

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary-Designate

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

Jami Bailey, Division Director
Oil Conservation Division



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

Operator Signature Date: 4/17/14

Well information;

Operator ENCANA, Well Name and Number Lybrook L29-2307 1H

API# 30-043-21232, Section 29, Township 23 NS, Range 7 E/W

Conditions of Approval:

(See the below checked and handwritten conditions)

- ☒ Notify Aztec OCD 24hrs prior to casing & cement.
- ☒ Hold C-104 for directional survey & "As Drilled" Plat
- ☒ Hold C-104 for NSL NSP, DHC
- ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ☐ Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
 - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
 - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
 - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- ☐ Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ☒ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.

Charles L. Perry
NMOCD Approved by Signature

6-20-2014
Date

CONFIDENTIAL
RECEIVED

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAY 01 2014

APPLICATION FOR PERMIT TO DRILL OR REENTER

Field Office
Bureau of Land Management

5. Lease Serial No.
NM 36943
6. If Indian, Allottee or Tribe Name
N/A

1a. Type of work: ☒ DRILL ☐ REENTER

1b. 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)
720-876-3448

7. If Unit or CA Agreement, Name and No.
Pending

8. Lease Name and Well No.
Lybrook L29-2307 01H

9. API Well No.
30-043-21232

10. Field and Pool, or Exploratory
Basin Mancos

4. Location of Well (Report location clearly and in accordance with any State requirements.)*

At surface 1738' FSL and 768' FWL in Section 29, T23N, R7W NWSW

At proposed prod. zone 2220' FSL and 330' FWL in Section 30, T23N, R7W pwsW

11. Sec., T. R. M. or Blk. and Survey or Area
Section 29, T23N, R7W NMPM

Sec 30, T23N, R7W

14. Distance in miles and direction from nearest town or post office*

+/- 49.1 miles from the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM

12. County or Parish
Sandoval

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
BHL is 330 FWL in Section 30

16. No. of acres in lease
NM 36943- 1402.64 acres

17. Spacing Unit dedicated to this well
321.26 S/2 of Section 30

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
Lybrook L29-2307 02H is +/- 20'SE of SHL

19. Proposed Depth
5064' TVD, 10668' MD

20. BLM/BIA Bond No. on file
COB 000235

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
GL 6869', KB 6885'

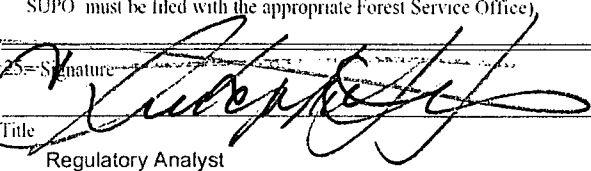
22. Approximate date work will start*
10/07/2014

23. Estimated duration
20 days

24. Attachments

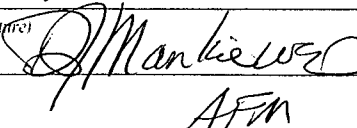
The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the BLM.

Signature: 
Title: Regulatory Analyst

Name (Printed/Typed)
Christopher Simmons

Date
4/17/14

Approved by (Signature): 
Title: AFM

Name (Printed/Typed)
Office: FFO

Date
6/12/14

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

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

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

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

*(Instructions on page 2)
DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"

NMCCDAY

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

District II
811 S. First Street, Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 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) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

RECEIVED

MAY 01 2014

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-043-21232	Pool Code 97232	Pool Name Farmington Field Office BASIN MANGOS Bureau of Land Management
Property Code 313379	Property Name LYBROOK L29-2307	Well Number 01H
GRID No. 282327	Operator Name ENCANA OIL & GAS (USA) INC.	Elevation 6869'

¹⁰ Surface Location

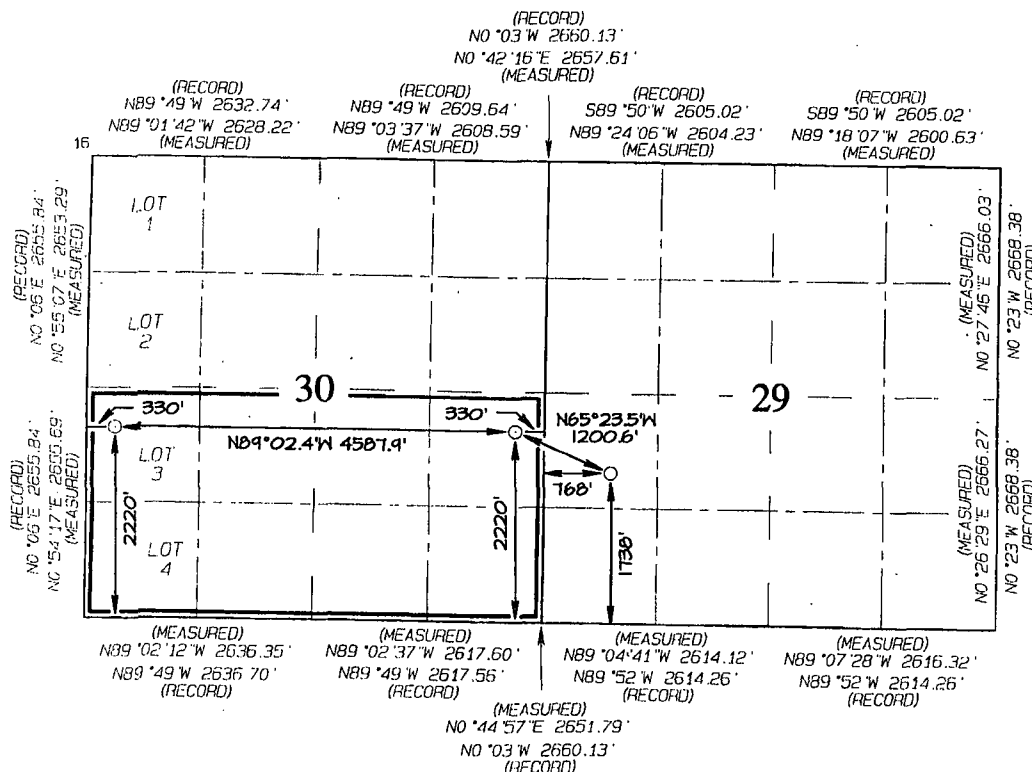
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	29	23N	7W		1738	SOUTH	768	WEST	SANDOVAL

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
L	30	23N	7W	3	2220	SOUTH	330	WEST	SANDOVAL

¹² Dedicated Acres 321.26 Acres S/2 - Section 30	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



END-OF-LATERAL
2220' FSL 330' FWL
SECTION 30, T23N, R7W
LAT: 36.19672°N
LONG: 107.62259°W
DATUM: NAD1927

LAT: 36.19673°N
LONG: 107.62320°W
DATUM: NAD1983

POINT-OF-ENTRY
2220' FSL 330' FWL
SECTION 30, T23N, R7W
LAT: 36.19668°N
LONG: 107.60705°W
DATUM: NAD1927

LAT: 36.19670°N
LONG: 107.60766°W
DATUM: NAD1983

SURFACE LOCATION
1738' FSL 768' FWL
SECTION 29, T23N, R7W
LAT: 36.19535°N
LONG: 107.60333°W
DATUM: NAD1927

LAT: 36.19537°N
LONG: 107.60393°W
DATUM: NAD1983

¹⁷ OPERATOR CERTIFICATION

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

Signature
Holly Hill
Date
4/17/14

Printed Name
Holly.Hill@encana.com

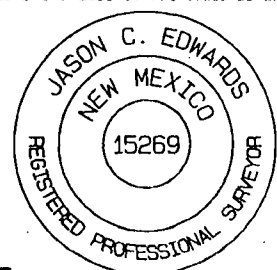
E-mail Address

¹⁸ SURVEYOR CERTIFICATION

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

Date Revised: FEBRUARY 6, 2014
Survey Date: JANUARY 9, 2014

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

Lybrook L29-2307 01H
SHL: NWSW Sec 29 T23N R7W
1738' FSL, 768' FWL
BHL: NWSW Sec 30 T23N R7W
2220' FSL, 330' FWL
Sandoval, New Mexico

**Encana Oil & Gas (USA) Inc.
Drilling Plan**

1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

Formation	Depth (TVD) units = feet
Ojo Alamo Ss.	882
Kirtland Shale	1,092
Fruitland Coal	1,360
Pictured Cliffs Ss.	1,478
Lewis Shale	1,600
Cliffhouse Ss.	2,294
Menefee Fn.	3,002
Point Lookout Ss.	3,836
Mancos Shale	4,040
Mancos Silt	4,561
Gallup Fn.	4,821

