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RCVD JUN 18 '12

OIL CONS. DIV.

DIST. 3

CONFIDENTIAL

MAY 22 2012

Form 3160-3
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

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

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NM NM 109386
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ 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.
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202	3b. Phone No (include area code) 720-876-3989	8. Lease Name and Well No. Lybrook A03-2206 01H
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 827' FNL and 432' FEL Section 3, T22N, R6W Lot 1 At proposed prod. zone 827' FNL and 330' FWL Section 3, 22N, R6W Lot 4		9. API Well No. 30-043-21130
14. Distance in miles and direction from nearest town or post office* +/- 56.5 miles S of Bloomfield, NM		10. Field and Pool, or Exploratory Wildcat Gallup
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) BHL is 827' from NORTH lease line	16. No. of acres in lease NM NM 109386: 1,286.3	11. Sec., T. R. M. or Blk. and Survey or Area Section 3, T22N, R6W NMPM
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Maddox F-A-1 is 2000' north of wellbore	19. Proposed Depth 5458' TVD/9715' MD	12. County or Parish Sandoval
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6989' GL, 7002' KB	20. BLM/BIA Bond No. on file COB-000235	13. State NM
22. Approximate date work will start* 12/01/2012		17. Spacing Unit dedicated to this well 163.1 acres (N2N2 Sec. 3)
23. Estimated duration 45 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:

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

25. Signature <i>Brenda R Linster</i>	Name (Printed/Typed) Brenda R. Linster	Date 05/21/12
Title Regulatory Advisor		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed) AFM	Date 6/15/12
Title FEO		

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)

A COMPLETE C-144 MUST BE SUBMITTED TO AND APPROVED BY THE NMOCD FOR: A PIT, CLOSED LOOP SYSTEM, BELOW GRADE TANK, OR PROPOSED ALTERNATIVE METHOD, PURSUANT TO NMOCD PART 19.15.17, PRIOR TO THE USE OR CONSTRUCTION OF THE ABOVE APPLICATIONS.

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

Hold C104

for Directional Survey
and "As Drilled" plat

Submit survey with new C102

JUN 28 2012 ea

NMOCD

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

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

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

Hold C104
for Directional Survey
and "As Drilled" plat

MAY 22 2012

Revised August 1, 2011

District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

**Office of Land Management
Farmington Field Office**

1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

*API Number 30-043-21130	*Pool Code 42289	*Pool Name LYBROOK GELUP (GALLUP)
*Property Code 39285	*Property Name LYBROOK A03-2206	*Well Number 01H
*OGRID No. 282327	*Operator Name ENCANA OIL & GAS (USA) INC.	*Elevation 6989'

U/L or lot no.	Section	Township	Range	Lot 1st	Feet from the	North/South line	Feet from the	East/West line	County
A	3	22N	6W	1	827	NORTH	432	EAST	SANDOVAL

UL or lot no.	Section	Township	Range	Lot 10n	Feet from the	North/South line	Feet from the	East/West line	County
D	3	22N	6W	4	827	NORTH	330	WEST	SANDOVAL

15 Order No.

N88°07'56"W 5239.61' (MEASURED)

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 lease, a leasehold, or a leasehold mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order herebefore entered by the Division.

Brenda R. Linster

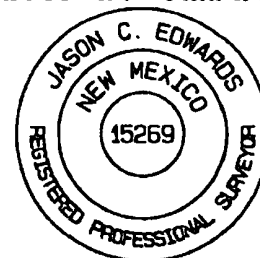
Printed Name
brenda.linster@encana.com

E-mail Address

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.

Survey Date: JANUARY 2, 2012

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

Directions from the Intersection of US Hwy 550 & US Hwy 64
in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Lybrook A03-2206 01H
827' FNL & 432' FEL, Section 3, T22N, R6W, N.M.P.M., Sandoval County, NM

Latitude: 36.17234°N Longitude: 107.44809°W Datum: NAD1983

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

Go right (South-easterly) for 2.8 miles to new access on right-hand side of existing roadway which continues for 405' to staked location.

