

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2.

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

JUL 30 2014

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)
720-876-3926

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SHL: 417' FSL and 1360' FEL Sec 30 T23N R7W
BHL: 330' FSL and 1980' FEL Sec 31 T23N R7W

5. Lease Serial No.
NM 6681

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

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

8. Well Name and No.
Lybrook O30-2307 01H

9. API Well No.
30-043-21211

10. Field and Pool or Exploratory Area
Basin Mancos Gas Pool/Alamito-Gallup

11. County or Parish, State
Sandoval County, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other _____
	☒ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Encana Oil & Gas (USA) Inc. would like to revise the survey package, 10-Point Drilling Plan, Well Summary Diagram, Wellhead Blowout Control System, Pipeline Specifications, and Directional Drilling Plan for the Lybrook O30-2307 01H submitted on March 20, 2014. The Point of Entry and Bottom Locations were revised.

OIL CONS. DIV DIST. 3

CONDITIONS OF APPROVAL

Adhere to previously issued stipulations

AUG 13 2014

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

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)

Jessica Gregg

Title Regulatory Analyst

Signature

Jessica Gregg

Date 07/24/2014

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

William Tambekou

Title

Petroleum Engineer

Date

8/12/2014

Conditions of approval, if any, are attached. Approval of this notice 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.

Office FFD

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.

(Instructions on page 2)

NMOCDA

District I
1525 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 Rte. 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) 476-3462

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

1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

AP Number 30-043-21211	Pool Code 97232 / 1039	Pool Name BASIN MANCOS / ALAMITO - GALUP
Property Code 313257	Property Name LYBROOK 030-2307	Well Number 01H
OSRD No. 282327	Operator Name ENCANA OIL & GAS (USA) INC.	Elevation 7023'

10 Surface Location

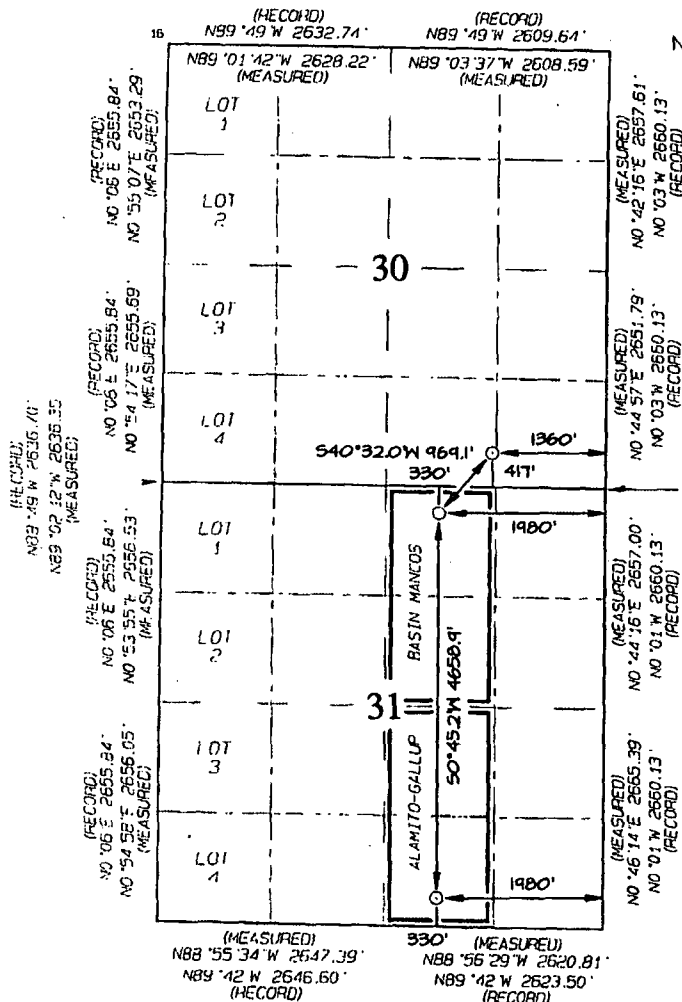
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	30	23N	7W		417	SOUTH	1360	EAST	SANDOVAL

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
0	31	23N	7W		330	SOUTH	1980	EAST	SANDOVAL

Dedicated Acres 160.00 Acres W/2 E/2 - Section 31	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



SURFACE LOCATION
417' FSL 1360' FEL
SECTION 30, T23N, R7W
LAT: 36.19174°N
LONG: 107.61053°W
DATUM: NAD1927
LAT: 36.19175°N
LONG: 107.61114°W
DATUM: NAD1983

POINT-OF-ENTRY
330' FNL 1980' FEL
SECTION 31, T23N, R7W
LAT: 36.18969°N
LONG: 107.61263°W
DATUM: NAD1927
LAT: 36.18971°N
LONG: 107.61324°W
DATUM: NAD1983

END-OF-LATERAL
330' FSL 1980' FEL
SECTION 31, T23N, R7W
LAT: 36.17697°N
LONG: 107.61262°W
DATUM: NAD1927
LAT: 36.17691°N
LONG: 107.61323°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.

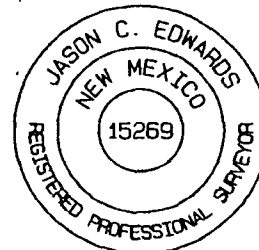
Signature: *Jessica Gregg* Date: **7/21/14**
Printed Name: **Jessica Gregg**
Email Address: **jessica.gregg@encana.com**

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: **JUNE 6, 2014**
Survey Date: **NOVEMBER 13, 2013**

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number **15269**

Directions from the Intersection of US Hwy 550 & US Hwy 64
in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Lybrook O30-2307 01H
417' FSL & 1360' FEL, Section 30, T23N, R7W, N.M.P.M., Sandoval County, NM

Latitude: 36.19175°N Longitude: 107.61114°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 01H proposed access which continues for an additional 5097' to staked Encana Lybrook O30-2307 01H location.

encana

SANDOVAL COUNTY,
NEW MEXICO

- ABDN
- AGAS
- DRY
- GAS
- INJ
- OIL

Basin Mancos
Gas Pool

1 inch = 2,000 feet

KENAI OIL GAS INC 22

19

Lybrook E20-2307 02H

**LYBROOK
GALLUP
POOL**

20

KITE ACA FEDERAL 1

Lybrook O20-2307 01H
Lybrook O20-2307 02H

HENRY AGC FEDERAL 1

23N
7W

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

25

30

29

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

Lybrook O30-2307 01H

Lybrook O30-2307 03H
Lybrook O30-2307 04H
Lybrook O30-2307 02H

Lybrook G31-2307 01H
Lybrook G31-2307 02H
Lybrook G31-2307 03H

LITTLE B 2
LITTLE B 1

36

**ALAMITO
GALLUP
POOL**

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

31

ALAMITO
UNIT 3

32

23N
8W

FEDERAL C 2

ALAMITO 1
ALAMITO 1

Lybrook P32-2307 01H

STATE K 1

FEDERAL C 3

FULTON 1

ALAMITO UNIT 2

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

22N
8W

GALLO WASH 5

1

SOUTH
SEAS 1

FEDERAL 1-5

6

SOUTH
SEAS 2

FEDERAL
6-22-7 1

5

22N
7W

0 0.125 0.25 0.5 Miles

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 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	985
Kirtland Shale	1,180
Fruitland Coal	1,446
Pictured Cliffs Ss.	1,570
Lewis Shale	1,686
Cliffhouse Ss.	2,339
Menefee Fn.	3,129
Point Lookout Ss.	3,954
Mancos Shale	4,136
Mancos Silt	4,658
Gallup Fn.	4,917
Horizontal Target	5,180

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	1,446
Oil/Gas	Pictured Cliffs Ss.	1,570
Oil/Gas	Cliffhouse Ss.	2,339
Gas	Menefee Fn.	3,129
Oil/Gas	Point Lookout Ss.	3,954
Oil/Gas	Mancos Shale	4,136
Oil/Gas	Mancos Silt	4,658
Oil/Gas	Gallup Fn.	4,917

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.

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 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 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"	20"	94#	H40, STC New
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5620'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5420'-10375'	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.