The referenced surface elevation is 6869', KB 6885'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,360
Oil/Gas	Pictured Cliffs Ss.	1,478
Oil/Gas	Cliffhouse Ss.	2,294
Gas	Menefee Fn.	3,002
Oil/Gas	Point Lookout Ss.	3,836
Oil/Gas	Mancos Shale	4,040
Oil/Gas	Mancos Silt	4,561
Oil/Gas	Gallup Fn.	4,821

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 L29-2307 01H

SHL: NWSW Sec 29 T23N R7W

1738' FSL, 768' FWL

BHL: NWSW Sec 30 T23N R7W

2220' FSL, 330' FWL

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'-5429'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5229'-10668'	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 L29-2307 01H
 SHL: NWSW Sec 29 T23N R7W
 1738' FSL, 768' FWL
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 2220' FSL, 330' FWL
 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'-5429'	30% open hole excess Stage 1 Lead: 292 sks Stage 1 Tail: 368 sks Stage 2 Lead: 145 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	5229'-10668'	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 3100'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5064'/10668'	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'-5110'/5429'	Fresh Water LSND	9.5-8.8	40-50	8-10

Lybrook L29-2307 01H

SHL: NWSW Sec 29 T23N R7W

1738' FSL, 768' FWL

BHL: NWSW Sec 30 T23N R7W

2220' FSL, 330' FWL

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"	5110'/5429'- 5064'/10668'	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 +/- 2393 psi based on a 9.0 ppg at 5114' 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, 2014. 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 SE/4 Sec 30 T23N R7W, 2220			Encana Natural Gas				ENG: S Kuykendall 4/10/14		
County: Sandoval			WELL SUMMARY				RIG: Aztec 950		
WELL: Lybrook L29-2307 01H							GLE: 6869		
							RKBE: 6885		
MWD	OPEN HOLE	FORM	DEPTH			HOLE	CASING	MW	DEVIATION
LWD	LOGGING		TVD	MD			SIZE	SPECS	MUD TYPE
			60	60'		30	20" 94# 100sx Type I Neat 16.0ppg cmt	Fresh wtr 8.3-9.2	
Multi-Well pad - take survey every stand and run anti- collision report prior to spud	None			12 1/4		9 5/8" 36ppf J55 STC	Fresh wtr 8.4-8.6	Vertical <1°	
		Nacimiento 9 5/8" Csg	0 500	500.00			TOC Surface - 201 sks of Type III Cement		
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5	No OH logs	Ojo Alamo Ss. Kirtland Shale	882 1,092			8 3/4	7" 26ppf J55 LTC TOC @ surface 30% OH excess: 661 sksTotal. Stage 1 Lead: 292 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: 368 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. Stage 2: 168 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL-52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk.	Fresh Wtr 8.5-8.8	Vertical <1°
		Fruitland Coal	1,360						
		Pictured Cliffs Ss. Lewis Shale	1,478 1,600						
		Cliffhouse Ss. Menefee Fn.	2,294 3,002						
		Point Lookout Ss. Mancos Shale	3,836 4,040						
Surveys every 30' through the curve	Mud logger onsite	KOP	3,100	3,100.0					
		Mancos Silt	4,561						
		Gallup Fn.	4,821						
		7" Csg	5,110	5,429.2					
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD	5,114 5,064	10,667.5	6 1/8	200' overlap at liner top	Horizontal Inclination	Horiz Inc/TVD	
		Base Gallup	5,143			5238' Drilled Lateral	Horizontal TVD	/90.5 deg	
MWD Gamma Directional						4 1/2" 11.6ppf SB80 LTC	Switch to OBM 8.6-9.0	TD = 10,667.5 MD	
						Running external swellable csg packers for isolation of prod string Plan on setting top packer within 100' of intermediate casing shoe			

NOTES:

- 1) Drill with 30" bit to 60', set 20" 94# conductor pipe
- 2) Drill surface to 500', R&C 9 5/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to KOP of 3100', 8 3/4 inch holesize
- 5) PU directional tools and start curve at 10deg/100' build rate
- 6) Drill to csg point of 5429' MD
- 7) R&C 7" csg, circ cmt to surface, switch to OBM
- 8) Land at 90 deg, drill lateral to 10668' 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
Tension Safety Factor	_____	1.80
Maximum Tension Length (ft)	_____	9,630
Internal Yield Safety Factor	_____	1.10
Maximum Depth for Internal Yield (ft)	_____	14,150
Collapse Safety Factor	_____	1.125
Maximum Collapse Depth (ft)	_____	11,290

API RELATED VALUES and INTERMEDIATE CALCULATION RESULTS

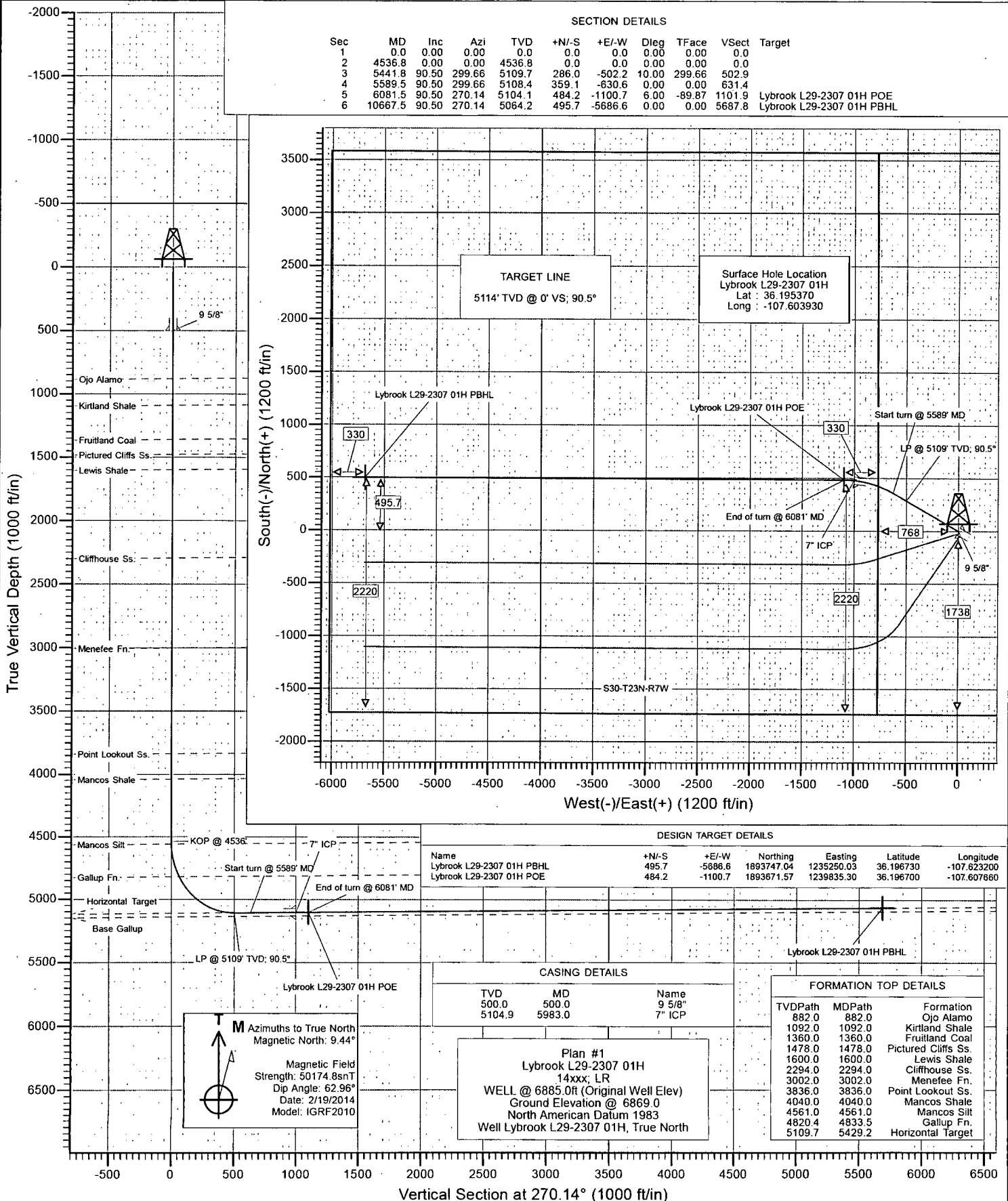
Coupling Thread Fracture Strength	_____	464,000
Pipe Thread Fracture Strength (lbs)	_____	201,000
Pipe Body Plain End Yield (lbs)	_____	267,000
Round Thread Pull-Out (lbs)	_____	219,000
Minimum Make-up Torque (ft-lbs)	_____	1,640
Nominal Make-up Torque (ft-lbs)	_____	2,190
Maximum Make-up Torque (ft-lbs)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



