

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., 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 Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
Revised October 25, 2012

☐ AMENDED REPORT
RCVD MAR 25 '13
OIL CONS. DIV.
DIST. 3

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator Name and Address ENCANA OIL & GAS (USA) INC. 370 17 TH STREET, SUITE 1700 DENVER, CO 80202		² OGRID Number 282327
		³ API Number 30-043-21145
⁴ Property Code 39785	⁵ Property Name Lybrook M31-2306	⁶ Well No. 04H

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
SHL: M	31	23N	6W	4	1190	SOUTH	386	WEST	SANDOVAL

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
BHL: M	36	23N	7W		482 580	SOUTH	330	WEST	SANDOVAL

9. Pool Information

LYBROOK GALLUP (42289)	
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Additional Well Information

¹¹ Work Type N	¹² Well Type O	¹³ Cable/Rotary R	¹⁴ Lease Type S	¹⁵ Ground Level Elevation 7173
¹⁶ Multiple N/A	¹⁷ Proposed Depth 5456' TVD/10705' MD	¹⁸ Formation GALLUP	¹⁹ Contractor AZTEC	²⁰ Spud Date 10/21/2013
Depth to Ground water UNKNOWN		Distance from nearest fresh water well GREATER THAN 5280'		Distance to nearest surface water ~6500'

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
CONDUCTOR	30"	20"	94#	60'	100	SURFACE
SURFACE	12 1/4"	9 5/8"	36#	500'	178	SURFACE
INTERMEDIATE	8 3/4"	7"	26#	5434' TVD / 5810' MD	589 (30% EXCESS)	SURFACE
PROD. LINER	6 1/8"	4 1/2"	11.6#	5610' - 10705' MD	N/A	N/A

Casing/Cement Program: Additional Comments

HORIZONTAL LATERAL IN THE GALLUP FORMATION, NO CEMENT IN THE PRODUCTION LINER, WILL RUN EXTERNAL SWELL CASING PACKER SYSTEM. WILL USE OIL BASED MUD SYSTEM FROM 7" INTERMEDIATE CASING SETTING DEPTH TO TD OF HORIZONTAL LATERAL
--

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
ANNULAR	3000	1500	TBD
DOUBLE RAM	3000	3000	TBD

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☐ , if applicable. NO DRILLING PIT WILL BE USED Signature: <i>Brenda R. Linster</i> Printed name: Brenda R. Linster Title: Regulatory Lead E-mail Address: brenda.linster@encana.com Date: 03/20/2013	OIL CONSERVATION DIVISION	
	Approved By: <i>Charles Lin</i> 3-28-13	
	Title: SUPERVISOR DISTRICT #3	
	Approved Date: MAR 28 2013	Expiration Date: MAR 28 2015
	Conditions of Approval Attached	

Hold C104
for Directional Survey
and "As Drilled" plat

MAR 28 2013 ca

**NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT**

Hold C104
for Directional Survey
and "As Drilled" plat

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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

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-043-21145		*Pool Code 42289	*Pool Name LYBROOK GALLUP
*Property Code 39785	*Property Name LYBROOK M31-2306		*Well Number 04H
*GRID No. 282327	*Operator Name ENCANA OIL & GAS (USA) INC.		*Elevation 7173'

