

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

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

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 3160-4 or 3160-5 form.

Operator Signature Date: 7/24/14

Well information:

30-043-21210, Lybrook O 30-23-7 #2H, Encana, O, section 30, T23N, R7W

Application Type:

☐ P&A ☒ Drilling/Casing Change ☐ Recomplete/DHC
☒ Location Change ☒ Other: Project area change

Conditions of Approval:

Notify NMOCD 24hrs prior to beginning operations

Hold C-104 for directional survey, as drilled plat, NSL, NSP, DHC

NMOCD Approved by Signature

8-14-14
Date

RECEIVED

JUL 30 2014

Form 3160-5
(March 2012)

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.

5. Lease Serial No.
NM 6681

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

SUBMIT IN TRIPLICATE - Other instructions on page 2.

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

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

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

8. Well Name and No.
Lybrook O30-2307 02H

9. API Well No.
30-043-21210

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SHL: 393' FSL and 1342' FEL Sec 30 T23N R7W
BHL: 330' FSL and 660' FEL Sec 31 T23N R7W

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

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 02H submitted on March 20, 2014. The Point of Entry and Bottom Locations were revised.

OIL CONS. DIV DIST. 3

AUG 13 2014

CONDITIONS OF APPROVAL

Adhere to previously issued stipulations

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

Office FFO

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.

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)

ENCLOSURE

District I
1824 N French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
511 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) 476-3450 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
1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

RECEIVED

WELL LOCATION AND ACREAGE DEDICATION PLAT

JUL 30 2014

API Number 30-043-21210		Pool Code 97232 / 1039	Pool Name BASIN MANCOS / ALAMITO - GALLUP
Property Code 313257	Property Name LYBROOK 030-2307		Well Number 02H
OGRTD No. 282327	Operator Name ENCANA OIL & GAS (USA) INC.		Elevation 7023'

10 Surface Location

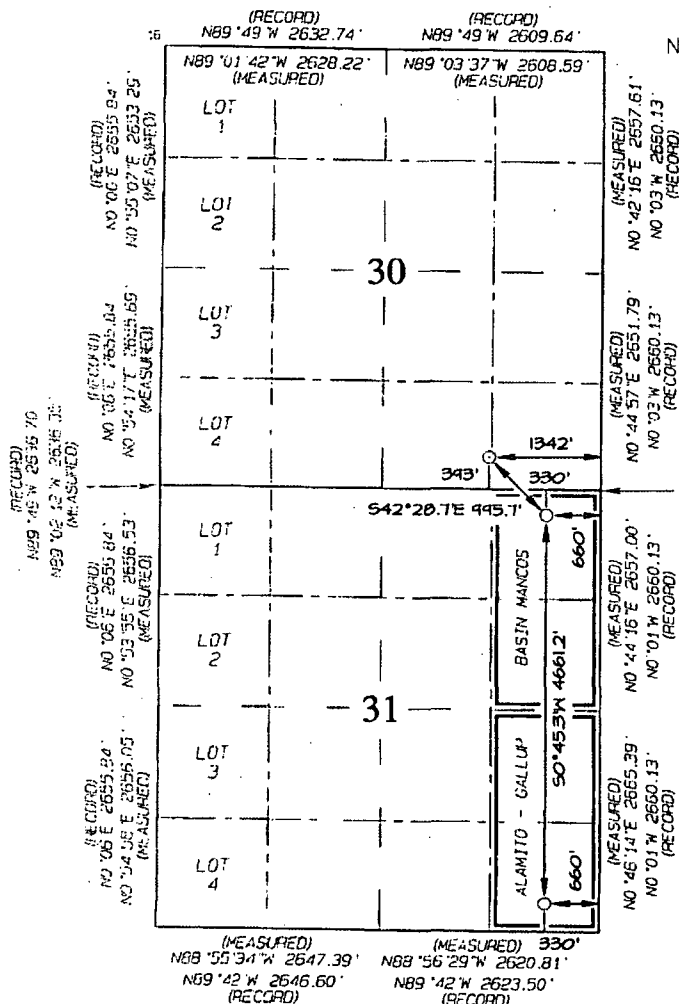
UL or 1st No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	30	23N	7W		393	SOUTH	1342	EAST	SANDOVAL

11 Bottom Hole Location If Different From Surface

UL or 1st 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	660	EAST	SANDOVAL

12 Dedicated Acres 150.00 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
393' FSL 1342' FEL
SECTION 30, T23N, R7W
LAT: 36.19167°N
LONG: 107.61047°W
DATUM: NAD1927
LAT: 36.19169°N
LONG: 107.61108°W
DATUM: NAD1983

POINT-OF-ENTRY
330' FSL 660' FEL
SECTION 31, T23N, R7W
LAT: 36.17688°N
LONG: 107.60816°W
DATUM: NAD1927
LAT: 36.18970°N
LONG: 107.60877°W
DATUM: NAD1983

END-OF-LATERAL
330' FSL 660' FEL
SECTION 31, T23N, R7W
LAT: 36.17688°N
LONG: 107.60814°W
DATUM: NAD1927
LAT: 36.17689°N
LONG: 107.60875°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.

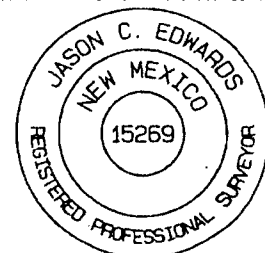
Jessica Gregg 7/24/14
Signature Date
Printed Name
E-mail Address
Jessica.Gregg@encana.com

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

Lybrook O30-2307 02H
 SHL: SW/4 SE/4 Sec 30 T23N R7W,
 393' FSL, 1342' FEL
 BHL: SE/4 SE/4 Sec 31 T23N R7W,
 330' FSL, 660' 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	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	4,660
Gallup Fn.	4,923
Horizontal Target	5,193

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	4,660
Oil/Gas	Gallup Fn.	4,923

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 02H

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393' FSL, 1342' FEL

BHL: SE/4 SE/4 Sec 31 T23N R7W,
330' FSL, 660' 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'-5650'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5450'-10399'	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 02H

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393' FSL, 1342' FEL

BHL: SE/4 SE/4 Sec 31 T23N R7W,
330' FSL, 660' 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'-5650'	30% open hole excess Stage 1 Lead: 308 sks Stage 1 Tail: 378 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	5450'-10399'	None - External Casing Packers	N/A	N/A	N/A

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

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

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

5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed horizontal well will have a kick off point of 3000'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5108'/10399'	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'-5183'/5650'	Fresh Water LSND	9.5-8.8	40-50	8-10

Lybrook O30-2307 02H

SHL: SW/4 SE/4 Sec 30 T23N R7W,
393' FSL, 1342' FEL

BHL: SE/4 SE/4 Sec 31 T23N R7W,
330' FSL, 660' 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"	5183'/5650'- 5108'/10399'	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 +/- 2430 psi based on a 9.0 ppg at 5193' 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 7/21/14			
County: Sandoval			WELL SUMMARY			RIG: Aztec 950			
WELL: Lybrook O30-2307 02H						GLE: 7023			
						RKBE: 7039			
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH		HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION	
			TVD	MD					
			60	60'	30	16" 42.09# 100sx Type I Neat 16.0ppg cmt	Fresh wtr 8.3-9.2		
Multi-Well pad take survey every stand and run anti- collision report prior to spud	None				12 1/4	9 5/8" 36ppf J55 STC TOC Surface - 201 sks of Type III Cement	Fresh wtr 8.4-8.6	Vertical <1°	
		Nacimiento 9 5/8" Csg	0 500	500.00					
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	#N/A 1,180		Stage tool @ ~ 1,736	8 3/4	7" 26ppf J55 LTC TOC @ surface 30% OH excess: 687 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: 378 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: 188 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°
		Fruitland 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	3,000	3,000					
		Mancos Silt	4,660						
		Gallup Fn.	4,923						
		7" Csg	5,183	5,650'					
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD	5,193 5,168	10,399		6 1/8	200' overlap at liner top 4749' Drilled Lateral	Horizontal Inclination Horizontal TVD 8.6-9.0 OBM	Horiz Inc/TVD /90.9 deg TD = 10398.6 MD
		Base Gallup	5,267				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	
MWD Gamma Directional									

