Form 3160-5
(March 2012)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NOV 26 2014

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

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	5. Lease Serial No. NMNM 58878
	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 P28-2307 01H
2. Name of Operator Encana Oil & Gas (USA) Inc.	9. API Well No. 30-043-21199
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202 3b. Phone No. *(include area code)* 720-876-3740	10. Field and Pool or Exploratory Area Basin Mancos
4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)* SHL: 1348' FSL and 43' FEL Sec 28, T23N, R7W BHL: 1775' FSL and 330' FWL Sec 28, T23N, R7W	11. County or Parish, State Sandoval County, 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
	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☑ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
☐ Final Abandonment Notice	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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

Encana Oil & Gas (USA) Inc. (Encana) wishes to modify the drilling plan for the Lybrook P28-2307 01H 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.

OIL CONS. DIV DIST. 3

DEC 01 2014

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

CONDITIONS OF APPROVAL

Adhere to previously issued stipulations

ADHERE TO PREVIOUS NMOCD CONDITIONS OF APPROVAL

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

Rosalie Thim — Title Regulatory Analyst

Signature Rosalie Thim — Date 11/26/14

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by William Tambekou — Title Petroleum Engineer — Date 11/28/2014

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)

NMOCD

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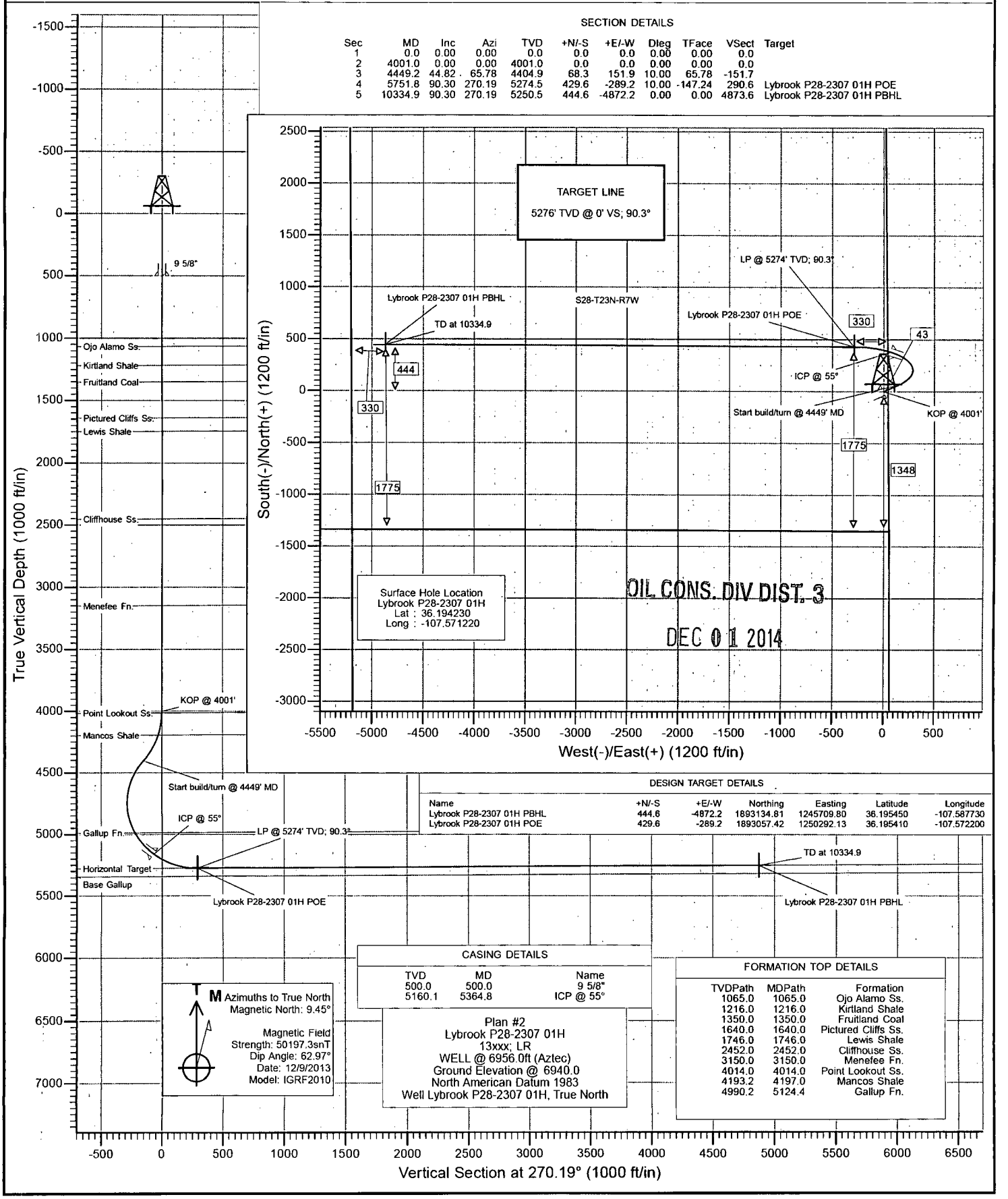
encana natural gas

Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook P28-2307 01H
Wellbore: Hz
Design: Plan #2

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	4001.0	0.00	0.00	4001.0	0.0	0.0	0.00	0.00	0.0	
3	4449.2	44.82	65.78	4404.9	68.3	151.9	10.00	65.78	-151.7	
4	5751.8	90.30	270.19	5274.5	429.6	-289.2	10.00	-147.24	290.6	Lybrook P28-2307 01H POE
5	10334.9	90.30	270.19	5250.5	444.6	-4872.2	0.00	0.00	4873.6	Lybrook P28-2307 01H PBHL



OIL CONS. DIV DIST. 3

DEC 01 2014

DESIGN TARGET DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Lybrook P28-2307 01H PBHL	444.6	-4872.2	1893134.81	1245709.80	36.195450	-107.587730
Lybrook P28-2307 01H POE	429.6	-289.2	1893057.42	1250292.13	36.195410	-107.572200

CASING DETAILS

TVD	MD	Name
500.0	500.0	9 5/8"
5160.1	5364.8	ICP @ 55°

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1065.0	1065.0	Ojo Alamo Ss.
1216.0	1216.0	Kirtland Shale
1350.0	1350.0	Fruitland Coal
1640.0	1640.0	Pictured Cliffs Ss.
1746.0	1746.0	Lewis Shale
2452.0	2452.0	Cliffhouse Ss.
3150.0	3150.0	Menefee Fn.
4014.0	4014.0	Point Lookout Ss.
4193.2	4197.0	Mancos Shale
4990.2	5124.4	Gallup Fn.

T M Azimuths to True North
Magnetic North: 9.45°

Magnetic Field
Strength: 50197.3snT
Dip Angle: 62.97°
Date: 12/9/2013
Model: IGRF2010

Plan #2
Lybrook P28-2307 01H
13xxx; LR
WELL @ 6956.0ft (Aztec)
Ground Elevation @ 6940.0
North American Datum 1983
Well Lybrook P28-2307 01H, True North

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook P28-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 6956.0ft (Aztec)
Project:	Sandoval County, NM	**MD Reference:**	WELL @ 6956.0ft (Aztec)
Site:	Lybrook	**North Reference:**	True
Well:	Lybrook P28-2307 01H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

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 P28-2307 01H					
Well Position	**+N/-S**	0.0 ft	**Northing:**	1,892,623.91 ft	**Latitude:**	36.194230
	+E/-W	0.0 ft	**Easting:**	1,250,575.45 ft	**Longitude:**	-107.571220
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	6,940.0 ft

Wellbore	Hz				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	12/9/2013	9.45	62.97	50,197

Design	Plan #2				
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	
4,001.0	0.00	0.00	4,001.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,449.2	44.82	65.78	4,404.9	68.3	151.9	10.00	10.00	0.00	65.78	
5,751.8	90.30	270.19	5,274.5	429.6	-289.2	10.00	3.49	-11.94	-147.24	Lybrook P28-2307 01
10,334.9	90.30	270.19	5,250.5	444.6	-4,872.2	0.00	0.00	0.00	0.00	Lybrook P28-2307 01

