

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary-Designate

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

Jami Bailey, Division Director
Oil Conservation Division



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

Operator Signature Date: 3-20-14

Well information:

Operator Encana, Well Name and Number LYBROOK 030-2307 # 3H

API# 30-043-21212, Section 30, Township 23 NS, Range 7 E(W)

Conditions of Approval:

(See the below checked and handwritten conditions)

☒ Notify Aztec OCD 24hrs prior to casing & cement.

☒ Hold C-104 for directional survey & "As Drilled" Plat

☒ Hold C-104 for NSL, NSP, DHC

- ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ☐ Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
 - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
 - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
 - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- ☐ Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ☒ 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.

Charlie Herr
NMOCD Approved by Signature

5-15-14
Date

CONFIDENTIAL
RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAR 21 2014

APPLICATION FOR PERMIT TO DRILL OR REENTER

Farmington Field Office

Bureau of Land Management

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NM 36943, NM 6681
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name N/A
2. Name of Operator Encana Oil & Gas (USA) Inc.		7. If Unit or CA Agreement, Name and No. Pending
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202	3b. Phone No. (include area code) (720) 876-3448	8. Lease Name and Well No. Lybrook O30-2307 03H
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface O 411' FSL and 1318' FEL in Section 30, T23N, R7W At proposed prod. zone P 330' FSL 400' FEL in Section 31, T23N, R7W		9. API Well No. 30-043-21212
14. Distance in miles and direction from nearest town or post office* +/- 43.9 miles south of intersection of US Hwy 550 and US Hwy 64 in Bloomfield, NM		10. Field and Pool, or Exploratory Basin Mancos/ Alamito-Gallup
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) BHL is 330' from south lease line		11. Sec., T. R. M. or Blk. and Survey or Area Section 30, T23N, R7W NMPM BHL Sec 31, T23N R7W
16. No. of acres in lease NM 36943 - 1402.64 acres NM 6681 - 642.56 acres		12. County or Parish Sandoval
17. Spacing Unit dedicated to this well 160 acres		13. State NM
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Lybrook O30-2307 02H is +/- 30' W		19. Proposed Depth 5111'TVD/10483'MD
20. BLM/BIA Bond No. on file COB-000235		21. Elevations (Show whether DF, KDB, RT, GL, etc.) 7023', KB 7039'
22. Approximate date work will start* 09/11/2014		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 	Name (Printed/Typed) Christopher Simmons	Date 3-20-14
Title Regulatory Analyst		
Approved by 	Name (Printed/Typed) AFM	Date 4/29/14
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 the jurisdiction of such department or agency.

DRILLING OPERATIONS
SUBJECT TO
COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS"

THIS APPROVAL OR ACCEPTANCE OF THIS
APPLICATION DOES NOT PREVENT 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 3165.4
(Instructions on page 2)

NMOCDAV

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3452

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION

12200 South St. Francis Drive
Santa Fe, NM 87505

MAY 02 2014

MAR 21 2014

WELL LOCATION AND ACREAGE DEDICATION PLAT

Farmington Field Office

Bureau of Land Management

*API Number 30-043-21212		*Pool Code 97232 / 1039	*Pool Name BASIN MANCOS / ALAMITO - GALLUP
*Property Code 313257	*Property Name LYBROOK 030-2307		*Well Number 03H
*OGRID No. 282327	*Operator Name ENCANA OIL & GAS (USA) INC.		*Elevation 7023'

10 Surface Location

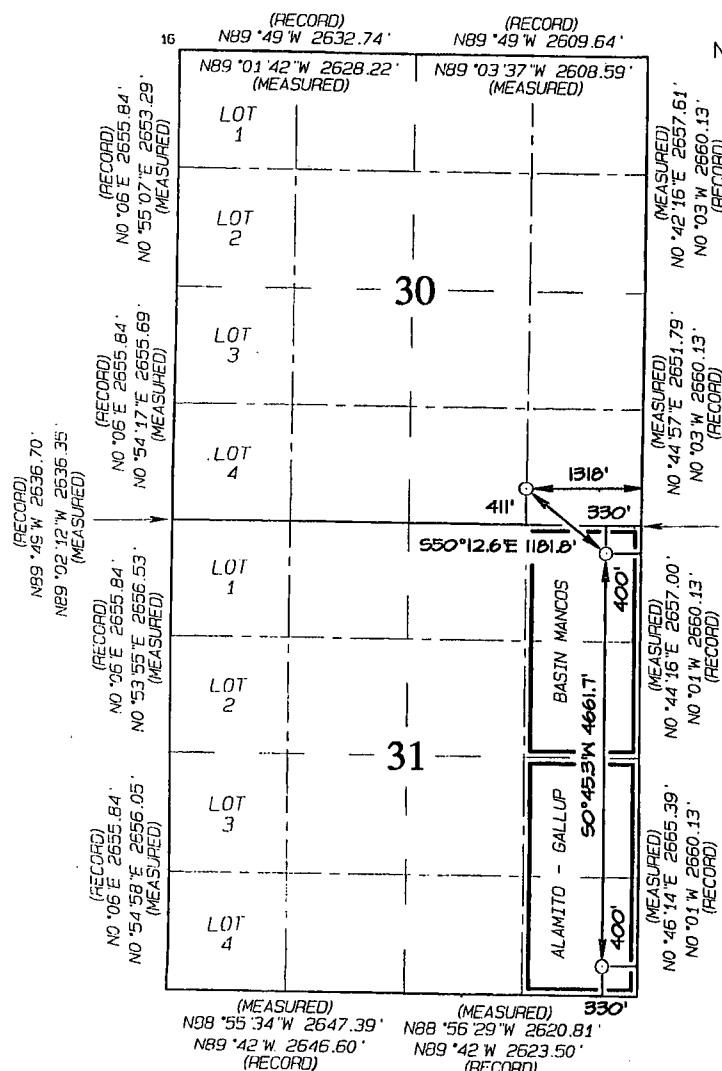
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	30	23N	7W		411	SOUTH	1318	EAST	SANDOVAL

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	31	23N	7W		330	SOUTH	400	EAST	SANDOVAL

12 Dedicated Acres 160.00 Acres E/2 E/2 - Section 31	13 Joint or Infill	14 Consolidation Code	15 Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION
UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A
NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



SURFACE LOCATION
411' FSL 1318' FEL
SECTION 30, T23N, R7W
LAT: 36.19172° N
LONG: 107.61039° W
DATUM: NAD1927

LAT: 36.19174° N
LONG: 107.61100° W
DATUM: NAD1983

POINT-OF-ENTRY
330' FNL 400' FEL
SECTION 31, T23N, R7W
LAT: 36.18968° N
LONG: 107.60728° W
DATUM: NAD1927

LAT: 36.18969° N
LONG: 107.60789° W
DATUM: NAD1983

END-OF-LATERAL
330' FSL 400' FEL
SECTION 31, T23N, R7W
LAT: 36.17688° N
LONG: 107.60726° W
DATUM: NAD1927

LAT: 36.17689° N
LONG: 107.60787° W
DATUM: NAD1983

17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: Holly Hill Date: 3/18/14
Holly Hill

Printed Name
Holly.Hill@encana.com

E-mail Address

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date Revised: FEBRUARY 10, 2014
Survey Date: NOVEMBER 13, 2013

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

Lybrook O30-2307 03H
SHL: SWSE Sec 30 T23N R7W
411' FSL, 1318' FEL
BHL: SESE Sec 31 T23N R7W
330' FSL, 400' FEL
Sandoval, 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
Ojo Alamo Ss.	987
Kirtland Shale	1,182
Fruitland Coal	1,448
Pictured Cliffs Ss.	1,572
Lewis Shale	1,688
Cliffhouse Ss.	2,341
Menefee Fn.	3,131
Point Lookout Ss.	3,956
Mancos Shale	4,138
Mancos Silt	4,663
Gallup Fn.	4,927

The referenced surface elevation is 7023', KB 7039'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,448
Oil/Gas	Pictured Cliffs Ss.	1,572
Oil/Gas	Cliffhouse Ss.	2,341
Gas	Menefee Fn.	3,131
Oil/Gas	Point Lookout Ss.	3,956
Oil/Gas	Mancos Shale	4,138
Oil/Gas	Mancos Silt	4,663
Oil/Gas	Gallup Fn.	4,927

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.

Lybrook O30-2307 03H
SHL: SWSE Sec 30 T23N R7W
411' FSL, 1318' FEL
BHL: SESE Sec 31 T23N R7W
330' FSL, 400' FEL
Sandoval, New Mexico

- 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
- 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"	20"	94#	H40, STC New
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5730'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5530'-10483'	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.

Lybrook O30-2307 03H
SHL: SWSE Sec 30 T23N R7W
411' FSL, 1318' FEL
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330' FSL, 400' FEL
Sandoval, New Mexico

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'	201 sks	Type III Cement + 1% CaCl + 0.25lb/sk Cello Flake + 0.2% FL, 16ppg, 1.38cuf/sk	Surface	1 per joint on bottom 3 joints
Intermediate	0'-5730'	30% open hole excess Stage 1 Lead: 309 sks Stage 1 Tail: 389 sks Stage 2 Lead: 153 sks	Lead (Stages 1 and 2): PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuf/sk Tail (Stage 1): Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuf/sk	Surface	1 every 3 joints through water bearing zones
Production Liner	5530'-10483'	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 3450'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5111'/10483'	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	8.4-8.6	60-70	NC
8 3/4"	500'/500'-5180'/5730'	Fresh Water LSND	9.5-8.8	40-50	8-10

Lybrook O30-2307 03H
SHL: SWSE Sec 30 T23N R7W
411' FSL, 1318' FEL
BHL: SESE Sec 31 T23N R7W
330' FSL, 400' FEL
Sandoval, New Mexico

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"	5180'/5730'- 5111'/10483'	Synthetic Oil Based Mud	8.6-9.0	15-25	<15