NOTES:

- 1) Drill with 30" bit to 60', set 20" 94# conductor pipe
- 2) Drill surface to 500', R&C 9 5/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to KOP of 3000', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5650' MD
- 7) R&C 7" csg, circ cmt to surface, switch to WBM
- 8) Land at 90 deg, drill lateral to 10399' run 4 1/2 inch liner with external swellable csg packers



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
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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
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Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: S30-T23N-R7W
 Well: Lybrook O30-2307 02H
 Wellbore: Hz
 Design: Plan #2

Local Co-ordinate Reference: Well Lybrook O30-2307 02H
 TVD Reference: WELL @ 7039.0ft (Aztec)
 MD Reference: WELL @ 7039.0ft (Aztec)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

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

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 02H
 Well Position: +N/-S 0.0 ft Northing: 1,891,861.85 ft Latitude: 36.191690
 +E/-W 0.0 ft Easting: 1,238,800.56 ft Longitude: -107.611080
 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) +N/-S +E/-W Direction
 (ft) (ft) (ft) (°)
 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	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,987.2	22.03	95.97	3,963.1	-19.5	186.4	2.23	2.23	0.00	95.97	
4,753.9	22.03	95.97	4,673.8	-49.4	472.4	0.00	0.00	0.00	0.00	
5,639.6	90.90	179.93	5,183.1	-630.0	681.6	10.00	7.78	9.48	84.06	
10,398.6	90.90	179.93	5,108.3	-5,388.4	687.8	0.00	0.00	0.00	0.00	Lybrook O30-2307 02

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: S30-T23N-R7W
 Well: Lybrook O30-2307 02H
 Wellbore: Hz
 Design: Plan #2

Local Co-ordinate Reference: Well Lybrook O30-2307 02H
 TVD Reference: WELL @ 7039.0ft (Aztec)
 MD Reference: WELL @ 7039.0ft (Aztec)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	9 5/8"
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
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	KOP @ 3000'
3,100.0	2.23	95.97	3,100.0	-0.2	1.9	0.2	2.23	2.23	
3,129.0	2.88	95.97	3,129.0	-0.3	3.2	0.3	2.23	2.23	Menefee Fn.
3,200.0	4.46	95.97	3,199.8	-0.8	7.7	0.8	2.23	2.23	
3,300.0	6.69	95.97	3,299.3	-1.8	17.4	1.8	2.23	2.23	
3,400.0	8.93	95.97	3,398.4	-3.2	30.9	3.3	2.23	2.23	
3,500.0	11.16	95.97	3,496.8	-5.0	48.3	5.1	2.23	2.23	
3,600.0	13.39	95.97	3,594.6	-7.3	69.4	7.3	2.23	2.23	
3,700.0	15.62	95.97	3,691.4	-9.9	94.3	10.0	2.23	2.23	
3,800.0	17.85	95.97	3,787.1	-12.9	122.9	13.0	2.23	2.23	
3,900.0	20.08	95.97	3,881.7	-16.2	155.3	16.4	2.23	2.23	
3,977.1	21.80	95.97	3,953.7	-19.1	182.7	19.3	2.23	2.23	Point Lookout Ss.
3,987.2	22.03	95.97	3,963.1	-19.5	186.4	19.7	2.23	2.23	EOB; Inc=22°
4,000.0	22.03	95.97	3,974.9	-20.0	191.2	20.2	0.00	0.00	
4,100.0	22.03	95.97	4,067.6	-23.9	228.5	24.2	0.00	0.00	
4,173.3	22.03	95.97	4,135.6	-26.7	255.8	27.1	0.00	0.00	Mancos Shale

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook O30-2307 02H
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 02H	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
4,200.0	22.03	95.97	4,160.3	-27.8	265.8	28.1	0.00	0.00	
4,300.0	22.03	95.97	4,253.0	-31.7	303.1	32.1	0.00	0.00	
4,400.0	22.03	95.97	4,345.7	-35.6	340.4	36.0	0.00	0.00	
4,500.0	22.03	95.97	4,438.4	-39.5	377.7	39.9	0.00	0.00	
4,600.0	22.03	95.97	4,531.1	-43.4	415.0	43.9	0.00	0.00	
4,700.0	22.03	95.97	4,623.8	-47.3	452.3	47.8	0.00	0.00	
4,738.2	22.03	95.97	4,659.2	-48.8	466.6	49.3	0.00	0.00	Mancos Silt
4,753.9	22.03	95.97	4,673.8	-49.4	472.4	50.0	0.00	0.00	Start build/turn @ 4753' MD
4,800.0	22.94	107.80	4,716.4	-53.0	489.6	53.6	10.00	1.99	
4,900.0	27.47	128.91	4,807.0	-73.5	526.2	74.2	10.00	4.53	
5,000.0	34.24	143.36	4,893.0	-110.7	561.0	111.4	10.00	6.77	
5,034.5	36.89	147.17	4,921.0	-127.2	572.4	127.9	10.00	7.67	Gallup Fn.
5,100.0	42.19	153.23	4,971.5	-163.4	593.0	164.1	10.00	8.09	
5,200.0	50.75	160.39	5,040.4	-230.0	621.2	230.8	10.00	8.56	
5,300.0	59.65	165.95	5,097.4	-308.5	644.7	309.3	10.00	8.90	
5,400.0	68.75	170.57	5,140.9	-396.6	662.9	397.4	10.00	9.10	
5,500.0	77.96	174.64	5,169.6	-491.5	675.1	492.3	10.00	9.21	
5,600.0	87.22	178.45	5,182.4	-590.4	681.1	591.2	10.00	9.26	
5,639.6	90.90	179.93	5,183.1	-630.0	681.6	630.8	10.00	9.28	LP @ 5183' TVD; 90.9°
5,650.0	90.90	179.93	5,182.9	-640.3	681.6	641.2	0.00	0.00	7" ICP
5,700.0	90.90	179.93	5,182.1	-690.3	681.7	691.2	0.00	0.00	
5,800.0	90.90	179.93	5,180.6	-790.3	681.8	791.1	0.00	0.00	
5,900.0	90.90	179.93	5,179.0	-890.3	682.0	891.1	0.00	0.00	
6,000.0	90.90	179.93	5,177.4	-990.3	682.1	991.1	0.00	0.00	
6,100.0	90.90	179.93	5,175.9	-1,090.3	682.2	1,091.1	0.00	0.00	
6,200.0	90.90	179.93	5,174.3	-1,190.3	682.3	1,191.1	0.00	0.00	
6,300.0	90.90	179.93	5,172.7	-1,290.3	682.5	1,291.1	0.00	0.00	
6,400.0	90.90	179.93	5,171.1	-1,390.2	682.6	1,391.1	0.00	0.00	
6,500.0	90.90	179.93	5,169.6	-1,490.2	682.7	1,491.1	0.00	0.00	
6,600.0	90.90	179.93	5,168.0	-1,590.2	682.9	1,591.0	0.00	0.00	
6,700.0	90.90	179.93	5,166.4	-1,690.2	683.0	1,691.0	0.00	0.00	
6,800.0	90.90	179.93	5,164.9	-1,790.2	683.1	1,791.0	0.00	0.00	
6,900.0	90.90	179.93	5,163.3	-1,890.2	683.3	1,891.0	0.00	0.00	
7,000.0	90.90	179.93	5,161.7	-1,990.2	683.4	1,991.0	0.00	0.00	
7,100.0	90.90	179.93	5,160.1	-2,090.2	683.5	2,091.0	0.00	0.00	
7,200.0	90.90	179.93	5,158.6	-2,190.1	683.6	2,191.0	0.00	0.00	
7,300.0	90.90	179.93	5,157.0	-2,290.1	683.8	2,291.0	0.00	0.00	
7,400.0	90.90	179.93	5,155.4	-2,390.1	683.9	2,390.9	0.00	0.00	
7,500.0	90.90	179.93	5,153.9	-2,490.1	684.0	2,490.9	0.00	0.00	
7,600.0	90.90	179.93	5,152.3	-2,590.1	684.2	2,590.9	0.00	0.00	
7,700.0	90.90	179.93	5,150.7	-2,690.1	684.3	2,690.9	0.00	0.00	
7,800.0	90.90	179.93	5,149.1	-2,790.1	684.4	2,790.9	0.00	0.00	
7,900.0	90.90	179.93	5,147.6	-2,890.1	684.5	2,890.9	0.00	0.00	
8,000.0	90.90	179.93	5,146.0	-2,990.0	684.7	2,990.9	0.00	0.00	
8,100.0	90.90	179.93	5,144.4	-3,090.0	684.8	3,090.9	0.00	0.00	
8,200.0	90.90	179.93	5,142.9	-3,190.0	684.9	3,190.8	0.00	0.00	
8,300.0	90.90	179.93	5,141.3	-3,290.0	685.1	3,290.8	0.00	0.00	
8,400.0	90.90	179.93	5,139.7	-3,390.0	685.2	3,390.8	0.00	0.00	
8,500.0	90.90	179.93	5,138.1	-3,490.0	685.3	3,490.8	0.00	0.00	
8,600.0	90.90	179.93	5,136.6	-3,590.0	685.5	3,590.8	0.00	0.00	
8,700.0	90.90	179.93	5,135.0	-3,690.0	685.6	3,690.8	0.00	0.00	
8,800.0	90.90	179.93	5,133.4	-3,789.9	685.7	3,790.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: S30-T23N-R7W
 Well: Lybrook O30-2307 02H
 Wellbore: Hz
 Design: Plan #2