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook P28-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 6956.0ft (Aztec)
Project:	Sandoval County, NM	**MD Reference:**	WELL @ 6956.0ft (Aztec)
Site:	Lybrook	**North Reference:**	True
Well:	Lybrook P28-2307 01H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

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	
1,065.0	0.00	0.00	1,065.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
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	
1,216.0	0.00	0.00	1,216.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,350.0	0.00	0.00	1,350.0	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	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,640.0	0.00	0.00	1,640.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,746.0	0.00	0.00	1,746.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,452.0	0.00	0.00	2,452.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,150.0	0.00	0.00	3,150.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,001.0	0.00	0.00	4,001.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4001'
4,014.0	1.30	65.78	4,014.0	0.1	0.1	-0.1	10.00	10.00	Point Lookout Ss.
4,100.0	9.90	65.78	4,099.5	3.5	7.8	-7.8	10.00	10.00	
4,197.0	19.60	65.78	4,193.2	13.6	30.3	-30.2	10.00	10.00	Mancos Shale

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Project:	Sandoval County, NM	**MD Reference:**	WELL @ 6956.0ft (Aztec)
Site:	Lybrook	**North Reference:**	True
Well:	Lybrook P28-2307 01H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

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
4,200.0	19.90	65.78	4,196.0	14.0	31.2	-31.2	10.00	10.00	
4,300.0	29.90	65.78	4,286.6	31.3	69.5	-69.4	10.00	10.00	
4,400.0	39.90	65.78	4,368.5	54.7	121.7	-121.5	10.00	10.00	
4,449.2	44.82	65.78	4,404.9	68.3	151.9	-151.7	10.00	10.00	Start build/turn @ 4449' MD
4,500.0	40.63	61.56	4,442.2	83.6	182.8	-182.5	10.00	-8.26	
4,600.0	32.96	50.79	4,522.3	116.4	232.6	-232.2	10.00	-7.67	
4,700.0	26.67	35.05	4,609.1	152.0	266.7	-266.2	10.00	-6.30	
4,800.0	22.91	12.78	4,700.1	189.5	283.9	-283.3	10.00	-3.75	
4,900.0	22.98	346.96	4,792.4	227.6	283.8	-283.0	10.00	0.07	
5,000.0	26.85	324.91	4,883.3	265.2	266.4	-265.5	10.00	3.87	
5,100.0	33.21	309.39	4,970.0	301.1	232.1	-231.1	10.00	6.36	
5,124.4	35.00	306.42	4,990.2	309.5	221.3	-220.3	10.00	7.32	Gallup Fn.
5,200.0	40.91	298.75	5,049.8	334.3	182.1	-181.0	10.00	7.82	
5,300.0	49.32	291.09	5,120.3	363.8	117.9	-116.7	10.00	8.41	
5,364.8	54.99	287.11	5,160.1	380.5	69.5	-68.3	10.00	8.75	ICP @ 55°
5,400.0	58.12	285.18	5,179.5	388.6	41.3	-40.0	10.00	8.89	