Lybrook A03-2206 01H
SHL: NENE Section 3, T22N, R6W
827 FNL and 432 FEL
BHL: NWNW Section 3, T22N, R6W
827 FNL and 330 FWL
Sandoval County, New Mexico
Lease Number: NM NM 109386

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

1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

<u>Formation</u>	<u>Depth (TVD)</u>
Ojo Alamo Ss.	1420'
Kirtland	1549'
Fruitland Coal	1637'
Pictured Cliffs	1938'
Lewis	2062'
Cliffhouse	2735'
Menefee	3501'
Point Lookout	4169'
Mancos	4372'
Gallup	5209'

The referenced surface elevation is 6989', KB 7002'

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

<u>Substance</u>	<u>Formation</u>	<u>Depth (TVD)</u>
Gas	Fruitland Coal	1637'
Gas	Pictured Cliffs	1938'
Gas	Cliffhouse	2735'
Gas	Point Lookout	4169'
Oil/Gas	Mancos	4372'

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

3. PRESSURE CONTROL

- a) Pressure control equipment and configuration will be designed to meet 2M standards.
- b) Working pressure on rams and BOPE will be 3,000 psi
- c) Function test and visual inspection of the BOP will be conducted daily and noted in the IADC Daily Drilling Report.
- d) The Annular BOP will be pressure tested to a minimum of 50 percent of its rated working pressure.
- e) Blind and Pipe Rams/BOP will be tested against a test plug to either 70 percent of the casings internal yield pressure or 100 percent of rated working pressure.
- f) Pressure tests are required before drilling out from under all casing strings set and cemented in place.
- g) BOP controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.
- h) BOP testing procedures and testing frequency will conform to Onshore Order No. 2.
- i) BOP remote controls shall be located on the rig floor at a location readily accessible to the driller. Master controls shall be on the ground at the accumulator and shall have the capability to function all preventers.

Lybrook A03-2206 01H**SHL: NENE Section 3, T22N, R6W
827 FNL and 432 FEL****BHL: NWNW Section 3, T22N, R6W
827 FNL and 330 FWL****Sandoval County, New Mexico****Lease Number: NM NM 109386**

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

Proposed BOP and choke manifold arrangements are attached.

4. CASING & CEMENTING PROGRAM

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

- a) The proposed casing design is as follows:

Casing	Depth	Hole Size	Csg Size	Weight	Grade
Conductor	0-60'	26"	20"	94#	H40, STC New
Surface	0'-500'	17 1/2"	13 3/8"	48#	H40, STC New
Intermediate	0'-4700'	12 1/4"	9 5/8"	40#	J55, STC New
Production Liner	4500'-9715'	8 1/2"	5 1/2"	17#	B80*, LTC New

Casing String				Casing Strength Properties			Minimum Design Factors		
Size	Weight (lb/ft)	Grade	Connection	Collapse (psi)	Burst (psi)	Tensile (1000lb)	Collapse	Burst	Tension
13 3/8"	48	H40	STC	740	1730	322	1.125	1.1	1.5
9 5/8"	40	J55	STC	2570	3950	452	1.125	1.1	1.5
5 1/2"	17	B80	LTC	6290	7740	320	1.125	1.1	1.5

*B80 pipe specifications are attached

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

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

- b) The proposed cementing program is as follows:

Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

Lybrook A03-2206 01H**SHL: NENE Section 3, T22N, R6W
827 FNL and 432 FEL****BHL: NWNW Section 3, T22N, R6W
827 FNL and 330 FWL****Sandoval County, New Mexico****Lease Number: NM NM 109386**

Casing	Depth	Cement Volume (sacks)	Cement Type&Yield	Designed TOC	Centralizers
Conductor	60'	80sk	Redi-mix Construction Grade Cement	Surface	None
Surface	500'	291sk	Type III Cement + 1% CaCl + 0.25lb/sk Cello Flake + 0.2% FL, 14.6ppg, 1.38cuf/sk	Surface	1 per joint on bottom 3 joints
Intermediate	4700'	50% open hole excess Lead:923sk Tail: 182sk	Lead: PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuf/sk Tail: Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuf/sk	Surface	1 per joint for bottom 3 joints, 1 every 3 joints for remaining joints
Production Liner*	4500'- 9715'	None – External casing packers	N/A	N/A	N/A

*Production liner clarification: Utilizing external swell casing packer system for zonal isolation will not use cement in the production liner.

