

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: 8-14-14

Well information;

Operator Enrona, Well Name and Number Lybrook I 14 2306 # 1H

API# 30-039-31272, Section 14, Township 23 NS, Range 06 EW

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 4 S.9 compliance
- ☒ 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.

Charles Hernandez
NMOCD Approved by Signature

3-20-2015
Date RC

RECEIVED

AUG 15 2014

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Lease Serial No. NMNM 118127

NMOCD

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

1a. Type of work: ☒ DRILL ☐ REENTER

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

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

8. Lease Name and Well No.
Lybrook 114-2306 01H

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

9. API Well No.
30-039-31272

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

3b. Phone No. (include area code)
720-876-3533

10. Field and Pool, or Exploratory
Counselors Gallup-Dakota

4. Location of Well (Report location clearly and in accordance with any State requirements.)*

At surface 1938' FSL and 553' FEL Section 14, T23N, R6W

At proposed prod. zone 2229' FSL and 330' FWL Section 14, T23N, R6W

11. Sec., T. R. M. or Blk. and Survey or Area
Section 14, T23N, R6W NMPM

14. Distance in miles and direction from nearest town or post office*
+/- 56.6 miles southeast of the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM

12. County or Parish
Rio Arriba

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
BHL is 330' from west lease line Section 14, T23N, R6W

16. No. of acres in lease
NMNM 118127 - 1,160 ac.

17. Spacing Unit dedicated to this well
320 acres - S2 of Section 14, T23N, R6W

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
Lybrook 114-2306 02H is +/- 30' from SHL

19. Proposed Depth
5,512' TVD/9,752' MD

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

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
6,812' GL, 6,828' KB

22. Approximate date work will start*
02/07/2015

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 *Katie Wegner*

Name (Printed/Typed)
Katie Wegner

Date 8/14/14

Title
Regulatory Analyst

Approved by (Signature) *D. M. Montie*

Name (Printed/Typed)

Date 3/5/15

Title
AFM

Office
FF8

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)

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

NMOCD

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

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

Form C-102
Revised August 1, 2011

DISTRICT II
 511 S. First St., Arlanda, N.H. 06010
 Phone: (676) 746-1833 Fax: (676) 746-9780

DISTRICT III
1000 Elc Brusos Rd., Anteo, N.H. 07410
Phone: (603) 834-6178 Fax: (603) 834-6170

DISTRICT IV
1820 E. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-8480 Fax: (505) 476-8483

OIL CONSERVATION DIVISION

1220 South St. Francis Dr. Farmington Field Office
Santa Fe, NM 87506

AUG 1 5 29 1964

one copy to appropriate
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

'API Number 30-039-31272	'Pool Code 13379	'Pool Name COUNSELORS GALLUP-DAKOTA
'Property Code 314243	'Property Name LYBROOK 114-2306	'Well Number 01H
'UGRID No. 282327	'Operator Name ENCANA OIL & GAS (USA) INC.	'Elevation 2 6811.7

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
1	14	23N	6W		1938'	SOUTH	553'	EAST	RIO ARriba

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
L	14	23N	6W		2229'	SOUTH	330'	WEST	RIO ARRIBA

13 Dedicated Acres 320.00 ACRES S/2 SEC. 14	12 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

18

NORTHWEST CORNER SEC. 14
 LAT. 36.232308' N (NAD83)
 LONG. 107.447550' W (NAD83)
 LAT. 36.232294' N (NAD27)
 LONG. 107.448946' W (NAD27)

NORTHEAST CORNER SEC. 14
 LAT. 36.232493' N (NAD83)
 LONG. 107.429327' W (NAD83)
 LAT. 36.232479' N (NAD27)
 LONG. 107.428723' W (NAD27)

WELL FLAG
 LAT. 36.223258' N (NAD83)
 LONG. 107.430984' W (NAD83)
 LAT. 36.223244' N (NAD27)
 LONG. 107.430360' W (NAD27)

BOTTOM HOLE
 LAT. 36.223997' N (NAD83)
 LONG. 107.446916' W (NAD83)
 LAT. 36.223983' N (NAD27)
 LONG. 107.445412' W (NAD27)

ENTRY POINT
 LAT. 36.224097' N (NAD83)
 LONG. 107.432455' W (NAD83)
 LAT. 36.224083' N (NAD27)
 LONG. 107.431851' W (NAD27)

HORIZONTAL DRILL
 S 89°27'49" W 400.181'

WELL LOCATION
 N 55°12'50" W 535.58'

BEARINGS AND DISTANCES
 S 89°16'13" W 5376.96' (M)
 S 89°16' W 5375.69' (R)
 S 89°44' W 5272.73' (R)
 N 89°43'33" W 5276.10' (M)
 N 2°19'38" W 5259.96' (M)
 N 2°20' W 5258.21' (R)
 N 1°14' W 5299.13' (R)
 N 1°13'22" W 5300.01' (M)
 N 0°28' E 145.20' (R & M)
 S 0°28' E 145.20' (R & M)

FOUND CORNERS
 FND 3/4" BC BLM 1964
 FND 3/4" BC BLM 1964
 FND WC 3/4" BC BLM 1964
 FND 3/4" BC BLM 1964

SOUTHWEST CORNER SEC. 14
 LAT. 36.217877' N (NAD83)
 LONG. 107.446829' W (NAD83)
 LAT. 36.292564' N (NAD27)
 LONG. 107.731363' W (NAD27)

SOUTHEAST CORNER SEC. 14
 LAT. 36.292579' N (NAD83)
 LONG. 107.713923' W (NAD83)
 LAT. 36.292567' N (NAD27)
 LONG. 107.713311' W (NAD27)

SHEET A

- 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.

Lybrook 114-2306 01H

SHL: 1938' FSL 553' FEL Sec 14 23N 06W

BHL: 2229' FSL 330' FWL Sec 14 23N 06W

Rio Arriba, New Mexico

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.	1,440
Kirtland Shale	1,599
Fruitland Coal	1,863
Pictured Cliffs Ss.	1,982
Lewis Shale	2,119
Cliffhouse Ss.	2,819
Menefee Fn.	3,531
Point Lookout Ss.	4,238
Mancos Shale	4,465
Mancos Silt	5,059
Gallup Fn.	5,286
Horizontal Target	5,535
Base Gallup	5,603

The referenced surface elevation is 6812', KB 6828'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,863
Oil/Gas	Pictured Cliffs Ss.	1,982
Oil/Gas	Cliffhouse Ss.	2,819
Gas	Menefee Fn.	3,531
Oil/Gas	Point Lookout Ss.	4,238
Oil/Gas	Mancos Shale	4,465
Oil/Gas	Mancos Silt	5,059
Oil/Gas	Gallup Fn.	5,286

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.

Lybrook I14-2306 01H

SHL: 1938' FSL 553' FEL Sec 14 23N 06W

BHL: 2229' FSL 330' FWL Sec 14 23N 06W

Rio Arriba, New Mexico

- 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'	30"	16"	42.09#	
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5697'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5497'-9752'	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 I14-2306 01H

SHL: 1938' FSL 553' FEL Sec 14 23N 06W

BHL: 2229' FSL 330' FWL Sec 14 23N 06W

Rio Arriba, New Mexico

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'	247 sks	HALCEM™ SYSTEM + 2% CaCl ₂ + 0.125lbm/sk Poly-E-Flake. 15.8 ppg, 1.174 cuft/sk	Surface	1 per joint on bottom 3 joints
Intermediate	0'-5697'	100% open hole excess Stage 1 Lead: 515 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	5497'-9752'	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 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 3000'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5512'/9752'	Gallup