¹⁰ Surface Location

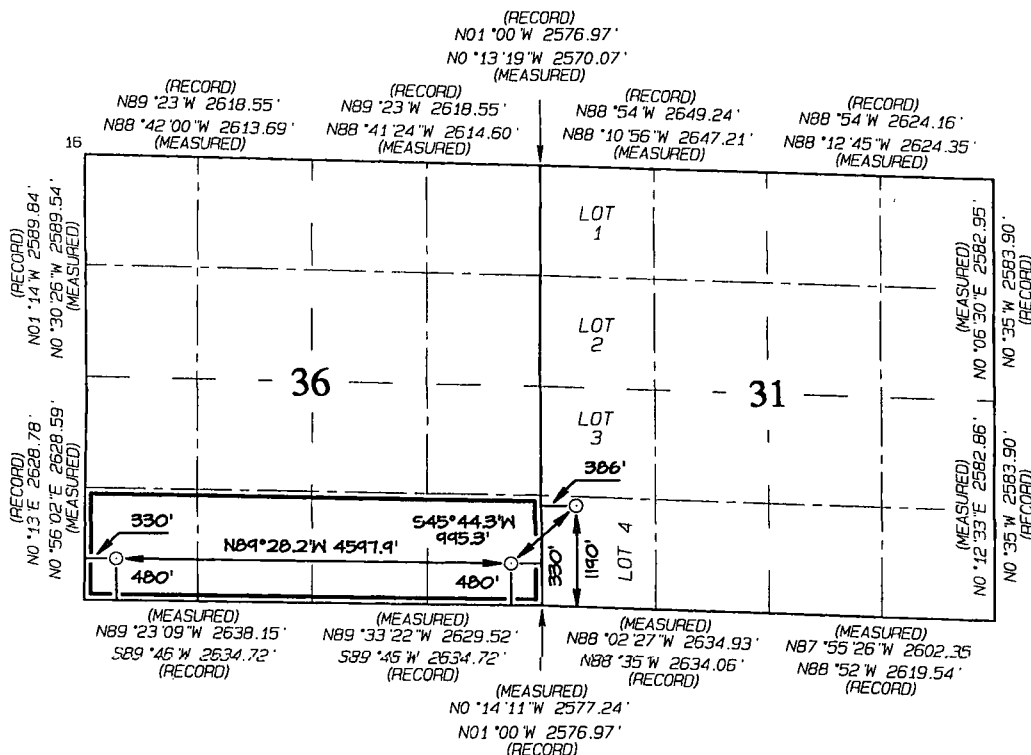
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	31	23N	6W	4	1190	SOUTH	386	WEST	SANDOVAL

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	36	23N	7W		480	SOUTH	330	WEST	SANDOVAL

¹² Dedicated Acres 160.0 Acres S/2 S/2 - Section 36	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE
BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



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.

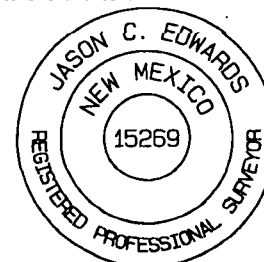
Brenda R Linster 3/20/13
Signature Date
Brenda R Linster
Printed Name
brenda.linster@encana.com
E-mail Address

¹⁸ SURVEYOR CERTIFICATION

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

Date Revised: FEBRUARY 19, 2013
Date of Survey: MARCH 23, 2012

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

Directions from the Intersection of US Hwy 550 & US Hwy 64
in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Lybrook M31-2306 04H
1190' FSL & 386' FWL, Section 31, T23N, R6W, N.M.P.M., Sandoval County, NM

Latitude: 36.17902°N Longitude: 107.51634°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 53.6 miles to Mile Marker 97.7;

Go right (South-easterly) for 4.3 miles to fork in road;

Go left (South-westerly) for 0.2 miles to 4-way intersection;

Go right (North-westerly) for 0.6 miles to 4-way intersection;

