	0.00	0.00	
2,800.0	19.30	79.02	2,712.4	108.4	558.8	-117.3	0.00	0.00	
2,834.8	19.30	79.02	2,745.3	110.6	570.1	-119.6	0.00	0.00	Cliffhouse Ss.
2,900.0	19.30	79.02	2,806.8	114.7	591.2	-124.1	0.00	0.00	
3,000.0	19.30	79.02	2,901.2	121.0	623.7	-130.9	0.00	0.00	
3,055.0	19.30	79.02	2,953.1	124.4	641.5	-134.6	0.00	0.00	Start Drop -2.00
3,100.0	18.40	79.02	2,995.7	127.2	655.8	-137.6	2.00	-2.00	
3,200.0	16.40	79.02	3,091.1	132.9	685.2	-143.8	2.00	-2.00	
3,300.0	14.40	79.02	3,187.5	138.0	711.2	-149.2	2.00	-2.00	
3,400.0	12.40	79.02	3,284.8	142.4	734.0	-154.0	2.00	-2.00	
3,500.0	10.40	79.02	3,382.8	146.1	753.4	-158.1	2.00	-2.00	
3,558.1	9.24	79.02	3,440.1	148.0	763.1	-160.1	2.00	-2.00	Menefee Fn.
3,600.0	8.40	79.02	3,481.5	149.2	769.4	-161.4	2.00	-2.00	
3,700.0	6.40	79.02	3,580.6	151.7	782.1	-164.1	2.00	-2.00	
3,800.0	4.40	79.02	3,680.2	153.5	791.3	-166.0	2.00	-2.00	
3,900.0	2.40	79.02	3,780.0	154.6	797.1	-167.3	2.00	-2.00	
4,000.0	0.40	79.02	3,880.0	155.1	799.5	-167.8	2.00	-2.00	
4,020.0	0.00	0.00	3,900.0	155.1	799.6	-167.8	2.00	-2.00	EOD; INC=0°
4,100.0	0.00	0.00	3,980.0	155.1	799.6	-167.8	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook P12-2206 02H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	16' KB @ 7083.0ft
Project:	Sandoval County, NM	**MD Reference:**	16' KB @ 7083.0ft
Site:	S12-T22N-R6W	**North Reference:**	True
Well:	Lybrook P12-2206 02H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