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

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

7. TESTING, CORING, & 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 +/- 2432 psi based on a 9.0 ppg at 5196' 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 January 1, 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: NE/4 NE/4 Sec 31 T23N R7W, 330'			Encana Natural Gas			ENG: S Kuykendall 3/17/14		
County: Sandoval			WELL SUMMARY			RIG: Aztec 950		
WELL: Lybrook O30-2307 03H						GLE: 7023		
						RKBE: 7039		
MWD	OPEN HOLE		DEPTH			HOLE	CASING	MW
LWD	LOGGING	FORM	TVD	MD		SIZE	SPECS	MUD TYPE
			60	60'		30	20" 94# 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	Nacimiento 9 5/8" Csg	0 500	500.00		12 1/4	9 5/8" 36ppf J55 STC TOC Surface - 201 sks of Type III Cement	Fresh wtr 8.4-8.6
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 Fruitland Coal Pictured Cliffs Ss. Lewis Shale Cliffhouse Ss. Menefee Fn. Point Lookout Ss. Mancos Shale	987 1,182 1,448 1,572 1,688 2,341 3,131 3,956 4,138		Stage tool @ ~ 1,738	8 3/4	7" 26ppf J55 LTC TOC @ surface 30% OH excess: 698 sksTotal. Stage 1 Lead: 309 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL- 52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk. Stage 1 Tail: 389 sks Type III Cement + 1% CaCl2 + 0.25#/sk Cello Flake + 0.2% FL-52A. Mixed at 14.6 ppg. Yield 1.38 cuft/sk. 153 Stage 2: 168 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL-52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk.	Fresh Wtr 8.5-8.8
Surveys every 30' through the curve	Mud logger onsite	KOP Mancos Silt Gallup Fn. 7" Csg	3,450 4,663 4,927 5,180	3,450.0 5,730.0				
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD Base Gallup	5,196 5,111 5,270	10,482.6		6 1/8	200' overlap at liner top 4753' Drilled Lateral	Horizontal Inclination Horizontal TVD 8.6-9.0 OBM
MWD Gamma Directional							4 1/2" 11.6ppf SB80 LTC Running external swellable csg packers for isolation of prod string Plan on setting top packer within 100' of intermediate casing shoe	Switch to OBM 8.6-9.0
								Horz Inc/TVD /90.9 deg TD = 10,482.6 MD

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 3450', 8 3/4 inch holesize
- 5) PU directional tools and start curve at 10deg/100' build rate
- 6) Drill to csg point of 5730' MD
- 7) R&C 7" csg, circ cmt to surface, switch to OBM
- 8) Land at 90 deg, drill lateral to 10483' run 4 1/2 inch liner with external swellable csg packers

Directions from the Intersection of US Hwy 550 & US Hwy 64
in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Lybrook O30-2307 03H
411' FSL & 1318' FEL, Section 30, T23N, R7W, N.M.P.M., Sandoval County, NM

Latitude: 36.19174°N Longitude: 107.61100°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 38.7 miles to Mile Marker 112.7;

Go right (Southerly) on County Road #7900 for 4.9 miles to fork in road;

Go straight (South-easterly) remaining on County Road #7900 for 0.2 miles to fork in road;

Go left (North-easterly) exiting County Road #7900 for 2.8 miles to three-way intersection;

Go left (North-easterly) for 0.2 miles to new access on right-hand side of existing roadway;

Go right (North-easterly) for 4149' along Encana Lybrook J31-2307 01H proposed access to new access on left-hand-side;

Go left which is straight (North-easterly) for 850' along Encana Lybrook G31-2307 01H proposed access to new access on right-hand side;

Go right which is straight (North-easterly) along Encana Lybrook O30-2307 03H proposed access which continues for an additional 5097' to staked Encana Lybrook O30-2307 03H location.

encana

**SANDOVAL COUNTY,
NEW MEXICO**

⊘ Abandoned

⊘ Abandoned Gas

⊘ Abandoned Oil

⊘ Dry Hole

⊘ GAS

⊘ Injection

□ Basin Mancos
Gas Pool

○ OIL

1 inch = 2,000 feet

KENC OIL GAS INC 22

19

20

**LYBROOK
GALLUP
POOL**

Lybrook O20-2307 01H

Lybrook O20-2307 02H

KITE ACA FEDERAL 1

HENRY AGC FEDERAL 1

Lybrook G30-2307 01H
Lybrook G30-2307 02H
Lybrook G30-2307 03H
Lybrook G30-2307 04H

25

30

29

23N
8W

23N
7W

Lybrook L29-2307 01H
Lybrook L29-2307 02H
Lybrook L29-2307 03H
Lybrook L29-2307 04H

Lybrook O30-2307 01H
Lybrook O30-2307 02H
Lybrook Q30-2307 03H

Lybrook G31-2307 01H
Lybrook G31-2307 03H

LITTLE B 2
LITTLE B 1

36

31

Lybrook J31-2307 01H
Lybrook J31-2307 02H

FEDERAL C 2

ALAMITO
UNIT 4

32

ALAMITO UNIT 2

ALAMITO 1
ALAMITO 1

STATE K 1

FEDERAL C 3

Lybrook P31-2307 01H
Lybrook P31-2307 02H
Lybrook P31-2307 03H
Lybrook P31-2307 04H

SOUTH SEAS 1

FEDERAL 1-5

**ALAMITO
GALLUP
POOL**

GALLO WASH 5

6

5

SOUTH SEAS 2

FEDERAL 6-22-7 1

22N
8W

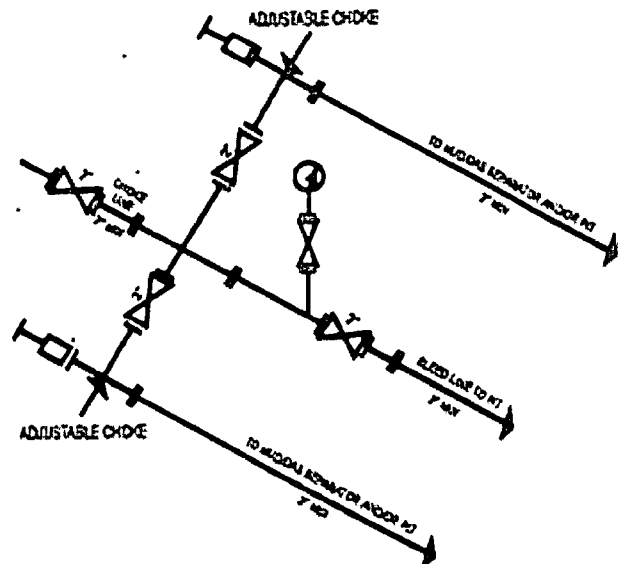
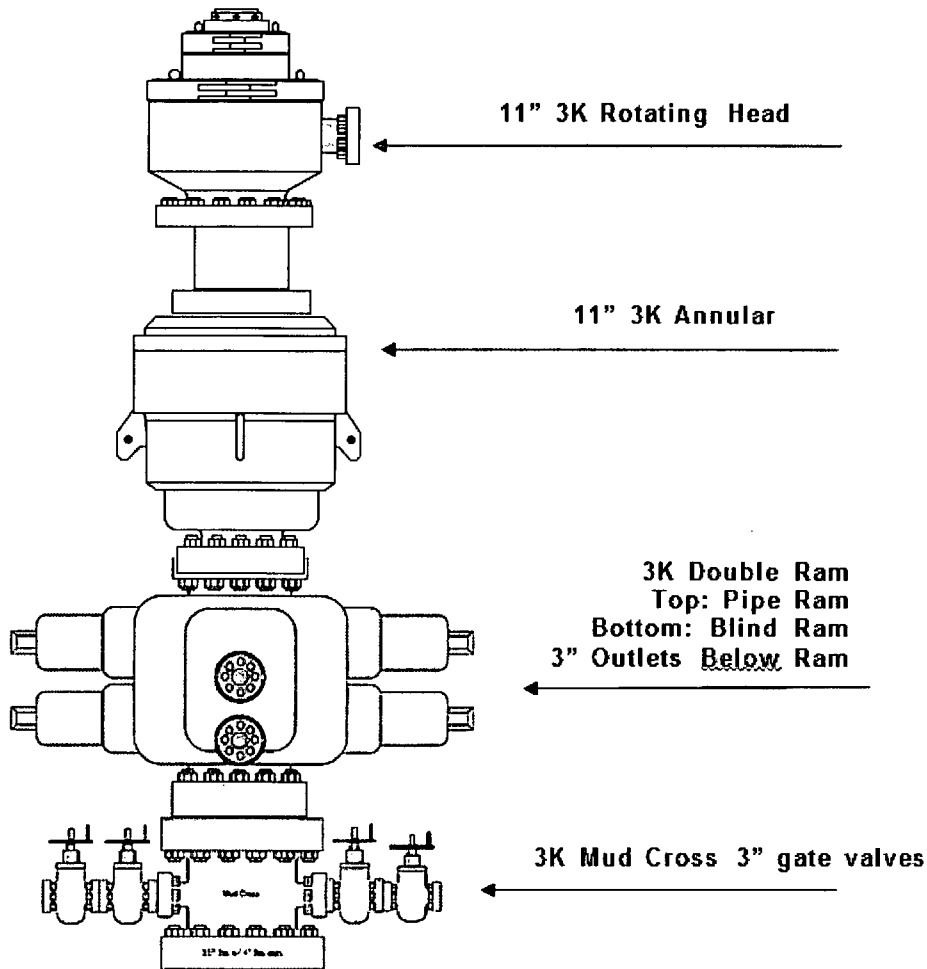
22N
7W

0 0.125 0.25 0.5 Miles

WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Lybrook O30-2307 03H





Boomerang Tube LLC

CASING (OR) TUBING DESCRIPTION AND PERFORMANCE PROPERTIES

Pipe Outside Diameter (ins)	_____	4.500
Pipe Wall Thickness (ins)	_____	0.250
Nominal Weight Per Foot (lbs)	_____	11.60
Thread Name	_____	Long Thread CSG
Grade Name	_____	SB-80
Pipe Minimum Yield (psi)	_____	80,000
Pipe Minimum Ultimate (psi)	_____	90,000
Coupling Minimum Yield (psi)	_____	80,000
Coupling Minimum Ultimate (psi)	_____	100,000
Coupling or Joint Outside Diameter (ins)	_____	5.000
Drift Diameter (ins)	_____	3.875
Plain End Weight per Foot (lbs)	_____	11.36
Joint Strength (lbs)	_____	201,000
Internal Yield (psi)	_____	7,780
Collapse Rating (psi)	_____	6,350

