State of New Mexico
Energy, Minerals and Natural Resources Department

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

Operator Signature Date: 3-18-14
Well information;
Operator Encana, Well Name and Number Lybrook G-31-2307 #1H

API# 30-043-21217, Section 31, Township 23 (N)S, 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
- o Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- o 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
- o Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ✓ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.

Charlie Perrin
NMOCD Approved by Signature

5-2-2014
Date

1220 South St. Francis Drive • Santa Fe, New Mexico 87505
Phone (505) 476-3460 • Fax (505) 476-3462 • www.emnrd.state.nm.us/ocd

CONFIDENTIAL

RECEIVED

Form 3160-3
(March 2012)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAR 21 2014

Farmington Field Office
Bureau of Land Management

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. NM LG-9090 ~~NM 6681~~	
6. If Indian, Allotee or Tribe Name N/A	
1a. Type of work: ☑ DRILL ☐ REENTER	7. If Unit or CA Agreement, Name and No. Pending
1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone	8. Lease Name and Well No. Lybrook G31-2307 01H
2. Name of Operator Encana Oil & Gas (USA) Inc.	9. API Well No. 30-043-21217
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202 / 3b. Phone No. (include area code) (720) 876-3448	10. Field and Pool, or Exploratory Basin Mancos
4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface G 1358' FNL and 2379' FEL Section 31, T23N, R7W SHL At proposed prod. zone B 400' FNL and 2280' FEL Section 36, T23N, R8W BHL	11. Sec., T. R. M. or Blk. and Survey or Area Section 31, T23N, R7W NMPM Sec 36, T23N., R.8W
14. Distance in miles and direction from nearest town or post office* +/- 44.2 miles south of the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM	12. County or Parish Sandoval / San Juan 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 400' from the north lease line	16. No. of acres in lease NM 6681- 642.56 acres NM LG-9090- 240 acres
	17. Spacing Unit dedicated to this well 321.24 acres NW/4 of Section 31, NE/4 of Section 36
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Lybrook G31-2307 02H is +/- 30' SW of SHL	19. Proposed Depth 5093' TVD, 10645' MD
	20. BLM/BIA Bond No. on file COB-000235
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6995', KB 7011'	22. Approximate date work will start* 09/11/2014
	23. Estimated duration 20 days

OIL CONS. DIV DIST. 3

APR 24 2014

24. Attachments

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

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

25. ~~Signature~~	Name (Printed/Typed) Christopher Simmons	Date 3-18-14
Title Regulatory Analyst		
Approved by (Signature)	Name (Printed/Typed)	Date 4/22/14
Title AFM	Office FFO	

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

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

(Continued on page 2)

*(Instructions on page 2)

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"

~~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

NMOCD AV

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

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Drive
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

AMENDED REPORT

RECEIVED
MAR 27 2014
Farmington Field Office
Bureau of Land Management

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-043-21217	97232	BASIN MANCOS

4 Property Code	5 Property Name	6 Well Number
313185	LYBROOK G31-2307	01H

7 OGRID No.	8 Operator Name	9 Elevation
282327	ENCANA OIL & GAS (USA) INC.	6995'

10 Surface Location

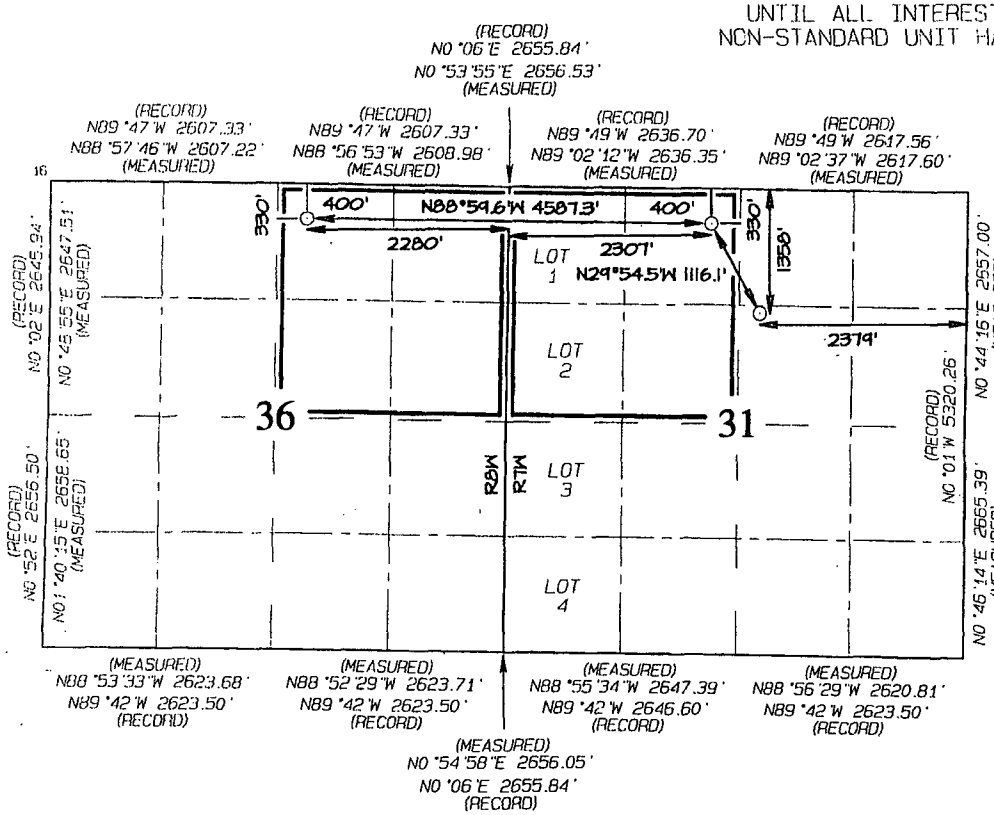
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	31	23N	7W		1358	NORTH	2379	EAST	SANDOVAL

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
B	36	23N	8W		400	NORTH	2280	EAST	SAN JUAN

12 Dedicated Acres		13 Joint or Infill	14 Consolidation Code	15 Order No.
321.24 Acres	NW/4 of Section 31 NE/4 of Section 36			

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
400' FNL 2280' FEL
SECTION 36, T23N, R8W
LAT: 36.18955 °N
LONG: 107.63145 °W
DATUM: NAD1927

LAT: 36.18956 °N
LONG: 107.63206 °W
DATUM: NAD1983

POINT-OF-ENTRY
400' FNL 2307' FWL
SECTION 31, T23N, R7W
LAT: 36.18951 °N
LONG: 107.61591 °W
DATUM: NAD1927

LAT: 36.18952 °N
LONG: 107.61652 °W
DATUM: NAD1983

SURFACE LOCATION
1358' FNL 2379' FEL
SECTION 31, T23N, R7W
LAT: 36.18687 °N
LONG: 107.61398 °W
DATUM: NAD1927

LAT: 36.18688 °N
LONG: 107.61459 °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 3/24/14
Date

Katie Wegner
Printed Name

Katie.Wegner@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 7, 2014
Survey Date: NOVEMBER 12, 2013

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
15269
REGISTERED PROFESSIONAL SURVEYOR