5,500.0	67.14	280.33	5,225.4	408.0	-45.2	46.6	10.00	9.02	
5,600.0	76.29	276.09	5,256.8	421.5	-139.1	140.5	10.00	9.15	
5,700.0	85.51	272.17	5,272.6	428.6	-237.4	238.9	10.00	9.22	
5,751.8	90.30	270.19	5,274.5	429.6	-289.2	290.6	10.00	9.24	LP @ 5274' TVD; 90.3°
5,800.0	90.30	270.19	5,274.2	429.8	-337.4	338.8	0.00	0.00	
5,900.0	90.30	270.19	5,273.7	430.1	-437.4	438.8	0.00	0.00	
6,000.0	90.30	270.19	5,273.2	430.4	-537.4	538.8	0.00	0.00	
6,100.0	90.30	270.19	5,272.6	430.8	-637.4	638.8	0.00	0.00	
6,200.0	90.30	270.19	5,272.1	431.1	-737.4	738.8	0.00	0.00	
6,300.0	90.30	270.19	5,271.6	431.4	-837.4	838.8	0.00	0.00	
6,400.0	90.30	270.19	5,271.1	431.7	-937.4	938.8	0.00	0.00	
6,500.0	90.30	270.19	5,270.6	432.1	-1,037.4	1,038.8	0.00	0.00	
6,600.0	90.30	270.19	5,270.0	432.4	-1,137.4	1,138.8	0.00	0.00	
6,700.0	90.30	270.19	5,269.5	432.7	-1,237.4	1,238.8	0.00	0.00	
6,800.0	90.30	270.19	5,269.0	433.0	-1,337.3	1,338.8	0.00	0.00	
6,900.0	90.30	270.19	5,268.5	433.4	-1,437.3	1,438.8	0.00	0.00	
7,000.0	90.30	270.19	5,267.9	433.7	-1,537.3	1,538.8	0.00	0.00	
7,100.0	90.30	270.19	5,267.4	434.0	-1,637.3	1,638.8	0.00	0.00	
7,200.0	90.30	270.19	5,266.9	434.3	-1,737.3	1,738.8	0.00	0.00	
7,300.0	90.30	270.19	5,266.4	434.7	-1,837.3	1,838.8	0.00	0.00	
7,400.0	90.30	270.19	5,265.8	435.0	-1,937.3	1,938.8	0.00	0.00	
7,500.0	90.30	270.19	5,265.3	435.3	-2,037.3	2,038.8	0.00	0.00	
7,600.0	90.30	270.19	5,264.8	435.7	-2,137.3	2,138.8	0.00	0.00	
7,700.0	90.30	270.19	5,264.3	436.0	-2,237.3	2,238.8	0.00	0.00	
7,800.0	90.30	270.19	5,263.7	436.3	-2,337.3	2,338.8	0.00	0.00	
7,900.0	90.30	270.19	5,263.2	436.6	-2,437.3	2,438.8	0.00	0.00	
8,000.0	90.30	270.19	5,262.7	437.0	-2,537.3	2,538.8	0.00	0.00	
8,100.0	90.30	270.19	5,262.2	437.3	-2,637.3	2,638.8	0.00	0.00	
8,200.0	90.30	270.19	5,261.7	437.6	-2,737.3	2,738.8	0.00	0.00	
8,300.0	90.30	270.19	5,261.1	437.9	-2,837.3	2,838.8	0.00	0.00	
8,400.0	90.30	270.19	5,260.6	438.3	-2,937.3	2,938.8	0.00	0.00	
8,500.0	90.30	270.19	5,260.1	438.6	-3,037.3	3,038.8	0.00	0.00	
8,600.0	90.30	270.19	5,259.6	438.9	-3,137.3	3,138.8	0.00	0.00	
8,700.0	90.30	270.19	5,259.0	439.2	-3,237.3	3,238.8	0.00	0.00	
8,800.0	90.30	270.19	5,258.5	439.6	-3,337.3	3,338.8	0.00	0.00	
8,900.0	90.30	270.19	5,258.0	439.9	-3,437.3	3,438.7	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook P28-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 6956.0ft (Aztec)
Project:	Sandoval County, NM	**MD Reference:**	WELL @ 6956.0ft (Aztec)
Site:	Lybrook	**North Reference:**	True
Well:	Lybrook P28-2307 01H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