Project: Sandoval County, NM
 Site: S29-T23N-R7W
 Well: Lybrook L29-2307 01H
 Wellbore: Hz
 Design: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4536.8	0.00	0.00	4536.8	0.0	0.0	0.00	0.00	0.0	
3	5441.8	90.50	299.66	5109.7	286.0	-502.2	10.00	299.66	502.9	
4	5589.5	90.50	299.66	5108.4	359.1	-630.6	0.00	0.00	631.4	
5	6081.5	90.50	270.14	5104.1	484.2	-1100.7	6.00	-89.87	1101.9	Lybrook L29-2307 01H POE
6	10667.5	90.50	270.14	5084.2	495.7	-5686.6	0.00	0.00	5687.8	Lybrook L29-2307 01H PBHL



DESIGN TARGET DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Lybrook L29-2307 01H PBHL	495.7	-5686.6	1893747.04	1235250.03	36.196730	-107.623200
Lybrook L29-2307 01H POE	484.2	-1100.7	1893671.57	1239835.30	36.196700	-107.607860

CASING DETAILS		
TVD	MD	Name
500.0	500.0	9 5/8"
5104.9	5983.0	7" ICP

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
882.0	882.0	Ojo Alamo
1092.0	1092.0	Kirtland Shale
1360.0	1360.0	Fruitland Coal
1478.0	1478.0	Pictured Cliffs Ss.
1600.0	1600.0	Lewis Shale
2294.0	2294.0	Cliffhouse Ss.
3002.0	3002.0	Menefee Fn.
3836.0	3836.0	Point Lookout Ss.
4040.0	4040.0	Mancos Shale
4561.0	4561.0	Mancos Silt
4820.4	4833.5	Gallup Fn.
5109.7	5429.2	Horizontal Target

Plan #1
 Lybrook L29-2307 01H
 14xxx, LR
 WELL @ 6885.0ft (Original Well Elev)
 Ground Elevation @ 6869.0
 North American Datum 1983
 Well Lybrook L29-2307 01H, True North

M Azimuths to True North
 Magnetic North: 9.44°
 Magnetic Field
 Strength: 50174.8snT
 Dip Angle: 62.96°
 Date: 2/19/2014
 Model: IGRF2010

Vertical Section at 270.14° (1000 ft/in)

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook L29-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6885.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 6885.0ft (Original Well Elev)
Site:	S29-T23N-R7W	North Reference:	True
Well:	Lybrook L29-2307 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

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

Site	S29-T23N-R7W			
Site Position:		Northing:	1,893,172.01 ft	Latitude: 36.195370
From:	Lat/Long	Easting:	1,240,929.16 ft	Longitude: -107.603930
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -0.80 °

Well	Lybrook L29-2307 01H			
Well Position	+N/-S	0.0 ft	Northing:	1,893,172.01 ft
	+E/-W	0.0 ft	Easting:	1,240,929.16 ft
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft
			Ground Level:	6,869.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/19/2014	9.44	62.96	50,175

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	270.14

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	
4,536.8	0.00	0.00	4,536.8	0.0	0.0	0.00	0.00	0.00	0.00	
5,441.8	90.50	299.66	5,109.7	286.0	-502.2	10.00	10.00	0.00	299.66	
5,589.5	90.50	299.66	5,108.4	359.1	-630.6	0.00	0.00	0.00	0.00	
6,081.5	90.50	270.14	5,104.1	484.2	-1,100.7	6.00	0.00	-6.00	-89.87	Lybrook L29-2307 01H
10,667.5	90.50	270.14	5,064.2	495.7	-5,686.6	0.00	0.00	0.00	0.00	Lybrook L29-2307 01H

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook L29-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6885.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 6885.0ft (Original Well Elev)
Site:	S29-T23N-R7W	North Reference:	True
Well:	Lybrook L29-2307 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	9 5/8"
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
882.0	0.00	0.00	882.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,092.0	0.00	0.00	1,092.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,360.0	0.00	0.00	1,360.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,478.0	0.00	0.00	1,478.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	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	
2,294.0	0.00	0.00	2,294.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
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	
3,002.0	0.00	0.00	3,002.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
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	
3,836.0	0.00	0.00	3,836.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,040.0	0.00	0.00	4,040.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook L29-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6885.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 6885.0ft (Original Well Elev)
Site:	S29-T23N-R7W	North Reference:	True
Well:	Lybrook L29-2307 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	
4,536.8	0.00	0.00	4,536.8	0.0	0.0	0.0	0.00	0.00	KOP @ 4536'
4,561.0	2.42	299.66	4,561.0	0.3	-0.4	0.4	10.00	10.00	Mancos Silt
4,600.0	6.32	299.66	4,599.9	1.7	-3.0	3.0	10.00	10.00	
4,700.0	16.32	299.66	4,697.8	11.4	-20.1	20.1	10.00	10.00	
4,800.0	26.32	299.66	4,790.8	29.4	-51.6	51.7	10.00	10.00	
4,833.5	29.67	299.66	4,820.4	37.2	-65.3	65.4	10.00	10.00	Gallup Fn.
4,900.0	36.32	299.66	4,876.2	55.1	-96.7	96.9	10.00	10.00	
5,000.0	46.32	299.66	4,951.2	87.7	-154.0	154.2	10.00	10.00	
5,100.0	56.32	299.66	5,013.6	126.3	-221.8	222.1	10.00	10.00	
5,200.0	66.32	299.66	5,061.5	169.7	-297.9	298.3	10.00	10.00	
5,300.0	76.32	299.66	5,093.5	216.5	-380.1	380.7	10.00	10.00	
5,400.0	86.32	299.66	5,108.6	265.4	-465.9	466.6	10.00	10.00	
5,429.2	89.24	299.66	5,109.7	279.8	-491.2	491.9	10.00	10.00	Horizontal Target
5,441.8	90.50	299.66	5,109.7	286.0	-502.2	502.9	10.00	10.00	LP @ 5109' TVD; 90.5°
5,500.0	90.50	299.66	5,109.2	314.8	-552.8	553.6	0.00	0.00	
5,589.5	90.50	299.66	5,108.4	359.1	-630.6	631.4	0.00	0.00	Start turn @ 5589' MD
5,600.0	90.50	299.03	5,108.4	364.3	-639.7	640.6	6.00	0.01	
5,700.0	90.51	293.03	5,107.5	408.1	-729.5	730.5	6.00	0.01	
5,800.0	90.52	287.03	5,106.6	442.4	-823.4	824.5	6.00	0.00	
5,900.0	90.51	281.03	5,105.7	466.6	-920.4	921.5	6.00	0.00	
5,983.0	90.51	276.05	5,104.9	478.9	-1,002.4	1,003.6	6.00	-0.01	7" ICP
6,000.0	90.51	275.03	5,104.8	480.6	-1,019.4	1,020.5	6.00	-0.01	
6,081.5	90.50	270.14	5,104.1	484.2	-1,100.7	1,101.9	6.00	-0.01	End of turn @ 6081' MD
6,100.0	90.50	270.14	5,103.9	484.3	-1,119.2	1,120.4	0.00	0.00	
6,200.0	90.50	270.14	5,103.0	484.5	-1,219.2	1,220.4	0.00	0.00	
6,300.0	90.50	270.14	5,102.2	484.8	-1,319.2	1,320.4	0.00	0.00	
6,400.0	90.50	270.14	5,101.3	485.0	-1,419.2	1,420.4	0.00	0.00	
6,500.0	90.50	270.14	5,100.4	485.3	-1,519.2	1,520.4	0.00	0.00	
6,600.0	90.50	270.14	5,099.6	485.5	-1,619.2	1,620.4	0.00	0.00	
6,700.0	90.50	270.14	5,098.7	485.8	-1,719.2	1,720.4	0.00	0.00	
6,800.0	90.50	270.14	5,097.8	486.0	-1,819.2	1,820.4	0.00	0.00	
6,900.0	90.50	270.14	5,096.9	486.3	-1,919.2	1,920.4	0.00	0.00	
7,000.0	90.50	270.14	5,096.1	486.5	-2,019.2	2,020.4	0.00	0.00	
7,100.0	90.50	270.14	5,095.2	486.8	-2,119.2	2,120.4	0.00	0.00	
7,200.0	90.50	270.14	5,094.3	487.0	-2,219.2	2,220.4	0.00	0.00	
7,300.0	90.50	270.14	5,093.5	487.3	-2,319.2	2,320.4	0.00	0.00	
7,400.0	90.50	270.14	5,092.6	487.5	-2,419.2	2,420.4	0.00	0.00	
7,500.0	90.50	270.14	5,091.7	487.8	-2,519.2	2,520.4	0.00	0.00	
7,600.0	90.50	270.14	5,090.9	488.0	-2,619.2	2,620.4	0.00	0.00	
7,700.0	90.50	270.14	5,090.0	488.3	-2,719.2	2,720.4	0.00	0.00	
7,800.0	90.50	270.14	5,089.1	488.5	-2,819.2	2,820.4	0.00	0.00	
7,900.0	90.50	270.14	5,088.2	488.8	-2,919.2	2,920.4	0.00	0.00	
8,000.0	90.50	270.14	5,087.4	489.0	-3,019.2	3,020.4	0.00	0.00	
8,100.0	90.50	270.14	5,086.5	489.3	-3,119.2	3,120.4	0.00	0.00	
8,200.0	90.50	270.14	5,085.6	489.5	-3,219.2	3,220.4	0.00	0.00	
8,300.0	90.50	270.14	5,084.8	489.8	-3,319.2	3,320.3	0.00	0.00	
8,400.0	90.50	270.14	5,083.9	490.0	-3,419.2	3,420.3	0.00	0.00	
8,500.0	90.50	270.14	5,083.0	490.3	-3,519.2	3,520.3	0.00	0.00	
8,600.0	90.50	270.14	5,082.2	490.5	-3,619.1	3,620.3	0.00	0.00	
8,700.0	90.50	270.14	5,081.3	490.8	-3,719.1	3,720.3	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook L29-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6885.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 6885.0ft (Original Well Elev)
Site:	S29-T23N-R7W	North Reference:	True
Well:	Lybrook L29-2307 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,800.0	90.50	270.14	5,080.4	491.0	-3,819.1	3,820.3	0.00	0.00	
8,900.0	90.50	270.14	5,079.6	491.3	-3,919.1	3,920.3	0.00	0.00	
9,000.0	90.50	270.14	5,078.7	491.5	-4,019.1	4,020.3	0.00	0.00	
9,100.0	90.50	270.14	5,077.8	491.8	-4,119.1	4,120.3	0.00	0.00	
9,200.0	90.50	270.14	5,076.9	492.0	-4,219.1	4,220.3	0.00	0.00	
9,300.0	90.50	270.14	5,076.1	492.3	-4,319.1	4,320.3	0.00	0.00	
9,400.0	90.50	270.14	5,075.2	492.5	-4,419.1	4,420.3	0.00	0.00	
9,500.0	90.50	270.14	5,074.3	492.8	-4,519.1	4,520.3	0.00	0.00	
9,600.0	90.50	270.14	5,073.5	493.0	-4,619.1	4,620.3	0.00	0.00	
9,700.0	90.50	270.14	5,072.6	493.3	-4,719.1	4,720.3	0.00	0.00	
9,800.0	90.50	270.14	5,071.7	493.5	-4,819.1	4,820.3	0.00	0.00	
9,900.0	90.50	270.14	5,070.9	493.8	-4,919.1	4,920.3	0.00	0.00	
10,000.0	90.50	270.14	5,070.0	494.0	-5,019.1	5,020.3	0.00	0.00	
10,100.0	90.50	270.14	5,069.1	494.3	-5,119.1	5,120.3	0.00	0.00	
10,200.0	90.50	270.14	5,068.2	494.5	-5,219.1	5,220.3	0.00	0.00	
10,300.0	90.50	270.14	5,067.4	494.8	-5,319.1	5,320.3	0.00	0.00	
10,400.0	90.50	270.14	5,066.5	495.0	-5,419.1	5,420.3	0.00	0.00	
10,500.0	90.50	270.14	5,065.6	495.3	-5,519.1	5,520.3	0.00	0.00	
10,600.0	90.50	270.14	5,064.8	495.5	-5,619.1	5,620.3	0.00	0.00	
10,667.5	90.50	270.14	5,064.2	495.7	-5,686.6	5,687.8	0.00	0.00	TD at 10667.5