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 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'-5620'	30% open hole excess Stage 1 Lead: 308 sks Stage 1 Tail: 374 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	5420'-10375'	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 3200'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5095'/10375'	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'-5170'/5620'	Fresh Water LSND	9.5-8.8	40-50	8-10

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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"	5170'/5620'- 5095'/10375'	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 +/- 2424 psi based on a 9.0 ppg at 5180' 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: NW/4 NE/4 Sec 31 T23N R7W, 330'			Encana Natural Gas					ENG: S Kuykendall 7/21/14 RIG: Aztec 950 GLE: 7023 RKBE: 7039	
County: Sandoval WELL: Lybrook O30-2307 01H			WELL SUMMARY						
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			TVD	MD					
			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					12 1/4	9 5/8" 36ppf J55 STC	Fresh wtr 8.4-8.6	Vertical <1°
		Nacimiento 9 5/8" Csg	0 500	500.00			TOC Surface - 201 sks of Type III Cement		
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 Kirtland Shale	985 1,180			8 3/4	7" 26ppf J55 LTC TOC @ surface 30% OH excess: 682 sks Total. Stage 1 Lead: 308 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: 374 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. <i>153</i> 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	Vertical <1°
		Frutland Coal	1,446						
		Pictured Cliffs Ss. Lewis Shale	1,570 1,686						
		Cliffhouse Ss. Menefee Fn.	2,339 3,129						
		Point Lookout Ss. Mancos Shale	3,954 4,136						
Surveys every 30' through the curve	Mud logger onsite	KOP	3,200	3,200					
		Mancos Silt	4,658						
		Gallup Fn. 7" Csg	4,917 5,170	5,620'					
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD	5,180 5,095	10,375	6 1/8	200' overlap at liner top	Horizontal Inclination Horizontal TVD	Horz Inc/TVD /90.9 deg	
		Base Gallup	5,254			4755' Drilled Lateral	8.6-9.0 OBM	TD = 10374.6 MD	
MWD Gamma Directional						4 1/2" 11.6ppf SB80 LTC	Switch to OBM 8.6-9.0		
						Running external swellable csg packers for isolation of prod string Plan on setting top packer within 100' of intermediate casing shoe			

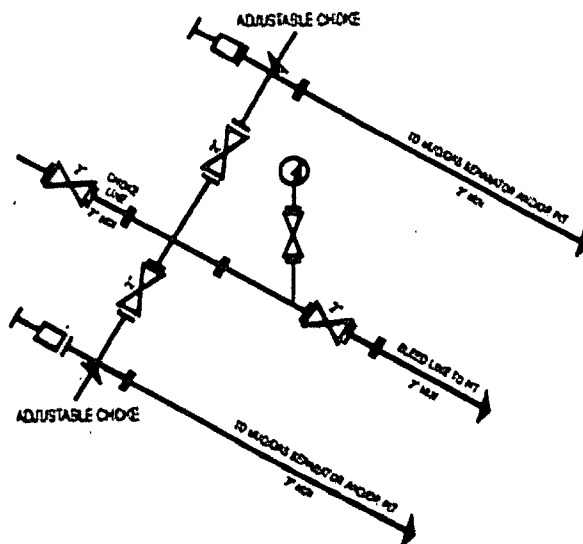
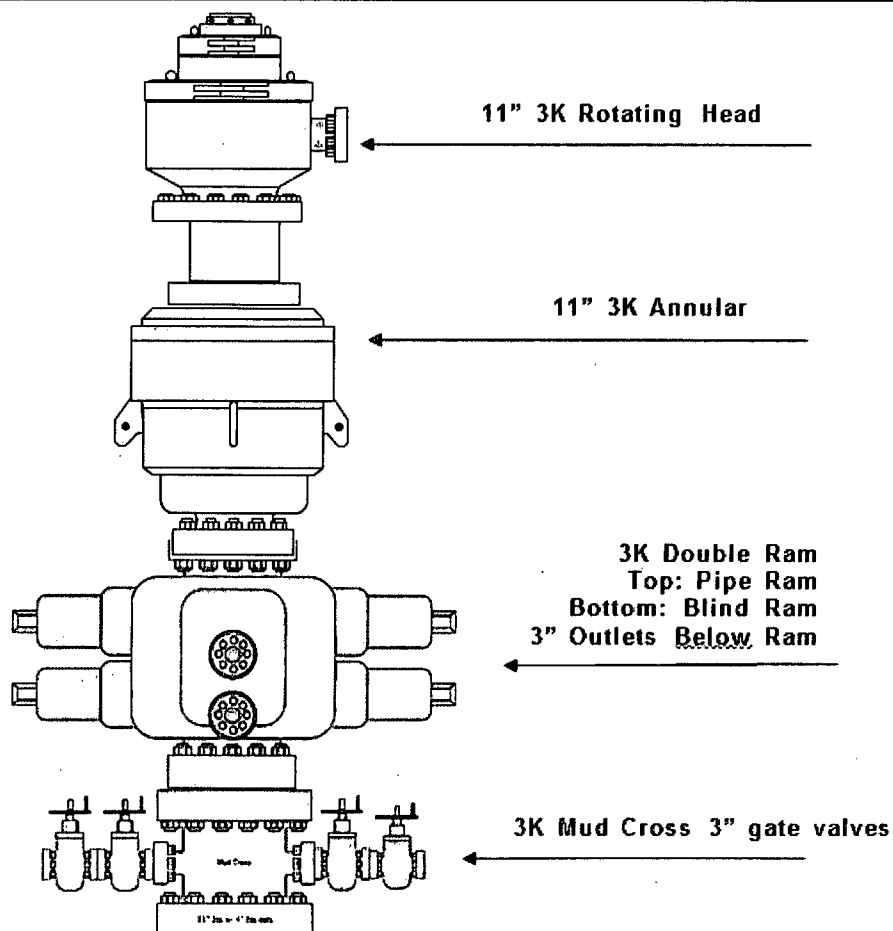
NOTES:

- 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 3200', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5620' MD
- 7) R&C 7" csg, circ cmt to surface, switch to WBM
- 8) Land at 90 deg, drill lateral to 10375' run 4 1/2 inch liner with external swellable csg packers

WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Lybrook O30-2307 01H





Boomerang Tube LLC

CASING (OR) TUBING DESCRIPTION AND PERFORMANCE PROPERTIES

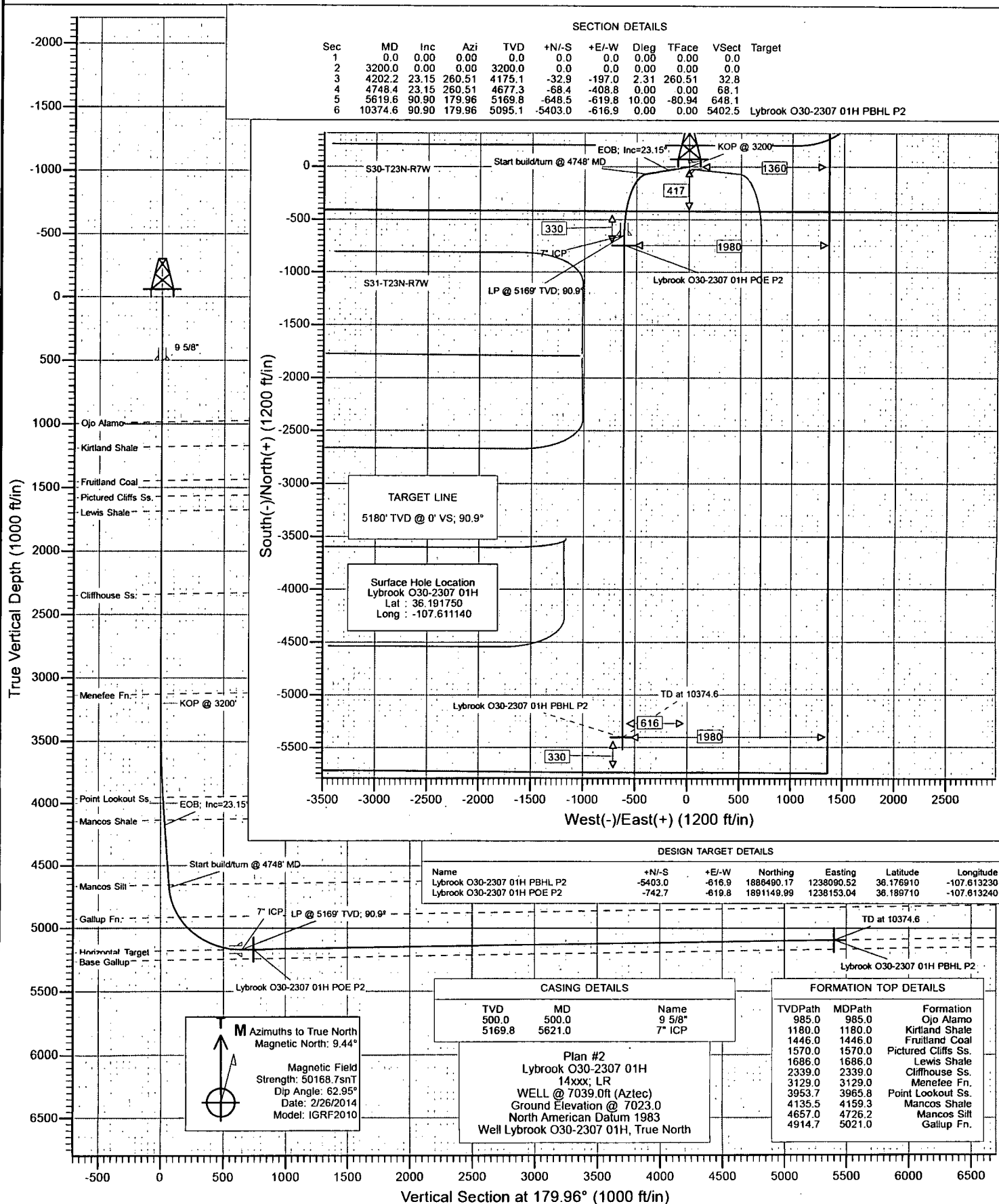
Pipe Outside Diameter (ins)	_____	4.500
Pipe Wall Thickness (ins)	_____	0.250
Nominal Weight Per Foot (lbs)	_____	11.60
Thread Name	_____	Long Thread CSG
Grade Name	_____	SB-80
Pipe Minimum Yield (psi)	_____	80,000
Pipe Minimum Ultimate (psi)	_____	90,000
Coupling Minimum Yield (psi)	_____	80,000
Coupling 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



