

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 3160-4 or 3160-5 form.

Operator Signature Date: January 9th, 2014

Application Type:

☐ P&A ☒ Drilling/Casing Change ☐ Recomplete/DHC
☒ Location Change ☒ Other: New TD

Well information: 30-043-21175, Lybrook M28-2306 2H, Encana, M 28-23N, 6W

Conditions of Approval:

Notify NMOCD 24hrs prior to beginning operations
Hold C104 for NSL, directional survey, as drilled plat

NMOCD Approved by Signature

FEB 25 2014

Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

CONFIDENTIAL

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

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

SUBMIT IN TRIPLICATE - Other instructions on page 2.

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

JAN 10 2014

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

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

3b. Phone No. (include area code)

720-876-3437

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SHL: 320' FSL and 1289' FWL Sec 28, T23N, R6W
BHL: 330' FSL and 1225' FWL Sec 33, T23N, R6W

5. Lease Serial No.
NMNM 112953

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

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

8. Well Name and No.
Lybrook M28-2306 02H

9. API Well No.
PENDING 30-043-21175

10. Field and Pool or Exploratory Area
Lybrook Gallup

11. Country or Parish, State
Sandoval, New Mexico

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

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

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

Encana Oil & Gas (USA) Inc. (Encana) would like to move the SHL for the Lybrook M28-2306 01H to 320'FSL and 1289'FWL Sec 28, T23N, R6W and the BHL to 330'FSL and 1225'FWL Sec 33, T23N, R6W. (Original SHL was 349'FSL and 1295' FWL Sec 28, T23N, R6W. Original BHL was 330'FSL and 1875' FWL Sec 33, T23N, R6W.) This will change the TD of the well from 10805'MD to 10561'MD and the kick off point from 5002' to 5078'.

Encana would also like to change the intermediate casing setting depth from 6205'MD to 5970'MD. This will slightly change the cementing program for the well.

Please see attached C-102, directional plan, 10 point drilling plan and wellbore diagram for details.

RCVD FEB 3 '14
OIL CONS. DIV.
DIST. 3

CONDITIONS OF APPROVAL

Adhere to previously issued stipulations.

**BLM'S APPROVAL OR ACCEPTANCE OF THIS
ACTION DOES NOT RELIEVE THE LESSEE AND
OPERATOR FROM OBTAINING ANY OTHER
AUTHORIZATION REQUIRED FOR OPERATIONS
ON FEDERAL AND INDIAN LANDS**

14. I hereby certify that the foregoing is true and correct.

Name (Printed/Typed)

Amanda Cavoto

Title Engineering Technologist

Signature

Date

1/9/14

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Troy Salyers

Title Petroleum Engineer

Date

1/27/2014

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

Office

FFO

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

(Instructions on page 2)

NMCCD

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

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

JAN 10 2014

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-043-21175	*Pool Code 42289	*Pool Name LYBROOK GALLUP
*Property Code 404116	*Property Name LYBROOK M28-2306	*Well Number 02H
*OGRIID No. 282327	*Operator Name ENCANA OIL & GAS (USA) INC.	*Elevation 7220'

¹⁰ Surface Location

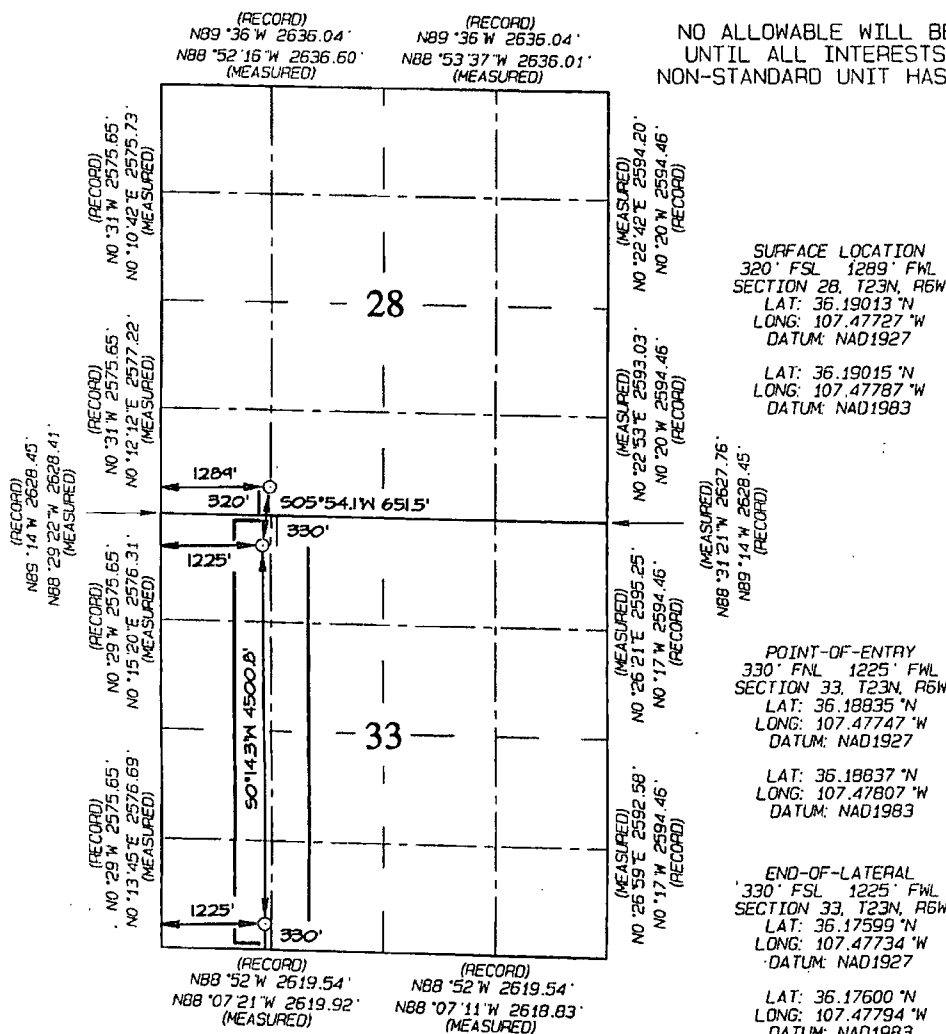
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	28	23N	6W		320	SOUTH	1289	WEST	SANDOVAL

