

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 Encana, Well Name and Number Lybrook I 14 2306 #3H

API# 30-039-31274, Section 14, Township 23 N/S, 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 45.9 compliance
- ☒ Hold C-104 for NSI, 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 Per-

NMOCD Approved by Signature

3-20-2015

Date

KC

RECEIVED

MAR 10 2015

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AUG 15 2014

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

NMOC D UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Farmingington Field Office
APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM 118127
6. If Indian, Allottee or Tribe Name
N/A

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

8. Lease Name and Well No.
Lybrook 114-2306 03H

9. API Well No.
30-039-31274

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

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

12. County or Parish
Rio Arriba
13. State
NM

1a. Type of work: ☒ DRILL ☐ REENTER

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

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

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

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

4. Location of Well (Report location clearly and in accordance with any State requirements.)
At surface 1878' FSL and 556' FEL Section 14, T23N, R6W
At proposed prod. zone 2271' FSL and 330' FEL Section 13, T23N, R6W

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

15. Distance from proposed* location to nearest property or lease line, ft. BHL is 330' from east lease line Section 13, T23N, R6W
(Also to nearest drig. unit line, if any)

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

17. Spacing Unit dedicated to this well
320 acres - S2 of Section 13, 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
5,527' TVD/10,733' 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:

- 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 *Katie Wegner* Name (Printed/Typed) Katie Wegner Date 8/14/14

Title
Regulatory Analyst

Approved by (Signature) *[Signature]* Name (Printed/Typed) Date 3/6/15

Title AFM Office FFO

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

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

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

NMOC D

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

DISTRICT I

1838 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 893-6101 Fax: (575) 893-0720

DISTRICT II

811 S. First St., Artesia, N.M. 88210
Phone: (575) 746-1833 Fax: (575) 746-9720

DISTRICT III

1000 E. Briscoe Rd., Artesia, N.M. 87410
Phone: (505) 334-6176 Fax: (505) 334-6170

DISTRICT IV

1820 S. R. Francis Dr., Santa Fe, NM 87605
Phone: (505) 476-8460 Fax: (505) 476-8468

State of New Mexico
Energy, Minerals & Natural Resources Department

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Form C-102

Revised August 1, 2011

AUG 15 2014

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Farmington Field Office

Santa Fe, NM 87505 Bureau of Land Management

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-039-31274		Pool Code 13379	Pool Name COUNSELORS GALLUP-DAKOTA
Property Code 314243	Property Name LYBROOK 114-2306		Well Number 03H
GRID No. 282327	Operator Name ENCANA OIL & GAS (USA) INC.		Elevation 6813.7

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		1878'	SOUTH	556'	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
1	13	23N	6W		2271'	SOUTH	330'	EAST	RIO ARriba

Dedicated Acres 320.00 ACRES	PROJECT AREA S/2 SEC. 13	Joint or Infill	Consolidation Code	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

16

WELL FLAG LAT. 36.223093° N (NAD83) LONG. 107.430969° W (NAD83) LAT. 36.223078° N (NAD27) LONG. 107.430365° W (NAD27) ENTRY POINT LAT. 36.224125° N (NAD83) LONG. 107.428571° W (NAD83) LAT. 36.224111° N (NAD27) LONG. 107.427967° W (NAD27) BOTTOM HOLE LAT. 36.224253° N (NAD83) LONG. 107.412147° W (NAD83) LAT. 36.224239° N (NAD27) LONG. 107.411544° W (NAD27) ALL CORNERS FND 3/4" BC BLM 1964 NORTHEAST CORNER SEC. 14 LAT. 36.232493° N (NAD83) LONG. 107.429327° W (NAD83) LAT. 36.232479° N (NAD27) LONG. 107.428723° 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) NORTHEAST CORNER SEC. 13 LAT. 36.232701° N (NAD83) LONG. 107.411017° W (NAD83) LAT. 36.232687° N (NAD27) LONG. 107.410414° W (NAD27) SOUTHEAST CORNER SEC. 13 LAT. 36.218022° N (NAD83) LONG. 107.411037° W (NAD83) LAT. 36.218008° N (NAD27) LONG. 107.410434° 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. <i>Katie Wegner</i> 8/14/14 Signature Date Katie Wegner Printed Name katie.wegner@encana.com E-mail Address 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. JUNE 16, 2014 Date of Survey <i>David R. Russell</i> Signature and Seal of Professional Surveyor DAVID R. RUSSELL NEW MEXICO REGISTERED PROFESSIONAL LAND SURVEYOR 10201 David Russell Certificate Number 10201
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Lybrook I14-2306 03H

SHL: 1878' FSL 556' FEL Sec 14 23N 06W

BHL: 2271' FSL 330' FEL Sec 13 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	5,061
Gallup Fn.	5,288
Horizontal Target	5,537
Base Gallup	5,605

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	5,061
Oil/Gas	Gallup Fn.	5,288

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

3. PRESSURE CONTROL

- a) Pressure control equipment and configuration will be designed to meet 2M standards.
- b) Working pressure on rams and BOPE will be 3,000 psi.

- c) Function test and visual inspection of the BOP will be conducted daily and noted in the IADC Daily Drilling Report.
- d) The Annular BOP will be pressure tested to a minimum of 50 percent of its rated working pressure.
- e) Blind and Pipe Rams/BOP will be tested against a test plug to 100 percent of rated working pressure.
- f) Pressure tests are required before drilling out from under all casing strings set and cemented in place.
- g) BOP controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.
- h) BOP testing procedures and testing frequency will conform to Onshore Order No. 2.
- 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'-5788'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5588'-10733'	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

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'-5788'	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	5588'-10733'	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 2000'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5527'/10733'	Gallup