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7039.0ft (Aztec)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7039.0ft (Aztec)
Site:	S30-T23N-R7W	North Reference:	True
Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

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 01H					
Well Position	+N/-S	0.0 ft	Northing:	1,891,883.94 ft	Latitude:	36.191750
	+E/-W	0.0 ft	Easting:	1,238,783.16 ft	Longitude:	-107.611140
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,023.0 ft	

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

Design	Plan #2			
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	179.96

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	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,202.2	23.15	260.51	4,175.1	-32.9	-197.0	2.31	2.31	0.00	260.51	
4,748.4	23.15	260.51	4,677.3	-68.4	-408.8	0.00	0.00	0.00	0.00	
5,619.6	90.90	179.96	5,169.8	-648.5	-619.8	10.00	7.78	-9.24	-80.94	
10,374.6	90.90	179.96	5,095.1	-5,403.0	-616.9	0.00	0.00	0.00	0.00	Lybrook O30-2307 01

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7039.0ft (Aztec)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7039.0ft (Aztec)
Site:	S30-T23N-R7W	North Reference:	True
Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

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	
985.0	0.00	0.00	985.0	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	
1,180.0	0.00	0.00	1,180.0	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	
1,446.0	0.00	0.00	1,446.0	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	
1,570.0	0.00	0.00	1,570.0	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	
1,686.0	0.00	0.00	1,686.0	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	
2,339.0	0.00	0.00	2,339.0	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	
3,129.0	0.00	0.00	3,129.0	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	KOP @ 3200'
3,300.0	2.31	260.51	3,300.0	-0.3	-2.0	0.3	2.31	2.31	
3,400.0	4.62	260.51	3,399.8	-1.3	-7.9	1.3	2.31	2.31	
3,500.0	6.93	260.51	3,499.3	-3.0	-17.9	3.0	2.31	2.31	
3,600.0	9.24	260.51	3,598.3	-5.3	-31.7	5.3	2.31	2.31	
3,700.0	11.55	260.51	3,696.6	-8.3	-49.5	8.3	2.31	2.31	
3,800.0	13.86	260.51	3,794.2	-11.9	-71.2	11.9	2.31	2.31	
3,900.0	16.17	260.51	3,890.7	-16.2	-96.8	16.1	2.31	2.31	
3,965.8	17.69	260.51	3,953.7	-19.3	-115.7	19.3	2.31	2.31	Point Lookout Ss.
4,000.0	18.48	260.51	3,986.2	-21.1	-126.2	21.0	2.31	2.31	
4,100.0	20.79	260.51	4,080.4	-26.6	-159.3	26.5	2.31	2.31	
4,159.3	22.16	260.51	4,135.5	-30.2	-180.7	30.1	2.31	2.31	Mancos Shale
4,200.0	23.10	260.51	4,173.1	-32.8	-196.2	32.7	2.31	2.31	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7039.0ft (Aztec)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7039.0ft (Aztec)
Site:	S30-T23N-R7W	North Reference:	True
Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

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
4,202.2	23.15	260.51	4,175.1	-32.9	-197.0	32.8	2.31	2.31	EOB; Inc=23.15°
4,300.0	23.15	260.51	4,265.1	-39.3	-235.0	39.1	0.00	0.00	
4,400.0	23.15	260.51	4,357.0	-45.8	-273.7	45.6	0.00	0.00	
4,500.0	23.15	260.51	4,449.0	-52.3	-312.5	52.0	0.00	0.00	
4,600.0	23.15	260.51	4,540.9	-58.7	-351.3	58.5	0.00	0.00	
4,700.0	23.15	260.51	4,632.8	-65.2	-390.1	65.0	0.00	0.00	
4,726.2	23.15	260.51	4,657.0	-66.9	-400.2	66.7	0.00	0.00	Mancos Silt
4,748.4	23.15	260.51	4,677.3	-68.4	-408.8	68.1	0.00	0.00	Start build/turn @ 4748' MD
4,800.0	24.47	248.12	4,724.6	-74.0	-428.8	73.7	10.00	2.56	
4,900.0	29.40	228.76	4,813.9	-98.0	-466.6	97.7	10.00	4.92	
5,000.0	36.30	215.34	4,898.0	-138.4	-502.2	138.1	10.00	6.91	
5,021.0	37.91	213.10	4,914.7	-148.9	-509.3	148.5	10.00	7.65	Gallup Fn.
5,100.0	44.27	205.95	4,974.2	-194.1	-534.7	193.7	10.00	8.05	
5,200.0	52.81	198.99	5,040.4	-263.3	-563.0	262.9	10.00	8.54	
5,300.0	61.68	193.47	5,094.5	-344.0	-586.3	343.6	10.00	8.86	
5,400.0	70.73	188.82	5,134.8	-433.7	-603.8	433.3	10.00	9.05	
5,500.0	79.89	184.65	5,160.2	-529.6	-615.1	529.2	10.00	9.16	
5,600.0	89.09	180.73	5,169.8	-628.9	-619.7	628.5	10.00	9.21	
5,619.6	90.90	179.96	5,169.8	-648.5	-619.8	648.1	10.00	9.22	LP @ 5169' TVD; 90.9°
5,621.0	90.90	179.96	5,169.8	-649.9	-619.8	649.5	0.00	0.00	7" ICP
5,700.0	90.90	179.96	5,168.5	-728.9	-619.8	728.5	0.00	0.00	
5,800.0	90.90	179.96	5,166.9	-828.9	-619.7	828.5	0.00	0.00	
5,900.0	90.90	179.96	5,165.4	-928.9	-619.7	928.5	0.00	0.00	
6,000.0	90.90	179.96	5,163.8	-1,028.9	-619.6	1,028.4	0.00	0.00	
6,100.0	90.90	179.96	5,162.2	-1,128.9	-619.5	1,128.4	0.00	0.00	
6,200.0	90.90	179.96	5,160.7	-1,228.9	-619.5	1,228.4	0.00	0.00	
6,300.0	90.90	179.96	5,159.1	-1,328.8	-619.4	1,328.4	0.00	0.00	
6,400.0	90.90	179.96	5,157.5	-1,428.8	-619.3	1,428.4	0.00	0.00	
6,500.0	90.90	179.96	5,156.0	-1,528.8	-619.3	1,528.4	0.00	0.00	
6,600.0	90.90	179.96	5,154.4	-1,628.8	-619.2	1,628.4	0.00	0.00	
6,700.0	90.90	179.96	5,152.8	-1,728.8	-619.2	1,728.4	0.00	0.00	
6,800.0	90.90	179.96	5,151.2	-1,828.8	-619.1	1,828.3	0.00	0.00	
6,900.0	90.90	179.96	5,149.7	-1,928.8	-619.0	1,928.3	0.00	0.00	
7,000.0	90.90	179.96	5,148.1	-2,028.8	-619.0	2,028.3	0.00	0.00	
7,100.0	90.90	179.96	5,146.5	-2,128.7	-618.9	2,128.3	0.00	0.00	
7,200.0	90.90	179.96	5,145.0	-2,228.7	-618.9	2,228.3	0.00	0.00	
7,300.0	90.90	179.96	5,143.4	-2,328.7	-618.8	2,328.3	0.00	0.00	
7,400.0	90.90	179.96	5,141.8	-2,428.7	-618.7	2,428.3	0.00	0.00	
7,500.0	90.90	179.96	5,140.2	-2,528.7	-618.7	2,528.3	0.00	0.00	
7,600.0	90.90	179.96	5,138.7	-2,628.7	-618.6	2,628.2	0.00	0.00	
7,700.0	90.90	179.96	5,137.1	-2,728.7	-618.5	2,728.2	0.00	0.00	
7,800.0	90.90	179.96	5,135.5	-2,828.7	-618.5	2,828.2	0.00	0.00	
7,900.0	90.90	179.96	5,134.0	-2,928.6	-618.4	2,928.2	0.00	0.00	
8,000.0	90.90	179.96	5,132.4	-3,028.6	-618.4	3,028.2	0.00	0.00	
8,100.0	90.90	179.96	5,130.8	-3,128.6	-618.3	3,128.2	0.00	0.00	
8,200.0	90.90	179.96	5,129.3	-3,228.6	-618.2	3,228.2	0.00	0.00	
8,300.0	90.90	179.96	5,127.7	-3,328.6	-618.2	3,328.2	0.00	0.00	
8,400.0	90.90	179.96	5,126.1	-3,428.6	-618.1	3,428.1	0.00	0.00	
8,500.0	90.90	179.96	5,124.5	-3,528.6	-618.1	3,528.1	0.00	0.00	
8,600.0	90.90	179.96	5,123.0	-3,628.6	-618.0	3,628.1	0.00	0.00	
8,700.0	90.90	179.96	5,121.4	-3,728.5	-617.9	3,728.1	0.00	0.00	
8,800.0	90.90	179.96	5,119.8	-3,828.5	-617.9	3,828.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7039.0ft (Aztec)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7039.0ft (Aztec)
Site:	S30-T23N-R7W	North Reference:	True
Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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	90.90	179.96	5,118.3	-3,928.5	-617.8	3,928.1	0.00	0.00	
9,000.0	90.90	179.96	5,116.7	-4,028.5	-617.7	4,028.1	0.00	0.00	
9,100.0	90.90	179.96	5,115.1	-4,128.5	-617.7	4,128.1	0.00	0.00	
9,200.0	90.90	179.96	5,113.5	-4,228.5	-617.6	4,228.0	0.00	0.00	
9,300.0	90.90	179.96	5,112.0	-4,328.5	-617.6	4,328.0	0.00	0.00	
9,400.0	90.90	179.96	5,110.4	-4,428.5	-617.5	4,428.0	0.00	0.00	
9,500.0	90.90	179.96	5,108.8	-4,528.4	-617.4	4,528.0	0.00	0.00	
9,600.0	90.90	179.96	5,107.3	-4,628.4	-617.4	4,628.0	0.00	0.00	
9,700.0	90.90	179.96	5,105.7	-4,728.4	-617.3	4,728.0	0.00	0.00	
9,800.0	90.90	179.96	5,104.1	-4,828.4	-617.3	4,828.0	0.00	0.00	
9,900.0	90.90	179.96	5,102.6	-4,928.4	-617.2	4,928.0	0.00	0.00	
10,000.0	90.90	179.96	5,101.0	-5,028.4	-617.1	5,027.9	0.00	0.00	
10,100.0	90.90	179.96	5,099.4	-5,128.4	-617.1	5,127.9	0.00	0.00	
10,200.0	90.90	179.96	5,097.8	-5,228.4	-617.0	5,227.9	0.00	0.00	
10,300.0	90.90	179.96	5,096.3	-5,328.3	-616.9	5,327.9	0.00	0.00	
10,374.6	90.90	179.96	5,095.1	-5,403.0	-616.9	5,402.5	0.00	0.00	TD at 10374.6