JASON C. EDWARDS
Certificate Number 15269

Lybrook G31-2307 01H
SHL: SWNE Sec 31 T23N R7W
1358' FNL, 2379' FEL
BHL: NWNE Sec 36 T23N R8W
400' FNL, 2280' FEL
Sandoval, New Mexico

Encana Oil & Gas (USA) Inc.
Drilling Plan

1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

Formation	Depth (TVD) units = feet
Ojo Alamo Ss.	924
Kirtland Shale	1,119
Fruitland Coal	1,385
Pictured Cliffs Ss.	1,509
Lewis Shale	1,625
Cliffhouse Ss.	2,278
Menefee Fn.	3,068
Point Lookout Ss.	3,893
Mancos Shale	4,075
Mancos Silt	4,601
Gallup Fn.	4,866

The referenced surface elevation is 6995', KB 7011'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,385
Oil/Gas	Pictured Cliffs Ss.	1,509
Oil/Gas	Cliffhouse Ss.	2,278
Gas	Menefee Fn.	3,068
Oil/Gas	Point Lookout Ss.	3,893
Oil/Gas	Mancos Shale	4,075
Oil/Gas	Mancos Silt	4,601
Oil/Gas	Gallup Fn.	4,866

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

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
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'-5143'	8 3/4"	7"	26#	J55, LTC New
Production Liner	4943'-10645'	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.

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'-5143'	30% open hole excess Stage 1 Lead: 297 sks Stage 1 Tail: 322 sks Stage 2 Lead: 147 sks	Lead (Stages 1 and 2): PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuft/sk Tail (Stage 1): 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	4943'-10645'	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 4423'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5093'/10645'	Gallup

6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

Holie 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'-4968'/5143	Fresh Water LSND	9.5-8.8	40-50	8-10

b) Intermediate Casing Point to TD:

Holie Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	4968'/5143'-5093'/10645'	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

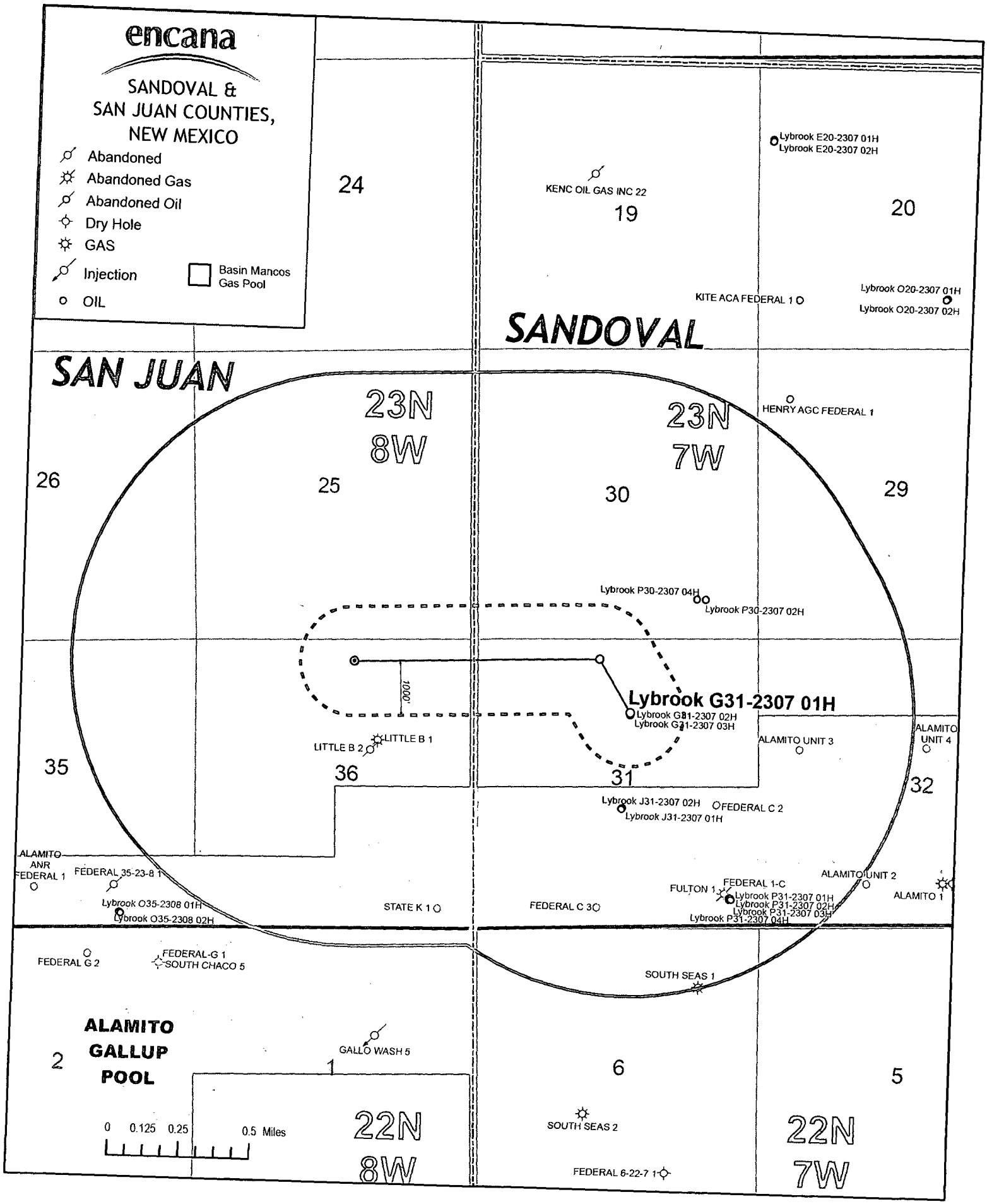
The anticipated bottom hole pressure is +/- 2405 psi based on a 9.0 ppg at 5138' TVD of the horizontal lateral target. No abnormal pressure or temperatures are anticipated.

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,16 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.


encana
SANDOVAL &
SAN JUAN COUNTIES,
NEW MEXICO
Abandoned
Abandoned Gas
Abandoned Oil
Dry Hole
GAS
Injection
Basin Mancos Gas Pool
OIL
SANDOVAL
SAN JUAN
24
19
20
KENC OIL GAS INC 22
Lybrook E20-2307 01H
Lybrook E20-2307 02H
KITE ACA FEDERAL 1
Lybrook O20-2307 01H
Lybrook O20-2307 02H
23N 8W
23N 7W
HENRY AGC FEDERAL 1
26
25
30
29
Lybrook P30-2307 04H
Lybrook P30-2307 02H
1000'
Lybrook G31-2307 01H
Lybrook G31-2307 02H
Lybrook G31-2307 03H
LITTLE B 2
LITTLE B 1
ALAMITO UNIT 3
ALAMITO UNIT 4
35
36
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32
Lybrook J31-2307 02H
FEDERAL C 2
Lybrook J31-2307 01H
ALAMITO ANR FEDERAL 1
FEDERAL 35-23-8 1
Lybrook O35-2308 01H
Lybrook O35-2308 02H
STATE K 1
FEDERAL C 3
FULTON 1
FEDERAL 1-C
Lybrook P31-2307 01H
Lybrook P31-2307 02H
Lybrook P31-2307 03H
Lybrook P31-2307 04H
ALAMITO UNIT 2
ALAMITO 1
FEDERAL G 2
FEDERAL-G 1
SOUTH CHACO 5
SOUTH SEAS 1
ALAMITO GALLUP POOL
GALLO WASH 5
2
1
6
5
0 0.125 0.25 0.5 Miles
22N 8W
SOUTH SEAS 2
FEDERAL 6-22-7 1
22N 7W

