

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#1H

API# 30-043-21271, 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
 - Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
 - 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
 - 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.


NMOCD Approved by Signature

7-20-2015
Date

OIL CONS. DIV DIST. 3

Form 3160-3
(August 2007)

JUL 08 2015

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

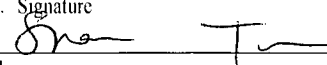
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM 117562 & NMNM 109390
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name N/A
2. Name of Operator Encana Oil & Gas (USA) Inc.		7. If Unit or CA Agreement, Name and No. Pending
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202	3b. Phone No. (include area code) 720-876-5994	8. Lease Name and Well No. Lybrook P12-2206 01H
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 147' FSL and 1225' FEL Section 12, T22N, R6W SESE At proposed prod. zone 2310' FNL and 1730' FEL Section 24, T22N, R6W SUNE		9. API Well No. 30-043-21271
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		10. Field and Pool, or Exploratory Lybrook Gallup
15. Distance from proposed* POE is 330' from north line of location to nearest Sec. 13 property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of acres in lease NMNM 117562 - 2,240.0 NMNM 109390 - 800.0	11. Sec., T. R. M. or Blk. and Survey or Area SHL: Section 12, T22N, R6W NMPM BHL Sec 24, T22N, R6W
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Lybrook P12-2206 02H is +/- 30' NE of SHL	19. Proposed Depth 5,289' TVD/13,182' MD	12. County or Parish Sandoval
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7,067' GL; 7,083' KB	22. Approximate date work will start* 11/05/2015	13. State NM
17. Spacing Unit dedicated to this well 240.0 acres - W2E2 of Section 13 and W2NE4 of Section 24		
20. BLM/BIA Bond No. on file COB-000235		
23. Estimated duration 20 days		

24. Attachments

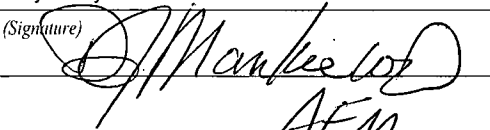
The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 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). | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature 	Name (Printed Typed) Shawn Turk	Date 3/25/15
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Title

Regulatory Analyst

Approved by (Signature) 	Name (Printed Typed) J. Manke	Date 7/1/15
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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.

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)

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

**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**

*(Instructions on page 2)

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

NMOCDFV

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

JUL 08 2015

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 30-043-21271	² Pool Code 42289	³ Pool Name LYBROOK GALLUP
⁴ Property Code 315028	⁵ Property Name LYBROOK P12-2206	⁶ Well Number 01H
⁷ OGRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.	⁹ Elevation 7067.2'

¹⁰ Surface Location

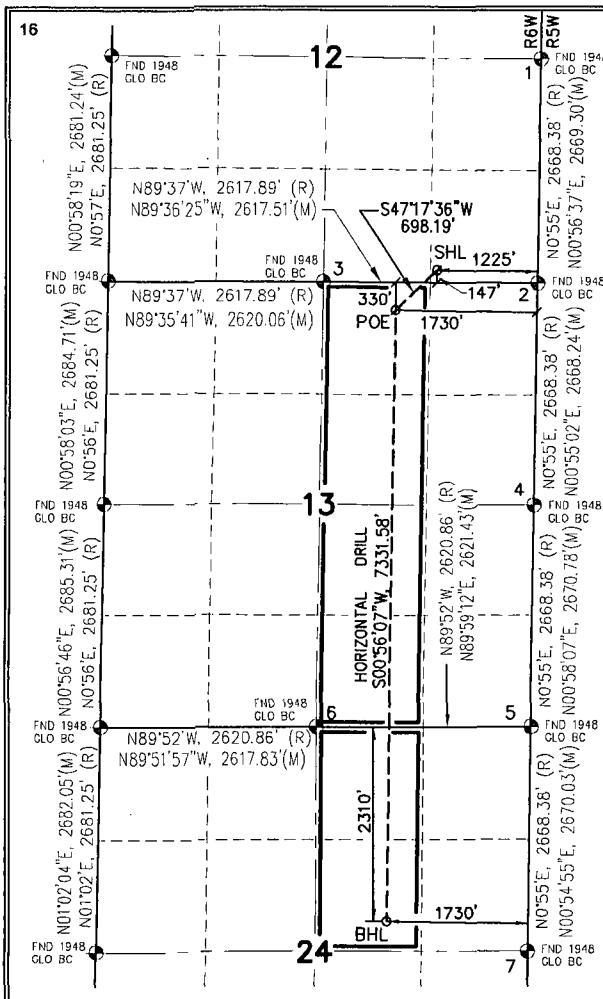
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West Line	County
P	12	22N	6W		147	SOUTH	1225	EAST	SANDOVAL

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
G	24	22N	6W		2310	NORTH	1730	EAST	SANDOVAL

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



LYBROOK P12-2206 01H WELL

SHL (WELL FLAG)
LAT. 36.145101°N (NAD83)
LONG. 107.415828°W (NAD83)
LAT. 36.145086°N (NAD27)
LONG. 107.415225°W (NAD27)

POE (POINT OF ENTRY)
LAT. 36.143800°N (NAD83)
LONG. 107.417564°W (NAD83)
LAT. 36.143785°N (NAD27)
LONG. 107.416961°W (NAD27)

BHL (BOTTOM HOLE LOCATION)
LAT. 36.123670°N (NAD83)
LONG. 107.417958°W (NAD83)
LAT. 36.123654°N (NAD27)
LONG. 107.417355°W (NAD27)