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

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

5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed horizontal well will have a kick off point of 4912'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5458/9715'	Gallup

Lybrook A03-2206 01H

**SHL: NENE Section 3, T22N, R6W
827 FNL and 432 FEL**

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827 FNL and 330 FWL**

Sandoval County, New Mexico

Lease Number: NM NM 109386

6. DRILLING FLUIDS PROGRAM

a) Vertical Portion

Hole Size (in)	TVD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
26"	0-60'	Fresh Water	8.3-9.2	38-100	4-28
17 1/2"	0-500'	Fresh Water	8.4-8.6	60-70	NC
12 1/4"	500-4700'	Fresh Water LSND	8.5-8.8	40-50	8-10
8 1/2"	4700-4912'	Fresh Water LSND	8.5-8.8	40-50	8-10

b) Kick off to Horizontal Lateral:

Hole Size (in)	TVD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
8 1/2"	4912' (KOP)- 9715'	Synthetic Oil Based Mud	8.6-9.0	15-25	<15

- c) There will be sufficient mud on location to control a blowout should one occur. Mud flow and volume will be monitored both visually and with electronic pit volume totalizers. Mud tests shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.
- d) A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals, including fresh water and oil-based operations. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water. Waste will be disposed of properly at an EPA-approved hazardous waste facility. Fresh water cuttings will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystems, Inc. The location will be lined in accordance with the Surface Use Plan of Operations.

7. TESTING, CORING and LOGGING

- a) Drill Stem Testing – None anticipated
- b) Coring – None anticipated.
- c) Mud Logging – Mud loggers will be on location from intermediate casing point to TD.
- d) Logging – See Below

Cased Hole:

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

8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

The anticipated bottom hole pressure is +/- 2567 psi based on a 9.0 ppg at 5485' TVD of the landing point of the horizontal. No abnormal pressure or temperatures are anticipated.

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

Lybrook A03-2206 01H

**SHL: NENE Section 3, T22N, R6W
827 FNL and 432 FEL**

**BHL: NWNW Section 3, T22N, R6W
827 FNL and 330 FWL**

Sandoval County, New Mexico

Lease Number: NM NM 109386

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on December 1, 2012. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

It is anticipated that the drilling of this well will take approximately 45 days.

LOC: Sec 3-T22N-R6W County: Sandoval WELL: Lybrook A03-2206 #01H			Encana Natural Gas New Mexico Mancos Test WELL SUMMARY			encana™ natural gas		ENG: J. Fox/ A. RIG: GLE: 6989 RKBE:		4/11/12
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION	
			TVD	MD						
			60	60'		26	20" 94# 80sx Type I Neat 48.8ppg cmt	Fresh wtr 8 3-9.2		
Surveys After csg is run	None	Ojo Alamo Kirtland Shale	1,420 1,549			17 1/2	13 3/8" 48ppf H40 STC TOC @ surface	Fresh wtr 8 4-8.6	Vertical <1°	
Surveys every 500'	No OH logs Mud logger onsite	Fruitland Coal Pictured Cliffs Ss Lewis Shale Cliffhouse Ss Menefee Fn Point Lookout Ss Mancos Sh	1637 1938 2062 2735 3501 4169 4372 4700	500 500		12 1/4	9 5/8" 40ppf J55 STC TOC @ surface	Fresh Wtr 8 5-8.8	Vertical <1°	
Surveys every 500' Gyro at CP MWD Gamma Directional	No OH Logs	KICK OFF PT Mancos Silt Gallup Top horz target Base Gallup	4912 4960 5209 5485 5532	5816		8 1/2	5 1/2" 17ppf I/L80 LTC Running external swellable csg packers for isolation of prod string 200' overlap at liner top 3900' Lateral	Fresh Wtr LSND-in pilot 8.5-8.8 Switch to OBM at K/O 8 6-9.0 8 6-9.0 OBM	KOP 4912 10 deg/100' .25deg updip 5458'TVD TD = 9715' MD	