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'-5527'/5788'	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"	5527'/5788'- 5527'/10733'	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 +/- 2591 psi based on a 9.0 ppg at 5537' 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: 1878' FSL & 556' FEL Sec 14 23N 0			Encana Natural Gas			ENG: Sara Smaltz 8/12/14		
County: Rio Arriba			WELL SUMMARY			RIG: Artec 950		
WELL: Lybrook I14-2306 03H						GLE: 6811.7		
						RKBE: 6827.7		
MWD	OPEN HOLE	FORM	DEPTH		HOLE SIZE	CASING	MW	DEVIATION
LWD	LOGGING		TVD	MD		SPECS	MUD TYPE	INFORMATION
			60	60'		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					
		Nacimiento Fn. 9 5/8" Csg	surface 500	500.00	12 1/4	9 5/8" 36ppf J55 STC 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.	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 Surveys every 30' through the curve	No OH logs	Ojo Alamo Ss.	1,440			7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 908sks Stage 1 Lead: 516 sks HALCEM™ SYSTEM + 0.2% HR-3 + 5lbm/sk Kol-Seal + 0.125lbm/sk Poly-E-Flake. Mixed at 12.3 ppg. Yield 1.948 cuft/sk. 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.	Fresh Wtr 8.3-10	Vertical <1°
		Kirtland Shale	1,599					
		Fruitland Coal	1,863					
		Pictured Cliffs Ss.	1,982					
		Lewis Shale	2,119					
		Cliffhouse Ss.	2,819					
	Mud logger onsite	Menefee Fn.	3,531					
		Point Lookout Ss.	4,238					
		Mancos Shale	4,465					
		KOP	2,000	2,000				
		Mancos Silt	5,061			6 1/8 200' overlap at liner top 4946' Drilled Lateral		Horz Inc/TVD 90.1deg/5536.7ft TD = 10733.3 MD
		Gallup Fn.	5,288					
		7" Csg	5,527	5,788'				
Surveys every stand to TD unless directed otherwise by Geologist MWD Gamma Directional	No OH Logs	Horizontal Target TD	5,537 5,527	10,733		4 1/2" 11.6ppf SB80 LTC Running external swellable csg packers for isolation of prod string	WBM 8.3-10	
		Base Gallup	5,605					

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 2000', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5788' MD
- 7) R&C 7" csg, circ cmt to surface, switch to WBM
- 8) Land at 90 deg, drill lateral to 10733' run 4 1/2 inch liner with external swellable csg packers

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 03H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 03H
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 03H			
Well Position	+N/-S	0.0 ft	Northing:	1,902,597.43 ft
	+E/-W	0.0 ft	Easting:	1,292,088.33 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)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	89.44

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	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,400.0	4.00	60.00	2,399.7	7.0	12.1	1.00	1.00	0.00	60.00	
2,642.5	7.29	21.38	2,641.1	25.5	25.0	2.00	1.36	-15.92	-69.45	
5,014.4	7.29	21.38	4,993.8	305.7	134.7	0.00	0.00	0.00	0.00	
5,888.2	90.10	89.44	5,535.7	375.7	707.4	10.00	9.48	7.79	68.21	Lybrook I14-2306 03H
10,733.3	90.10	89.44	5,527.3	422.9	5,552.2	0.00	0.00	0.00	0.00	Lybrook I14-2306 03H

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 03H
 Wellbore: Hz
 Design: Plan #1

Local Co-ordinate Reference: Well Lybrook 114-2306 03H
 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	KOP @ 2000'
2,100.0	1.00	60.00	2,100.0	0.4	0.8	0.8	1.00	1.00	
2,119.0	1.19	60.00	2,119.0	0.6	1.1	1.1	1.00	1.00	Lewis Shale
2,200.0	2.00	60.00	2,200.0	1.7	3.0	3.0	1.00	1.00	
2,300.0	3.00	60.00	2,299.9	3.9	6.8	6.8	1.00	1.00	
2,400.0	4.00	60.00	2,399.7	7.0	12.1	12.2	1.00	1.00	Start build/turn @ 2400' MD
2,500.0	5.06	38.26	2,499.4	12.2	17.8	18.0	2.00	1.06	
2,600.0	6.57	25.21	2,598.9	20.8	23.0	23.2	2.00	1.51	
2,642.5	7.29	21.38	2,641.1	25.5	25.0	25.3	2.00	1.68	EOB; Inc=7.29°
2,700.0	7.29	21.38	2,698.1	32.3	27.7	28.0	0.00	0.00	
2,800.0	7.29	21.38	2,797.3	44.1	32.3	32.7	0.00	0.00	
2,821.8	7.29	21.38	2,818.9	46.7	33.3	33.8	0.00	0.00	Cliffhouse Ss.
2,900.0	7.29	21.38	2,896.5	56.0	36.9	37.5	0.00	0.00	
3,000.0	7.29	21.38	2,995.7	67.8	41.6	42.2	0.00	0.00	
3,100.0	7.29	21.38	3,094.8	79.6	46.2	47.0	0.00	0.00	
3,200.0	7.29	21.38	3,194.0	91.4	50.8	51.7	0.00	0.00	
3,300.0	7.29	21.38	3,293.2	103.2	55.4	56.4	0.00	0.00	
3,400.0	7.29	21.38	3,392.4	115.0	60.1	61.2	0.00	0.00	
3,500.0	7.29	21.38	3,491.6	126.8	64.7	65.9	0.00	0.00	
3,539.6	7.29	21.38	3,530.9	131.5	66.5	67.8	0.00	0.00	Menefee Fn.
3,600.0	7.29	21.38	3,590.8	138.7	69.3	70.7	0.00	0.00	
3,700.0	7.29	21.38	3,690.0	150.5	73.9	75.4	0.00	0.00	
3,800.0	7.29	21.38	3,789.2	162.3	78.6	80.1	0.00	0.00	
3,900.0	7.29	21.38	3,888.4	174.1	83.2	84.9	0.00	0.00	
4,000.0	7.29	21.38	3,987.6	185.9	87.8	89.6	0.00	0.00	
4,100.0	7.29	21.38	4,086.8	197.7	92.4	94.4	0.00	0.00	
4,200.0	7.29	21.38	4,186.0	209.5	97.1	99.1	0.00	0.00	
4,252.3	7.29	21.38	4,237.8	215.7	99.5	101.6	0.00	0.00	Point Lookout Ss.