MAXIMUM DEPTH/LENGTH BASED ON MUD WTS & SAFETY FACTORS

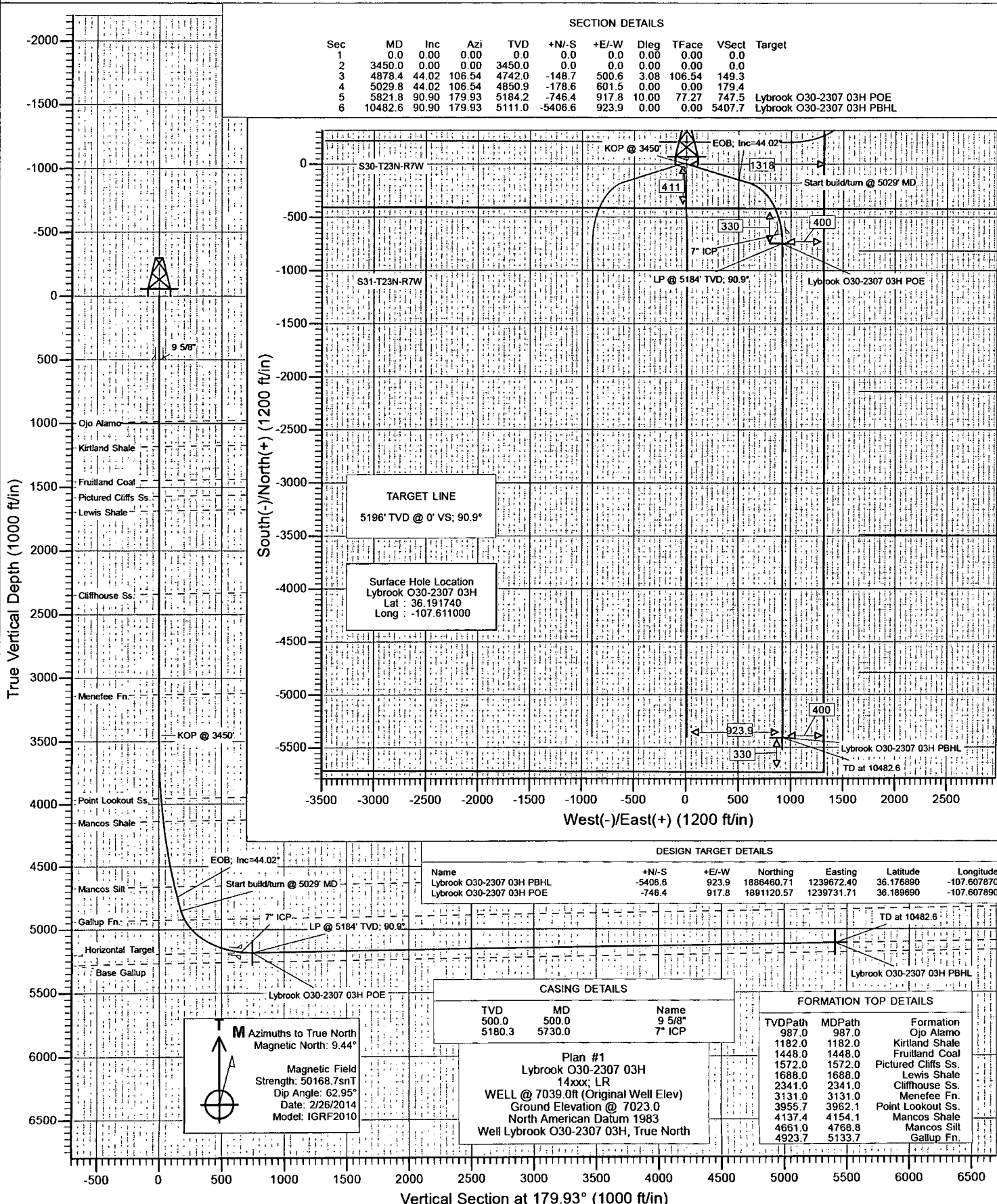
Drilling Mud Weight (ppg)	_____	9.625
Tension Safety Factor	_____	1.80
Maximum Tension Length (ft)	_____	9,630
Internal Yield Safety Factor	_____	1.10
Maximum Depth for Internal Yield (ft)	_____	14,150
Collapse Safety Factor	_____	1.125
Maximum Collapse Depth (ft)	_____	11,290

API RELATED VALUES and INTERMEDIATE CALCULATION RESULTS

Coupling Thread Fracture Strength	_____	464,000
Pipe Thread Fracture Strength (lbs)	_____	201,000
Pipe Body Plain End Yield (lbs)	_____	267,000
Round Thread Pull-Out (lbs)	_____	219,000
Minimum Make-up Torque (ft-lbs)	_____	1,640
Nominal Make-up Torque (ft-lbs)	_____	2,190
Maximum Make-up Torque (ft-lbs)	_____	2,740
Coupling Internal Yield (psi)	_____	10,660
Pipe Body Internal Yield (psi)	_____	7,780
Leak @ E1 or E7 plane (psi)	_____	17,920
Pipe Hydrostatic Test Pressure @ 80 % SMYS	_____	7,100



Project: Sandoval County, NM
 Site: S30-T23N-R7W
 Well: Lybrook O30-2307 03H
 Wellbore: Hz
 Design: Plan #1



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site:	S30-T23N-R7W	North Reference:	True
Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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

Site	S30-T23N-R7W				
Site Position:		Northing:	1,891,883.94 ft	Latitude:	36.191750
From:	Lat/Long	Easting:	1,238,783.16 ft	Longitude:	-107.611140
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-0.80 °

Well	Lybrook O30-2307 03H					
Well Position	+N/-S	0.0 ft	Northing:	1,891,879.72 ft	Latitude:	36.191740
	+E/-W	0.0 ft	Easting:	1,238,824.42 ft	Longitude:	-107.611000
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,023.0 ft

Wellbore	Hz
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/26/2014	9.44	62.95	50,169

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	179.93

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	
3,450.0	0.00	0.00	3,450.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,878.4	44.02	106.54	4,742.0	-148.7	500.6	3.08	3.08	0.00	106.54	
5,029.8	44.02	106.54	4,850.9	-178.6	601.5	0.00	0.00	0.00	0.00	
5,821.8	90.90	179.93	5,184.2	-746.4	917.8	10.00	5.92	9.27	77.27	Lybrook O30-2307 03
10,482.6	90.90	179.93	5,111.0	-5,406.6	923.9	0.00	0.00	0.00	0.00	Lybrook O30-2307 03

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site:	S30-T23N-R7W	North Reference:	True
Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
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	
987.0	0.00	0.00	987.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo
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	
1,182.0	0.00	0.00	1,182.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
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	
1,448.0	0.00	0.00	1,448.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,572.0	0.00	0.00	1,572.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,688.0	0.00	0.00	1,688.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
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	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,341.0	0.00	0.00	2,341.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,131.0	0.00	0.00	3,131.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,450.0	0.00	0.00	3,450.0	0.0	0.0	0.0	0.00	0.00	KOP @ 3450'
3,500.0	1.54	106.54	3,500.0	-0.2	0.6	0.2	3.08	3.08	
3,600.0	4.62	106.54	3,599.8	-1.7	5.8	1.7	3.08	3.08	
3,700.0	7.70	106.54	3,699.2	-4.8	16.1	4.8	3.08	3.08	
3,800.0	10.79	106.54	3,797.9	-9.4	31.5	9.4	3.08	3.08	
3,900.0	13.87	106.54	3,895.6	-15.4	52.0	15.5	3.08	3.08	
3,962.1	15.78	106.54	3,955.7	-20.0	67.2	20.0	3.08	3.08	Point Lookout Ss.
4,000.0	16.95	106.54	3,992.0	-23.0	77.4	23.1	3.08	3.08	
4,100.0	20.03	106.54	4,086.8	-32.0	107.8	32.2	3.08	3.08	
4,154.1	21.70	106.54	4,137.4	-37.5	126.3	37.7	3.08	3.08	Mancos Shale