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	90.30	270.19	5,257.5	440.2	-3,537.3	3,538.7	0.00	0.00	
9,100.0	90.30	270.19	5,256.9	440.6	-3,637.3	3,638.7	0.00	0.00	
9,200.0	90.30	270.19	5,256.4	440.9	-3,737.3	3,738.7	0.00	0.00	
9,300.0	90.30	270.19	5,255.9	441.2	-3,837.3	3,838.7	0.00	0.00	
9,400.0	90.30	270.19	5,255.4	441.5	-3,937.3	3,938.7	0.00	0.00	
9,500.0	90.30	270.19	5,254.9	441.9	-4,037.3	4,038.7	0.00	0.00	
9,600.0	90.30	270.19	5,254.3	442.2	-4,137.3	4,138.7	0.00	0.00	
9,700.0	90.30	270.19	5,253.8	442.5	-4,237.3	4,238.7	0.00	0.00	
9,800.0	90.30	270.19	5,253.3	442.8	-4,337.3	4,338.7	0.00	0.00	
9,900.0	90.30	270.19	5,252.8	443.2	-4,437.3	4,438.7	0.00	0.00	
10,000.0	90.30	270.19	5,252.2	443.5	-4,537.3	4,538.7	0.00	0.00	
10,100.0	90.30	270.19	5,251.7	443.8	-4,637.3	4,638.7	0.00	0.00	
10,200.0	90.30	270.19	5,251.2	444.1	-4,737.3	4,738.7	0.00	0.00	
10,300.0	90.30	270.19	5,250.7	444.5	-4,837.3	4,838.7	0.00	0.00	
10,334.9	90.30	270.19	5,250.5	444.6	-4,872.2	4,873.6	0.00	0.00	TD at 10334.9

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lybrook P28-2307 01H I - plan hits target center - Point	0.00	0.00	5,274.5	429.6	-289.2	1,893,057.42	1,250,292.13	36.195410	-107.572200
Lybrook P28-2307 01H I - plan hits target center - Point	0.00	0.00	5,250.5	444.6	-4,872.2	1,893,134.81	1,245,709.80	36.195450	-107.587730

500.0	500.0	9 5/8"	0.000	0.000	
5,364.8	5,160.1	ICP @ 55°	0.000	0.000	

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,065.0	1,065.0	Ojo Alamo Ss.		-0.30	270.19
1,216.0	1,216.0	Kirtland Shale		-0.30	270.19
1,350.0	1,350.0	Fruitland Coal		-0.30	270.19
1,640.0	1,640.0	Pictured Cliffs Ss.		-0.30	270.19
1,746.0	1,746.0	Lewis Shale		-0.30	270.19
2,452.0	2,452.0	Cliffhouse Ss.		-0.30	270.19
3,150.0	3,150.0	Menefee Fn.		-0.30	270.19
4,014.0	4,014.0	Point Lookout Ss.		-0.30	270.19
4,197.0	4,193.0	Mancos Shale		-0.30	270.19
5,124.4	4,989.0	Gallup Fn.		-0.30	270.19

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Lybrook P28-2307 01H
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 6956.0ft (Aztec)
Project:	Sandoval County, NM	**MD Reference:**	WELL @ 6956.0ft (Aztec)
Site:	Lybrook	**North Reference:**	True
Well:	Lybrook P28-2307 01H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
4,001.0	4,001.0	0.0	0.0	KOP @ 4001'
4,449.2	4,404.9	68.3	151.9	Start build/turn @ 4449' MD
5,751.8	5,274.5	429.6	-289.2	LP @ 5274' TVD; 90.3°
10,334.9	5,250.5	444.6	-4,872.2	TD at 10334.9

Lybrook P28-2307 01H
SHL: NE/4 SE/4 28 23N 7W 1348 FSL 43 FEL
BHL: NW/4 SW/4 28 23N 7W 1775 FSL 330 FWL
Sandoval, NM

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
Kirtland Shale	1,216
Fruitland Coal	1,350
Pictured Cliffs Ss.	1,640
Lewis Shale	1,746
Cliffhouse Ss.	2,452
Menefee Fn.	3,150
Point Lookout Ss.	4,014
Mancos Shale	4,193
Gallup Fn.	4,989
Horizontal Target	5,276
Base Gallup	5,344

The referenced surface elevation is 6940', KB 6956'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,350
Oil/Gas	Pictured Cliffs Ss.	1,640
Oil/Gas	Cliffhouse Ss.	2,452
Gas	Menefee Fn.	3,150
Oil/Gas	Point Lookout Ss.	4,014
Oil/Gas	Mancos Shale	4,193
Oil/Gas	Mancos Silt	#N/A
Oil/Gas	Gallup Fn.	4,989

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

Lybrook P28-2307 01H
SHL: NE/4 SE/4 28 23N 7W 1348 FSL 43 FEL
BHL: NW/4 SW/4 28 23N 7W 1775 FSL 330 FWL
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3. PRESSURE CONTROL

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

Proposed BOP and choke manifold arrangements are attached.