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
4,200.0	0.00	0.00	4,080.0	155.1	799.6	-167.8	0.00	0.00	
4,261.3	0.00	0.00	4,141.2	155.1	799.6	-167.8	0.00	0.00	Point Lookout Ss.
4,300.0	0.00	0.00	4,180.0	155.1	799.6	-167.8	0.00	0.00	
4,400.0	0.00	0.00	4,280.0	155.1	799.6	-167.8	0.00	0.00	
4,440.3	0.00	0.00	4,320.2	155.1	799.6	-167.8	0.00	0.00	Mancos Shale
4,500.0	0.00	0.00	4,380.0	155.1	799.6	-167.8	0.00	0.00	
4,600.0	0.00	0.00	4,480.0	155.1	799.6	-167.8	0.00	0.00	
4,700.0	0.00	0.00	4,580.0	155.1	799.6	-167.8	0.00	0.00	
4,800.0	0.00	0.00	4,680.0	155.1	799.6	-167.8	0.00	0.00	
4,900.0	0.00	0.00	4,780.0	155.1	799.6	-167.8	0.00	0.00	
4,914.0	0.00	0.00	4,794.0	155.1	799.6	-167.8	0.00	0.00	Start DLS 9.00 TFO 180.91
5,000.0	7.74	180.91	4,879.7	149.3	799.5	-162.0	9.00	9.00	
5,032.7	10.68	180.91	4,912.0	144.1	799.4	-156.7	9.00	9.00	Mancos Silt
5,100.0	16.74	180.91	4,977.3	128.1	799.2	-140.8	9.00	9.00	
5,200.0	25.74	180.91	5,070.4	92.0	798.6	-104.6	9.00	9.00	
5,300.0	34.74	180.91	5,156.8	41.7	797.8	-54.3	9.00	9.00	
5,344.7	38.76	180.91	5,192.5	14.9	797.4	-27.6	9.00	9.00	Gallup Fn.
5,400.0	43.74	180.91	5,234.1	-21.5	796.8	8.9	9.00	9.00	
5,500.0	52.74	180.91	5,300.7	-96.0	795.6	83.4	9.00	9.00	
5,519.4	54.48	180.91	5,312.2	-111.6	795.4	99.0	9.01	9.01	ICP @ 55°
5,600.0	61.74	180.91	5,354.7	-180.0	794.3	167.4	9.00	9.00	
5,700.0	70.74	180.91	5,395.0	-271.4	792.8	258.8	9.00	9.00	
5,800.0	79.74	180.91	5,420.4	-368.0	791.3	355.4	9.00	9.00	
5,900.0	88.74	180.91	5,430.5	-467.4	789.7	454.8	9.00	9.00	
5,926.2	91.10	180.91	5,430.5	-493.6	789.3	481.0	9.00	9.00	LP @ 5430' TVD; 91.1° - Lybrook P12-2206 02H
5,938.6	91.10	180.91	5,430.3	-506.0	789.1	493.4	0.00	0.00	Lybrook P12-2206 02H POE
6,000.0	91.10	180.91	5,429.1	-567.4	788.1	554.8	0.00	0.00	
6,100.0	91.10	180.91	5,427.2	-667.4	786.5	654.8	0.00	0.00	
6,200.0	91.10	180.91	5,425.3	-767.3	784.9	754.8	0.00	0.00	
6,300.0	91.10	180.91	5,423.3	-867.3	783.3	854.7	0.00	0.00	
6,400.0	91.10	180.91	5,421.4	-967.3	781.7	954.7	0.00	0.00	
6,500.0	91.10	180.91	5,419.5	-1,067.2	780.2	1,054.7	0.00	0.00	
6,600.0	91.10	180.91	5,417.6	-1,167.2	778.6	1,154.7	0.00	0.00	
6,700.0	91.10	180.91	5,415.7	-1,267.2	777.0	1,254.7	0.00	0.00	
6,800.0	91.10	180.91	5,413.8	-1,367.1	775.4	1,354.7	0.00	0.00	
6,900.0	91.10	180.91	5,411.8	-1,467.1	773.8	1,454.6	0.00	0.00	
7,000.0	91.10	180.91	5,409.9	-1,567.1	772.2	1,554.6	0.00	0.00	
7,100.0	91.10	180.91	5,408.0	-1,667.0	770.6	1,654.6	0.00	0.00	
7,200.0	91.10	180.91	5,406.1	-1,767.0	769.0	1,754.6	0.00	0.00	
7,300.0	91.10	180.91	5,404.2	-1,867.0	767.4	1,854.6	0.00	0.00	
7,400.0	91.10	180.91	5,402.3	-1,967.0	765.8	1,954.5	0.00	0.00	
7,500.0	91.10	180.91	5,400.3	-2,066.9	764.3	2,054.5	0.00	0.00	
7,600.0	91.10	180.91	5,398.4	-2,166.9	762.7	2,154.5	0.00	0.00	
7,700.0	91.10	180.91	5,396.5	-2,266.9	761.1	2,254.5	0.00	0.00	
7,800.0	91.10	180.91	5,394.6	-2,366.8	759.5	2,354.5	0.00	0.00	
7,900.0	91.10	180.91	5,392.7	-2,466.8	757.9	2,454.5	0.00	0.00	
8,000.0	91.10	180.91	5,390.8	-2,566.8	756.3	2,554.4	0.00	0.00	
8,100.0	91.10	180.91	5,388.8	-2,666.7	754.7	2,654.4	0.00	0.00	
8,200.0	91.10	180.91	5,386.9	-2,766.7	753.1	2,754.4	0.00	0.00	
8,300.0	91.10	180.91	5,385.0	-2,866.7	751.5	2,854.4	0.00	0.00	
8,400.0	91.10	180.91	5,383.1	-2,966.6	749.9	2,954.4	0.00	0.00	
8,500.0	91.10	180.91	5,381.2	-3,066.6	748.4	3,054.3	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook P12-2206 02H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	16' KB @ 7083.0ft
Project:	Sandoval County, NM	**MD Reference:**	16' KB @ 7083.0ft
Site:	S12-T22N-R6W	**North Reference:**	True
Well:	Lybrook P12-2206 02H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,600.0	91.10	180.91	5,379.3	-3,166.6	746.8	3,154.3	0.00	0.00	
8,700.0	91.10	180.91	5,377.3	-3,266.6	745.2	3,254.3	0.00	0.00	
8,800.0	91.10	180.91	5,375.4	-3,366.5	743.6	3,354.3	0.00	0.00	
8,900.0	91.10	180.91	5,373.5	-3,466.5	742.0	3,454.3	0.00	0.00	
9,000.0	91.10	180.91	5,371.6	-3,566.5	740.4	3,554.3	0.00	0.00	
9,100.0	91.10	180.91	5,369.7	-3,666.4	738.8	3,654.2	0.00	0.00	
9,200.0	91.10	180.91	5,367.8	-3,766.4	737.2	3,754.2	0.00	0.00	
9,300.0	91.10	180.91	5,365.8	-3,866.4	735.6	3,854.2	0.00	0.00	
9,400.0	91.10	180.91	5,363.9	-3,966.3	734.0	3,954.2	0.00	0.00	
9,500.0	91.10	180.91	5,362.0	-4,066.3	732.5	4,054.2	0.00	0.00	
9,600.0	91.10	180.91	5,360.1	-4,166.3	730.9	4,154.1	0.00	0.00	
9,700.0	91.10	180.91	5,358.2	-4,266.2	729.3	4,254.1	0.00	0.00	
9,800.0	91.10	180.91	5,356.3	-4,366.2	727.7	4,354.1	0.00	0.00	
9,900.0	91.10	180.91	5,354.4	-4,466.2	726.1	4,454.1	0.00	0.00	
10,000.0	91.10	180.91	5,352.4	-4,566.2	724.5	4,554.1	0.00	0.00	
10,100.0	91.10	180.91	5,350.5	-4,666.1	722.9	4,654.1	0.00	0.00	
10,200.0	91.10	180.91	5,348.6	-4,766.1	721.3	4,754.0	0.00	0.00	
10,300.0	91.10	180.91	5,346.7	-4,866.1	719.7	4,854.0	0.00	0.00	
10,400.0	91.10	180.91	5,344.8	-4,966.0	718.1	4,954.0	0.00	0.00	
10,500.0	91.10	180.91	5,342.9	-5,066.0	716.6	5,054.0	0.00	0.00	
10,600.0	91.10	180.91	5,340.9	-5,166.0	715.0	5,154.0	0.00	0.00	
10,700.0	91.10	180.91	5,339.0	-5,265.9	713.4	5,253.9	0.00	0.00	
10,800.0	91.10	180.91	5,337.1	-5,365.9	711.8	5,353.9	0.00	0.00	
10,900.0	91.10	180.91	5,335.2	-5,465.9	710.2	5,453.9	0.00	0.00	
11,000.0	91.10	180.91	5,333.3	-5,565.8	708.6	5,553.9	0.00	0.00	
11,100.0	91.10	180.91	5,331.4	-5,665.8	707.0	5,653.9	0.00	0.00	
11,200.0	91.10	180.91	5,329.4	-5,765.8	705.4	5,753.9	0.00	0.00	
11,300.0	91.10	180.91	5,327.5	-5,865.8	703.8	5,853.8	0.00	0.00	
11,400.0	91.10	180.91	5,325.6	-5,965.7	702.2	5,953.8	0.00	0.00	
11,500.0	91.10	180.91	5,323.7	-6,065.7	700.7	6,053.8	0.00	0.00	
11,600.0	91.10	180.91	5,321.8	-6,165.7	699.1	6,153.8	0.00	0.00	
11,700.0	91.10	180.91	5,319.9	-6,265.6	697.5	6,253.8	0.00	0.00	
11,800.0	91.10	180.91	5,317.9	-6,365.6	695.9	6,353.7	0.00	0.00	
11,900.0	91.10	180.91	5,316.0	-6,465.6	694.3	6,453.7	0.00	0.00	
12,000.0	91.10	180.91	5,314.1	-6,565.5	692.7	6,553.7	0.00	0.00	
12,100.0	91.10	180.91	5,312.2	-6,665.5	691.1	6,653.7	0.00	0.00	
12,200.0	91.10	180.91	5,310.3	-6,765.5	689.5	6,753.7	0.00	0.00	
12,300.0	91.10	180.91	5,308.4	-6,865.4	687.9	6,853.7	0.00	0.00	
12,400.0	91.10	180.91	5,306.4	-6,965.4	686.3	6,953.6	0.00	0.00	
12,500.0	91.10	180.91	5,304.5	-7,065.4	684.7	7,053.6	0.00	0.00	
12,600.0	91.10	180.91	5,302.6	-7,165.4	683.2	7,153.6	0.00	0.00	
12,700.0	91.10	180.91	5,300.7	-7,265.3	681.6	7,253.6	0.00	0.00	
12,800.0	91.10	180.91	5,298.8	-7,365.3	680.0	7,353.6	0.00	0.00	
12,900.0	91.10	180.91	5,296.9	-7,465.3	678.4	7,453.5	0.00	0.00	
13,000.0	91.10	180.91	5,294.9	-7,565.2	676.8	7,553.5	0.00	0.00	
13,100.0	91.10	180.91	5,293.0	-7,665.2	675.2	7,653.5	0.00	0.00	
13,200.0	91.10	180.91	5,291.1	-7,765.2	673.6	7,753.5	0.00	0.00	
13,247.6	91.10	180.91	5,290.2	-7,812.7	672.9	7,801.0	0.00	0.00	TD at 13247.6 - Lybrook P12-2206 02H PBHL -

