OIL CONS. DIV DIST. 3

JAN 14 2015

Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

5. Lease Serial No.
NMNM 6681

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

JAN 08 2015

Farmington Field Office

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.*

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

1. Type of Well
☐ Oil Well ☑ Gas Well ☐ Other

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

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

9. API Well No.
30-043-21211

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

3b. Phone No. *(include area code)*
720-876-5994

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

KP

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*
SHL: 357' FSL, 1390' FEL, Section 30, Township 23N, Range 7W
BHL: 330' FSL, 2271' FEL, Section 31, Township 23N, Range 7W

11. Country or Parish, State
Sandoval County, New Mexico

C

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
	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☑ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
☐ Final Abandonment Notice	☐ 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 recomplete 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 recompletion 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.)

The SHL for the Lybrook O30-2307 01H was modified from 417' FSL, 1360' FEL (Section 30, T23N, R7W) to 357' FSL, 1390' FEL (Section 30, T23N, R7W).The BHL for the Lybrook O30-2307 01H was modified from 330' FSL, 1980' FEL (Section 31, T23N, R7W) to 330' FSL, 2271' FEL (Section 31, T23N, R7W). The POE for the Lybrook O30-2307 01H was modified from 330' FNL, 1980' FEL (Section 31, T23N, R7W) to 330' FNL, 2269' FEL (Section 31, T23N, R7W). Attached is a C-102, Directional Plan, Drilling Plan and Wellbore Diagram, which have been updated to reflect the changes in SHL, BHL and POE. The plans were also updated to to include a cemented production liner, instead of running open hole swell packers, as previously planned. Finally, the 7" ICP was moved from approximately 72 degrees to 55 degrees.

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

ADHERE TO PREVIOUS NMOCD CONDITIONS OF APPROVAL

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

Title Regulatory Analyst

Signature Shawn Turk

Date 1/7/15

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by
William Tambekou

Title Petroleum Engineer

Date 1/12/2015

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 FFO

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)

NMOCD FV

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District I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., 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 Dr., Santa Fe, NM 87505
Phone (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-043-21211	97232/1039	BASIN MANCOS / ALAMITO – GALLUP

[4] Property Code	[5] Property Name	[6] Well Number
313257	LYBROOK 030-2307	01H

[7] OGRID No.	[8] Operator Name	[9] Elevation
282327	ENCANA OIL & GAS (USA) INC.	7028'

[10] Surface Location

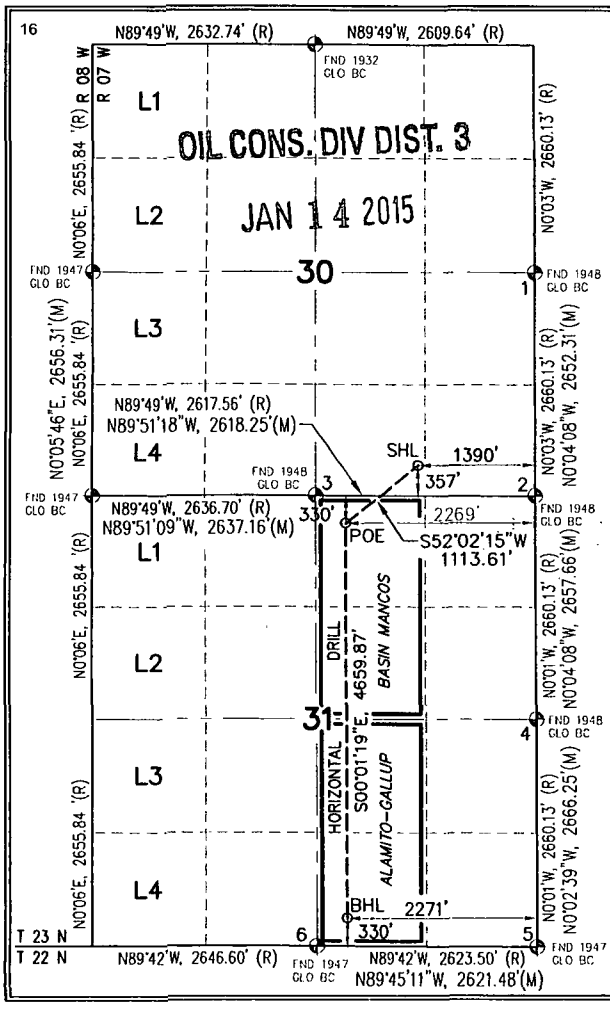
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West Line	County
O	30	23N	7W		357	SOUTH	1390	EAST	SANDOVAL

[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
O	31	23N	7W		330	SOUTH	2271	EAST	SANDOVAL

[12] Dedicated Acres	PROJECT AREA	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
160 ACRES	W/2 NE/4 SEC 31 BASIN MANCOS/ W/2 SE/4 SEC 31 ALAMITO-GALLUP			

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.



LYBROOK 030-2307 01H WELL

SHL (WELL FLAG)
LAT. 36.191584°N (NAD83)
LONG. 107.611239°W (NAD83)
LAT. 36.191570°N (NAD27)
LONG. 107.610631°W (NAD27)

POE (POINT OF ENTRY)
LAT. 36.189703°N (NAD83)
LONG. 107.614214°W (NAD83)
LAT. 36.189689°N (NAD27)
LONG. 107.613605°W (NAD27)

BHL (BOTTOM HOLE LOCATION)
LAT. 36.176907°N (NAD83)
LONG. 107.614210°W (NAD83)
LAT. 36.176893°N (NAD27)
LONG. 107.613601°W (NAD27)

SECTION CORNERS

1 LAT. 36.197876 °N (NAD83)
LONG. 107.606539 °W (NAD83)
LAT. 36.197862 °N (NAD27)
LONG. 107.605931 °W (NAD27)

2 LAT. 36.190593 °N (NAD83)
LONG. 107.606530 °W (NAD83)
LAT. 36.190579 °N (NAD27)
LONG. 107.605922 °W (NAD27)

3 LAT. 36.190612 °N (NAD83)
LONG. 107.615400 °W (NAD83)
LAT. 36.190598 °N (NAD27)
LONG. 107.614791 °W (NAD27)

4 LAT. 36.183295 °N (NAD83)
LONG. 107.606521 °W (NAD83)
LAT. 36.183281 °N (NAD27)
LONG. 107.605913 °W (NAD27)

5 LAT. 36.175973 °N (NAD83)
LONG. 107.606516 °W (NAD83)
LAT. 36.175959 °N (NAD27)
LONG. 107.605907 °W (NAD27)

6 LAT. 36.176005 °N (NAD83)
LONG. 107.615395 °W (NAD83)
LAT. 36.175991 °N (NAD27)
LONG. 107.614786 °W (NAD27)

[17] OPERATOR CERTIFICATION

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

Signature — Date: 1/7/15

Shawn Turk
Printed Name

shawn.turk@encana.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

October 10, 2014
Date of Survey

Signature and Seal of Professional Surveyor:

RICHARD L. MULLIKEN
NEW MEXICO
16873
10-10-14
PROFESSIONAL SURVEYOR

RICHARD L. MULLIKEN
Certificate Number 16873

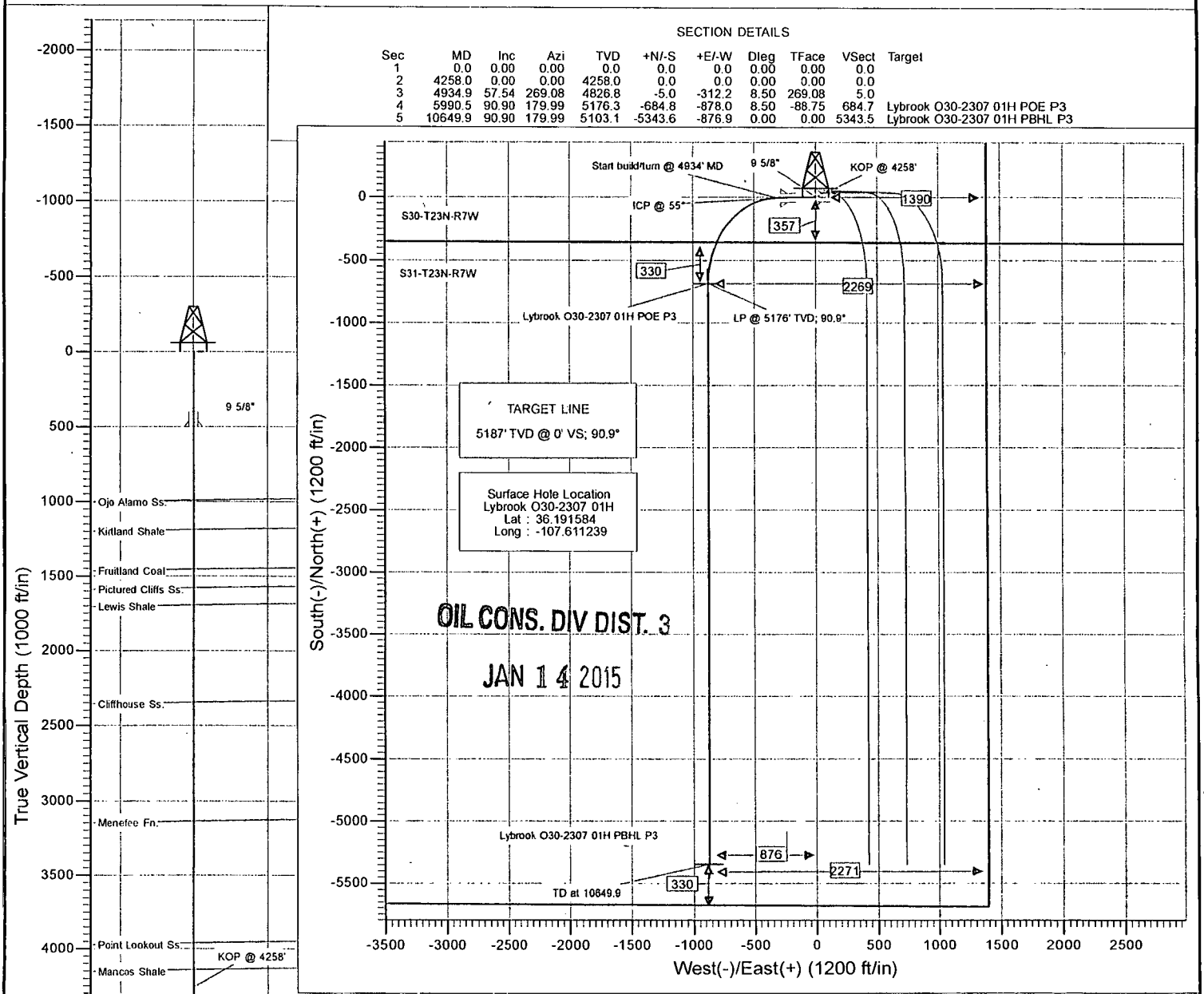
encana natural gas

Project: Sandoval County, NM
Site: S30-T23N-R7W
Well: Lybrook O30-2307 01H
Wellbore: Hz
Design: Plan #3

CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4258.0	0.00	0.00	4258.0	0.0	0.0	0.00	0.00	0.0	
3	4934.9	57.54	269.08	4826.8	-5.0	-312.2	8.50	269.08	5.0	
4	5990.5	90.90	179.99	5176.3	-684.8	-878.0	8.50	-88.75	684.7	Lybrook O30-2307 01H POE P3
5	10649.9	90.90	179.99	5103.1	-5343.6	-876.9	0.00	0.00	5343.5	Lybrook O30-2307 01H PBHL P3



OIL CONS. DIV DIST. 3

JAN 14 2015

DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Lybrook O30-2307 01H PBHL P3	-5343.6	-876.9	1886493.14	1237801.26	36.176907	-107.614210
Lybrook O30-2307 01H POE P3	-684.8	-878.0	1891151.48	1237865.57	36.189703	-107.614214

CASING DETAILS

TVD	MD	Name
500.0	500.0	9 5/8"
4810.2	4905.1	ICP @ 55°

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
993.0	993.0	Ojo Alamo Ss.
1188.0	1188.0	Kirtland Shale
1454.0	1454.0	Fruitland Coal
1578.0	1578.0	Pictured Cliffs Ss.
1694.0	1694.0	Lewis Shale
2347.0	2347.0	Cliffhouse Ss.
3137.0	3137.0	Menefee Fn.
3962.0	3962.0	Point Lookout Ss.
4144.0	4144.0	Mancos Shale
4662.0	4691.2	Mancos Silt
4919.5	5110.6	Gallup Fn.
5176.3	5988.3	Horizontal Target

Azimuths to True North
Magnetic North: 9.44°

Magnetic Field
Strength: 50168.5snT
Dip Angle: 62.95°
Date: 2/26/2014
Model: IGRF2010

Plan #3
Lybrook O30-2307 01H
14xxx; LR
16KB @ 7044.0ft (Unassigned)
Ground Elevation @ 7028.0
North American Datum 1983
Well Lybrook O30-2307 01H, True North

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:**	16KB @ 7044.0ft (Unassigned)
Project:	Sandoval County, NM	**MD Reference:**	16KB @ 7044.0ft (Unassigned)
Site:	S30-T23N-R7W	**North Reference:**	True
Well:	Lybrook O30-2307 01H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

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:**	1,891,823.92 ft	**Latitude:**	36.191584
	+E/-W	0.0 ft	**Easting:**	1,238,753.10 ft	**Longitude:**	-107.611239
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	7,028.0 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 #3

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	179.99

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	
4,258.0	0.00	0.00	4,258.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,934.9	57.54	269.08	4,826.8	-5.0	-312.2	8.50	8.50	0.00	269.08	
5,990.5	90.90	179.99	5,176.3	-684.8	-878.0	8.50	3.16	-8.44	-88.75	Lybrook O30-2307 01
10,649.9	90.90	179.99	5,103.1	-5,343.6	-876.9	0.00	0.00	0.00	0.00	Lybrook O30-2307 01

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook O30-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	16KB @ 7044.0ft (Unassigned)
Project:	Sandoval County, NM	**MD Reference:**	16KB @ 7044.0ft (Unassigned)
Site:	S30-T23N-R7W	**North Reference:**	True
Well:	Lybrook O30-2307 01H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

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	
993.0	0.00	0.00	993.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
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	
1,188.0	0.00	0.00	1,188.0	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	
1,454.0	0.00	0.00	1,454.0	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	
1,578.0	0.00	0.00	1,578.0	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	
1,694.0	0.00	0.00	1,694.0	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	
2,347.0	0.00	0.00	2,347.0	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	
3,137.0	0.00	0.00	3,137.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
3,962.0	0.00	0.00	3,962.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,144.0	0.00	0.00	4,144.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook O30-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	16KB @ 7044.0ft (Unassigned)
Project:	Sandoval County, NM	**MD Reference:**	16KB @ 7044.0ft (Unassigned)
Site:	S30-T23N-R7W	**North Reference:**	True
Well:	Lybrook O30-2307 01H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