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site:	S30-T23N-R7W	North Reference:	True
Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,200.0	23.11	106.54	4,179.8	-42.5	143.1	42.7	3.08	3.08	
4,300.0	26.19	106.54	4,270.7	-54.4	183.0	54.6	3.08	3.08	
4,400.0	29.28	106.54	4,359.2	-67.6	227.6	67.9	3.08	3.08	
4,500.0	32.36	106.54	4,445.1	-82.2	276.7	82.5	3.08	3.08	
4,600.0	35.44	106.54	4,528.1	-98.1	330.2	98.5	3.08	3.08	
4,700.0	38.52	106.54	4,607.9	-115.2	387.9	115.7	3.08	3.08	
4,768.8	40.64	106.54	4,661.0	-127.7	429.9	128.2	3.08	3.08	Mancos Silt
4,800.0	41.60	106.54	4,684.5	-133.5	449.6	134.1	3.08	3.08	
4,878.4	44.02	106.54	4,742.0	-148.7	500.6	149.3	3.08	3.08	EOB; Inc=44.02°
4,900.0	44.02	106.54	4,757.5	-153.0	515.0	153.6	0.00	0.00	
5,000.0	44.02	106.54	4,829.4	-172.7	581.6	173.5	0.00	0.00	
5,029.8	44.02	106.54	4,850.9	-178.6	601.5	179.4	0.00	0.00	Start build/turn @ 5029' MD
5,100.0	45.97	116.08	4,900.5	-196.7	647.6	197.5	10.00	2.78	
5,133.7	47.18	120.42	4,923.7	-208.3	669.1	209.1	10.00	3.58	Gallup Fn.
5,200.0	50.00	128.42	4,967.6	-236.4	710.0	237.3	10.00	4.25	
5,300.0	55.18	139.21	5,028.4	-291.4	767.0	292.4	10.00	5.18	
5,400.0	61.19	148.63	5,081.2	-360.1	816.8	361.1	10.00	6.01	
5,500.0	67.78	156.97	5,124.3	-440.3	857.8	441.3	10.00	6.59	
5,600.0	74.75	164.54	5,156.5	-529.6	888.8	530.7	10.00	6.98	
5,700.0	81.97	171.62	5,176.7	-625.3	908.9	626.4	10.00	7.21	
5,730.0	84.16	173.68	5,180.3	-654.9	912.8	656.0	10.00	7.31	7" ICP
5,800.0	89.30	178.45	5,184.3	-724.5	917.5	725.7	10.00	7.34	
5,821.8	90.90	179.93	5,184.2	-746.4	917.8	747.5	10.00	7.35	LP @ 5184' TVD; 90.9°
5,900.0	90.90	179.93	5,183.0	-824.5	917.9	825.7	0.00	0.00	
6,000.0	90.90	179.93	5,181.4	-924.5	918.1	925.6	0.00	0.00	
6,100.0	90.90	179.93	5,179.9	-1,024.5	918.2	1,025.6	0.00	0.00	
6,200.0	90.90	179.93	5,178.3	-1,124.5	918.3	1,125.6	0.00	0.00	
6,300.0	90.90	179.93	5,176.7	-1,224.5	918.5	1,225.6	0.00	0.00	
6,400.0	90.90	179.93	5,175.2	-1,324.5	918.6	1,325.6	0.00	0.00	
6,500.0	90.90	179.93	5,173.6	-1,424.5	918.7	1,425.6	0.00	0.00	
6,600.0	90.90	179.93	5,172.0	-1,524.4	918.9	1,525.6	0.00	0.00	
6,700.0	90.90	179.93	5,170.4	-1,624.4	919.0	1,625.6	0.00	0.00	
6,800.0	90.90	179.93	5,168.9	-1,724.4	919.1	1,725.5	0.00	0.00	
6,900.0	90.90	179.93	5,167.3	-1,824.4	919.3	1,825.5	0.00	0.00	
7,000.0	90.90	179.93	5,165.7	-1,924.4	919.4	1,925.5	0.00	0.00	
7,100.0	90.90	179.93	5,164.2	-2,024.4	919.5	2,025.5	0.00	0.00	
7,200.0	90.90	179.93	5,162.6	-2,124.4	919.6	2,125.5	0.00	0.00	
7,300.0	90.90	179.93	5,161.0	-2,224.4	919.8	2,225.5	0.00	0.00	
7,400.0	90.90	179.93	5,159.4	-2,324.3	919.9	2,325.5	0.00	0.00	
7,500.0	90.90	179.93	5,157.9	-2,424.3	920.0	2,425.5	0.00	0.00	
7,600.0	90.90	179.93	5,156.3	-2,524.3	920.2	2,525.4	0.00	0.00	
7,700.0	90.90	179.93	5,154.7	-2,624.3	920.3	2,625.4	0.00	0.00	
7,800.0	90.90	179.93	5,153.2	-2,724.3	920.4	2,725.4	0.00	0.00	
7,900.0	90.90	179.93	5,151.6	-2,824.3	920.6	2,825.4	0.00	0.00	
8,000.0	90.90	179.93	5,150.0	-2,924.3	920.7	2,925.4	0.00	0.00	
8,100.0	90.90	179.93	5,148.4	-3,024.3	920.8	3,025.4	0.00	0.00	
8,200.0	90.90	179.93	5,146.9	-3,124.2	920.9	3,125.4	0.00	0.00	
8,300.0	90.90	179.93	5,145.3	-3,224.2	921.1	3,225.4	0.00	0.00	
8,400.0	90.90	179.93	5,143.7	-3,324.2	921.2	3,325.3	0.00	0.00	
8,500.0	90.90	179.93	5,142.2	-3,424.2	921.3	3,425.3	0.00	0.00	
8,600.0	90.90	179.93	5,140.6	-3,524.2	921.5	3,525.3	0.00	0.00	
8,700.0	90.90	179.93	5,139.0	-3,624.2	921.6	3,625.3	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site:	S30-T23N-R7W	North Reference:	True
Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,800.0	90.90	179.93	5,137.4	-3,724.2	921.7	3,725.3	0.00	0.00	
8,900.0	90.90	179.93	5,135.9	-3,824.2	921.9	3,825.3	0.00	0.00	
9,000.0	90.90	179.93	5,134.3	-3,924.1	922.0	3,925.3	0.00	0.00	
9,100.0	90.90	179.93	5,132.7	-4,024.1	922.1	4,025.3	0.00	0.00	
9,200.0	90.90	179.93	5,131.2	-4,124.1	922.2	4,125.2	0.00	0.00	
9,300.0	90.90	179.93	5,129.6	-4,224.1	922.4	4,225.2	0.00	0.00	
9,400.0	90.90	179.93	5,128.0	-4,324.1	922.5	4,325.2	0.00	0.00	
9,500.0	90.90	179.93	5,126.4	-4,424.1	922.6	4,425.2	0.00	0.00	
9,600.0	90.90	179.93	5,124.9	-4,524.1	922.8	4,525.2	0.00	0.00	
9,700.0	90.90	179.93	5,123.3	-4,624.1	922.9	4,625.2	0.00	0.00	
9,800.0	90.90	179.93	5,121.7	-4,724.0	923.0	4,725.2	0.00	0.00	
9,900.0	90.90	179.93	5,120.2	-4,824.0	923.2	4,825.2	0.00	0.00	
10,000.0	90.90	179.93	5,118.6	-4,924.0	923.3	4,925.1	0.00	0.00	
10,100.0	90.90	179.93	5,117.0	-5,024.0	923.4	5,025.1	0.00	0.00	
10,200.0	90.90	179.93	5,115.4	-5,124.0	923.5	5,125.1	0.00	0.00	
10,300.0	90.90	179.93	5,113.9	-5,224.0	923.7	5,225.1	0.00	0.00	
10,400.0	90.90	179.93	5,112.3	-5,324.0	923.8	5,325.1	0.00	0.00	
10,482.6	90.90	179.93	5,111.0	-5,406.6	923.9	5,407.7	0.00	0.00	TD at 10482.6

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Lybrook O30-2307 03H I	0.00	0.00	5,184.2	-746.4	917.8	1,891,120.57	1,239,731.71	36.189690	-107.607890
- plan hits target center									
- Point									
Lybrook O30-2307 03H I	0.00	0.00	5,111.0	-5,406.6	923.9	1,886,460.71	1,239,672.40	36.176890	-107.607870
- plan hits target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
5,730.0	5,180.3	7" ICP	0.000	0.000
500.0	500.0	9 5/8"	0.000	0.000

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site:	S30-T23N-R7W	North Reference:	True
Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
987.0	987.0	Ojo Alamo		-0.90	179.93	
1,182.0	1,182.0	Kirtland Shale		-0.90	179.93	
1,448.0	1,448.0	Fruitland Coal		-0.90	179.93	
1,572.0	1,572.0	Pictured Cliffs Ss.		-0.90	179.93	
1,688.0	1,688.0	Lewis Shale		-0.90	179.93	
2,341.0	2,341.0	Cliffhouse Ss.		-0.90	179.93	
3,131.0	3,131.0	Menefee Fn.		-0.90	179.93	
3,962.1	3,956.0	Point Lookout Ss.		-0.90	179.93	
4,154.1	4,138.0	Mancos Shale		-0.90	179.93	
4,768.8	4,663.0	Mancos Silt		-0.90	179.93	
5,133.7	4,927.0	Gallup Fn.		-0.90	179.93	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
3,450.0	3,450.0	0.0	0.0	KOP @ 3450'	
4,878.4	4,742.0	-148.7	500.6	EOB; Inc=44.02°	
5,029.8	4,850.9	-178.6	601.5	Start build/turn @ 5029' MD	
5,821.8	5,184.2	-746.4	917.8	LP @ 5184' TVD; 90.9°	
10,482.6	5,111.0	-5,406.6	923.9	TD at 10482.6	

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

S30-T23N-R7W

Lybrook O30-2307 03H

Hz

Plan #1

Anticollision Report

26 February, 2014

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	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	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,248.3ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	2/26/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	10,482.6	Plan #1 (Hz)	Geolink MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Lybrook						
Lybrook E33-2307 01H - Hz - Plan #3	5,600.0	10,745.6	813.3	740.7	11.198	SF
Lybrook E33-2307 01H - Hz - Plan #3	5,893.2	10,745.6	730.8	681.5	14.813	CC, ES
Lybrook E33-2307 02H - Hz - Plan #3	7,213.7	10,194.1	730.2	674.0	12.991	CC, ES
Lybrook E33-2307 02H - Hz - Plan #3	7,400.0	10,194.1	753.6	694.2	12.691	SF
Lybrook L33-2307 01H - Hz - Plan #3	8,564.5	10,248.9	731.5	647.0	8.660	CC, ES
Lybrook L33-2307 01H - Hz - Plan #3	8,700.0	10,248.9	743.9	657.1	8.569	SF
Lybrook P32-2307 01H - Hz - Plan #3	9,864.3	9,735.2	729.9	627.3	7.114	CC, ES
Lybrook P32-2307 01H - Hz - Plan #3	10,000.0	9,735.2	742.4	637.5	7.073	SF
S29-T23N-R7W						
Lybrook L29-2307 03H - Hz - Plan #2	5,100.0	6,186.3	523.9	479.1	11.710	SF
Lybrook L29-2307 03H - Hz - Plan #2	5,174.4	6,138.8	516.3	474.6	12.376	CC, ES
S30-T23N-R7W						
Lybrook O30-2307 01H - Hz - Plan #1	3,400.0	3,400.0	41.5	29.7	3.511	CC, ES
Lybrook O30-2307 01H - Hz - Plan #1	3,427.8	3,427.8	41.6	29.7	3.491	SF
Lybrook O30-2307 02H - Hz - Plan #1	3,400.0	3,400.0	29.8	18.0	2.524	CC
Lybrook O30-2307 02H - Hz - Plan #1	3,428.6	3,428.6	29.9	18.0	2.508	ES
Lybrook O30-2307 02H - Hz - Plan #1	3,500.0	3,500.0	30.2	18.1	2.484	SF