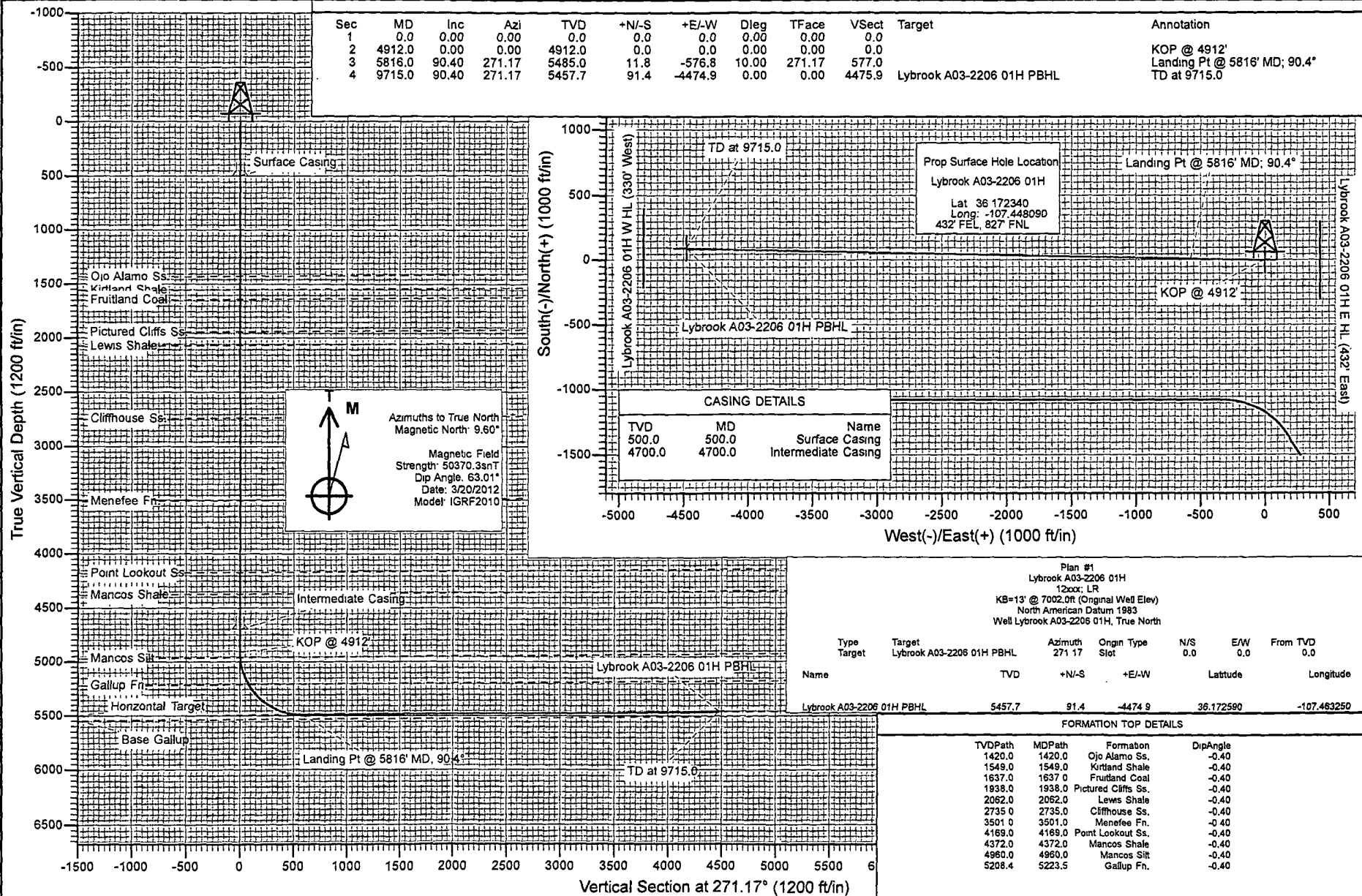
NOTES:

- 1) Drill with 26" bit to 60', set 20" 94# conductor pipe
- 2) Drill surface to 500', R&C 13 3/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to 4700', 12 1/4" hole size
- 5) R&C 9 5/8" casing, circ cmt 50' into sur csg shoe
- 6) Drill 8 1/2" hole to KOP, switch to OBM
- 7) PU directional tools and start curve at 10deg/100' build rate
- 8) If drill curve without hole issues, omit contingent csg string and proceed with 8 1/2 bit to landing depth
- 9) Land at 90deg, drill 3900' lateral to 9715', run 5 1/2" liner with external swellable csg packers

encana™

natural gas

Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook A03-2206 01H
Wellbore: Hz
Design: Plan #1



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook A03-2206 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=13' @ 7002.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	KB=13' @ 7002.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook A03-2206 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Project	Sandoval County, NM		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Central Zone		

Site	Lybrook		
Site Position:		Northing:	1,882,676.45 ft
From:	Lat/Long	Easting:	1,287,068.90 ft
Position Uncertainty:	0 0 ft	Slot Radius:	13.200 in
		Latitude:	36.168210
		Longitude:	-107.447150
		Grid Convergence:	-0.71 °

Well	Lybrook A03-2206 01H		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	0.0 ft	Easting:
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	36.172340
		Longitude:	-107.448090
		Ground Level:	6,989.0 ft

Wellbore	Hz		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	3/20/2012	9.60
			Dip Angle
			(°)
			Field Strength
			(nT)
			50,370

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0 0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.0	0 0	0 0
			Direction
			(°)
			271.17

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(ft)	(ft)	Rate	Rate	Rate	(°)	
(ft)			(ft)			(°/100ft)	(°/100ft)	(°/100ft)		
0.0	0.00	0.00	0.0	0 0	0.0	0.00	0.00	0.00	0.00	
4,912.0	0.00	0.00	4,912.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,816.0	90.40	271.17	5,485.0	11.8	-576.8	10.00	10.00	0.00	271.17	
9,715.0	90.40	271.17	5,457.7	91.4	-4,474.9	0.00	0.00	0.00	0.00	Lybrook A03-2206 01H

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook A03-2206 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=13' @ 7002.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	KB=13' @ 7002.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook A03-2206 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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	Lybrook A03-2206 01H WHL - Lybrook A03-2206 01H
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	Surface Casing
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,420.0	0.00	0.00	1,420.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
1,549.0	0.00	0.00	1,549.0	0.0	0.0	0.0	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,637.0	0.00	0.00	1,637.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
1,938.0	0.00	0.00	1,938.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
2,062.0	0.00	0.00	2,062.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
2,735.0	0.00	0.00	2,735.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,501.0	0.00	0.00	3,501.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
4,169.0	0.00	0.00	4,169.0	0.0	0.0	0.0	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	

Planning Report

Database:	USA EDM 5000.Multi Users DB	Local Co-ordinate Reference:	Well Lybrook A03-2206 01H
Company:	EnCana Oil & Gas (USA) Inc.	TVD Reference:	KB=13' @ 7002.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	KB=13' @ 7002.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook A03-2206 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	Plan #1		