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
4,258.0	0.00	0.00	4,258.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4258'
4,300.0	3.57	269.08	4,300.0	0.0	-1.3	0.0	8.50	8.50	
4,400.0	12.07	269.08	4,399.0	-0.2	-14.9	0.2	8.50	8.50	
4,500.0	20.57	269.08	4,494.8	-0.7	-43.0	0.7	8.50	8.50	
4,600.0	29.07	269.08	4,585.5	-1.4	-84.9	1.3	8.50	8.50	
4,691.2	36.82	269.08	4,662.0	-2.2	-134.4	2.1	8.50	8.50	Mancos Silt
4,700.0	37.57	269.08	4,669.0	-2.2	-139.8	2.2	8.50	8.50	
4,800.0	46.07	269.08	4,743.5	-3.3	-206.4	3.3	8.50	8.50	
4,900.0	54.57	269.08	4,807.2	-4.6	-283.3	4.5	8.50	8.50	
4,905.1	55.00	269.08	4,810.2	-4.6	-287.4	4.6	8.50	8.50	ICP @ 55°
4,934.9	57.54	269.08	4,826.8	-5.0	-312.2	5.0	8.50	8.50	Start build/turn @ 4934' MD
5,000.0	57.83	262.54	4,861.6	-9.0	-367.0	9.0	8.50	0.44	
5,100.0	58.92	252.64	4,914.1	-27.3	-450.0	27.3	8.50	1.09	
5,110.6	59.08	251.61	4,919.5	-30.1	-458.6	30.0	8.50	1.51	Gallup Fn.
5,200.0	60.74	243.03	4,964.4	-60.0	-529.9	59.9	8.50	1.86	
5,300.0	63.23	233.82	5,011.5	-106.2	-605.0	106.1	8.50	2.48	
5,400.0	66.28	225.05	5,054.2	-165.0	-673.5	164.8	8.50	3.05	
5,500.0	69.80	216.71	5,091.7	-235.1	-734.1	234.9	8.50	3.52	
5,600.0	73.70	208.75	5,123.0	-314.9	-785.3	314.8	8.50	3.90	
5,700.0	77.88	201.12	5,147.6	-402.7	-826.1	402.6	8.50	4.18	
5,800.0	82.26	193.72	5,164.8	-496.6	-855.5	496.5	8.50	4.38	
5,900.0	86.77	186.48	5,174.4	-594.6	-872.9	594.4	8.50	4.51	
5,988.3	90.80	180.14	5,176.3	-682.7	-878.0	682.5	8.50	4.56	Horizontal Target
5,990.5	90.90	179.99	5,176.3	-684.8	-878.0	684.7	8.50	4.56	LP @ 5176' TVD; 90.9°
6,000.0	90.90	179.99	5,176.1	-694.3	-878.0	694.2	0.00	0.00	
6,100.0	90.90	179.99	5,174.5	-794.3	-878.0	794.2	0.00	0.00	
6,200.0	90.90	179.99	5,173.0	-894.3	-878.0	894.1	0.00	0.00	
6,300.0	90.90	179.99	5,171.4	-994.3	-877.9	994.1	0.00	0.00	
6,400.0	90.90	179.99	5,169.8	-1,094.3	-877.9	1,094.1	0.00	0.00	
6,500.0	90.90	179.99	5,168.2	-1,194.3	-877.9	1,194.1	0.00	0.00	
6,600.0	90.90	179.99	5,166.7	-1,294.2	-877.9	1,294.1	0.00	0.00	
6,700.0	90.90	179.99	5,165.1	-1,394.2	-877.8	1,394.1	0.00	0.00	
6,800.0	90.90	179.99	5,163.5	-1,494.2	-877.8	1,494.1	0.00	0.00	
6,900.0	90.90	179.99	5,162.0	-1,594.2	-877.8	1,594.1	0.00	0.00	
7,000.0	90.90	179.99	5,160.4	-1,694.2	-877.8	1,694.0	0.00	0.00	
7,100.0	90.90	179.99	5,158.8	-1,794.2	-877.8	1,794.0	0.00	0.00	
7,200.0	90.90	179.99	5,157.3	-1,894.2	-877.7	1,894.0	0.00	0.00	
7,300.0	90.90	179.99	5,155.7	-1,994.2	-877.7	1,994.0	0.00	0.00	
7,400.0	90.90	179.99	5,154.1	-2,094.1	-877.7	2,094.0	0.00	0.00	
7,500.0	90.90	179.99	5,152.5	-2,194.1	-877.7	2,194.0	0.00	0.00	
7,600.0	90.90	179.99	5,151.0	-2,294.1	-877.6	2,294.0	0.00	0.00	
7,700.0	90.90	179.99	5,149.4	-2,394.1	-877.6	2,394.0	0.00	0.00	
7,800.0	90.90	179.99	5,147.8	-2,494.1	-877.6	2,493.9	0.00	0.00	
7,900.0	90.90	179.99	5,146.3	-2,594.1	-877.6	2,593.9	0.00	0.00	
8,000.0	90.90	179.99	5,144.7	-2,694.1	-877.5	2,693.9	0.00	0.00	
8,100.0	90.90	179.99	5,143.1	-2,794.1	-877.5	2,793.9	0.00	0.00	
8,200.0	90.90	179.99	5,141.5	-2,894.0	-877.5	2,893.9	0.00	0.00	
8,300.0	90.90	179.99	5,140.0	-2,994.0	-877.5	2,993.9	0.00	0.00	
8,400.0	90.90	179.99	5,138.4	-3,094.0	-877.5	3,093.9	0.00	0.00	
8,500.0	90.90	179.99	5,136.8	-3,194.0	-877.4	3,193.9	0.00	0.00	
8,600.0	90.90	179.99	5,135.3	-3,294.0	-877.4	3,293.8	0.00	0.00	
8,700.0	90.90	179.99	5,133.7	-3,394.0	-877.4	3,393.8	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook O30-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	16KB @ 7044.0ft (Unassigned)
Project:	Sandoval County, NM	**MD Reference:**	16KB @ 7044.0ft (Unassigned)
Site:	S30-T23N-R7W	**North Reference:**	True
Well:	Lybrook O30-2307 01H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,800.0	90.90	179.99	5,132.1	-3,494.0	-877.4	3,493.8	0.00	0.00	
8,900.0	90.90	179.99	5,130.5	-3,594.0	-877.3	3,593.8	0.00	0.00	
9,000.0	90.90	179.99	5,129.0	-3,693.9	-877.3	3,693.8	0.00	0.00	
9,100.0	90.90	179.99	5,127.4	-3,793.9	-877.3	3,793.8	0.00	0.00	
9,200.0	90.90	179.99	5,125.8	-3,893.9	-877.3	3,893.8	0.00	0.00	
9,300.0	90.90	179.99	5,124.3	-3,993.9	-877.3	3,993.8	0.00	0.00	
9,400.0	90.90	179.99	5,122.7	-4,093.9	-877.2	4,093.7	0.00	0.00	
9,500.0	90.90	179.99	5,121.1	-4,193.9	-877.2	4,193.7	0.00	0.00	
9,600.0	90.90	179.99	5,119.6	-4,293.9	-877.2	4,293.7	0.00	0.00	
9,700.0	90.90	179.99	5,118.0	-4,393.9	-877.2	4,393.7	0.00	0.00	
9,800.0	90.90	179.99	5,116.4	-4,493.9	-877.1	4,493.7	0.00	0.00	
9,900.0	90.90	179.99	5,114.8	-4,593.8	-877.1	4,593.7	0.00	0.00	
10,000.0	90.90	179.99	5,113.3	-4,693.8	-877.1	4,693.7	0.00	0.00	
10,100.0	90.90	179.99	5,111.7	-4,793.8	-877.1	4,793.7	0.00	0.00	
10,200.0	90.90	179.99	5,110.1	-4,893.8	-877.1	4,893.6	0.00	0.00	
10,300.0	90.90	179.99	5,108.6	-4,993.8	-877.0	4,993.6	0.00	0.00	
10,400.0	90.90	179.99	5,107.0	-5,093.8	-877.0	5,093.6	0.00	0.00	
10,500.0	90.90	179.99	5,105.4	-5,193.8	-877.0	5,193.6	0.00	0.00	
10,600.0	90.90	179.99	5,103.8	-5,293.8	-877.0	5,293.6	0.00	0.00	
10,649.9	90.90	179.99	5,103.1	-5,343.6	-876.9	5,343.5	0.00	0.00	TD at 10649.9