6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

Lybrook I14-2306 01H

SHL: 1938' FSL 553' FEL Sec 14 23N 06W

BHL: 2229' FSL 330' FWL Sec 14 23N 06W

Rio Arriba, New Mexico

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'-5504'/5697'	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"	5504'/5697'- 5512'/9752'	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 +/- 2590 psi based on a 9.0 ppg at 5535' 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 February 7, 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: 1938' FSL & 553' FEL Sec 14 23N 01			Encana Natural Gas						ENG: Sara Smaltz RIG: Aztec 950 GLE: 6811.7 RKBE: 6827.7		8/12/14
County: Rio Arriba			WELL SUMMARY								
WELL: Lybrook I14-2306 01H											
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION		
			TVD	MD							
			60	60'		30	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.	n/a			12 1/4	9 5/8" 36ppf J55 STC	Fresh wtr 8.3-10	Vertical <1°		
		Nacimiento Fn. 9 5/8" Csg	surface 500	500.00			TOC Surface with 100% OH Excess: 247 sks of HALCEM™ SYSTEM + 2% CaCl2 + 0.125lbm/sk Poly-E-Flake. Mixed at 15.8 ppg. Yield 1.174 cuft/sk.				
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5	No OH logs	Ojo Alamo Ss. Kirtland Shale	1,440 1,599			8 3/4	7" 26ppf J55 LTC	Fresh Wtr	Vertical <1°		
		Fruitland Coal	1,863				TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 908sks	8.3-10			
		Pictured Cliffs Ss. Lewis Shale	1,982 2,119				Stage 1 Lead: 516 sks HALCEM™ SYSTEM + 0.2% HR-5 + 5lbm/sk Kol-Seal + 0.125lbm/sk Poly-E-Flake. Mixed at 12.3 ppg. Yield 1.948 cuft/sk.				
		Cliffhouse Ss. Menefee Fn.	2,819 3,531				Stage 1 Tail: 392 sks VARICEM™ CEMENT + .15% CFR-3 + 5lbm/sk Kol-Seal + 0.125% Poly-E-Flake. Mixed at 13.5 ppg. Yield 1.308 cuft/sk.				
		Point Lookout Ss. Mancos Shale	4,238 4,465								
Surveys every 30' through the curve	Mud logger onsite	KOP	3,000	3,000							
		Mancos Silt	5,059								
		Gallup Fn. 7" Csg	5,286 5,504	5,697'							
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD	5,535 5,512	9,752	6 1/8	200' overlap at liner top		Horz Inc/TVD 90.3deg/5534.7ft			
		Base Gallup	5,603		4055' Drilled Lateral			TD = 9751.9 MD			
						4 1/2" 11.6ppf SB80 LTC	WBM 8.3-10				
MWD Gamma Directional						Running external swellable csg packers for isolation of prod string					

NOTES:

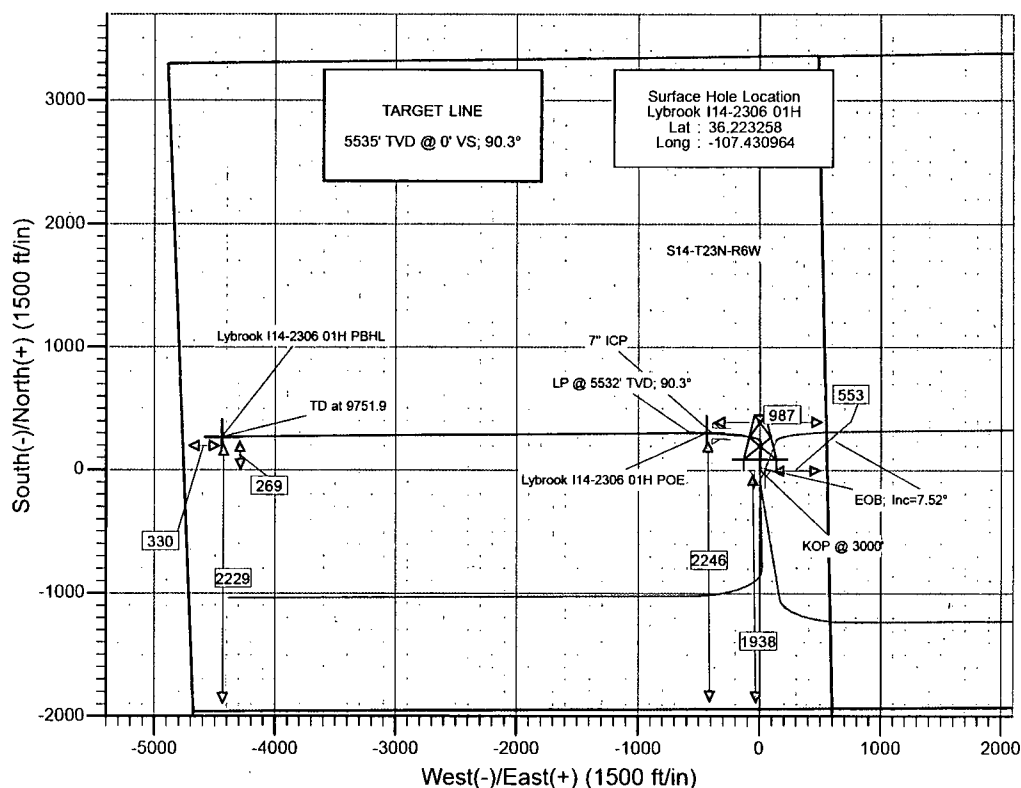
- 1) Drill with 30" bit to 60', set 20" 94# conductor pipe
- 2) Drill surface to 500', R&C 9 5/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to KOP of 3000', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5697' MD
- 7) R&C 7" csg, circ cmt to surface, switch to WBM
- 8) Land at 90 deg, drill lateral to 9752' run 4 1/2 inch liner with external swellable csg packers

encana

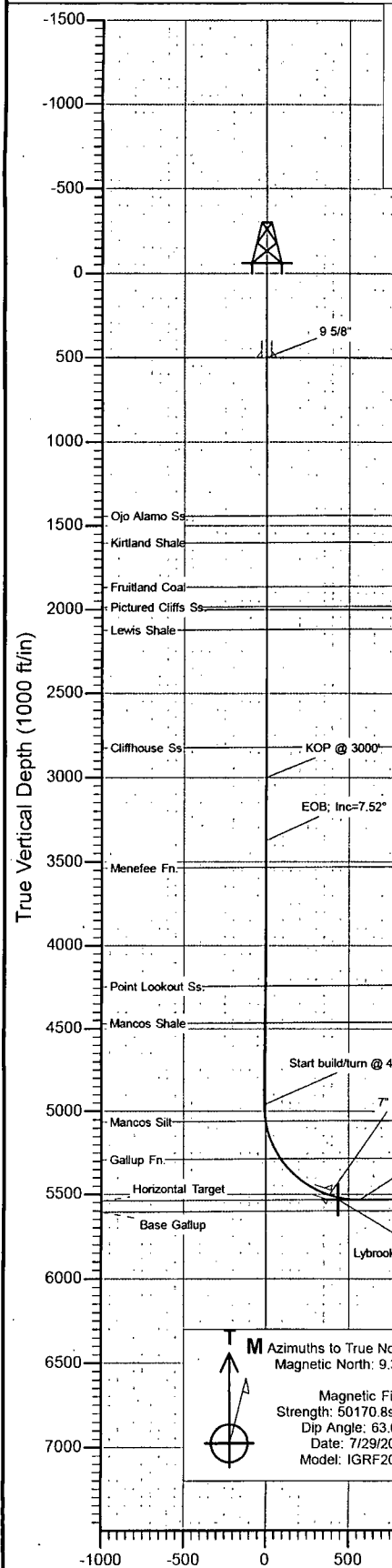
Project: Rio Arriba County, NM
Site: S14-T23N-R6W
Well: Lybrook I14-2306 01H
Wellbore: Hz
Design: Plan #1



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	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	
3	3375.8	7.52	1.53	3374.7	24.6	0.7	2.00	1.53	-0.9	
4	4976.2	7.52	1.53	4961.4	233.8	6.3	0.00	0.00	-8.4	
5	5881.9	90.30	269.48	5532.0	304.3	-570.3	10.00	-91.99	567.6	
6	9751.9	90.30	269.48	5511.7	269.4	-4440.1	0.00	0.00	4437.5	Lybrook I14-2306 01H PBHL