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
M	33	23N	6W		330	SOUTH	1225	WEST	SANDOVAL

¹² Dedicated Acres 106.67 Acres CENTER 1/3 OF W/2 - Section 33	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. RCVD FEB 3 '14 OIL CONS DIV
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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



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: 12/12/13
Printed Name: Holly Hill
E-mail Address: holly.hill@encana.com

¹⁸ SURVEYOR CERTIFICATION

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

Date Revised: DECEMBER 11, 2013
Survey Date: SEPTEMBER 5, 2012

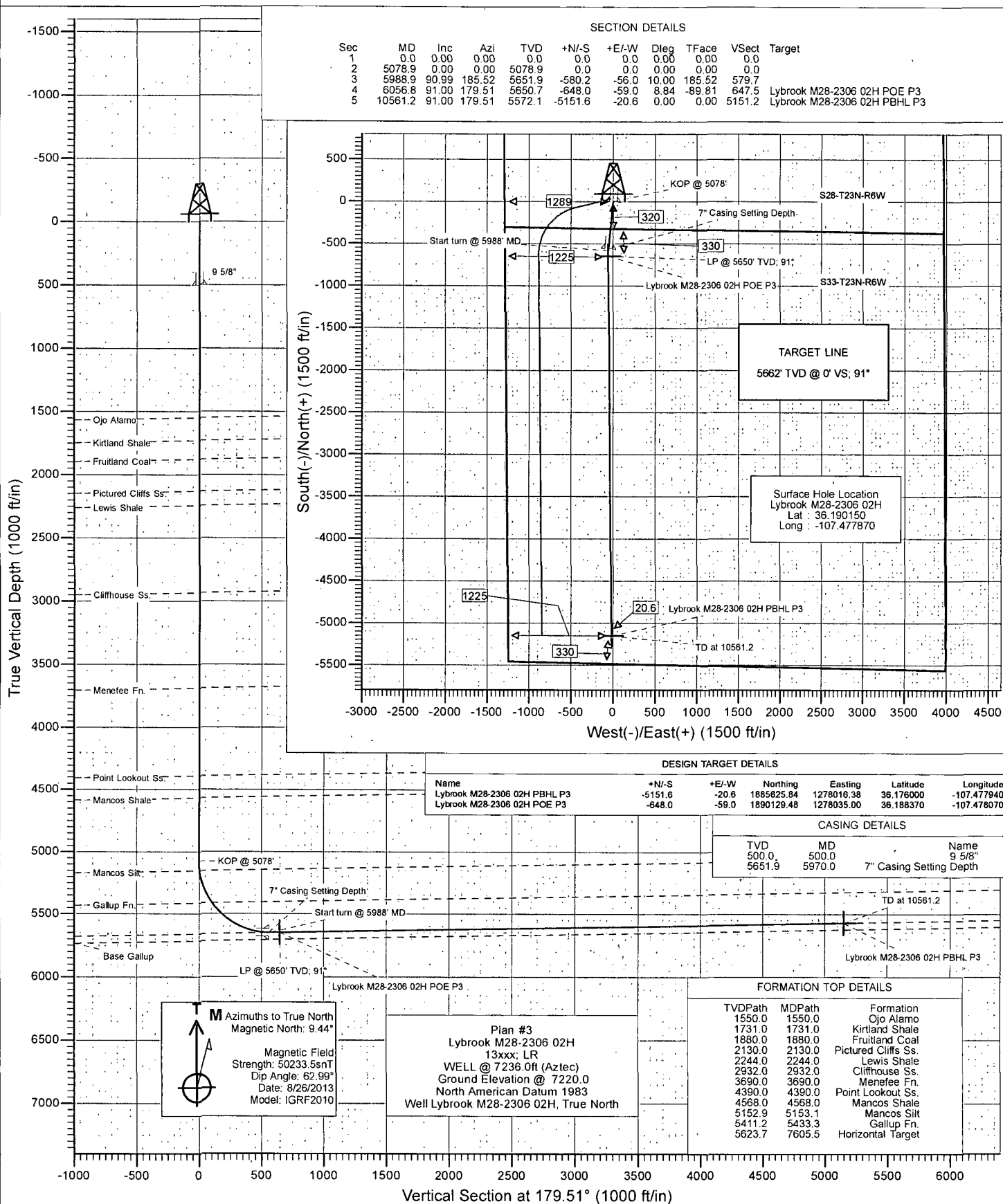
Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269



Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook M28-2306 02H
 Wellbore: Hz
 Design: Plan #3



Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 02H
Wellbore: Hz
Design: Plan #3

Local Co-ordinate Reference: Well Lybrook M28-2306 02H
TVD Reference: WELL @ 7236.0ft (Aztec)
MD Reference: WELL @ 7236.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature

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	Lybrook				
Site Position:		Northing:	1,882,676.45 ft	Latitude:	36.168210
From:	Lat/Long	Easting:	1,287,068.90 ft	Longitude:	-107.447150
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-0.71 °

Well	Lybrook M28-2306 02H					
Well Position	+N/-S	0.0 ft	Northing:	1,890,776.73 ft	Latitude:	36.190150
	+E/-W	0.0 ft	Easting:	1,278,102.22 ft	Longitude:	-107.477870
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,220.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	8/26/2013	9.44	62.99	50,233

Design	Plan #3				
Audit Notes:					
Version:	Phase:	PLAN		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	179.51	

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	
5,078.9	0.00	0.00	5,078.9	0.0	0.0	0.00	0.00	0.00	0.00	
5,988.9	90.99	185.52	5,651.9	-580.2	-56.0	10.00	10.00	0.00	185.52	
6,056.8	91.00	179.51	5,650.7	-648.0	-59.0	8.84	0.02	-8.84	-89.81	Lybrook M28-2306 02
10,561.2	91.00	179.51	5,572.1	-5,151.6	-20.6	0.00	0.00	0.00	0.00	Lybrook M28-2306 02

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 02H
Wellbore: Hz
Design: Plan #3

