

State of New Mexico
Energy, Minerals and Natural Resources Department

usana Martinez
Governor

David Martin
Cabinet Secretary

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

Jami Bailey, Division Director
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions
listed below are made in accordance with OCD Rule 19.15.7.11
and are in addition to the actions approved by BLM on the
following 3160-4 or 3160-5 form.

Operator Signature Date: 9/2/2014

Well information:

API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf_Owner	UL	Sec	Twp	N/S	Rng	W/E	Feet	NS	Ft	EW
30-045-35527-00-00	LYBROOK M35 2308	002H	ENCANA OIL & GAS (USA) INC.	O	N	San Juan				35	23	N	8 W	344	S	1329	W

Application Type:

- ☐ P&A ☒ Drilling/Casing Change ☐ Location Change
- ☐ Recomplete/DHC (For hydraulic fracturing operations review EPA Underground injection control Guidance #84)
- ☐ Other:

Conditions of Approval:

Notify NMOCD 24hrs prior to beginning operations
Hold C-104 for: NSL/ "As Drilled" C102/ Directional Survey
Adhere to original Conditions of approval.

(For hydraulic fracturing operations review EPA Underground injection control Guidance #84)

NMOCD Approved by Signature

9-12-14
Date

RECEIVED

SEP 03 2014

Form 3160-5
(August 2007)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

CONFIDENTIAL

FORM APPROVED
OMB No. 1004-0137Expires: July 31, 2010
Bureau of Land Management**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

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)

720-876-5867

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

SHL: 344' FSL and 1329' FWL Sec 35, T23N, R8W
BHL: 330' FSL and 2240' FWL Sec 2, T22N, R8W

5. Lease Serial No.

NM 048989A

6. If Indian, Allottee or Tribe Name

N/A

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

Pending

8. Well Name and No.

Lybrook M35-2308 02H

9. API Well No.

30-045-35527

10. Field and Pool or Exploratory Area

Amamito-Gallup

11. Country or Parish, State

San Juan, NM

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

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

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

Encana Oil & Gas (USA) Inc. (Encana) wishes to modify the drilling plan for the Lybrook M35-2308 02H well to cement the 4 1/2" production liner, instead of running open hole swell packers, as previously planned. Attached is an updated Directional Drilling Plan, 10-Point Drilling Plan and Wellbore Diagram that reflect this change. Please note, the 7" ICP was also moved from approximately 72 degrees to approximately 55 degrees.

CONDITIONS OF APPROVAL

Adhere to previously issued stipulations

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

RCVD SEP 11 '14

OIL CONS. DIV.

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

Name (Printed/Typed)

Cristi Bauer

Title Operations Technician

Signature

Cristi Bauer

Date 09/02/2014

DIST. 3

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

William Tambekou

Title

Petroleum Engineer

Date

9/9/2014

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.

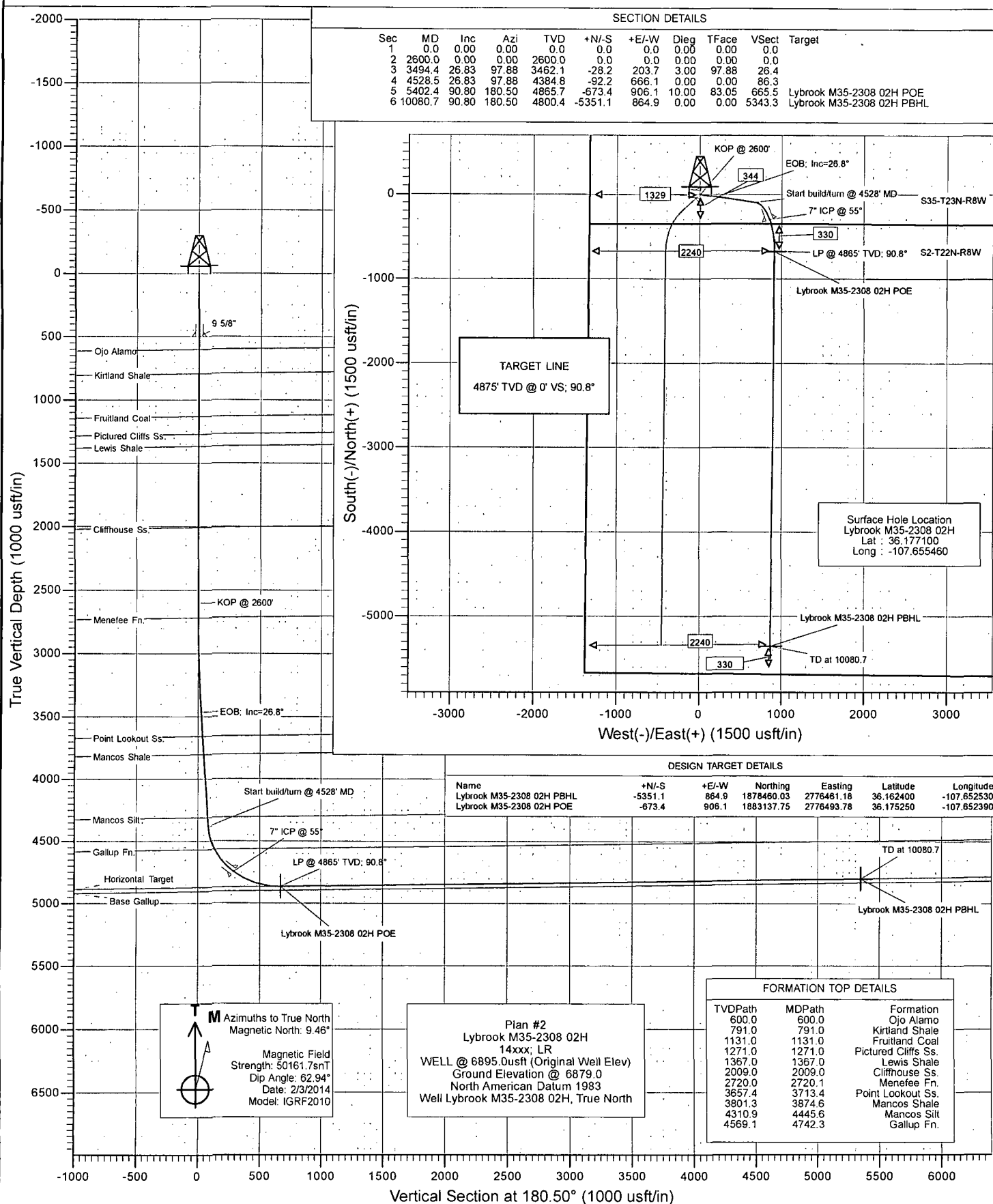
Office

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)