LOC: NE/4 NW/4 Sec 31 T23N R7W, 400'	Encana Natural Gas		ENG: S Kuykendall	3/18/14
County: Sandoval			RIG: Aztec 950	
WELL: Lybrook G31-2307 01H	WELL SUMMARY		GLE: 6995	
			RKBE: 7011	

MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH TVD	DEPTH MD	HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			60	60'	30	**20" 94# 100sx Type I Neat 16.0ppg cmt**	Fresh wtr 8.3-9.2	
Multi-Well pad - take survey every stand and run anti-collision report prior to spud	None	Nacimiento	0		12 1/4	**9 5/8" 36ppf J55 STC**	Fresh wtr 8.4-8.6	Vertical <1°
		9 5/8" Csg	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.	924		8 3/4	**7" 26ppf J55 LTC**	Fresh Wtr	Vertical <1°
		Kirtland Shale	1,119					
		Fruitland Coal	1,385					
		Pictured Cliffs Ss.	1,509				8.5-8.8	
		Lewis Shale	1,625			Stage tool @ ~ 1,675		
		Cliffhouse Ss.	2,278			TOC @ surface 30% OH excess: 619 sksTotal.		
		Menefee Fn.	3,068					
		Point Lookout Ss.	3,893			Stage 1 Lead: 297 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.		
		Mancos Shale	4,075					
	Mud logger onsite	KOP	4,423	4,423.0		Stage 1 Tail: 322 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.		
Surveys every 30' through the curve		Mancos Silt	4,601					
		Gallup Fn.	4,866			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.		
		7" Csg	4,968	5,143.0				
					6 1/8	200' overlap at liner top	Horizontal Inclination	Horz Inc/TVD /90.5 deg
Surveys every stand to TD unless directed otherwise by Geologist		Horizontal Target	5,138				Horizontal TVD	
		TD	**5,093**	**10,645.0**		5502' Drilled Lateral	8.6-9.0 OBM	TD = 10,645.0 MD
	No OH Logs	Base Gallup	5,212			**4 1/2" 11.6ppf SB80 LTC**	**Switch to OBM** 8.6-9.0	
MWD Gamma Directional						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 4423', 8 3/4 inch holesize
5) PU directional tools and start curve at 10deg/100' build rate
6) Drill to csg point of 5143' MD
7) R&C 7" csg, circ cmt to surface, switch to OBM
8) Land at 90 deg, drill lateral to10645' 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

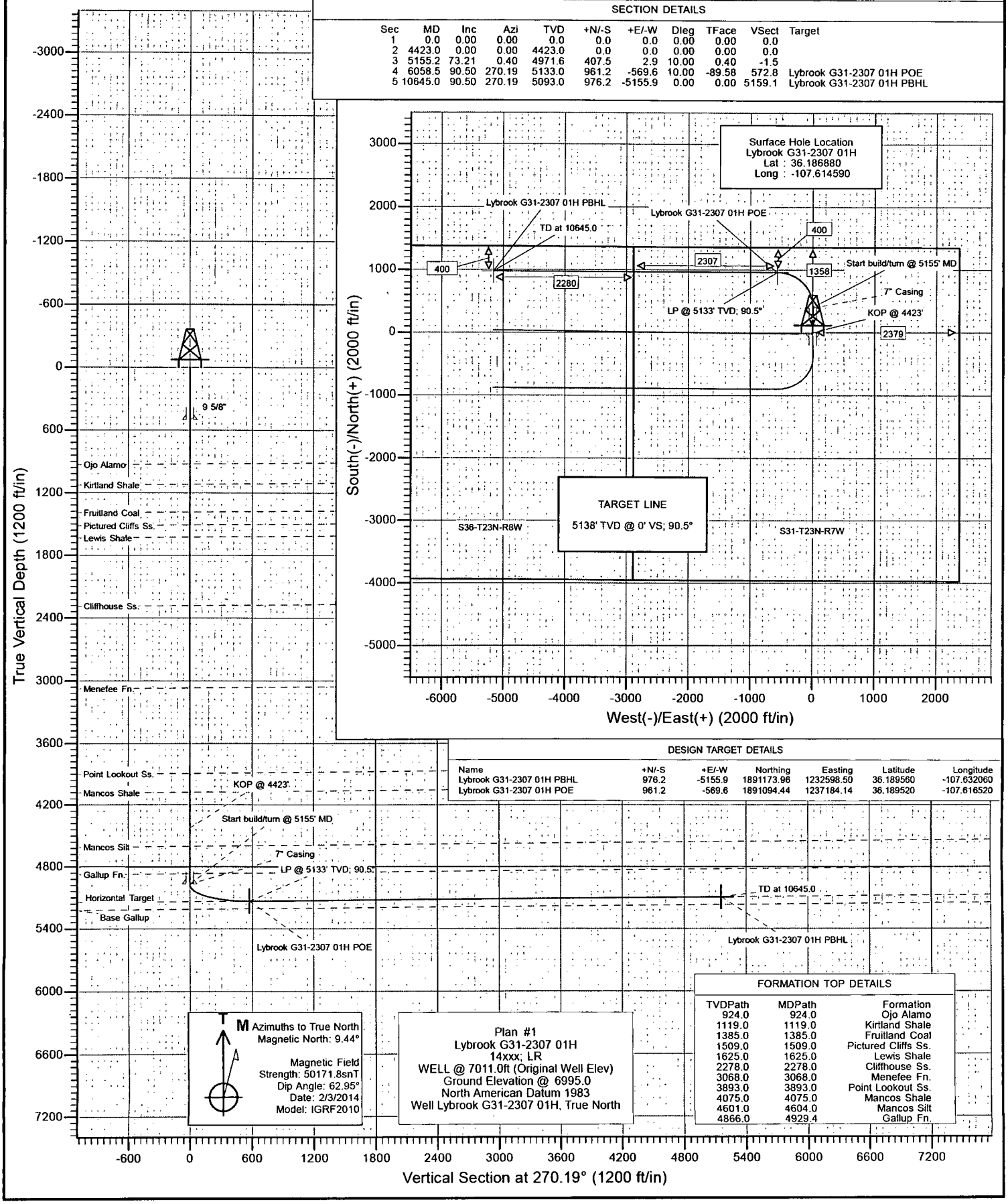
encana natural gas

Project: Sandoval County, NM
Site: S31-T23N-R7W
Well: Lybrook G31-2307 01H
Wellbore: Hz
Design: Plan #1

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	4423.0	0.00	0.00	4423.0	0.0	0.0	0.00	0.00	0.0	
3	5155.2	73.21	0.40	4971.6	407.5	2.9	10.00	0.40	-1.5	
4	6058.5	90.50	270.19	5133.0	961.2	-569.6	10.00	-89.58	572.8	Lybrook G31-2307 01H POE
5	10645.0	90.50	270.19	5093.0	976.2	-5155.9	0.00	0.00	5159.1	Lybrook G31-2307 01H PBHL



DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Lybrook G31-2307 01H PBHL	976.2	-5155.9	1891173.96	1232598.50	36.189560	-107.632060
Lybrook G31-2307 01H POE	961.2	-569.6	1891094.44	1237184.14	36.189520	-107.616520

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
924.0	924.0	Ojo Alamo
1119.0	1119.0	Kirtland Shale
1385.0	1385.0	Fruitland Coal
1509.0	1509.0	Pictured Cliffs Ss.
1625.0	1625.0	Lewis Shale
2278.0	2278.0	Cliffhouse Ss.
3068.0	3068.0	Menefee Fn.
3893.0	3893.0	Point Lookout Ss.
4075.0	4075.0	Mancos Shale
4601.0	4604.0	Mancos Silt
4866.0	4929.4	Gallup Fn.