DESIGN TARGET DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Lybrook I14-2306 01H PBHL	269.4	-4440.1	1902980.94	1287654.02	36.223997	-107.446016
Lybrook I14-2306 01H POE	305.5	-439.8	1902988.27	1291654.47	36.224097	-107.432455



M Azimuths to True North
Magnetic North: 9.31°
Magnetic Field
Strength: 50170.8snT
Dip Angle: 63.01°
Date: 7/29/2014
Model: IGRF2010

CASING DETAILS		
TVD	MD	Name
500.0	500.0	9 5/8" 7" ICP
5503.7	5697.2	

Plan #1
Lybrook I14-2306 01H
14xxx; LR
16' KB @ 6828.0ft (Aztec)
Ground Elevation @ 6812.0
North American Datum 1983
Well Lybrook I14-2306 01H, True North

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1440.0	1440.0	Ojo Alamo Ss.
1599.0	1599.0	Kirtland Shale
1863.0	1863.0	Fruitland Coal
1982.0	1982.0	Pictured Cliffs Ss.
2119.0	2119.0	Lewis Shale
2819.0	2819.0	Cliffhouse Ss.
3531.0	3533.4	Menefee Fn.
4238.0	4246.6	Point Lookout Ss.
4465.0	4475.6	Mancos Shale
5059.0	5075.1	Mancos Silt
5285.5	5323.6	Gallup Fn.

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Rio Arriba County, NM
Site: S14-T23N-R6W
Well: Lybrook I14-2306 01H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 01H
TVD Reference: 16' KB @ 6828.0ft (Aztec)
MD Reference: 16' KB @ 6828.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	Rio Arriba 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	S14-T23N-R6W			
Site Position:		Northing:	1,900,796.67 ft	Latitude: 36.218032
From:	Lat/Long	Easting:	1,288,664.11 ft	Longitude: -107.442501
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -0.70 °

Well	Lybrook I14-2306 01H			
Well Position	+N/-S	0.0 ft	Northing:	1,902,657.48 ft
	+E/-W	0.0 ft	Easting:	1,292,090.53 ft
Position Uncertainty	0.0 ft		Wellhead Elevation:	0.0 ft
			Ground Level:	6,812.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/29/2014	9.31	63.01	50,171

Design	Plan #1			
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	269.48

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	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,375.8	7.52	1.53	3,374.7	24.6	0.7	2.00	2.00	0.00	1.53	
4,976.2	7.52	1.53	4,961.4	233.8	6.3	0.00	0.00	0.00	0.00	
5,881.9	90.30	269.48	5,532.0	304.3	-570.3	10.00	9.14	-10.16	-91.99	
9,751.9	90.30	269.48	5,511.7	269.4	-4,440.1	0.00	0.00	0.00	0.00	Lybrook I14-2306 01H

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Rio Arriba County, NM
Site: S14-T23N-R6W
Well: Lybrook 114-2306 01H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well Lybrook 114-2306 01H
TVD Reference: 16' KB @ 6828.0ft (Aztec)
MD Reference: 16' KB @ 6828.0ft (Aztec)
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	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,440.0	0.00	0.00	1,440.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,599.0	0.00	0.00	1,599.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,863.0	0.00	0.00	1,863.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
1,982.0	0.00	0.00	1,982.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,119.0	0.00	0.00	2,119.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,819.0	0.00	0.00	2,819.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
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	KOP @ 3000'
3,100.0	2.00	1.53	3,100.0	1.7	0.0	-0.1	2.00	2.00	
3,200.0	4.00	1.53	3,199.8	7.0	0.2	-0.2	2.00	2.00	
3,300.0	6.00	1.53	3,299.5	15.7	0.4	-0.6	2.00	2.00	
3,375.8	7.52	1.53	3,374.7	24.6	0.7	-0.9	2.00	2.00	EOB; Inc=7.52°
3,400.0	7.52	1.53	3,398.7	27.8	0.7	-1.0	0.00	0.00	
3,500.0	7.52	1.53	3,497.9	40.8	1.1	-1.5	0.00	0.00	
3,533.4	7.52	1.53	3,531.0	45.2	1.2	-1.6	0.00	0.00	Menefee Fn.
3,600.0	7.52	1.53	3,597.0	53.9	1.4	-1.9	0.00	0.00	
3,700.0	7.52	1.53	3,696.1	67.0	1.8	-2.4	0.00	0.00	
3,800.0	7.52	1.53	3,795.3	80.1	2.1	-2.9	0.00	0.00	
3,900.0	7.52	1.53	3,894.4	93.1	2.5	-3.3	0.00	0.00	
4,000.0	7.52	1.53	3,993.6	106.2	2.8	-3.8	0.00	0.00	
4,100.0	7.52	1.53	4,092.7	119.3	3.2	-4.3	0.00	0.00	
4,200.0	7.52	1.53	4,191.8	132.4	3.5	-4.7	0.00	0.00	
4,246.6	7.52	1.53	4,238.0	138.5	3.7	-5.0	0.00	0.00	Point Lookout Ss.