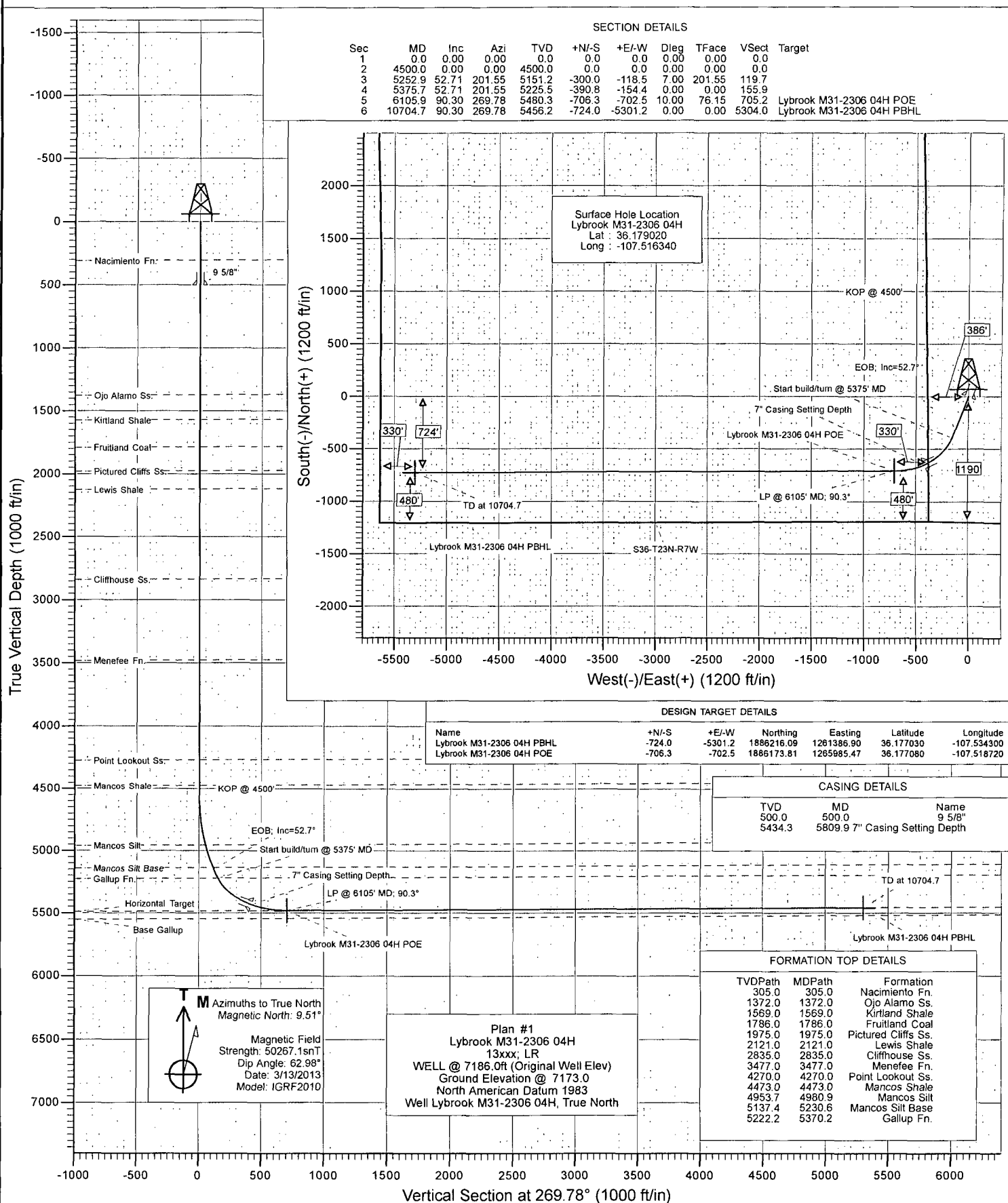
Go straight (Westerly) for 0.2 miles to 4-way intersection;

Go straight (Westerly) for 0.6 miles to fork in road;

Go right (North-westerly) for 1.4 miles to fork in road;

Go right (North-westerly) for 0.9 miles to fork in road;

Go right (North-easterly) for 0.7 miles to new access on left-hand side of existing roadway which continues for 258' to Encana Lybrook M31-2306 04H location.



Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M31-2306 04H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well Lybrook M31-2306 04H
TVD Reference: WELL @ 7186.0ft (Original Well Elev)
MD Reference: WELL @ 7186.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	Sandoval County, NM
Map System:	US State Plane 1983
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 M31-2306 04H					
Well Position	+N/-S	0.0 ft	Northing:	1,886,870.88 ft	Latitude:	36.179020
	+E/-W	0.0 ft	Easting:	1,266,697.12 ft	Longitude:	-107.516340
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,173.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/13/2013	9.51	62.98	50,267

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	269.78

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	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,252.9	52.71	201.55	5,151.2	-300.0	-118.5	7.00	7.00	0.00	201.55	
5,375.7	52.71	201.55	5,225.5	-390.8	-154.4	0.00	0.00	0.00	0.00	
6,105.9	90.30	269.78	5,480.3	-706.3	-702.5	10.00	5.15	9.34	76.15	Lybrook M31-2306 04
10,704.7	90.30	269.78	5,456.2	-724.0	-5,301.2	0.00	0.00	0.00	0.00	Lybrook M31-2306 04

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook M31-2306 04H
 Wellbore: Hz
 Design: Plan #1

Local Co-ordinate Reference: Well Lybrook M31-2306 04H
 TVD Reference: WELL @ 7186.0ft (Original Well Elev)
 MD Reference: WELL @ 7186.0ft (Original Well Elev)
 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	
305.0	0.00	0.00	305.0	0.0	0.0	0.0	0.00	0.00	Nacimiento Fn.
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	
1,372.0	0.00	0.00	1,372.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
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	
1,569.0	0.00	0.00	1,569.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
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	
1,786.0	0.00	0.00	1,786.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
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	
1,975.0	0.00	0.00	1,975.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
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	
2,121.0	0.00	0.00	2,121.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
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	
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	
2,835.0	0.00	0.00	2,835.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
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	
3,200.0	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	
3,477.0	0.00	0.00	3,477.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
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	
4,100.0	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	
4,270.0	0.00	0.00	4,270.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.

Planning Report

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 Wellbore: Hz
 Design: Plan #1