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Lybrook - Lybrook E33-2307 01H - Hz - Plan #3														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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)					
5,100.0	4,900.5	10,745.6	5,012.3	16.5	134.3	10.65	-815.5	1,649.8	1,211.1	1,150.7	60.35	20.066			
5,200.0	4,967.6	10,745.6	5,012.3	17.9	134.3	-13.57	-815.5	1,649.8	1,124.5	1,095.8	28.68	39.214			
5,300.0	5,028.4	10,745.6	5,012.3	19.2	134.3	-37.19	-815.5	1,649.8	1,038.1	998.3	39.79	26.085			
5,400.0	5,081.2	10,745.6	5,012.3	20.5	134.3	-57.01	-815.5	1,649.8	954.7	890.3	64.45	14.812			
5,500.0	5,124.3	10,745.6	5,012.3	21.8	134.3	-71.56	-815.5	1,649.8	878.3	803.6	74.65	11.765			
5,600.0	5,156.5	10,745.6	5,012.3	23.0	134.3	-81.27	-815.5	1,649.8	813.3	740.7	72.63	11.198 SF			
5,700.0	5,176.7	10,745.6	5,012.3	24.1	134.3	-87.09	-815.5	1,649.8	764.9	701.6	63.27	12.089			
5,800.0	5,184.3	10,745.6	5,012.3	25.1	134.3	-89.74	-815.5	1,649.8	737.9	687.1	50.80	14.524			
5,893.2	5,184.2	10,745.6	5,012.3	26.0	134.3	-89.85	-815.5	1,649.8	730.8	681.5	49.34	14.813 CC, ES			
5,900.0	5,183.0	10,745.6	5,012.3	26.1	134.3	-89.93	-815.5	1,649.8	731.9	682.6	49.23	14.866			
6,000.0	5,181.4	10,745.6	5,012.3	27.1	134.3	-89.93	-815.5	1,649.8	739.8	689.0	50.74	14.580			
6,100.0	5,179.9	10,745.6	5,012.3	28.3	134.3	-89.93	-815.5	1,649.8	760.8	708.6	52.28	14.552			
6,200.0	5,178.3	10,745.6	5,012.3	29.5	134.3	-89.93	-815.5	1,649.8	794.0	740.2	53.86	14.743			
6,300.0	5,176.7	10,745.6	5,012.3	30.7	134.3	-89.93	-815.5	1,649.8	837.9	782.5	55.46	15.110			
6,400.0	5,175.2	10,745.6	5,012.3	32.0	134.3	-89.93	-815.5	1,649.8	890.9	833.8	57.07	15.610			
6,500.0	5,173.6	10,745.6	5,012.3	33.3	134.3	-89.93	-815.5	1,649.8	951.5	892.8	58.71	16.207			
6,600.0	5,172.0	10,745.6	5,012.3	34.7	134.3	-89.93	-815.5	1,649.8	1,018.3	958.0	60.35	16.872			
6,700.0	5,170.4	10,745.6	5,012.3	36.1	134.3	-89.93	-815.5	1,649.8	1,090.2	1,028.2	62.01	17.580			
6,800.0	5,168.9	10,745.6	5,012.3	37.6	134.3	-89.93	-815.5	1,649.8	1,166.3	1,102.6	63.68	18.314			
6,900.0	5,167.3	10,745.6	5,012.3	39.0	134.3	-89.93	-815.5	1,649.8	1,245.7	1,180.3	65.36	19.059			

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Lybrook - Lybrook E33-2307 02H - Hz - Plan #3													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)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
6,300.0	5,176.7	10,194.1	4,994.4	30.7	134.8	-90.16	-2,137.1	1,649.8	1,169.6	1,128.6	41.00	28.528		
6,400.0	5,175.2	10,194.1	4,994.4	32.0	134.8	-90.16	-2,137.1	1,649.8	1,093.3	1,050.6	42.62	25.654		
6,500.0	5,173.6	10,194.1	4,994.4	33.3	134.8	-90.16	-2,137.1	1,649.8	1,021.0	976.8	44.25	23.074		
6,600.0	5,172.0	10,194.1	4,994.4	34.7	134.8	-90.16	-2,137.1	1,649.8	953.8	907.9	45.90	20.781		
6,700.0	5,170.4	10,194.1	4,994.4	36.1	134.8	-90.16	-2,137.1	1,649.8	892.8	845.2	47.56	18.773		
6,800.0	5,168.9	10,194.1	4,994.4	37.6	134.8	-90.16	-2,137.1	1,649.8	839.2	790.0	49.23	17.048		
6,900.0	5,167.3	10,194.1	4,994.4	39.0	134.8	-90.16	-2,137.1	1,649.8	794.7	743.8	50.90	15.612		
7,000.0	5,165.7	10,194.1	4,994.4	40.5	134.8	-90.16	-2,137.1	1,649.8	760.8	708.2	52.59	14.468		
7,100.0	5,164.2	10,194.1	4,994.4	42.0	134.8	-90.16	-2,137.1	1,649.8	739.0	684.7	54.28	13.615		
7,200.0	5,162.6	10,194.1	4,994.4	43.6	134.8	-90.16	-2,137.1	1,649.8	730.3	674.3	55.97	13.048		
7,213.7	5,162.4	10,194.1	4,994.4	43.8	134.8	-90.16	-2,137.1	1,649.8	730.2	674.0	56.21	12.991 CC, ES		
7,300.0	5,161.0	10,194.1	4,994.4	45.1	134.8	-90.16	-2,137.1	1,649.8	735.3	677.6	57.67	12.749		
7,400.0	5,159.4	10,194.1	4,994.4	46.7	134.8	-90.16	-2,137.1	1,649.8	753.6	694.2	59.38	12.691 SF		
7,500.0	5,157.9	10,194.1	4,994.4	48.3	134.8	-90.16	-2,137.1	1,649.8	784.3	723.2	61.09	12.839		
7,600.0	5,156.3	10,194.1	4,994.4	49.8	134.8	-90.16	-2,137.1	1,649.8	826.1	763.3	62.80	13.154		
7,700.0	5,154.7	10,194.1	4,994.4	51.4	134.8	-90.16	-2,137.1	1,649.8	877.3	812.8	64.52	13.599		
7,800.0	5,153.2	10,194.1	4,994.4	53.1	134.8	-90.16	-2,137.1	1,649.8	936.5	870.2	66.23	14.139		
7,900.0	5,151.6	10,194.1	4,994.4	54.7	134.8	-90.16	-2,137.1	1,649.8	1,002.1	934.2	67.95	14.747		
8,000.0	5,150.0	10,194.1	4,994.4	56.3	134.8	-90.16	-2,137.1	1,649.8	1,073.1	1,003.4	69.68	15.401		
8,100.0	5,148.4	10,194.1	4,994.4	57.9	134.8	-90.16	-2,137.1	1,649.8	1,148.4	1,077.0	71.40	16.084		
8,200.0	5,146.9	10,194.1	4,994.4	59.6	134.8	-90.16	-2,137.1	1,649.8	1,227.2	1,154.1	73.13	16.782		

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	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Lybrook - Lybrook L33-2307 01H - Hz - Plan #3												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	
7,600.0	5,156.3	10,248.9	4,992.7	49.8	129.8	-90.59	-3,487.8	1,652.9	1,210.5	1,142.7	67.84	17.843	
7,700.0	5,154.7	10,248.9	4,992.7	51.4	129.8	-90.59	-3,487.8	1,652.9	1,132.4	1,062.9	69.56	16.281	
7,800.0	5,153.2	10,248.9	4,992.7	53.1	129.8	-90.59	-3,487.8	1,652.9	1,058.1	986.8	71.27	14.845	
7,900.0	5,151.6	10,248.9	4,992.7	54.7	129.8	-90.59	-3,487.8	1,652.9	988.2	915.2	72.99	13.539	
8,000.0	5,150.0	10,248.9	4,992.7	56.3	129.8	-90.59	-3,487.8	1,652.9	924.0	849.3	74.72	12.367	
8,100.0	5,148.4	10,248.9	4,992.7	57.9	129.8	-90.59	-3,487.8	1,652.9	866.5	790.1	76.44	11.336	
8,200.0	5,146.9	10,248.9	4,992.7	59.6	129.8	-90.59	-3,487.8	1,652.9	817.3	739.1	78.17	10.456	
8,300.0	5,145.3	10,248.9	4,992.7	61.2	129.8	-90.59	-3,487.8	1,652.9	777.8	697.9	79.89	9.736	
8,400.0	5,143.7	10,248.9	4,992.7	62.9	129.8	-90.59	-3,487.8	1,652.9	749.8	668.1	81.62	9.186	
8,500.0	5,142.2	10,248.9	4,992.7	64.6	129.8	-90.59	-3,487.8	1,652.9	734.3	651.0	83.35	8.810	
8,564.5	5,141.1	10,248.9	4,992.7	65.6	129.8	-90.59	-3,487.8	1,652.9	731.5	647.0	84.47	8.660 CC, ES	
8,600.0	5,140.6	10,248.9	4,992.7	66.2	129.8	-90.59	-3,487.8	1,652.9	732.4	647.3	85.09	8.607	
8,700.0	5,139.0	10,248.9	4,992.7	67.9	129.8	-90.59	-3,487.8	1,652.9	743.9	657.1	86.82	8.569 SF	
8,800.0	5,137.4	10,248.9	4,992.7	69.6	129.8	-90.59	-3,487.8	1,652.9	768.5	679.9	88.55	8.678	
8,900.0	5,135.9	10,248.9	4,992.7	71.3	129.8	-90.59	-3,487.8	1,652.9	804.8	714.5	90.29	8.914	
9,000.0	5,134.3	10,248.9	4,992.7	72.9	129.8	-90.59	-3,487.8	1,652.9	851.3	759.3	92.02	9.251	
9,100.0	5,132.7	10,248.9	4,992.7	74.6	129.8	-90.59	-3,487.8	1,652.9	906.6	812.8	93.76	9.669	
9,200.0	5,131.2	10,248.9	4,992.7	76.3	129.8	-90.59	-3,487.8	1,652.9	969.0	873.5	95.50	10.147	
9,300.0	5,129.6	10,248.9	4,992.7	78.0	129.8	-90.59	-3,487.8	1,652.9	1,037.3	940.1	97.24	10.668	
9,400.0	5,128.0	10,248.9	4,992.7	79.7	129.8	-90.59	-3,487.8	1,652.9	1,110.5	1,011.5	98.98	11.220	
9,500.0	5,126.4	10,248.9	4,992.7	81.4	129.8	-90.59	-3,487.8	1,652.9	1,187.6	1,086.8	100.72	11.791	