Local Co-ordinate Reference: Well Lybrook O30-2307 02H
 TVD Reference: WELL @ 7039.0ft (Aztec)
 MD Reference: WELL @ 7039.0ft (Aztec)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,900.0	90.90	179.93	5,131.9	-3,889.9	685.8	3,890.8	0.00	0.00	
9,000.0	90.90	179.93	5,130.3	-3,989.9	686.0	3,990.8	0.00	0.00	
9,100.0	90.90	179.93	5,128.7	-4,089.9	686.1	4,090.7	0.00	0.00	
9,200.0	90.90	179.93	5,127.1	-4,189.9	686.2	4,190.7	0.00	0.00	
9,300.0	90.90	179.93	5,125.6	-4,289.9	686.4	4,290.7	0.00	0.00	
9,400.0	90.90	179.93	5,124.0	-4,389.9	686.5	4,390.7	0.00	0.00	
9,500.0	90.90	179.93	5,122.4	-4,489.9	686.6	4,490.7	0.00	0.00	
9,600.0	90.90	179.93	5,120.9	-4,589.8	686.7	4,590.7	0.00	0.00	
9,700.0	90.90	179.93	5,119.3	-4,689.8	686.9	4,690.7	0.00	0.00	
9,800.0	90.90	179.93	5,117.7	-4,789.8	687.0	4,790.7	0.00	0.00	
9,900.0	90.90	179.93	5,116.1	-4,889.8	687.1	4,890.6	0.00	0.00	
10,000.0	90.90	179.93	5,114.6	-4,989.8	687.3	4,990.6	0.00	0.00	
10,100.0	90.90	179.93	5,113.0	-5,089.8	687.4	5,090.6	0.00	0.00	
10,200.0	90.90	179.93	5,111.4	-5,189.8	687.5	5,190.6	0.00	0.00	
10,300.0	90.90	179.93	5,109.9	-5,289.8	687.6	5,290.6	0.00	0.00	
10,398.6	90.90	179.93	5,108.3	-5,388.4	687.8	5,389.2	0.00	0.00	TD at 10398.6

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lybrook O30-2307 02H - hit/miss target - Shape - Point	0.00	0.00	5,103.4	-5,384.8	35.4	1,886,477.13	1,238,760.45	36.176900	-107.610960
- plan misses target center by 652.4ft at 10394.2ft MD (5108.4 TVD, -5384.0 N, 687.8 E)									
Lybrook O30-2307 02H - plan misses target center by 649.3ft at 5733.4ft MD (5181.6 TVD, -723.8 N, 681.7 E) - Point	0.00	0.00	5,176.6	-724.5	32.5	1,891,136.94	1,238,822.86	36.189700	-107.610970
Lybrook O30-2307 02H - plan hits target center - Point	0.00	0.00	5,108.3	-5,388.4	687.8	1,886,464.35	1,239,412.68	36.176890	-107.608750
Lybrook O30-2307 02H - plan hits target center - Point	0.00	0.00	5,181.6	-724.5	681.7	1,891,127.84	1,239,472.08	36.189700	-107.608770

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
5,650.0	5,182.9	7" ICP	0.000	0.000
500.0	500.0	9 5/8"	0.000	0.000

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: S30-T23N-R7W
Well: Lybrook O30-2307 02H
Wellbore: Hz
Design: Plan #2

Local Co-ordinate Reference: Well Lybrook O30-2307 02H
TVD Reference: WELL @ 7039.0ft (Aztec)
MD Reference: WELL @ 7039.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
985.0	985.0	Ojo Alamo		-0.90	179.93
1,180.0	1,180.0	Kirtland Shale		-0.90	179.93
1,446.0	1,446.0	Fruitland Coal		-0.90	179.93
1,570.0	1,570.0	Pictured Cliffs Ss.		-0.90	179.93
1,686.0	1,686.0	Lewis Shale		-0.90	179.93
2,339.0	2,339.0	Cliffhouse Ss.		-0.90	179.93
3,129.0	3,129.0	Menefee Fn.		-0.90	179.93
3,977.1	3,954.0	Point Lookout Ss.		-0.90	179.93
4,173.3	4,136.0	Mancos Shale		-0.90	179.93
4,738.2	4,660.0	Mancos Silt		-0.90	179.93
5,034.5	4,923.0	Gallup Fn.		-0.90	179.93

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,000.0	3,000.0	0.0	0.0	KOP @ 3000'
3,987.2	3,963.1	-19.5	186.4	EOB; Inc=22°
4,753.9	4,673.8	-49.4	472.4	Start build/turn @ 4753' MD
5,639.6	5,183.1	-630.0	681.6	LP @ 5183' TVD; 90.9°
10,398.6	5,108.3	-5,388.4	687.8	TD at 10398.6

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

S30-T23N-R7W

Lybrook O30-2307 02H

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 02H
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 02H	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:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,239.9ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	Systematic Ellipse
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program Date 6/17/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,398.6	Plan #2 (Hz)	Geolink MWD	Geolink MWD