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lybrook O30-2307 01H I - plan misses target center by 50.2ft at 10648.8ft MD (5103.1 TVD, -5342.6 N, -876.9 E) - Point	0.00	0.00	5,101.1	-5,342.5	-826.8	1,886,493.53	1,237,851.45	36.176910	-107.614040
Lybrook O30-2307 01H I - plan hits target center - Point	0.00	0.00	5,103.1	-5,343.6	-876.9	1,886,493.14	1,237,801.26	36.176907	-107.614210
Lybrook O30-2307 01H I - plan misses target center by 289.3ft at 10648.9ft MD (5103.1 TVD, -5342.6 N, -876.9 E) - Point	0.00	0.00	5,100.1	-5,342.5	-587.7	1,886,490.17	1,238,090.52	36.176910	-107.613230
Lybrook O30-2307 01H I - plan misses target center by 48.5ft at 5985.1ft MD (5176.3 TVD, -679.4 N, -878.0 E) - Point	0.00	0.00	5,174.3	-682.3	-829.6	1,891,153.35	1,237,914.01	36.189710	-107.614050
Lybrook O30-2307 01H I - plan misses target center by 287.7ft at 5971.3ft MD (5176.4 TVD, -665.6 N, -877.8 E) - Point	0.00	0.00	5,173.3	-682.3	-590.5	1,891,149.99	1,238,153.04	36.189710	-107.613240
Lybrook O30-2307 01H I - plan hits target center - Point	0.00	0.00	5,176.3	-684.8	-878.0	1,891,151.48	1,237,865.57	36.189703	-107.614214

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook O30-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16KB @ 7044.0ft (Unassigned)
Project:	Sandoval County, NM	MD Reference:	16KB @ 7044.0ft (Unassigned)
Site:	S30-T23N-R7W	North Reference:	True
Well:	Lybrook O30-2307 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
4,905.1	4,810.2	ICP @ 55°	0.000	0.000
500.0	500.0	9 5/8"	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
993.0	993.0	Ojo Alamo Ss.		-0.90	179.97
1,188.0	1,188.0	Kirtland Shale		-0.90	179.97
1,454.0	1,454.0	Fruitland Coal		-0.90	179.97
1,578.0	1,578.0	Pictured Cliffs Ss.		-0.90	179.97
1,694.0	1,694.0	Lewis Shale		-0.90	179.97
2,347.0	2,347.0	Cliffhouse Ss.		-0.90	179.97
3,137.0	3,137.0	Menefee Fn.		-0.90	179.97
3,962.0	3,962.0	Point Lookout Ss.		-0.90	179.97
4,144.0	4,144.0	Mancos Shale		-0.90	179.97
4,691.2	4,662.0	Mancos Silt		-0.90	179.97
5,110.6	4,920.0	Gallup Fn.		-0.90	179.97
5,988.3	5,187.0	Horizontal Target		-0.90	179.97

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
4,258.0	4,258.0	0.0	0.0	KOP @ 4258'
4,934.9	4,826.8	-5.0	-312.2	Start build/turn @ 4934' MD
5,990.5	5,176.3	-684.8	-878.0	LP @ 5176' TVD; 90.9°
10,649.9	5,103.1	-5,343.6	-876.9	TD at 10649.9

EnCana Oil & Gas (USA) Inc

Sandoval County, NM
S30-T23N-R7W
Lybrook O30-2307 01H
Hz
Plan #3

Anticollision Report

28 October, 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:**	16KB @ 7044.0ft (Unassigned)
Reference Site:	S30-T23N-R7W	**MD Reference:**	16KB @ 7044.0ft (Unassigned)
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 #3	**Offset TVD Reference:**	Offset Datum

Reference Plan #3

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 1,256.3ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 10/28/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,649.9	Plan #3 (Hz)	Geolink MWD	Geolink MWD

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
S30-T23N-R7W						
Lybrook G30-2307 01H - HZ - Plan #3						Out of range
Lybrook G30-2307 02H - HZ - Plan #2						Out of range
Lybrook G30-2307 03H - HZ - Plan #2						Out of range
Lybrook G30-2307 04H - HZ - Plan #1						Out of range
Lybrook O30-2307 02H - Hz - Plan #3	3,000.0	2,995.0	60.8	50.3	5.833	CC, ES
Lybrook O30-2307 02H - Hz - Plan #3	3,100.0	3,093.2	62.2	51.4	5.776	SF
Lybrook O30-2307 03H - Hz - Plan #2	4,200.0	4,200.0	60.1	45.5	4.116	CC, ES
Lybrook O30-2307 03H - Hz - Plan #2	4,217.6	4,217.6	60.2	45.5	4.104	SF
Lybrook O30-2307 04H - HZ - Plan #1	2,800.0	2,800.0	89.9	80.2	9.255	CC, ES
Lybrook O30-2307 04H - HZ - Plan #1	2,900.0	2,897.3	91.4	81.4	9.086	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:**	16KB @ 7044.0ft (Unassigned)
Reference Site:	S30-T23N-R7W	**MD Reference:**	16KB @ 7044.0ft (Unassigned)
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 #3	**Offset TVD Reference:**	Offset Datum

Offset Design S30-T23N-R7W - Lybrook O30-2307 02H - Hz - Plan #3 — Offset Site Error: 0.0 ft