SECTION CORNERS

- LAT. 36.152004°N (NAD83)
LONG. 107.411544°W (NAD83)
LAT. 36.151989°N (NAD27)
LONG. 107.410941°W (NAD27)
- LAT. 36.144675°N (NAD83)
LONG. 107.411689°W (NAD83)
LAT. 36.144660°N (NAD27)
LONG. 107.411086°W (NAD27)
- LAT. 36.144721°N (NAD83)
LONG. 107.420551°W (NAD83)
LAT. 36.144707°N (NAD27)
LONG. 107.419948°W (NAD27)
- LAT. 36.137349°N (NAD83)
LONG. 107.411831°W (NAD83)
LAT. 36.137334°N (NAD27)
LONG. 107.411228°W (NAD27)
- LAT. 36.130016°N (NAD83)
LONG. 107.411980°W (NAD83)
LAT. 36.130001°N (NAD27)
LONG. 107.411377°W (NAD27)
- LAT. 36.130011°N (NAD83)
LONG. 107.420854°W (NAD83)
LAT. 36.129996°N (NAD27)
LONG. 107.420250°W (NAD27)
- 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.

Shawn Turk 3/25/15
Signature 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

Lybrook P12-2206 01H
 SHL: 147' FSL, 1225' FEL Sec 12, T22N, R6W
 BHL: 2310' FNL, 1730' 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	4,908
Gallup Fn.	5,191
Base Gallup	5,490

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	4,908
Oil/Gas	Gallup Fn.	5,191

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

Lybrook P12-2206 01H

SHL: 147' FSL, 1225' FEL Sec 12, T22N, R6W

BHL: 2310' FNL, 1730' 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'-5450'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5350'-13182'	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 01H**SHL: 147' FSL, 1225' FEL Sec 12, T22N, R6W****BHL: 2310' FNL, 1730' 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'-5450'	100% open hole excess Stage 1 Lead: 507 sks Stage 1 Tail: 387 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	5350'- 13182'	50% OH excess Stage 1 Blend Total: 436sks	Blend: Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwoc 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	5289'/13182'	Gallup

Lybrook P12-2206 01H

SHL: 147' FSL, 1225' FEL Sec 12, T22N, R6W

BHL: 2310' FNL, 1730' 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'-5315'/5450'	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"	5315'/5450'- 5289'/13182'	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 +/- 2545 psi based on a 9.0 ppg at 5439' TVD of the horizontal lateral target. 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.

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.

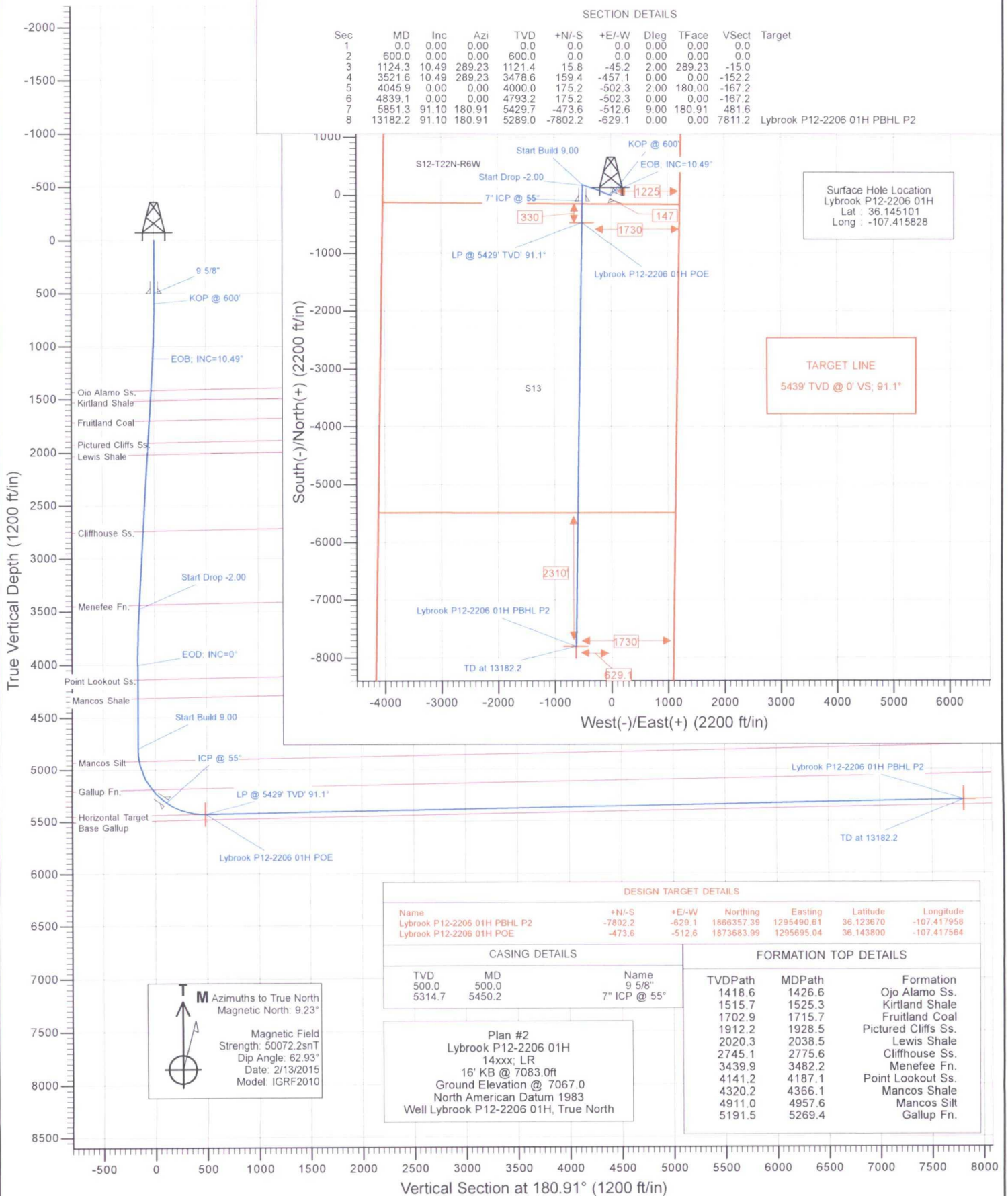
LOC: 147' FSL, 1225' FEL Sec 12, T22N, R6W County: Sandoval WELL: Lybrook P12-2206 01H			Encana Oil & Gas (USA) Inc.				ENG: Michael Sanch 3-25-15 RIG: Unassigned GLE: 7067 RKBE: 7083		
WELL SUMMARY									
MWD	OPEN HOLE	FORM	DEPTH			HOLE	CASING	MW	DEVIATION
LWD	LOGGING		TVD	MD					
			60	60'		26	16" 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°
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5	No OH logs	Nacimiento Fn. 9 5/8" Csg	surface 500	500.00		8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 895sks Stage 1 Lead: 507 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. Stage 1 Tail: 387 sks Type III Cement + 1% CaCl2 + 0.25#/sk Cello Flake + 0.2% FL-52A. Mixed at 14.6 ppg. Yield 1.38 cuft/sk.	Fresh Wtr 8.3-10	Vertical <1°
		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						
Surveys every 30' through the curve	Mud logger onsite	KOP	500	500					
		Mancos Silt	4,908						
		Gallup Fn.	5,191						
		7" Csg	5,315	5,450'					
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD	5,439	13,182		6 1/8	100' overlap at liner top		Horz Inc/TVD 91.1deg/5439ft
			5,289				7732' Drilled Lateral		TD = 13182.2 MD
		Base Gallup	5,490						
MWD Gamma Directional							4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 436sks Stage 1 Blend: 436 sks Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwoc 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	