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	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Lybrook - Lybrook P32-2307 01H - Hz - Plan #3														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				
8,900.0	5,135.9	9,735.2	4,983.3	71.3	121.0	-90.91	-4,787.6	1,653.0	1,209.4	1,123.6	85.84	14.089			
9,000.0	5,134.3	9,735.2	4,983.3	72.9	121.0	-90.91	-4,787.6	1,653.0	1,131.3	1,043.7	87.58	12.918			
9,100.0	5,132.7	9,735.2	4,983.3	74.6	121.0	-90.91	-4,787.6	1,653.0	1,056.9	967.6	89.32	11.833			
9,200.0	5,131.2	9,735.2	4,983.3	76.3	121.0	-90.91	-4,787.6	1,653.0	987.0	895.9	91.05	10.840			
9,300.0	5,129.6	9,735.2	4,983.3	78.0	121.0	-90.91	-4,787.6	1,653.0	922.7	829.9	92.79	9.943			
9,400.0	5,128.0	9,735.2	4,983.3	79.7	121.0	-90.91	-4,787.6	1,653.0	865.1	770.6	94.53	9.152			
9,500.0	5,126.4	9,735.2	4,983.3	81.4	121.0	-90.91	-4,787.6	1,653.0	815.8	719.5	96.27	8.474			
9,600.0	5,124.9	9,735.2	4,983.3	83.1	121.0	-90.91	-4,787.6	1,653.0	776.3	678.3	98.01	7.921			
9,700.0	5,123.3	9,735.2	4,983.3	84.8	121.0	-90.91	-4,787.6	1,653.0	748.2	648.5	99.75	7.501			
9,800.0	5,121.7	9,735.2	4,983.3	86.5	121.0	-90.91	-4,787.6	1,653.0	732.8	631.3	101.49	7.220			
9,864.3	5,120.7	9,735.2	4,983.3	87.6	121.0	-90.91	-4,787.6	1,653.0	729.9	627.3	102.61	7.114 CC, ES			
9,900.0	5,120.2	9,735.2	4,983.3	88.2	121.0	-90.91	-4,787.6	1,653.0	730.8	627.6	103.23	7.079			
10,000.0	5,118.6	9,735.2	4,983.3	89.9	121.0	-90.91	-4,787.6	1,653.0	742.4	637.5	104.98	7.073 SF			
10,100.0	5,117.0	9,735.2	4,983.3	91.6	121.0	-90.91	-4,787.6	1,653.0	767.0	660.3	106.72	7.188			
10,200.0	5,115.4	9,735.2	4,983.3	93.3	121.0	-90.91	-4,787.6	1,653.0	803.4	695.0	108.46	7.407			
10,300.0	5,113.9	9,735.2	4,983.3	95.1	121.0	-90.91	-4,787.6	1,653.0	850.1	739.9	110.21	7.714			
10,400.0	5,112.3	9,735.2	4,983.3	96.8	121.0	-90.91	-4,787.6	1,653.0	905.4	793.5	111.95	8.088			
10,482.6	5,111.0	9,735.2	4,983.3	98.2	121.0	-90.91	-4,787.6	1,653.0	956.6	843.2	113.39	8.436			

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	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site Error:	0.0R	North Reference:	True
Reference Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T23N-R7W - Lybrook L29-2307 03H - Hz - Plan #2														Offset Site Error: 0.0 ft	
Survey Program: 0-Geolink MWD														Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance					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)	Total Uncertainty Axis				
4,100.0	4,086.8	6,735.1	5,077.0	7.5	50.4	-154.15	206.8	96.6	1,168.9	1,117.2	51.72	22.601			
4,200.0	4,179.8	6,698.9	5,077.4	7.9	49.6	-154.15	206.7	132.8	1,080.8	1,030.0	50.75	21.298			
4,300.0	4,270.7	6,657.9	5,077.8	8.4	48.7	-153.62	206.5	173.8	996.0	946.1	49.83	19.986			
4,400.0	4,359.2	6,612.3	5,078.3	9.0	47.7	-152.59	206.4	219.4	915.1	866.2	48.98	18.685			
4,500.0	4,445.1	6,562.3	5,078.8	9.8	46.6	-151.09	206.2	269.4	838.9	790.8	48.17	17.417			
4,600.0	4,528.1	6,507.9	5,079.4	10.6	45.5	-149.13	206.0	323.8	768.2	720.7	47.43	16.197			
4,700.0	4,607.9	6,449.3	5,080.0	11.6	44.3	-146.67	205.9	382.3	703.6	656.9	46.76	15.049			
4,800.0	4,684.5	6,386.8	5,080.7	12.7	43.0	-143.71	205.7	444.9	646.4	600.2	46.19	13.995			
4,900.0	4,757.5	6,320.5	5,081.4	13.9	41.6	-140.00	205.4	511.2	597.4	551.4	45.97	12.995			
5,000.0	4,829.4	6,253.1	5,082.1	15.2	40.2	-135.05	205.2	578.6	555.2	508.6	46.61	11.912			
5,100.0	4,900.5	6,186.3	5,082.8	16.5	38.9	-135.48	205.0	645.4	523.9	479.1	44.74	11.710 SF			
5,174.4	4,950.9	6,138.8	5,083.3	17.5	38.0	-137.44	204.9	692.9	516.3	474.6	41.72	12.376 CC, ES			
5,200.0	4,967.6	6,123.0	5,083.4	17.9	37.7	-138.05	204.8	708.6	517.2	476.7	40.53	12.761			
5,300.0	5,028.4	6,065.3	5,084.1	19.2	36.6	-140.08	204.6	766.4	538.5	503.1	35.44	15.196			
5,400.0	5,081.2	6,014.7	5,084.6	20.5	35.6	-141.53	204.5	816.9	586.1	555.8	30.23	19.388			
5,500.0	5,124.3	5,973.0	5,085.0	21.8	34.9	-142.56	204.3	858.7	654.7	628.8	25.97	25.210			
5,600.0	5,156.5	5,941.3	5,085.4	23.0	34.3	-143.46	204.2	890.3	738.5	714.5	24.02	30.744			
5,700.0	5,176.7	5,920.7	5,085.6	24.1	33.9	-145.22	204.2	911.0	831.9	807.8	24.07	34.557			
5,800.0	5,184.3	5,911.7	5,085.7	25.1	33.7	-157.56	204.1	919.9	930.3	910.1	20.19	46.071			
5,900.0	5,183.0	5,911.0	5,085.7	26.1	33.7	-174.28	204.1	920.7	1,030.2	1,015.1	15.08	68.323			
6,000.0	5,181.4	5,910.6	5,085.7	27.1	33.7	-173.67	204.1	921.1	1,130.1	1,114.7	15.49	72.952			
6,100.0	5,179.9	5,910.1	5,085.7	28.3	33.7	-173.06	204.1	921.5	1,230.1	1,214.2	15.93	77.232			

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S30-T23N-R7W - Lybrook O30-2307 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		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	-84.96	3.6	-41.3	41.5						
100.0	100.0	100.0	100.0	0.1	0.1	-84.96	3.6	-41.3	41.5	41.2	0.29	141.455			
200.0	200.0	200.0	200.0	0.3	0.3	-84.96	3.6	-41.3	41.5	40.8	0.64	64.577			
300.0	300.0	300.0	300.0	0.5	0.5	-84.96	3.6	-41.3	41.5	40.5	0.99	41.839			
400.0	400.0	400.0	400.0	0.7	0.7	-84.96	3.6	-41.3	41.5	40.1	1.34	30.943			
500.0	500.0	500.0	500.0	0.8	0.8	-84.96	3.6	-41.3	41.5	39.8	1.69	24.550			
600.0	600.0	600.0	600.0	1.0	1.0	-84.96	3.6	-41.3	41.5	39.4	2.04	20.346			
700.0	700.0	700.0	700.0	1.2	1.2	-84.96	3.6	-41.3	41.5	39.1	2.39	17.372			
800.0	800.0	800.0	800.0	1.4	1.4	-84.96	3.6	-41.3	41.5	38.7	2.74	15.156			
900.0	900.0	900.0	900.0	1.5	1.5	-84.96	3.6	-41.3	41.5	38.4	3.09	13.441			
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-84.96	3.6	-41.3	41.5	38.0	3.43	12.075			
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-84.96	3.6	-41.3	41.5	37.7	3.78	10.961			
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-84.96	3.6	-41.3	41.5	37.3	4.13	10.036			
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-84.96	3.6	-41.3	41.5	37.0	4.48	9.254			
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-84.96	3.6	-41.3	41.5	36.6	4.83	8.585			
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-84.96	3.6	-41.3	41.5	36.3	5.18	8.007			
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-84.96	3.6	-41.3	41.5	35.9	5.53	7.501			
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-84.96	3.6	-41.3	41.5	35.6	5.88	7.056			
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-84.96	3.6	-41.3	41.5	35.2	6.23	6.660			
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-84.96	3.6	-41.3	41.5	34.9	6.58	6.307			
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-84.96	3.6	-41.3	41.5	34.6	6.93	5.989			
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	-84.96	3.6	-41.3	41.5	34.2	7.27	5.702			
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	-84.96	3.6	-41.3	41.5	33.9	7.62	5.441			
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	-84.96	3.6	-41.3	41.5	33.5	7.97	5.202			
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	-84.96	3.6	-41.3	41.5	33.2	8.32	4.984			
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	-84.96	3.6	-41.3	41.5	32.8	8.67	4.784			
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	-84.96	3.6	-41.3	41.5	32.5	9.02	4.598			
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	-84.96	3.6	-41.3	41.5	32.1	9.37	4.427			
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	-84.96	3.6	-41.3	41.5	31.8	9.72	4.268			
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	-84.96	3.6	-41.3	41.5	31.4	10.07	4.120			
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	-84.96	3.6	-41.3	41.5	31.1	10.42	3.982			
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	-84.96	3.6	-41.3	41.5	30.7	10.77	3.853			
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	-84.96	3.6	-41.3	41.5	30.4	11.11	3.732			
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	-84.96	3.6	-41.3	41.5	30.0	11.46	3.618			
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	-84.96	3.6	-41.3	41.5	29.7	11.81	3.511 CC, ES			
3,427.8	3,427.8	3,427.8	3,427.8	6.0	6.0	168.52	3.6	-41.3	41.6	29.7	11.91	3.491 SF			
3,500.0	3,500.0	3,499.0	3,499.0	6.1	6.1	168.34	3.5	-41.9	42.7	30.6	12.16	3.516			
3,600.0	3,599.8	3,596.1	3,596.0	6.3	6.3	167.33	1.9	-46.8	52.8	40.4	12.48	4.235			
3,700.0	3,699.2	3,691.1	3,690.4	6.4	6.4	166.13	-1.0	-56.2	72.9	60.1	12.77	5.707			
3,800.0	3,797.9	3,782.5	3,780.8	6.6	6.6	165.13	-5.1	-69.5	102.6	89.5	13.04	7.865			
3,900.0	3,895.6	3,869.3	3,865.8	6.9	6.8	164.36	-10.3	-86.1	141.3	128.1	13.28	10.646			
4,000.0	3,992.0	3,950.6	3,944.7	7.2	7.0	163.71	-16.2	-105.1	188.7	175.2	13.49	13.989			
4,100.0	4,086.8	4,025.8	4,016.7	7.5	7.2	163.10	-22.5	-125.5	243.8	230.1	13.67	17.839			
4,200.0	4,179.8	4,100.0	4,086.9	7.9	7.5	162.49	-29.6	-148.3	306.1	292.3	13.83	22.130			
4,300.0	4,270.7	4,156.5	4,139.7	8.4	7.7	161.78	-35.6	-167.5	374.7	360.7	13.97	26.830			
4,400.0	4,359.2	4,211.9	4,190.9	9.0	8.0	160.97	-41.9	-187.8	449.0	434.9	14.10	31.846			
4,500.0	4,445.1	4,260.7	4,235.5	9.8	8.2	160.00	-47.8	-206.9	528.2	514.0	14.24	37.089			
4,600.0	4,528.1	4,300.0	4,270.9	10.6	8.4	158.75	-52.8	-223.0	611.7	597.3	14.41	42.443			
4,700.0	4,607.9	4,340.1	4,306.7	11.6	8.7	157.25	-58.2	-240.2	698.9	684.3	14.66	47.668			
4,800.0	4,684.5	4,371.2	4,334.2	12.7	8.8	155.26	-62.5	-254.1	789.2	774.2	15.04	52.485			
4,900.0	4,757.5	4,400.0	4,359.5	13.9	9.0	153.48	-66.6	-267.3	882.0	866.4	15.57	56.654			
5,000.0	4,829.4	4,420.5	4,377.4	15.2	9.2	154.03	-69.6	-277.0	975.8	959.8	16.04	60.844			