Local Co-ordinate Reference: Well Lybrook M28-2306 02H
TVD Reference: WELL @ 7236.0ft (Aztec)
MD Reference: WELL @ 7236.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	9 5/8"
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,550.0	0.00	0.00	1,550.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,731.0	0.00	0.00	1,731.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,880.0	0.00	0.00	1,880.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
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	
2,130.0	0.00	0.00	2,130.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,244.0	0.00	0.00	2,244.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
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	
2,932.0	0.00	0.00	2,932.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	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	
3,690.0	0.00	0.00	3,690.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,200.0	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	
4,390.0	0.00	0.00	4,390.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook M28-2306 02H
 Wellbore: Hz
 Design: Plan #3

Local Co-ordinate Reference: Well Lybrook M28-2306 02H
 TVD Reference: WELL @ 7236.0ft (Aztec)
 MD Reference: WELL @ 7236.0ft (Aztec)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
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	
4,568.0	0.00	0.00	4,568.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	
5,078.9	0.00	0.00	5,078.9	0.0	0.0	0.0	0.00	0.00	KOP @ 5078'
5,100.0	2.11	185.52	5,100.0	-0.4	0.0	0.4	10.00	10.00	
5,153.1	7.42	185.52	5,152.9	-4.8	-0.5	4.8	10.00	10.00	Mancos Silt
5,200.0	12.11	185.52	5,199.1	-12.7	-1.2	12.7	10.00	10.00	
5,300.0	22.11	185.52	5,294.6	-41.9	-4.1	41.9	10.00	10.00	
5,400.0	32.10	185.52	5,383.5	-87.2	-8.4	87.2	10.00	10.00	
5,433.3	35.44	185.52	5,411.2	-105.7	-10.2	105.6	10.00	10.00	Gallup Fn.
5,500.0	42.10	185.52	5,463.1	-147.2	-14.2	147.1	10.00	10.00	
5,600.0	52.10	185.52	5,531.1	-220.0	-21.3	219.8	10.00	10.00	
5,700.0	62.10	185.52	5,585.3	-303.5	-29.3	303.2	10.00	10.00	
5,800.0	72.10	185.52	5,624.2	-395.1	-38.2	394.7	10.00	10.00	
5,900.0	82.10	185.52	5,646.5	-492.0	-47.5	491.5	10.00	10.00	
5,970.0	89.10	185.52	5,651.9	-561.4	-54.2	560.9	10.00	10.00	7" Casing Setting Depth
5,988.9	90.99	185.52	5,651.9	-580.2	-56.0	579.7	10.00	10.00	Start turn @ 5988' MD
6,000.0	90.99	184.54	5,651.7	-591.3	-57.0	590.7	8.84	0.03	
6,056.8	91.00	179.51	5,650.7	-648.0	-59.0	647.5	8.84	0.02	LP @ 5650' TVD; 91°
6,100.0	91.00	179.51	5,649.9	-691.2	-58.7	690.7	0.00	0.00	
6,200.0	91.00	179.51	5,648.2	-791.2	-57.8	790.6	0.00	0.00	
6,300.0	91.00	179.51	5,646.4	-891.2	-57.0	890.6	0.00	0.00	
6,400.0	91.00	179.51	5,644.7	-991.1	-56.1	990.6	0.00	0.00	
6,500.0	91.00	179.51	5,643.0	-1,091.1	-55.2	1,090.6	0.00	0.00	
6,600.0	91.00	179.51	5,641.2	-1,191.1	-54.4	1,190.6	0.00	0.00	
6,700.0	91.00	179.51	5,639.5	-1,291.1	-53.5	1,290.6	0.00	0.00	
6,800.0	91.00	179.51	5,637.7	-1,391.1	-52.7	1,390.6	0.00	0.00	
6,900.0	91.00	179.51	5,636.0	-1,491.0	-51.8	1,490.5	0.00	0.00	
7,000.0	91.00	179.51	5,634.2	-1,591.0	-51.0	1,590.5	0.00	0.00	
7,100.0	91.00	179.51	5,632.5	-1,691.0	-50.1	1,690.5	0.00	0.00	
7,200.0	91.00	179.51	5,630.7	-1,791.0	-49.3	1,790.5	0.00	0.00	
7,300.0	91.00	179.51	5,629.0	-1,891.0	-48.4	1,890.5	0.00	0.00	
7,400.0	91.00	179.51	5,627.3	-1,990.9	-47.6	1,990.5	0.00	0.00	
7,500.0	91.00	179.51	5,625.5	-2,090.9	-46.7	2,090.4	0.00	0.00	
7,600.0	91.00	179.51	5,623.8	-2,190.9	-45.9	2,190.4	0.00	0.00	
7,605.5	91.00	179.51	5,623.7	-2,196.4	-45.8	2,196.0	0.00	0.00	Horizontal Target
7,700.0	91.00	179.51	5,622.0	-2,290.9	-45.0	2,290.4	0.00	0.00	
7,800.0	91.00	179.51	5,620.3	-2,390.9	-44.2	2,390.4	0.00	0.00	
7,900.0	91.00	179.51	5,618.5	-2,490.8	-43.3	2,490.4	0.00	0.00	
8,000.0	91.00	179.51	5,616.8	-2,590.8	-42.5	2,590.4	0.00	0.00	
8,100.0	91.00	179.51	5,615.0	-2,690.8	-41.6	2,690.4	0.00	0.00	
8,200.0	91.00	179.51	5,613.3	-2,790.8	-40.8	2,790.3	0.00	0.00	
8,300.0	91.00	179.51	5,611.6	-2,890.8	-39.9	2,890.3	0.00	0.00	
8,400.0	91.00	179.51	5,609.8	-2,990.8	-39.1	2,990.3	0.00	0.00	
8,500.0	91.00	179.51	5,608.1	-3,090.7	-38.2	3,090.3	0.00	0.00	
8,600.0	91.00	179.51	5,606.3	-3,190.7	-37.4	3,190.3	0.00	0.00	
8,700.0	91.00	179.51	5,604.6	-3,290.7	-36.5	3,290.3	0.00	0.00	

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 02H
Wellbore: Hz
Design: Plan #3