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 5450' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at ~55 deg, drill lateral to 13182' run 4 1/2 inch cemented liner



Project: Sandoval County, NM
 Site: S12-T22N-R6W
 Well: Lybrook P12-2206 01H
 Wellbore: HZ
 Design: Plan #2



Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: S12-T22N-R6W
Well: Lybrook P12-2206 01H
Wellbore: HZ
Design: Plan #2

Local Co-ordinate Reference: Well Lybrook P12-2206 01H
TVD Reference: 16' KB @ 7083.0ft
MD Reference: 16' KB @ 7083.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature

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 01H			
Well Position	+N/-S	0.0 ft	Northing:	1,874,151.44 ft
	+E/-W	0.0 ft	Easting:	1,296,213.30 ft
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft
			Ground Level:	7,067.0 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/13/2015	9.23	62.93	50,072

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+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	
1,124.3	10.49	289.23	1,121.4	15.8	-45.2	2.00	2.00	0.00	289.23	
3,521.6	10.49	289.23	3,478.6	159.4	-457.1	0.00	0.00	0.00	0.00	
4,045.9	0.00	0.00	4,000.0	175.2	-502.3	2.00	-2.00	0.00	180.00	
4,839.1	0.00	0.00	4,793.2	175.2	-502.3	0.00	0.00	0.00	0.00	
5,851.3	91.10	180.91	5,429.7	-473.6	-512.6	9.00	9.00	0.00	180.91	
13,182.2	91.10	180.91	5,289.0	-7,802.2	-629.1	0.00	0.00	0.00	0.00	Lybrook P12-2206 01

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: S12-T22N-R6W
 Well: Lybrook P12-2206 01H
 Wellbore: HZ
 Design: Plan #2