NMOCDAV



Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Site: S35-T23N-R8W
 Well: Lybrook M35-2308 02H
 Wellbore: Hz
 Design: Plan #2

Local Co-ordinate Reference: Well Lybrook M35-2308 02H
 TVD Reference: WELL @ 6895.0usft (Original Well Elev)
 MD Reference: WELL @ 6895.0usft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

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

Site: S35-T23N-R8W
 Site Position: Northing: 1,883,780.33 usft Latitude: 36.177020
 From: Lat/Long Easting: 2,775,554.08 usft Longitude: -107.655570
 Position Uncertainty: 0.0 usft Slot Radius: 13-3/16" Grid Convergence: 0.10 °

Well: Lybrook M35-2308 02H
 Well Position: +N/-S 0.0 usft Northing: 1,883,809.51 usft Latitude: 36.177100
 +E/-W 0.0 usft Easting: 2,775,586.49 usft Longitude: -107.655460
 Position Uncertainty: 0.0 usft Wellhead Elevation: usft Ground Level: 6,879.0 usft

Wellbore: Hz
 Magnetics: Model Name Sample Date Declination (°) Dip Angle (°) Field Strength (nT)
 IGRF2010 2/3/2014 9.46 62.94 50,162

Design: Plan #2
 Audit Notes:
 Version: Phase: PLAN Tie On Depth: 0.0
 Vertical Section: Depth From (TVD) (usft) +N/-S (usft) +E/-W (usft) Direction (°)
 0.0 0.0 0.0 180.50

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,494.4	26.83	97.88	3,462.1	-28.2	203.7	3.00	3.00	0.00	97.88	
4,528.5	26.83	97.88	4,384.8	-92.2	666.1	0.00	0.00	0.00	0.00	
5,402.4	90.80	180.50	4,865.7	-673.4	906.1	10.00	7.32	9.45	83.05	Lybrook M35-2308 02
10,080.7	90.80	180.50	4,800.4	-5,351.1	864.9	0.00	0.00	0.00	0.00	Lybrook M35-2308 02