Planning Report

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 Wellbore: Hz
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 TVD Reference: 16' KB @ 6828.0ft (Aztec)
 MD Reference: 16' KB @ 6828.0ft (Aztec)
 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
4,300.0	7.52	1.53	4,291.0	145.4	3.9	-5.2	0.00	0.00	
4,400.0	7.52	1.53	4,390.1	158.5	4.2	-5.7	0.00	0.00	
4,475.6	7.52	1.53	4,465.0	168.4	4.5	-6.0	0.00	0.00	Mancos Shale
4,500.0	7.52	1.53	4,489.3	171.6	4.6	-6.1	0.00	0.00	
4,600.0	7.52	1.53	4,588.4	184.7	4.9	-6.6	0.00	0.00	
4,700.0	7.52	1.53	4,687.5	197.7	5.3	-7.1	0.00	0.00	
4,800.0	7.52	1.53	4,786.7	210.8	5.6	-7.6	0.00	0.00	
4,900.0	7.52	1.53	4,885.8	223.9	6.0	-8.0	0.00	0.00	
4,976.2	7.52	1.53	4,961.4	233.8	6.3	-8.4	0.00	0.00	Start build/turn @ 4976' MD
5,000.0	7.80	343.73	4,985.0	236.9	5.8	-8.0	10.00	1.20	
5,075.1	12.19	307.13	5,059.0	246.6	-1.9	-0.3	10.00	5.84	Mancos Silt
5,100.0	14.23	300.86	5,083.2	249.8	-6.6	4.4	10.00	8.18	
5,200.0	23.30	287.35	5,177.9	262.0	-36.1	33.8	10.00	9.07	
5,300.0	32.89	281.29	5,266.0	273.3	-81.8	79.3	10.00	9.60	
5,323.6	35.18	280.30	5,285.5	275.7	-94.7	92.2	10.00	9.72	Gallup Fn.
5,400.0	42.66	277.75	5,344.9	283.2	-142.1	139.5	10.00	9.78	
5,500.0	52.50	275.33	5,412.3	291.5	-215.4	212.7	10.00	9.84	
5,600.0	62.38	273.48	5,466.1	297.8	-299.3	296.6	10.00	9.88	
5,697.2	72.00	271.98	5,503.7	302.1	-388.7	385.9	10.00	9.90	7" ICP
5,700.0	72.28	271.94	5,504.6	302.2	-391.3	388.6	10.00	9.91	
5,800.0	82.19	270.56	5,526.7	304.3	-488.7	485.9	10.00	9.91	
5,881.9	90.30	269.48	5,532.0	304.3	-570.3	567.6	10.00	9.91	LP @ 5532' TVD; 90.3°
5,900.0	90.30	269.48	5,531.9	304.1	-588.5	585.7	0.00	0.00	
6,000.0	90.30	269.48	5,531.4	303.2	-688.5	685.7	0.00	0.00	
6,100.0	90.30	269.48	5,530.9	302.3	-788.5	785.7	0.00	0.00	
6,200.0	90.30	269.48	5,530.3	301.4	-888.5	885.7	0.00	0.00	
6,300.0	90.30	269.48	5,529.8	300.5	-988.5	985.7	0.00	0.00	
6,400.0	90.30	269.48	5,529.3	299.6	-1,088.4	1,085.7	0.00	0.00	
6,500.0	90.30	269.48	5,528.8	298.7	-1,188.4	1,185.7	0.00	0.00	
6,600.0	90.30	269.48	5,528.2	297.8	-1,288.4	1,285.7	0.00	0.00	
6,700.0	90.30	269.48	5,527.7	296.9	-1,388.4	1,385.7	0.00	0.00	
6,800.0	90.30	269.48	5,527.2	296.0	-1,488.4	1,485.7	0.00	0.00	
6,900.0	90.30	269.48	5,526.7	295.1	-1,588.4	1,585.7	0.00	0.00	
7,000.0	90.30	269.48	5,526.1	294.2	-1,688.4	1,685.7	0.00	0.00	
7,100.0	90.30	269.48	5,525.6	293.3	-1,788.4	1,785.7	0.00	0.00	
7,200.0	90.30	269.48	5,525.1	292.4	-1,888.4	1,885.7	0.00	0.00	
7,300.0	90.30	269.48	5,524.6	291.5	-1,988.4	1,985.7	0.00	0.00	
7,400.0	90.30	269.48	5,524.0	290.6	-2,088.4	2,085.7	0.00	0.00	
7,500.0	90.30	269.48	5,523.5	289.7	-2,188.4	2,185.7	0.00	0.00	
7,600.0	90.30	269.48	5,523.0	288.8	-2,288.4	2,285.7	0.00	0.00	
7,700.0	90.30	269.48	5,522.5	287.9	-2,388.4	2,385.7	0.00	0.00	
7,800.0	90.30	269.48	5,521.9	287.0	-2,488.4	2,485.7	0.00	0.00	
7,900.0	90.30	269.48	5,521.4	286.1	-2,588.4	2,585.7	0.00	0.00	
8,000.0	90.30	269.48	5,520.9	285.2	-2,688.4	2,685.7	0.00	0.00	
8,100.0	90.30	269.48	5,520.4	284.3	-2,788.4	2,785.7	0.00	0.00	
8,200.0	90.30	269.48	5,519.8	283.4	-2,888.4	2,885.7	0.00	0.00	
8,300.0	90.30	269.48	5,519.3	282.5	-2,988.3	2,985.7	0.00	0.00	
8,400.0	90.30	269.48	5,518.8	281.6	-3,088.3	3,085.7	0.00	0.00	
8,500.0	90.30	269.48	5,518.3	280.7	-3,188.3	3,185.7	0.00	0.00	
8,600.0	90.30	269.48	5,517.7	279.8	-3,288.3	3,285.7	0.00	0.00	
8,700.0	90.30	269.48	5,517.2	278.9	-3,388.3	3,385.7	0.00	0.00	
8,800.0	90.30	269.48	5,516.7	278.0	-3,488.3	3,485.7	0.00	0.00	

Planning Report

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Wellbore: Hz
Design: Plan #1

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TVD Reference: 16' KB @ 6828.0ft (Aztec)
MD Reference: 16' KB @ 6828.0ft (Aztec)
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
8,900.0	90.30	269.48	5,516.2	277.1	-3,588.3	3,585.7	0.00	0.00	
9,000.0	90.30	269.48	5,515.6	276.2	-3,688.3	3,685.6	0.00	0.00	
9,100.0	90.30	269.48	5,515.1	275.3	-3,788.3	3,785.6	0.00	0.00	
9,200.0	90.30	269.48	5,514.6	274.4	-3,888.3	3,885.6	0.00	0.00	
9,300.0	90.30	269.48	5,514.1	273.5	-3,988.3	3,985.6	0.00	0.00	
9,400.0	90.30	269.48	5,513.5	272.6	-4,088.3	4,085.6	0.00	0.00	
9,500.0	90.30	269.48	5,513.0	271.7	-4,188.3	4,185.6	0.00	0.00	
9,600.0	90.30	269.48	5,512.5	270.8	-4,288.3	4,285.6	0.00	0.00	
9,700.0	90.30	269.48	5,512.0	269.9	-4,388.3	4,385.6	0.00	0.00	
9,751.9	90.30	269.48	5,511.7	269.4	-4,440.1	4,437.5	0.00	0.00	TD at 9751.9

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 I14-2306 01H P	- plan hits target center	- Point	0.00	0.00	5,511.7	269.4	-4,440.1	1,902,980.94	1,287,654.02	36.223997	-107.446016
Lybrook I14-2306 01H P	- plan misses target center by 14.7ft at 5753.6ft MD (5518.5 TVD, 303.6 N, -443.1 E)	- Point	0.00	0.00	5,532.7	305.5	-439.8	1,902,968.27	1,291,654.47	36.224097	-107.432455

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
500.0	500.0	9 5/8"	9.625	12.250
5,697.2	5,503.7	7" ICP	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,440.0	1,440.0	Ojo Alamo Ss.		-0.30	269.48
1,599.0	1,599.0	Kirtland Shale		-0.30	269.48
1,863.0	1,863.0	Fruitland Coal		-0.30	269.48
1,982.0	1,982.0	Pictured Cliffs Ss.		-0.30	269.48
2,119.0	2,119.0	Lewis Shale		-0.30	269.48
2,819.0	2,819.0	Cliffhouse Ss.		-0.30	269.48
3,533.4	3,531.0	Menefee Fn.		-0.30	269.48
4,246.6	4,238.0	Point Lookout Ss.		-0.30	269.48
4,475.6	4,465.0	Mancos Shale		-0.30	269.48
5,075.1	5,059.0	Mancos Silt		-0.30	269.48
5,323.6	5,286.0	Gallup Fn.		-0.30	269.48

Planning Report

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Company: EnCana Oil & Gas (USA) Inc
Project: Rio Arriba County, NM
Site: S14-T23N-R6W
Well: Lybrook I14-2306 01H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 01H
TVD Reference: 16' KB @ 6828.0ft (Aztec)
MD Reference: 16' KB @ 6828.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,000.0	3,000.0	0.0	0.0	KOP @ 3000'
3,375.8	3,374.7	24.6	0.7	EOB; Inc=7.52°
4,976.2	4,961.4	233.8	6.3	Start build/turn @ 4976' MD
5,881.9	5,532.0	304.3	-570.3	LP @ 5532' TVD; 90.3°
9,751.9	5,511.7	269.4	-4,440.1	TD at 9751.9

EnCana Oil & Gas (USA) Inc

Rio Arriba County, NM

S14-T23N-R6W

Lybrook I14-2306 01H

Hz

Plan #1

Anticollision Report

30 July, 2014

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Rio Arriba County, NM
Reference Site: S14-T23N-R6W
Site Error: 0.0ft
Reference Well: Lybrook I14-2306 01H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 01H
TVD Reference: 16' KB @ 6828.0ft (Aztec)
MD Reference: 16' KB @ 6828.0ft (Aztec)
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: Plan #1
Filter type: GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference
Interpolation Method: MD Interval 100.0ft
Depth Range: Unlimited
Results Limited by: Maximum center-center distance of 1,175.2ft
Warning Levels Evaluated at: 2.00 Sigma
Error Model: Systematic Ellipse
Scan Method: Closest Approach 3D
Error Surface: Elliptical Conic

Survey Tool Program		Date		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	9,751.9	Plan #1 (Hz)	Geolink MWD	Geolink MWD