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lybrook O30-2307 01H I - hit/miss target - Shape - Point	0.00	0.00	5,096.1	-5,403.0	-856.0	1,886,493.53	1,237,851.45	36.176910	-107.614040
- plan misses target center by 239.1ft at 10374.5ft MD (5095.1 TVD, -5402.8 N, -616.9 E)									
Lybrook O30-2307 01H I - plan hits target center - Point	0.00	0.00	5,095.1	-5,403.0	-616.9	1,886,490.17	1,238,090.52	36.176910	-107.613230
Lybrook O30-2307 01H I - plan misses target center by 239.1ft at 5713.6ft MD (5168.3 TVD, -742.6 N, -619.8 E) - Point	0.00	0.00	5,169.3	-742.7	-858.8	1,891,153.35	1,237,914.01	36.189710	-107.614050
Lybrook O30-2307 01H I - plan hits target center - Point	0.00	0.00	5,168.3	-742.7	-619.8	1,891,149.99	1,238,153.04	36.189710	-107.613240

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
5,621.0	5,169.8	7" ICP	0.000	0.000

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7039.0ft (Aztec)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7039.0ft (Aztec)
Site:	S30-T23N-R7W	North Reference:	True
Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
985.0	985.0	Ojo Alamo		-0.90	179.97
1,180.0	1,180.0	Kirtland Shale		-0.90	179.97
1,446.0	1,446.0	Fruitland Coal		-0.90	179.97
1,570.0	1,570.0	Pictured Cliffs Ss.		-0.90	179.97
1,686.0	1,686.0	Lewis Shale		-0.90	179.97
2,339.0	2,339.0	Cliffhouse Ss.		-0.90	179.97
3,129.0	3,129.0	Menefee Fn.		-0.90	179.97
3,965.8	3,954.0	Point Lookout Ss.		-0.90	179.97
4,159.3	4,136.0	Mancos Shale		-0.90	179.97
4,726.2	4,658.0	Mancos Silt		-0.90	179.97
5,021.0	4,917.0	Gallup Fn.		-0.90	179.97

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
3,200.0	3,200.0	0.0	0.0	KOP @ 3200'	
4,202.2	4,175.1	-32.9	-197.0	EOB; Inc=23.15°	
4,748.4	4,677.3	-68.4	-408.8	Start build/turn @ 4748' MD	
5,619.6	5,169.8	-648.5	-619.8	LP @ 5169' TVD; 90.9°	
10,374.6	5,095.1	-5,403.0	-616.9	TD at 10374.6	

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

S30-T23N-R7W

Lybrook O30-2307 01H

Hz

Plan #2

Anticollision Report

17 June, 2014

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Aztec)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Aztec)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,239.9ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 6/17/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,374.6	Plan #2 (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						
S29-T23N-R7W						
Lybrook L29-2307 03H - Hz - Plan #2	5,000.0	7,377.6	473.9	411.4	7.581	SF
Lybrook L29-2307 03H - Hz - Plan #2	5,058.1	7,396.3	467.9	406.3	7.595	CC, ES
S30-T23N-R7W						
Lybrook O30-2307 02H - Hz - Plan #2	3,000.0	3,000.0	28.1	17.7	2.700	CC, ES, SF
S31-T23N-R7W						
Lybrook G31-2307 01H - Hz - Plan #3	5,946.8	5,050.0	530.3	497.4	16.148	CC, ES
Lybrook G31-2307 01H - Hz - Plan #3	6,000.0	5,050.0	532.9	499.4	15.884	SF
Lybrook G31-2307 02H - Hz - Plan #3	6,766.2	4,850.0	574.1	536.4	15.231	CC, ES
Lybrook G31-2307 02H - Hz - Plan #3	6,900.0	4,850.0	589.5	549.9	14.866	SF
Lybrook G31-2307 03H - Hz - Plan #3	7,493.9	4,985.2	529.6	475.6	9.805	CC
Lybrook G31-2307 03H - Hz - Plan #3	7,500.0	4,986.6	529.7	475.5	9.776	ES
Lybrook G31-2307 03H - Hz - Plan #3	7,700.0	5,028.9	565.0	505.5	9.497	SF
Lybrook J31-2307 01H - Hz - Plan #2	8,535.5	4,773.5	686.8	621.3	10.484	CC, ES
Lybrook J31-2307 01H - Hz - Plan #2	8,700.0	4,781.8	706.1	637.7	10.317	SF
Lybrook J31-2307 02H - Hz - Plan #3	9,354.2	4,950.0	684.2	597.6	7.898	CC, ES
Lybrook J31-2307 02H - Hz - Plan #3	9,500.0	4,975.0	698.6	608.2	7.728	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Aztec)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Aztec)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