Local Co-ordinate Reference: Well Lybrook P12-2206 01H
 TVD Reference: 16' KB @ 7083.0ft
 MD Reference: 16' KB @ 7083.0ft
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
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	289.23	700.0	0.6	-1.6	-0.5	2.00	2.00	
800.0	4.00	289.23	799.8	2.3	-6.6	-2.2	2.00	2.00	
900.0	6.00	289.23	899.5	5.2	-14.8	-4.9	2.00	2.00	
1,000.0	8.00	289.23	998.7	9.2	-26.3	-8.8	2.00	2.00	
1,100.0	10.00	289.23	1,097.5	14.3	-41.1	-13.7	2.00	2.00	
1,124.3	10.49	289.23	1,121.4	15.8	-45.2	-15.0	2.00	2.00	EOB; INC=10.49°
1,200.0	10.49	289.23	1,195.8	20.3	-58.2	-19.4	0.00	0.00	
1,300.0	10.49	289.23	1,294.1	26.3	-75.4	-25.1	0.00	0.00	
1,400.0	10.49	289.23	1,392.5	32.3	-92.6	-30.8	0.00	0.00	
1,426.6	10.49	289.23	1,418.6	33.9	-97.1	-32.3	0.00	0.00	Ojo Alamo Ss.
1,500.0	10.49	289.23	1,490.8	38.3	-109.7	-36.5	0.00	0.00	
1,525.3	10.49	289.23	1,515.7	39.8	-114.1	-38.0	0.00	0.00	Kirtland Shale
1,600.0	10.49	289.23	1,589.1	44.3	-126.9	-42.2	0.00	0.00	
1,700.0	10.49	289.23	1,687.5	50.3	-144.1	-48.0	0.00	0.00	
1,715.7	10.49	289.23	1,702.9	51.2	-146.8	-48.9	0.00	0.00	Fruitland Coal
1,800.0	10.49	289.23	1,785.8	56.3	-161.3	-53.7	0.00	0.00	
1,900.0	10.49	289.23	1,884.1	62.3	-178.5	-59.4	0.00	0.00	
1,928.5	10.49	289.23	1,912.2	64.0	-183.4	-61.0	0.00	0.00	Pictured Cliffs Ss.
2,000.0	10.49	289.23	1,982.5	68.2	-195.7	-65.1	0.00	0.00	
2,038.5	10.49	289.23	2,020.3	70.6	-202.3	-67.3	0.00	0.00	Lewis Shale
2,100.0	10.49	289.23	2,080.8	74.2	-212.8	-70.8	0.00	0.00	
2,200.0	10.49	289.23	2,179.1	80.2	-230.0	-76.6	0.00	0.00	
2,300.0	10.49	289.23	2,277.4	86.2	-247.2	-82.3	0.00	0.00	
2,400.0	10.49	289.23	2,375.8	92.2	-264.4	-88.0	0.00	0.00	
2,500.0	10.49	289.23	2,474.1	98.2	-281.6	-93.7	0.00	0.00	
2,600.0	10.49	289.23	2,572.4	104.2	-298.8	-99.4	0.00	0.00	
2,700.0	10.49	289.23	2,670.8	110.2	-315.9	-105.2	0.00	0.00	
2,775.6	10.49	289.23	2,745.1	114.7	-328.9	-109.5	0.00	0.00	Cliffhouse Ss.
2,800.0	10.49	289.23	2,769.1	116.2	-333.1	-110.9	0.00	0.00	
2,900.0	10.49	289.23	2,867.4	122.2	-350.3	-116.6	0.00	0.00	
3,000.0	10.49	289.23	2,965.8	128.2	-367.5	-122.3	0.00	0.00	
3,100.0	10.49	289.23	3,064.1	134.2	-384.7	-128.0	0.00	0.00	
3,200.0	10.49	289.23	3,162.4	140.2	-401.9	-133.8	0.00	0.00	
3,300.0	10.49	289.23	3,260.7	146.2	-419.1	-139.5	0.00	0.00	
3,400.0	10.49	289.23	3,359.1	152.2	-436.2	-145.2	0.00	0.00	
3,482.2	10.49	289.23	3,439.9	157.1	-450.4	-149.9	0.00	0.00	Menefee Fn.
3,500.0	10.49	289.23	3,457.4	158.2	-453.4	-150.9	0.00	0.00	
3,521.6	10.49	289.23	3,478.6	159.4	-457.1	-152.2	0.00	0.00	Start Drop -2.00
3,600.0	8.92	289.23	3,555.9	163.8	-469.6	-156.3	2.00	-2.00	
3,700.0	6.92	289.23	3,655.0	168.3	-482.6	-160.6	2.00	-2.00	
3,800.0	4.92	289.23	3,754.4	171.7	-492.3	-163.9	2.00	-2.00	
3,900.0	2.92	289.23	3,854.2	174.0	-498.8	-166.0	2.00	-2.00	
4,000.0	0.92	289.23	3,954.1	175.1	-502.0	-167.1	2.00	-2.00	
4,045.9	0.00	0.00	4,000.0	175.2	-502.3	-167.2	2.00	-2.00	EOD; INC=0°
4,100.0	0.00	0.00	4,054.1	175.2	-502.3	-167.2	0.00	0.00	

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: S12-T22N-R6W
 Well: Lybrook P12-2206 01H
 Wellbore: HZ
 Design: Plan #2