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 03H
 Wellbore: Hz
 Design: Plan #1

Local Co-ordinate Reference: Well Lybrook 114-2306 03H
 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	7.29	21.38	4,285.2	221.3	101.7	103.8	0.00	0.00	
4,400.0	7.29	21.38	4,384.3	233.2	106.3	108.6	0.00	0.00	
4,481.1	7.29	21.38	4,464.8	242.7	110.1	112.4	0.00	0.00	Mancos Shale
4,500.0	7.29	21.38	4,483.5	245.0	110.9	113.3	0.00	0.00	
4,600.0	7.29	21.38	4,582.7	256.8	115.6	118.1	0.00	0.00	
4,700.0	7.29	21.38	4,681.9	268.6	120.2	122.8	0.00	0.00	
4,800.0	7.29	21.38	4,781.1	280.4	124.8	127.5	0.00	0.00	
4,900.0	7.29	21.38	4,880.3	292.2	129.4	132.3	0.00	0.00	
5,000.0	7.29	21.38	4,979.5	304.0	134.1	137.0	0.00	0.00	
5,014.4	7.29	21.38	4,993.8	305.7	134.7	137.7	0.00	0.00	Start build/turn @ 5014' MD
5,082.3	11.65	54.30	5,060.7	313.8	141.9	144.9	10.00	6.42	Mancos Sill
5,100.0	13.13	58.86	5,078.1	315.8	145.0	148.1	10.00	8.35	
5,200.0	22.28	72.60	5,173.3	327.4	172.9	176.1	10.00	9.15	
5,300.0	31.93	78.46	5,262.2	338.4	217.0	220.3	10.00	9.65	
5,330.4	34.90	79.64	5,287.6	341.6	233.5	236.8	10.00	9.77	Gallup Fn.
5,400.0	41.73	81.79	5,342.2	348.5	276.0	279.4	10.00	9.82	
5,500.0	51.60	84.04	5,410.7	357.3	348.1	351.6	10.00	9.87	
5,600.0	61.50	85.74	5,465.8	364.7	431.1	434.7	10.00	9.90	
5,700.0	71.41	87.14	5,505.7	370.3	522.5	526.1	10.00	9.92	
5,787.7	80.12	88.25	5,527.2	373.7	607.4	611.0	10.00	9.93	7" ICP
5,800.0	81.34	88.40	5,529.2	374.1	619.5	623.1	10.00	9.93	
5,888.2	90.10	89.44	5,535.7	375.7	707.4	711.0	10.00	9.93	LP @ 5535' TVD; 90.1°
5,900.0	90.10	89.44	5,535.7	375.8	719.2	722.8	0.00	0.00	
6,000.0	90.10	89.44	5,535.6	376.8	819.2	822.8	0.00	0.00	
6,100.0	90.10	89.44	5,535.4	377.8	919.2	922.8	0.00	0.00	
6,200.0	90.10	89.44	5,535.2	378.8	1,019.1	1,022.8	0.00	0.00	
6,300.0	90.10	89.44	5,535.0	379.7	1,119.1	1,122.8	0.00	0.00	
6,400.0	90.10	89.44	5,534.9	380.7	1,219.1	1,222.8	0.00	0.00	
6,500.0	90.10	89.44	5,534.7	381.7	1,319.1	1,322.8	0.00	0.00	
6,600.0	90.10	89.44	5,534.5	382.7	1,419.1	1,422.8	0.00	0.00	
6,700.0	90.10	89.44	5,534.3	383.6	1,519.1	1,522.8	0.00	0.00	
6,800.0	90.10	89.44	5,534.2	384.6	1,619.1	1,622.8	0.00	0.00	
6,900.0	90.10	89.44	5,534.0	385.6	1,719.1	1,722.8	0.00	0.00	
7,000.0	90.10	89.44	5,533.8	386.5	1,819.1	1,822.8	0.00	0.00	
7,100.0	90.10	89.44	5,533.6	387.5	1,919.1	1,922.8	0.00	0.00	
7,200.0	90.10	89.44	5,533.5	388.5	2,019.1	2,022.8	0.00	0.00	
7,300.0	90.10	89.44	5,533.3	389.5	2,119.1	2,122.8	0.00	0.00	
7,400.0	90.10	89.44	5,533.1	390.4	2,219.1	2,222.8	0.00	0.00	
7,500.0	90.10	89.44	5,532.9	391.4	2,319.1	2,322.8	0.00	0.00	
7,600.0	90.10	89.44	5,532.8	392.4	2,419.1	2,422.8	0.00	0.00	
7,700.0	90.10	89.44	5,532.6	393.4	2,519.1	2,522.8	0.00	0.00	
7,800.0	90.10	89.44	5,532.4	394.3	2,619.1	2,622.8	0.00	0.00	
7,900.0	90.10	89.44	5,532.2	395.3	2,719.1	2,722.8	0.00	0.00	
8,000.0	90.10	89.44	5,532.1	396.3	2,819.1	2,822.8	0.00	0.00	
8,100.0	90.10	89.44	5,531.9	397.2	2,919.1	2,922.8	0.00	0.00	
8,200.0	90.10	89.44	5,531.7	398.2	3,019.1	3,022.8	0.00	0.00	
8,300.0	90.10	89.44	5,531.5	399.2	3,119.0	3,122.8	0.00	0.00	
8,400.0	90.10	89.44	5,531.4	400.2	3,219.0	3,222.8	0.00	0.00	
8,500.0	90.10	89.44	5,531.2	401.1	3,319.0	3,322.8	0.00	0.00	
8,600.0	90.10	89.44	5,531.0	402.1	3,419.0	3,422.8	0.00	0.00	
8,700.0	90.10	89.44	5,530.8	403.1	3,519.0	3,522.8	0.00	0.00	
8,800.0	90.10	89.44	5,530.7	404.1	3,619.0	3,622.8	0.00	0.00	

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 03H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 03H
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	90.10	89.44	5,530.5	405.0	3,719.0	3,722.8	0.00	0.00	
9,000.0	90.10	89.44	5,530.3	406.0	3,819.0	3,822.8	0.00	0.00	
9,100.0	90.10	89.44	5,530.1	407.0	3,919.0	3,922.8	0.00	0.00	
9,200.0	90.10	89.44	5,530.0	407.9	4,019.0	4,022.8	0.00	0.00	
9,300.0	90.10	89.44	5,529.8	408.9	4,119.0	4,122.8	0.00	0.00	
9,400.0	90.10	89.44	5,529.6	409.9	4,219.0	4,222.8	0.00	0.00	
9,500.0	90.10	89.44	5,529.5	410.9	4,319.0	4,322.8	0.00	0.00	
9,600.0	90.10	89.44	5,529.3	411.8	4,419.0	4,422.8	0.00	0.00	
9,700.0	90.10	89.44	5,529.1	412.8	4,519.0	4,522.8	0.00	0.00	
9,800.0	90.10	89.44	5,528.9	413.8	4,619.0	4,622.8	0.00	0.00	
9,900.0	90.10	89.44	5,528.8	414.8	4,719.0	4,722.8	0.00	0.00	
10,000.0	90.10	89.44	5,528.6	415.7	4,819.0	4,822.8	0.00	0.00	
10,100.0	90.10	89.44	5,528.4	416.7	4,919.0	4,922.8	0.00	0.00	
10,200.0	90.10	89.44	5,528.2	417.7	5,019.0	5,022.8	0.00	0.00	
10,300.0	90.10	89.44	5,528.1	418.6	5,118.9	5,122.8	0.00	0.00	
10,400.0	90.10	89.44	5,527.9	419.6	5,218.9	5,222.8	0.00	0.00	
10,500.0	90.10	89.44	5,527.7	420.6	5,318.9	5,322.8	0.00	0.00	
10,600.0	90.10	89.44	5,527.5	421.6	5,418.9	5,422.8	0.00	0.00	
10,700.0	90.10	89.44	5,527.4	422.5	5,518.9	5,522.8	0.00	0.00	
10,733.3	90.10	89.44	5,527.3	422.9	5,552.2	5,556.0	0.00	0.00	TD at 10733.3