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Lybrook						
Lybrook L33-2307 01H - Hz - Plan #3	8,480.8	10,248.9	991.2	907.3	11.812	CC
Lybrook L33-2307 01H - Hz - Plan #3	8,500.0	10,248.9	991.4	907.2	11.767	ES
Lybrook L33-2307 01H - Hz - Plan #3	8,700.0	10,248.9	1,015.2	927.5	11.572	SF
Lybrook P32-2307 01H - Hz - Plan #3	9,780.6	9,735.2	989.7	887.6	9.693	CC
Lybrook P32-2307 01H - Hz - Plan #3	9,800.0	9,735.2	989.9	887.4	9.663	ES
Lybrook P32-2307 01H - Hz - Plan #3	9,900.0	9,735.2	996.9	892.7	9.568	SF
S29-T23N-R7W						
Lybrook L29-2307 03H - Hz - Plan #2	4,900.0	6,332.6	521.3	471.9	10.553	SF
Lybrook L29-2307 03H - Hz - Plan #2	5,078.5	6,270.6	467.8	427.1	11.505	CC, ES
S30-T23N-R7W						
Lybrook O30-2307 01H - Hz - Plan #2	3,000.0	3,000.0	28.1	17.7	2.700	CC, ES, SF
Lybrook O30-2307 03H - Hz - Plan #1	3,333.2	3,332.3	20.6	9.0	1.772	CC, ES
Lybrook O30-2307 03H - Hz - Plan #1	10,398.6	10,482.3	259.8	66.8	1.346	Level 3, SF
S31-T23N-R7W						
Lybrook P31-2307 01H - Hz - Plan #1	10,275.5	4,841.3	169.7	101.5	2.487	CC, ES
Lybrook P31-2307 01H - Hz - Plan #1	10,300.0	4,843.5	171.5	102.0	2.468	SF
Lybrook P31-2307 03H - Hz - Plan #1	10,398.6	4,778.6	352.1	278.1	4.757	CC, ES, SF

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 02H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #2

Local Co-ordinate Reference: Well Lybrook O30-2307 02H
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

Offset Design Lybrook - Lybrook L33-2307 01H - Hz - Plan #3														Offset Site Error:	0.0 R
Survey Program: O-Geotek 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			
7,800.0	5,149.1	10,248.9	4,992.7	52.5	129.8	-90.59	-3,469.6	1,676.5	1,202.5	1,130.4	72.13	16.672			
7,900.0	5,147.6	10,248.9	4,992.7	54.2	129.8	-90.59	-3,469.6	1,676.5	1,148.9	1,075.0	73.86	15.555			
8,000.0	5,146.0	10,248.9	4,992.7	55.9	129.8	-90.59	-3,469.6	1,676.5	1,101.7	1,026.1	75.59	14.575			
8,100.0	5,144.4	10,248.9	4,992.7	57.5	129.8	-90.59	-3,469.6	1,676.5	1,061.9	984.6	77.32	13.734			
8,200.0	5,142.9	10,248.9	4,992.7	59.2	129.8	-90.59	-3,469.6	1,676.5	1,030.2	951.2	79.05	13.033			
8,300.0	5,141.3	10,248.9	4,992.7	60.9	129.8	-90.59	-3,469.6	1,676.5	1,007.6	926.8	80.78	12.473			
8,400.0	5,139.7	10,248.9	4,992.7	62.6	129.8	-90.59	-3,469.6	1,676.5	994.5	912.0	82.52	12.052			
8,480.8	5,138.4	10,248.9	4,992.7	64.0	129.8	-90.59	-3,469.6	1,676.5	991.2	907.3	83.92	11.812 CC			
8,500.0	5,138.1	10,248.9	4,992.7	64.3	129.8	-90.59	-3,469.6	1,676.5	991.4	907.2	84.25	11.767 ES			
8,600.0	5,136.6	10,248.9	4,992.7	66.0	129.8	-90.59	-3,469.6	1,676.5	998.4	912.4	85.99	11.610			
8,700.0	5,135.0	10,248.9	4,992.7	67.8	129.8	-90.59	-3,469.6	1,676.5	1,015.2	927.5	87.73	11.572 SF			
8,800.0	5,133.4	10,248.9	4,992.7	69.5	129.8	-90.59	-3,469.6	1,676.5	1,041.4	951.9	89.47	11.640			
8,900.0	5,131.9	10,248.9	4,992.7	71.2	129.8	-90.59	-3,469.6	1,676.5	1,076.3	985.0	91.21	11.800			
9,000.0	5,130.3	10,248.9	4,992.7	72.9	129.8	-90.59	-3,469.6	1,676.5	1,119.0	1,026.1	92.95	12.039			
9,100.0	5,128.7	10,248.9	4,992.7	74.6	129.8	-90.59	-3,469.6	1,676.5	1,168.8	1,074.1	94.69	12.343			
9,200.0	5,127.1	10,248.9	4,992.7	76.3	129.8	-90.59	-3,469.6	1,676.5	1,224.7	1,128.3	96.43	12.700			

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 02H
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 02H	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 Lybrook - Lybrook P32-2307 01H - Hz - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-Geotek 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		
9,100.0	5,128.7	9,735.2	4,983.3	74.6	121.0	-90.83	-4,769.4	1,676.6	1,201.2	1,110.9	90.24	13.310		
9,200.0	5,127.1	9,735.2	4,983.3	76.3	121.0	-90.83	-4,769.4	1,676.6	1,147.5	1,055.5	91.98	12.475		
9,300.0	5,125.6	9,735.2	4,983.3	78.0	121.0	-90.83	-4,769.4	1,676.6	1,100.2	1,006.5	93.72	11.739		
9,400.0	5,124.0	9,735.2	4,983.3	79.8	121.0	-90.83	-4,769.4	1,676.6	1,060.4	964.9	95.47	11.107		
9,500.0	5,122.4	9,735.2	4,983.3	81.5	121.0	-90.83	-4,769.4	1,676.6	1,028.7	931.5	97.21	10.583		
9,600.0	5,120.9	9,735.2	4,983.3	83.2	121.0	-90.83	-4,769.4	1,676.6	1,006.0	907.1	98.95	10.167		
9,700.0	5,119.3	9,735.2	4,983.3	84.9	121.0	-90.83	-4,769.4	1,676.6	993.0	892.3	100.70	9.861		
9,780.6	5,118.0	9,735.2	4,983.3	86.3	121.0	-90.83	-4,769.4	1,676.6	989.7	887.6	102.10	9.693 CC		
9,800.0	5,117.7	9,735.2	4,983.3	86.7	121.0	-90.83	-4,769.4	1,676.6	989.9	887.4	102.44	9.663 ES		
9,900.0	5,116.1	9,735.2	4,983.3	88.4	121.0	-90.83	-4,769.4	1,676.6	996.9	892.7	104.18	9.568 SF		
10,000.0	5,114.6	9,735.2	4,983.3	90.1	121.0	-90.83	-4,769.4	1,676.6	1,013.7	907.8	105.93	9.570		
10,100.0	5,113.0	9,735.2	4,983.3	91.8	121.0	-90.83	-4,769.4	1,676.6	1,040.0	932.3	107.67	9.658		
10,200.0	5,111.4	9,735.2	4,983.3	93.6	121.0	-90.83	-4,769.4	1,676.6	1,074.9	965.5	109.42	9.823		
10,300.0	5,109.9	9,735.2	4,983.3	95.3	121.0	-90.83	-4,769.4	1,676.6	1,117.7	1,006.5	111.17	10.054		
10,398.6	5,108.3	9,735.2	4,983.3	97.0	121.0	-90.83	-4,769.4	1,676.6	1,166.8	1,053.9	112.89	10.336		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 02H
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 02H	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: O-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)	Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
4,100.0	4,067.6	6,638.2	5,078.1	8.4	48.3	-152.43	224.7	217.1	1,190.7	1,143.3	47.42	25.111		
4,200.0	4,160.3	6,599.9	5,078.5	9.0	47.5	-150.18	224.5	255.4	1,101.5	1,053.3	48.15	22.876		
4,300.0	4,253.0	6,561.6	5,078.9	9.5	46.6	-147.67	224.4	293.7	1,012.8	963.9	48.91	20.708		
4,400.0	4,345.7	6,523.3	5,079.3	10.1	45.8	-144.84	224.3	332.0	924.8	875.2	49.68	18.614		
4,500.0	4,438.4	6,485.1	5,079.7	10.7	45.0	-141.66	224.2	370.2	837.8	787.4	50.46	16.604		
4,600.0	4,531.1	6,446.8	5,080.1	11.3	44.2	-138.07	224.0	408.5	752.1	700.9	51.21	14.688		
4,700.0	4,623.8	6,408.5	5,080.5	11.9	43.4	-134.04	223.9	446.8	668.2	616.3	51.88	12.880		
4,800.0	4,716.4	6,370.2	5,080.9	12.6	42.6	-137.29	223.8	485.0	587.8	535.7	52.00	11.303		
4,900.0	4,807.0	6,332.6	5,081.3	13.2	41.8	-147.93	223.7	522.7	521.3	471.9	49.39	10.553 SF		
5,000.0	4,893.0	6,296.8	5,081.6	13.9	41.1	-154.60	223.6	558.5	478.7	433.8	44.93	10.654		
5,078.5	4,955.4	6,270.6	5,081.9	14.5	40.6	-157.67	223.5	584.7	467.8	427.1	40.66	11.505 CC, ES		
5,100.0	4,971.5	6,263.8	5,082.0	14.7	40.4	-158.28	223.5	591.5	468.6	429.2	39.41	11.890		
5,200.0	5,040.4	6,234.7	5,082.3	15.5	39.9	-160.24	223.4	620.6	493.9	460.6	33.33	14.820		
5,300.0	5,097.4	6,210.3	5,082.5	16.3	39.4	-161.23	223.3	645.0	549.7	522.6	27.14	20.252		
5,400.0	5,140.9	6,191.4	5,082.7	17.3	39.0	-161.74	223.2	663.9	627.2	605.6	21.56	29.092		
5,500.0	5,169.6	6,178.6	5,082.9	18.3	38.7	-162.32	223.2	676.7	717.8	700.0	17.86	40.194		
5,600.0	5,182.4	6,172.2	5,082.9	19.3	38.6	-165.59	223.2	683.1	815.3	798.7	16.63	49.018		
5,700.0	5,182.1	6,171.2	5,082.9	20.4	38.6	-174.99	223.2	684.1	915.1	900.0	15.11	60.584		
5,800.0	5,180.6	6,170.8	5,082.9	21.6	38.6	-174.38	223.2	684.5	1,015.0	999.5	15.50	65.487		
5,900.0	5,179.0	6,170.3	5,083.0	22.9	38.6	-173.77	223.2	684.9	1,115.0	1,099.1	15.91	70.069		
6,000.0	5,177.4	6,169.9	5,083.0	24.2	38.6	-173.17	223.2	685.4	1,214.9	1,198.6	16.35	74.324		