T M Azimuths to True North
Magnetic North: 9.44°

Magnetic Field
Strength: 50171.8snT
Dip Angle: 62.95°
Date: 2/3/2014
Model: IGRF2010

Plan #1
Lybrook G31-2307 01H
14xxx; LR
WELL @ 7011.0ft (Original Well Elev)
Ground Elevation @ 6995.0
North American Datum 1983
Well Lybrook G31-2307 01H, True North

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook G31-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Project:	Sandoval County, NM	**MD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Site:	S31-T23N-R7W	**North Reference:**	True
Well:	Lybrook G31-2307 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	S31-T23N-R7W				
Site Position:		**Northing:**	1,890,125.34 ft	**Latitude:**	36.186880
From:	Lat/Long	**Easting:**	1,237,740.16 ft	**Longitude:**	-107.614590
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	-0.81 °

Well	Lybrook G31-2307 01H				
Well Position	**+N/-S**	0.0 ft	**Northing:**	1,890,125.34 ft	**Latitude:** 36.186880
	+E/-W	0.0 ft	**Easting:**	1,237,740.16 ft	**Longitude:** -107.614590
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:** 6,995.0 ft

Wellbore	Hz			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	2/3/2014	9.44	62.95	50,172

Design	Plan #1			
Audit Notes:				
Version:	**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.0	0.0	0.0	270.19

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	
4,423.0	0.00	0.00	4,423.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,155.2	73.21	0.40	4,971.6	407.5	2.9	10.00	10.00	0.00	0.40	
6,058.5	90.50	270.19	5,133.0	961.2	-569.6	10.00	1.91	-9.99	-89.58	Lybrook G31-2307 01
10,645.0	90.50	270.19	5,093.0	976.2	-5,155.9	0.00	0.00	0.00	0.00	Lybrook G31-2307 01

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook G31-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Project:	Sandoval County, NM	**MD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Site:	S31-T23N-R7W	**North Reference:**	True
Well:	Lybrook G31-2307 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	
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	
924.0	0.00	0.00	924.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,119.0	0.00	0.00	1,119.0	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	
1,385.0	0.00	0.00	1,385.0	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	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,509.0	0.00	0.00	1,509.0	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	
1,625.0	0.00	0.00	1,625.0	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	
2,278.0	0.00	0.00	2,278.0	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	
3,068.0	0.00	0.00	3,068.0	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	
3,893.0	0.00	0.00	3,893.0	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	
4,075.0	0.00	0.00	4,075.0	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	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook G31-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Project:	Sandoval County, NM	**MD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Site:	S31-T23N-R7W	**North Reference:**	True
Well:	Lybrook G31-2307 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
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,423.0	0.00	0.00	4,423.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4423'
4,500.0	7.70	0.40	4,499.8	5.2	0.0	0.0	10.00	10.00	
4,600.0	17.70	0.40	4,597.2	27.1	0.2	-0.1	10.00	10.00	
4,604.0	18.10	0.40	4,601.0	28.3	0.2	-0.1	10.00	10.00	Mancos Silt
4,700.0	27.70	0.40	4,689.3	65.7	0.5	-0.2	10.00	10.00	
4,800.0	37.70	0.40	4,773.4	119.6	0.8	-0.4	10.00	10.00	
4,900.0	47.70	0.40	4,846.8	187.3	1.3	-0.7	10.00	10.00	
4,929.4	50.64	0.40	4,866.0	209.6	1.5	-0.8	10.00	10.00	Gallup Fn.
5,000.0	57.70	0.40	4,907.3	266.8	1.9	-1.0	10.00	10.00	
5,100.0	67.70	0.40	4,953.1	355.5	2.5	-1.3	10.00	10.00	
5,155.2	73.21	0.40	4,971.6	407.5	2.9	-1.5	10.00	10.00	Start build/turn @ 5155' MD
5,200.0	73.30	355.72	4,984.5	450.4	1.4	0.1	10.00	0.19	
5,300.0	73.87	345.31	5,012.8	544.8	-14.4	16.2	10.00	0.57	
5,400.0	74.93	334.98	5,039.8	635.3	-47.1	49.2	10.00	1.07	
5,500.0	76.46	324.78	5,064.6	719.0	-95.6	98.0	10.00	1.53	
5,600.0	78.40	314.73	5,086.4	793.3	-158.6	161.3	10.00	1.93	
5,700.0	80.67	304.82	5,104.6	856.1	-234.1	237.0	10.00	2.28	
5,800.0	83.22	295.05	5,118.6	905.5	-319.8	322.8	10.00	2.55	
5,900.0	85.96	285.39	5,128.1	939.8	-413.1	416.2	10.00	2.74	
6,000.0	88.81	275.79	5,132.6	958.1	-511.2	514.4	10.00	2.85	
6,058.5	90.50	270.19	5,133.0	961.2	-569.6	572.8	10.00	2.89	LP @ 5133' TVD; 90.5°
6,100.0	90.50	270.19	5,132.6	961.3	-611.1	614.3	0.00	0.00	
6,200.0	90.50	270.19	5,131.8	961.6	-711.1	714.3	0.00	0.00	
6,300.0	90.50	270.19	5,130.9	962.0	-811.1	814.3	0.00	0.00	
6,400.0	90.50	270.19	5,130.0	962.3	-911.1	914.3	0.00	0.00	
6,500.0	90.50	270.19	5,129.1	962.6	-1,011.1	1,014.2	0.00	0.00	
6,600.0	90.50	270.19	5,128.3	963.0	-1,111.1	1,114.2	0.00	0.00	
6,700.0	90.50	270.19	5,127.4	963.3	-1,211.1	1,214.2	0.00	0.00	
6,800.0	90.50	270.19	5,126.5	963.6	-1,311.0	1,314.2	0.00	0.00	
6,900.0	90.50	270.19	5,125.7	963.9	-1,411.0	1,414.2	0.00	0.00	
7,000.0	90.50	270.19	5,124.8	964.3	-1,511.0	1,514.2	0.00	0.00	
7,100.0	90.50	270.19	5,123.9	964.6	-1,611.0	1,614.2	0.00	0.00	
7,200.0	90.50	270.19	5,123.0	964.9	-1,711.0	1,714.2	0.00	0.00	
7,300.0	90.50	270.19	5,122.2	965.2	-1,811.0	1,814.2	0.00	0.00	
7,400.0	90.50	270.19	5,121.3	965.6	-1,911.0	1,914.2	0.00	0.00	
7,500.0	90.50	270.19	5,120.4	965.9	-2,011.0	2,014.2	0.00	0.00	
7,600.0	90.50	270.19	5,119.5	966.2	-2,111.0	2,114.2	0.00	0.00	
7,700.0	90.50	270.19	5,118.7	966.6	-2,211.0	2,214.2	0.00	0.00	
7,800.0	90.50	270.19	5,117.8	966.9	-2,311.0	2,314.2	0.00	0.00	
7,900.0	90.50	270.19	5,116.9	967.2	-2,411.0	2,414.2	0.00	0.00	
8,000.0	90.50	270.19	5,116.1	967.5	-2,511.0	2,514.2	0.00	0.00	
8,100.0	90.50	270.19	5,115.2	967.9	-2,611.0	2,614.2	0.00	0.00	
8,200.0	90.50	270.19	5,114.3	968.2	-2,711.0	2,714.2	0.00	0.00	
8,300.0	90.50	270.19	5,113.4	968.5	-2,811.0	2,814.2	0.00	0.00	
8,400.0	90.50	270.19	5,112.6	968.8	-2,911.0	2,914.2	0.00	0.00	
8,500.0	90.50	270.19	5,111.7	969.2	-3,011.0	3,014.2	0.00	0.00	
8,600.0	90.50	270.19	5,110.8	969.5	-3,111.0	3,114.2	0.00	0.00	
8,700.0	90.50	270.19	5,109.9	969.8	-3,211.0	3,214.2	0.00	0.00	
8,800.0	90.50	270.19	5,109.1	970.2	-3,311.0	3,314.2	0.00	0.00	
8,900.0	90.50	270.19	5,108.2	970.5	-3,411.0	3,414.2	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook G31-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Project:	Sandoval County, NM	**MD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Site:	S31-T23N-R7W	**North Reference:**	True
Well:	Lybrook G31-2307 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
9,000.0	90.50	270.19	5,107.3	970.8	-3,511.0	3,514.2	0.00	0.00	
9,100.0	90.50	270.19	5,106.5	971.1	-3,610.9	3,614.2	0.00	0.00	
9,200.0	90.50	270.19	5,105.6	971.5	-3,710.9	3,714.1	0.00	0.00	
9,300.0	90.50	270.19	5,104.7	971.8	-3,810.9	3,814.1	0.00	0.00	
9,400.0	90.50	270.19	5,103.8	972.1	-3,910.9	3,914.1	0.00	0.00	
9,500.0	90.50	270.19	5,103.0	972.5	-4,010.9	4,014.1	0.00	0.00	
9,600.0	90.50	270.19	5,102.1	972.8	-4,110.9	4,114.1	0.00	0.00	
9,700.0	90.50	270.19	5,101.2	973.1	-4,210.9	4,214.1	0.00	0.00	
9,800.0	90.50	270.19	5,100.3	973.4	-4,310.9	4,314.1	0.00	0.00	
9,900.0	90.50	270.19	5,099.5	973.8	-4,410.9	4,414.1	0.00	0.00	
10,000.0	90.50	270.19	5,098.6	974.1	-4,510.9	4,514.1	0.00	0.00	
10,100.0	90.50	270.19	5,097.7	974.4	-4,610.9	4,614.1	0.00	0.00	
10,200.0	90.50	270.19	5,096.9	974.7	-4,710.9	4,714.1	0.00	0.00	
10,300.0	90.50	270.19	5,096.0	975.1	-4,810.9	4,814.1	0.00	0.00	
10,400.0	90.50	270.19	5,095.1	975.4	-4,910.9	4,914.1	0.00	0.00	
10,500.0	90.50	270.19	5,094.2	975.7	-5,010.9	5,014.1	0.00	0.00	
10,600.0	90.50	270.19	5,093.4	976.1	-5,110.9	5,114.1	0.00	0.00	
10,645.0	90.50	270.19	5,093.0	976.2	-5,155.9	5,159.1	0.00	0.00	TD at 10645.0