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		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)	
4,100.0	4,080.4	7,043.6	5,073.8	7.8	57.3	152.05	204.1	-170.6	1,170.5	1,142.1	28.35	41.292		
4,200.0	4,173.1	7,079.5	5,073.4	8.3	58.1	151.86	204.2	-206.5	1,080.7	1,051.4	29.28	36.911		
4,300.0	4,265.1	7,117.3	5,073.0	8.8	58.9	149.27	204.4	-244.2	992.4	960.3	32.11	30.907		
4,400.0	4,357.0	7,155.1	5,072.6	9.4	59.8	146.31	204.5	-282.0	905.0	869.6	35.41	25.558		
4,500.0	4,449.0	7,192.9	5,072.2	10.0	60.7	143.01	204.6	-319.8	818.7	779.5	39.16	20.907		
4,600.0	4,540.9	7,230.7	5,071.8	10.6	61.5	139.32	204.7	-357.6	733.9	690.5	43.37	16.921		
4,700.0	4,632.8	7,268.5	5,071.5	11.2	62.4	135.20	204.8	-395.4	651.3	603.2	48.04	13.557		
4,800.0	4,724.6	7,306.2	5,071.1	11.8	63.3	138.87	205.0	-433.1	573.0	517.4	55.60	10.306		
4,900.0	4,813.9	7,342.9	5,070.7	12.5	64.1	148.37	205.1	-469.9	510.5	449.2	61.27	8.332		
5,000.0	4,898.0	7,377.6	5,070.3	13.2	64.9	154.36	205.2	-504.5	473.9	411.4	62.51	7.581 SF		
5,058.1	4,943.3	7,396.3	5,070.1	13.7	65.4	156.59	205.3	-523.3	467.9	406.3	61.60	7.595 CC, ES		
5,100.0	4,974.2	7,409.1	5,070.0	14.0	65.6	157.79	205.3	-536.0	471.1	410.7	60.31	7.810		
5,200.0	5,040.4	7,436.5	5,069.7	14.9	66.3	159.72	205.4	-563.4	503.3	447.9	55.32	9.097		
5,300.0	5,094.5	7,458.9	5,069.5	15.9	66.8	160.83	205.5	-585.9	564.4	516.3	48.07	11.740		
5,400.0	5,134.8	7,475.7	5,069.3	16.9	67.2	161.65	205.5	-602.7	645.3	606.2	39.06	16.522		
5,500.0	5,160.2	7,486.4	5,069.2	18.0	67.4	163.10	205.5	-613.4	737.9	709.1	28.79	25.632		
5,600.0	5,169.8	7,490.6	5,069.1	19.1	67.5	172.76	205.6	-617.6	836.2	818.2	17.97	46.522		
5,700.0	5,168.5	7,490.4	5,069.1	20.2	67.5	-175.69	205.6	-617.3	936.1	917.6	18.42	50.805		
5,800.0	5,166.9	7,490.0	5,069.1	21.5	67.5	-175.17	205.6	-617.0	1,036.0	1,017.2	18.81	55.067		
5,900.0	5,165.4	7,489.7	5,069.1	22.8	67.5	-174.65	205.6	-616.6	1,135.9	1,116.7	19.21	59.123		
6,000.0	5,163.8	7,489.3	5,069.1	24.2	67.5	-174.13	205.6	-616.2	1,235.9	1,216.2	19.63	62.972		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Aztec)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Aztec)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S30-T23N-R7W - Lybrook O30-2307 02H - 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		Highside Tooface (")	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		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	140.97	-21.8	17.7	28.1					
100.0	100.0	100.0	100.0	0.1	0.1	140.97	-21.8	17.7	28.1	27.8	0.29	95.903		
200.0	200.0	200.0	200.0	0.3	0.3	140.97	-21.8	17.7	28.1	27.5	0.64	43.782		
300.0	300.0	300.0	300.0	0.5	0.5	140.97	-21.8	17.7	28.1	27.1	0.99	28.366		
400.0	400.0	400.0	400.0	0.7	0.7	140.97	-21.8	17.7	28.1	26.8	1.34	20.979		
500.0	500.0	500.0	500.0	0.8	0.8	140.97	-21.8	17.7	28.1	26.4	1.69	16.644		
600.0	600.0	600.0	600.0	1.0	1.0	140.97	-21.8	17.7	28.1	26.1	2.04	13.794		
700.0	700.0	700.0	700.0	1.2	1.2	140.97	-21.8	17.7	28.1	25.7	2.39	11.778		
800.0	800.0	800.0	800.0	1.4	1.4	140.97	-21.8	17.7	28.1	25.4	2.74	10.275		
900.0	900.0	900.0	900.0	1.5	1.5	140.97	-21.8	17.7	28.1	25.0	3.09	9.113		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	140.97	-21.8	17.7	28.1	24.7	3.43	8.187		
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	140.97	-21.8	17.7	28.1	24.3	3.78	7.432		
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	140.97	-21.8	17.7	28.1	24.0	4.13	6.804		
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	140.97	-21.8	17.7	28.1	23.6	4.48	6.274		
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	140.97	-21.8	17.7	28.1	23.3	4.83	5.821		
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	140.97	-21.8	17.7	28.1	22.9	5.18	5.428		
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	140.97	-21.8	17.7	28.1	22.6	5.53	5.086		
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	140.97	-21.8	17.7	28.1	22.2	5.88	4.784		
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	140.97	-21.8	17.7	28.1	21.9	6.23	4.516		
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	140.97	-21.8	17.7	28.1	21.5	6.58	4.276		
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	140.97	-21.8	17.7	28.1	21.2	6.93	4.060		
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	140.97	-21.8	17.7	28.1	20.8	7.27	3.866		
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	140.97	-21.8	17.7	28.1	20.5	7.62	3.689		
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	140.97	-21.8	17.7	28.1	20.1	7.97	3.527		
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	140.97	-21.8	17.7	28.1	19.8	8.32	3.379		
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	140.97	-21.8	17.7	28.1	19.4	8.67	3.243		
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	140.97	-21.8	17.7	28.1	19.1	9.02	3.118		
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	140.97	-21.8	17.7	28.1	18.8	9.37	3.001		
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	140.97	-21.8	17.7	28.1	18.4	9.72	2.894		
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	140.97	-21.8	17.7	28.1	18.1	10.07	2.793		
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	140.97	-21.8	17.7	28.1	17.7	10.42	2.700 CC, ES, SF		
3,100.0	3,100.0	3,099.2	3,099.2	5.4	5.4	138.34	-22.0	19.6	29.5	18.8	10.76	2.742		
3,200.0	3,200.0	3,198.1	3,197.9	5.6	5.6	131.82	-22.6	25.3	34.0	22.9	11.11	3.061		
3,300.0	3,300.0	3,296.1	3,295.5	5.7	5.7	-137.90	-23.6	34.7	43.7	32.2	11.46	3.811		
3,400.0	3,399.8	3,392.4	3,390.9	5.9	5.9	-146.96	-25.0	47.5	60.9	49.1	11.78	5.168		
3,500.0	3,499.3	3,486.2	3,483.3	6.1	6.1	-153.54	-26.6	63.4	86.1	74.0	12.09	7.119		
3,600.0	3,598.3	3,576.7	3,571.9	6.3	6.4	-157.90	-28.6	81.9	118.9	106.5	12.38	9.606		
3,700.0	3,696.6	3,663.4	3,656.0	6.5	6.6	-160.75	-30.7	102.5	158.9	146.3	12.64	12.569		
3,800.0	3,794.2	3,745.7	3,735.3	6.8	6.9	-162.65	-33.0	124.6	205.6	192.7	12.89	15.956		
3,900.0	3,890.7	3,823.3	3,809.3	7.1	7.1	-163.93	-35.5	147.9	258.6	245.5	13.11	19.725		
4,000.0	3,986.2	3,900.0	3,881.7	7.4	7.5	-164.85	-38.1	173.0	317.3	304.0	13.32	23.831		
4,100.0	4,080.4	3,963.3	3,940.9	7.8	7.8	-165.33	-40.4	195.3	381.3	367.8	13.49	28.265		
4,200.0	4,173.1	4,032.3	4,004.8	8.3	8.1	-165.75	-43.1	220.9	449.9	436.2	13.66	32.926		
4,300.0	4,265.1	4,103.3	4,070.7	8.8	8.4	-166.56	-45.9	247.4	520.1	506.2	13.96	37.259		
4,400.0	4,357.0	4,174.3	4,136.5	9.4	8.8	-167.19	-48.6	273.9	590.4	576.1	14.26	41.400		
4,500.0	4,449.0	4,245.3	4,202.3	10.0	9.2	-167.68	-51.4	300.4	660.7	646.1	14.56	45.368		
4,600.0	4,540.9	4,316.3	4,268.2	10.6	9.6	-168.08	-54.2	326.9	731.0	716.1	14.87	49.171		
4,700.0	4,632.8	4,387.4	4,334.0	11.2	10.0	-168.41	-56.9	353.4	801.3	786.2	15.17	52.819		
4,800.0	4,724.6	4,458.3	4,399.8	11.8	10.4	-152.50	-59.7	379.9	871.6	855.8	15.72	55.428		
4,900.0	4,813.9	4,527.9	4,464.3	12.5	10.9	-127.47	-62.4	405.8	940.5	923.6	16.91	55.618		
5,000.0	4,898.0	4,594.1	4,525.7	13.2	11.3	-110.08	-65.0	430.5	1,007.0	988.7	18.31	54.989		
5,100.0	4,974.2	4,654.9	4,582.0	14.0	11.6	-98.02	-67.4	453.2	1,070.4	1,050.8	19.65	54.464		