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lybrook I14-2306 03H P - plan hits target center - Point	0.00	0.00	5,535.7	375.7	707.4	1,902,964.51	1,292,800.23	36.224125	-107.428571
Lybrook I14-2306 03H P - plan hits target center - Point	0.00	0.00	5,527.3	422.9	5,552.2	1,902,952.63	1,297,645.25	36.224253	-107.412147

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
500.0	500.0	9 5/8"	0.000	0.000
5,787.7	5,527.2	7" ICP	0.000	0.000

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 03H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well Lybrook 114-2306 03H
TVD Reference: 16' KB @ 6828.0ft (Aztec)
MD Reference: 16' KB @ 6828.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,440.0	1,440.0	Ojo Alamo Ss.		-0.10	89.44
1,599.0	1,599.0	Kirtland Shale		-0.10	89.44
1,863.0	1,863.0	Fruiland Coal		-0.10	89.44
1,982.0	1,982.0	Pictured Cliffs Ss.		-0.10	89.44
2,119.0	2,119.0	Lewis Shale		-0.10	89.44
2,821.8	2,819.0	Cliffhouse Ss.		-0.10	89.44
3,539.6	3,531.0	Menefee Fn.		-0.10	89.44
4,252.3	4,238.0	Point Lookout Ss.		-0.10	89.44
4,481.1	4,465.0	Mancos Shale		-0.10	89.44
5,082.3	5,061.0	Mancos Silt		-0.10	89.44
5,330.4	5,288.0	Gallup Fn.		-0.10	89.44

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,000.0	2,000.0	0.0	0.0	KOP @ 2000'
2,400.0	2,399.7	7.0	12.1	Start build/turn @ 2400' MD
2,642.5	2,641.1	25.5	25.0	EOB; Inc=7.29°
5,014.4	4,993.8	305.7	134.7	Start build/turn @ 5014' MD
5,888.2	5,535.7	375.7	707.4	LP @ 5535' TVD; 90.1°
10,733.3	5,527.3	422.9	5,552.2	TD at 10733.3

EnCana Oil & Gas (USA) Inc

Rio Arriba County, NM

S14-T23N-R6W

Lybrook I14-2306 03H

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 03H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 03H
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:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,273.2ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date 7/30/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,731.9	Plan #1 (Hz)	Geolink MWD	Geolink MWD