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lybrook L29-2307 01H F - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	5,104.1	484.2	-1,100.7	1,893,671.57	1,239,835.30	36.196700	-107.607660
Lybrook L29-2307 01H F - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	5,064.2	495.7	-5,686.6	1,893,747.04	1,235,250.03	36.196730	-107.623200

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
500.0	500.0	9 5/8"	0.000	0.000	
5,983.0	5,104.9	7" ICP	0.000	0.000	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook L29-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6885.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 6885.0ft (Original Well Elev)
Site:	S29-T23N-R7W	North Reference:	True
Well:	Lybrook L29-2307 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	H _z		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
882.0	882.0	Ojo Alamo		-0.50	270.14	
1,092.0	1,092.0	Kirtland Shale		-0.50	270.14	
1,360.0	1,360.0	Fruitland Coal		-0.50	270.14	
1,478.0	1,478.0	Pictured Cliffs Ss.		-0.50	270.14	
1,600.0	1,600.0	Lewis Shale		-0.50	270.14	
2,294.0	2,294.0	Cliffhouse Ss.		-0.50	270.14	
3,002.0	3,002.0	Menefee Fn.		-0.50	270.14	
3,836.0	3,836.0	Point Lookout Ss.		-0.50	270.14	
4,040.0	4,040.0	Mancos Shale		-0.50	270.14	
4,561.0	4,561.0	Mancos Silt		-0.50	270.14	
4,833.5	4,821.0	Gallup Fn.		-0.50	270.14	
5,429.2	5,114.0	Horizontal Target		-0.50	270.14	
4,698.0	5,143.0	Base Gallup		-0.50	270.14	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
4,536.8	4,536.8	0.0	0.0	KOP @ 4536'	
5,441.8	5,109.7	286.0	-502.2	LP @ 5109' TVD; 90.5°	
5,589.5	5,108.4	359.1	-630.6	Start turn @ 5589' MD	
6,081.5	5,104.1	484.2	-1,100.7	End of turn @ 6081' MD	
10,667.5	5,064.2	495.7	-5,686.6	TD at 10667.5	

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

S29-T23N-R7W

Lybrook L29-2307 01H

Hz

Plan #1

Anticollision Report

20 February, 2014

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook L29-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 6885.0ft (Original Well Elev)
Reference Site:	S29-T23N-R7W	MD Reference:	WELL @ 6885.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook L29-2307 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 #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 2/20/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,667.4	Plan #1 (Hz)	Geolink MWD	Geolink MWD

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S29-T23N-R7W						
Lybrook L29-2307 02H - Hz - Plan #1	4,536.9	4,536.9	19.1	3.4	1.213	Level 2, CC, ES, SF
Lybrook L29-2307 03H - Hz - Plan #1	3,500.0	3,500.0	39.3	27.1	3.230	CC, ES, SF