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 02H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #2

Local Co-ordinate Reference: Well Lybrook O30-2307 02H
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

Offset Design S30-T23N-R7W - Lybrook O30-2307 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 (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor			
0.0	0.0	0.0	0.0	0.0	0.0	-39.03	21.8	-17.7	28.1						
100.0	100.0	100.0	100.0	0.1	0.1	-39.03	21.8	-17.7	28.1	27.8	0.29	95.903			
200.0	200.0	200.0	200.0	0.3	0.3	-39.03	21.8	-17.7	28.1	27.5	0.64	43.782			
300.0	300.0	300.0	300.0	0.5	0.5	-39.03	21.8	-17.7	28.1	27.1	0.99	28.366			
400.0	400.0	400.0	400.0	0.7	0.7	-39.03	21.8	-17.7	28.1	26.8	1.34	20.979			
500.0	500.0	500.0	500.0	0.8	0.8	-39.03	21.8	-17.7	28.1	26.4	1.69	16.644			
600.0	600.0	600.0	600.0	1.0	1.0	-39.03	21.8	-17.7	28.1	26.1	2.04	13.794			
700.0	700.0	700.0	700.0	1.2	1.2	-39.03	21.8	-17.7	28.1	25.7	2.39	11.778			
800.0	800.0	800.0	800.0	1.4	1.4	-39.03	21.8	-17.7	28.1	25.4	2.74	10.275			
900.0	900.0	900.0	900.0	1.5	1.5	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	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	-39.03	21.8	-17.7	28.1	17.7	10.42	2.700 CC, ES, SF			
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	-137.65	21.8	-17.7	29.5	18.8	10.76	2.744			
3,200.0	3,199.8	3,199.8	3,199.8	5.6	5.6	-144.21	21.8	-17.7	34.1	23.0	11.10	3.069			
3,300.0	3,299.3	3,298.1	3,298.0	5.7	5.7	-153.49	21.5	-19.6	43.8	32.4	11.42	3.834			
3,400.0	3,398.4	3,394.5	3,394.3	5.9	5.9	-162.61	20.6	-25.2	61.1	49.4	11.72	5.214			
3,500.0	3,496.8	3,488.5	3,487.8	6.2	6.1	-169.25	19.1	-34.2	86.4	74.4	12.01	7.199			
3,600.0	3,594.6	3,579.1	3,577.6	6.4	6.3	-173.71	17.1	-46.2	119.4	107.1	12.27	9.731			
3,700.0	3,691.4	3,665.8	3,663.1	6.7	6.4	-176.70	14.7	-60.7	159.5	147.0	12.51	12.750			
3,800.0	3,787.1	3,748.1	3,743.7	7.1	6.6	-178.78	11.9	-77.2	206.3	193.6	12.73	16.206			
3,900.0	3,881.7	3,825.7	3,819.1	7.5	6.8	179.72	8.9	-95.1	259.3	246.4	12.93	20.058			
4,000.0	3,974.9	3,900.0	3,890.7	7.9	7.1	178.58	5.7	-114.5	318.1	305.0	13.13	24.235			
4,100.0	4,067.6	3,967.0	3,954.8	8.4	7.3	177.76	2.4	-133.8	380.3	366.9	13.42	28.346			
4,200.0	4,160.3	4,032.8	4,017.2	9.0	7.5	177.10	-1.0	-154.3	444.6	430.9	13.71	32.438			
4,300.0	4,253.0	4,100.0	4,080.4	9.5	7.8	176.51	-4.8	-177.0	510.9	496.9	14.00	36.495			
4,400.0	4,345.7	4,155.9	4,132.4	10.1	8.1	176.09	-8.2	-197.2	579.0	564.7	14.28	40.558			
4,500.0	4,438.4	4,216.4	4,188.2	10.7	8.4	175.67	-12.0	-220.2	648.8	634.2	14.56	44.561			
4,600.0	4,531.1	4,287.4	4,253.5	11.3	8.8	175.25	-16.6	-247.8	719.1	704.2	14.86	48.389			
4,700.0	4,623.8	4,358.4	4,318.8	11.9	9.1	174.91	-21.2	-275.3	789.4	774.3	15.16	52.061			
4,800.0	4,716.4	4,429.4	4,384.1	12.6	9.5	159.31	-25.8	-302.9	859.7	844.2	15.58	55.197			
4,900.0	4,807.0	4,499.9	4,448.9	13.2	10.0	131.74	-30.4	-330.2	929.3	912.7	16.58	56.045			
5,000.0	4,893.0	4,567.8	4,511.3	13.9	10.4	112.64	-34.8	-356.5	996.6	978.7	17.92	55.616			
5,100.0	4,971.5	4,631.1	4,569.5	14.7	10.8	99.58	-38.9	-381.1	1,061.1	1,041.8	19.27	55.078			