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

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Aztec)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Aztec)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference														
Offset														
Semi Major Axis														
Distance														
Measured	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Total	Separation	Warning	
Depth	Depth	Depth	Depth			Toolface	+N/-S	+E/-W	Centres	Ellipses	Uncertainty	Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	Axis			
5,200.0	5,040.4	4,708.4	4,631.6	14.9	12.0	-89.30	-69.5	473.2	1,130.6	1,109.9	20.79	54.390		
5,300.0	5,094.5	4,753.0	4,673.0	15.9	12.3	-82.68	-71.2	489.8	1,187.5	1,165.8	21.65	54.848		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Aztec)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Aztec)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S31-T23N-R7W - Lybrook G31-2307 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 (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			
4,600.0	4,540.9	4,966.7	4,795.0	10.6	16.2	-51.37	-1,010.0	-1,041.0	1,208.3	1,188.3	20.04	60.293			
4,700.0	4,632.8	5,000.0	4,822.1	11.2	16.5	-50.89	-994.4	-1,052.4	1,161.6	1,140.8	20.79	55.878			
4,800.0	4,724.6	5,050.0	4,861.6	11.8	16.9	-37.23	-971.6	-1,073.0	1,117.1	1,095.8	21.28	52.492			
4,900.0	4,813.9	5,076.1	4,881.6	12.5	17.1	-15.72	-960.1	-1,085.3	1,065.4	1,044.5	20.91	50.964			
5,000.0	4,898.0	5,100.0	4,899.4	13.2	17.3	1.17	-949.8	-1,097.4	1,006.7	986.4	20.33	49.520			
5,100.0	4,974.2	5,127.1	4,919.0	14.0	17.5	15.91	-938.4	-1,112.2	942.5	922.5	20.03	47.044			
5,200.0	5,040.4	5,150.0	4,935.1	14.9	17.7	29.71	-929.1	-1,125.6	875.0	854.3	20.69	42.296			
5,300.0	5,094.5	5,150.0	4,935.1	15.9	17.7	41.08	-929.1	-1,125.6	806.5	784.1	22.35	36.089			
5,400.0	5,134.8	5,150.0	4,935.1	16.9	17.7	51.47	-929.1	-1,125.6	739.7	714.6	25.14	29.426			
5,500.0	5,160.2	5,150.0	4,935.1	18.0	17.7	60.35	-929.1	-1,125.6	677.5	649.3	28.18	24.042			
5,600.0	5,169.8	5,131.0	4,921.8	19.1	17.6	65.37	-936.8	-1,114.4	622.9	592.5	30.35	20.525			
5,700.0	5,168.5	5,100.0	4,899.4	20.2	17.3	63.55	-949.8	-1,097.4	578.9	547.8	31.08	18.626			
5,800.0	5,166.9	5,100.0	4,899.4	21.5	17.3	63.55	-949.8	-1,097.4	547.9	515.5	32.42	16.902			
5,900.0	5,165.4	5,064.7	4,872.9	22.8	17.0	60.17	-965.1	-1,079.8	531.9	499.2	32.69	16.270			
5,946.8	5,164.6	5,050.0	4,861.6	23.4	16.9	58.75	-971.6	-1,073.0	530.3	497.4	32.84	16.148 CC, ES			
6,000.0	5,163.8	5,050.0	4,861.6	24.2	16.9	58.75	-971.6	-1,073.0	532.9	499.4	33.55	15.884 SF			
6,100.0	5,162.2	5,015.4	4,834.4	25.6	16.6	55.46	-987.3	-1,058.3	550.0	516.3	33.63	16.353			
6,200.0	5,160.7	5,000.0	4,822.1	27.0	16.5	54.02	-994.4	-1,052.4	582.1	547.8	34.35	16.945			
6,300.0	5,159.1	4,962.3	4,791.4	28.5	16.2	50.63	-1,012.1	-1,039.6	626.3	592.2	34.11	18.362			
6,400.0	5,157.5	4,934.4	4,768.3	30.0	16.0	48.27	-1,025.4	-1,031.6	680.6	646.4	34.20	19.902			
6,500.0	5,156.0	4,900.0	4,739.2	31.6	15.7	45.55	-1,042.0	-1,023.6	742.6	708.7	33.97	21.863			
6,600.0	5,154.4	4,876.8	4,719.5	33.2	15.5	43.87	-1,053.4	-1,019.3	810.4	776.2	34.18	23.707			
6,700.0	5,152.8	4,850.0	4,696.5	34.7	15.3	42.07	-1,066.6	-1,015.6	882.7	848.4	34.24	25.776			
6,800.0	5,151.2	4,817.3	4,668.2	36.3	15.0	40.11	-1,082.8	-1,012.6	958.4	924.3	34.09	28.109			
6,900.0	5,149.7	4,787.3	4,642.2	38.0	14.8	38.52	-1,097.7	-1,011.6	1,036.7	1,002.6	34.09	30.411			
7,000.0	5,148.1	4,741.8	4,602.6	39.6	14.4	36.42	-1,120.3	-1,011.8	1,116.8	1,083.2	33.61	33.227			
7,100.0	5,146.5	4,690.7	4,558.4	41.2	14.0	34.29	-1,145.6	-1,012.0	1,197.8	1,164.8	33.00	36.299			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Aztec)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Aztec)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S31-T23N-R7W - Lybrook G31-2307 02H - 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			
5,700.0	5,168.5	4,850.0	4,836.3	20.2	8.6	59.95	-1,790.7	-1,116.1	1,210.9	1,188.1	22.79	53.132			
5,800.0	5,166.9	4,850.0	4,836.3	21.5	8.6	59.95	-1,790.7	-1,116.1	1,123.9	1,099.8	24.08	46.668			
5,900.0	5,165.4	4,850.0	4,836.3	22.8	8.6	59.95	-1,790.7	-1,116.1	1,039.1	1,013.7	25.41	40.895			
6,000.0	5,163.8	4,850.0	4,836.3	24.2	8.6	59.95	-1,790.7	-1,116.1	957.4	930.6	26.77	35.767			
6,100.0	5,162.2	4,850.0	4,836.3	25.6	8.6	59.95	-1,790.7	-1,116.1	879.4	851.3	28.15	31.243			
6,200.0	5,160.7	4,850.0	4,836.3	27.0	8.6	59.95	-1,790.7	-1,116.1	806.3	776.8	29.55	27.289			
6,300.0	5,159.1	4,850.0	4,836.3	28.5	8.6	59.95	-1,790.7	-1,116.1	739.5	708.6	30.96	23.886			
6,400.0	5,157.5	4,850.0	4,836.3	30.0	8.6	59.95	-1,790.7	-1,116.1	680.9	648.5	32.39	21.024			
6,500.0	5,156.0	4,850.0	4,836.3	31.6	8.6	59.95	-1,790.7	-1,116.1	632.8	599.0	33.83	18.708			
6,600.0	5,154.4	4,850.0	4,836.3	33.2	8.6	59.95	-1,790.7	-1,116.1	597.7	562.4	35.27	16.944			
6,700.0	5,152.8	4,850.0	4,836.3	34.7	8.6	59.95	-1,790.7	-1,116.1	577.9	541.2	36.73	15.735			
6,766.2	5,151.8	4,850.0	4,836.3	35.8	8.6	59.95	-1,790.7	-1,116.1	574.1	536.4	37.69	15.231 CC, ES			
6,800.0	5,151.2	4,850.0	4,836.3	36.3	8.6	59.95	-1,790.7	-1,116.1	575.1	536.9	38.19	15.060			
6,900.0	5,149.7	4,850.0	4,836.3	38.0	8.6	59.95	-1,790.7	-1,116.1	589.5	549.9	39.65	14.866 SF			
7,000.0	5,148.1	4,850.0	4,836.3	39.6	8.6	59.95	-1,790.7	-1,116.1	619.9	578.8	41.13	15.074			
7,100.0	5,146.5	4,850.0	4,836.3	41.2	8.6	59.95	-1,790.7	-1,116.1	664.1	621.5	42.60	15.589			
7,200.0	5,145.0	4,850.0	4,836.3	42.9	8.6	59.95	-1,790.7	-1,116.1	719.6	675.5	44.08	16.325			
7,300.0	5,143.4	4,850.0	4,836.3	44.5	8.6	59.95	-1,790.7	-1,116.1	784.0	738.4	45.56	17.206			
7,400.0	5,141.8	4,850.0	4,836.3	46.2	8.6	59.95	-1,790.7	-1,116.1	855.2	808.2	47.05	18.177			
7,500.0	5,140.2	4,850.0	4,836.3	47.8	8.6	59.95	-1,790.7	-1,116.1	931.7	883.2	48.54	19.196			
7,600.0	5,138.7	4,850.0	4,836.3	49.5	8.6	59.95	-1,790.7	-1,116.1	1,012.4	962.3	50.03	20.236			
7,700.0	5,137.1	4,850.0	4,836.3	51.2	8.6	59.95	-1,790.7	-1,116.1	1,096.2	1,044.7	51.52	21.277			
7,800.0	5,135.5	4,850.0	4,836.3	52.9	8.6	59.95	-1,790.7	-1,116.1	1,182.6	1,129.5	53.02	22.306			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Aztec)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Aztec)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design														S31-T23N-R7W - Lybrook G31-2307 03H - Hz - Plan #3		Offset Site Error: 0.0 ft	
Survey Program: 0-Geotlink 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					
6,400.0	5,157.5	4,705.3	4,607.0	30.0	13.3	37.58	-2,387.3	-1,009.3	1,159.2	1,131.7	27.50	42.156					
6,500.0	5,156.0	4,728.8	4,627.5	31.6	13.5	38.76	-2,398.7	-1,009.6	1,076.8	1,047.6	29.20	36.881					
6,600.0	5,154.4	4,750.0	4,646.0	33.2	13.6	39.94	-2,409.1	-1,010.7	996.4	965.4	30.94	32.201					
6,700.0	5,152.8	4,784.7	4,676.1	34.7	13.9	42.10	-2,425.9	-1,014.2	918.3	885.0	33.33	27.554					
6,800.0	5,151.2	4,812.2	4,699.9	36.3	14.1	44.01	-2,439.1	-1,018.4	843.3	807.7	35.62	23.672					