Summary						
Site Name	Reference	Offset	Distance		Separation	Warning
	Measured	Measured	Between	Between		
Offset Well - Wellbore - Design	Depth	Depth	Centres	Ellipses	Factor	
	(ft)	(ft)	(ft)	(ft)		
S14-T23N-R6W						
Lybrook I14-2306 01H - Hz - Plan #1	2,828.3	2,825.3	34.5	24.6	3.476	CC, ES, SF
Lybrook I14-2306 02H - Hz - Plan #1	2,599.9	2,599.1	23.4	14.3	2.582	CC
Lybrook I14-2306 02H - Hz - Plan #1	2,600.0	2,599.2	23.4	14.3	2.582	ES, SF
Lybrook I14-2306 04H - Hz - Plan #1	2,000.0	2,000.0	30.2	23.3	4.364	CC, ES, 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 114-2306 03H
 Well Error: 0.0ft
 Reference Wellbore: Hz
 Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook 114-2306 03H
 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 114-2306 01H - 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				Total Uncertainty Axis	Separation Factor	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)			
0.0	0.0	0.0	0.0	0.0	0.0	1.41	60.1	1.5	60.1				
100.0	100.0	100.0	100.0	0.1	0.1	1.41	60.1	1.5	60.1	59.8	0.29	204.931	
200.0	200.0	200.0	200.0	0.3	0.3	1.41	60.1	1.5	60.1	59.4	0.64	93.556	
300.0	300.0	300.0	300.0	0.5	0.5	1.41	60.1	1.5	60.1	59.1	0.99	60.614	
400.0	400.0	400.0	400.0	0.7	0.7	1.41	60.1	1.5	60.1	58.7	1.34	44.829	
500.0	500.0	500.0	500.0	0.8	0.8	1.41	60.1	1.5	60.1	58.4	1.69	35.567	
600.0	600.0	600.0	600.0	1.0	1.0	1.41	60.1	1.5	60.1	58.1	2.04	29.476	
700.0	700.0	700.0	700.0	1.2	1.2	1.41	60.1	1.5	60.1	57.7	2.39	25.167	
800.0	800.0	800.0	800.0	1.4	1.4	1.41	60.1	1.5	60.1	57.4	2.74	21.957	
900.0	900.0	900.0	900.0	1.5	1.5	1.41	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	1.41	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	1.41	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	1.41	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	1.41	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	1.41	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	1.41	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	1.41	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	1.41	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	1.41	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	1.41	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	1.41	60.1	1.5	60.1	53.2	6.93	8.677	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	-59.31	60.1	1.5	59.6	52.4	7.27	8.198	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	-61.53	60.1	1.5	58.3	50.7	7.62	7.653	
2,300.0	2,299.9	2,299.9	2,299.9	4.0	4.0	-65.45	60.1	1.5	56.4	48.4	7.97	7.072	
2,400.0	2,399.7	2,399.7	2,399.7	4.2	4.2	-71.35	60.1	1.5	54.1	45.8	8.33	6.500	
2,500.0	2,499.4	2,499.4	2,499.4	4.4	4.3	-57.23	60.1	1.5	50.6	41.9	8.68	5.827	
2,600.0	2,598.9	2,598.9	2,598.9	4.6	4.5	-54.14	60.1	1.5	44.8	35.7	9.05	4.948	
2,700.0	2,698.1	2,698.1	2,698.1	4.8	4.7	-64.94	60.1	1.5	38.2	28.7	9.43	4.047	
2,800.0	2,797.3	2,797.3	2,797.3	5.0	4.9	-84.11	60.1	1.5	34.7	24.9	9.82	3.533	
2,828.3	2,825.3	2,825.3	2,825.3	5.0	4.9	-90.00	60.1	1.5	34.5	24.6	9.93	3.476 CC, ES, SF	
2,900.0	2,896.5	2,896.5	2,896.5	5.2	5.0	-104.65	60.1	1.5	35.7	25.5	10.19	3.504	
3,000.0	2,995.7	2,995.7	2,995.7	5.4	5.2	-122.05	60.1	1.5	40.8	30.3	10.51	3.882	
3,100.0	3,094.8	3,095.5	3,095.5	5.6	5.4	-133.08	61.7	1.5	48.1	37.3	10.84	4.440	
3,200.0	3,194.0	3,196.0	3,195.8	5.9	5.6	-137.92	66.8	1.7	55.0	43.8	11.19	4.915	
3,300.0	3,293.2	3,296.8	3,296.3	6.1	5.7	-138.82	75.4	1.9	60.4	48.8	11.57	5.221	
3,400.0	3,392.4	3,397.5	3,396.3	6.4	5.9	-136.88	87.5	2.2	64.2	52.2	11.98	5.357	
3,500.0	3,491.6	3,497.4	3,495.3	6.6	6.1	-134.35	100.6	2.6	67.6	55.1	12.41	5.444	
3,600.0	3,590.8	3,597.3	3,594.3	6.9	6.3	-132.06	113.8	2.9	71.0	58.2	12.85	5.530	
3,700.0	3,690.0	3,697.2	3,693.4	7.1	6.5	-129.99	126.7	3.3	74.6	61.3	13.30	5.612	
3,800.0	3,789.2	3,797.1	3,792.4	7.4	6.8	-128.11	139.8	3.6	78.3	64.6	13.76	5.691	
3,900.0	3,888.4	3,897.0	3,891.5	7.6	7.0	-126.41	152.8	4.0	82.1	67.9	14.24	5.767	
4,000.0	3,987.6	3,996.9	3,990.5	7.9	7.2	-124.85	165.9	4.3	85.9	71.2	14.72	5.839	
4,100.0	4,086.8	4,096.8	4,089.6	8.1	7.4	-123.43	178.9	4.7	89.8	74.6	15.20	5.907	
4,200.0	4,186.0	4,196.7	4,188.6	8.4	7.7	-122.13	192.0	5.0	93.7	78.0	15.70	5.972	
4,300.0	4,285.2	4,296.6	4,287.6	8.7	7.9	-120.93	205.1	5.4	97.7	81.5	16.20	6.033	
4,400.0	4,384.3	4,396.5	4,386.7	8.9	8.2	-119.82	218.1	5.7	101.7	85.0	16.70	6.091	
4,500.0	4,483.5	4,496.4	4,485.7	9.2	8.4	-118.80	231.2	6.1	105.8	88.6	17.21	6.146	
4,600.0	4,582.7	4,596.3	4,584.8	9.4	8.7	-117.86	244.2	6.4	109.9	92.2	17.73	6.199	
4,700.0	4,681.9	4,696.2	4,683.8	9.7	8.9	-116.98	257.3	6.8	114.0	95.8	18.25	6.248	
4,800.0	4,781.1	4,796.1	4,782.9	10.0	9.2	-116.17	270.4	7.1	118.1	99.4	18.77	6.295	
4,900.0	4,880.3	4,896.0	4,881.9	10.2	9.4	-115.41	283.4	7.4	122.3	103.0	19.29	6.340	
5,000.0	4,979.5	4,992.4	4,977.4	10.5	9.7	-114.72	296.0	7.8	126.8	107.0	19.81	6.399	

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 03H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 03H
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 01H - 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	5,078.1	5,071.4	5,055.4	10.8	9.9	-151.02	306.2	0.2	147.0	128.9	20.05	7.329		
5,200.0	5,173.3	5,138.8	5,120.5	11.2	10.0	-163.58	314.7	-14.6	195.2	175.5	19.79	9.886		
5,300.0	5,282.2	5,189.3	5,168.0	11.7	10.2	-168.51	320.8	-30.7	265.6	246.6	19.04	13.952		
5,400.0	5,342.2	5,222.8	5,198.6	12.4	10.3	-171.18	324.8	-43.7	351.3	333.4	17.87	19.656		
5,500.0	5,410.7	5,250.0	5,222.9	13.3	10.4	-173.07	327.9	-55.5	446.2	429.8	16.40	27.199		
5,600.0	5,465.8	5,250.0	5,222.9	14.5	10.4	178.42	327.9	-55.5	545.1	530.7	14.45	37.725		
5,700.0	5,505.7	5,250.0	5,222.9	16.0	10.4	9.27	327.9	-55.5	644.9	631.2	13.71	47.034		
5,800.0	5,529.2	5,235.7	5,210.2	17.7	10.3	7.72	326.2	-49.2	742.4	729.9	12.52	59.295		
5,900.0	5,535.7	5,220.5	5,196.6	19.6	10.3	7.35	324.5	-42.8	835.6	823.5	12.12	68.934		
6,000.0	5,535.6	5,200.0	5,177.9	21.7	10.2	7.36	322.1	-34.7	927.3	914.9	12.46	74.450		
6,100.0	5,535.4	5,200.0	5,177.9	23.8	10.2	7.36	322.1	-34.7	1,020.1	1,007.3	12.82	79.605		
6,200.0	5,535.2	5,178.6	5,158.1	26.0	10.2	7.37	319.6	-27.0	1,113.6	1,100.4	13.15	84.664		
6,300.0	5,535.0	5,167.6	5,147.7	28.2	10.1	7.38	318.2	-23.3	1,207.8	1,194.3	13.50	89.449		