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Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6895.0usft (Original Well Elev)
Project:	San Juan County, NM	MD Reference:	WELL @ 6895.0usft (Original Well Elev)
Site:	S35-T23N-R8W	North Reference:	True
Well:	Lybrook M35-2308 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	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	Ojo Alamo
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
791.0	0.00	0.00	791.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
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	
1,131.0	0.00	0.00	1,131.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,271.0	0.00	0.00	1,271.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,367.0	0.00	0.00	1,367.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
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	
1,600.0	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	
1,800.0	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	
2,009.0	0.00	0.00	2,009.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	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	KOP @ 2600'
2,700.0	3.00	97.88	2,700.0	-0.4	2.6	0.3	3.00	3.00	
2,720.1	3.60	97.88	2,720.0	-0.5	3.7	0.5	3.00	3.00	Menefee Fn.
2,800.0	6.00	97.88	2,799.6	-1.4	10.4	1.3	3.00	3.00	
2,900.0	9.00	97.88	2,898.8	-3.2	23.3	3.0	3.00	3.00	
3,000.0	12.00	97.88	2,997.1	-5.7	41.3	5.4	3.00	3.00	
3,100.0	15.00	97.88	3,094.3	-8.9	64.5	8.4	3.00	3.00	
3,200.0	18.00	97.88	3,190.2	-12.8	92.6	12.0	3.00	3.00	
3,300.0	21.00	97.88	3,284.4	-17.4	125.7	16.3	3.00	3.00	
3,400.0	24.00	97.88	3,376.8	-22.6	163.6	21.2	3.00	3.00	
3,494.4	26.83	97.88	3,462.1	-28.2	203.7	26.4	3.00	3.00	EOB; Inc=26.8°
3,500.0	26.83	97.88	3,467.1	-28.5	206.2	26.7	0.00	0.00	
3,600.0	26.83	97.88	3,556.3	-34.7	250.9	32.5	0.00	0.00	
3,700.0	26.83	97.88	3,645.5	-40.9	295.6	38.3	0.00	0.00	
3,713.4	26.83	97.88	3,657.4	-41.7	301.6	39.1	0.00	0.00	Point Lookout Ss.
3,800.0	26.83	97.88	3,734.8	-47.1	340.3	44.1	0.00	0.00	
3,874.6	26.83	97.88	3,801.3	-51.7	373.7	48.4	0.00	0.00	Mancos Shale
3,900.0	26.83	97.88	3,824.0	-53.3	385.1	49.9	0.00	0.00	
4,000.0	26.83	97.88	3,913.2	-59.5	429.8	55.7	0.00	0.00	
4,100.0	26.83	97.88	4,002.5	-65.6	474.5	61.5	0.00	0.00	
4,200.0	26.83	97.88	4,091.7	-71.8	519.2	67.3	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook M35-2308 02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6895.0usft (Original Well Elev)
Project:	San Juan County, NM	MD Reference:	WELL @ 6895.0usft (Original Well Elev)
Site:	S35-T23N-R8W	North Reference:	True
Well:	Lybrook M35-2308 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,300.0	26.83	97.88	4,180.9	-78.0	563.9	73.1	0.00	0.00	
4,400.0	26.83	97.88	4,270.2	-84.2	608.6	78.9	0.00	0.00	
4,445.6	26.83	97.88	4,310.9	-87.0	629.0	81.5	0.00	0.00	Mancos Silt
4,500.0	26.83	97.88	4,359.4	-90.4	653.3	84.7	0.00	0.00	
4,528.5	26.83	97.88	4,384.8	-92.2	666.1	86.3	0.00	0.00	Start build/turn @ 4528' MD
4,600.0	28.53	112.87	4,448.2	-101.0	697.8	94.9	10.00	2.37	
4,700.0	33.22	130.17	4,534.2	-128.0	740.9	121.6	10.00	4.70	
4,742.3	35.81	136.09	4,569.1	-144.4	758.3	137.8	10.00	6.10	Gallup Fn.
4,800.0	39.73	143.01	4,614.7	-171.3	781.1	164.5	10.00	6.80	
4,900.0	47.29	152.55	4,687.2	-229.6	817.4	222.5	10.00	7.56	
4,994.3	54.99	159.55	4,746.4	-296.7	846.9	289.3	10.00	8.17	7" ICP @ 55°
5,000.0	55.47	159.93	4,749.6	-301.1	848.6	293.7	10.00	8.38	
5,100.0	64.01	165.96	4,800.0	-383.6	873.7	376.0	10.00	8.54	
5,200.0	72.77	171.16	4,836.8	-474.6	891.9	466.8	10.00	8.76	
5,300.0	81.65	175.88	4,858.9	-571.4	902.9	563.5	10.00	8.88	
5,400.0	90.58	180.40	4,865.7	-671.0	906.1	663.1	10.00	8.93	
5,402.4	90.80	180.50	4,865.7	-673.4	906.1	665.5	10.00	8.94	LP @ 4865' TVD; 90.8°
5,500.0	90.80	180.50	4,864.3	-771.0	905.2	763.0	0.00	0.00	
5,600.0	90.80	180.50	4,862.9	-871.0	904.3	863.0	0.00	0.00	
5,700.0	90.80	180.50	4,861.5	-970.9	903.4	963.0	0.00	0.00	
5,800.0	90.80	180.50	4,860.1	-1,070.9	902.6	1,063.0	0.00	0.00	
5,900.0	90.80	180.50	4,858.7	-1,170.9	901.7	1,163.0	0.00	0.00	
6,000.0	90.80	180.50	4,857.3	-1,270.9	900.8	1,263.0	0.00	0.00	
6,100.0	90.80	180.50	4,856.0	-1,370.9	899.9	1,363.0	0.00	0.00	
6,200.0	90.80	180.50	4,854.6	-1,470.9	899.0	1,463.0	0.00	0.00	
6,300.0	90.80	180.50	4,853.2	-1,570.9	898.2	1,563.0	0.00	0.00	
6,400.0	90.80	180.50	4,851.8	-1,670.8	897.3	1,663.0	0.00	0.00	
6,500.0	90.80	180.50	4,850.4	-1,770.8	896.4	1,762.9	0.00	0.00	
6,600.0	90.80	180.50	4,849.0	-1,870.8	895.5	1,862.9	0.00	0.00	
6,700.0	90.80	180.50	4,847.6	-1,970.8	894.6	1,962.9	0.00	0.00	
6,800.0	90.80	180.50	4,846.2	-2,070.8	893.8	2,062.9	0.00	0.00	
6,900.0	90.80	180.50	4,844.8	-2,170.8	892.9	2,162.9	0.00	0.00	
7,000.0	90.80	180.50	4,843.4	-2,270.8	892.0	2,262.9	0.00	0.00	
7,100.0	90.80	180.50	4,842.0	-2,370.8	891.1	2,362.9	0.00	0.00	
7,200.0	90.80	180.50	4,840.6	-2,470.7	890.2	2,462.9	0.00	0.00	
7,300.0	90.80	180.50	4,839.2	-2,570.7	889.4	2,562.9	0.00	0.00	
7,400.0	90.80	180.50	4,837.8	-2,670.7	888.5	2,662.9	0.00	0.00	
7,500.0	90.80	180.50	4,836.4	-2,770.7	887.6	2,762.8	0.00	0.00	
7,600.0	90.80	180.50	4,835.0	-2,870.7	886.7	2,862.8	0.00	0.00	
7,700.0	90.80	180.50	4,833.6	-2,970.7	885.8	2,962.8	0.00	0.00	
7,800.0	90.80	180.50	4,832.2	-3,070.7	885.0	3,062.8	0.00	0.00	
7,900.0	90.80	180.50	4,830.8	-3,170.6	884.1	3,162.8	0.00	0.00	
8,000.0	90.80	180.50	4,829.4	-3,270.6	883.2	3,262.8	0.00	0.00	
8,100.0	90.80	180.50	4,828.0	-3,370.6	882.3	3,362.8	0.00	0.00	
8,200.0	90.80	180.50	4,826.6	-3,470.6	881.4	3,462.8	0.00	0.00	
8,300.0	90.80	180.50	4,825.2	-3,570.6	880.6	3,562.8	0.00	0.00	
8,400.0	90.80	180.50	4,823.8	-3,670.6	879.7	3,662.8	0.00	0.00	
8,500.0	90.80	180.50	4,822.4	-3,770.6	878.8	3,762.7	0.00	0.00	
8,600.0	90.80	180.50	4,821.0	-3,870.5	877.9	3,862.7	0.00	0.00	
8,700.0	90.80	180.50	4,819.6	-3,970.5	877.0	3,962.7	0.00	0.00	
8,800.0	90.80	180.50	4,818.3	-4,070.5	876.2	4,062.7	0.00	0.00	
8,900.0	90.80	180.50	4,816.9	-4,170.5	875.3	4,162.7	0.00	0.00	

Planning Report

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Project:	San Juan County, NM	MD Reference:	WELL @ 6895.0usft (Original Well Elev)
Site:	S35-T23N-R8W	North Reference:	True
Well:	Lybrook M35-2308 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
9,000.0	90.80	180.50	4,815.5	-4,270.5	874.4	4,262.7	0.00	0.00	
9,100.0	90.80	180.50	4,814.1	-4,370.5	873.5	4,362.7	0.00	0.00	
9,200.0	90.80	180.50	4,812.7	-4,470.5	872.6	4,462.7	0.00	0.00	
9,300.0	90.80	180.50	4,811.3	-4,570.5	871.7	4,562.7	0.00	0.00	
9,400.0	90.80	180.50	4,809.9	-4,670.4	870.9	4,662.7	0.00	0.00	
9,500.0	90.80	180.50	4,808.5	-4,770.4	870.0	4,762.7	0.00	0.00	
9,600.0	90.80	180.50	4,807.1	-4,870.4	869.1	4,862.6	0.00	0.00	
9,700.0	90.80	180.50	4,805.7	-4,970.4	868.2	4,962.6	0.00	0.00	
9,800.0	90.80	180.50	4,804.3	-5,070.4	867.3	5,062.6	0.00	0.00	
9,900.0	90.80	180.50	4,802.9	-5,170.4	866.5	5,162.6	0.00	0.00	
10,000.0	90.80	180.50	4,801.5	-5,270.4	865.6	5,262.6	0.00	0.00	
10,080.7	90.80	180.50	4,800.4	-5,351.1	864.9	5,343.3	0.00	0.00	TD at 10080.7