Local Co-ordinate Reference: Well Lybrook P12-2206 01H
 TVD Reference: 16' KB @ 7083.0ft
 MD Reference: 16' KB @ 7083.0ft
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,187.1	0.00	0.00	4,141.2	175.2	-502.3	-167.2	0.00	0.00	Point Lookout Ss.
4,200.0	0.00	0.00	4,154.1	175.2	-502.3	-167.2	0.00	0.00	
4,300.0	0.00	0.00	4,254.1	175.2	-502.3	-167.2	0.00	0.00	
4,366.1	0.00	0.00	4,320.2	175.2	-502.3	-167.2	0.00	0.00	Mancos Shale
4,400.0	0.00	0.00	4,354.1	175.2	-502.3	-167.2	0.00	0.00	
4,500.0	0.00	0.00	4,454.1	175.2	-502.3	-167.2	0.00	0.00	
4,600.0	0.00	0.00	4,554.1	175.2	-502.3	-167.2	0.00	0.00	
4,700.0	0.00	0.00	4,654.1	175.2	-502.3	-167.2	0.00	0.00	
4,800.0	0.00	0.00	4,754.1	175.2	-502.3	-167.2	0.00	0.00	
4,839.1	0.00	0.00	4,793.2	175.2	-502.3	-167.2	0.00	0.00	Start Build 9.00
4,900.0	5.48	180.91	4,854.0	172.3	-502.3	-164.3	9.00	9.00	
4,957.6	10.66	180.91	4,911.0	164.2	-502.5	-156.2	9.00	9.00	Mancos Silt
5,000.0	14.48	180.91	4,952.4	155.0	-502.6	-147.0	9.00	9.00	
5,100.0	23.48	180.91	5,046.9	122.5	-503.1	-114.5	9.00	9.00	
5,200.0	32.48	180.91	5,135.1	75.6	-503.9	-67.6	9.00	9.00	
5,269.4	38.73	180.91	5,191.5	35.2	-504.5	-27.2	9.00	9.00	Gallup Fn.
5,300.0	41.48	180.91	5,214.9	15.5	-504.8	-7.5	9.00	9.00	
5,400.0	50.48	180.91	5,284.3	-56.3	-506.0	64.3	9.00	9.00	
5,450.2	54.98	180.91	5,314.7	-96.2	-506.6	104.3	8.97	8.97	ICP @ 55°
5,500.0	59.48	180.91	5,341.7	-138.1	-507.3	146.1	9.03	9.03	
5,600.0	68.48	180.91	5,385.5	-227.9	-508.7	235.9	9.00	9.00	
5,700.0	77.48	180.91	5,414.7	-323.4	-510.2	331.4	9.00	9.00	
5,800.0	86.48	180.91	5,428.7	-422.3	-511.8	430.3	9.00	9.00	
5,851.3	91.10	180.91	5,429.7	-473.6	-512.6	481.6	9.00	9.00	LP @ 5429' TVD' 91.1°
5,851.4	91.10	180.91	5,429.7	-473.6	-512.6	481.7	0.00	0.00	Lybrook P12-2206 01H POE
5,900.0	91.10	180.91	5,428.8	-522.2	-513.4	530.3	0.00	0.00	
6,000.0	91.10	180.91	5,426.9	-622.2	-515.0	630.3	0.00	0.00	
6,100.0	91.10	180.91	5,425.0	-722.2	-516.6	730.3	0.00	0.00	
6,200.0	91.10	180.91	5,423.0	-822.1	-518.2	830.3	0.00	0.00	
6,300.0	91.10	180.91	5,421.1	-922.1	-519.7	930.2	0.00	0.00	
6,400.0	91.10	180.91	5,419.2	-1,022.1	-521.3	1,030.2	0.00	0.00	
6,500.0	91.10	180.91	5,417.3	-1,122.0	-522.9	1,130.2	0.00	0.00	
6,600.0	91.10	180.91	5,415.4	-1,222.0	-524.5	1,230.2	0.00	0.00	
6,700.0	91.10	180.91	5,413.4	-1,322.0	-526.1	1,330.2	0.00	0.00	
6,800.0	91.10	180.91	5,411.5	-1,421.9	-527.7	1,430.1	0.00	0.00	
6,900.0	91.10	180.91	5,409.6	-1,521.9	-529.3	1,530.1	0.00	0.00	
7,000.0	91.10	180.91	5,407.7	-1,621.9	-530.9	1,630.1	0.00	0.00	
7,100.0	91.10	180.91	5,405.8	-1,721.9	-532.5	1,730.1	0.00	0.00	
7,200.0	91.10	180.91	5,403.8	-1,821.8	-534.0	1,830.1	0.00	0.00	
7,300.0	91.10	180.91	5,401.9	-1,921.8	-535.6	1,930.1	0.00	0.00	
7,400.0	91.10	180.91	5,400.0	-2,021.8	-537.2	2,030.0	0.00	0.00	
7,500.0	91.10	180.91	5,398.1	-2,121.7	-538.8	2,130.0	0.00	0.00	
7,600.0	91.10	180.91	5,396.2	-2,221.7	-540.4	2,230.0	0.00	0.00	
7,700.0	91.10	180.91	5,394.2	-2,321.7	-542.0	2,330.0	0.00	0.00	
7,800.0	91.10	180.91	5,392.3	-2,421.6	-543.6	2,430.0	0.00	0.00	
7,900.0	91.10	180.91	5,390.4	-2,521.6	-545.2	2,529.9	0.00	0.00	
8,000.0	91.10	180.91	5,388.5	-2,621.6	-546.8	2,629.9	0.00	0.00	
8,100.0	91.10	180.91	5,386.6	-2,721.5	-548.3	2,729.9	0.00	0.00	
8,200.0	91.10	180.91	5,384.6	-2,821.5	-549.9	2,829.9	0.00	0.00	
8,300.0	91.10	180.91	5,382.7	-2,921.5	-551.5	2,929.9	0.00	0.00	
8,400.0	91.10	180.91	5,380.8	-3,021.5	-553.1	3,029.9	0.00	0.00	
8,500.0	91.10	180.91	5,378.9	-3,121.4	-554.7	3,129.8	0.00	0.00	

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: S12-T22N-R6W
Well: Lybrook P12-2206 01H
Wellbore: HZ
Design: Plan #2