4. CASING & CEMENTING PROGRAM

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

a) The proposed casing design is as follows:

Casing	Depth (MD)	Hole Size	Csg Size	Weight	Grade
Conductor	0'-60'	26"	16"	42.09#	
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5365'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5265'-10335'	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

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SHL: NE/4 SE/4 28 23N 7W 1348 FSL 43 FEL
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All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1,500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.

b) The proposed cementing program is as follows

Casing	Depth (MD)	Cement Volume (sacks)	Cement Type & Yield	Designed TOC	Centralizers
Conductor	0'-60'	100 sks	Type I Neat 16 ppg	Surface	None
Surface	0'-500'	228 sks	Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water	Surface	1 per joint on bottom 3 joints
Intermediate	0'-5365'	100% open hole excess Stage 1 Lead: 499 sks Stage 1 Tail: 382 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	5265'-10335'	50% OH excess Stage 1 Blend Total: 287sks	Blend: Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk	Liner Hanger	N/A

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

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

5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed horizontal well will have a kick off point of 4001'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5250'/10335'	Gallup

Lybrook P28-2307 01H
SHL: NE/4 SE/4 28 23N 7W 1348 FSL 43 FEL
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Sandoval, NM

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'-5160'/5365	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"	5160'/5365'-5250'/10335'	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 +/- 2469 psi based on a 9.0 ppg at 5276' TVD of the horizontal lateral target. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H_2S is encountered, the guidelines in Onshore Order No. 6 will be followed.

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on November 5, 2015. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

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

LOC: Lybrook P28-2307 01H County: KB WELL: Lybrook P28-2307 01H	Encana Natural Gas WELL SUMMARY		ENG: Erik Graven 11/25/14 RIG: Aztec 920 GLE: 0 RKBE: 0

MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH TVD	DEPTH MD	HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			60	60'	26	**16" 42.09#** **100sx Type I Neat 16.0ppg cmt**	Fresh wtr 8.3-9.2	
Multi-Well pad - take survey every stand and run anti-collision report prior to spud	None	San Jose Fn. Nacimiento Fn. **9 5/8" Csg**	0 0 **500**	**500.00**	12 1/4	**9 5/8" 36ppf J55 STC** TOC Surface with 100% OH Excess: 228 sks Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water.	Fresh wtr 8.3-10	Vertical <1°
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5	No OH logs	Ojo Alamo Ss. Kirtland Shale Fruitland Coal Pictured Cliffs Ss. Lewis Shale Cliffhouse Ss. Menefee Fn. Point Lookout Ss. Mancos Shale	1,065 1,216 1,350 1,640 1,746 2,452 3,150 4,014 4,193		8 3/4	**7" 26ppf J55 LTC** TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 881sks Stage 1 Lead: 499 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL-52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk.	Fresh Wtr 8.3-10	Vertical <1°
	Mud logger onsite	**KOP**	**4,001**	**4,001**		Stage 1 Tail: 382 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 Shale	4,193					
		Gallup Fn. **7" Csg**	4,989 **5,160**	**5,365'**				
Surveys every stand to TD unless directed otherwise by Geologist MWD Gamma Directional	No OH Logs	Horizontal Target **TD** Base Gallup	5,276 **5,250** 5,344	**10,335**	6 1/8	100' overlap at liner top 4970' Drilled Lateral **4 1/2" 11.6ppf SB80 LTC** TOC @ hanger (50% OH excess) Stage 1 Total: 287sks Stage 1 Blend: 287 sks Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk.	**WBM** 8.3-10	Horz Inc/TVD deg/ft TD = 10334.9 MD

NOTES:

1) Drill with 26" bit to 60', set 16" 42.09ppf conductor pipe
2) Drill surface to 500', R&C 9 5/8" casing
3) N/U BOP and surface equipment
4) Drill to KOP of 4001', 8 3/4 inch holesize
5) Start curve at 10deg/100' build rate
6) Drill to csg point of 5365' MD
7) R&C 7" csg, circ cmt to surface
8) Land at ~90 deg, drill lateral to 10335' run 4 1/2 inch cemented liner