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance		Separation Factor	Warning
			Between Centres (ft)	Between Ellipses (ft)		
Offset Well - Wellbore - Design						
S14-T23N-R6W						
Lybrook I14-2306 02H - Hz - Plan #1	2,500.0	2,500.0	29.9	21.2	3.444	CC, ES, SF
Lybrook I14-2306 03H - Hz - Plan #1	2,635.5	2,638.5	22.5	13.3	2.431	CC, ES, SF
Lybrook I14-2306 04H - Hz - Plan #1	2,000.0	2,000.0	90.3	83.4	13.041	CC, ES
Lybrook I14-2306 04H - Hz - Plan #1	2,100.0	2,096.9	92.0	84.7	12.656	SF

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Rio Arriba County, NM
Reference Site: S14-T23N-R6W
Site Error: 0.0ft
Reference Well: Lybrook I14-2306 01H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 01H
TVD Reference: 16' KB @ 6828.0ft (Aztec)
MD Reference: 16' KB @ 6828.0ft (Aztec)
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 S14-T23N-R6W - Lybrook I14-2306 02H - Hz - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	-178.87	-29.9	-0.6	29.9						
100.0	100.0	100.0	100.0	0.1	0.1	-178.87	-29.9	-0.6	29.9	29.6	0.29	101.834			
200.0	200.0	200.0	200.0	0.3	0.3	-178.87	-29.9	-0.6	29.9	29.2	0.64	46.489			
300.0	300.0	300.0	300.0	0.5	0.5	-178.87	-29.9	-0.6	29.9	28.9	0.99	30.120			
400.0	400.0	400.0	400.0	0.7	0.7	-178.87	-29.9	-0.6	29.9	28.5	1.34	22.276			
500.0	500.0	500.0	500.0	0.8	0.8	-178.87	-29.9	-0.6	29.9	28.2	1.69	17.674			
600.0	600.0	600.0	600.0	1.0	1.0	-178.87	-29.9	-0.6	29.9	27.8	2.04	14.647			
700.0	700.0	700.0	700.0	1.2	1.2	-178.87	-29.9	-0.6	29.9	27.5	2.39	12.506			
800.0	800.0	800.0	800.0	1.4	1.4	-178.87	-29.9	-0.6	29.9	27.1	2.74	10.911			
900.0	900.0	900.0	900.0	1.5	1.5	-178.87	-29.9	-0.6	29.9	26.8	3.09	9.677			
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-178.87	-29.9	-0.6	29.9	26.4	3.43	8.693			
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-178.87	-29.9	-0.6	29.9	26.1	3.78	7.891			
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-178.87	-29.9	-0.6	29.9	25.7	4.13	7.225			
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-178.87	-29.9	-0.6	29.9	25.4	4.48	6.662			
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-178.87	-29.9	-0.6	29.9	25.0	4.83	6.181			
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-178.87	-29.9	-0.6	29.9	24.7	5.18	5.764			
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-178.87	-29.9	-0.6	29.9	24.3	5.53	5.400			
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-178.87	-29.9	-0.6	29.9	24.0	5.88	5.080			
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-178.87	-29.9	-0.6	29.9	23.6	6.23	4.795			
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-178.87	-29.9	-0.6	29.9	23.3	6.58	4.540			
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-178.87	-29.9	-0.6	29.9	22.9	6.93	4.312			
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	-178.87	-29.9	-0.6	29.9	22.6	7.27	4.105			
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	-178.87	-29.9	-0.6	29.9	22.2	7.62	3.917			
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	-178.87	-29.9	-0.6	29.9	21.9	7.97	3.745			
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	-178.87	-29.9	-0.6	29.9	21.5	8.32	3.588			
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	-178.87	-29.9	-0.6	29.9	21.2	8.67	3.444 CC, ES, SF			
2,600.0	2,600.0	2,598.9	2,598.9	4.5	4.5	-179.00	-31.6	-0.6	31.6	22.6	9.02	3.502			
2,700.0	2,700.0	2,697.6	2,697.6	4.7	4.7	-179.32	-36.7	-0.4	36.8	27.4	9.36	3.925			
2,800.0	2,800.0	2,795.9	2,795.3	4.9	4.9	-179.69	-45.1	-0.2	45.4	35.6	9.71	4.671			
2,900.0	2,900.0	2,893.4	2,892.2	5.0	5.1	179.97	-56.8	0.0	57.4	47.3	10.06	5.704			
3,000.0	3,000.0	2,990.0	2,987.6	5.2	5.3	179.71	-71.6	0.4	72.7	62.3	10.40	6.992			
3,100.0	3,100.0	3,085.2	3,081.1	5.4	5.5	177.99	-89.4	0.8	93.1	82.3	10.73	8.672			
3,200.0	3,199.8	3,178.0	3,171.7	5.6	5.7	177.91	-109.7	1.2	120.0	109.0	11.05	10.860			
3,300.0	3,299.5	3,268.0	3,258.8	5.7	6.0	177.88	-132.2	1.8	153.3	142.0	11.35	13.503			
3,400.0	3,398.7	3,354.7	3,342.1	5.9	6.3	177.88	-156.4	2.3	192.7	181.0	11.65	16.537			
3,500.0	3,497.9	3,438.7	3,422.0	6.1	6.7	177.89	-182.2	2.9	235.6	223.7	11.97	19.889			
3,600.0	3,597.0	3,520.4	3,499.0	6.3	7.0	177.89	-209.6	3.5	281.2	268.9	12.28	22.898			
3,700.0	3,696.1	3,600.6	3,573.7	6.6	7.4	177.89	-238.6	4.2	329.2	316.6	12.59	26.150			
3,800.0	3,795.3	3,687.8	3,654.6	6.8	7.9	177.88	-271.0	4.9	378.2	365.3	12.91	29.296			
3,900.0	3,894.4	3,774.9	3,735.6	7.0	8.3	177.88	-303.4	5.7	427.2	414.0	13.23	32.290			
4,000.0	3,993.6	3,862.1	3,816.5	7.2	8.8	177.87	-335.8	6.4	476.2	462.7	13.55	35.143			
4,100.0	4,092.7	3,949.3	3,897.4	7.5	9.3	177.87	-368.2	7.2	525.2	511.3	13.87	37.864			
4,200.0	4,191.8	4,036.5	3,978.3	7.7	9.8	177.87	-400.7	7.9	574.2	560.0	14.19	40.463			
4,300.0	4,291.0	4,123.6	4,059.3	7.9	10.3	177.87	-433.1	8.6	623.2	608.7	14.51	42.948			
4,400.0	4,390.1	4,210.8	4,140.2	8.2	10.8	177.86	-465.5	9.4	672.2	657.4	14.83	45.326			
4,500.0	4,489.3	4,298.0	4,221.1	8.4	11.3	177.86	-497.9	10.1	721.2	706.0	15.15	47.604			
4,600.0	4,588.4	4,385.2	4,302.0	8.7	11.8	177.86	-530.3	10.9	770.2	754.7	15.47	49.788			
4,700.0	4,687.5	4,472.3	4,382.9	8.9	12.4	177.86	-562.7	11.6	819.2	803.4	15.79	51.884			
4,800.0	4,786.7	4,559.5	4,463.9	9.2	12.9	177.86	-595.1	12.4	868.2	852.1	16.11	53.897			
4,900.0	4,885.8	4,646.7	4,544.8	9.4	13.5	177.86	-627.5	13.1	917.2	900.8	16.43	55.832			
5,000.0	4,985.0	4,733.8	4,625.7	9.7	14.0	-163.19	-659.9	13.8	966.2	949.4	16.76	57.665			
5,100.0	5,083.2	4,820.2	4,705.8	9.9	14.5	-116.24	-692.0	14.6	1,014.8	997.6	17.24	58.879			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Rio Arriba County, NM
Reference Site: S14-T23N-R6W
Site Error: 0.0ft
Reference Well: Lybrook I14-2306 01H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 01H
TVD Reference: 16' KB @ 6828.0ft (Aztec)
MD Reference: 16' KB @ 6828.0ft (Aztec)
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 S14-T23N-R6W - Lybrook I14-2306 02H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink 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		
5,200.0	5,177.9	4,903.2	4,782.9	10.2	15.1	-99.74	-722.9	15.3	1,062.4	1,044.5	17.85	59.502		
5,300.0	5,266.0	4,980.5	4,854.6	10.8	15.8	-91.48	-751.6	15.9	1,108.7	1,090.1	18.56	59.746		
5,400.0	5,344.9	5,049.6	4,918.8	11.1	16.0	-86.22	-777.3	16.5	1,153.9	1,134.5	19.35	59.834		