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Lybrook M35-2308 02H I - plan hits target center - Point	0.00	0.00	4,865.7	-673.4	906.1	1,883,137.75	2,776,493.78	36.175250	-107.652390
Lybrook M35-2308 02H I - plan hits target center - Point	0.00	0.00	4,800.4	-5,351.1	864.9	1,878,460.03	2,776,461.18	36.162400	-107.652530

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
500.0	500.0	9 5/8"		0	0
4,994.3	4,746.4	7" ICP @ 55°		0	0

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook M35-2308 02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 6895.0usft (Original Well Elev)
Project:	San Juan County, NM	MD Reference:	WELL @ 6895.0usft (Original Well Elev)
Site:	S35-T23N-R8W	North Reference:	True
Well:	Lybrook M35-2308 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
600.0	600.0	Ojo Alamo		-0.80	180.50
791.0	791.0	Kirtland Shale		-0.80	180.50
1,131.0	1,131.0	Fruitland Coal		-0.80	180.50
1,271.0	1,271.0	Pictured Cliffs Ss.		-0.80	180.50
1,367.0	1,367.0	Lewis Shale		-0.80	180.50
2,009.0	2,009.0	Cliffhouse Ss.		-0.80	180.50
2,720.1	2,720.0	Menefee Fn.		-0.80	180.50
3,713.4	3,658.0	Point Lookout Ss.		-0.80	180.50
3,874.6	3,802.0	Mancos Shale		-0.80	180.50
4,445.6	4,312.0	Mancos Silt		-0.80	180.50
4,742.3	4,571.0	Gallup Fn.		-0.80	180.50

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,600.0	2,600.0	0.0	0.0	KOP @ 2600'
3,494.4	3,462.1	-28.2	203.7	EOB; Inc=26.8°
4,528.5	4,384.8	-92.2	666.1	Start build/turn @ 4528' MD
5,402.4	4,865.7	-673.4	906.1	LP @ 4865' TVD; 90.8°
10,080.7	4,800.4	-5,351.1	864.9	TD at 10080.7

EnCana Oil & Gas (USA) Inc

San Juan County, NM

S35-T23N-R8W

Lybrook M35-2308 02H

Hz

Plan #2

Anticollision Report

04 March, 2014

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M35-2308 02H
Project:	San Juan County, NM	TVD Reference:	WELL @ 6895.0ft (Original Well Elev)
Reference Site:	S35-T23N-R8W	MD Reference:	WELL @ 6895.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook M35-2308 02H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference Plan #2

Filter type:	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 1,477.2ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program Date 3/4/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,080.7	Plan #2 (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						
S35-T23N-R8W						
Lybrook M35-2308 01H - Hz - Plan #1	2,600.0	2,600.0	43.6	34.6	4.835	CC, ES, SF

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S35-T23N-R8W
Site Error: 0.0ft
Reference Well: Lybrook M35-2308 02H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #2