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 02H
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 02H	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 01H - Hz - Plan #2													Offset Site Error:	0.0 ft
Survey Program: 0-Geotek MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,040.4	4,687.8	4,621.6	15.5	11.1	90.31	-42.6	-403.0	1,122.3	1,101.9	20.43	54.933		
5,300.0	5,097.4	4,736.2	4,666.1	16.3	11.4	83.38	-45.7	-421.8	1,180.1	1,158.8	21.33	55.314		
5,400.0	5,140.9	4,813.9	4,737.2	17.3	11.9	79.80	-54.5	-451.8	1,233.9	1,211.9	22.01	56.068		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 02H
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 02H	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 03H - Hz - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			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)	Highside Toolface (°)	+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.0	0.0	0.0	0.0	0.0	0.0	52.37	18.2	23.6	29.8						
100.0	100.0	100.0	100.0	0.1	0.1	52.37	18.2	23.6	29.8	29.5	0.29	101.675			
200.0	200.0	200.0	200.0	0.3	0.3	52.37	18.2	23.6	29.8	29.2	0.64	46.417			
300.0	300.0	300.0	300.0	0.5	0.5	52.37	18.2	23.6	29.8	28.8	0.99	30.073			
400.0	400.0	400.0	400.0	0.7	0.7	52.37	18.2	23.6	29.8	28.5	1.34	22.241			
500.0	500.0	500.0	500.0	0.8	0.8	52.37	18.2	23.6	29.8	28.1	1.69	17.646			
600.0	600.0	600.0	600.0	1.0	1.0	52.37	18.2	23.6	29.8	27.8	2.04	14.625			
700.0	700.0	700.0	700.0	1.2	1.2	52.37	18.2	23.6	29.8	27.4	2.39	12.486			
800.0	800.0	800.0	800.0	1.4	1.4	52.37	18.2	23.6	29.8	27.1	2.74	10.894			
900.0	900.0	900.0	900.0	1.5	1.5	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	52.37	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	-46.33	18.2	23.6	28.4	17.7	10.76	2.642			
3,200.0	3,199.8	3,199.8	3,199.8	5.6	5.6	-56.20	18.2	23.6	24.8	13.7	11.11	2.229			
3,300.0	3,299.3	3,299.3	3,299.3	5.7	5.7	-78.84	18.2	23.6	21.0	9.5	11.47	1.827			
3,333.2	3,332.3	3,332.3	3,332.3	5.8	5.8	-90.00	18.2	23.6	20.6	9.0	11.60	1.772 CC, ES			
3,400.0	3,398.4	3,398.4	3,398.4	5.9	5.9	-114.54	18.2	23.6	22.7	10.8	11.83	1.915			
3,500.0	3,496.8	3,497.6	3,497.6	6.2	6.1	-141.80	18.0	24.2	33.4	21.3	12.10	2.756			
3,600.0	3,594.6	3,598.3	3,598.2	6.4	6.3	-155.16	16.5	29.3	46.8	34.4	12.37	3.783			
3,700.0	3,691.4	3,700.1	3,699.3	6.7	6.4	-162.89	13.4	39.7	59.9	47.3	12.63	4.744			
3,800.0	3,787.1	3,802.8	3,800.7	7.1	6.7	-168.36	8.7	55.6	72.0	59.1	12.88	5.592			
3,900.0	3,881.7	3,906.4	3,901.8	7.5	6.9	-172.80	2.3	77.0	82.9	69.8	13.12	6.318			
4,000.0	3,974.9	4,010.6	4,002.2	7.9	7.2	-176.78	-5.7	104.0	92.4	79.1	13.37	6.913			
4,100.0	4,067.6	4,115.6	4,101.5	8.4	7.6	179.38	-15.4	136.6	98.3	84.6	13.75	7.150			
4,200.0	4,160.3	4,220.8	4,198.9	9.0	8.0	175.17	-26.6	174.6	99.0	84.9	14.17	6.989			
4,300.0	4,253.0	4,325.6	4,293.6	9.5	8.6	169.92	-39.4	217.6	94.9	80.2	14.70	6.457			
4,400.0	4,345.7	4,429.3	4,384.7	10.1	9.2	162.65	-53.5	265.2	86.6	71.1	15.51	5.583			
4,500.0	4,438.4	4,531.4	4,471.4	10.7	10.0	151.64	-68.8	316.7	75.3	58.4	16.98	4.438			
4,600.0	4,531.1	4,631.1	4,553.3	11.3	10.9	134.10	-85.1	371.3	64.3	44.6	19.76	3.256			
4,686.4	4,611.2	4,715.1	4,619.7	11.8	11.8	112.28	-99.7	420.5	59.9	36.9	22.96	2.609			
4,700.0	4,623.8	4,728.1	4,629.8	11.9	11.9	108.45	-102.0	428.4	60.0	36.6	23.41	2.564			
4,800.0	4,716.4	4,822.3	4,701.0	12.6	13.0	70.36	-119.6	487.5	68.3	43.3	25.02	2.730			
4,900.0	4,807.0	4,915.2	4,768.5	13.2	14.1	27.36	-137.8	548.8	78.3	55.2	23.04	3.396			