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
4,372.0	0.00	0.00	4,372.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	Intermediate Casing
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	
4,912.0	0.00	0.00	4,912.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4912'
4,960.0	4.80	271.17	4,960.0	0.0	-2.0	2.0	10.00	10.00	Mancos Silt
5,000.0	8.80	271.17	4,999.7	0.1	-6.7	6.7	10.00	10.00	
5,100.0	18.80	271.17	5,096.6	0.6	-30.6	30.6	10.00	10.00	
5,200.0	28.80	271.17	5,188.0	1.4	-70.8	70.9	10.00	10.00	
5,223.5	31.15	271.17	5,208.4	1.7	-82.6	82.6	10.00	10.00	Gallup Fn.
5,300.0	38.80	271.17	5,271.0	2.6	-126.4	126.4	10.00	10.00	
5,400.0	48.80	271.17	5,343.1	4.0	-195.5	195.5	10.00	10.00	
5,500.0	58.80	271.17	5,402.1	5.6	-276.1	276.1	10.00	10.00	
5,600.0	68.80	271.17	5,446.2	7.5	-365.7	365.7	10.00	10.00	
5,700.0	78.80	271.17	5,474.1	9.4	-461.5	461.6	10.00	10.00	
5,800.0	88.80	271.17	5,484.9	11.4	-560.8	560.9	10.00	10.00	
5,816.0	90.40	271.17	5,485.0	11.8	-576.8	577.0	10.00	10.00	Landing Pt @ 5816' MD, 90.4°
5,900.0	90.40	271.17	5,484.4	13.5	-660.8	660.9	0.00	0.00	
6,000.0	90.40	271.17	5,483.7	15.5	-760.8	760.9	0.00	0.00	
6,100.0	90.40	271.17	5,483.0	17.6	-860.7	860.9	0.00	0.00	
6,200.0	90.40	271.17	5,482.3	19.6	-960.7	960.9	0.00	0.00	
6,300.0	90.40	271.17	5,481.6	21.7	-1,060.7	1,060.9	0.00	0.00	
6,400.0	90.40	271.17	5,480.9	23.7	-1,160.7	1,160.9	0.00	0.00	
6,500.0	90.40	271.17	5,480.2	25.7	-1,260.7	1,260.9	0.00	0.00	
6,600.0	90.40	271.17	5,479.5	27.8	-1,360.6	1,360.9	0.00	0.00	
6,700.0	90.40	271.17	5,478.8	29.8	-1,460.6	1,460.9	0.00	0.00	
6,800.0	90.40	271.17	5,478.1	31.9	-1,560.6	1,560.9	0.00	0.00	
6,900.0	90.40	271.17	5,477.4	33.9	-1,660.6	1,660.9	0.00	0.00	
7,000.0	90.40	271.17	5,476.7	35.9	-1,760.5	1,760.9	0.00	0.00	
7,100.0	90.40	271.17	5,476.0	38.0	-1,860.5	1,860.9	0.00	0.00	
7,200.0	90.40	271.17	5,475.3	40.0	-1,960.5	1,960.9	0.00	0.00	
7,300.0	90.40	271.17	5,474.6	42.1	-2,060.5	2,060.9	0.00	0.00	
7,400.0	90.40	271.17	5,473.9	44.1	-2,160.4	2,160.9	0.00	0.00	
7,500.0	90.40	271.17	5,473.2	46.1	-2,260.4	2,260.9	0.00	0.00	
7,600.0	90.40	271.17	5,472.5	48.2	-2,360.4	2,360.9	0.00	0.00	
7,700.0	90.40	271.17	5,471.8	50.2	-2,460.4	2,460.9	0.00	0.00	
7,800.0	90.40	271.17	5,471.1	52.3	-2,560.3	2,560.9	0.00	0.00	
7,900.0	90.40	271.17	5,470.4	54.3	-2,660.3	2,660.9	0.00	0.00	
8,000.0	90.40	271.17	5,469.7	56.4	-2,760.3	2,760.9	0.00	0.00	
8,100.0	90.40	271.17	5,469.0	58.4	-2,860.3	2,860.9	0.00	0.00	
8,200.0	90.40	271.17	5,468.3	60.4	-2,960.3	2,960.9	0.00	0.00	
8,300.0	90.40	271.17	5,467.6	62.5	-3,060.2	3,060.9	0.00	0.00	
8,400.0	90.40	271.17	5,466.9	64.5	-3,160.2	3,160.9	0.00	0.00	
8,500.0	90.40	271.17	5,466.2	66.6	-3,260.2	3,260.9	0.00	0.00	
8,600.0	90.40	271.17	5,465.5	68.6	-3,360.2	3,360.9	0.00	0.00	
8,700.0	90.40	271.17	5,464.8	70.6	-3,460.1	3,460.9	0.00	0.00	
8,800.0	90.40	271.17	5,464.1	72.7	-3,560.1	3,560.9	0.00	0.00	
8,900.0	90.40	271.17	5,463.4	74.7	-3,660.1	3,660.9	0.00	0.00	
9,000.0	90.40	271.17	5,462.7	76.8	-3,760.1	3,760.9	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook A03-2206 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=13' @ 7002.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	KB=13' @ 7002.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook A03-2206 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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
9,100.0	90.40	271.17	5,462.0	78.8	-3,860.0	3,860.9	0.00	0.00	
9,200.0	90.40	271.17	5,461.3	80.8	-3,960.0	3,960.8	0.00	0.00	
9,300.0	90.40	271.17	5,460.6	82.9	-4,060.0	4,060.8	0.00	0.00	
9,400.0	90.40	271.17	5,459.9	84.9	-4,160.0	4,160.8	0.00	0.00	
9,500.0	90.40	271.17	5,459.3	87.0	-4,260.0	4,260.8	0.00	0.00	
9,600.0	90.40	271.17	5,458.6	89.0	-4,359.9	4,360.8	0.00	0.00	
9,700.0	90.40	271.17	5,457.9	91.1	-4,459.9	4,460.8	0.00	0.00	
9,715.0	90.40	271.17	5,457.7	91.4	-4,474.9	4,475.9	0.00	0.00	TD at 9715.0 - Lybrook A03-2206 01H PBHL