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook P12-2206 02H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	16' KB @ 7083.0ft
Project:	Sandoval County, NM	**MD Reference:**	16' KB @ 7083.0ft
Site:	S12-T22N-R6W	**North Reference:**	True
Well:	Lybrook P12-2206 02H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lybrook P12-2206 02H I	0.00	0.00	5,430.6	-484.9	-539.2	1,873,683.97	1,295,696.22	36.143800	-107.417560
- plan misses target center by 1328.4ft at 5938.6ft MD (5430.3 TVD, -506.0 N, 789.1 E)									
- Point									
Lybrook P12-2206 02H I	0.00	0.00	5,430.7	-493.6	789.3	1,873,659.30	1,297,024.51	36.143776	-107.413061
- plan misses target center by 0.2ft at 5926.2ft MD (5430.5 TVD, -493.6 N, 789.3 E)									
- Point									
Lybrook P12-2206 02H I	0.00	0.00	5,315.5	-7,813.4	-657.4	1,866,357.39	1,295,490.02	36.123670	-107.417960
- plan misses target center by 1330.5ft at 13247.6ft MD (5290.2 TVD, -7812.7 N, 672.9 E)									
- Point									
Lybrook P12-2206 02H I	0.00	0.00	5,290.2	-7,812.7	672.9	1,866,342.17	1,296,820.23	36.123672	-107.413456
- plan hits target center									
- Point									
Lybrook P12-2206 02H I	0.00	0.00	5,290.2	-7,812.7	672.9	1,866,342.17	1,296,820.23	36.123672	-107.413456
- plan hits target center									
- Point									