CC - Min centre to center distance or covergent 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 02H
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 02H	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 03H - Hz - Plan #1														Offset Site Error:	0.0 ft
Survey Program: O-Geolink MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
5,000.0	4,893.0	5,007.6	4,834.9	13.9	15.3	-8.15	-156.0	610.3	88.7	69.9	18.73	4.733			
5,100.0	4,971.5	5,094.2	4,896.5	14.7	16.4	-35.74	-176.7	667.5	106.5	89.8	16.69	6.382			
5,200.0	5,040.4	5,184.4	4,957.5	15.5	17.7	-54.15	-211.0	724.2	133.6	115.0	18.58	7.189			
5,300.0	5,097.4	5,281.3	5,017.6	16.3	19.0	-66.34	-261.8	780.4	164.2	142.5	21.73	7.558			
5,400.0	5,140.9	5,386.6	5,074.7	17.3	20.3	-74.79	-332.0	834.2	194.7	169.8	24.85	7.835			
5,500.0	5,169.6	5,502.0	5,125.1	18.3	21.8	-81.05	-423.8	882.1	222.3	194.6	27.65	8.037			
5,600.0	5,182.4	5,628.5	5,163.5	19.3	23.3	-86.01	-538.2	919.3	244.6	214.6	30.05	8.142			
5,700.0	5,182.1	5,766.7	5,183.2	20.4	24.8	-90.17	-673.1	939.6	258.5	225.6	32.88	7.860			
5,800.0	5,180.6	5,883.7	5,183.3	21.6	25.9	-90.60	-790.0	941.5	259.7	223.7	36.06	7.202			
5,900.0	5,179.0	5,983.7	5,181.7	22.9	27.0	-90.60	-890.0	941.7	259.7	220.6	39.10	6.643			
6,000.0	5,177.4	6,083.7	5,180.1	24.2	28.1	-90.60	-990.0	941.8	259.7	217.5	42.21	6.154			
6,100.0	5,175.9	6,183.7	5,178.6	25.6	29.3	-90.60	-1,090.0	941.9	259.7	214.4	45.37	5.724			
6,200.0	5,174.3	6,283.7	5,177.0	27.0	30.5	-90.60	-1,190.0	942.1	259.7	211.1	48.59	5.346			
6,300.0	5,172.7	6,383.7	5,175.4	28.4	31.8	-90.60	-1,290.0	942.2	259.7	207.9	51.84	5.010			
6,400.0	5,171.1	6,483.7	5,173.8	29.9	33.1	-90.60	-1,389.9	942.3	259.7	204.6	55.12	4.712			
6,500.0	5,169.6	6,583.7	5,172.3	31.4	34.5	-90.60	-1,489.9	942.5	259.7	201.3	58.43	4.445			
6,600.0	5,168.0	6,683.7	5,170.7	33.0	35.9	-90.60	-1,589.9	942.6	259.7	198.0	61.76	4.205			
6,700.0	5,166.4	6,783.7	5,169.1	34.5	37.3	-90.60	-1,689.9	942.7	259.7	194.6	65.11	3.989			
6,800.0	5,164.9	6,883.7	5,167.6	36.1	38.8	-90.60	-1,789.9	942.8	259.7	191.3	68.48	3.793			
6,900.0	5,163.3	6,983.7	5,166.0	37.7	40.3	-90.60	-1,889.9	943.0	259.7	187.9	71.85	3.615			
7,000.0	5,161.7	7,083.7	5,164.4	39.3	41.8	-90.60	-1,989.9	943.1	259.7	184.5	75.25	3.452			
7,100.0	5,160.1	7,183.7	5,162.8	40.9	43.3	-90.60	-2,089.9	943.2	259.7	181.1	78.65	3.303			
7,200.0	5,158.6	7,283.7	5,161.3	42.5	44.9	-90.60	-2,189.8	943.4	259.7	177.7	82.06	3.165			
7,300.0	5,157.0	7,383.7	5,159.7	44.2	46.4	-90.60	-2,289.8	943.5	259.7	174.3	85.47	3.039			
7,400.0	5,155.4	7,483.7	5,158.1	45.8	48.0	-90.60	-2,389.8	943.6	259.7	170.8	88.90	2.922			
7,500.0	5,153.9	7,583.7	5,156.6	47.5	49.6	-90.60	-2,489.8	943.8	259.7	167.4	92.33	2.813			
7,600.0	5,152.3	7,683.7	5,155.0	49.1	51.2	-90.60	-2,589.8	943.9	259.7	164.0	95.77	2.712			
7,700.0	5,150.7	7,783.7	5,153.4	50.8	52.8	-90.60	-2,689.8	944.0	259.7	160.5	99.21	2.618			
7,800.0	5,149.1	7,883.7	5,151.8	52.5	54.4	-90.60	-2,789.8	944.1	259.7	157.1	102.65	2.530			
7,900.0	5,147.6	7,983.7	5,150.3	54.2	56.0	-90.60	-2,889.8	944.3	259.7	153.6	106.10	2.448			
8,000.0	5,146.0	8,083.7	5,148.7	55.9	57.7	-90.60	-2,989.7	944.4	259.7	150.2	109.56	2.371			
8,100.0	5,144.4	8,183.7	5,147.1	57.5	59.3	-90.60	-3,089.7	944.5	259.7	146.7	113.01	2.298			
8,200.0	5,142.9	8,283.7	5,145.6	59.2	61.0	-90.60	-3,189.7	944.7	259.7	143.3	116.47	2.230			
8,300.0	5,141.3	8,383.7	5,144.0	60.9	62.6	-90.60	-3,289.7	944.8	259.7	139.8	119.94	2.166			
8,400.0	5,139.7	8,483.7	5,142.4	62.6	64.3	-90.60	-3,389.7	944.9	259.7	136.3	123.40	2.105			
8,500.0	5,138.1	8,583.7	5,140.8	64.3	66.0	-90.60	-3,489.7	945.1	259.7	132.9	126.87	2.047			
8,600.0	5,136.6	8,683.7	5,139.3	66.0	67.6	-90.60	-3,589.7	945.2	259.8	129.4	130.34	1.993			
8,700.0	5,135.0	8,783.7	5,137.7	67.8	69.3	-90.60	-3,689.7	945.3	259.8	125.9	133.81	1.941			
8,800.0	5,133.4	8,883.7	5,136.1	69.5	71.0	-90.60	-3,789.6	945.4	259.8	122.5	137.28	1.892			
8,900.0	5,131.9	8,983.7	5,134.6	71.2	72.7	-90.60	-3,889.6	945.6	259.8	119.0	140.76	1.845			
9,000.0	5,130.3	9,083.7	5,133.0	72.9	74.3	-90.60	-3,989.6	945.7	259.8	115.5	144.24	1.801			
9,100.0	5,128.7	9,183.7	5,131.4	74.6	76.0	-90.60	-4,089.6	945.8	259.8	112.0	147.71	1.758			
9,200.0	5,127.1	9,283.7	5,129.8	76.3	77.7	-90.60	-4,189.6	946.0	259.8	108.6	151.19	1.718			
9,300.0	5,125.6	9,383.7	5,128.3	78.0	79.4	-90.60	-4,289.6	946.1	259.8	105.1	154.68	1.679			
9,400.0	5,124.0	9,483.7	5,126.7	79.8	81.1	-90.60	-4,389.6	946.2	259.8	101.6	158.16	1.642			
9,500.0	5,122.4	9,583.7	5,125.1	81.5	82.8	-90.60	-4,489.6	946.4	259.8	98.1	161.64	1.607			
9,600.0	5,120.9	9,683.7	5,123.6	83.2	84.5	-90.60	-4,589.5	946.5	259.8	94.6	165.12	1.573			
9,700.0	5,119.3	9,783.7	5,122.0	84.9	86.2	-90.60	-4,689.5	946.6	259.8	91.2	168.61	1.541			
9,800.0	5,117.7	9,883.7	5,120.4	86.7	87.9	-90.60	-4,789.5	946.8	259.8	87.7	172.10	1.509			
9,900.0	5,116.1	9,983.7	5,118.8	88.4	89.6	-90.60	-4,889.5	946.9	259.8	84.2	175.58	1.479 Level 3			
10,000.0	5,114.6	10,083.7	5,117.3	90.1	91.4	-90.60	-4,989.5	947.0	259.8	80.7	179.07	1.451 Level 3			
10,100.0	5,113.0	10,183.7	5,115.7	91.8	93.1	-90.60	-5,089.5	947.1	259.8	77.2	182.56	1.423 Level 3			