Survey Program: 0-Geolink-MWD — Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	50.56	38.6	46.9	61.0				
100.0	100.0	95.0	95.0	0.1	0.1	50.56	38.6	46.9	60.8	60.5	0.29	206.529	
200.0	200.0	195.0	195.0	0.3	0.3	50.56	38.6	46.9	60.8	60.1	0.64	94.594	
300.0	300.0	295.0	295.0	0.5	0.5	50.56	38.6	46.9	60.8	59.8	0.99	61.286	
400.0	400.0	395.0	395.0	0.7	0.7	50.56	38.6	46.9	60.8	59.4	1.34	45.326	
500.0	500.0	495.0	495.0	0.8	0.8	50.56	38.6	46.9	60.8	59.1	1.69	35.961	
600.0	600.0	595.0	595.0	1.0	1.0	50.56	38.6	46.9	60.8	58.7	2.04	29.803	
700.0	700.0	695.0	695.0	1.2	1.2	50.56	38.6	46.9	60.8	58.4	2.39	25.446	
800.0	800.0	795.0	795.0	1.4	1.4	50.56	38.6	46.9	60.8	58.0	2.74	22.201	
900.0	900.0	895.0	895.0	1.5	1.5	50.56	38.6	46.9	60.8	57.7	3.09	19.689	
1,000.0	1,000.0	995.0	995.0	1.7	1.7	50.56	38.6	46.9	60.8	57.3	3.43	17.688	
1,100.0	1,100.0	1,095.0	1,095.0	1.9	1.9	50.56	38.6	46.9	60.8	57.0	3.78	16.056	
1,200.0	1,200.0	1,195.0	1,195.0	2.1	2.1	50.56	38.6	46.9	60.8	56.6	4.13	14.700	
1,300.0	1,300.0	1,295.0	1,295.0	2.2	2.2	50.56	38.6	46.9	60.8	56.3	4.48	13.555	
1,400.0	1,400.0	1,395.0	1,395.0	2.4	2.4	50.56	38.6	46.9	60.8	55.9	4.83	12.576	
1,500.0	1,500.0	1,495.0	1,495.0	2.6	2.6	50.56	38.6	46.9	60.8	55.6	5.18	11.729	
1,600.0	1,600.0	1,595.0	1,595.0	2.8	2.8	50.56	38.6	46.9	60.8	55.2	5.53	10.988	
1,700.0	1,700.0	1,695.0	1,695.0	2.9	2.9	50.56	38.6	46.9	60.8	54.9	5.88	10.336	
1,800.0	1,800.0	1,795.0	1,795.0	3.1	3.1	50.56	38.6	46.9	60.8	54.5	6.23	9.756	
1,900.0	1,900.0	1,895.0	1,895.0	3.3	3.3	50.56	38.6	46.9	60.8	54.2	6.58	9.238	
2,000.0	2,000.0	1,995.0	1,995.0	3.5	3.5	50.56	38.6	46.9	60.8	53.8	6.93	8.773	
2,100.0	2,100.0	2,095.0	2,095.0	3.6	3.6	50.56	38.6	46.9	60.8	53.5	7.27	8.352	
2,200.0	2,200.0	2,195.0	2,195.0	3.8	3.8	50.56	38.6	46.9	60.8	53.1	7.62	7.969	
2,300.0	2,300.0	2,295.0	2,295.0	4.0	4.0	50.56	38.6	46.9	60.8	52.8	7.97	7.621	
2,400.0	2,400.0	2,395.0	2,395.0	4.2	4.2	50.56	38.6	46.9	60.8	52.4	8.32	7.301	
2,500.0	2,500.0	2,495.0	2,495.0	4.3	4.3	50.56	38.6	46.9	60.8	52.1	8.67	7.007	
2,600.0	2,600.0	2,595.0	2,595.0	4.5	4.5	50.56	38.6	46.9	60.8	51.7	9.02	6.736	
2,700.0	2,700.0	2,695.0	2,695.0	4.7	4.7	50.56	38.6	46.9	60.8	51.4	9.37	6.485	
2,800.0	2,800.0	2,795.0	2,795.0	4.9	4.9	50.56	38.6	46.9	60.8	51.0	9.72	6.252	
2,900.0	2,900.0	2,895.0	2,895.0	5.0	5.0	50.56	38.6	46.9	60.8	50.7	10.07	6.035	
3,000.0	3,000.0	2,995.0	2,995.0	5.2	5.2	50.56	38.6	46.9	60.8	50.3	10.42	5.833	CC, ES
3,100.0	3,100.0	3,093.2	3,093.2	5.4	5.4	51.59	38.6	48.7	62.2	51.4	10.76	5.776	SF
3,200.0	3,200.0	3,191.0	3,190.8	5.6	5.6	54.59	38.6	54.3	66.8	55.7	11.11	6.012	
3,300.0	3,300.0	3,288.1	3,287.5	5.7	5.7	58.77	38.7	63.8	74.9	63.5	11.46	6.538	
3,400.0	3,400.0	3,384.4	3,382.9	5.9	5.9	63.27	38.7	76.9	86.9	75.1	11.83	7.350	
3,500.0	3,500.0	3,479.6	3,476.5	6.1	6.1	67.47	38.8	93.5	102.9	90.7	12.21	8.427	
3,600.0	3,600.0	3,573.3	3,568.1	6.3	6.4	71.08	38.9	113.3	122.8	110.2	12.61	9.735	
3,700.0	3,700.0	3,665.3	3,657.2	6.4	6.6	74.05	38.9	136.2	146.6	133.6	13.05	11.235	
3,800.0	3,800.0	3,755.5	3,743.7	6.6	6.9	76.44	39.0	161.9	174.3	160.7	13.53	12.880	
3,900.0	3,900.0	3,843.6	3,827.2	6.8	7.3	78.36	39.1	190.0	205.5	191.4	14.05	14.629	
4,000.0	4,000.0	3,929.5	3,907.6	7.0	7.7	79.89	39.3	220.3	240.2	225.6	14.61	16.445	
4,100.0	4,100.0	4,013.2	3,984.8	7.1	8.1	81.13	39.4	252.4	278.2	263.0	15.21	18.295	
4,200.0	4,200.0	4,095.1	4,059.4	7.3	8.6	82.14	39.5	286.4	319.3	303.5	15.85	20.146	
4,300.0	4,300.0	4,184.9	4,140.6	7.5	9.1	173.79	39.7	324.8	363.0	348.3	14.75	24.614	
4,400.0	4,399.0	4,268.6	4,216.2	7.7	9.7	174.13	39.8	360.6	417.4	402.6	14.82	28.161	
4,500.0	4,494.8	4,343.2	4,283.7	7.9	10.1	174.28	39.9	392.5	483.5	468.9	14.66	32.975	
4,600.0	4,585.5	4,407.7	4,341.9	8.2	10.6	174.18	40.0	420.1	560.1	545.7	14.30	39.154	
4,700.0	4,669.0	4,462.4	4,391.3	8.7	11.0	174.17	37.4	443.5	645.1	631.3	13.78	46.818	
4,800.0	4,743.5	4,502.8	4,427.6	9.4	11.2	173.94	32.8	460.7	736.8	723.7	13.15	56.052	
4,900.0	4,807.2	4,528.4	4,450.4	10.5	11.4	172.04	28.7	471.5	833.4	820.9	12.57	66.287	
5,000.0	4,861.6	4,542.7	4,463.0	11.8	11.5	-147.00	26.0	477.5	932.4	916.7	15.72	59.325	
5,100.0	4,914.1	4,558.8	4,477.3	13.3	11.6	-113.05	22.7	484.3	1,030.5	1,008.3	22.20	46.418	

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 01H
Project:	Sandoval County, NM	**TVD Reference:**	16KB @ 7044.0ft (Unassigned)
Reference Site:	S30-T23N-R7W	**MD Reference:**	16KB @ 7044.0ft (Unassigned)
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 #3	**Offset TVD Reference:**	Offset Datum

Offset Design S30-T23N-R7W - Lybrook O30-2307 02H - Hz - Plan #3 — Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD — Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,200.0	4,964.4	4,578.9	4,494.9	14.8	11.8	-98.29	18.0	492.7	1,125.9	1,101.3	24.60	45.768	
5,300.0	5,011.5	4,604.1	4,516.9	16.3	12.0	-89.71	11.4	503.2	1,217.1	1,191.3	25.81	47.159	

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:**	16KB @ 7044.0ft (Unassigned)
Reference Site:	S30-T23N-R7W	**MD Reference:**	16KB @ 7044.0ft (Unassigned)
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 #3	**Offset TVD Reference:**	Offset Datum