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Rio Arriba County, NM
Reference Site: S14-T23N-R6W
Site Error: 0.0ft
Reference Well: Lybrook I14-2306 01H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 01H
TVD Reference: 16' KB @ 6828.0ft (Aztec)
MD Reference: 16' KB @ 6828.0ft (Aztec)
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 S14-T23N-R6W - Lybrook I14-2306 03H - Hz - Plan #1														Offset Site Error: 0.0 ft	
Survey Program: 0-Geolink MWD														Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance								
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	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-178.59	-60.1	-1.5	60.1						
100.0	100.0	100.0	100.0	0.1	0.1	-178.59	-60.1	-1.5	60.1	59.8	0.29	204.931			
200.0	200.0	200.0	200.0	0.3	0.3	-178.59	-60.1	-1.5	60.1	59.4	0.64	93.556			
300.0	300.0	300.0	300.0	0.5	0.5	-178.59	-60.1	-1.5	60.1	59.1	0.99	60.614			
400.0	400.0	400.0	400.0	0.7	0.7	-178.59	-60.1	-1.5	60.1	58.7	1.34	44.829			
500.0	500.0	500.0	500.0	0.8	0.8	-178.59	-60.1	-1.5	60.1	58.4	1.69	35.567			
600.0	600.0	600.0	600.0	1.0	1.0	-178.59	-60.1	-1.5	60.1	58.1	2.04	29.476			
700.0	700.0	700.0	700.0	1.2	1.2	-178.59	-60.1	-1.5	60.1	57.7	2.39	25.167			
800.0	800.0	800.0	800.0	1.4	1.4	-178.59	-60.1	-1.5	60.1	57.4	2.74	21.957			
900.0	900.0	900.0	900.0	1.5	1.5	-178.59	-60.1	-1.5	60.1	57.0	3.09	19.473			
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-178.59	-60.1	-1.5	60.1	56.7	3.43	17.494			
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-178.59	-60.1	-1.5	60.1	56.3	3.78	15.880			
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-178.59	-60.1	-1.5	60.1	56.0	4.13	14.539			
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-178.59	-60.1	-1.5	60.1	55.6	4.48	13.407			
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-178.59	-60.1	-1.5	60.1	55.3	4.83	12.438			
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-178.59	-60.1	-1.5	60.1	54.9	5.18	11.600			
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-178.59	-60.1	-1.5	60.1	54.6	5.53	10.868			
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-178.59	-60.1	-1.5	60.1	54.2	5.88	10.222			
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-178.59	-60.1	-1.5	60.1	53.9	6.23	9.649			
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-178.59	-60.1	-1.5	60.1	53.5	6.58	9.137			
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-178.59	-60.1	-1.5	60.1	53.2	6.93	8.677			
2,100.0	2,100.0	2,101.9	2,101.9	3.6	3.6	-179.26	-58.4	-0.8	58.4	51.2	7.28	8.030			
2,200.0	2,200.0	2,203.6	2,203.5	3.8	3.8	178.50	-53.4	1.4	53.6	45.9	7.63	7.019			
2,300.0	2,300.0	2,304.8	2,304.2	4.0	4.0	173.73	-45.2	5.0	45.7	37.7	7.99	5.720			
2,400.0	2,400.0	2,404.6	2,403.3	4.2	4.2	164.46	-34.5	9.6	36.0	27.6	8.35	4.312			
2,500.0	2,500.0	2,503.9	2,501.9	4.3	4.4	148.85	-23.7	14.3	27.7	19.0	8.73	3.177			
2,600.0	2,600.0	2,603.2	2,600.5	4.5	4.6	124.00	-12.8	19.0	22.9	13.8	9.13	2.512			
2,635.5	2,635.5	2,638.5	2,635.5	4.6	4.7	113.44	-9.0	20.7	22.5	13.3	9.27	2.431 CC, ES, SF			
2,700.0	2,700.0	2,702.5	2,699.1	4.7	4.8	94.76	-2.0	23.7	23.8	14.3	9.51	2.505			
2,800.0	2,800.0	2,801.8	2,797.7	4.9	5.1	72.66	8.9	28.4	29.9	20.0	9.83	3.038			
2,900.0	2,900.0	2,901.0	2,896.2	5.0	5.3	59.23	19.7	33.1	38.7	28.6	10.15	3.816			
3,000.0	3,000.0	3,000.3	2,994.8	5.2	5.5	51.05	30.6	37.8	48.9	38.4	10.48	4.669			
3,100.0	3,100.0	3,099.8	3,093.6	5.4	5.8	45.28	41.4	42.5	58.5	47.7	10.82	5.405			
3,200.0	3,199.8	3,199.5	3,192.6	5.6	6.0	44.29	52.3	47.3	65.8	54.6	11.18	5.886			
3,300.0	3,299.5	3,299.4	3,291.8	5.7	6.2	45.47	63.3	52.0	70.6	59.0	11.54	6.116			
3,400.0	3,398.7	3,399.3	3,390.9	5.9	6.5	48.46	74.2	56.7	73.1	61.2	11.93	6.130			
3,500.0	3,497.9	3,499.2	3,490.1	6.1	6.7	51.86	85.1	61.5	75.2	62.9	12.35	6.094			
3,600.0	3,597.0	3,599.0	3,589.3	6.3	7.0	55.06	96.0	66.2	77.6	64.8	12.78	6.073			
3,700.0	3,696.1	3,698.9	3,688.4	6.6	7.2	58.07	106.9	70.9	80.2	67.0	13.23	6.064			
3,800.0	3,795.3	3,798.8	3,787.6	6.8	7.5	60.88	117.8	75.7	83.0	69.3	13.69	6.065			
3,900.0	3,894.4	3,898.7	3,886.8	7.0	7.7	63.50	128.7	80.4	86.0	71.8	14.16	6.074			
4,000.0	3,993.6	3,998.6	3,986.0	7.2	8.0	65.94	139.7	85.1	89.2	74.5	14.64	6.089			
4,100.0	4,092.7	4,098.4	4,085.1	7.5	8.2	68.21	150.6	89.9	92.5	77.3	15.13	6.110			
4,200.0	4,191.8	4,198.3	4,184.3	7.7	8.5	70.32	161.5	94.6	95.9	80.3	15.63	6.135			
4,300.0	4,291.0	4,298.2	4,283.5	7.9	8.7	72.29	172.4	99.3	99.5	83.3	16.14	6.163			
4,400.0	4,390.1	4,398.1	4,382.6	8.2	9.0	74.11	183.3	104.1	103.1	86.5	16.65	6.194			
4,500.0	4,489.3	4,498.0	4,481.8	8.4	9.3	75.81	194.2	108.8	106.9	89.7	17.17	6.226			
4,600.0	4,588.4	4,597.8	4,581.0	8.7	9.5	77.39	205.1	113.5	110.8	93.1	17.69	6.261			
4,700.0	4,687.5	4,697.7	4,680.1	8.9	9.8	78.87	216.1	118.3	114.7	96.5	18.22	6.296			
4,800.0	4,786.7	4,797.6	4,779.3	9.2	10.0	80.24	227.0	123.0	118.7	99.9	18.74	6.332			
4,900.0	4,885.8	4,897.5	4,878.5	9.4	10.3	81.53	237.9	127.7	122.8	103.5	19.27	6.369			
5,000.0	4,985.0	4,997.3	4,977.6	9.7	10.6	100.38	248.8	132.5	127.4	107.6	19.79	6.437			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Rio Arriba County, NM
Reference Site: S14-T23N-R6W
Site Error: 0.0ft
Reference Well: Lybrook I14-2306 01H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 01H
TVD Reference: 16' KB @ 6828.0ft (Aztec)
MD Reference: 16' KB @ 6828.0ft (Aztec)
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 S14-T23N-R6W - Lybrook I14-2306 03H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink 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		
5,100.0	5,083.2	5,078.9	5,058.3	9.9	10.8	143.78	257.7	140.0	149.0	129.1	19.91	7.482		
5,200.0	5,177.9	5,150.0	5,127.1	10.2	11.0	157.67	265.4	155.8	198.5	179.0	19.54	10.157		
5,300.0	5,266.0	5,200.0	5,174.2	10.6	11.3	163.52	270.7	171.9	269.8	251.1	18.69	14.432		
5,400.0	5,344.9	5,227.8	5,199.6	11.1	11.4	166.14	273.6	182.6	355.9	338.5	17.46	20.379		
5,500.0	5,412.3	5,250.0	5,219.6	11.8	11.5	166.74	275.9	192.1	451.0	435.0	16.05	28.094		
5,600.0	5,466.1	5,250.0	5,219.6	12.8	11.5	140.53	275.9	192.1	550.2	532.8	17.41	31.610		
5,700.0	5,504.6	5,250.0	5,219.6	14.2	11.5	-3.97	275.9	192.1	649.9	637.0	12.88	50.440		
5,800.0	5,526.7	5,250.0	5,219.6	15.9	11.5	-5.85	275.9	192.1	747.4	735.3	12.09	61.827		
5,900.0	5,531.9	5,223.4	5,195.6	17.8	11.4	-6.35	273.2	180.9	840.2	828.2	12.00	70.019		
6,000.0	5,531.4	5,200.0	5,174.2	19.8	11.3	-6.35	270.7	171.9	932.2	919.9	12.30	75.767		
6,100.0	5,530.9	5,200.0	5,174.2	21.9	11.3	-6.35	270.7	171.9	1,025.0	1,012.3	12.64	81.117		
6,200.0	5,530.3	5,182.0	5,157.4	24.1	11.2	-6.34	268.8	165.6	1,118.6	1,105.6	12.95	86.394		