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 114-2306 03H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook 114-2306 03H
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 114-2306 02H - Hz - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD														Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	1.68	30.2	0.9	30.2						
100.0	100.0	100.0	100.0	0.1	0.1	1.68	30.2	0.9	30.2	29.9	0.29	103.100			
200.0	200.0	200.0	200.0	0.3	0.3	1.68	30.2	0.9	30.2	29.6	0.64	47.067			
300.0	300.0	300.0	300.0	0.5	0.5	1.68	30.2	0.9	30.2	29.2	0.99	30.494			
400.0	400.0	400.0	400.0	0.7	0.7	1.68	30.2	0.9	30.2	28.9	1.34	22.553			
500.0	500.0	500.0	500.0	0.8	0.8	1.68	30.2	0.9	30.2	28.5	1.69	17.893			
600.0	600.0	600.0	600.0	1.0	1.0	1.68	30.2	0.9	30.2	28.2	2.04	14.829			
700.0	700.0	700.0	700.0	1.2	1.2	1.68	30.2	0.9	30.2	27.8	2.39	12.661			
800.0	800.0	800.0	800.0	1.4	1.4	1.68	30.2	0.9	30.2	27.5	2.74	11.046			
900.0	900.0	900.0	900.0	1.5	1.5	1.68	30.2	0.9	30.2	27.1	3.09	9.797			
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	1.68	30.2	0.9	30.2	26.8	3.43	8.801			
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	1.68	30.2	0.9	30.2	26.4	3.78	7.989			
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	1.68	30.2	0.9	30.2	26.1	4.13	7.315			
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	1.68	30.2	0.9	30.2	25.7	4.48	6.745			
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	1.68	30.2	0.9	30.2	25.4	4.83	6.258			
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	1.68	30.2	0.9	30.2	25.1	5.18	5.836			
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	1.68	30.2	0.9	30.2	24.7	5.53	5.467			
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	1.68	30.2	0.9	30.2	24.4	5.88	5.143			
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	1.68	30.2	0.9	30.2	24.0	6.23	4.854			
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	1.68	30.2	0.9	30.2	23.7	6.58	4.597			
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	1.68	30.2	0.9	30.2	23.3	6.93	4.365			
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	-59.76	30.2	0.9	29.8	22.5	7.27	4.094			
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	-64.31	30.2	0.9	28.6	20.9	7.62	3.745			
2,300.0	2,299.9	2,299.9	2,299.9	4.0	4.0	-72.70	30.2	0.9	26.9	19.0	7.98	3.379			
2,400.0	2,399.7	2,399.7	2,399.7	4.2	4.2	-85.75	30.2	0.9	25.8	17.5	8.33	3.096			
2,500.0	2,499.4	2,499.4	2,499.4	4.4	4.3	-81.53	30.2	0.9	24.8	16.1	8.69	2.847			
2,599.9	2,598.8	2,599.1	2,599.1	4.6	4.5	-96.08	28.5	0.9	23.4	14.3	9.05	2.582 CC			
2,600.0	2,598.9	2,599.2	2,599.1	4.6	4.5	-96.09	28.5	0.9	23.4	14.3	9.06	2.582 ES, SF			
2,700.0	2,698.1	2,697.7	2,697.5	4.8	4.7	-129.56	23.4	1.0	28.1	18.7	9.37	2.999			
2,800.0	2,797.3	2,794.9	2,794.3	5.0	4.9	-154.08	15.1	1.2	42.7	33.0	9.68	4.406			
2,900.0	2,896.5	2,890.6	2,889.4	5.2	5.1	-166.98	3.6	1.5	63.6	53.6	10.02	6.348			
3,000.0	2,995.7	2,984.7	2,982.4	5.4	5.3	-174.36	-10.7	1.8	88.9	78.6	10.36	8.587			
3,100.0	3,094.8	3,077.0	3,073.2	5.6	5.5	-179.06	-27.7	2.2	117.9	107.3	10.70	11.026			
3,200.0	3,194.0	3,167.5	3,161.4	5.9	5.7	-177.70	-47.2	2.7	150.3	139.2	11.04	13.615			
3,300.0	3,293.2	3,255.8	3,247.1	6.1	6.0	-175.33	-68.9	3.2	185.7	174.3	11.37	16.325			
3,400.0	3,392.4	3,342.1	3,330.0	6.4	6.3	-173.52	-92.6	3.7	224.0	212.3	11.71	19.134			
3,500.0	3,491.6	3,426.1	3,410.0	6.6	6.6	-172.08	-118.1	4.3	265.2	253.1	12.04	22.025			
3,600.0	3,590.8	3,507.8	3,487.2	6.9	7.0	-170.92	-145.2	4.9	309.0	296.6	12.37	24.984			
3,700.0	3,690.0	3,591.5	3,565.3	7.1	7.4	-169.92	-175.2	5.6	355.3	342.6	12.70	27.985			
3,800.0	3,789.2	3,674.5	3,642.4	7.4	7.8	-169.10	-206.0	6.3	403.0	390.0	13.03	30.940			
3,900.0	3,888.4	3,762.2	3,723.8	7.6	8.2	-168.41	-238.6	7.0	450.8	437.5	13.36	33.735			
4,000.0	3,987.6	3,850.0	3,805.2	7.9	8.7	-167.85	-271.3	7.8	498.6	484.9	13.70	36.395			
4,100.0	4,086.8	3,937.7	3,886.7	8.1	9.2	-167.39	-303.9	8.5	546.5	532.5	14.04	38.930			
4,200.0	4,186.0	4,025.4	3,968.1	8.4	9.7	-167.01	-336.5	9.3	594.4	580.0	14.38	41.348			
4,300.0	4,285.2	4,113.2	4,049.5	8.7	10.2	-166.68	-369.1	10.0	642.3	627.6	14.71	43.658			
4,400.0	4,384.3	4,200.9	4,131.0	8.9	10.7	-166.40	-401.7	10.8	690.2	675.2	15.05	45.861			
4,500.0	4,483.5	4,288.6	4,212.4	9.2	11.3	-166.15	-434.3	11.5	738.1	722.7	15.39	47.971			
4,600.0	4,582.7	4,376.3	4,293.8	9.4	11.8	-165.93	-466.9	12.3	786.1	770.3	15.72	49.990			
4,700.0	4,681.9	4,464.1	4,375.3	9.7	12.3	-165.74	-499.6	13.0	834.0	817.9	16.06	51.925			
4,800.0	4,781.1	4,551.8	4,456.7	10.0	12.9	-165.57	-532.2	13.8	882.0	865.6	16.40	53.781			
4,900.0	4,880.3	4,639.5	4,538.1	10.2	13.4	-165.42	-564.8	14.5	929.9	913.2	16.74	55.562			
5,000.0	4,979.5	4,727.2	4,619.6	10.5	14.0	-165.28	-597.4	15.3	977.9	960.8	17.07	57.273			