Local Co-ordinate Reference: Well Lybrook P12-2206 01H
TVD Reference: 16' KB @ 7083.0ft
MD Reference: 16' KB @ 7083.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,600.0	91.10	180.91	5,377.0	-3,221.4	-556.3	3,229.8	0.00	0.00	
8,700.0	91.10	180.91	5,375.0	-3,321.4	-557.9	3,329.8	0.00	0.00	
8,800.0	91.10	180.91	5,373.1	-3,421.3	-559.5	3,429.8	0.00	0.00	
8,900.0	91.10	180.91	5,371.2	-3,521.3	-561.1	3,529.8	0.00	0.00	
9,000.0	91.10	180.91	5,369.3	-3,621.3	-562.6	3,629.7	0.00	0.00	
9,100.0	91.10	180.91	5,367.4	-3,721.2	-564.2	3,729.7	0.00	0.00	
9,200.0	91.10	180.91	5,365.4	-3,821.2	-565.8	3,829.7	0.00	0.00	
9,300.0	91.10	180.91	5,363.5	-3,921.2	-567.4	3,929.7	0.00	0.00	
9,400.0	91.10	180.91	5,361.6	-4,021.1	-569.0	4,029.7	0.00	0.00	
9,500.0	91.10	180.91	5,359.7	-4,121.1	-570.6	4,129.7	0.00	0.00	
9,600.0	91.10	180.91	5,357.8	-4,221.1	-572.2	4,229.6	0.00	0.00	
9,700.0	91.10	180.91	5,355.8	-4,321.1	-573.8	4,329.6	0.00	0.00	
9,800.0	91.10	180.91	5,353.9	-4,421.0	-575.3	4,429.6	0.00	0.00	
9,900.0	91.10	180.91	5,352.0	-4,521.0	-576.9	4,529.6	0.00	0.00	
10,000.0	91.10	180.91	5,350.1	-4,621.0	-578.5	4,629.6	0.00	0.00	
10,100.0	91.10	180.91	5,348.2	-4,720.9	-580.1	4,729.5	0.00	0.00	
10,200.0	91.10	180.91	5,346.3	-4,820.9	-581.7	4,829.5	0.00	0.00	
10,300.0	91.10	180.91	5,344.3	-4,920.9	-583.3	4,929.5	0.00	0.00	
10,400.0	91.10	180.91	5,342.4	-5,020.8	-584.9	5,029.5	0.00	0.00	
10,500.0	91.10	180.91	5,340.5	-5,120.8	-586.5	5,129.5	0.00	0.00	
10,600.0	91.10	180.91	5,338.6	-5,220.8	-588.1	5,229.5	0.00	0.00	
10,700.0	91.10	180.91	5,336.7	-5,320.7	-589.6	5,329.4	0.00	0.00	
10,800.0	91.10	180.91	5,334.7	-5,420.7	-591.2	5,429.4	0.00	0.00	
10,900.0	91.10	180.91	5,332.8	-5,520.7	-592.8	5,529.4	0.00	0.00	
11,000.0	91.10	180.91	5,330.9	-5,620.6	-594.4	5,629.4	0.00	0.00	
11,100.0	91.10	180.91	5,329.0	-5,720.6	-596.0	5,729.4	0.00	0.00	
11,200.0	91.10	180.91	5,327.1	-5,820.6	-597.6	5,829.3	0.00	0.00	
11,300.0	91.10	180.91	5,325.1	-5,920.6	-599.2	5,929.3	0.00	0.00	
11,400.0	91.10	180.91	5,323.2	-6,020.5	-600.8	6,029.3	0.00	0.00	
11,500.0	91.10	180.91	5,321.3	-6,120.5	-602.4	6,129.3	0.00	0.00	
11,600.0	91.10	180.91	5,319.4	-6,220.5	-603.9	6,229.3	0.00	0.00	
11,700.0	91.10	180.91	5,317.5	-6,320.4	-605.5	6,329.3	0.00	0.00	
11,800.0	91.10	180.91	5,315.5	-6,420.4	-607.1	6,429.2	0.00	0.00	
11,900.0	91.10	180.91	5,313.6	-6,520.4	-608.7	6,529.2	0.00	0.00	
12,000.0	91.10	180.91	5,311.7	-6,620.3	-610.3	6,629.2	0.00	0.00	
12,100.0	91.10	180.91	5,309.8	-6,720.3	-611.9	6,729.2	0.00	0.00	
12,200.0	91.10	180.91	5,307.9	-6,820.3	-613.5	6,829.2	0.00	0.00	
12,300.0	91.10	180.91	5,305.9	-6,920.2	-615.1	6,929.1	0.00	0.00	
12,400.0	91.10	180.91	5,304.0	-7,020.2	-616.7	7,029.1	0.00	0.00	
12,500.0	91.10	180.91	5,302.1	-7,120.2	-618.2	7,129.1	0.00	0.00	
12,600.0	91.10	180.91	5,300.2	-7,220.2	-619.8	7,229.1	0.00	0.00	
12,700.0	91.10	180.91	5,298.3	-7,320.1	-621.4	7,329.1	0.00	0.00	
12,800.0	91.10	180.91	5,296.3	-7,420.1	-623.0	7,429.1	0.00	0.00	
12,900.0	91.10	180.91	5,294.4	-7,520.1	-624.6	7,529.0	0.00	0.00	
13,000.0	91.10	180.91	5,292.5	-7,620.0	-626.2	7,629.0	0.00	0.00	
13,100.0	91.10	180.91	5,290.6	-7,720.0	-627.8	7,729.0	0.00	0.00	
13,182.2	91.10	180.91	5,289.0	-7,802.2	-629.1	7,811.2	0.00	0.00	TD at 13182.2 - Lybrook P12-2206 01H PBHL F

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: S12-T22N-R6W
Well: Lybrook P12-2206 01H
Wellbore: HZ
Design: Plan #2

Local Co-ordinate Reference: Well Lybrook P12-2206 01H
TVD Reference: 16' KB @ 7083.0ft
MD Reference: 16' KB @ 7083.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature

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 01H f - plan hits target center - Point	0.00	0.00	5,429.7	-473.6	-512.6	1,873,683.99	1,295,695.04	36.143800	-107.417564
Lybrook P12-2206 01H f - plan hits target center - Point	0.00	0.00	5,289.0	-7,802.2	-629.1	1,866,357.39	1,295,490.61	36.123670	-107.417958
Lybrook P12-2206 01H f - plan misses target center by 6.0ft at 13182.2ft MD (5289.0 TVD, -7802.2 N, -629.1 E) - Point	0.00	0.00	5,283.0	-7,802.2	-629.1	1,866,357.39	1,295,490.61	36.123670	-107.417958

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
5,450.2	5,314.7	ICP @ 55°	0.000	0.000
500.0	500.0	9 5/8"	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,426.6	1,418.0	Ojo Alamo Ss.		-1.10	180.91
1,525.3	1,515.0	Kirtland Shale		-1.10	180.91
1,715.7	1,702.0	Fruitland Coal		-1.10	180.91
1,928.5	1,911.0	Pictured Cliffs Ss.		-1.10	180.91
2,038.5	2,019.0	Lewis Shale		-1.10	180.91
2,775.6	2,743.0	Cliffhouse Ss.		-1.10	180.91
3,482.2	3,437.0	Menefee Fn.		-1.10	180.91
4,187.1	4,138.0	Point Lookout Ss.		-1.10	180.91
4,366.1	4,317.0	Mancos Shale		-1.10	180.91
4,957.6	4,908.0	Mancos Silt		-1.10	180.91
5,269.4	5,191.0	Gallup Fn.		-1.10	180.91