Local Co-ordinate Reference: Well Lybrook M35-2308 02H
TVD Reference: WELL @ 6895.0ft (Original Well Elev)
MD Reference: WELL @ 6895.0ft (Original Well Elev)
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 S35-T23N-R8W - Lybrook M35-2308 01H - Hz - Plan #1													Offset Site Error: 0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 ft
Reference	Offset	Semi Major Axis		Distance		Total		Separation		Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-131.89	-29.1	-32.5	43.6				
100.0	100.0	100.0	100.0	0.1	0.1	-131.89	-29.1	-32.5	43.6	43.3	0.29	148.736	
200.0	200.0	200.0	200.0	0.3	0.3	-131.89	-29.1	-32.5	43.6	43.0	0.64	67.901	
300.0	300.0	300.0	300.0	0.5	0.5	-131.89	-29.1	-32.5	43.6	42.6	0.99	43.992	
400.0	400.0	400.0	400.0	0.7	0.7	-131.89	-29.1	-32.5	43.6	42.3	1.34	32.536	
500.0	500.0	500.0	500.0	0.8	0.8	-131.89	-29.1	-32.5	43.6	41.9	1.69	25.814	
600.0	600.0	600.0	600.0	1.0	1.0	-131.89	-29.1	-32.5	43.6	41.6	2.04	21.394	
700.0	700.0	700.0	700.0	1.2	1.2	-131.89	-29.1	-32.5	43.6	41.2	2.39	18.266	
800.0	800.0	800.0	800.0	1.4	1.4	-131.89	-29.1	-32.5	43.6	40.9	2.74	15.936	
900.0	900.0	900.0	900.0	1.5	1.5	-131.89	-29.1	-32.5	43.6	40.5	3.09	14.133	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-131.89	-29.1	-32.5	43.6	40.2	3.43	12.697	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-131.89	-29.1	-32.5	43.6	39.8	3.78	11.526	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-131.89	-29.1	-32.5	43.6	39.5	4.13	10.552	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-131.89	-29.1	-32.5	43.6	39.1	4.48	9.730	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-131.89	-29.1	-32.5	43.6	38.8	4.83	9.027	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-131.89	-29.1	-32.5	43.6	38.4	5.18	8.419	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-131.89	-29.1	-32.5	43.6	38.1	5.53	7.888	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-131.89	-29.1	-32.5	43.6	37.7	5.88	7.419	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-131.89	-29.1	-32.5	43.6	37.4	6.23	7.003	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-131.89	-29.1	-32.5	43.6	37.0	6.58	6.632	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-131.89	-29.1	-32.5	43.6	36.7	6.93	6.297	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	-131.89	-29.1	-32.5	43.6	36.3	7.27	5.995	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	-131.89	-29.1	-32.5	43.6	36.0	7.62	5.721	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	-131.89	-29.1	-32.5	43.6	35.6	7.97	5.470	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	-131.89	-29.1	-32.5	43.6	35.3	8.32	5.241	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	-131.89	-29.1	-32.5	43.6	34.9	8.67	5.030	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	-131.89	-29.1	-32.5	43.6	34.6	9.02	4.835 CC, ES, SF	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	132.72	-29.1	-32.5	45.3	36.0	9.37	4.842	
2,800.0	2,799.6	2,799.6	2,799.6	4.9	4.9	139.08	-29.1	-32.5	51.0	41.3	9.70	5.257	
2,900.0	2,898.8	2,898.8	2,898.8	5.1	5.0	146.88	-29.1	-32.5	61.5	51.5	10.02	6.137	
3,000.0	2,997.1	2,997.1	2,997.1	5.3	5.2	154.04	-29.1	-32.5	77.4	67.1	10.31	7.509	
3,100.0	3,094.3	3,094.3	3,094.3	5.6	5.4	159.71	-29.1	-32.5	99.0	88.4	10.58	9.360	
3,200.0	3,190.2	3,190.2	3,190.2	5.9	5.5	163.94	-29.1	-32.5	126.1	115.3	10.82	11.657	
3,300.0	3,284.4	3,284.4	3,284.4	6.3	5.7	167.04	-29.1	-32.5	158.6	147.5	11.04	14.368	
3,400.0	3,376.8	3,376.8	3,376.8	6.8	5.9	169.32	-29.1	-32.5	196.1	184.9	11.23	17.468	
3,500.0	3,467.1	3,467.1	3,467.1	7.4	6.0	171.03	-29.1	-32.5	238.7	227.2	11.41	20.924	
3,600.0	3,556.3	3,556.3	3,556.3	8.1	6.2	172.45	-29.1	-32.5	283.4	271.7	11.73	24.162	
3,700.0	3,645.5	3,645.5	3,645.5	8.8	6.3	173.48	-29.1	-32.5	328.3	316.2	12.06	27.230	
3,800.0	3,734.8	3,734.8	3,734.8	9.5	6.5	174.27	-29.1	-32.5	373.2	360.8	12.38	30.140	
3,900.0	3,824.0	3,824.0	3,824.0	10.2	6.6	174.89	-29.1	-32.5	418.2	405.5	12.71	32.903	
4,000.0	3,913.2	3,913.2	3,913.2	11.0	6.8	175.38	-29.1	-32.5	463.2	450.2	13.04	35.530	
4,100.0	4,002.5	4,002.5	4,002.5	11.8	7.0	175.79	-29.1	-32.5	508.3	494.9	13.36	38.030	
4,200.0	4,091.7	4,091.7	4,091.7	12.6	7.1	176.13	-29.1	-32.5	553.3	539.6	13.69	40.413	
4,300.0	4,180.9	4,180.9	4,180.9	13.4	7.3	176.43	-29.1	-32.5	598.4	584.4	14.02	42.685	
4,400.0	4,270.2	4,250.0	4,250.0	14.2	7.4	176.55	-29.8	-33.2	644.5	630.2	14.32	45.021	
4,500.0	4,359.4	4,300.0	4,299.7	15.0	7.5	176.31	-33.3	-37.1	695.4	680.8	14.59	47.665	
4,600.0	4,448.2	4,350.0	4,348.8	15.9	7.6	158.01	-39.7	-44.2	751.2	736.0	15.14	49.624	
4,700.0	4,534.2	4,379.6	4,377.4	16.7	7.6	136.13	-44.8	-49.9	810.4	794.1	16.36	49.545	
4,800.0	4,614.7	4,417.9	4,413.7	17.6	7.7	119.05	-52.9	-58.8	871.7	853.7	18.07	48.231	
4,900.0	4,687.2	4,450.0	4,443.5	18.5	7.8	105.73	-60.9	-67.7	933.4	913.5	19.88	46.958	
5,000.0	4,749.6	4,486.0	4,476.1	19.4	7.9	95.58	-71.2	-79.1	994.1	972.7	21.38	46.492	
5,100.0	4,800.0	4,516.3	4,502.6	20.3	8.0	87.59	-80.9	-89.9	1,052.8	1,030.4	22.42	46.949	