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 G31-2307 01H I - plan hits target center - Point	0.00	0.00	5,133.0	961.2	-569.6	1,891,094.44	1,237,184.14	36.189520	-107.616520
Lybrook G31-2307 01H I - plan hits target center - Point	0.00	0.00	5,093.0	976.2	-5,155.9	1,891,173.96	1,232,598.50	36.189560	-107.632060

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
924.0	924.0	Ojo Alamo		-0.50	270.19
1,119.0	1,119.0	Kirtland Shale		-0.50	270.19
1,385.0	1,385.0	Fruitland Coal		-0.50	270.19
1,509.0	1,509.0	Pictured Cliffs Ss.		-0.50	270.19
1,625.0	1,625.0	Lewis Shale		-0.50	270.19
2,278.0	2,278.0	Cliffhouse Ss.		-0.50	270.19
3,068.0	3,068.0	Menefee Fn.		-0.50	270.19
3,893.0	3,893.0	Point Lookout Ss.		-0.50	270.19
4,075.0	4,075.0	Mancos Shale		-0.50	270.19
4,604.0	4,601.0	Mancos Silt		-0.50	270.19
4,929.4	4,866.0	Gallup Fn.		-0.50	270.19

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook G31-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Project:	Sandoval County, NM	**MD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Site:	S31-T23N-R7W	**North Reference:**	True
Well:	Lybrook G31-2307 01H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
4,423.0	4,423.0	0.0	0.0	KOP @ 4423'
5,155.2	4,971.6	407.5	2.9	Start build/turn @ 5155' MD
6,058.5	5,133.0	961.2	-569.6	LP @ 5133' TVD; 90.5°
10,645.0	5,093.0	976.2	-5,155.9	TD at 10645.0

EnCana Oil & Gas (USA) Inc

Sandoval County, NM
S31-T23N-R7W
Lybrook G31-2307 01H
Hz
Plan #1

Anticollision Report

03 February, 2014

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Lybrook G31-2307 01H
Project:	Sandoval County, NM	**TVD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Reference Site:	S31-T23N-R7W	**MD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Lybrook G31-2307 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 500.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 2/3/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,645.0	Plan #1 (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
S31-T23N-R7W						
Lybrook G31-2307 02H - Hz - Plan #1	4,423.0	4,423.0	27.5	12.2	1.790	CC, ES, SF
Lybrook G31-2307 03H - Hz - Plan #1	4,325.9	4,325.9	40.0	25.0	2.662	CC, ES, SF