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
600.0	600.0	0.0	0.0	KOP @ 600'
1,124.3	1,121.4	15.8	-45.2	EOB; INC=10.49°
3,521.6	3,478.6	159.4	-457.1	Start Drop -2.00
4,045.9	4,000.0	175.2	-502.3	EOD; INC=0°
4,839.1	4,793.2	175.2	-502.3	Start Build 9.00
5,851.3	5,429.7	-473.6	-512.6	LP @ 5429' TVD' 91.1°
13,182.2	5,289.0	-7,802.2	-629.1	TD at 13182.2

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

S12-T22N-R6W

Lybrook P12-2206 01H

HZ

Plan #2

Anticollision Report

25 March, 2015

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook P12-2206 01H
Project:	Sandoval County, NM	TVD Reference:	16' KB @ 7083.0ft
Reference Site:	S12-T22N-R6W	MD Reference:	16' KB @ 7083.0ft
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook P12-2206 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	Stations
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,000.0ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	Systematic Ellipse
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program	Date	3/25/2015
From (ft)	To (ft)	Survey (Wellbore)
0.0	13,182.2	Plan #2 (HZ)
	Tool Name	Description
	Geolink MWD	Geolink MWD

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S12-T22N-R6W						
Lybrook P12-2206 02H - Hz - Plan #3	600.0	600.0	30.0	27.9	14.695	CC, ES
Lybrook P12-2206 02H - Hz - Plan #3	700.0	698.9	33.0	30.6	13.830	SF

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Reference Site: S12-T22N-R6W
Site Error: 0.0ft
Reference Well: Lybrook P12-2206 01H
Well Error: 0.0ft
Reference Wellbore: HZ
Reference Design: Plan #2

Local Co-ordinate Reference: Well Lybrook P12-2206 01H
TVD Reference: 16' KB @ 7083.0ft
MD Reference: 16' KB @ 7083.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S12-T22N-R6W - Lybrook P12-2206 02H - Hz - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	67.90	11.3	27.8	30.0					
100.0	100.0	100.0	100.0	0.1	0.1	67.90	11.3	27.8	30.0	29.7	0.29	102.166		
200.0	200.0	200.0	200.0	0.3	0.3	67.90	11.3	27.8	30.0	29.3	0.64	46.641		
300.0	300.0	300.0	300.0	0.5	0.5	67.90	11.3	27.8	30.0	29.0	0.99	30.218		
400.0	400.0	400.0	400.0	0.7	0.7	67.90	11.3	27.8	30.0	28.6	1.34	22.349		
500.0	500.0	500.0	500.0	0.8	0.8	67.90	11.3	27.8	30.0	28.3	1.69	17.731		
600.0	600.0	600.0	600.0	1.0	1.0	67.90	11.3	27.8	30.0	27.9	2.04	14.695 CC, ES		
700.0	700.0	698.9	698.9	1.2	1.2	141.19	11.6	29.4	33.0	30.6	2.39	13.830 SF		
800.0	799.8	797.1	796.9	1.4	1.4	146.50	12.6	34.4	42.4	39.6	2.73	15.505		
900.0	899.5	894.0	893.5	1.6	1.6	151.46	14.1	42.6	58.4	55.3	3.08	18.975		
1,000.0	998.7	989.0	987.8	1.8	1.8	155.02	16.3	53.6	81.0	77.6	3.42	23.709		
1,100.0	1,097.5	1,081.5	1,079.2	2.1	2.1	157.38	19.0	67.4	110.1	106.3	3.75	29.322		
1,124.3	1,121.4	1,103.6	1,101.0	2.2	2.1	157.81	19.7	71.1	118.1	114.3	3.84	30.790		
1,200.0	1,195.8	1,171.4	1,167.6	2.4	2.3	158.98	22.1	83.5	144.5	140.4	4.10	35.253		
1,300.0	1,294.1	1,259.2	1,253.4	2.7	2.7	159.84	25.6	101.9	181.9	177.4	4.45	40.912		
1,400.0	1,392.5	1,344.9	1,336.5	3.1	3.0	160.26	29.6	122.3	222.0	217.2	4.79	46.326		
1,500.0	1,490.8	1,428.3	1,416.8	3.4	3.4	160.43	33.9	144.5	264.8	259.7	5.14	51.525		
1,600.0	1,589.1	1,509.5	1,494.3	3.7	3.9	160.46	38.5	168.3	310.1	304.6	5.49	56.537		
1,700.0	1,687.5	1,591.2	1,571.6	4.1	4.3	160.40	43.6	194.3	357.8	351.9	5.84	61.313		
1,800.0	1,785.8	1,678.8	1,654.2	4.4	4.8	160.33	49.1	222.7	406.0	399.8	6.20	65.511		
1,900.0	1,884.1	1,766.4	1,736.9	4.8	5.3	160.28	54.6	251.2	454.2	447.6	6.56	69.232		
2,000.0	1,982.5	1,854.0	1,819.6	5.2	5.9	160.24	60.1	279.6	502.4	495.5	6.93	72.550		
2,100.0	2,080.8	1,941.6	1,902.3	5.5	6.4	160.20	65.6	308.0	550.7	543.4	7.29	75.526		
2,200.0	2,179.1	2,029.2	1,985.0	5.9	6.9	160.17	71.1	336.4	598.9	591.2	7.66	78.209		
2,300.0	2,277.4	2,116.8	2,067.6	6.2	7.5	160.14	76.7	364.9	647.1	639.1	8.02	80.639		
2,400.0	2,375.8	2,204.4	2,150.3	6.6	8.0	160.12	82.2	393.3	695.3	686.9	8.39	82.849		
2,500.0	2,474.1	2,292.0	2,233.0	6.9	8.6	160.10	87.7	421.7	743.5	734.8	8.76	84.869		
2,600.0	2,572.4	2,379.6	2,315.7	7.3	9.1	160.09	93.2	450.1	791.8	782.6	9.13	86.720		
2,700.0	2,670.8	2,467.2	2,398.4	7.7	9.6	160.07	98.7	478.6	840.0	830.5	9.50	88.423		
2,800.0	2,769.1	2,554.8	2,481.1	8.0	10.2	160.06	104.2	507.0	888.2	878.3	9.87	89.995		
2,900.0	2,867.4	2,642.4	2,563.7	8.4	10.7	160.05	109.7	535.4	936.4	926.2	10.24	91.451		
3,000.0	2,965.8	2,730.0	2,646.4	8.8	11.3	160.04	115.3	563.8	984.7	974.0	10.61	92.802		