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook L29-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 6885.0ft (Original Well Elev)
Reference Site:	S29-T23N-R7W	MD Reference:	WELL @ 6885.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook L29-2307 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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T23N-R7W - Lybrook L29-2307 02H - Hz - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD												Offset Well Error:	0.0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	162.04	-18.2	5.9	19.1				
100.0	100.0	100.0	100.0	0.1	0.1	162.04	-18.2	5.9	19.1	18.8	0.29	65.266	
200.0	200.0	200.0	200.0	0.3	0.3	162.04	-18.2	5.9	19.1	18.5	0.64	29.795	
300.0	300.0	300.0	300.0	0.5	0.5	162.04	-18.2	5.9	19.1	18.1	0.99	19.304	
400.0	400.0	400.0	400.0	0.7	0.7	162.04	-18.2	5.9	19.1	17.8	1.34	14.277	
500.0	500.0	500.0	500.0	0.8	0.8	162.04	-18.2	5.9	19.1	17.4	1.69	11.327	
600.0	600.0	600.0	600.0	1.0	1.0	162.04	-18.2	5.9	19.1	17.1	2.04	9.388	
700.0	700.0	700.0	700.0	1.2	1.2	162.04	-18.2	5.9	19.1	16.7	2.39	8.015	
800.0	800.0	800.0	800.0	1.4	1.4	162.04	-18.2	5.9	19.1	16.4	2.74	6.993	
900.0	900.0	900.0	900.0	1.5	1.5	162.04	-18.2	5.9	19.1	16.1	3.09	6.202	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	162.04	-18.2	5.9	19.1	15.7	3.43	5.571	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	162.04	-18.2	5.9	19.1	15.4	3.78	5.057	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	162.04	-18.2	5.9	19.1	15.0	4.13	4.630	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	162.04	-18.2	5.9	19.1	14.7	4.48	4.270	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	162.04	-18.2	5.9	19.1	14.3	4.83	3.961	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	162.04	-18.2	5.9	19.1	14.0	5.18	3.694	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	162.04	-18.2	5.9	19.1	13.6	5.53	3.461	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	162.04	-18.2	5.9	19.1	13.3	5.88	3.256	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	162.04	-18.2	5.9	19.1	12.9	6.23	3.073	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	162.04	-18.2	5.9	19.1	12.6	6.58	2.910	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	162.04	-18.2	5.9	19.1	12.2	6.93	2.763	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	162.04	-18.2	5.9	19.1	11.9	7.27	2.631	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	162.04	-18.2	5.9	19.1	11.5	7.62	2.510	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	162.04	-18.2	5.9	19.1	11.2	7.97	2.400	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	162.04	-18.2	5.9	19.1	10.8	8.32	2.300	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	162.04	-18.2	5.9	19.1	10.5	8.67	2.207	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	162.04	-18.2	5.9	19.1	10.1	9.02	2.122	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	162.04	-18.2	5.9	19.1	9.8	9.37	2.043	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	162.04	-18.2	5.9	19.1	9.4	9.72	1.969	
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	162.04	-18.2	5.9	19.1	9.1	10.07	1.901	
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	162.04	-18.2	5.9	19.1	8.7	10.42	1.837	
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	162.04	-18.2	5.9	19.1	8.4	10.77	1.778	
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	162.04	-18.2	5.9	19.1	8.0	11.11	1.722	
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	162.04	-18.2	5.9	19.1	7.7	11.46	1.669	
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	162.04	-18.2	5.9	19.1	7.3	11.81	1.620	
3,500.0	3,500.0	3,500.0	3,500.0	6.1	6.1	162.04	-18.2	5.9	19.1	7.0	12.16	1.574	
3,600.0	3,600.0	3,600.0	3,600.0	6.3	6.3	162.04	-18.2	5.9	19.1	6.6	12.51	1.530	
3,700.0	3,700.0	3,700.0	3,700.0	6.4	6.4	162.04	-18.2	5.9	19.1	6.3	12.86	1.488 Level 3	
3,800.0	3,800.0	3,800.0	3,800.0	6.6	6.6	162.04	-18.2	5.9	19.1	5.9	13.21	1.449 Level 3	
3,900.0	3,900.0	3,900.0	3,900.0	6.8	6.8	162.04	-18.2	5.9	19.1	5.6	13.56	1.412 Level 3	
4,000.0	4,000.0	4,000.0	4,000.0	7.0	7.0	162.04	-18.2	5.9	19.1	5.2	13.91	1.376 Level 3	
4,100.0	4,100.0	4,100.0	4,100.0	7.1	7.1	162.04	-18.2	5.9	19.1	4.9	14.26	1.342 Level 3	
4,200.0	4,200.0	4,200.0	4,200.0	7.3	7.3	162.04	-18.2	5.9	19.1	4.5	14.60	1.310 Level 3	
4,300.0	4,300.0	4,300.0	4,300.0	7.5	7.5	162.04	-18.2	5.9	19.1	4.2	14.95	1.280 Level 3	
4,400.0	4,400.0	4,400.0	4,400.0	7.7	7.7	162.04	-18.2	5.9	19.1	3.8	15.30	1.251 Level 3	
4,500.0	4,500.0	4,500.0	4,500.0	7.8	7.8	162.04	-18.2	5.9	19.1	3.5	15.65	1.223 Level 2	
4,536.8	4,536.8	4,536.8	4,536.8	7.9	7.9	162.18	-18.2	5.9	19.1	3.4	15.78	1.213 Level 2	
4,536.9	4,536.9	4,536.9	4,536.9	7.9	7.9	162.18	-18.2	5.9	19.1	3.4	15.78	1.213 Level 2, CC, ES, SF	
4,550.0	4,550.0	4,550.0	4,550.0	7.9	7.9	-136.82	-18.3	5.5	19.2	3.4	15.83	1.216 Level 2	
4,600.0	4,599.9	4,599.8	4,599.7	8.0	8.0	-132.19	-19.5	1.8	21.8	5.8	15.97	1.362 Level 3	
4,650.0	4,649.3	4,649.1	4,648.3	8.1	8.1	-126.45	-21.9	-6.0	27.7	11.6	16.11	1.720	
4,700.0	4,697.8	4,697.6	4,695.2	8.2	8.2	-121.58	-25.5	-17.5	37.1	20.9	16.26	2.283	