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S30-T23N-R7W - Lybrook O30-2307 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	4,900.5	4,442.7	4,396.5	16.5	9.3	130.83	-72.9	-287.6	1,069.5	1,049.7	19.79	54.051	
5,200.0	4,967.6	4,464.0	4,414.8	17.9	9.5	106.48	-76.1	-298.0	1,160.8	1,137.1	23.67	49.033	
5,300.0	5,028.4	4,500.0	4,445.5	19.2	9.8	91.35	-81.8	-316.1	1,247.8	1,222.2	25.57	48.803	

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S30-T23N-R7W - Lybrook O30-2307 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	-127.63	-18.2	-23.6	29.8						
100.0	100.0	100.0	100.0	0.1	0.1	-127.63	-18.2	-23.6	29.8	29.5	0.29	101.675			
200.0	200.0	200.0	200.0	0.3	0.3	-127.63	-18.2	-23.6	29.8	29.2	0.64	46.417			
300.0	300.0	300.0	300.0	0.5	0.5	-127.63	-18.2	-23.6	29.8	28.8	0.99	30.073			
400.0	400.0	400.0	400.0	0.7	0.7	-127.63	-18.2	-23.6	29.8	28.5	1.34	22.241			
500.0	500.0	500.0	500.0	0.8	0.8	-127.63	-18.2	-23.6	29.8	28.1	1.69	17.646			
600.0	600.0	600.0	600.0	1.0	1.0	-127.63	-18.2	-23.6	29.8	27.8	2.04	14.625			
700.0	700.0	700.0	700.0	1.2	1.2	-127.63	-18.2	-23.6	29.8	27.4	2.39	12.486			
800.0	800.0	800.0	800.0	1.4	1.4	-127.63	-18.2	-23.6	29.8	27.1	2.74	10.894			
900.0	900.0	900.0	900.0	1.5	1.5	-127.63	-18.2	-23.6	29.8	26.7	3.09	9.661			
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-127.63	-18.2	-23.6	29.8	26.4	3.43	8.680			
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-127.63	-18.2	-23.6	29.8	26.0	3.78	7.879			
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-127.63	-18.2	-23.6	29.8	25.7	4.13	7.213			
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-127.63	-18.2	-23.6	29.8	25.3	4.48	6.652			
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-127.63	-18.2	-23.6	29.8	25.0	4.83	6.171			
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-127.63	-18.2	-23.6	29.8	24.6	5.18	5.755			
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-127.63	-18.2	-23.6	29.8	24.3	5.53	5.392			
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-127.63	-18.2	-23.6	29.8	23.9	5.88	5.072			
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-127.63	-18.2	-23.6	29.8	23.6	6.23	4.787			
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-127.63	-18.2	-23.6	29.8	23.2	6.58	4.533			
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-127.63	-18.2	-23.6	29.8	22.9	6.93	4.305			
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	-127.63	-18.2	-23.6	29.8	22.5	7.27	4.098			
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	-127.63	-18.2	-23.6	29.8	22.2	7.62	3.911			
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	-127.63	-18.2	-23.6	29.8	21.8	7.97	3.739			
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	-127.63	-18.2	-23.6	29.8	21.5	8.32	3.583			
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	-127.63	-18.2	-23.6	29.8	21.1	8.67	3.438			
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	-127.63	-18.2	-23.6	29.8	20.8	9.02	3.305			
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	-127.63	-18.2	-23.6	29.8	20.4	9.37	3.182			
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	-127.63	-18.2	-23.6	29.8	20.1	9.72	3.068			
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	-127.63	-18.2	-23.6	29.8	19.7	10.07	2.961			
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	-127.63	-18.2	-23.6	29.8	19.4	10.42	2.862			
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	-127.63	-18.2	-23.6	29.8	19.0	10.77	2.769			
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	-127.63	-18.2	-23.6	29.8	18.7	11.11	2.682			
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	-127.63	-18.2	-23.6	29.8	18.3	11.46	2.601			
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	-127.63	-18.2	-23.6	29.8	18.0	11.81	2.524 CC			
3,428.6	3,428.6	3,428.6	3,428.6	6.0	6.0	125.99	-18.2	-23.6	29.9	18.0	11.91	2.508 ES			
3,500.0	3,500.0	3,500.0	3,500.0	6.1	6.1	126.85	-18.2	-23.6	30.2	18.1	12.16	2.484 SF			
3,600.0	3,599.8	3,599.8	3,599.8	6.3	6.3	134.10	-18.2	-23.6	33.7	21.2	12.50	2.697			
3,700.0	3,699.2	3,699.2	3,699.2	6.4	6.4	144.53	-18.2	-23.6	41.9	29.1	12.81	3.271			
3,800.0	3,797.9	3,797.9	3,797.9	6.6	6.6	153.93	-18.2	-23.6	55.8	42.7	13.09	4.262			
3,900.0	3,895.6	3,895.6	3,895.6	6.9	6.8	160.84	-18.2	-23.6	75.6	62.3	13.34	5.669			
4,000.0	3,992.0	3,992.0	3,992.0	7.2	6.9	165.57	-18.2	-23.6	101.1	87.6	13.55	7.463			
4,100.0	4,086.8	4,086.8	4,086.8	7.5	7.1	168.80	-18.2	-23.6	132.1	118.4	13.74	9.620			
4,200.0	4,179.8	4,179.8	4,179.8	7.9	7.3	171.04	-18.2	-23.6	168.4	154.5	13.89	12.123			
4,300.0	4,270.7	4,270.7	4,270.7	8.4	7.4	172.63	-18.2	-23.6	209.8	195.8	14.02	14.963			
4,400.0	4,359.2	4,359.2	4,359.2	9.0	7.6	173.80	-18.2	-23.6	256.1	241.9	14.12	18.137			
4,500.0	4,445.1	4,445.1	4,445.1	9.8	7.7	174.66	-18.2	-23.6	307.1	292.9	14.19	21.645			
4,600.0	4,528.1	4,528.1	4,528.1	10.6	7.9	175.31	-18.2	-23.6	362.7	348.5	14.23	25.489			
4,700.0	4,607.9	4,608.5	4,608.5	11.6	8.0	175.82	-18.2	-23.6	422.8	408.5	14.25	29.671			
4,800.0	4,684.5	4,708.5	4,707.9	12.7	8.2	175.02	-27.4	-23.2	485.0	470.7	14.31	33.905			
4,900.0	4,757.5	4,808.1	4,803.9	13.9	8.4	172.25	-53.5	-21.9	548.0	533.4	14.54	37.679			
5,000.0	4,829.4	4,905.0	4,891.6	15.2	8.7	168.52	-94.5	-19.8	609.7	594.4	15.26	39.947			