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Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,473.0	0.00	0.00	4,473.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4500'
4,600.0	7.00	201.55	4,599.8	-5.7	-2.2	2.3	7.00	7.00	
4,700.0	14.00	201.55	4,698.0	-22.6	-8.9	9.0	7.00	7.00	
4,800.0	21.00	201.55	4,793.3	-50.6	-20.0	20.2	7.00	7.00	
4,900.0	28.00	201.55	4,884.3	-89.1	-35.2	35.5	7.00	7.00	
4,982.1	33.74	201.55	4,954.7	-128.3	-50.7	51.2	7.00	7.00	Mancos Silt
5,000.0	35.00	201.55	4,969.5	-137.7	-54.4	54.9	7.00	7.00	
5,100.0	42.00	201.55	5,047.7	-195.5	-77.2	78.0	7.00	7.00	
5,200.0	49.00	201.55	5,117.7	-261.8	-103.4	104.4	7.00	7.00	
5,234.0	51.38	201.55	5,139.5	-286.1	-113.0	114.1	7.00	7.00	Mancos Silt Base
5,252.9	52.71	201.55	5,151.2	-300.0	-118.5	119.7	7.00	7.00	EOB; Inc=52.7°
5,300.0	52.71	201.55	5,179.7	-334.8	-132.3	133.5	0.00	0.00	
5,374.9	52.71	201.55	5,225.0	-390.2	-154.1	155.6	0.00	0.00	Gallup Fn.
5,375.7	52.71	201.55	5,225.5	-390.8	-154.4	155.9	0.00	0.00	Start build/turn @ 5375' MD
5,400.0	53.32	204.50	5,240.2	-408.7	-162.0	163.5	10.00	2.54	
5,500.0	56.58	216.06	5,297.7	-479.1	-203.3	205.1	10.00	3.26	
5,600.0	60.83	226.66	5,349.7	-543.0	-259.7	261.8	10.00	4.25	
5,700.0	65.84	236.35	5,394.7	-598.4	-329.7	331.9	10.00	5.01	
5,800.0	71.41	245.28	5,431.2	-643.6	-410.9	413.4	10.00	5.57	
5,809.9	71.99	246.13	5,434.3	-647.4	-419.5	421.9	10.00	5.82	7" Casing Setting Depth
5,900.0	77.38	253.61	5,458.1	-677.2	-501.0	503.6	10.00	5.98	
6,000.0	83.59	261.56	5,474.7	-698.3	-597.2	599.9	10.00	6.21	
6,100.0	89.92	269.32	5,480.3	-706.2	-696.6	699.3	10.00	6.33	
6,105.9	90.30	269.78	5,480.3	-706.3	-702.5	705.2	10.00	6.35	LP @ 6105' MD; 90.3°
6,200.0	90.30	269.78	5,479.8	-706.7	-796.6	799.3	0.00	0.00	
6,300.0	90.30	269.78	5,479.3	-707.0	-896.6	899.3	0.00	0.00	
6,400.0	90.30	269.78	5,478.8	-707.4	-996.6	999.3	0.00	0.00	
6,500.0	90.30	269.78	5,478.2	-707.8	-1,096.6	1,099.3	0.00	0.00	
6,600.0	90.30	269.78	5,477.7	-708.2	-1,196.6	1,199.3	0.00	0.00	
6,700.0	90.30	269.78	5,477.2	-708.6	-1,296.6	1,299.3	0.00	0.00	
6,800.0	90.30	269.78	5,476.7	-709.0	-1,396.6	1,399.3	0.00	0.00	
6,900.0	90.30	269.78	5,476.1	-709.4	-1,496.6	1,499.3	0.00	0.00	
7,000.0	90.30	269.78	5,475.6	-709.7	-1,596.6	1,599.3	0.00	0.00	
7,100.0	90.30	269.78	5,475.1	-710.1	-1,696.6	1,699.3	0.00	0.00	
7,200.0	90.30	269.78	5,474.6	-710.5	-1,796.6	1,799.3	0.00	0.00	
7,300.0	90.30	269.78	5,474.0	-710.9	-1,896.6	1,899.3	0.00	0.00	
7,400.0	90.30	269.78	5,473.5	-711.3	-1,996.5	1,999.3	0.00	0.00	