6,900.0	5,149.7	4,839.2	4,723.0	38.0	14.3	46.06	-2,452.0	-1,023.8	772.4	734.3	38.06	20.293					
7,000.0	5,148.1	4,865.7	4,745.3	39.6	14.5	48.21	-2,464.5	-1,030.4	706.8	666.2	40.62	17.401					
7,100.0	5,146.5	4,900.0	4,774.0	41.2	14.8	51.22	-2,480.5	-1,040.6	648.3	604.5	43.73	14.825					
7,200.0	5,145.0	4,916.5	4,787.5	42.9	14.9	52.72	-2,488.0	-1,046.2	598.6	552.7	45.97	13.021					
7,300.0	5,143.4	4,950.0	4,814.6	44.5	15.2	55.90	-2,503.1	-1,058.9	560.9	511.7	49.24	11.392					
7,400.0	5,141.8	4,964.1	4,825.7	46.2	15.3	57.27	-2,509.4	-1,064.8	537.1	485.7	51.46	10.438					
7,493.9	5,140.3	4,985.2	4,842.3	47.7	15.4	59.34	-2,518.6	-1,074.3	529.6	475.6	54.02	9.805 CC					
7,500.0	5,140.2	4,986.6	4,843.3	47.8	15.5	59.47	-2,519.2	-1,074.9	529.7	475.5	54.18	9.776 ES					
7,600.0	5,138.7	5,000.0	4,853.6	49.5	15.6	60.79	-2,524.9	-1,081.3	539.3	482.9	56.42	9.560					
7,700.0	5,137.1	5,028.9	4,875.4	51.2	15.8	63.62	-2,537.1	-1,095.9	565.0	505.5	59.49	9.497 SF					
7,800.0	5,135.5	5,050.0	4,890.8	52.9	16.0	65.65	-2,545.7	-1,107.4	605.0	542.9	62.11	9.741					
7,900.0	5,134.0	5,067.7	4,903.5	54.6	16.1	67.33	-2,552.8	-1,117.5	656.8	592.3	64.54	10.176					
8,000.0	5,132.4	5,085.8	4,916.1	56.3	16.3	69.00	-2,559.8	-1,128.3	717.8	650.9	66.97	10.719					
8,100.0	5,130.8	5,100.0	4,925.9	58.0	16.4	70.29	-2,565.3	-1,137.2	786.0	716.8	69.20	11.359					
8,200.0	5,129.3	5,119.4	4,938.9	59.7	16.5	71.99	-2,572.5	-1,149.6	859.8	788.2	71.61	12.006					
8,300.0	5,127.7	5,135.1	4,949.1	61.4	16.7	73.30	-2,578.2	-1,160.1	937.8	863.9	73.85	12.699					
8,400.0	5,126.1	5,150.0	4,958.6	63.1	16.8	74.52	-2,583.5	-1,170.3	1,019.1	943.1	76.03	13.404					
8,500.0	5,124.5	5,150.0	4,958.6	64.8	16.8	74.52	-2,583.5	-1,170.3	1,103.2	1,025.5	77.70	14.199					
8,600.0	5,123.0	5,177.6	4,975.5	66.5	17.0	76.64	-2,593.0	-1,190.0	1,189.1	1,108.8	80.24	14.820					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Aztec)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Aztec)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S31-T23N-R7W - Lybrook J31-2307 01H - 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						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	Axis			
7,600.0	5,138.7	4,724.0	4,716.1	49.5	8.3	58.68	-3,553.1	-1,208.1	1,158.3	1,109.0	49.27	23.510		
7,700.0	5,137.1	4,729.4	4,721.1	51.2	8.3	59.13	-3,553.8	-1,210.2	1,079.6	1,028.7	50.96	21.186		
7,800.0	5,135.5	4,734.9	4,726.1	52.9	8.3	59.57	-3,554.6	-1,212.3	1,004.7	952.1	52.66	19.078		
7,900.0	5,134.0	4,750.0	4,739.7	54.6	8.4	60.82	-3,556.5	-1,218.4	934.5	879.8	54.78	17.060		
8,000.0	5,132.4	4,750.0	4,739.7	56.3	8.4	60.82	-3,556.5	-1,218.4	869.9	813.7	56.29	15.455		
8,100.0	5,130.8	4,750.0	4,739.7	58.0	8.4	60.82	-3,556.5	-1,218.4	812.5	754.7	57.80	14.058		
8,200.0	5,129.3	4,750.0	4,739.7	59.7	8.4	60.82	-3,556.5	-1,218.4	764.0	704.7	59.31	12.880		
8,300.0	5,127.7	4,750.0	4,739.7	61.4	8.4	60.82	-3,556.5	-1,218.4	726.0	665.2	60.83	11.935		
8,400.0	5,126.1	4,766.6	4,754.6	63.1	8.4	62.19	-3,558.6	-1,225.6	700.0	636.8	63.11	11.092		
8,500.0	5,124.5	4,771.7	4,759.1	64.8	8.5	62.61	-3,559.3	-1,227.8	687.7	622.8	64.88	10.600		
8,535.5	5,124.0	4,773.5	4,760.7	65.4	8.5	62.76	-3,559.5	-1,228.7	686.8	621.3	65.51	10.484 CC, ES		
8,600.0	5,123.0	4,776.7	4,763.5	66.5	8.5	63.03	-3,559.9	-1,230.1	689.8	623.1	66.66	10.349		
8,700.0	5,121.4	4,781.8	4,767.9	68.2	8.5	63.45	-3,560.5	-1,232.5	706.1	637.7	68.44	10.317 SF		
8,800.0	5,119.8	4,800.0	4,783.8	69.9	8.6	64.95	-3,562.8	-1,241.3	736.0	665.1	70.85	10.388		
8,900.0	5,118.3	4,800.0	4,783.8	71.6	8.6	64.95	-3,562.8	-1,241.3	777.2	704.7	72.42	10.731		
9,000.0	5,116.7	4,800.0	4,783.8	73.4	8.6	64.95	-3,562.8	-1,241.3	828.4	754.4	74.00	11.195		
9,100.0	5,115.1	4,800.0	4,783.8	75.1	8.6	64.95	-3,562.8	-1,241.3	888.0	812.5	75.58	11.750		
9,200.0	5,113.5	4,800.0	4,783.8	76.8	8.6	64.95	-3,562.8	-1,241.3	954.4	877.3	77.16	12.370		
9,300.0	5,112.0	4,800.0	4,783.8	78.5	8.6	64.95	-3,562.8	-1,241.3	1,026.3	947.6	78.74	13.035		
9,400.0	5,110.4	4,815.5	4,797.0	80.3	8.6	66.23	-3,564.6	-1,249.1	1,102.3	1,021.2	81.09	13.593		
9,500.0	5,108.8	4,820.1	4,800.9	82.0	8.6	66.61	-3,565.2	-1,251.5	1,181.9	1,099.0	82.92	14.255		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 7039.0ft (Aztec)
Reference Site:	S30-T23N-R7W	MD Reference:	WELL @ 7039.0ft (Aztec)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design														S31-T23N-R7W - Lybrook J31-2307 02H - Hz - Plan #3		Offset Site Error:		0.0 ft	
Survey Program: 0-Geodink 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							
8,300.0	5,127.7	4,704.8	4,549.5	61.4	15.4	47.54	-4,263.1	-1,179.8	1,211.9	1,154.5	57.40	21.115							
8,400.0	5,126.1	4,735.4	4,576.3	63.1	15.7	49.11	-4,277.9	-1,180.4	1,135.1	1,074.9	60.16	18.867							
8,500.0	5,124.5	4,750.0	4,589.0	64.8	15.8	49.91	-4,284.9	-1,181.3	1,061.2	998.9	62.23	17.051							
8,600.0	5,123.0	4,782.4	4,617.3	66.5	16.0	51.81	-4,300.6	-1,184.7	990.6	925.2	65.35	15.158							
8,700.0	5,121.4	4,800.0	4,632.5	68.2	16.2	52.90	-4,309.0	-1,187.2	924.4	856.7	67.74	13.647							
8,800.0	5,119.8	4,828.5	4,657.0	69.9	16.4	54.77	-4,322.5	-1,192.5	863.4	792.6	70.83	12.189							
8,900.0	5,118.3	4,850.0	4,675.3	71.6	16.6	56.24	-4,332.6	-1,197.4	809.0	735.4	73.59	10.993							
9,000.0	5,116.7	4,873.0	4,694.7	73.4	16.8	57.87	-4,343.3	-1,203.5	762.5	686.0	76.48	9.970							
9,100.0	5,115.1	4,900.0	4,717.2	75.1	17.0	59.84	-4,355.8	-1,211.8	725.5	645.9	79.66	9.108							
9,200.0	5,113.5	4,915.5	4,729.9	76.8	17.1	60.99	-4,362.8	-1,217.1	699.6	617.4	82.14	8.517							
9,300.0	5,112.0	4,935.9	4,746.5	78.5	17.3	62.53	-4,372.0	-1,224.7	686.1	601.1	84.94	8.077							
9,354.2	5,111.1	4,950.0	4,757.8	79.5	17.4	63.59	-4,378.3	-1,230.3	684.2	597.6	86.63	7.898 CC, ES							
9,400.0	5,110.4	4,950.0	4,757.8	80.3	17.4	63.59	-4,378.3	-1,230.3	685.8	598.4	87.35	7.851							
9,500.0	5,108.8	4,975.0	4,777.5	82.0	17.6	65.48	-4,389.2	-1,241.1	698.6	608.2	90.40	7.728 SF							
9,600.0	5,107.3	5,000.0	4,796.9	83.7	17.8	67.36	-4,399.9	-1,252.8	724.1	630.7	93.41	7.752							
9,700.0	5,105.7	5,000.0	4,796.9	85.4	17.8	67.36	-4,399.9	-1,252.8	761.2	666.1	95.02	8.010							
9,800.0	5,104.1	5,028.9	4,818.6	87.2	18.0	69.50	-4,411.9	-1,267.6	807.7	709.5	98.18	8.227							
9,900.0	5,102.6	5,050.0	4,834.1	88.9	18.2	71.03	-4,420.4	-1,279.1	862.8	761.9	100.86	8.554							
10,000.0	5,101.0	5,050.0	4,834.1	90.6	18.2	71.03	-4,420.4	-1,279.1	924.9	822.3	102.52	9.022							
10,100.0	5,099.4	5,077.0	4,853.3	92.4	18.4	72.93	-4,431.1	-1,294.9	992.2	886.8	105.41	9.413							
10,200.0	5,097.8	5,100.0	4,869.1	94.1	18.6	74.47	-4,439.8	-1,309.1	1,064.4	956.4	108.03	9.853							
10,300.0	5,096.3	5,100.0	4,869.1	95.8	18.6	74.47	-4,439.8	-1,309.1	1,140.3	1,030.6	109.72	10.393							
10,374.6	5,095.1	5,116.4	4,880.1	97.1	18.7	75.54	-4,445.9	-1,319.6	1,198.9	1,087.3	111.60	10.743							