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

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M35-2308 02H
Project:	San Juan County, NM	TVD Reference:	WELL @ 6895.0ft (Original Well Elev)
Reference Site:	S35-T23N-R8W	MD Reference:	WELL @ 6895.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook M35-2308 02H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Offset Design S35-T23N-R8W - Lybrook M35-2308 01H - Hz - Plan #1														Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		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)					
5,200.0	4,836.8	4,550.0	4,531.3	21.3	8.2	81.70	-92.8	-103.1	1,108.7	1,085.7	22.95	48.300			
5,300.0	4,859.0	4,569.6	4,547.5	22.2	8.3	76.80	-100.2	-111.3	1,160.9	1,137.8	23.00	50.464			
5,400.0	4,865.7	4,600.0	4,571.7	23.2	8.4	73.85	-112.4	-124.9	1,208.8	1,186.0	22.78	53.063			
5,500.0	4,864.3	4,615.6	4,583.8	24.2	8.5	74.49	-119.1	-132.2	1,256.9	1,232.6	24.31	51.700			
5,600.0	4,862.9	4,650.0	4,609.5	25.2	8.7	76.03	-134.4	-149.2	1,310.2	1,284.1	26.10	50.202			
5,700.0	4,861.5	5,622.8	4,854.0	26.4	21.0	89.67	-959.1	-415.7	1,319.2	1,279.4	39.83	33.120			
5,800.0	4,860.1	5,722.8	4,852.6	27.6	22.5	89.67	-1,059.1	-416.6	1,319.2	1,276.2	43.01	30.671			
5,900.0	4,858.8	5,822.8	4,851.2	28.9	24.0	89.67	-1,159.1	-417.5	1,319.2	1,273.0	46.24	28.530			
6,000.0	4,857.4	5,922.8	4,849.8	30.2	25.5	89.67	-1,259.1	-418.4	1,319.2	1,269.7	49.50	26.648			
6,100.0	4,856.0	6,022.8	4,848.4	31.5	27.1	89.67	-1,359.1	-419.2	1,319.2	1,266.4	52.80	24.985			
6,200.0	4,854.6	6,122.8	4,847.0	32.9	28.7	89.67	-1,459.0	-420.1	1,319.2	1,263.1	56.12	23.506			
6,300.0	4,853.2	6,222.8	4,845.6	34.4	30.3	89.67	-1,559.0	-421.0	1,319.2	1,259.8	59.47	22.184			
6,400.0	4,851.8	6,322.8	4,844.2	35.8	32.0	89.67	-1,659.0	-421.9	1,319.3	1,256.4	62.83	20.997			
6,500.0	4,850.4	6,422.8	4,842.8	37.3	33.6	89.67	-1,759.0	-422.8	1,319.3	1,253.1	66.21	19.926			
6,600.0	4,849.0	6,522.8	4,841.4	38.8	35.3	89.67	-1,859.0	-423.7	1,319.3	1,249.7	69.60	18.956			
6,700.0	4,847.6	6,622.8	4,840.0	40.4	36.9	89.67	-1,959.0	-424.6	1,319.3	1,246.3	73.00	18.073			
6,800.0	4,846.2	6,722.8	4,838.6	41.9	38.6	89.67	-2,059.0	-425.5	1,319.3	1,242.9	76.41	17.266			
6,900.0	4,844.8	6,822.8	4,837.2	43.5	40.3	89.67	-2,159.0	-426.3	1,319.3	1,239.5	79.83	16.527			
7,000.0	4,843.4	6,922.8	4,835.8	45.1	42.0	89.67	-2,258.9	-427.2	1,319.3	1,236.0	83.25	15.847			
7,100.0	4,842.0	7,022.8	4,834.4	46.7	43.7	89.67	-2,358.9	-428.1	1,319.3	1,232.6	86.69	15.219			
7,200.0	4,840.6	7,122.8	4,833.0	48.3	45.3	89.67	-2,458.9	-429.0	1,319.3	1,229.2	90.13	14.639			
7,300.0	4,839.2	7,222.8	4,831.6	49.9	47.0	89.67	-2,558.9	-429.9	1,319.3	1,225.8	93.57	14.100			
7,400.0	4,837.8	7,322.8	4,830.2	51.5	48.8	89.67	-2,658.9	-430.8	1,319.3	1,222.3	97.02	13.599			
7,500.0	4,836.4	7,422.8	4,828.8	53.1	50.5	89.67	-2,758.9	-431.7	1,319.3	1,218.9	100.47	13.132			
7,600.0	4,835.0	7,522.8	4,827.4	54.8	52.2	89.67	-2,858.9	-432.6	1,319.3	1,215.4	103.93	12.695			
7,700.0	4,833.6	7,622.8	4,826.0	56.4	53.9	89.67	-2,958.8	-433.4	1,319.4	1,212.0	107.39	12.286			
7,800.0	4,832.2	7,722.8	4,824.6	58.1	55.6	89.67	-3,058.8	-434.3	1,319.4	1,208.5	110.85	11.902			
7,900.0	4,830.8	7,822.8	4,823.2	59.7	57.3	89.67	-3,158.8	-435.2	1,319.4	1,205.1	114.31	11.542			
8,000.0	4,829.4	7,922.8	4,821.8	61.4	59.0	89.67	-3,258.8	-436.1	1,319.4	1,201.6	117.78	11.202			
8,100.0	4,828.0	8,022.8	4,820.4	63.1	60.8	89.67	-3,358.8	-437.0	1,319.4	1,198.1	121.25	10.881			
8,200.0	4,826.6	8,122.8	4,819.1	64.8	62.5	89.67	-3,458.8	-437.9	1,319.4	1,194.7	124.73	10.578			
8,300.0	4,825.2	8,222.8	4,817.7	66.4	64.2	89.67	-3,558.8	-438.8	1,319.4	1,191.2	128.20	10.292			
8,400.0	4,823.8	8,322.8	4,816.3	68.1	65.9	89.67	-3,658.7	-439.7	1,319.4	1,187.7	131.68	10.020			
8,500.0	4,822.5	8,422.8	4,814.9	69.8	67.7	89.67	-3,758.7	-440.5	1,319.4	1,184.3	135.15	9.762			
8,600.0	4,821.1	8,522.8	4,813.5	71.5	69.4	89.67	-3,858.7	-441.4	1,319.4	1,180.8	138.63	9.517			
8,700.0	4,819.7	8,622.8	4,812.1	73.2	71.1	89.67	-3,958.7	-442.3	1,319.4	1,177.3	142.11	9.284			
8,800.0	4,818.3	8,722.8	4,810.7	74.9	72.9	89.67	-4,058.7	-443.2	1,319.4	1,173.8	145.59	9.062			
8,900.0	4,816.9	8,822.8	4,809.3	76.6	74.6	89.67	-4,158.7	-444.1	1,319.4	1,170.4	149.08	8.851			
9,000.0	4,815.5	8,922.8	4,807.9	78.3	76.3	89.67	-4,258.7	-445.0	1,319.4	1,166.9	152.56	8.649			
9,100.0	4,814.1	9,022.8	4,806.5	80.0	78.1	89.67	-4,358.7	-445.9	1,319.5	1,163.4	156.05	8.455			
9,200.0	4,812.7	9,122.8	4,805.1	81.7	79.8	89.67	-4,458.6	-446.8	1,319.5	1,159.9	159.53	8.271			
9,300.0	4,811.3	9,222.8	4,803.7	83.4	81.5	89.67	-4,558.6	-447.6	1,319.5	1,156.4	163.02	8.094			
9,400.0	4,809.9	9,322.8	4,802.3	85.1	83.3	89.67	-4,658.6	-448.5	1,319.5	1,153.0	166.51	7.924			
9,500.0	4,808.5	9,422.8	4,800.9	86.8	85.0	89.67	-4,758.6	-449.4	1,319.5	1,149.5	170.00	7.762			
9,600.0	4,807.1	9,522.8	4,799.5	88.5	86.8	89.67	-4,858.6	-450.3	1,319.5	1,146.0	173.49	7.606			
9,700.0	4,805.7	9,622.8	4,798.1	90.3	88.5	89.67	-4,958.6	-451.2	1,319.5	1,142.5	176.98	7.456			
9,800.0	4,804.3	9,722.8	4,796.7	92.0	90.2	89.67	-5,058.6	-452.1	1,319.5	1,139.0	180.47	7.312			
9,900.0	4,802.9	9,822.8	4,795.3	93.7	92.0	89.67	-5,158.5	-453.0	1,319.5	1,135.6	183.96	7.173			
10,000.0	4,801.5	9,922.8	4,793.9	95.4	93.7	89.67	-5,258.5	-453.9	1,319.5	1,132.1	187.45	7.039			
10,080.7	4,800.4	10,003.6	4,792.8	96.8	95.1	89.67	-5,359.3	-454.6	1,319.5	1,129.3	190.27	6.935			