7,500.0	90.30	269.78	5,473.0	-711.7	-2,096.5	2,099.3	0.00	0.00	
7,600.0	90.30	269.78	5,472.5	-712.1	-2,196.5	2,199.3	0.00	0.00	
7,700.0	90.30	269.78	5,472.0	-712.4	-2,296.5	2,299.3	0.00	0.00	
7,800.0	90.30	269.78	5,471.4	-712.8	-2,396.5	2,399.3	0.00	0.00	
7,900.0	90.30	269.78	5,470.9	-713.2	-2,496.5	2,499.3	0.00	0.00	
8,000.0	90.30	269.78	5,470.4	-713.6	-2,596.5	2,599.3	0.00	0.00	
8,100.0	90.30	269.78	5,469.9	-714.0	-2,696.5	2,699.3	0.00	0.00	
8,200.0	90.30	269.78	5,469.3	-714.4	-2,796.5	2,799.3	0.00	0.00	
8,300.0	90.30	269.78	5,468.8	-714.7	-2,896.5	2,899.3	0.00	0.00	
8,400.0	90.30	269.78	5,468.3	-715.1	-2,996.5	2,999.3	0.00	0.00	
8,500.0	90.30	269.78	5,467.8	-715.5	-3,096.5	3,099.3	0.00	0.00	
8,600.0	90.30	269.78	5,467.2	-715.9	-3,196.5	3,199.2	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 M31-2306 04H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well Lybrook M31-2306 04H
TVD Reference: WELL @ 7186.0ft (Original Well Elev)
MD Reference: WELL @ 7186.0ft (Original Well Elev)
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
8,700.0	90.30	269.78	5,466.7	-716.3	-3,296.5	3,299.2	0.00	0.00	
8,800.0	90.30	269.78	5,466.2	-716.7	-3,396.5	3,399.2	0.00	0.00	
8,900.0	90.30	269.78	5,465.7	-717.1	-3,496.5	3,499.2	0.00	0.00	
9,000.0	90.30	269.78	5,465.1	-717.4	-3,596.5	3,599.2	0.00	0.00	
9,100.0	90.30	269.78	5,464.6	-717.8	-3,696.5	3,699.2	0.00	0.00	
9,200.0	90.30	269.78	5,464.1	-718.2	-3,796.5	3,799.2	0.00	0.00	
9,300.0	90.30	269.78	5,463.6	-718.6	-3,896.5	3,899.2	0.00	0.00	
9,400.0	90.30	269.78	5,463.1	-719.0	-3,996.5	3,999.2	0.00	0.00	
9,500.0	90.30	269.78	5,462.5	-719.4	-4,096.5	4,099.2	0.00	0.00	
9,600.0	90.30	269.78	5,462.0	-719.8	-4,196.5	4,199.2	0.00	0.00	
9,700.0	90.30	269.78	5,461.5	-720.1	-4,296.5	4,299.2	0.00	0.00	
9,800.0	90.30	269.78	5,461.0	-720.5	-4,396.5	4,399.2	0.00	0.00	
9,900.0	90.30	269.78	5,460.4	-720.9	-4,496.5	4,499.2	0.00	0.00	
10,000.0	90.30	269.78	5,459.9	-721.3	-4,596.5	4,599.2	0.00	0.00	
10,100.0	90.30	269.78	5,459.4	-721.7	-4,696.5	4,699.2	0.00	0.00	
10,200.0	90.30	269.78	5,458.9	-722.1	-4,796.5	4,799.2	0.00	0.00	
10,300.0	90.30	269.78	5,458.3	-722.5	-4,896.5	4,899.2	0.00	0.00	
10,400.0	90.30	269.78	5,457.8	-722.8	-4,996.5	4,999.2	0.00	0.00	
10,500.0	90.30	269.78	5,457.3	-723.2	-5,096.5	5,099.2	0.00	0.00	
10,600.0	90.30	269.78	5,456.8	-723.6	-5,196.5	5,199.2	0.00	0.00	
10,700.0	90.30	269.78	5,456.2	-724.0	-5,296.5	5,299.2	0.00	0.00	
10,704.7	90.30	269.78	5,456.2	-724.0	-5,301.2	5,304.0	0.00	0.00	TD at 10704.7