Anticollision Report

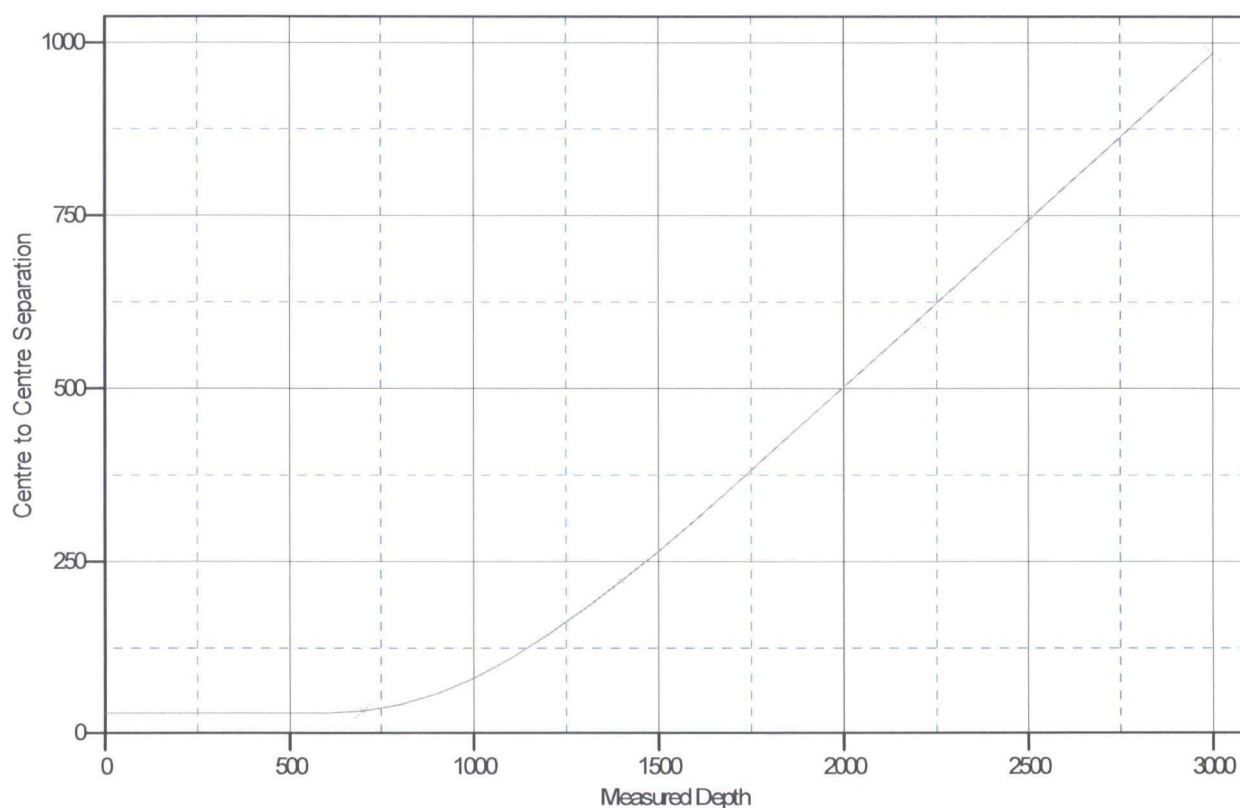
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Reference Site: S12-T22N-R6W
Site Error: 0.0ft
Reference Well: Lybrook P12-2206 01H
Well Error: 0.0ft
Reference Wellbore: HZ
Reference Design: Plan #2

Local Co-ordinate Reference: Well Lybrook P12-2206 01H
TVD Reference: 16' KB @ 7083.0ft
MD Reference: 16' KB @ 7083.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Depths are relative to 16' KB @ 7083.0ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -106.250000 °

Coordinates are relative to: Lybrook P12-2206 01H
 Coordinate System is US State Plane 1983, New Mexico Central Zone
 Grid Convergence at Surface is: -0.69°

Ladder Plot



LEGEND

✕ Lybrook P12-2206 02H, HZ, Plan #3 V0

Lybrook P12-2206 01H

**SHL: SESE Section 12, T22N, R6W
147' FSL and 1225' FEL**

**BHL: SWNE Section 24, T22N, R6W
2310' FNL and 1730' FEL**

Sandoval County, New Mexico

Lease Number: NMNM 117562 & NMNM 109390

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, 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 #01H
147' FSL & 1225' 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: 36.145101° N, LONGITUDE: 107.415828° W (NAD 83)

WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Lybrook P12-2206 01H