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook L29-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 6885.0ft (Original Well Elev)
Reference Site:	S29-T23N-R7W	MD Reference:	WELL @ 6885.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook L29-2307 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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T23N-R7W - Lybrook L29-2307 02H - 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			Distance		Total		Separation		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
4,750.0	4,745.1	4,745.0	4,739.9	8.3	8.3	-117.90	-30.2	-32.4	49.9	33.4	16.43	3.034		
4,800.0	4,790.8	4,791.0	4,782.0	8.4	8.4	-115.08	-35.7	-50.1	65.7	49.1	16.64	3.948		
4,850.0	4,834.6	4,835.5	4,821.2	8.6	8.6	-112.74	-42.0	-70.3	84.4	67.5	16.91	4.993		
4,900.0	4,876.2	4,878.5	4,857.3	8.8	8.8	-110.64	-48.9	-92.5	105.8	88.6	17.25	6.135		
4,950.0	4,915.1	4,919.9	4,890.3	9.1	9.0	-108.61	-56.4	-116.3	129.6	111.9	17.67	7.334		
5,000.0	4,951.2	4,959.7	4,920.3	9.5	9.2	-106.55	-64.2	-141.2	155.5	137.3	18.19	8.550		
5,050.0	4,984.1	4,997.9	4,947.4	9.9	9.5	-104.40	-72.2	-167.0	183.3	164.5	18.81	9.745		
5,100.0	5,013.6	5,034.7	4,971.7	10.4	9.9	-102.13	-80.4	-193.3	212.9	193.3	19.56	10.882		
5,150.0	5,039.5	5,070.1	4,993.4	11.0	10.2	-99.72	-88.8	-220.1	243.8	223.4	20.41	11.946		
5,200.0	5,061.5	5,104.4	5,012.6	11.7	10.6	-97.17	-97.3	-247.2	276.1	254.7	21.36	12.926		
5,250.0	5,079.6	5,137.6	5,029.7	12.4	11.0	-94.48	-105.8	-274.4	309.3	286.9	22.40	13.812		
5,300.0	5,093.5	5,169.9	5,044.6	13.3	11.5	-91.69	-114.3	-301.7	343.5	320.0	23.50	14.614		
5,350.0	5,103.2	5,200.0	5,057.0	14.2	11.9	-88.71	-122.5	-327.8	378.2	353.6	24.63	15.356		
5,400.0	5,108.6	5,232.6	5,068.9	15.1	12.4	-85.89	-131.5	-356.8	413.5	387.7	25.84	16.005		
5,441.8	5,109.7	5,258.3	5,077.0	15.9	12.9	-83.44	-138.8	-380.1	443.2	416.4	26.83	16.518		
5,500.0	5,109.2	5,294.6	5,086.6	17.1	13.5	-85.60	-149.2	-413.5	485.0	456.6	28.43	17.063		
5,589.5	5,108.4	5,352.7	5,097.2	18.9	14.6	-87.76	-166.3	-468.0	550.1	519.1	30.93	17.781		
5,600.0	5,108.4	5,359.7	5,098.1	19.1	14.7	-87.96	-168.3	-474.7	557.7	526.4	31.29	17.820		
5,650.0	5,107.9	5,394.5	5,101.3	20.2	15.4	-88.64	-178.6	-507.7	592.9	559.8	33.05	17.937		
5,700.0	5,107.5	5,431.3	5,102.4	21.2	16.2	-88.95	-189.6	-542.8	626.2	591.4	34.89	17.951		
5,750.0	5,107.0	5,470.2	5,102.0	22.3	17.0	-89.06	-201.2	-579.9	657.6	620.8	36.79	17.874		
5,800.0	5,106.6	5,510.7	5,101.7	23.4	17.8	-89.15	-213.3	-618.6	686.9	648.2	38.75	17.729		
5,850.0	5,106.1	5,552.7	5,101.3	24.5	18.7	-89.23	-225.8	-658.6	714.1	673.3	40.75	17.525		
5,900.0	5,105.7	5,596.0	5,100.9	25.6	19.7	-89.30	-238.7	-700.0	739.0	696.2	42.76	17.282		
5,950.0	5,105.2	5,640.6	5,100.5	26.7	20.6	-89.37	-252.0	-742.6	761.6	716.8	44.80	17.000		
6,000.0	5,104.8	5,686.3	5,100.1	27.8	21.7	-89.42	-265.6	-786.2	781.8	735.0	46.82	16.697		
6,050.0	5,104.3	5,840.6	5,098.8	28.9	25.1	-89.49	-303.3	-935.7	798.2	747.0	51.21	15.588		
6,081.5	5,104.1	6,008.3	5,097.3	29.6	29.0	-89.52	-316.7	-1,102.7	801.0	745.3	55.73	14.373		
6,100.0	5,103.9	6,026.9	5,097.2	30.0	29.4	-89.52	-316.7	-1,121.2	801.0	744.4	56.60	14.152		
6,200.0	5,103.0	6,126.9	5,096.3	32.2	31.7	-89.52	-316.4	-1,221.2	801.0	739.7	61.32	13.063		
6,300.0	5,102.2	6,226.9	5,095.4	34.4	34.0	-89.52	-316.2	-1,321.2	801.0	734.9	66.06	12.124		
6,400.0	5,101.3	6,326.9	5,094.5	36.7	36.4	-89.52	-315.9	-1,421.2	801.0	730.2	70.84	11.307		
6,500.0	5,100.4	6,426.9	5,093.7	39.0	38.7	-89.52	-315.7	-1,521.2	801.0	725.4	75.64	10.590		
6,600.0	5,099.6	6,526.9	5,092.8	41.3	41.1	-89.52	-315.4	-1,621.2	801.0	720.5	80.46	9.956		
6,700.0	5,098.7	6,626.9	5,091.9	43.7	43.5	-89.52	-315.2	-1,721.2	801.0	715.7	85.29	9.392		
6,800.0	5,097.8	6,726.9	5,091.1	46.0	45.9	-89.52	-314.9	-1,821.2	801.0	710.9	90.13	8.887		
6,900.0	5,096.9	6,826.9	5,090.2	48.4	48.3	-89.52	-314.7	-1,921.2	801.0	706.0	94.99	8.433		
7,000.0	5,096.1	6,926.9	5,089.3	50.8	50.7	-89.52	-314.4	-2,021.2	801.0	701.1	99.85	8.022		
7,100.0	5,095.2	7,026.9	5,088.4	53.1	53.1	-89.52	-314.2	-2,121.2	801.0	696.3	104.73	7.649		
7,200.0	5,094.3	7,126.9	5,087.6	55.5	55.5	-89.52	-313.9	-2,221.2	801.0	691.4	109.60	7.308		
7,300.0	5,093.5	7,226.9	5,086.7	57.9	58.0	-89.52	-313.7	-2,321.2	801.0	686.5	114.49	6.996		
7,400.0	5,092.6	7,326.9	5,085.8	60.3	60.4	-89.52	-313.4	-2,421.2	801.0	681.6	119.38	6.710		
7,500.0	5,091.7	7,426.9	5,084.9	62.7	62.8	-89.52	-313.2	-2,521.2	801.0	676.7	124.27	6.445		
7,600.0	5,090.9	7,526.9	5,084.1	65.2	65.3	-89.52	-312.9	-2,621.2	801.0	671.8	129.17	6.201		
7,700.0	5,090.0	7,626.9	5,083.2	67.6	67.7	-89.51	-312.7	-2,721.2	801.0	666.9	134.08	5.974		
7,800.0	5,089.1	7,726.9	5,082.3	70.0	70.1	-89.51	-312.4	-2,821.2	801.0	662.0	138.98	5.763		
7,900.0	5,088.2	7,826.9	5,081.5	72.4	72.6	-89.51	-312.2	-2,921.2	801.0	657.1	143.89	5.567		
8,000.0	5,087.4	7,926.9	5,080.6	74.9	75.0	-89.51	-311.9	-3,021.2	801.0	652.2	148.80	5.383		
8,100.0	5,086.5	8,026.9	5,079.7	77.3	77.5	-89.51	-311.7	-3,121.2	801.0	647.3	153.72	5.211		
8,200.0	5,085.6	8,126.9	5,078.8	79.7	79.9	-89.51	-311.4	-3,221.2	801.0	642.4	158.63	5.049		
8,300.0	5,084.8	8,226.9	5,078.0	82.2	82.4	-89.51	-311.2	-3,321.2	801.0	637.5	163.55	4.898		
8,400.0	5,083.9	8,326.9	5,077.1	84.6	84.8	-89.51	-310.9	-3,421.2	801.0	632.5	168.47	4.755		