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Lybrook G31-2307 01H
Project:	Sandoval County, NM	**TVD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Reference Site:	S31-T23N-R7W	**MD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Lybrook G31-2307 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 S31-T23N-R7W - Lybrook G31-2307 02H - 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	-131.38	-18.2	-20.7	27.5				
100.0	100.0	100.0	100.0	0.1	0.1	-131.38	-18.2	-20.7	27.5	27.2	0.29	93.909	
200.0	200.0	200.0	200.0	0.3	0.3	-131.38	-18.2	-20.7	27.5	26.9	0.64	42.872	
300.0	300.0	300.0	300.0	0.5	0.5	-131.38	-18.2	-20.7	27.5	26.5	0.99	27.776	
400.0	400.0	400.0	400.0	0.7	0.7	-131.38	-18.2	-20.7	27.5	26.2	1.34	20.543	
500.0	500.0	500.0	500.0	0.8	0.8	-131.38	-18.2	-20.7	27.5	25.8	1.69	16.298	
600.0	600.0	600.0	600.0	1.0	1.0	-131.38	-18.2	-20.7	27.5	25.5	2.04	13.507	
700.0	700.0	700.0	700.0	1.2	1.2	-131.38	-18.2	-20.7	27.5	25.1	2.39	11.533	
800.0	800.0	800.0	800.0	1.4	1.4	-131.38	-18.2	-20.7	27.5	24.8	2.74	10.062	
900.0	900.0	900.0	900.0	1.5	1.5	-131.38	-18.2	-20.7	27.5	24.4	3.09	8.924	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-131.38	-18.2	-20.7	27.5	24.1	3.43	8.017	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-131.38	-18.2	-20.7	27.5	23.8	3.78	7.277	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-131.38	-18.2	-20.7	27.5	23.4	4.13	6.662	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-131.38	-18.2	-20.7	27.5	23.1	4.48	6.144	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-131.38	-18.2	-20.7	27.5	22.7	4.83	5.700	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-131.38	-18.2	-20.7	27.5	22.4	5.18	5.316	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-131.38	-18.2	-20.7	27.5	22.0	5.53	4.980	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-131.38	-18.2	-20.7	27.5	21.7	5.88	4.684	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-131.38	-18.2	-20.7	27.5	21.3	6.23	4.422	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-131.38	-18.2	-20.7	27.5	21.0	6.58	4.187	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-131.38	-18.2	-20.7	27.5	20.6	6.93	3.976	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	-131.38	-18.2	-20.7	27.5	20.3	7.27	3.785	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	-131.38	-18.2	-20.7	27.5	19.9	7.62	3.612	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	-131.38	-18.2	-20.7	27.5	19.6	7.97	3.454	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	-131.38	-18.2	-20.7	27.5	19.2	8.32	3.309	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	-131.38	-18.2	-20.7	27.5	18.9	8.67	3.176	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	-131.38	-18.2	-20.7	27.5	18.5	9.02	3.053	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	-131.38	-18.2	-20.7	27.5	18.2	9.37	2.939	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	-131.38	-18.2	-20.7	27.5	17.8	9.72	2.833	
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	-131.38	-18.2	-20.7	27.5	17.5	10.07	2.735	
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	-131.38	-18.2	-20.7	27.5	17.1	10.42	2.644	
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	-131.38	-18.2	-20.7	27.5	16.8	10.77	2.558	
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	-131.38	-18.2	-20.7	27.5	16.4	11.11	2.478	
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	-131.38	-18.2	-20.7	27.5	16.1	11.46	2.402	
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	-131.38	-18.2	-20.7	27.5	15.7	11.81	2.331	
3,500.0	3,500.0	3,500.0	3,500.0	6.1	6.1	-131.38	-18.2	-20.7	27.5	15.4	12.16	2.264	
3,600.0	3,600.0	3,600.0	3,600.0	6.3	6.3	-131.38	-18.2	-20.7	27.5	15.0	12.51	2.201	
3,700.0	3,700.0	3,700.0	3,700.0	6.4	6.4	-131.38	-18.2	-20.7	27.5	14.7	12.86	2.141	
3,800.0	3,800.0	3,800.0	3,800.0	6.6	6.6	-131.38	-18.2	-20.7	27.5	14.3	13.21	2.085	
3,900.0	3,900.0	3,900.0	3,900.0	6.8	6.8	-131.38	-18.2	-20.7	27.5	14.0	13.56	2.031	
4,000.0	4,000.0	4,000.0	4,000.0	7.0	7.0	-131.38	-18.2	-20.7	27.5	13.6	13.91	1.980	
4,100.0	4,100.0	4,100.0	4,100.0	7.1	7.1	-131.38	-18.2	-20.7	27.5	13.3	14.26	1.932	
4,200.0	4,200.0	4,200.0	4,200.0	7.3	7.3	-131.38	-18.2	-20.7	27.5	12.9	14.60	1.885	
4,300.0	4,300.0	4,300.0	4,300.0	7.5	7.5	-131.38	-18.2	-20.7	27.5	12.6	14.95	1.841	
4,400.0	4,400.0	4,400.0	4,400.0	7.7	7.7	-131.38	-18.2	-20.7	27.5	12.2	15.30	1.799	
4,423.0	4,423.0	4,423.0	4,423.0	7.7	7.7	-131.38	-18.2	-20.7	27.5	12.2	15.38	1.790	CC, ES, SF
4,450.0	4,450.0	4,450.0	4,450.0	7.7	7.7	-132.73	-18.2	-20.7	28.0	12.5	15.47	1.807	
4,500.0	4,499.8	4,499.8	4,499.8	7.8	7.8	-138.62	-18.2	-20.7	31.2	15.6	15.60	2.001	
4,550.0	4,549.0	4,548.9	4,548.9	7.9	7.9	-146.95	-18.2	-20.7	38.3	22.7	15.65	2.450	
4,600.0	4,597.2	4,595.3	4,595.3	8.0	8.0	-152.16	-18.2	-22.7	50.8	35.2	15.61	3.254	
4,650.0	4,644.1	4,639.9	4,639.5	8.1	8.1	-153.43	-18.1	-28.2	68.9	53.3	15.53	4.436	
4,700.0	4,689.3	4,681.9	4,680.6	8.3	8.2	-152.68	-18.1	-36.5	91.9	76.5	15.41	5.966	

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Lybrook G31-2307 01H
Project:	Sandoval County, NM	**TVD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Reference Site:	S31-T23N-R7W	**MD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Lybrook G31-2307 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 S31-T23N-R7W - Lybrook G31-2307 02H - 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
4,750.0	4,732.5	4,720.6	4,718.0	8.5	8.2	-150.96	-18.0	-46.8	119.6	104.3	15.29	7.821	
4,800.0	4,773.4	4,755.8	4,751.2	8.7	8.3	-148.68	-17.9	-58.3	151.3	136.1	15.19	9.963	
4,850.0	4,811.6	4,787.3	4,780.3	8.9	8.4	-145.96	-17.8	-70.3	186.7	171.6	15.15	12.326	
4,900.0	4,846.8	4,815.0	4,805.4	9.2	8.5	-142.71	-17.7	-82.2	225.3	210.1	15.22	14.802	
4,950.0	4,878.8	4,839.1	4,826.6	9.6	8.6	-138.73	-17.7	-93.5	266.5	251.0	15.47	17.231	
5,000.0	4,907.3	4,859.7	4,844.4	10.0	8.6	-133.71	-17.6	-103.9	309.8	293.9	15.97	19.402	
5,050.0	4,932.2	4,876.9	4,859.0	10.5	8.7	-127.18	-17.5	-113.0	355.0	338.1	16.82	21.103	
5,100.0	4,953.1	4,890.9	4,870.6	11.1	8.8	-118.51	-17.5	-120.8	401.4	383.3	18.06	22.232	
5,150.0	4,970.1	4,900.0	4,878.1	11.6	8.8	-106.54	-17.4	-126.0	448.8	429.2	19.57	22.930	
5,155.2	4,971.6	4,900.0	4,878.1	11.7	8.8	-104.89	-17.4	-126.0	453.8	434.0	19.74	22.989	
5,200.0	4,984.5	4,911.9	4,887.7	12.3	8.9	-102.82	-17.4	-133.0	496.2	475.8	20.39	24.340	