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 03H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 03H
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)				
5,100.0	5,078.1	4,814.4	4,700.5	10.8	14.5	123.84	-629.8	16.0	1,026.4	1,009.0	17.42	58.921		
5,200.0	5,173.3	4,898.8	4,778.8	11.2	15.0	106.28	-661.2	16.7	1,075.8	1,057.7	18.04	59.625		
5,300.0	5,262.2	4,977.6	4,852.0	11.7	15.5	97.29	-690.5	17.4	1,125.5	1,108.6	18.92	59.484		
5,400.0	5,342.2	5,048.6	4,917.9	12.4	16.0	91.22	-716.9	18.0	1,175.4	1,155.4	20.01	58.737		
5,500.0	5,410.7	5,109.5	4,974.4	13.3	16.4	86.35	-739.5	18.5	1,225.6	1,204.3	21.28	57.604		

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 03H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 03H
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		Total		Separation		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)	Uncertainty Axis	Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-178.88	-30.2	-0.6	30.2				
100.0	100.0	100.0	100.0	0.1	0.1	-178.88	-30.2	-0.6	30.2	29.9	0.29	103.075	
200.0	200.0	200.0	200.0	0.3	0.3	-178.88	-30.2	-0.6	30.2	29.6	0.64	47.056	
300.0	300.0	300.0	300.0	0.5	0.5	-178.88	-30.2	-0.6	30.2	29.2	0.99	30.487	
400.0	400.0	400.0	400.0	0.7	0.7	-178.88	-30.2	-0.6	30.2	28.9	1.34	22.548	
500.0	500.0	500.0	500.0	0.8	0.8	-178.88	-30.2	-0.6	30.2	28.5	1.69	17.889	
600.0	600.0	600.0	600.0	1.0	1.0	-178.88	-30.2	-0.6	30.2	28.2	2.04	14.826	
700.0	700.0	700.0	700.0	1.2	1.2	-178.88	-30.2	-0.6	30.2	27.8	2.39	12.658	
800.0	800.0	800.0	800.0	1.4	1.4	-178.88	-30.2	-0.6	30.2	27.5	2.74	11.044	
900.0	900.0	900.0	900.0	1.5	1.5	-178.88	-30.2	-0.6	30.2	27.1	3.09	9.794	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-178.88	-30.2	-0.6	30.2	26.8	3.43	8.799	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-178.88	-30.2	-0.6	30.2	26.4	3.78	7.987	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-178.88	-30.2	-0.6	30.2	26.1	4.13	7.313	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-178.88	-30.2	-0.6	30.2	25.7	4.48	6.743	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-178.88	-30.2	-0.6	30.2	25.4	4.83	6.256	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-178.88	-30.2	-0.6	30.2	25.0	5.18	5.834	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-178.88	-30.2	-0.6	30.2	24.7	5.53	5.466	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-178.88	-30.2	-0.6	30.2	24.3	5.88	5.142	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-178.88	-30.2	-0.6	30.2	24.0	6.23	4.853	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-178.88	-30.2	-0.6	30.2	23.6	6.58	4.596	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-178.88	-30.2	-0.6	30.2	23.3	6.93	4.364 CC, ES, SF	
2,100.0	2,100.0	2,098.9	2,098.9	3.6	3.6	122.15	-31.9	-0.5	32.4	25.1	7.27	4.455	
2,200.0	2,200.0	2,197.5	2,197.3	3.8	3.8	124.53	-37.0	-0.1	39.0	31.3	7.62	5.115	
2,300.0	2,299.9	2,295.3	2,294.8	4.0	4.0	127.08	-45.4	0.4	50.0	42.0	7.96	6.276	
2,400.0	2,399.7	2,392.2	2,391.0	4.2	4.2	129.17	-57.0	1.2	65.4	57.1	8.31	7.874	
2,500.0	2,499.4	2,487.5	2,485.2	4.4	4.4	151.85	-71.5	2.2	86.3	77.7	8.65	9.985	
2,600.0	2,598.9	2,580.6	2,576.7	4.6	4.6	164.52	-88.7	3.3	113.5	104.5	8.97	12.655	
2,700.0	2,698.1	2,671.1	2,665.0	4.8	4.9	167.45	-108.3	4.7	146.3	137.0	9.30	15.737	
2,800.0	2,797.3	2,759.4	2,750.6	5.0	5.2	166.62	-130.1	6.1	182.3	172.6	9.63	18.924	
2,900.0	2,896.5	2,845.6	2,833.4	5.2	5.5	165.91	-153.8	7.7	221.0	211.0	9.96	22.184	
3,000.0	2,895.7	2,829.6	2,813.4	5.4	5.9	165.30	-179.4	9.4	262.5	252.2	10.29	25.503	
3,100.0	3,094.8	3,011.4	2,990.5	5.6	6.2	164.77	-206.5	11.3	306.5	295.9	10.62	28.870	
3,200.0	3,194.0	3,095.0	3,068.7	5.9	6.6	164.29	-236.3	13.3	352.8	341.9	10.95	32.233	
3,300.0	3,293.2	3,183.4	3,151.1	6.1	7.1	163.88	-268.1	15.4	399.5	388.3	11.28	35.408	
3,400.0	3,392.4	3,271.8	3,233.6	6.4	7.6	163.56	-299.8	17.6	446.3	434.7	11.62	38.399	
3,500.0	3,491.6	3,360.2	3,316.0	6.6	8.1	163.30	-331.6	19.7	493.0	481.0	11.96	41.220	
3,600.0	3,590.8	3,448.6	3,398.4	6.9	8.6	163.09	-363.4	21.8	539.8	527.5	12.30	43.885	
3,700.0	3,690.0	3,537.0	3,480.9	7.1	9.1	162.91	-395.2	24.0	586.5	573.9	12.64	46.406	
3,800.0	3,789.2	3,625.4	3,563.3	7.4	9.6	162.75	-427.0	26.1	633.3	620.3	12.98	48.795	
3,900.0	3,888.4	3,713.8	3,645.8	7.6	10.1	162.62	-458.8	28.2	680.0	666.7	13.32	51.061	
4,000.0	3,987.6	3,802.1	3,728.2	7.9	10.7	162.50	-490.6	30.4	726.8	713.1	13.66	53.214	
4,100.0	4,086.8	3,890.5	3,810.7	8.1	11.2	162.40	-522.4	32.5	773.5	759.5	14.00	55.261	
4,200.0	4,186.0	3,978.9	3,893.1	8.4	11.7	162.31	-554.2	34.7	820.3	806.0	14.34	57.211	
4,300.0	4,285.2	4,067.3	3,975.6	8.7	12.3	162.23	-585.9	36.8	867.1	852.4	14.68	59.069	
4,400.0	4,384.3	4,155.7	4,058.0	8.9	12.8	162.16	-617.7	38.9	913.8	898.8	15.02	60.842	
4,500.0	4,483.5	4,244.1	4,140.4	9.2	13.4	162.09	-649.5	41.1	960.6	945.2	15.36	62.536	
4,600.0	4,582.7	4,332.5	4,222.9	9.4	13.9	162.04	-681.3	43.2	1,007.4	991.6	15.70	64.156	
4,700.0	4,681.9	4,420.8	4,305.3	9.7	14.5	161.98	-713.1	45.4	1,054.1	1,038.1	16.04	65.706	
4,800.0	4,781.1	4,509.2	4,387.8	10.0	15.0	161.93	-744.9	47.5	1,100.9	1,084.5	16.38	67.191	
4,900.0	4,880.3	4,597.6	4,470.2	10.2	15.6	161.89	-776.7	49.6	1,147.7	1,130.9	16.73	68.615	
5,000.0	4,979.5	4,686.0	4,552.7	10.5	16.1	161.85	-808.5	51.8	1,194.4	1,177.4	17.07	69.982	
5,100.0	5,078.1	4,774.0	4,634.7	10.8	16.7	120.80	-840.1	53.9	1,241.4	1,224.0	17.42	71.279	