Local Co-ordinate Reference: Well Lybrook M28-2306 02H
TVD Reference: WELL @ 7236.0ft (Aztec)
MD Reference: WELL @ 7236.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,800.0	91.00	179.51	5,602.8	-3,390.7	-35.7	3,390.2	0.00	0.00	
8,900.0	91.00	179.51	5,601.1	-3,490.7	-34.8	3,490.2	0.00	0.00	
9,000.0	91.00	179.51	5,599.3	-3,590.6	-33.9	3,590.2	0.00	0.00	
9,100.0	91.00	179.51	5,597.6	-3,690.6	-33.1	3,690.2	0.00	0.00	
9,200.0	91.00	179.51	5,595.8	-3,790.6	-32.2	3,790.2	0.00	0.00	
9,300.0	91.00	179.51	5,594.1	-3,890.6	-31.4	3,890.2	0.00	0.00	
9,400.0	91.00	179.51	5,592.4	-3,990.6	-30.5	3,990.2	0.00	0.00	
9,500.0	91.00	179.51	5,590.6	-4,090.5	-29.7	4,090.1	0.00	0.00	
9,600.0	91.00	179.51	5,588.9	-4,190.5	-28.8	4,190.1	0.00	0.00	
9,700.0	91.00	179.51	5,587.1	-4,290.5	-28.0	4,290.1	0.00	0.00	
9,800.0	91.00	179.51	5,585.4	-4,390.5	-27.1	4,390.1	0.00	0.00	
9,900.0	91.00	179.51	5,583.6	-4,490.5	-26.3	4,490.1	0.00	0.00	
10,000.0	91.00	179.51	5,581.9	-4,590.5	-25.4	4,590.1	0.00	0.00	
10,100.0	91.00	179.51	5,580.1	-4,690.4	-24.6	4,690.1	0.00	0.00	
10,200.0	91.00	179.51	5,578.4	-4,790.4	-23.7	4,790.0	0.00	0.00	
10,300.0	91.00	179.51	5,576.7	-4,890.4	-22.9	4,890.0	0.00	0.00	
10,400.0	91.00	179.51	5,574.9	-4,990.4	-22.0	4,990.0	0.00	0.00	
10,500.0	91.00	179.51	5,573.2	-5,090.4	-21.2	5,090.0	0.00	0.00	
10,561.2	91.00	179.51	5,572.1	-5,151.6	-20.6	5,151.2	0.00	0.00	TD at 10561.2

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Lybrook M28-2306 02H	0.00	0.00	5,695.6	-659.0	590.2	1,890,110.35	1,278,684.08	36.188340	-107.475870
- plan misses target center by 650.7ft at 6072.5ft MD (5650.4 TVD, -663.7 N, -58.9 E)									
- Point									
Lybrook M28-2306 02H	0.00	0.00	5,572.1	-5,151.6	-20.6	1,885,625.84	1,278,016.38	36.176000	-107.477940
- plan hits target center									
- Point									
Lybrook M28-2306 02H	0.00	0.00	5,650.7	-648.0	-59.0	1,890,129.48	1,278,035.00	36.188370	-107.478070
- plan hits target center									
- Point									
Lybrook M28-2306 02H	0.00	0.00	5,640.9	-5,162.5	628.7	1,885,606.71	1,278,665.56	36.175970	-107.475740
- plan misses target center by 653.1ft at 10561.2ft MD (5572.1 TVD, -5151.6 N, -20.6 E)									
- Point									
Lybrook M28-2306 02H	0.00	0.00	5,679.9	-5,162.5	628.7	1,885,606.71	1,278,665.56	36.175970	-107.475740
- plan misses target center by 658.3ft at 10561.2ft MD (5572.1 TVD, -5151.6 N, -20.6 E)									
- Point									
Lybrook M28-2306 02H	0.00	0.00	5,656.6	-659.0	590.2	1,890,110.35	1,278,684.08	36.188340	-107.475870
- plan misses target center by 649.2ft at 6073.2ft MD (5650.4 TVD, -664.4 N, -58.9 E)									
- Point									

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 02H
Wellbore: Hz
Design: Plan #3

Local Co-ordinate Reference: Well Lybrook M28-2306 02H
TVD Reference: WELL @ 7236.0ft (Aztec)
MD Reference: WELL @ 7236.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
5,970.0	5,651.9	7" Casing Setting Depth	0.000	0.000
500.0	500.0	9 5/8"	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,550.0	1,550.0	Ojo Alamo		-1.00	179.51
1,731.0	1,731.0	Kirtland Shale		-1.00	179.51
1,880.0	1,880.0	Fruitland Coal		-1.00	179.51
2,130.0	2,130.0	Pictured Cliffs Ss.		-1.00	179.51
2,244.0	2,244.0	Lewis Shale		-1.00	179.51
2,932.0	2,932.0	Cliffhouse Ss.		-1.00	179.51
3,690.0	3,690.0	Menefee Fn.		-1.00	179.51
4,390.0	4,390.0	Point Lookout Ss.		-1.00	179.51
4,568.0	4,568.0	Mancos Shale		-1.00	179.51
5,153.1	5,153.0	Mancos Silt		-1.00	179.51
5,433.3	5,413.0	Gallup Fn.		-1.00	179.51
7,605.5	5,662.0	Horizontal Target		-1.00	179.51

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N-S (ft)	+E-W (ft)	
5,078.9	5,078.9	0.0	0.0	KOP @ 5078'
5,988.9	5,651.9	-580.2	-56.0	Start turn @ 5988' MD
6,056.8	5,650.7	-648.0	-59.0	LP @ 5650' TVD; 91°
10,561.2	5,572.1	-5,151.6	-20.6	TD at 10561.2

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

Lybrook

Lybrook M28-2306 02H

Hz

Plan #3

Anticollision Report

02 January, 2014

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Reference Site: Lybrook
Site Error: 0.0ft
Reference Well: Lybrook M28-2306 02H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #3

Local Co-ordinate Reference: Well Lybrook M28-2306 02H
TVD Reference: WELL @ 7236.0ft (Aztec)
MD Reference: WELL @ 7236.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference	Plan #3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,219.4ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date 1/2/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,561.1	Plan #3 (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						
Lybrook						
Lybrook M28-2306 01H - Hz - Plan #3	4,963.8	4,963.8	42.2	24.9	2.442	CC
Lybrook M28-2306 01H - Hz - Plan #3	5,000.0	4,999.8	42.2	24.8	2.426	ES, SF

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Reference Site: Lybrook
Site Error: 0.0ft
Reference Well: Lybrook M28-2306 02H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #3