Targets										
Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lybrook A03-2206 01H \		0.00	0.00	-5,457.7	91.4	-4,474.9	1,884,329.94	1,282,336.54	36.172590	-107.463250
- plan misses target center by 7058.3ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)										
- Polygon										
Point 1				-5,457.7	300.0	-330.0	1,884,633.99	1,282,010.27		
Point 2				-5,457.7	-300.0	-330.0	1,884,034.03	1,282,002.86		
Lybrook A03-2206 01H f		0.00	0.00	5,457.7	91.4	-4,474.9	1,884,329.94	1,282,336.54	36.172590	-107.463250
- plan hits target center										
- Point										
Lybrook A03-2206 01H E		0.00	0.00	-5,457.7	0.0	0.0	1,884,183.35	1,286,810.00	36.172340	-107.448090
- plan misses target center by 5457.7ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)										
- Polygon										
Point 1				-5,457.7	300.0	432.0	1,884,477.99	1,287,245.67		
Point 2				-5,457.7	-300.0	432.0	1,883,878.04	1,287,238.26		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
500.0	500.0	Surface Casing	0.000	0.000	
4,700.0	4,700.0	Intermediate Casing	0.000	0.000	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook A03-2206 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=13' @ 7002.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	KB=13' @ 7002.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook A03-2206 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,420.0	1,420.0	Ojo Alamo Ss.		-0.40	271.17	
1,549.0	1,549.0	Kirtland Shale		-0.40	271.17	
1,637.0	1,637.0	Fruitland Coal		-0.40	271.17	
1,938.0	1,938.0	Pictured Cliffs Ss		-0.40	271.17	
2,062.0	2,062.0	Lewis Shale		-0.40	271.17	
2,735.0	2,735.0	Cliffhouse Ss		-0.40	271.17	
3,501.0	3,501.0	Menefee Fn.		-0.40	271.17	
4,169.0	4,169.0	Point Lookout Ss.		-0.40	271.17	
4,372.0	4,372.0	Mancos Shale		-0.40	271.17	
4,960.0	4,960.0	Mancos Silt		-0.40	271.17	
5,223.5	5,209.0	Gallup Fn.		-0.40	271.17	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
4,912.0	4,912.0	0.0	0.0	KOP @ 4912'	
5,816.0	5,485.0	11.8	-576.8	Landing Pt @ 5816' MD; 90.4°	
9,715.0	5,457.7	91.4	-4,474.9	TD at 9715.0	

WELLHEAD BLOWOUT CONTROL SYSTEM



Well name and number:

Lybrook A03-2206 01H