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

Anticollision Report

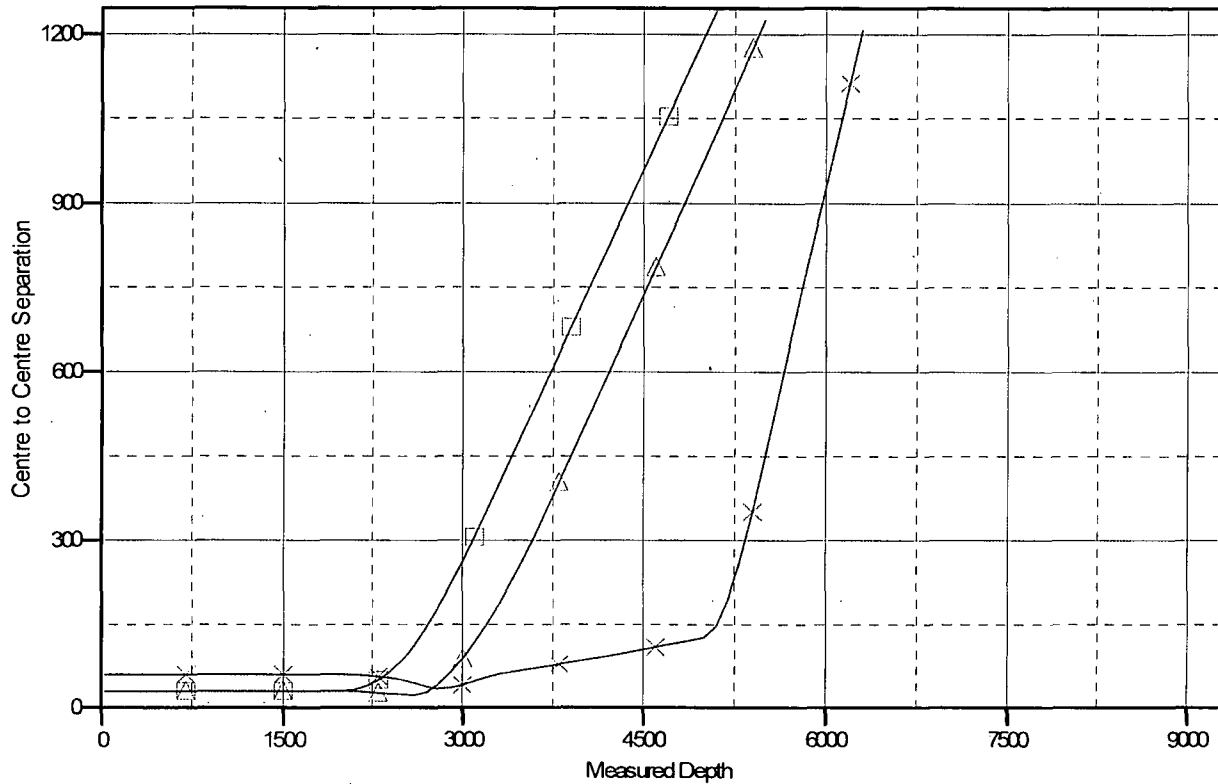
Company: EnCana Oil & Gas (USA) Inc
Project: Rio Arriba County, NM
Reference Site: S14-T23N-R6W
Site Error: 0.0ft
Reference Well: Lybrook I14-2306 03H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook I14-2306 03H
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 03H
 Coordinate System is US State Plane 1983, New Mexico Central Zone
 Grid Convergence at Surface is: -0.70°

Ladder Plot



LEGEND

x Lybrook I14-2306 01H, Hz, Plan #1 V0 △ Lybrook I14-2306 02H, Hz, Plan #1 V0 □ Lybrook I14-2306 04H, Hz, Plan #1 V0

Lybrook I14-2306 03H

**SHL: NESE Section 14, T23N, R6W
1878' FSL and 556' FEL**

**BHL: NESE Section 13, T23N, R6W
2271' FSL and 330' FEL**

**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

VIA OVERNIGHT PRIORITY MAIL

August 14, 2014

Bureau of Land Management
Farmington Field Office
6251 College Blvd Suite A
Farmington, New Mexico 87402

RECEIVED

AUG 15 2014

Farmington Field Office
Bureau of Land Management

**Re: Application for Permit to Drill
Lybrook I14-2306 03H**

To Whom It May Concern:

For your records, Encana Oil & Gas (USA) Inc. (Encana) submits an original and four copies of an Application for Permit to Drill the Lybrook I14-2306 03H oil well. Also enclosed is the processing fee for \$6,500.

Encana requests tight-hole status on this proposed well.

Please feel free to contact me directly at 720-876-3533 with any questions or concerns.

Encana Oil & Gas (USA) Inc.



Katie Wegner
Regulatory Analyst

Enc. Lybrook E13-2306 02H APD Submittals

Encana Oil & Gas (USA) Inc.

370 17th Street, Suite 1700, Denver Colorado 80202 720.876.3533 (O) 303.482.6819 (C) Katie.Wegner@encana.com

ENCANA OIL & GAS (USA) INC.

LYBROOK 114-2308 #03H

1878' FSL & 558' 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. 36.223093° N, LONG. 107.430969° W (NAD 83).



WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Lybrook I14-2306 03H