Offset Design S30-T23N-R7W - Lybrook O30-2307 03H - Hz - Plan #2 — Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD — Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	53.16	36.0	48.1	60.1				
100.0	100.0	100.0	100.0	0.1	0.1	53.16	36.0	48.1	60.1	59.8	0.29	205.003	
200.0	200.0	200.0	200.0	0.3	0.3	53.16	36.0	48.1	60.1	59.5	0.64	93.588	
300.0	300.0	300.0	300.0	0.5	0.5	53.16	36.0	48.1	60.1	59.1	0.99	60.635	
400.0	400.0	400.0	400.0	0.7	0.7	53.16	36.0	48.1	60.1	58.8	1.34	44.844	
500.0	500.0	500.0	500.0	0.8	0.8	53.16	36.0	48.1	60.1	58.4	1.69	35.579	
600.0	600.0	600.0	600.0	1.0	1.0	53.16	36.0	48.1	60.1	58.1	2.04	29.487	
700.0	700.0	700.0	700.0	1.2	1.2	53.16	36.0	48.1	60.1	57.7	2.39	25.176	
800.0	800.0	800.0	800.0	1.4	1.4	53.16	36.0	48.1	60.1	57.4	2.74	21.965	
900.0	900.0	900.0	900.0	1.5	1.5	53.16	36.0	48.1	60.1	57.0	3.09	19.480	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	53.16	36.0	48.1	60.1	56.7	3.43	17.500	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	53.16	36.0	48.1	60.1	56.3	3.78	15.886	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	53.16	36.0	48.1	60.1	56.0	4.13	14.544	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	53.16	36.0	48.1	60.1	55.6	4.48	13.411	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	53.16	36.0	48.1	60.1	55.3	4.83	12.442	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	53.16	36.0	48.1	60.1	54.9	5.18	11.604	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	53.16	36.0	48.1	60.1	54.6	5.53	10.871	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	53.16	36.0	48.1	60.1	54.2	5.88	10.226	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	53.16	36.0	48.1	60.1	53.9	6.23	9.653	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	53.16	36.0	48.1	60.1	53.5	6.58	9.140	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	53.16	36.0	48.1	60.1	53.2	6.93	8.680	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	53.16	36.0	48.1	60.1	52.8	7.27	8.263	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	53.16	36.0	48.1	60.1	52.5	7.62	7.885	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	53.16	36.0	48.1	60.1	52.1	7.97	7.540	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	53.16	36.0	48.1	60.1	51.8	8.32	7.223	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	53.16	36.0	48.1	60.1	51.4	8.67	6.932	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	53.16	36.0	48.1	60.1	51.1	9.02	6.664	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	53.16	36.0	48.1	60.1	50.7	9.37	6.416	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	53.16	36.0	48.1	60.1	50.4	9.72	6.185	
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	53.16	36.0	48.1	60.1	50.0	10.07	5.971	
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	53.16	36.0	48.1	60.1	49.7	10.42	5.771	
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	53.16	36.0	48.1	60.1	49.3	10.77	5.584	
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	53.16	36.0	48.1	60.1	49.0	11.11	5.408	
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	53.16	36.0	48.1	60.1	48.6	11.46	5.244	
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	53.16	36.0	48.1	60.1	48.3	11.81	5.089	
3,500.0	3,500.0	3,500.0	3,500.0	6.1	6.1	53.16	36.0	48.1	60.1	47.9	12.16	4.943	
3,600.0	3,600.0	3,600.0	3,600.0	6.3	6.3	53.16	36.0	48.1	60.1	47.6	12.51	4.805	
3,700.0	3,700.0	3,700.0	3,700.0	6.4	6.4	53.16	36.0	48.1	60.1	47.3	12.86	4.674	
3,800.0	3,800.0	3,800.0	3,800.0	6.6	6.6	53.16	36.0	48.1	60.1	46.9	13.21	4.551	
3,900.0	3,900.0	3,900.0	3,900.0	6.8	6.8	53.16	36.0	48.1	60.1	46.6	13.56	4.434	
4,000.0	4,000.0	4,000.0	4,000.0	7.0	7.0	53.16	36.0	48.1	60.1	46.2	13.91	4.322	
4,100.0	4,100.0	4,100.0	4,100.0	7.1	7.1	53.16	36.0	48.1	60.1	45.9	14.26	4.217	
4,200.0	4,200.0	4,200.0	4,200.0	7.3	7.3	53.16	36.0	48.1	60.1	45.5	14.60	4.116	CC, ES
4,217.6	4,217.6	4,217.6	4,217.6	7.3	7.3	144.13	36.0	48.1	60.2	45.5	14.67	4.104	SF
4,300.0	4,300.0	4,295.3	4,295.3	7.5	7.5	146.02	36.1	50.9	63.7	48.7	14.93	4.264	
4,400.0	4,399.0	4,383.0	4,381.9	7.7	7.6	154.42	36.5	64.0	88.7	73.6	15.09	5.874	
4,500.0	4,494.8	4,457.2	4,453.5	7.9	7.8	161.06	37.1	83.2	138.0	123.0	15.00	9.201	
4,600.0	4,585.5	4,514.2	4,507.0	8.2	7.9	164.13	37.6	103.0	207.3	192.6	14.68	14.120	
4,700.0	4,669.0	4,561.0	4,549.6	8.7	8.1	165.12	37.9	122.0	290.5	276.3	14.21	20.444	
4,800.0	4,743.5	4,603.1	4,587.9	9.4	8.2	165.29	35.9	139.6	381.4	367.7	13.65	27.932	
4,900.0	4,807.2	4,630.3	4,612.5	10.5	8.3	161.66	33.4	150.9	477.3	464.0	13.33	35.802	
5,000.0	4,861.6	4,645.9	4,626.5	11.8	8.4	-160.91	31.4	157.3	576.1	562.7	13.34	43.195	

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 01H
Project:	Sandoval County, NM	**TVD Reference:**	16KB @ 7044.0ft (Unassigned)
Reference Site:	S30-T23N-R7W	**MD Reference:**	16KB @ 7044.0ft (Unassigned)
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 #3	**Offset TVD Reference:**	Offset Datum

Offset Design S30-T23N-R7W - Lybrook O30-2307 03H - Hz - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	4,914.1	4,662.5	4,641.5	13.3	8.4	-121.01	29.0	164.2	674.4	655.3	19.11	35.296	
5,200.0	4,964.4	4,682.1	4,659.0	14.8	8.5	-103.55	25.6	172.3	770.5	748.6	21.91	35.169	
5,300.0	5,011.5	4,705.9	4,680.2	16.3	8.6	-93.82	20.8	182.0	863.3	839.7	23.54	36.678	
5,400.0	5,054.2	4,736.1	4,706.8	17.8	8.7	-87.62	13.6	194.3	951.7	927.1	24.63	38.644	
5,500.0	5,091.7	4,776.1	4,741.6	19.2	8.9	-83.71	2.2	210.4	1,034.8	1,009.4	25.34	40.829	
5,600.0	5,123.0	4,832.4	4,789.5	20.6	9.2	-81.69	-17.4	232.5	1,111.6	1,085.8	25.77	43.126	
5,700.0	5,147.6	4,917.6	4,858.9	21.8	9.7	-81.61	-54.9	264.6	1,180.6	1,154.6	26.04	45.339	
5,800.0	5,164.8	5,058.8	4,963.4	23.0	10.7	-83.74	-136.1	313.2	1,239.5	1,213.0	26.49	46.793	

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:**	16KB @ 7044.0ft (Unassigned)
Reference Site:	S30-T23N-R7W	**MD Reference:**	16KB @ 7044.0ft (Unassigned)
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 #3	**Offset TVD Reference:**	Offset Datum

Offset Design S30-T23N-R7W - Lybrook O30-2307 04H - HZ - Plan #1 — Offset Site Error: 0.0 ft