5,519.4	5,312.2	ICP @ 55°	0.000	0.000
500.0	500.0	9 5/8"	0.000	0.000
1,430.0	1,418.0	Ojo Alamo Ss.	-1.10	180.91
1,531.9	1,515.0	Kirtland Shale	-1.10	180.91
1,730.3	1,702.0	Fruitland Coal	-1.10	180.91
1,952.0	1,911.0	Pictured Cliffs Ss.	-1.10	180.91
2,066.6	2,019.0	Lewis Shale	-1.10	180.91
2,834.8	2,743.0	Cliffhouse Ss.	-1.10	180.91
3,558.1	3,437.0	Menefee Fn.	-1.10	180.91
4,261.3	4,138.0	Point Lookout Ss.	-1.10	180.91
4,440.3	4,317.0	Mancos Shale	-1.10	180.91
5,032.7	4,909.0	Mancos Silt	-1.10	180.91
5,344.7	5,192.0	Gallup Fn.	-1.10	180.91

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
600.0	600.0	0.0	0.0	KOP @ 600'
1,565.1	1,546.9	30.7	158.1	EOB; INC=19.3°
3,055.0	2,953.1	124.4	641.5	Start Drop -2.00
4,020.0	3,900.0	155.1	799.6	EOD; INC=0°
4,914.0	4,794.0	155.1	799.6	Start DLS 9.00 TFO 180.91
5,926.2	5,430.5	-493.6	789.3	LP @ 5430' TVD; 91.1°
13,247.6	5,290.2	-7,812.7	672.9	TD at 13247.6

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.