CC - Min centre to center distance or covergent 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 02H
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 02H	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
S30-T23N-R7W - Lybrook O30-2307 03H - Hz - Plan #1												Offset Well Error:	0.0 ft
Survey Program: 0-Geolink MWD													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)			
10,200.0	5,111.4	10,283.7	5,114.1	93.6	94.8	-90.60	-5,189.5	947.3	259.8	73.7	186.05	1.396 Level 3	
10,300.0	5,109.9	10,383.7	5,112.6	95.3	96.5	-90.60	-5,289.5	947.4	259.8	70.2	189.54	1.371 Level 3	
10,398.6	5,108.3	10,482.3	5,111.0	97.0	98.2	-90.60	-5,388.1	947.5	259.8	66.8	192.98	1.346 Level 3, SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 02H
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 02H	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 P31-2307 01H - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geotek 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		
9,100.0	5,128.7	4,750.0	4,714.7	74.6	8.8	12.82	-5,252.3	643.5	1,182.3	1,155.9	26.44	44.717		
9,200.0	5,127.1	4,750.0	4,714.7	76.3	8.8	12.82	-5,252.3	643.5	1,083.9	1,057.0	26.87	40.339		
9,300.0	5,125.6	4,764.3	4,725.3	78.0	8.9	16.30	-5,253.9	634.1	985.6	954.6	30.95	31.849		
9,400.0	5,124.0	4,771.1	4,730.3	79.8	9.0	18.09	-5,254.7	629.4	887.7	854.2	33.48	26.510		
9,500.0	5,122.4	4,778.2	4,735.4	81.5	9.0	20.02	-5,255.5	624.6	790.1	753.8	36.32	21.756		
9,600.0	5,120.9	4,785.5	4,740.6	83.2	9.1	22.08	-5,256.4	619.5	693.2	653.8	39.46	17.568		
9,700.0	5,119.3	4,800.0	4,750.7	84.9	9.2	26.42	-5,258.1	609.3	597.3	551.7	45.57	13.107		
9,800.0	5,117.7	4,800.0	4,750.7	86.7	9.2	26.42	-5,258.1	609.3	502.6	456.2	46.36	10.840		
9,900.0	5,116.1	4,808.8	4,756.7	88.4	9.3	29.18	-5,259.2	602.9	410.3	359.5	50.75	8.085		
10,000.0	5,114.6	4,817.1	4,762.3	90.1	9.4	31.84	-5,260.2	596.9	322.3	267.2	55.10	5.850		
10,100.0	5,113.0	4,825.6	4,767.9	91.8	9.4	34.65	-5,261.3	590.6	243.4	183.7	59.70	4.078		
10,200.0	5,111.4	4,834.4	4,773.6	93.6	9.5	37.58	-5,262.4	584.0	185.6	121.1	64.52	2.877		
10,275.5	5,110.2	4,841.3	4,778.0	94.9	9.6	39.87	-5,263.3	578.8	169.7	101.5	68.26	2.487 CC, ES		
10,300.0	5,109.9	4,843.5	4,779.4	95.3	9.6	40.63	-5,263.6	577.1	171.5	102.0	69.49	2.468 SF		
10,398.6	5,108.3	4,850.0	4,783.5	97.0	9.7	42.79	-5,264.4	572.1	209.3	136.0	73.35	2.854		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 02H
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 02H	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
S31-T23N-R7W - Lybrook P31-2307 03H - HZ - Plan #1												Offset Well Error:	0.0 ft
Survey Program: 0-Geolink MWD													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty	Separation Factor	Warning
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	Axis		
9,400.0	5,124.0	4,573.3	4,517.7	79.8	10.7	21.18	-5,496.9	538.1	1,187.8	1,150.6	37.21	31.919	
9,500.0	5,122.4	4,583.6	4,527.2	81.5	10.8	21.95	-5,500.1	535.9	1,094.5	1,055.7	38.82	28.194	
9,600.0	5,120.9	4,600.0	4,542.2	83.2	10.9	23.23	-5,505.7	532.5	1,002.2	961.1	41.13	24.368	
9,700.0	5,119.3	4,600.0	4,542.2	84.9	10.9	23.23	-5,505.7	532.5	911.1	869.3	41.84	21.778	
9,800.0	5,117.7	4,623.0	4,563.0	86.7	11.0	25.15	-5,514.3	527.7	821.3	776.2	45.11	18.209	
9,900.0	5,116.1	4,650.0	4,587.0	88.4	11.2	27.60	-5,525.4	522.2	733.7	684.5	49.18	14.917	
10,000.0	5,114.6	4,650.0	4,587.0	90.1	11.2	27.60	-5,525.4	522.2	648.2	598.2	50.01	12.962	
10,100.0	5,113.0	4,682.4	4,615.0	91.8	11.5	30.81	-5,540.3	515.7	565.7	510.4	55.33	10.224	
10,200.0	5,111.4	4,700.0	4,629.9	93.6	11.6	32.70	-5,549.1	512.2	487.8	428.9	58.89	8.284	
10,300.0	5,109.9	4,750.0	4,670.6	95.3	12.0	38.54	-5,576.5	502.7	415.6	347.6	67.99	6.113	
10,398.6	5,108.3	4,778.6	4,692.8	97.0	12.3	42.19	-5,593.7	497.4	352.1	278.1	74.03	4.757 CC, ES, SF	

Cathedral Energy Services

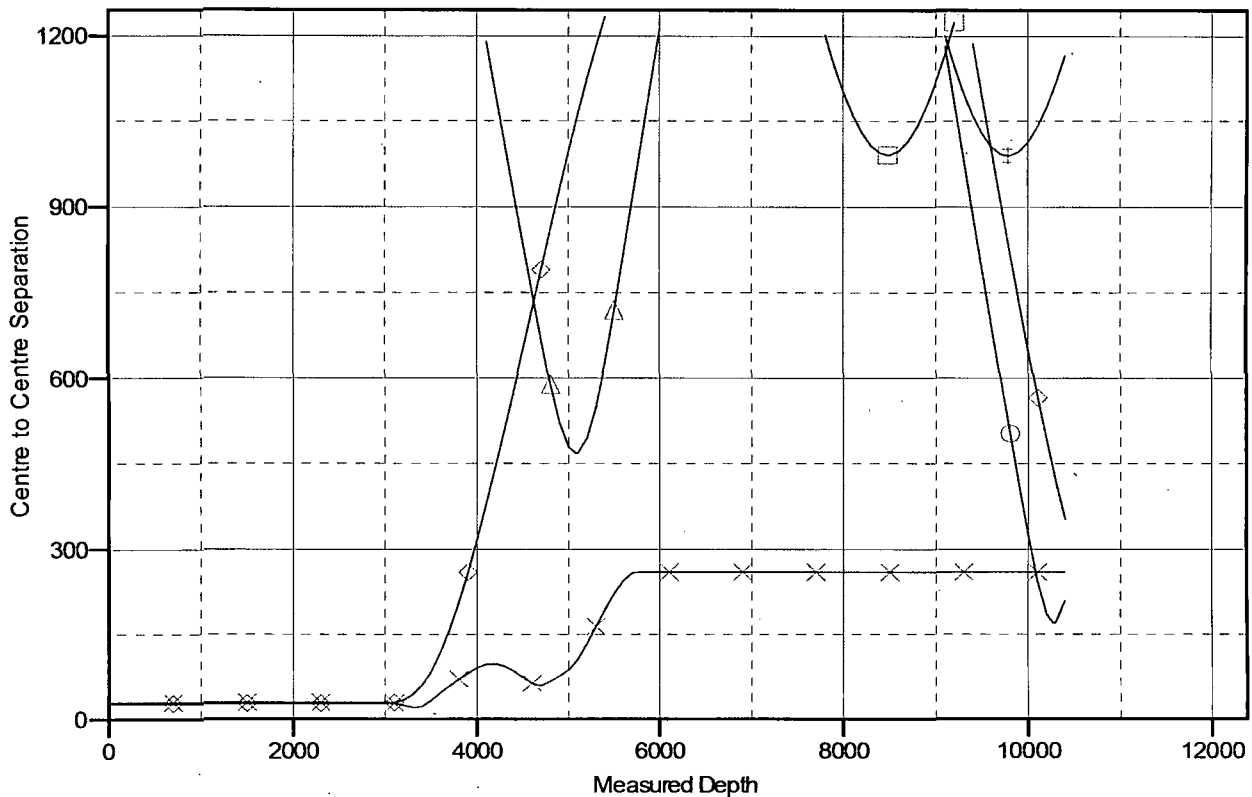
Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook O30-2307 02H
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 02H	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 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 02H
 Coordinate System is US State Plane 1983, New Mexico Central Zone
 Grid Convergence at Surface is: -0.80°

Ladder Plot



LEGEND

- LybrookL33-2307 01H, Hz, Plan #3 V0
- LybrookO30-2307 01H, Hz, Plan #2 V0
- LybrookP31-2307 03H, Hz, Plan #1 V0
- LybrookP32-2307 01H, Hz, Plan #3 V0
- LybrookO30-2307 03H, Hz, Plan #1 V0
- LybrookL29-2307 03H, Hz, Plan #2 V0
- LybrookP31-2307 01H, Hz, Plan #1 V0

Directions from the Intersection of US Hwy 550 & US Hwy 64

in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Lybrook O30-2307 02H

393' FSL & 1342' FEL, Section 30, T23N, R7W, N.M.P.M., Sandoval County, NM

Latitude: 36.19169°N Longitude: 107.61108°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 02H proposed access which continues for an additional 5097' to staked Encana Lybrook O30-2307 02H 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 02H

Lybrook O30-2307 04H
Lybrook O30-2307 01H
Lybrook O30-2307 03H

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

LITTLE B 2
LITTLE B 1

36

**ALAMITO
GALLUP
POOL**

23N
8W

STATE K 1

31

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

FEDERAL C 2
63'

32

ALAMITO
UNIT 4

FULTON 1

ALAMITO UNIT 2

ALAMITO 1
ALAMITO 1

Lybrook P32-2307 01H

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

FEDERAL C 3

SOUTH
SEAS 1

6

5

SOUTH
SEAS 2

FEDERAL
6-22-7 1

FEDERAL 1-5

GALLO WASH 5

1

22N
7W

0 0.125 0.25 0.5 Miles

WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Lybrook O30-2307 02H