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Rio Arriba County, NM
Reference Site: S14-T23N-R6W
Site Error: 0.0ft
Reference Well: Lybrook I14-2306 01H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 01H
TVD Reference: 16' KB @ 6828.0ft (Aztec)
MD Reference: 16' KB @ 6828.0ft (Aztec)
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 S14-T23N-R6W - Lybrook I14-2306 04H - Hz - Plan #1														Offset Site Error: 0.0 ft
Survey Program: 0-Geolink 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	-178.69	-90.3	-2.1	90.3					
100.0	100.0	100.0	100.0	0.1	0.1	-178.69	-90.3	-2.1	90.3	90.0	0.29	308.006		
200.0	200.0	200.0	200.0	0.3	0.3	-178.69	-90.3	-2.1	90.3	89.7	0.64	140.611		
300.0	300.0	300.0	300.0	0.5	0.5	-178.69	-90.3	-2.1	90.3	89.3	0.99	91.100		
400.0	400.0	400.0	400.0	0.7	0.7	-178.69	-90.3	-2.1	90.3	89.0	1.34	67.376		
500.0	500.0	500.0	500.0	0.8	0.8	-178.69	-90.3	-2.1	90.3	88.6	1.69	53.456		
600.0	600.0	600.0	600.0	1.0	1.0	-178.69	-90.3	-2.1	90.3	88.3	2.04	44.302		
700.0	700.0	700.0	700.0	1.2	1.2	-178.69	-90.3	-2.1	90.3	87.9	2.39	37.825		
800.0	800.0	800.0	800.0	1.4	1.4	-178.69	-90.3	-2.1	90.3	87.6	2.74	33.001		
900.0	900.0	900.0	900.0	1.5	1.5	-178.69	-90.3	-2.1	90.3	87.2	3.09	29.268		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-178.69	-90.3	-2.1	90.3	86.9	3.43	26.293		
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-178.69	-90.3	-2.1	90.3	86.5	3.78	23.868		
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-178.69	-90.3	-2.1	90.3	86.2	4.13	21.852		
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-178.69	-90.3	-2.1	90.3	85.8	4.48	20.150		
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-178.69	-90.3	-2.1	90.3	85.5	4.83	18.694		
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-178.69	-90.3	-2.1	90.3	85.1	5.18	17.434		
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-178.69	-90.3	-2.1	90.3	84.8	5.53	16.334		
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-178.69	-90.3	-2.1	90.3	84.4	5.88	15.364		
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-178.69	-90.3	-2.1	90.3	84.1	6.23	14.503		
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-178.69	-90.3	-2.1	90.3	83.7	6.58	13.733		
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-178.69	-90.3	-2.1	90.3	83.4	6.93	13.041 CC, ES		
2,100.0	2,100.0	2,096.9	2,096.9	3.6	3.6	-178.78	-91.9	-2.0	92.0	84.7	7.27	12.656 SF		
2,200.0	2,200.0	2,193.6	2,193.5	3.8	3.8	-179.04	-96.8	-1.6	97.0	89.4	7.61	12.749		
2,300.0	2,300.0	2,289.9	2,289.4	4.0	4.0	-179.41	-104.9	-1.1	105.5	97.5	7.96	13.256		
2,400.0	2,400.0	2,385.5	2,384.3	4.2	4.2	-179.84	-116.1	-0.3	117.2	108.9	8.30	14.124		
2,500.0	2,500.0	2,480.2	2,478.0	4.3	4.4	179.72	-130.4	0.6	132.2	123.6	8.64	15.308		
2,600.0	2,600.0	2,573.9	2,570.1	4.5	4.6	179.31	-147.5	1.8	150.5	141.5	8.97	16.767		
2,700.0	2,700.0	2,666.4	2,660.4	4.7	4.9	178.93	-167.3	3.1	171.9	162.6	9.31	18.467		
2,800.0	2,800.0	2,757.5	2,748.7	4.9	5.2	178.60	-189.6	4.6	196.5	186.9	9.64	20.377		
2,900.0	2,900.0	2,847.0	2,834.7	5.0	5.5	178.32	-214.3	6.3	224.1	214.1	9.97	22.472		
3,000.0	3,000.0	2,934.9	2,918.4	5.2	5.9	178.08	-241.1	8.1	254.7	244.4	10.30	24.728		
3,100.0	3,100.0	3,020.4	2,999.0	5.4	6.3	176.32	-269.7	10.0	289.8	279.2	10.61	27.306		
3,200.0	3,199.8	3,108.0	3,080.8	5.6	6.7	176.14	-301.0	12.1	330.4	319.5	10.92	30.266		
3,300.0	3,299.5	3,197.8	3,164.5	5.7	7.2	176.01	-333.3	14.3	374.4	363.2	11.21	33.393		
3,400.0	3,398.7	3,286.1	3,246.8	5.9	7.7	175.94	-365.0	16.4	421.4	409.9	11.50	36.632		
3,500.0	3,497.9	3,373.8	3,328.7	6.1	8.2	175.94	-396.6	18.5	469.3	457.5	11.83	39.686		
3,600.0	3,597.0	3,461.6	3,410.6	6.3	8.7	175.94	-428.2	20.7	517.2	505.1	12.15	42.578		
3,700.0	3,696.1	3,549.4	3,492.5	6.6	9.2	175.94	-459.8	22.8	565.1	552.7	12.47	45.322		
3,800.0	3,795.3	3,637.2	3,574.4	6.8	9.7	175.95	-491.3	24.9	613.0	600.2	12.79	47.929		
3,900.0	3,894.4	3,725.0	3,656.2	7.0	10.2	175.95	-522.9	27.0	660.9	647.8	13.11	50.408		
4,000.0	3,993.6	3,812.8	3,738.1	7.2	10.7	175.95	-554.5	29.2	708.8	695.4	13.43	52.768		
4,100.0	4,092.7	3,900.5	3,820.0	7.5	11.3	175.95	-586.0	31.3	756.7	743.0	13.75	55.019		
4,200.0	4,191.8	3,988.3	3,901.9	7.7	11.8	175.95	-617.6	33.4	804.6	790.6	14.07	57.168		
4,300.0	4,291.0	4,076.1	3,983.8	7.9	12.3	175.95	-649.2	35.5	852.5	838.1	14.40	59.221		
4,400.0	4,390.1	4,163.9	4,065.6	8.2	12.9	175.95	-680.8	37.7	900.4	885.7	14.72	61.185		
4,500.0	4,489.3	4,251.7	4,147.5	8.4	13.4	175.95	-712.3	39.8	948.3	933.3	15.04	63.065		
4,600.0	4,588.4	4,339.4	4,229.4	8.7	14.0	175.95	-743.9	41.9	996.2	980.9	15.36	64.867		
4,700.0	4,687.5	4,427.2	4,311.3	8.9	14.5	175.95	-775.5	44.0	1,044.1	1,028.4	15.68	66.596		
4,800.0	4,786.7	4,515.0	4,393.2	9.2	15.1	175.95	-807.0	46.2	1,092.0	1,076.0	16.00	68.255		
4,900.0	4,885.8	4,602.8	4,475.0	9.4	15.6	175.95	-838.6	48.3	1,139.9	1,123.6	16.32	69.850		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