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook L29-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 6885.0ft (Original Well Elev)
Reference Site:	S29-T23N-R7W	MD Reference:	WELL @ 6885.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook L29-2307 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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T23N-R7W - Lybrook L29-2307 02H - Hz - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
8,500.0	5,083.0	8,426.9	5,076.2	87.0	87.3	-89.51	-310.7	-3,521.1	801.0	627.6	173.39	4.620		
8,600.0	5,082.2	8,526.9	5,075.4	89.5	89.7	-89.51	-310.4	-3,621.1	801.0	622.7	178.31	4.492		
8,700.0	5,081.3	8,626.9	5,074.5	91.9	92.2	-89.51	-310.2	-3,721.1	801.0	617.8	183.24	4.371		
8,800.0	5,080.4	8,726.9	5,073.6	94.4	94.6	-89.51	-309.9	-3,821.1	801.0	612.8	188.16	4.257		
8,900.0	5,079.6	8,826.9	5,072.7	96.8	97.1	-89.51	-309.7	-3,921.1	801.0	607.9	193.09	4.148		
9,000.0	5,078.7	8,926.9	5,071.9	99.3	99.6	-89.51	-309.4	-4,021.1	801.0	603.0	198.02	4.045		
9,100.0	5,077.8	9,026.9	5,071.0	101.7	102.0	-89.51	-309.2	-4,121.1	801.0	598.1	202.95	3.947		
9,200.0	5,076.9	9,126.9	5,070.1	104.2	104.5	-89.51	-308.9	-4,221.1	801.0	593.1	207.88	3.853		
9,300.0	5,076.1	9,226.9	5,069.2	106.6	106.9	-89.51	-308.7	-4,321.1	801.0	588.2	212.81	3.764		
9,400.0	5,075.2	9,326.9	5,068.4	109.1	109.4	-89.51	-308.4	-4,421.1	801.0	583.3	217.74	3.679		
9,500.0	5,074.3	9,426.9	5,067.5	111.5	111.9	-89.51	-308.2	-4,521.0	801.0	578.3	222.67	3.597		
9,600.0	5,073.5	9,526.9	5,066.6	114.0	114.3	-89.51	-307.9	-4,621.0	801.0	573.4	227.60	3.519		
9,700.0	5,072.6	9,626.9	5,065.8	116.4	116.8	-89.51	-307.7	-4,721.0	801.0	568.5	232.54	3.445		
9,800.0	5,071.7	9,726.9	5,064.9	118.9	119.3	-89.51	-307.4	-4,821.0	801.0	563.5	237.47	3.373		
9,900.0	5,070.9	9,826.9	5,064.0	121.4	121.7	-89.51	-307.2	-4,921.0	801.0	558.6	242.40	3.304		
10,000.0	5,070.0	9,926.9	5,063.1	123.8	124.2	-89.51	-306.9	-5,021.0	801.0	553.7	247.34	3.239		
10,100.0	5,069.1	10,026.9	5,062.3	126.3	126.6	-89.51	-306.7	-5,121.0	801.0	548.7	252.28	3.175		
10,200.0	5,068.2	10,126.9	5,061.4	128.7	129.1	-89.51	-306.4	-5,221.0	801.0	543.8	257.21	3.114		
10,300.0	5,067.4	10,226.9	5,060.5	131.2	131.6	-89.51	-306.2	-5,321.0	801.0	538.9	262.15	3.056		
10,400.0	5,066.5	10,326.9	5,059.6	133.6	134.0	-89.51	-305.9	-5,421.0	801.0	533.9	267.09	2.999		
10,500.0	5,065.6	10,426.9	5,058.8	136.1	136.5	-89.51	-305.7	-5,521.0	801.0	529.0	272.02	2.945		
10,600.0	5,064.8	10,526.9	5,057.9	138.6	139.0	-89.51	-305.4	-5,621.0	801.0	524.1	276.96	2.892		
10,667.5	5,064.2	10,594.4	5,057.3	140.2	140.6	-89.51	-305.3	-5,688.5	801.0	520.7	280.30	2.858		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook L29-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 6885.0ft (Original Well Elev)
Reference Site:	S29-T23N-R7W	MD Reference:	WELL @ 6885.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook L29-2307 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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T23N-R7W - Lybrook L29-2307 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		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	157.94	-36.4	14.8	39.3					
100.0	100.0	100.0	100.0	0.1	0.1	157.94	-36.4	14.8	39.3	39.0	0.29	133.978		
200.0	200.0	200.0	200.0	0.3	0.3	157.94	-36.4	14.8	39.3	38.6	0.64	61.164		
300.0	300.0	300.0	300.0	0.5	0.5	157.94	-36.4	14.8	39.3	38.3	0.99	39.627		
400.0	400.0	400.0	400.0	0.7	0.7	157.94	-36.4	14.8	39.3	37.9	1.34	29.308		
500.0	500.0	500.0	500.0	0.8	0.8	157.94	-36.4	14.8	39.3	37.6	1.69	23.252		
600.0	600.0	600.0	600.0	1.0	1.0	157.94	-36.4	14.8	39.3	37.2	2.04	19.271		
700.0	700.0	700.0	700.0	1.2	1.2	157.94	-36.4	14.8	39.3	36.9	2.39	16.453		
800.0	800.0	800.0	800.0	1.4	1.4	157.94	-36.4	14.8	39.3	36.5	2.74	14.355		
900.0	900.0	900.0	900.0	1.5	1.5	157.94	-36.4	14.8	39.3	36.2	3.09	12.731		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	157.94	-36.4	14.8	39.3	35.8	3.43	11.437		
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	157.94	-36.4	14.8	39.3	35.5	3.78	10.382		
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	157.94	-36.4	14.8	39.3	35.2	4.13	9.505		
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	157.94	-36.4	14.8	39.3	34.8	4.48	8.765		
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	157.94	-36.4	14.8	39.3	34.5	4.83	8.132		
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	157.94	-36.4	14.8	39.3	34.1	5.18	7.584		
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	157.94	-36.4	14.8	39.3	33.8	5.53	7.105		
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	157.94	-36.4	14.8	39.3	33.4	5.88	6.683		
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	157.94	-36.4	14.8	39.3	33.1	6.23	6.308		
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	157.94	-36.4	14.8	39.3	32.7	6.58	5.974		
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	157.94	-36.4	14.8	39.3	32.4	6.93	5.672		
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	157.94	-36.4	14.8	39.3	32.0	7.27	5.400		
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	157.94	-36.4	14.8	39.3	31.7	7.62	5.153		
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	157.94	-36.4	14.8	39.3	31.3	7.97	4.927		
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	157.94	-36.4	14.8	39.3	31.0	8.32	4.721		
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	157.94	-36.4	14.8	39.3	30.6	8.67	4.531		
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	157.94	-36.4	14.8	39.3	30.3	9.02	4.355		
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	157.94	-36.4	14.8	39.3	29.9	9.37	4.193		
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	157.94	-36.4	14.8	39.3	29.6	9.72	4.042		
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	157.94	-36.4	14.8	39.3	29.2	10.07	3.902		
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	157.94	-36.4	14.8	39.3	28.9	10.42	3.772		
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	157.94	-36.4	14.8	39.3	28.5	10.77	3.649		
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	157.94	-36.4	14.8	39.3	28.2	11.11	3.535		
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	157.94	-36.4	14.8	39.3	27.8	11.46	3.427		
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	157.94	-36.4	14.8	39.3	27.5	11.81	3.326		
3,500.0	3,500.0	3,500.0	3,500.0	6.1	6.1	157.94	-36.4	14.8	39.3	27.1	12.16	3.230 CC, ES, SF		
3,600.0	3,600.0	3,597.4	3,597.3	6.3	6.3	163.57	-40.5	11.9	42.3	29.8	12.51	3.383		
3,700.0	3,700.0	3,692.9	3,691.6	6.4	6.4	175.91	-52.4	3.8	53.2	40.4	12.85	4.141		
3,800.0	3,800.0	3,784.6	3,780.4	6.6	6.6	-172.70	-71.1	-9.1	74.3	61.1	13.20	5.629		
3,900.0	3,900.0	3,871.2	3,862.0	6.8	6.9	-164.92	-95.1	-25.6	105.6	92.0	13.57	7.780		
4,000.0	4,000.0	3,950.0	3,933.5	7.0	7.2	-160.10	-122.2	-44.2	145.9	132.0	13.97	10.444		
4,100.0	4,100.0	4,026.1	3,999.9	7.1	7.5	-156.86	-152.8	-65.3	194.0	179.6	14.43	13.445		
4,200.0	4,200.0	4,093.9	4,056.3	7.3	7.9	-154.77	-183.7	-86.6	248.8	233.9	14.91	16.681		
4,300.0	4,300.0	4,150.0	4,101.0	7.5	8.3	-153.44	-211.7	-105.9	309.3	293.9	15.39	20.094		
4,400.0	4,400.0	4,211.1	4,147.1	7.7	8.8	-152.29	-244.6	-128.5	374.5	358.6	15.96	23.470		
4,500.0	4,500.0	4,261.3	4,183.2	7.8	9.3	-151.53	-273.5	-148.3	444.0	427.5	16.50	26.912		
4,536.8	4,536.8	4,278.6	4,195.1	7.9	9.4	-151.29	-283.7	-155.4	470.5	453.8	16.70	28.175		
4,550.0	4,550.0	4,284.6	4,199.3	7.9	9.5	-89.49	-287.4	-157.9	480.1	464.8	15.37	31.237		
4,600.0	4,599.9	4,306.8	4,214.2	8.0	9.7	-84.13	-300.9	-167.2	517.0	501.5	15.49	33.387		
4,650.0	4,649.3	4,338.4	4,235.1	8.1	10.1	-79.41	-320.4	-180.6	554.1	538.4	15.67	35.367		
4,700.0	4,697.8	4,371.3	4,256.9	8.2	10.4	-75.40	-340.7	-194.6	590.7	574.8	15.87	37.213		
4,750.0	4,745.1	4,403.6	4,278.2	8.3	10.8	-71.97	-360.7	-208.3	626.8	610.7	16.09	38.953		

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook L29-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 6885.0ft (Original Well Elev)
Reference Site:	S29-T23N-R7W	MD Reference:	WELL @ 6885.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook L29-2307 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 #1	Offset TVD Reference:	Offset Datum

Offset Design S29-T23N-R7W - Lybrook L29-2307 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			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
4,800.0	4,790.8	4,435.2	4,299.1	8.4	11.1	-69.01	-380.2	-221.7	662.2	645.9	16.32	40.578	
4,850.0	4,834.6	4,465.7	4,319.3	8.6	11.5	-66.42	-399.0	-234.7	697.0	680.4	16.54	42.148	
4,900.0	4,876.2	4,494.9	4,338.6	8.8	11.8	-64.10	-417.1	-247.1	731.1	714.4	16.74	43.677	
4,950.0	4,915.1	4,522.7	4,357.0	9.1	12.1	-61.99	-434.3	-258.9	764.6	747.6	16.94	45.136	
5,000.0	4,951.2	4,548.7	4,374.2	9.5	12.5	-60.01	-450.4	-270.0	797.4	780.3	17.13	46.550	
5,050.0	4,984.1	4,572.9	4,390.2	9.9	12.7	-58.13	-465.3	-280.3	829.6	812.2	17.31	47.920	
5,100.0	5,013.6	4,595.0	4,404.8	10.4	13.0	-56.30	-478.9	-289.6	861.1	843.6	17.49	49.241	
5,150.0	5,039.5	4,614.8	4,418.0	11.0	13.3	-54.49	-491.2	-298.1	892.0	874.3	17.67	50.491	
5,200.0	5,061.5	4,632.3	4,429.5	11.7	13.5	-52.67	-502.0	-305.5	922.3	904.4	17.85	51.675	
5,250.0	5,079.6	4,647.2	4,439.4	12.4	13.7	-50.84	-511.2	-311.8	951.9	933.8	18.03	52.787	
5,300.0	5,093.5	4,659.4	4,447.5	13.3	13.8	-48.98	-518.7	-317.0	980.8	962.5	18.23	53.806	

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook L29-2307 01H
Project:	Sandoval County, NM	TVD Reference:	WELL @ 6885.0ft (Original Well Elev)
Reference Site:	S29-T23N-R7W	MD Reference:	WELL @ 6885.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook L29-2307 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 #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 6885.0ft (Original Well Elev)