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S30-T23N-R7W - Lybrook O30-2307 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		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		
5,100.0	4,900.5	4,997.8	4,967.9	16.5	9.1	152.64	-147.0	-17.2	670.0	652.9	17.11	39.163		
5,200.0	4,967.6	5,092.1	5,035.8	17.9	9.6	134.70	-212.3	-14.0	727.6	707.4	20.17	36.077		
5,300.0	5,028.4	5,189.0	5,093.4	19.2	10.4	120.35	-289.9	-10.1	779.8	756.4	23.43	33.282		
5,400.0	5,081.2	5,288.1	5,137.9	20.5	11.4	109.25	-378.3	-5.7	824.6	798.2	26.48	31.147		
5,500.0	5,124.3	5,388.5	5,166.8	21.8	12.6	100.89	-474.1	-1.0	860.5	831.3	29.15	29.516		
5,600.0	5,156.5	5,488.2	5,178.6	23.0	13.9	94.78	-572.9	3.9	886.2	854.8	31.39	28.236		
5,700.0	5,176.7	5,568.8	5,178.0	24.1	15.1	91.01	-653.4	7.4	901.9	869.1	32.86	27.448		
5,800.0	5,184.3	5,644.6	5,176.8	25.1	16.2	89.54	-729.2	8.8	908.8	874.9	33.82	26.867		
5,900.0	5,183.0	5,740.4	5,175.3	26.1	17.6	89.51	-825.0	8.9	909.1	872.7	36.35	25.011		
6,000.0	5,181.4	5,840.4	5,173.7	27.1	19.2	89.51	-925.0	9.0	909.1	869.7	39.41	23.070		
6,100.0	5,179.9	5,940.4	5,172.2	28.3	20.8	89.51	-1,025.0	9.0	909.2	866.7	42.54	21.374		
6,200.0	5,178.3	6,040.4	5,170.6	29.5	22.4	89.51	-1,125.0	9.1	909.3	863.6	45.72	19.886		
6,300.0	5,176.7	6,140.4	5,169.0	30.7	24.0	89.51	-1,224.9	9.2	909.3	860.4	48.95	18.576		
6,400.0	5,175.2	6,240.4	5,167.5	32.0	25.7	89.51	-1,324.9	9.2	909.4	857.2	52.22	17.416		
6,500.0	5,173.6	6,340.4	5,165.9	33.3	27.3	89.51	-1,424.9	9.3	909.5	854.0	55.51	16.384		
6,600.0	5,172.0	6,440.4	5,164.3	34.7	29.0	89.51	-1,524.9	9.4	909.5	850.7	58.83	15.460		
6,700.0	5,170.4	6,540.4	5,162.7	36.1	30.7	89.51	-1,624.9	9.4	909.6	847.4	62.17	14.631		
6,800.0	5,168.9	6,640.4	5,161.2	37.6	32.4	89.51	-1,724.9	9.5	909.7	844.1	65.53	13.882		
6,900.0	5,167.3	6,740.4	5,159.6	39.0	34.1	89.51	-1,824.9	9.5	909.7	840.8	68.90	13.204		
7,000.0	5,165.7	6,840.4	5,158.0	40.5	35.8	89.51	-1,924.9	9.6	909.8	837.5	72.28	12.586		
7,100.0	5,164.2	6,940.4	5,156.5	42.0	37.5	89.51	-2,024.8	9.7	909.9	834.2	75.68	12.023		
7,200.0	5,162.6	7,040.4	5,154.9	43.6	39.2	89.51	-2,124.8	9.7	909.9	830.9	79.09	11.506		
7,300.0	5,161.0	7,140.4	5,153.3	45.1	40.9	89.51	-2,224.8	9.8	910.0	827.5	82.50	11.030		
7,400.0	5,159.4	7,240.4	5,151.7	46.7	42.6	89.51	-2,324.8	9.9	910.1	824.1	85.92	10.592		
7,500.0	5,157.9	7,340.4	5,150.2	48.3	44.3	89.51	-2,424.8	9.9	910.1	820.8	89.35	10.186		
7,600.0	5,156.3	7,440.4	5,148.6	49.8	46.0	89.51	-2,524.8	10.0	910.2	817.4	92.79	9.810		
7,700.0	5,154.7	7,540.4	5,147.0	51.4	47.8	89.52	-2,624.8	10.1	910.3	814.0	96.23	9.460		
7,800.0	5,153.2	7,640.4	5,145.5	53.1	49.5	89.52	-2,724.8	10.1	910.3	810.7	99.67	9.134		
7,900.0	5,151.6	7,740.4	5,143.9	54.7	51.2	89.52	-2,824.7	10.2	910.4	807.3	103.12	8.829		
8,000.0	5,150.0	7,840.4	5,142.3	56.3	53.0	89.52	-2,924.7	10.2	910.5	803.9	106.57	8.543		
8,100.0	5,148.4	7,940.4	5,140.8	57.9	54.7	89.52	-3,024.7	10.3	910.5	800.5	110.03	8.276		
8,200.0	5,146.9	8,040.4	5,139.2	59.6	56.4	89.52	-3,124.7	10.4	910.6	797.1	113.49	8.024		
8,300.0	5,145.3	8,140.4	5,137.6	61.2	58.2	89.52	-3,224.7	10.4	910.7	793.7	116.95	7.787		
8,400.0	5,143.7	8,240.4	5,136.0	62.9	59.9	89.52	-3,324.7	10.5	910.7	790.3	120.41	7.563		
8,500.0	5,142.2	8,340.4	5,134.5	64.6	61.6	89.52	-3,424.7	10.6	910.8	786.9	123.88	7.352		
8,600.0	5,140.6	8,440.4	5,132.9	66.2	63.4	89.52	-3,524.7	10.6	910.9	783.5	127.35	7.153		
8,700.0	5,139.0	8,540.4	5,131.3	67.9	65.1	89.52	-3,624.6	10.7	910.9	780.1	130.82	6.963		
8,800.0	5,137.4	8,640.4	5,129.8	69.6	66.8	89.52	-3,724.6	10.8	911.0	776.7	134.29	6.784		
8,900.0	5,135.9	8,740.4	5,128.2	71.3	68.6	89.52	-3,824.6	10.8	911.1	773.3	137.77	6.613		
9,000.0	5,134.3	8,840.4	5,126.6	72.9	70.3	89.52	-3,924.6	10.9	911.1	769.9	141.25	6.451		
9,100.0	5,132.7	8,940.4	5,125.1	74.6	72.1	89.52	-4,024.6	10.9	911.2	766.5	144.72	6.296		
9,200.0	5,131.2	9,040.4	5,123.5	76.3	73.8	89.52	-4,124.6	11.0	911.3	763.1	148.20	6.149		
9,300.0	5,129.6	9,140.4	5,121.9	78.0	75.5	89.52	-4,224.6	11.1	911.3	759.7	151.68	6.008		
9,400.0	5,128.0	9,240.4	5,120.3	79.7	77.3	89.52	-4,324.6	11.1	911.4	756.2	155.17	5.874		
9,500.0	5,126.4	9,340.4	5,118.8	81.4	79.0	89.52	-4,424.5	11.2	911.5	752.8	158.65	5.745		
9,600.0	5,124.9	9,440.4	5,117.2	83.1	80.8	89.52	-4,524.5	11.3	911.5	749.4	162.13	5.622		
9,700.0	5,123.3	9,540.4	5,115.6	84.8	82.5	89.52	-4,624.5	11.3	911.6	746.0	165.62	5.504		
9,800.0	5,121.7	9,640.4	5,114.1	86.5	84.3	89.52	-4,724.5	11.4	911.7	742.6	169.10	5.391		
9,900.0	5,120.2	9,740.4	5,112.5	88.2	86.0	89.52	-4,824.5	11.5	911.7	739.1	172.59	5.283		
10,000.0	5,118.6	9,840.4	5,110.9	89.9	87.8	89.52	-4,924.5	11.5	911.8	735.7	176.08	5.178		
10,100.0	5,117.0	9,940.4	5,109.3	91.6	89.5	89.52	-5,024.5	11.6	911.9	732.3	179.57	5.078		
10,200.0	5,115.4	10,040.4	5,107.8	93.3	91.2	89.52	-5,124.5	11.6	911.9	728.9	183.06	4.982		

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	Local Co-ordinate Reference:	Well Lybrook O30-2307 03H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Original Well Elev)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 03H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												S30-T23N-R7W - Lybrook O30-2307 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty	Seperation Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	Axis						
10,300.0	5,113.9	10,140.4	5,106.2	95.1	93.0	89.52	-5,224.4		11.7	912.0	725.5	186.55	4.889				
10,400.0	5,112.3	10,240.4	5,104.6	96.8	94.7	89.52	-5,324.4		11.8	912.1	722.0	190.04	4.799				
10,440.3	5,111.7	10,280.8	5,104.0	97.5	95.4	89.52	-5,364.8		11.8	912.1	720.6	191.45	4.764				
10,482.6	5,111.0	10,319.0	5,103.4	98.2	96.1	89.52	-5,403.0		11.8	912.1	719.3	192.85	4.730				

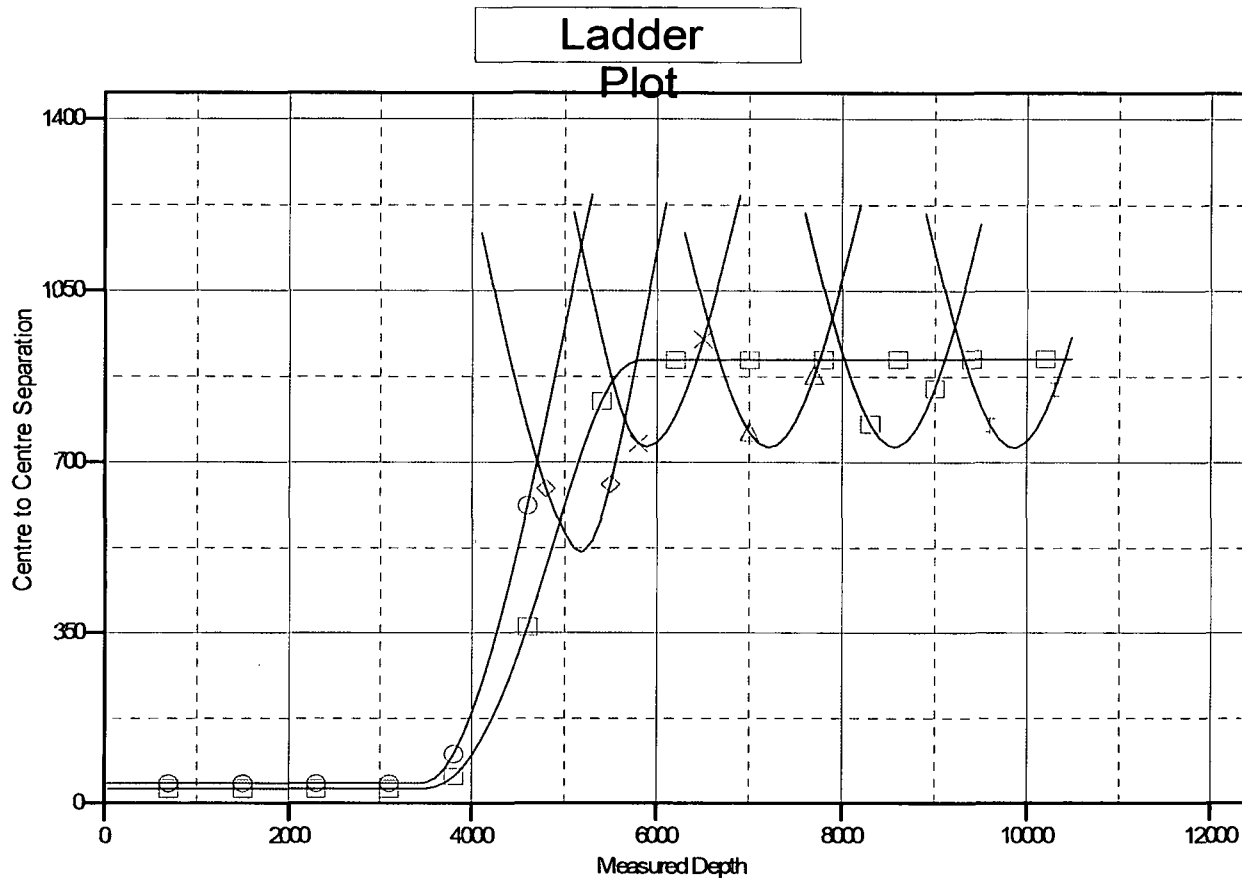
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Reference Site: S30-T23N-R7W
Site Error: 0.0ft
Reference Well: Lybrook O30-2307 03H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #1

Local Co-ordinate Reference: Well Lybrook O30-2307 03H
TVD Reference: WELL @ 7039.0ft (Original Well Elev)
MD Reference: WELL @ 7039.0ft (Original Well Elev)
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 WELL @ 7039.0ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is -106.250000 °

Coordinates are relative to: Lybrook O30-2307 03H
 Coordinate System is US State Plane 1983, New Mexico Central Zone
 Grid Convergence at Surface is: -0.80°



LEGEND

Lybrook E33-2307 01H, Hz, Plan #3 V0 Lybrook P32-2307 01H, Hz, Plan #3 V0 Lybrook O30-2307 02H, Hz, Plan #1 V0
 Lybrook E33-2307 02H, Hz, Plan #3 V0 Lybrook L29-2307 03H, Hz, Plan #2 V0
 Lybrook L33-2307 01H, Hz, Plan #3 V0 Lybrook O30-2307 01H, Hz, Plan #1 V0