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Lybrook G31-2307 01H
Project:	Sandoval County, NM	**TVD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Reference Site:	S31-T23N-R7W	**MD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Lybrook G31-2307 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 S31-T23N-R7W - Lybrook G31-2307 03H - 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	180.00	-40.0	0.0	40.0				
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-40.0	0.0	40.0	39.8	0.29	136.585	
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-40.0	0.0	40.0	39.4	0.64	62.354	
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-40.0	0.0	40.0	39.1	0.99	40.398	
400.0	400.0	400.0	400.0	0.7	0.7	180.00	-40.0	0.0	40.0	38.7	1.34	29.878	
500.0	500.0	500.0	500.0	0.8	0.8	180.00	-40.0	0.0	40.0	38.4	1.69	23.705	
600.0	600.0	600.0	600.0	1.0	1.0	180.00	-40.0	0.0	40.0	38.0	2.04	19.646	
700.0	700.0	700.0	700.0	1.2	1.2	180.00	-40.0	0.0	40.0	37.7	2.39	16.774	
800.0	800.0	800.0	800.0	1.4	1.4	180.00	-40.0	0.0	40.0	37.3	2.74	14.634	
900.0	900.0	900.0	900.0	1.5	1.5	180.00	-40.0	0.0	40.0	37.0	3.09	12.979	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	180.00	-40.0	0.0	40.0	36.6	3.43	11.660	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	180.00	-40.0	0.0	40.0	36.3	3.78	10.584	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	180.00	-40.0	0.0	40.0	35.9	4.13	9.690	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	180.00	-40.0	0.0	40.0	35.6	4.48	8.935	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	180.00	-40.0	0.0	40.0	35.2	4.83	8.290	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	180.00	-40.0	0.0	40.0	34.9	5.18	7.731	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	180.00	-40.0	0.0	40.0	34.5	5.53	7.243	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	180.00	-40.0	0.0	40.0	34.2	5.88	6.813	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	180.00	-40.0	0.0	40.0	33.8	6.23	6.431	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	180.00	-40.0	0.0	40.0	33.5	6.58	6.090	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	180.00	-40.0	0.0	40.0	33.1	6.93	5.783	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	180.00	-40.0	0.0	40.0	32.8	7.27	5.505	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	180.00	-40.0	0.0	40.0	32.4	7.62	5.253	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	180.00	-40.0	0.0	40.0	32.1	7.97	5.023	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	180.00	-40.0	0.0	40.0	31.7	8.32	4.813	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	180.00	-40.0	0.0	40.0	31.4	8.67	4.619	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	180.00	-40.0	0.0	40.0	31.0	9.02	4.440	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	180.00	-40.0	0.0	40.0	30.7	9.37	4.275	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	180.00	-40.0	0.0	40.0	30.3	9.72	4.121	
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	180.00	-40.0	0.0	40.0	30.0	10.07	3.978	
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	180.00	-40.0	0.0	40.0	29.6	10.42	3.845	
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	180.00	-40.0	0.0	40.0	29.3	10.77	3.720	
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	180.00	-40.0	0.0	40.0	28.9	11.11	3.603	
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	180.00	-40.0	0.0	40.0	28.6	11.46	3.494	
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	180.00	-40.0	0.0	40.0	28.2	11.81	3.390	
3,500.0	3,500.0	3,500.0	3,500.0	6.1	6.1	180.00	-40.0	0.0	40.0	27.9	12.16	3.293	
3,600.0	3,600.0	3,600.0	3,600.0	6.3	6.3	180.00	-40.0	0.0	40.0	27.5	12.51	3.201	
3,700.0	3,700.0	3,700.0	3,700.0	6.4	6.4	180.00	-40.0	0.0	40.0	27.2	12.86	3.114	
3,800.0	3,800.0	3,800.0	3,800.0	6.6	6.6	180.00	-40.0	0.0	40.0	26.8	13.21	3.032	
3,900.0	3,900.0	3,900.0	3,900.0	6.8	6.8	180.00	-40.0	0.0	40.0	26.5	13.56	2.954	
4,000.0	4,000.0	4,000.0	4,000.0	7.0	7.0	180.00	-40.0	0.0	40.0	26.1	13.91	2.880	
4,100.0	4,100.0	4,100.0	4,100.0	7.1	7.1	180.00	-40.0	0.0	40.0	25.8	14.26	2.809	
4,200.0	4,200.0	4,200.0	4,200.0	7.3	7.3	180.00	-40.0	0.0	40.0	25.4	14.60	2.742	
4,300.0	4,300.0	4,300.0	4,300.0	7.5	7.5	180.00	-40.0	0.0	40.0	25.1	14.95	2.678	
4,325.9	4,325.9	4,325.9	4,325.9	7.5	7.5	180.00	-40.0	0.0	40.0	25.0	15.04	2.662	CC, ES, SF
4,400.0	4,400.0	4,396.3	4,396.2	7.7	7.6	179.93	-42.3	0.1	42.5	27.2	15.30	2.779	
4,423.0	4,423.0	4,417.5	4,417.3	7.7	7.7	179.86	-44.6	0.1	45.0	29.6	15.37	2.926	
4,450.0	4,450.0	4,442.1	4,441.6	7.7	7.7	179.37	-48.3	0.2	49.6	34.1	15.45	3.210	
4,500.0	4,499.8	4,485.6	4,484.2	7.8	7.8	179.23	-57.2	0.4	64.3	48.8	15.53	4.139	
4,550.0	4,549.0	4,525.2	4,522.2	7.9	7.9	179.13	-68.1	0.7	86.4	70.9	15.52	5.566	
4,600.0	4,597.2	4,560.0	4,555.0	8.0	8.0	179.04	-79.9	0.9	115.0	99.6	15.43	7.458	
4,650.0	4,644.1	4,589.7	4,582.3	8.1	8.1	178.96	-91.5	1.2	149.3	134.0	15.24	9.791	

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Lybrook G31-2307 01H
Project:	Sandoval County, NM	**TVD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Reference Site:	S31-T23N-R7W	**MD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Lybrook G31-2307 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 S31-T23N-R7W - Lybrook G31-2307 03H - Hz - Plan #1 — **Offset Site Error:** 0.0 ft