2. After removal of vegetation, topsoil will be segregated and windrowed on the edge of the well pad in the construction zone. Topsoil will be defined as the top 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 11.4 feet on the south west corner (Corner #2) and the maximum fill will be approximately 8.7 feet on the north east corner (Corner #5).

4. As determined during the onsite on July 9, 2014, the following best management practices will be implemented:

   a. Water will be diverted around the pad and silt traps installed upon interim reclamation. See Sheet G-2 for details.

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 Final Modifications to the Standard SF-299 Application (NMNM 130037) for authorization to construct, operate, maintain and terminate a 2,201 foot (0.42 miles), up to 6-inch outside diameter, buried steel well connect pipeline that was submitted to the BLM concurrently with this Application for Permit to Drill.

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.

ENCANA OIL & GAS (USA) INC.

LYBROOK P12-2206 #02H
159' FSL & 1197' FEL
LOCATED IN THE SE/4 SE/4 OF SECTION 12
T22N, R06W, N.M.P.M.
SANDOVAL COUNTY, NEW MEXICO
1,953' +/- OF NEW ACCESS

DIRECTIONS

1) FROM THE INTERSECTION OF HWY 550 & US HWY 64 IN BLOOMFIELD, NEW MEXICO, TRAVEL SOUTH ON HWY 550 FOR 54.4 MILES TO THE TOWN OF COUNSELOR AND THE INTERSECTION WITH INDIAN SERVICE ROAD 474.

2) TURN RIGHT (SOUTH) ON INDIAN SERVICE ROAD 474 FOR 3.5 MILES TO AN OIL FIELD SERVICE ROAD ON THE LEFT.

3) TURN LEFT (SOUTHEASTERLY) ON THE OILFIELD SERVICE ROAD AND PROCEED 1.9 MILES TO THE PROPOSED ENCANA LYBROOK P12-2206 ACCESS ROAD ON THE RIGHT (SOUTHWEST).

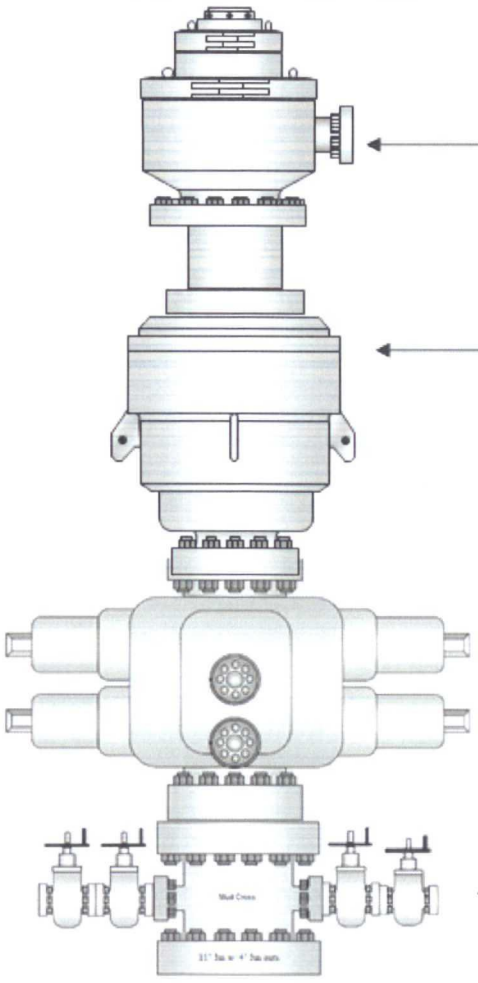
4) CONTINUE 1,953' ALONG STAKED ROAD TO STAKED ENCANA LYBROOK P12-2206 LOCATION.

5) WELL FLAG LOCATED AT: LATITUDE: 36.145132° N, LONGITUDE: 107.415734° W (NAD 83)

WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Lybrook P12-2206 02H



11" 3K Rotating Head

11" 3K Annular

3K Double Ram
Top: Pipe Ram
Bottom: Blind Ram
3" Outlets Below Ram

3K Mud Cross 3" gate valves