Local Co-ordinate Reference: Well Lybrook M28-2306 02H
TVD Reference: WELL @ 7236.0ft (Aztec)
MD Reference: WELL @ 7236.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design Lybrook - Lybrook M28-2306 01H - Hz - Plan #3													Offset Site Error: 0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-39.03	32.8	-26.6	42.2				
100.0	100.0	100.0	100.0	0.1	0.1	-39.03	32.8	-26.6	42.2	41.9	0.29	143.850	
200.0	200.0	200.0	200.0	0.3	0.3	-39.03	32.8	-26.6	42.2	41.5	0.64	65.671	
300.0	300.0	300.0	300.0	0.5	0.5	-39.03	32.8	-26.6	42.2	41.2	0.99	42.547	
400.0	400.0	400.0	400.0	0.7	0.7	-39.03	32.8	-26.6	42.2	40.8	1.34	31.467	
500.0	500.0	500.0	500.0	0.8	0.8	-39.03	32.8	-26.6	42.2	40.5	1.69	24.966	
600.0	600.0	600.0	600.0	1.0	1.0	-39.03	32.8	-26.6	42.2	40.1	2.04	20.691	
700.0	700.0	700.0	700.0	1.2	1.2	-39.03	32.8	-26.6	42.2	39.8	2.39	17.666	
800.0	800.0	800.0	800.0	1.4	1.4	-39.03	32.8	-26.6	42.2	39.4	2.74	15.413	
900.0	900.0	900.0	900.0	1.5	1.5	-39.03	32.8	-26.6	42.2	39.1	3.09	13.669	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-39.03	32.8	-26.6	42.2	38.7	3.43	12.280	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-39.03	32.8	-26.6	42.2	38.4	3.78	11.147	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-39.03	32.8	-26.6	42.2	38.0	4.13	10.206	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-39.03	32.8	-26.6	42.2	37.7	4.48	9.411	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-39.03	32.8	-26.6	42.2	37.3	4.83	8.731	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-39.03	32.8	-26.6	42.2	37.0	5.18	8.142	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-39.03	32.8	-26.6	42.2	36.6	5.53	7.628	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-39.03	32.8	-26.6	42.2	36.3	5.88	7.175	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-39.03	32.8	-26.6	42.2	36.0	6.23	6.773	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-39.03	32.8	-26.6	42.2	35.6	6.58	6.414	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-39.03	32.8	-26.6	42.2	35.3	6.93	6.090	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	-39.03	32.8	-26.6	42.2	34.9	7.27	5.798	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	-39.03	32.8	-26.6	42.2	34.6	7.62	5.533	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	-39.03	32.8	-26.6	42.2	34.2	7.97	5.290	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	-39.03	32.8	-26.6	42.2	33.9	8.32	5.069	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	-39.03	32.8	-26.6	42.2	33.5	8.67	4.865	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	-39.03	32.8	-26.6	42.2	33.2	9.02	4.676	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	-39.03	32.8	-26.6	42.2	32.8	9.37	4.502	
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	-39.03	32.8	-26.6	42.2	32.5	9.72	4.340	
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	-39.03	32.8	-26.6	42.2	32.1	10.07	4.190	
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	-39.03	32.8	-26.6	42.2	31.8	10.42	4.049	
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	-39.03	32.8	-26.6	42.2	31.4	10.77	3.918	
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	-39.03	32.8	-26.6	42.2	31.1	11.11	3.795	
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	-39.03	32.8	-26.6	42.2	30.7	11.46	3.679	
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	-39.03	32.8	-26.6	42.2	30.4	11.81	3.571	
3,500.0	3,500.0	3,500.0	3,500.0	6.1	6.1	-39.03	32.8	-26.6	42.2	30.0	12.16	3.468	
3,600.0	3,600.0	3,600.0	3,600.0	6.3	6.3	-39.03	32.8	-26.6	42.2	29.7	12.51	3.371	
3,700.0	3,700.0	3,700.0	3,700.0	6.4	6.4	-39.03	32.8	-26.6	42.2	29.3	12.86	3.280	
3,800.0	3,800.0	3,800.0	3,800.0	6.6	6.6	-39.03	32.8	-26.6	42.2	29.0	13.21	3.193	
3,900.0	3,900.0	3,900.0	3,900.0	6.8	6.8	-39.03	32.8	-26.6	42.2	28.6	13.56	3.111	
4,000.0	4,000.0	4,000.0	4,000.0	7.0	7.0	-39.03	32.8	-26.6	42.2	28.3	13.91	3.033	
4,100.0	4,100.0	4,100.0	4,100.0	7.1	7.1	-39.03	32.8	-26.6	42.2	27.9	14.26	2.959	
4,200.0	4,200.0	4,200.0	4,200.0	7.3	7.3	-39.03	32.8	-26.6	42.2	27.6	14.60	2.888	
4,300.0	4,300.0	4,300.0	4,300.0	7.5	7.5	-39.03	32.8	-26.6	42.2	27.2	14.95	2.821	
4,400.0	4,400.0	4,400.0	4,400.0	7.7	7.7	-39.03	32.8	-26.6	42.2	26.9	15.30	2.756	
4,500.0	4,500.0	4,500.0	4,500.0	7.8	7.8	-39.03	32.8	-26.6	42.2	26.5	15.65	2.695	
4,600.0	4,600.0	4,600.0	4,600.0	8.0	8.0	-39.03	32.8	-26.6	42.2	26.2	16.00	2.636	
4,700.0	4,700.0	4,700.0	4,700.0	8.2	8.2	-39.03	32.8	-26.6	42.2	25.8	16.35	2.580	
4,800.0	4,800.0	4,800.0	4,800.0	8.3	8.3	-39.03	32.8	-26.6	42.2	25.5	16.70	2.526	
4,900.0	4,900.0	4,900.0	4,900.0	8.5	8.5	-39.03	32.8	-26.6	42.2	25.1	17.05	2.474	
4,963.8	4,963.8	4,963.8	4,963.8	8.6	8.6	-39.03	32.8	-26.6	42.2	24.9	17.27	2.442 CC	
5,000.0	5,000.0	4,999.8	4,999.8	8.7	8.7	-39.09	32.8	-26.6	42.2	24.6	17.40	2.428 ES, SF	

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
Project: Sandoval County, NM
Reference Site: Lybrook
Site Error: 0.0ft
Reference Well: Lybrook M28-2306 02H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #3