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

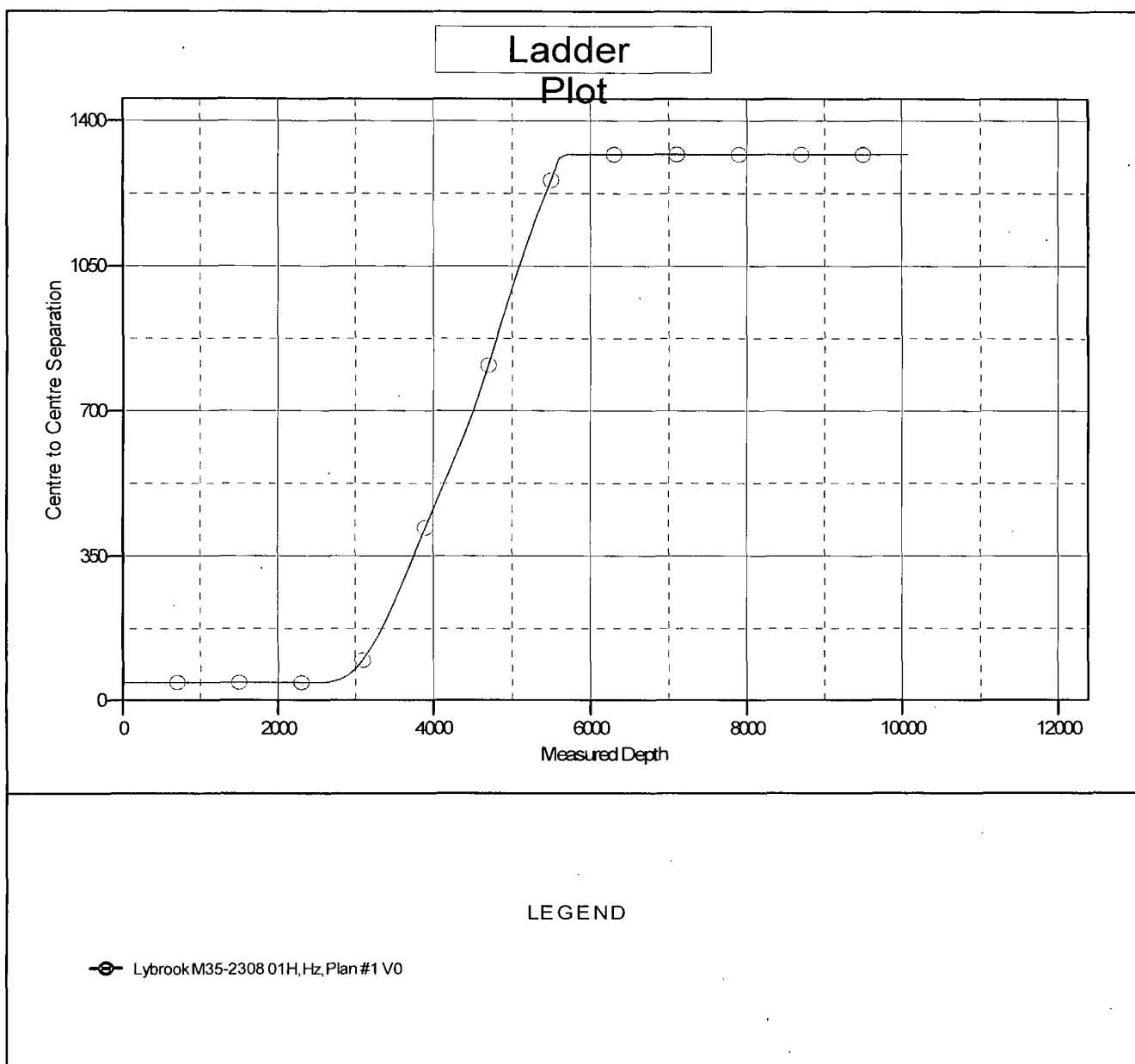
Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S35-T23N-R8W
Site Error: 0.0ft
Reference Well: Lybrook M35-2308 02H
Well Error: 0.0ft
Reference Wellbore: Hz
Reference Design: Plan #2

Local Co-ordinate Reference: Well Lybrook M35-2308 02H
TVD Reference: WELL @ 6895.0ft (Original Well Elev)
MD Reference: WELL @ 6895.0ft (Original Well Elev)
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 @ 6895.0ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is -107.833333 °

Coordinates are relative to: Lybrook M35-2308 02H
 Coordinate System is US State Plane 1983, New Mexico Western Zone
 Grid Convergence at Surface is: 0.11°



Lybrook M35-2308 02H

SHL: SE/4 SW/4 Sec 35 T23N R8W, 344' FSL, 1329' FWL

BHL: SE/4 SE/4 Sec 2 T22N R8W, 330' FSL, 2240' FWL

San Juan, 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
Nacimiento Fn.	0
Ojo Alamo Ss.	600
Kirtland Shale	791
Fruitland Coal	1,131
Pictured Cliffs Ss.	1,271
Lewis Shale	1,367
Cliffhouse Ss.	2,009
Menefee Fn.	2,720
Point Lookout Ss.	3,658
Mancos Shale	3,802
Mancos Silt	4,312
Gallup Fn.	4,571
Horizontal Target	4,875

The referenced surface elevation is 6879', KB 6895'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,131
Oil/Gas	Pictured Cliffs Ss.	1,271
Oil/Gas	Cliffhouse Ss.	2,009
Gas	Menefee Fn.	2,720
Oil/Gas	Point Lookout Ss.	3,658
Oil/Gas	Mancos Shale	3,802
Oil/Gas	Mancos Silt	4,312
Oil/Gas	Gallup Fn.	4,571

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

Lybrook M35-2308 02H

SHL: SE/4 SW/4 Sec 35 T23N R8W, 344' FSL, 1329' FWL

BHL: SE/4 SE/4 Sec 2 T22N R8W, 330' FSL, 2240' FWL

San Juan, New Mexico

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

Proposed BOP and choke manifold arrangements are attached.