Survey Program: 0-Geolink MWD — Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	53.19	53.9	72.0	89.9				
100.0	100.0	100.0	100.0	0.1	0.1	53.19	53.9	72.0	89.9	89.6	0.29	306.730	
200.0	200.0	200.0	200.0	0.3	0.3	53.19	53.9	72.0	89.9	89.3	0.64	140.029	
300.0	300.0	300.0	300.0	0.5	0.5	53.19	53.9	72.0	89.9	88.9	0.99	90.723	
400.0	400.0	400.0	400.0	0.7	0.7	53.19	53.9	72.0	89.9	88.6	1.34	67.097	
500.0	500.0	500.0	500.0	0.8	0.8	53.19	53.9	72.0	89.9	88.2	1.69	53.234	
600.0	600.0	600.0	600.0	1.0	1.0	53.19	53.9	72.0	89.9	87.9	2.04	44.119	
700.0	700.0	700.0	700.0	1.2	1.2	53.19	53.9	72.0	89.9	87.6	2.39	37.669	
800.0	800.0	800.0	800.0	1.4	1.4	53.19	53.9	72.0	89.9	87.2	2.74	32.864	
900.0	900.0	900.0	900.0	1.5	1.5	53.19	53.9	72.0	89.9	86.9	3.09	29.146	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	53.19	53.9	72.0	89.9	86.5	3.43	26.184	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	53.19	53.9	72.0	89.9	86.2	3.78	23.769	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	53.19	53.9	72.0	89.9	85.8	4.13	21.761	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	53.19	53.9	72.0	89.9	85.5	4.48	20.066	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	53.19	53.9	72.0	89.9	85.1	4.83	18.617	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	53.19	53.9	72.0	89.9	84.8	5.18	17.362	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	53.19	53.9	72.0	89.9	84.4	5.53	16.266	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	53.19	53.9	72.0	89.9	84.1	5.88	15.300	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	53.19	53.9	72.0	89.9	83.7	6.23	14.442	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	53.19	53.9	72.0	89.9	83.4	6.58	13.676	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	53.19	53.9	72.0	89.9	83.0	6.93	12.987	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	53.19	53.9	72.0	89.9	82.7	7.27	12.363	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	53.19	53.9	72.0	89.9	82.3	7.62	11.797	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	53.19	53.9	72.0	89.9	82.0	7.97	11.281	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	53.19	53.9	72.0	89.9	81.6	8.32	10.808	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	53.19	53.9	72.0	89.9	81.3	8.67	10.373	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	53.19	53.9	72.0	89.9	80.9	9.02	9.971	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	53.19	53.9	72.0	89.9	80.6	9.37	9.600	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	53.19	53.9	72.0	89.9	80.2	9.72	9.255	CC, ES
2,900.0	2,900.0	2,897.3	2,897.3	5.0	5.0	53.92	53.8	73.9	91.4	81.4	10.06	9.086	SF
3,000.0	3,000.0	2,994.3	2,994.1	5.2	5.2	55.94	53.6	79.4	96.0	85.6	10.41	9.219	
3,100.0	3,100.0	3,090.8	3,090.1	5.4	5.4	58.91	53.3	88.4	103.8	93.0	10.76	9.643	
3,200.0	3,200.0	3,186.4	3,185.0	5.6	5.6	62.35	52.9	101.0	115.0	103.9	11.12	10.344	
3,300.0	3,300.0	3,281.0	3,278.2	5.7	5.8	65.86	52.4	116.9	130.0	118.5	11.50	11.303	
3,400.0	3,400.0	3,374.3	3,369.5	5.9	6.0	69.15	51.8	135.9	148.6	136.7	11.90	12.490	
3,500.0	3,500.0	3,466.0	3,458.6	6.1	6.3	72.08	51.0	157.9	171.0	158.7	12.33	13.867	
3,600.0	3,600.0	3,556.1	3,545.2	6.3	6.6	74.61	50.2	182.5	197.0	184.2	12.80	15.392	
3,700.0	3,700.0	3,644.3	3,629.1	6.4	6.9	76.75	49.3	209.5	226.6	213.3	13.31	17.025	
3,800.0	3,800.0	3,730.4	3,710.2	6.6	7.3	78.54	48.4	238.6	259.5	245.7	13.86	18.726	
3,900.0	3,900.0	3,814.4	3,788.3	6.8	7.7	80.05	47.3	269.7	295.7	281.3	14.45	20.464	
4,000.0	4,000.0	3,900.0	3,866.7	7.0	8.2	81.36	46.2	303.9	335.1	320.0	15.11	22.180	
4,100.0	4,100.0	3,975.7	3,935.1	7.1	8.7	82.36	45.1	336.4	377.3	361.6	15.77	23.926	
4,200.0	4,200.0	4,052.9	4,003.7	7.3	9.2	83.25	44.0	371.5	422.4	405.9	16.49	25.617	
4,300.0	4,300.0	4,127.0	4,068.8	7.5	9.8	174.75	42.8	407.2	471.3	456.7	14.66	32.145	
4,400.0	4,399.0	4,200.0	4,131.7	7.7	10.4	175.00	41.5	444.1	532.8	518.1	14.71	36.211	
4,500.0	4,494.8	4,247.6	4,172.1	7.9	10.8	174.83	40.7	469.1	606.7	592.2	14.52	41.791	
4,600.0	4,585.5	4,300.0	4,216.1	8.2	11.3	174.50	39.8	497.6	691.0	676.8	14.15	48.830	
4,700.0	4,669.0	4,320.9	4,233.5	8.7	11.5	172.86	39.4	509.2	782.6	769.0	13.65	57.350	
4,800.0	4,743.5	4,339.2	4,248.7	9.4	11.7	168.26	39.0	519.5	879.4	866.1	13.32	66.020	
4,900.0	4,807.2	4,346.0	4,254.3	10.5	11.8	119.62	38.9	523.3	978.9	958.5	20.36	48.088	
5,000.0	4,861.6	4,344.2	4,252.8	11.8	11.7	-57.95	39.0	522.3	1,078.8	1,057.4	21.34	50.559	
5,100.0	4,914.1	4,342.0	4,250.9	13.3	11.7	-70.71	39.0	521.0	1,177.7	1,153.6	24.09	48.898	

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

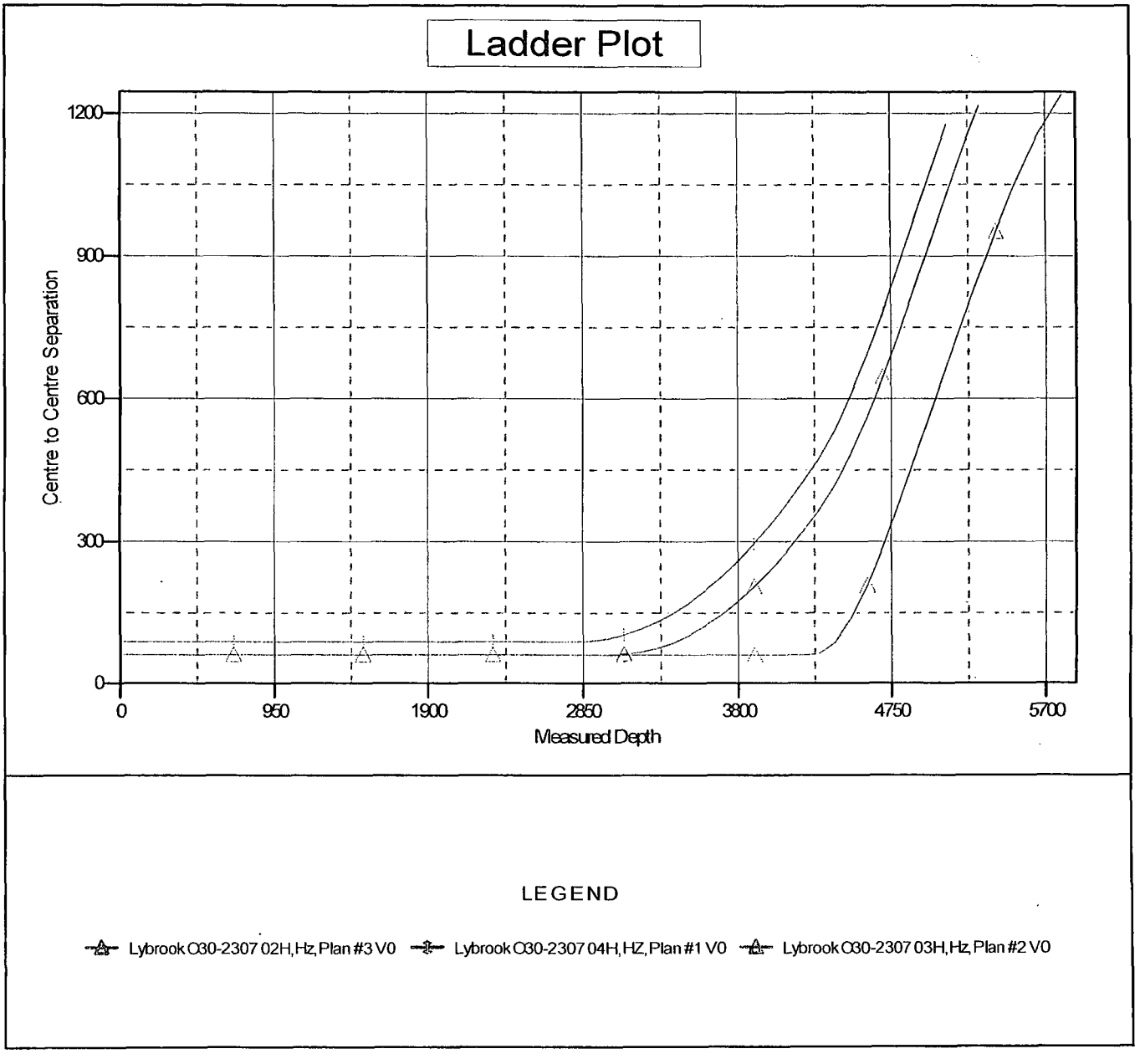
Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Lybrook O30-2307 01H
Project:	Sandoval County, NM	**TVD Reference:**	16KB @ 7044.0ft (Unassigned)
Reference Site:	S30-T23N-R7W	**MD Reference:**	16KB @ 7044.0ft (Unassigned)
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 #3	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to 16KB @ 7044.0ft (Unassigned)
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°