Local Co-ordinate Reference: Well Lybrook M28-2306 02H
TVD Reference: WELL @ 7236.0ft (Aztec)
MD Reference: WELL @ 7236.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design Lybrook - Lybrook M28-2306 01H - Hz - Plan #3														Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
5,100.0	5,100.0	5,095.6	5,095.0	8.9	8.9	125.27	30.5	-35.6	47.4	29.7	17.74	2.673			
5,200.0	5,199.1	5,186.4	5,182.7	9.1	9.1	114.75	25.0	-58.3	70.3	52.3	18.04	3.897			
5,300.0	5,294.6	5,268.7	5,258.1	9.3	9.3	109.89	17.1	-90.2	110.6	92.3	18.36	6.025			
5,400.0	5,383.5	5,340.6	5,319.5	9.6	9.6	106.25	8.3	-126.4	164.7	145.9	18.77	8.776			
5,500.0	5,463.1	5,400.0	5,366.4	10.0	9.9	101.59	-0.4	-161.8	229.5	210.2	19.35	11.883			
5,600.0	5,531.1	5,450.0	5,402.8	10.6	10.2	95.24	-8.6	-195.1	302.3	282.1	20.15	15.002			
5,700.0	5,585.3	5,500.0	5,436.0	11.4	10.6	88.03	-17.5	-231.3	380.6	359.5	21.12	18.023			
5,800.0	5,624.2	5,531.8	5,455.4	12.5	10.9	78.06	-23.5	-255.8	462.5	440.6	21.94	21.078			
5,900.0	5,646.5	5,560.5	5,471.7	13.7	11.2	67.66	-29.1	-278.7	546.1	523.7	22.35	24.437			
6,000.0	5,651.7	5,583.1	5,483.7	15.0	11.5	58.01	-33.7	-297.4	629.9	607.6	22.32	28.224			
6,100.0	5,649.9	5,600.0	5,492.2	16.4	11.7	55.62	-37.2	-311.5	718.7	695.7	23.06	31.172			
6,200.0	5,648.2	5,613.9	5,498.8	17.9	11.9	57.90	-40.1	-323.4	810.5	785.8	24.74	32.760			
6,300.0	5,646.4	5,679.2	5,641.8	19.4	27.9	89.68	-898.1	-883.1	826.2	785.7	40.52	20.390			
6,400.0	5,644.7	5,694.2	5,640.1	21.0	28.9	89.68	-998.1	-882.3	826.2	782.7	43.56	18.966			
6,500.0	5,643.0	6,994.2	5,638.4	22.6	30.1	89.68	-1,098.1	-881.4	826.2	779.6	46.67	17.704			
6,600.0	5,641.2	7,094.2	5,636.6	24.2	31.3	89.68	-1,198.0	-880.6	826.2	776.4	49.83	16.581			
6,700.0	5,639.5	7,194.2	5,634.9	25.8	32.5	89.68	-1,298.0	-879.7	826.2	773.2	53.03	15.580			
6,800.0	5,637.7	7,294.2	5,633.1	27.4	33.8	89.68	-1,398.0	-878.9	826.2	770.0	56.27	14.683			
6,900.0	5,636.0	7,394.2	5,631.4	29.1	35.1	89.68	-1,498.0	-878.0	826.2	766.7	59.54	13.877			
7,000.0	5,634.2	7,494.2	5,629.6	30.7	36.5	89.68	-1,598.0	-877.2	826.2	763.4	62.84	13.149			
7,100.0	5,632.5	7,594.2	5,627.9	32.4	37.9	89.68	-1,697.9	-876.3	826.2	760.1	66.15	12.490			
7,200.0	5,630.7	7,694.2	5,626.1	34.1	39.4	89.68	-1,797.9	-875.5	826.2	756.8	69.49	11.890			
7,300.0	5,629.0	7,794.2	5,624.4	35.8	40.8	89.68	-1,897.9	-874.6	826.3	753.4	72.84	11.343			
7,400.0	5,627.3	7,894.2	5,622.6	37.5	42.3	89.68	-1,997.9	-873.8	826.3	750.0	76.21	10.842			
7,500.0	5,625.5	7,994.2	5,620.9	39.2	43.8	89.68	-2,097.9	-872.9	826.3	746.7	79.58	10.382			
7,600.0	5,623.8	8,094.2	5,619.2	40.9	45.4	89.68	-2,197.9	-872.1	826.3	743.3	82.97	9.958			
7,700.0	5,622.0	8,194.2	5,617.4	42.6	46.9	89.68	-2,297.8	-871.2	826.3	739.9	86.37	9.566			
7,800.0	5,620.3	8,294.2	5,615.7	44.3	48.5	89.68	-2,397.8	-870.4	826.3	736.5	89.78	9.203			
7,900.0	5,618.5	8,394.2	5,613.9	46.0	50.0	89.68	-2,497.8	-869.5	826.3	733.1	93.19	8.866			
8,000.0	5,616.8	8,494.2	5,612.2	47.7	51.6	89.68	-2,597.8	-868.7	826.3	729.6	96.61	8.552			
8,100.0	5,615.0	8,594.2	5,610.4	49.5	53.2	89.68	-2,697.8	-867.8	826.3	726.2	100.04	8.259			
8,200.0	5,613.3	8,694.2	5,608.7	51.2	54.9	89.68	-2,797.7	-867.0	826.3	722.8	103.47	7.985			
8,300.0	5,611.6	8,794.2	5,606.9	52.9	56.5	89.68	-2,897.7	-866.1	826.3	719.4	106.91	7.729			
8,400.0	5,609.8	8,894.2	5,605.2	54.6	58.1	89.68	-2,997.7	-865.3	826.3	715.9	110.35	7.488			
8,500.0	5,608.1	8,994.2	5,603.4	56.4	59.7	89.68	-3,097.7	-864.4	826.3	712.5	113.79	7.261			
8,600.0	5,606.3	9,094.2	5,601.7	58.1	61.4	89.68	-3,197.7	-863.6	826.3	709.0	117.24	7.047			
8,700.0	5,604.6	9,194.2	5,599.9	59.8	63.0	89.68	-3,297.6	-862.7	826.3	705.6	120.70	6.846			
8,800.0	5,602.8	9,294.2	5,598.2	61.6	64.7	89.68	-3,397.6	-861.9	826.3	702.1	124.15	6.655			
8,900.0	5,601.1	9,394.2	5,596.5	63.3	66.4	89.68	-3,497.6	-861.0	826.3	698.7	127.61	6.475			
9,000.0	5,599.3	9,494.2	5,594.7	65.0	68.0	89.68	-3,597.6	-860.2	826.3	695.2	131.07	6.304			
9,100.0	5,597.6	9,594.2	5,593.0	66.8	69.7	89.68	-3,697.6	-859.3	826.3	691.7	134.53	6.142			
9,200.0	5,595.8	9,694.2	5,591.2	68.5	71.4	89.68	-3,797.6	-858.5	826.3	688.3	138.00	5.988			
9,300.0	5,594.1	9,794.2	5,589.5	70.2	73.1	89.68	-3,897.5	-857.6	826.3	684.8	141.47	5.841			
9,400.0	5,592.4	9,894.2	5,587.7	72.0	74.7	89.68	-3,997.5	-856.8	826.3	681.3	144.94	5.701			
9,500.0	5,590.6	9,994.2	5,586.0	73.7	76.4	89.68	-4,097.5	-855.9	826.3	677.9	148.41	5.568			
9,600.0	5,588.9	10,094.2	5,584.2	75.5	78.1	89.68	-4,197.5	-855.1	826.3	674.4	151.88	5.440			
9,700.0	5,587.1	10,194.2	5,582.5	77.2	79.8	89.68	-4,297.5	-854.2	826.3	670.9	155.36	5.319			
9,800.0	5,585.4	10,294.2	5,580.7	78.9	81.5	89.68	-4,397.4	-853.4	826.3	667.5	158.83	5.202			
9,900.0	5,583.6	10,394.2	5,579.0	80.7	83.2	89.68	-4,497.4	-852.5	826.3	664.0	162.31	5.091			
10,000.0	5,581.9	10,494.2	5,577.3	82.4	84.9	89.68	-4,597.4	-851.7	826.3	660.5	165.79	4.984			
10,100.0	5,580.1	10,594.2	5,575.5	84.2	86.6	89.68	-4,697.4	-850.8	826.3	657.0	169.27	4.882			
10,200.0	5,578.4	10,694.2	5,573.8	85.9	88.3	89.68	-4,797.4	-850.0	826.3	653.5	172.75	4.783			