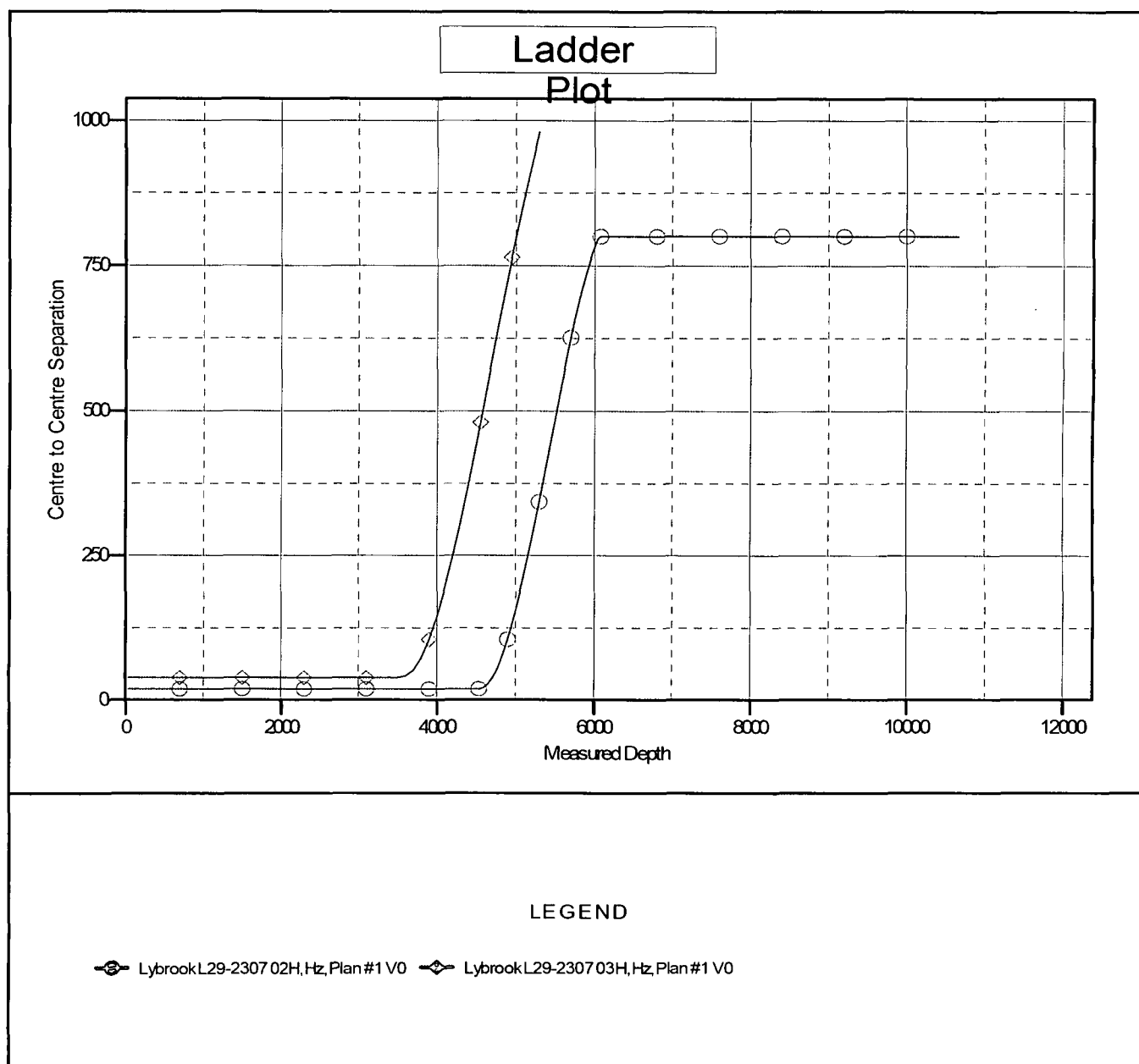
Offset Depths are relative to Offset Datum

Central Meridian is -106.250000 °

Coordinates are relative to: Lybrook L29-2307 01H

Coordinate System is US State Plane 1983, New Mexico Central Zone

Grid Convergence at Surface is: -0.80°



Directions from the Intersection of US Hwy 550 & US Hwy 64
in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Lybrook L29-2307 01H
1738' FSL & 768' FWL, Section 29, T23N, R7W, N.M.P.M., Sandoval County, NM

Latitude: 36.19537°N Longitude: 107.60393°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;

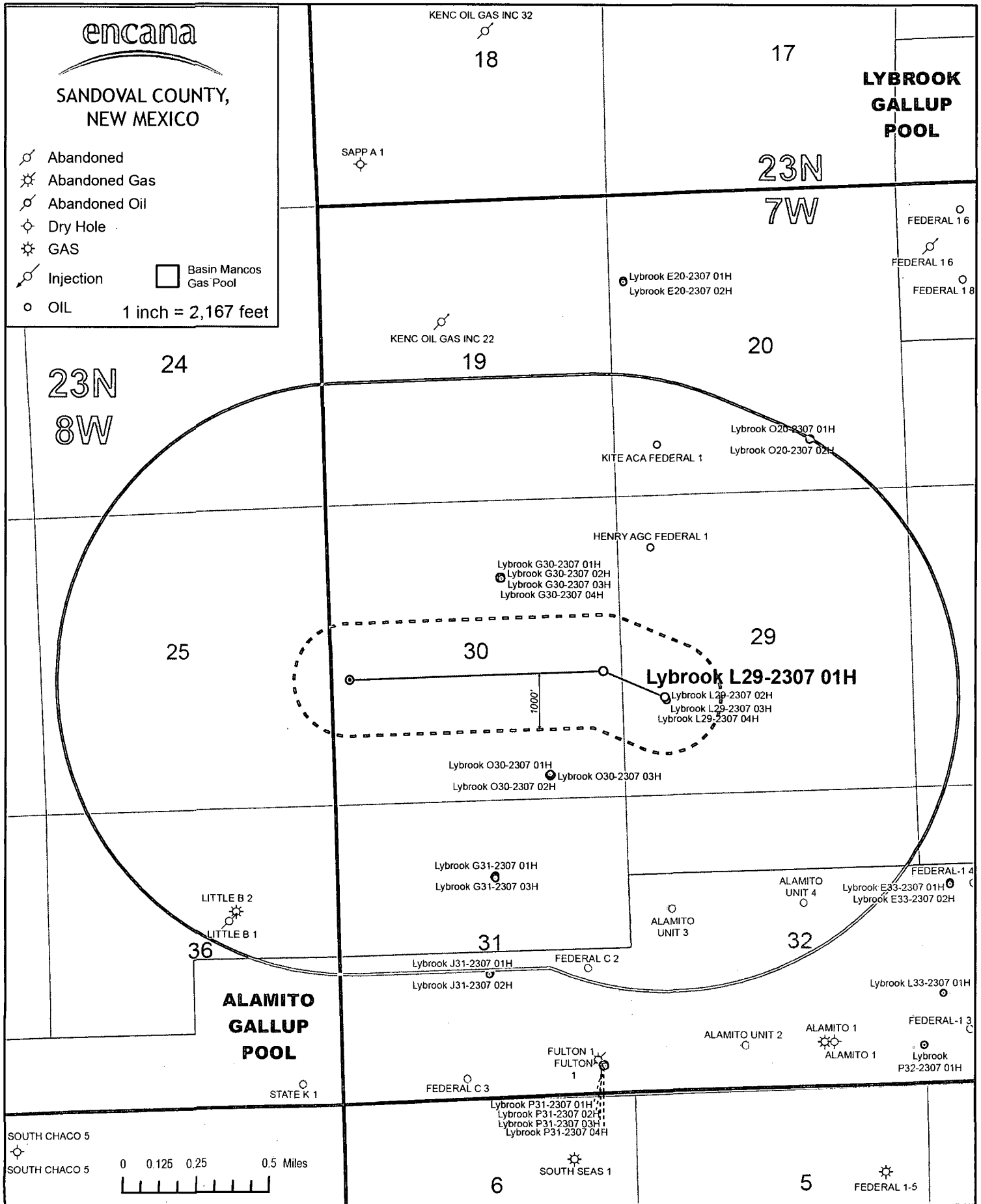
Go straight (South-easterly) remaining on County Road #7900 for 0.2 miles to fork in road;

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

Go straight (Easterly) for 0.2 miles to fork in road at gate;

Go straight (Easterly) for 1.0 miles to fork in road;

Go left (Northerly) for 1.3 miles to new access on left-hand side of existing roadway which continues for 1075' to staked Encana Lybrook L29-2307 01H location.



WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Lybrook L29-2307 01H