4. CASING & CEMENTING PROGRAM

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

- a) The proposed casing design is as follows:

Casing	Depth (MD)	Hole Size	Csg Size	Weight	Grade
Conductor	0'-60'	30"	16"	42.09#	
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-4994'	8 3/4"	7"	26#	J55, LTC New
Production Liner	4944'-10081'	6 1/8"	4 1/2"	11.6#	B80*, LTC New

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

*B80 pipe specifications are attached

Casing design is subject to revision based on geologic conditions encountered

Lybrook M35-2308 02H**SHL: SE/4 SW/4 Sec 35 T23N R8W, 344' FSL, 1329' FWL****BHL: SE/4 SE/4 Sec 2 T22N R8W, 330' FSL, 2240' FWL****San Juan, New Mexico**

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

b) The proposed cementing program is as follows

Casing	Depth (MD)	Cement Volume (sacks)	Cement Type & Yield	Designed TOC	Centralizers
Conductor	0'-60'	100 sks	Type I Neat 16 ppg	Surface	None
Surface	0'-500'	276 sks	Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water	Surface	1 per joint on bottom 3 joints
Intermediate	0'-4994'	100% open hole excess Stage 1 Lead: 378 sks Stage 1 Tail: 319 sks	Lead: PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuft/sk Tail: Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuft/sk	Surface	1 every 3 joints through water bearing zones
Production Liner	4944'- 10081'	50% OH excess Stage 1 Blend Total: 277sks	Blend: Premium Lite High Strength FM + 2% bwow Potassium Chloride + 0.3% bwoc R-3 + 0.25 lbs/sack Cello Flake + 0.3% bwoc CD-32 + 5 lbs/sack LCM-1 + 1% bwoc FL-52 + 101.1% Fresh Water	Liner Hanger	N/A

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

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

5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed horizontal well will have a kick off point of 2600'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	4800'/10081'	Gallup

Lybrook M35-2308 02H

SHL: SE/4 SW/4 Sec 35 T23N R8W, 344' FSL, 1329' FWL

BHL: SE/4 SE/4 Sec 2 T22N R8W, 330' FSL, 2240' FWL

San Juan, New Mexico

6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60'/60'	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0'-500'/500'	Fresh Water	8.3-10	60-70	NC
8 3/4"	500'/500'-4746'/4994'	Fresh Water LSND	8.3-10	40-50	8-10

b) Intermediate Casing Point to TD:

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	4746'/4994'- 4800'/10081'	Fresh Water LSND	8.3-10	15-25	<15

- c) There will be sufficient mud on location to control a blowout should one occur. Mud flow and volume will be monitored both visually and with electronic pit volume totalizers. Mud tests shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.
- d) A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water. Waste will be disposed of properly at an EPA-approved hazardous waste facility. Fresh water cuttings will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystems, Inc. The location will be lined in accordance with the Surface Use Plan of Operations.

7. TESTING, CORING, & LOGGING

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

Cased Hole:

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

8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

The anticipated bottom hole pressure is +/- 2282 psi based on a 9.0 ppg at 4875' TVD of the horizontal lateral target. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H₂S is encountered, the guidelines in Onshore Order No. 6 will be followed.

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on October 7, 2014. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

It is anticipated that the drilling of this well will take approximately 20 days.

LOC: Lybrook M35-2308 02H County: San Juan WELL: Lybrook M35-2308 02H			Encana Natural Gas WELL SUMMARY				ENG: Jeff Villalobos 9/2/14 RIG: Aztec 950 GLE: 6879 RKBE: 6895		
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			TVD	MD					
			60	60'		30	16" 42.09# 100sx Type I Neat 16.0ppg cmt	Fresh wtr 8.3-9.2	
Multi-Well pad take survey every stand and run anti-collision report prior to spud	None	San Jose Fn. Nacimiento Fn. 9 5/8" Csg	0 500	500.00		12 1/4	9 5/8" 36ppf J55 STC TOC Surface with 100% OH Excess: 276 sks Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water.	Fresh wtr 8.3-10	Vertical <1°
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5	No OH logs	Ojo Alamo Ss. Kirtland Shale Fruittland Coal Pictured Cliffs Ss. Lewis Shale Cliffhouse Ss. Menefee Fn. Point Lookout Ss. Mancos Shale	600 791 1,131 1,271 1,367 2,009 2,720 3,658 3,802			8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 697sks Stage 1 Lead: 378 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL-52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk. Stage 1 Tail: 319 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.	Fresh Wtr 8.3-10	Vertical <1°
Surveys every 30' through the curve	Mud logger onsite	KOP Mancos Silt Gallup Fn. 7" Csg	2,600 4,312 4,571 4,746	2,600 4,994'					
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD Base Gallup	4,875 4,800 4,908	10,081		6 1/8	50' overlap at liner top 5086' Drilled Lateral		Horz Inc/TVD 90.8 degdeg/4875ft TD = 10080.7 MD
MWD Gamma Directional							4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 277sks Stage 1 Blend: 277 sks Premium Lite High Strength FM + 2% bwow Potassium Chloride + 0.3% bwoc R-3 + 0.25 lbs/sack Cello Flake + 0.3% bwoc CD-32 + 5 lbs/sack LCM-1 + 1% bwoc FL-52 + 101.1% Fresh Water	WBM 8.3-10	

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 2600', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 4994' MD
- 7) R&C 7" csg. circ cmt to surface
- 8) Land at ~90 deg, drill lateral to 10081' run 4 1/2 inch cemented liner