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
Project: Sandoval County, NM
Reference Site: Lybrook
Site Error: 0.0ft
Reference Well: Lybrook M28-2306 02H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #3

Local Co-ordinate Reference: Well Lybrook M28-2306 02H
TVD Reference: WELL @ 7236.0ft (Aztec)
MD Reference: WELL @ 7236.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design Lybrook - Lybrook M28-2306 01H - Hz - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
10,300.0	5,576.7	10,794.2	5,572.0	87.6	90.0	89.68	-4,897.3	-849.1	826.3	650.1	176.23	4.689		
10,400.0	5,574.9	10,894.2	5,570.3	89.4	91.7	89.68	-4,997.3	-848.3	826.3	646.6	179.72	4.598		
10,500.0	5,573.2	10,994.2	5,568.5	91.1	93.4	89.68	-5,097.3	-847.4	826.3	643.1	183.20	4.510		
10,521.5	5,572.8	11,015.6	5,568.2	91.5	93.8	89.68	-5,118.8	-847.2	826.3	642.4	183.95	4.492		
10,561.2	5,572.1	11,030.7	5,567.9	92.2	94.1	89.68	-5,133.9	-847.1	826.7	641.8	184.90	4.471		

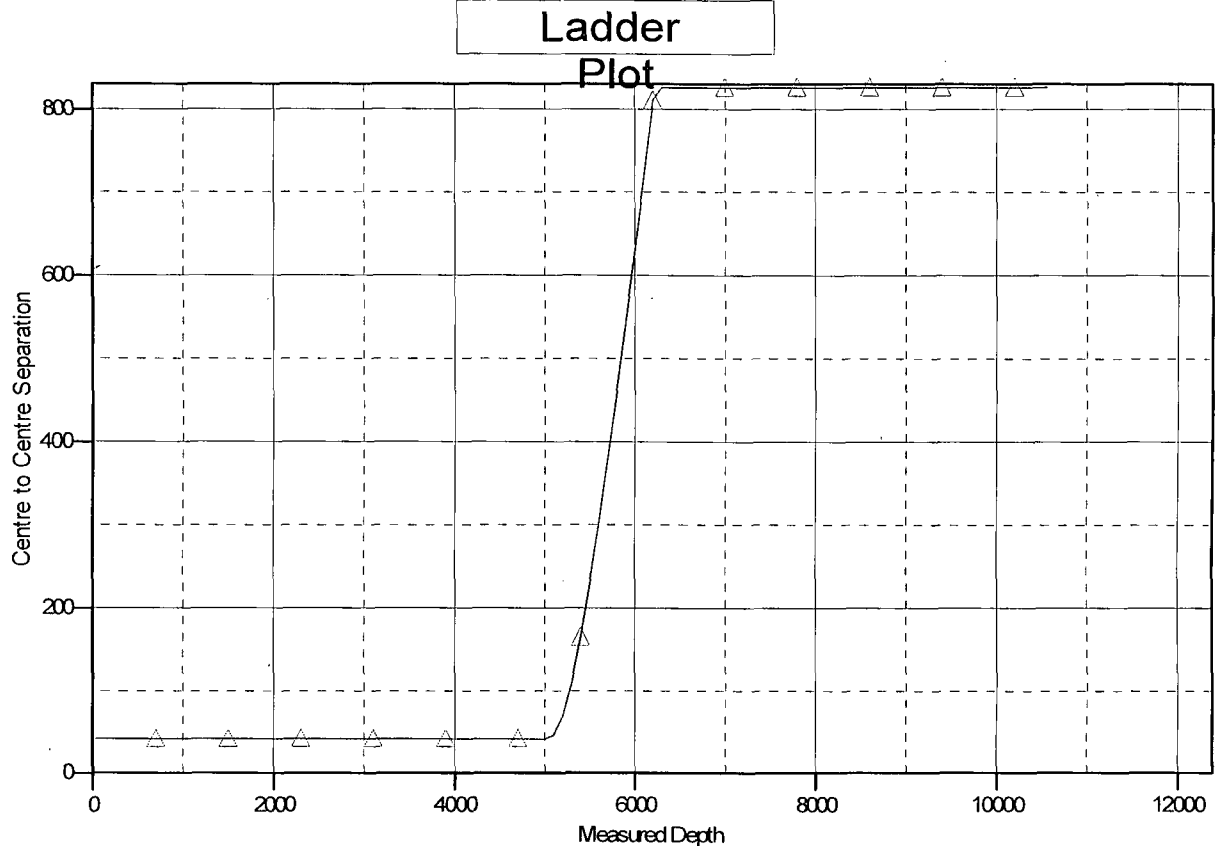
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Reference Site: Lybrook
Site Error: 0.0ft
Reference Well: Lybrook M28-2306 02H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #3