Cathedral Energy Services

Anticollision Report

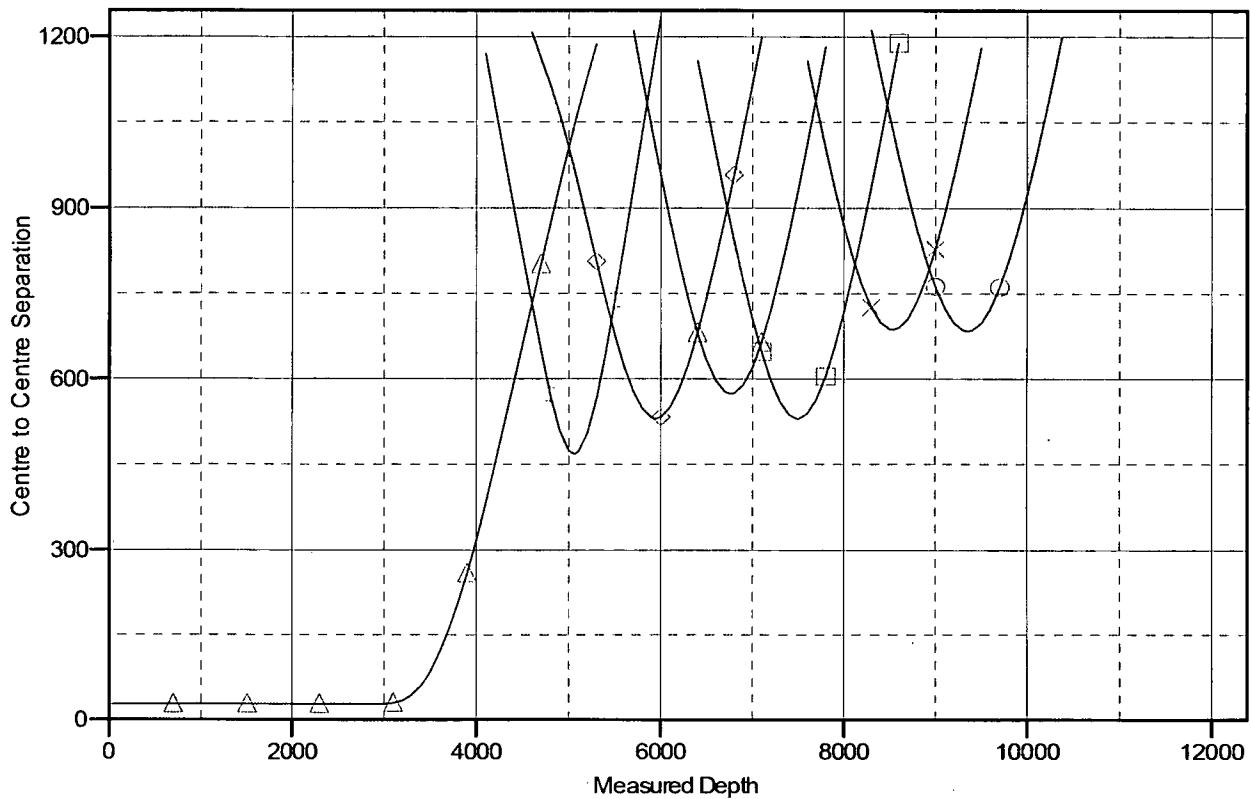
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Reference Site: S30-T23N-R7W
Site Error: 0.0ft
Reference Well: Lybrook O30-2307 01H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #2

Local Co-ordinate Reference: Well, Lybrook O30-2307 01H
TVD Reference: WELL @ 7039.0ft (Aztec)
MD Reference: WELL @ 7039.0ft (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 WELL @ 7039.0ft (Aztec)
 Offset Depths are relative to Offset Datum
 Central Meridian is -106.250000 °

Coordinates are relative to: Lybrook O30-2307 01H
 Coordinate System is US State Plane 1983, New Mexico Central Zone
 Grid Convergence at Surface is: -0.80°

Ladder Plot



LEGEND

- Lybrook L29-2307 03H, Hz, Plan #2 V0
 Lybrook G31-2307 02H, Hz, Plan #3 V0
 Lybrook J31-2307 02H, Hz, Plan #3 V0
- Lybrook O30-2307 02H, Hz, Plan #2 V0
 Lybrook G31-2307 03H, Hz, Plan #3 V0
- Lybrook G31-2307 01H, Hz, Plan #3 V0
 Lybrook J31-2307 01H, Hz, Plan #2 V0