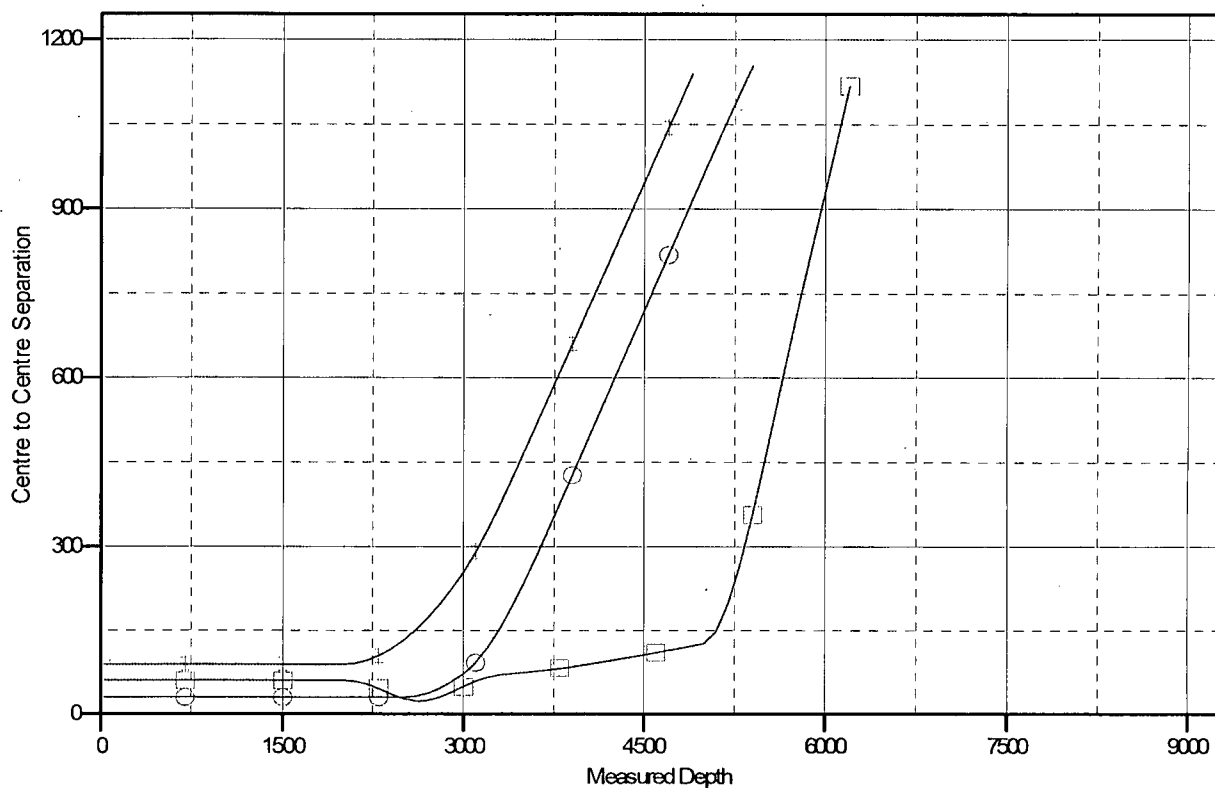
Company: EnCana Oil & Gas (USA) Inc
Project: Rio Arriba County, NM
Reference Site: S14-T23N-R6W
Site Error: 0.0ft
Reference Well: Lybrook I14-2306 01H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 01H
TVD Reference: 16' KB @ 6828.0ft (Aztec)
MD Reference: 16' KB @ 6828.0ft (Aztec)
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 @ 6828.0ft (Aztec)
 Offset Depths are relative to Offset Datum
 Central Meridian is -106.250000 °

Coordinates are relative to: Lybrook I14-2306 01H
 Coordinate System is US State Plane 1983, New Mexico Central Zone
 Grid Convergence at Surface is: -0.70°

Ladder Plot



LEGEND

Lybrook I14-2306 02H, Hz, Plan #1 V0 Lybrook I14-2306 03H, Hz, Plan #1 V0 Lybrook I14-2306 04H, Hz, Plan #1 V0

Lybrook 114-2306 01H

**SHL: NESE Section 14, T23N, R6W
1938' FSL and 553' FEL**

**BHL: NWSW Section 14, T23N, R6W
2229' FSL and 330' FWL**

Rio Arriba County, New Mexico

Lease Number: NMNM 118127

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 21.0 feet on the southeast corner (corner 2) and the maximum fill will be approximately 16.1 feet on the northwest corner (corner 5).

4. As determined during the onsite on April 22, 2014, the following best management practices will be implemented:

Three large silt traps will be constructed on the East side of the well pad between Corners 2 and 6, and will drain North towards Corner 6.

Water will be diverted around the pad and silt traps installed as needed upon interim reclamation.

5. Construction equipment may include chain saws, a brush hog, scraper, maintainer, excavator, and dozer. Construction for the access road and well pad will take approximately 3 weeks.

C. Pipeline

See the Standard SF-299 Application for authorization to construct, operate, maintain and terminate a 773 foot, up to 6-inch outside diameter, buried steel well connect pipeline that was submitted to the Bureau of Land Management on April 4, 2014.

7. METHODS FOR HANDLING WASTE

A. Cuttings

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

B. Drilling Fluids

1. A closed-loop system will be used. Drilling fluids will be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids will be recycled and transferred to other permitted closed-loop systems or returned to the vendor for reuse, as

ENCANA OIL & GAS (USA) INC.

LYBROOK I14-2308 #01H

1938' FSL & 553' FEL

LOCATED IN THE NE/4 SE/4 OF SECTION 14, T23N, R6W, N.M.P.M.,
RIO ARriba COUNTY, NEW MEXICO

DIRECTIONS

- 1) FROM THE INTERSECTION OF HWY 64 & HWY 550 IN BLOOMFIELD, GO SOUTH ON HWY 550, 53.6 MILES TO CR 379 (M.P. 197.7).
- 2) TURN LEFT ONTO CR 379 AND GO 0.9 MILES.
- 3) TURN RIGHT AND GO 1.8 MILES.
- 4) TURN RIGHT AND GO 0.3 MILES TO WHERE ACCESS IS FLAGGED ON LEFT SIDE OF ROAD.

WELL FLAG LOCATED AT LAT. 36.223258° N, LONG. 107.430964° W (NAD 83).



WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Lybrook I14-2306 01H