Local Co-ordinate Reference: Well Lybrook M28-2306 02H
TVD Reference: WELL @ 7236.0ft (Aztec)
MD Reference: WELL @ 7236.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 7236.0ft (Aztec)
Offset Depths are relative to Offset Datum
Central Meridian is -106.250000 °

Coordinates are relative to: Lybrook M28-2306 02H
Coordinate System is US State Plane 1983, New Mexico Central Zone
Grid Convergence at Surface is: -0.73°



LEGEND

▲ LybrookM28-2306 01H, Hz, Plan #3 V0

Lybrook M28-2306 02H
SHL: SWSW Section 28, T23N, R6W
320 FSL and 1289 FWL
BHL: SWSW Section 33, T23N, R6W
330 FSL and 1225 FWL
Sandoval, New Mexico
Lease Number: NMNM 112953

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.	1550
Kirtland Shale	1731
Fruitland Coal	1880
Pictured Cliffs Ss.	2130
Lewis Shale	2244
Cliffhouse Ss.	2932
Menefee Fn.	3690
Point Lookout Ss.	4390
Mancos Shale	4568
Mancos Silt	5153
Gallup Fn.	5413

The referenced surface elevation is 7220', KB 7236'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1880
Oil/Gas	Pictured Cliffs Ss.	2130
Oil/Gas	Cliffhouse Ss.	2932
Gas	Menefee Fn.	3690
Oil/Gas	Point Lookout Ss.	4390
Oil/Gas	Mancos Shale	4568
Oil/Gas	Mancos Silt	5153
Oil/Gas	Gallup Fn.	5413

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 M28-2306 02H

SHL: SWSW Section 28, T23N, R6W
320 FSL and 1289 FWL

BHL: SWSW Section 33, T23N, R6W
330 FSL and 1225 FWL

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- g) BOP controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.
- h) BOP testing procedures and testing frequency will conform to Onshore Order No. 2.
- i) BOP remote controls shall be located on the rig floor at a location readily accessible to the driller. Master controls shall be on the ground at the accumulator and shall have the capability to function all preventers.
- j) The kill line shall be 2-inch minimum and contain two kill line valves, one of which shall be a check valve.
- k) The choke line shall be a 2-inch minimum and contain two choke line valves (2-inch minimum).
- l) The choke and manifold shall contain two adjustable chokes.
- m) Hand wheels shall be installed on all ram preventers.
- n) Safety valves and wrenches (with subs for drill string connections) shall be available on the rig floor at all times.
- o) Inside BOP or float sub shall also be available on the rig floor at all times.

Proposed BOP and choke manifold arrangements are attached.

4. CASING & CEMENTING PROGRAM

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

- a) The proposed casing design is as follows:

Casing	Depth	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'-5970'MD	8 3/4"	7"	26#	J55, LTC New
Production Liner	5770'-10561'MD	6 1/8"	4 1/2"	11.6#	B80*, LTC New

Casing String				Casing Strength Properties			Minimum Design Factors		
Size	Weight (lb/ft)	Grade	Connection	Collapse (psi)	Burst (psi)	Tensile (1000lb)	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 1/2"	11.6	B80	LTC	6350	7780	201	1.125	1.1	1.5

Casing design is subject to revision based on geologic conditions encountered.

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

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b) The proposed cementing program is as follows:

Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

Casing	Depth	Cement Volume (sacks)	Cement Type&Yield	Designed TOC	Centralizers
Conductor	60'	100sk	Type I Neat 14.8 ppg	Surface	None
Surface	500'	178sk	Type III Cement + 1% CaCl + 0.25lb/sk Cello Flake + 0.2% FL, 14.6ppg, 1.38cuf/sk	Surface	1 per joint on bottom 3 joints
Intermediate	5970'MD	30% open hole excess Stage 1 Lead: 243sks Stage 1 Tail: 167sks Stage 2 Lead: 193sks	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 per joint for bottom 3 joints, 1 every 3 joints for remaining joints
Production Liner*	5770'-10561'	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 a 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 5078'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5572'/10561'	Gallup

Lybrook M28-2306 02H
SHL: SWSW Section 28, T23N, R6W
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Sandoval, New Mexico
Lease Number: NMNM 112953

6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

Hole Size (in)	Depth (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60' TVD	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0-500' TVD	Fresh Water	8.4-8.6	60-70	NC
8 3/4"	500'TVD- 5652'TVD/5970'MD	Fresh Water LSND	8.5-8.8	40-50	8-10

b) Intermediate Casing Point to TD:

Hole Size (in)	MD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	5970'-10561'	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 and LOGGING

- a) Drill Stem Testing – None anticipated.
- b) Coring – None anticipated.
- c) Mud 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 +/- 2645 psi based on a 9.0 ppg at 5652' TVD of the landing point of the horizontal lateral. 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.

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**SHL: SWSW Section 28, T23N, R6W
320 FSL and 1289 FWL**

**BHL: SWSW Section 33, T23N, R6W
330 FSL and 1225 FWL**

Sandoval, New Mexico

Lease Number: NMNM 112953

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on June 11, 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.

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 5078', 8 3/4" hole size,
- 5) PU directional tools and start curve at 10deg/100' build rate
- 6) Drill to casing point of 5970' MD
- 7) R&C 7" casing, circ cmt to surface, switch to OBM
- 8) Land at 90deg, drill 4504' lateral to 10561', run 4 1/2" liner with external swellable csg packers