Lybrook O30-2307 01H
SHL: 357' FSL, 1390' FEL Sec 30 23N 07W
BHL: 330' FSL, 2271' FEL Sec 31 23N 07W
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
San Jose Fn.	n/a
Nacimiento Fn.	surface
Ojo Alamo Ss.	993
Kirtland Shale	1,188
Fruitland Coal	1,454
Pictured Cliffs Ss.	1,578
Lewis Shale	1,694
Cliffhouse Ss.	2,347
Menefee Fn.	3,137
Point Lookout Ss.	3,962
Mancos Shale	4,144
Mancos Silt	4,662
Gallup Fn.	4,920
Base Gallup	5,261

The referenced surface elevation is 7028', KB 7044'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,454
Oil/Gas	Pictured Cliffs Ss.	1,578
Oil/Gas	Cliffhouse Ss.	2,347
Gas	Menefee Fn.	3,137
Oil/Gas	Point Lookout Ss.	3,962
Oil/Gas	Mancos Shale	4,144
Oil/Gas	Mancos Silt	4,662
Oil/Gas	Gallup Fn.	4,920

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

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3. PRESSURE CONTROL

a) Pressure contol equipment and configuration will be designed to meet 2M standards.
b) Working pressure on rams and BOPE will be 3,000 psi.
c) Function test and visual inspection of the BOP will be conducted daily and noted in the IADC Daily Drilling Report.
d) The Annular BOP will be pressure tested to a minimum of 50 percent of its rated working pressure.
e) Blind and Pipe Rams/BOP will be tested against a test plug to 100 percent of rated working pressure.
f) Pressure tests are required before drilling out from under all casing strings set and cemented in place.
g) BOP controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.
h) BOP testing procedures and testing frequency will conform to Onshore Order No. 2.
i) BOP remote controls shall be located on the rig floor at a location readily accessible to the driller. Master controls shall be on the ground at the accumulator and shall have the capability to function all preventers.
j) The kill line shall be 2-inch minimum and contain two kill line valves, one of which shall be a check valve.
k) The choke line shall be a 2-inch minimum and contain two choke line valves (2-inch minimum).
l) The choke and manifold shall contain two adjustable chokes.
m) Hand wheels shall be installed on all ram preventers.
n) Safety valves and wrenches (with subs for drill string connections) shall be available on the rig floor at all times.
o) Inside BOP or float sub shall also be available on the rig floor at all times.

Proposed BOP and choke manifold arrangements are attached.

4. CASING & CEMENTING PROGRAM

The proposed casing and cementing program has been designed to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. All indications of useable water shall be reported.

a) The proposed casing design is as follows:

Casing	Depth (MD)	Hole Size	Csg Size	Weight	Grade
Conductor	0'-60'	26"	16"	42.09#	
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-4905'	8 3/4"	7"	26#	J55, LTC New
Production Liner	4805'-10650'	6 1/8"	4 1/2"	11.6#	B80*, LTC New

Casing String				Casing Strength Properties			Minimum Design Factors		
Size	Weight (ppf)	Grade	Connection	Collapse (psi)	Burst (psi)	Tensile (1000lbs)	Collapse	Burst	Tension
9 5/8"	36	J55	STC	2020	3520	394	1.125	1.1	1.5
7"	26	J55	LTC	4320	4980	367	1.125	1.1	1.5
4.5"	11.6	B80	LTC	6350	7780	201	1.125	1.1	1.5

*B80 pipe specifications are attached

Casing design is subject to revision based on geologic conditions encountered

Lybrook O30-2307 01H
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Sandoval, New Mexico

All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1,500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.

b) The proposed cementing program is as follows

Casing	Depth (MD)	Cement Volume (sacks)	Cement Type & Yield	Designed TOC	Centralizers
Conductor	0'-60'	100 sks	Type I Neat 16 ppg	Surface	None
Surface	0'-500'	228 sks	Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water	Surface	1 per joint on bottom 3 joints
Intermediate	0'-4905'	100% open hole excess Stage 1 Lead: 453 sks Stage 1 Tail: 352 sks	Lead: PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuft/sk Tail: Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuft/sk	Surface	1 every 3 joints through water bearing zones
Production Liner	4805'-10650'	50% OH excess Stage 1 Blend Total: 329sks	Blend: Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk	Liner Hanger	N/A

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 4258'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5103'/10650'	Gallup

Lybrook O30-2307 01H
SHL: 357' FSL, 1390' FEL Sec 30 23N 07W
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Sandoval, New Mexico

6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60'/60'	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0'-500'/500'	Fresh Water	8.3-10	60-70	NC
8 3/4"	500'/500'-4810'/4905	Fresh Water LSND	8.3-10	40-50	8-10

b) Intermediate Casing Point to TD:

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	4810'/4905'-5103'/10650'	Fresh Water LSND	8.3-10	15-25	<15

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

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

7. TESTING, CORING, & LOGGING

a) Drill Stem Testing - None anticipated.
b) Coring - None anticipated.
c) Mudd Logging - Mud loggers will be on location from kick off point to TD.
d) Logging - See below

Cased Hole:
CBL/CCL/GR/VDL will be run as needed for perforating control

8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

The anticipated bottom hole pressure is +/- 2428 psi based on a 9.0 ppg at 5187' TVD of the horizontal lateral target. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H_2S 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 November 5, 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: 357' FSL, 1390' FEL Sec 30 23N 07W County: Sandoval WELL: Lybrook O30-2307 01H	Encana Natural Gas WELL SUMMARY		ENG: Michael Sanch 1-7-15 RIG: Unassigned GLE: 7028 RKBE: 7044

MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH TVD	DEPTH MD	HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			60	60'	26	16" 42.09# 100sx Type I Neat 16.0ppg cmt	Fresh wtr 8.3-9.2	
Multi-Well pad - take survey every stand and run anti-collision report prior to spud	None	San Jose Fn.	0		12 1/4	9 5/8" 36ppf J55 STC TOC Surface with 100% OH Excess: 228 sks Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water.	Fresh wtr 8.3-10	Vertical <1°
		Nacimiento Fn.	surface					
		9 5/8" Csg	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 Fruitland Coal Pictured Cliffs Ss. Lewis Shale Cliffhouse Ss. Menefee Fn. Point Lookout Ss. Mancos Shale	993 1,188 1,454 1,578 1,694 2,347 3,137 3,962 4,144		8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 805sks Stage 1 Lead: 453 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 8.3-10	Vertical <1°
	Mud logger onsite	KOP	4,258	4,258				
Surveys every 30' through the curve		Mancos Silt	4,662			Stage 1 Tail: 352 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.		
		Gallup Fn.	4,920					
		7" Csg	4,810	4,905'				
					6 1/8	100' overlap at liner top		Horz Inc/TVD 90.9deg/5187ft
Surveys every stand to TD unless directed otherwise by Geologist MWD Gamma Directional	No OH Logs	Horizontal Target TD Base Gallup	5,187 5,103 5,261	10,650		5745' Drilled Lateral 4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 329sks Stage 1 Blend: 329 sks Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk.	WBM 8.3-10	TD = 10649.9 MD

NOTES:

1) Drill with 26" bit to 60', set 16" 42.09ppf 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 4258', 8 3/4 inch holesize
5) Start curve at 10deg/100' build rate
6) Drill to csg point of 4905' MD
7) R&C 7" csg, circ cmt to surface
8) Land at ~90 deg, drill lateral to 10650' run 4 1/2 inch cemented liner