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

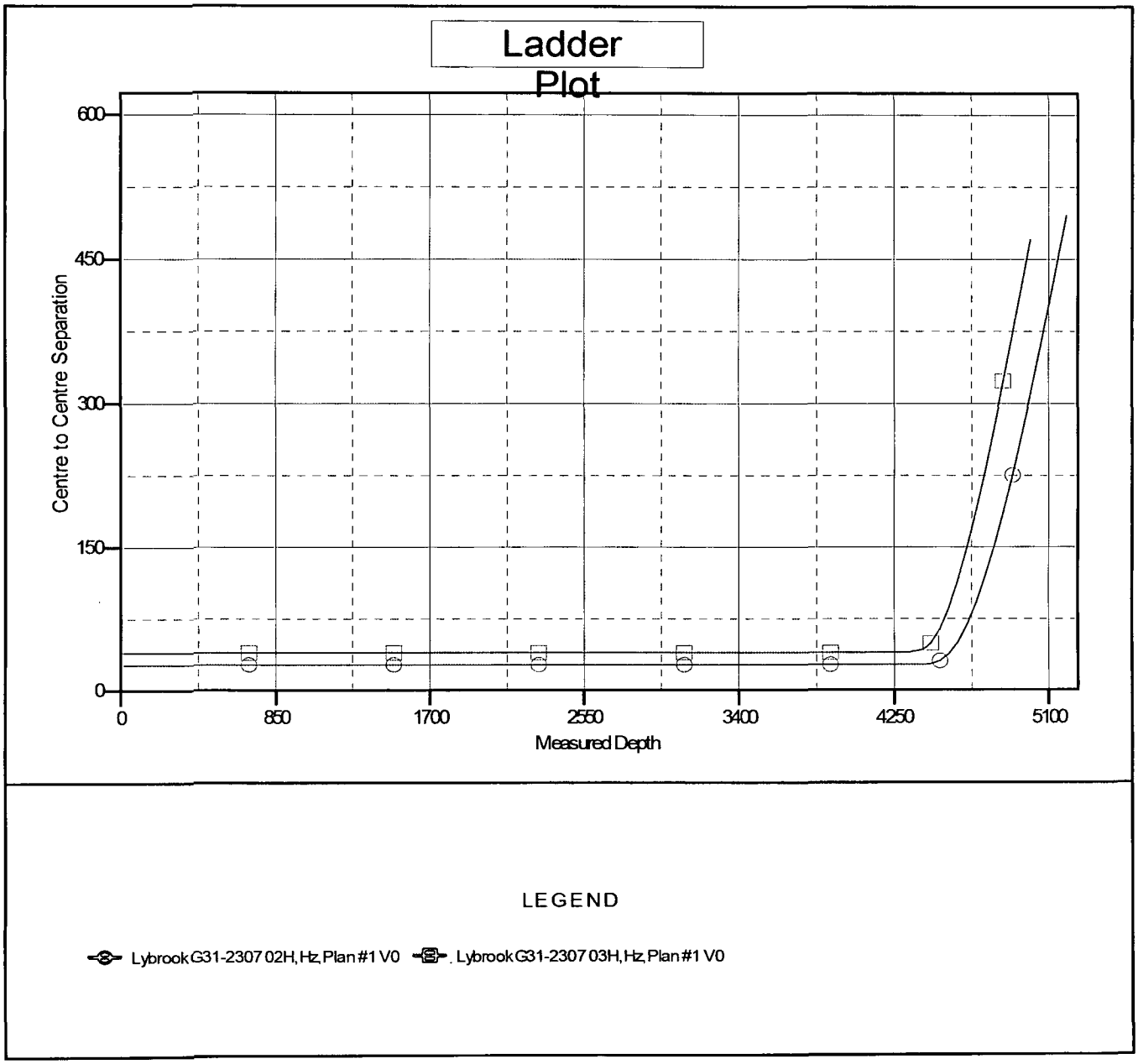
Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
4,700.0	4,689.3	4,614.0	4,604.3	8.3	8.1	178.86	-102.0	1.4	188.0	173.1	14.99	12.549	
4,750.0	4,732.5	4,633.4	4,621.4	8.5	8.2	178.73	-111.1	1.7	230.5	215.8	14.66	15.725	
4,800.0	4,773.4	4,650.0	4,635.8	8.7	8.2	178.53	-119.3	1.9	275.7	261.4	14.27	19.322	
4,850.0	4,811.6	4,650.0	4,635.8	8.9	8.2	178.08	-119.3	1.9	323.2	309.3	13.82	23.383	
4,900.0	4,846.8	4,665.9	4,649.4	9.2	8.3	177.45	-127.6	2.0	371.6	358.3	13.36	27.813	
4,950.0	4,878.8	4,669.8	4,652.7	9.6	8.3	175.17	-129.6	2.1	421.2	408.3	12.90	32.641	
5,000.0	4,907.3	4,670.9	4,653.6	10.0	8.3	52.98	-130.2	2.1	471.1	454.7	16.45	28.635	

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Lybrook G31-2307 01H
Project:	Sandoval County, NM	**TVD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Reference Site:	S31-T23N-R7W	**MD Reference:**	WELL @ 7011.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Lybrook G31-2307 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 @ 7011.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -106.250000 °

Coordinates are relative to: Lybrook G31-2307 01H
Coordinate System is US State Plane 1983, New Mexico Central Zone
Grid Convergence at Surface is: -0.81°



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

in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Lybrook G31-2307 01H

1358' FNL & 2379' FEL, Section 31, T23N, R7W, N.M.P.M., Sandoval County, NM

Latitude: 36.18688°N Longitude: 107.61459°W Datum: NAD1983

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

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

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

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

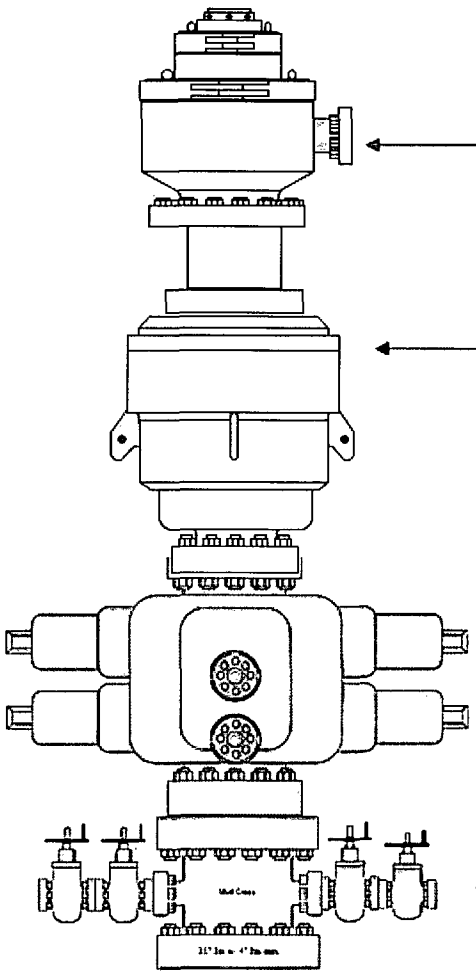
Go left (North-easterly) for 0.2 miles to new access on right-hand side of existing roadway;

Go right (North-easterly) for 4149' along Encana Lybrook J31-2307 01H proposed access to new access on left-hand-side which continues for an additional 1169' to staked Encana Lybrook G31-2307 01H location.

WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Lybrook G31-2307 01H



11" 3K Rotating Head

11" 3K Annular

3K Double Ram
Top: Pipe Ram
Bottom: Blind Ram
3" Outlets Below Ram

3K Mud Cross 3" gate valves