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 M31-2306 04H - plan hits target center - Point	0.00	0.00	5,480.3	-706.3	-702.5	1,886,173.81	1,265,985.47	36.177080	-107.518720
Lybrook M31-2306 04H - plan hits target center - Point	0.00	0.00	5,456.2	-724.0	-5,301.2	1,886,216.09	1,261,386.90	36.177030	-107.534300

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
500.0	500.0	9 5/8"	0.000	0.000
5,809.9	5,434.3	7" Casing Setting Depth	0.000	0.000

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M31-2306 04H
Wellbore: Hz
Design: Plan #1

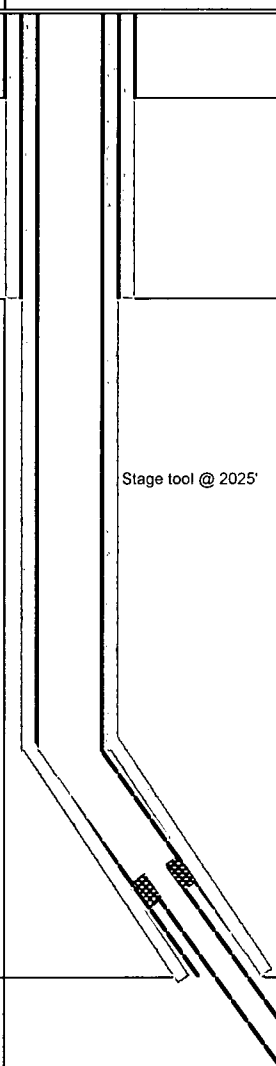
Local Co-ordinate Reference: Well Lybrook M31-2306 04H
TVD Reference: WELL @ 7186.0ft (Original Well Elev)
MD Reference: WELL @ 7186.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
305.0	305.0	Nacimiento Fn.		-0.30	
1,372.0	1,372.0	Ojo Alamo Ss.		-0.30	
1,569.0	1,569.0	Kirtland Shale		-0.30	
1,786.0	1,786.0	Fruitland Coal		-0.30	
1,975.0	1,975.0	Pictured Cliffs Ss.		-0.30	
2,121.0	2,121.0	Lewis Shale		-0.30	
2,835.0	2,835.0	Cliffhouse Ss.		-0.30	
3,477.0	3,477.0	Menefee Fn.		-0.30	
4,270.0	4,270.0	Point Lookout Ss.		-0.30	
4,473.0	4,473.0	Mancos Shale		-0.30	
4,982.1	4,954.0	Mancos Silt		-0.30	
5,234.0	5,138.0	Mancos Silt Base		-0.30	
5,374.9	5,223.0	Gallup Fn.		-0.30	
1,290.0	5,484.0	Horizontal Target		-0.30	
1,290.0	5,546.0	Base Gallup		-0.30	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,500.0	4,500.0	0.0	0.0	KOP @ 4500'
5,252.9	5,151.2	-300.0	-118.5	EOB; Inc=52.7°
5,375.7	5,225.5	-390.8	-154.4	Start build/turn @ 5375' MD
6,105.9	5,480.3	-706.3	-702.5	LP @ 6105' MD; 90.3°
10,704.7	5,456.2	-724.0	-5,301.2	TD at 10704.7

LOC: Sec 31-T23N-R6W County: Sandoval WELL: Lybrook M31-2306 04H			Encana Natural Gas WELL SUMMARY				encana. natural gas		ENG: J. Fox/ A. 3/20/13 RIG: GLE: 7173 RKBE: 7186	
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION	
			TVD	MD						
			60	60'		30	20" 94# 100sx Type I Neat 48.8ppg cmt	Fresh wtr 8.3-9.2		
Surveys After csg is run	None					12 1/4	9 5/8" 36ppf J55 STC TOC @ surface 178 sks Type III Cmt	Fresh wtr 8.4-8.6	Vertical <1°	
Surveys every 500'	No OH logs Mud logger onsite	Ojo Alamo Kirtland Fruitland Coal Pictured Cliffs Ss Lewis Shale Cliffhouse Ss Menefee Fn Point Lookout Ss Mancos Sh KICK OFF PT Mancos Silt Gallup Top	1372 1569 1786 1975 2121 2835 3477 4270 4473 4500 4954 5223			8 3/4	7" 26ppf J55 LTC TOC @ surface 30% OH excess: 589 sksTotal. Stage 1 Lead: 243sks Stage 1 Tail: 167sks. Stage 2 Lead: 179sks	Fresh Wtr 8.5-8.8	Vertical <1° KOP 4500 10 deg/100'	
			5434	5810			6 1/8	200' overlap at liner top 4599' Lateral	8.6-9.0 OBM	.25deg updip 5456'TVD TD = 10705' MD
Surveys every 500' Gyro at CP MWD Gamma Directional	No OH Logs	horz target Base Gallup	5480 5546	6106			4 1/2" 11.6ppf SB80 LTC Running external swellable csg packers for isolation of prod string Plan on setting top packer within 100' of intermediate casing shoe	Switch to OBM 8.6-9.0		

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 4500' , 8 3/4" hole size,
- 5) PU directional tools and start curve at 10deg/100' build rate
- 6) Drill to casing point of 5810' MD
- 7) R&C 7" casing, circ cmt to surface, switch to OBM
- 8) Land at 90deg, drill 4599' lateral to 10705', run 4 1/2" liner with external swellable csg packers