

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 August 1, 2011

Permit

RCVD MAY 29 '12

OIL CONS. DIV.
DIST. 3

CONFIDENTIAL

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 30-043-21125
⁴ Property Code 39250	⁵ Property Name LYBROOK 132-2306	⁶ Well No 02H

7 Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
SHL: I	32	23N	6W		1298	SOUTH	358	EAST	SANDOVAL
BHL: M	32	23N	6W		660	SOUTH	330	WEST	SANDOVAL

8 Pool Information

LYBROOK GALLUP

Additional Well Information

⁹ Work Type N	¹⁰ Well Type O	¹¹ Cable/Rotary R	¹² Lease Type S	¹³ Ground Level Elevation 7103'
¹⁴ Multiple N/A	¹⁵ Proposed Depth 5344' TVD/9765' MD	¹⁶ Formation GALLUP	¹⁷ Contractor AZTEC	¹⁸ Spud Date ~07/15/12
Depth to Ground water UNKNOWN		Distance from nearest fresh water well 5280'		UNKNOWN WELL TYPE WITHIN Distance to nearest surface water ~660' (dry)

19 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	17 1/2"	13 3/8"	48#	500'	291	SURFACE
INTERMEDIATE	12 1/4"	9 5/8"	40#	4700'	974 (30% OH EXCESS)	SURFACE
PROD. LINER	8 1/2"	5 1/2"	17#	4500'-9995' 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 KOP TO TD OF HORIZONTAL LATERAL.
--

Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
ROTATING HEAD	3000	1500	TBD
DOUBLE RAM	3000	3000	TBD

I hereby certify that the information given above is true and complete to the best of my knowledge and belief. NO DRILLING PIT WILL BE USED. I further certify that the drilling pit will be constructed according to NMOCD guidelines ☐ , a general permit ☐ , or an (attached) alternative OCD-approved plan ☐ . <i>Brenda Linster</i>		OIL CONSERVATION DIVISION	
Printed name: BRENDA R. LINSTER		Approved By: <i>Charles Lin</i> 6-13-2012	
Title: REGULATORY ADVISOR		Title: SUPERVISOR DISTRICT #3	
E-mail Address: BRENDA.LINSTER@ENCANA.COM		Approved Date: JUN 14 2012 Expiration Date: JUN 14 2014	
Date: 05-21-12 Phone: 720-876-3989		Hold C104 for Directional Survey and "As Drilled" plat	
Conditions of Approval Attached			

ca JUN 14 2012

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

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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 30-043-2125		*Pool Code 42289	*Pool Name LYBROOK GALLUP
*Property Code 39270	*Property Name LYBROOK I32-2306		*Well Number 02H
*GRID No 282327	*Operator Name ENCANA OIL & GAS (USA) INC.		*Elevation 7103'

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
I	32	23N	6W		1298	SOUTH	358	EAST	SANDOVAL

11 Bottom Hole Location If Different From Surface

UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	32	23N	6W		660	SOUTH	330	WEST	SANDOVAL

12 Dedicated Acres 160.0 Acres - (S/2 S/2)	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

16 N88°00'39"W 2624.47' (MEASURED) N87°59'18"W 2624.75' (MEASURED)

N88°42'W 2625.48' (RECORD)		N88°42'W 2625.48' (RECORD)	
N88°52'W 2619.54' (RECORD) N88°07'14"W 2620.94' (MEASURED)		N88°52'W 2619.54' (RECORD) N88°09'12"W 2620.38' (MEAS)	
END OF LATERAL LAT: 36.17723°N LONG: 107.49814°W DATUM: NAD1927		POINT-OF-ENTRY LAT: 36.17700°N LONG: 107.48373°W DATUM: NAD1927	
LAT: 36.17724°N LONG: 107.49874°W DATUM: NAD1983		LAT: 36.17701°N LONG: 107.48434°W DATUM: NAD1983	
LAT: 36.17873°N LONG: 107.48273°W DATUM: NAD1927		LAT: 36.17875°N LONG: 107.48334°W DATUM: NAD1983	
330'		358'	
660'		660'	
Gallup Penetration Point 1137' FSL 441' FEL		525°52.3'W 697.8'	
N88°08.2'W 4251.6'		1298'	
N88°08.2'W 4251.6'		660'	

17 OPERATOR CERTIFICATION
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.
Signature: *Brenda R. Linster* Date: 05-23-12
Printed Name: Brenda R. Linster, Regulatory Advisor
E-mail Address: brenda.linster@encana.com

18 SURVEYOR CERTIFICATION
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief
Date of Survey: MARCH 30, 2012
Signature and Seal of Professional Surveyor
JASON C. EDWARDS
15269
REGISTERED 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 I32-2306 02H
1298' FSL & 358' FEL, Section 32, T23N, R6W, N.M.P.M., Sandoval County, NM

Latitude: 36.17875°N Longitude: 107.48334°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 50.4 miles to Mile Marker 100.9;

Go right (Southerly) for 200' to fork in road;

Go right which is straight (South-westerly) for 2.0 miles to "T" intersection;

Go right (South-easterly) for 0.8 miles to fork in road;

Go left (South-easterly) for 0.3 miles to fork in road;

Go right (Southerly) for 0.3 miles to fork in road;

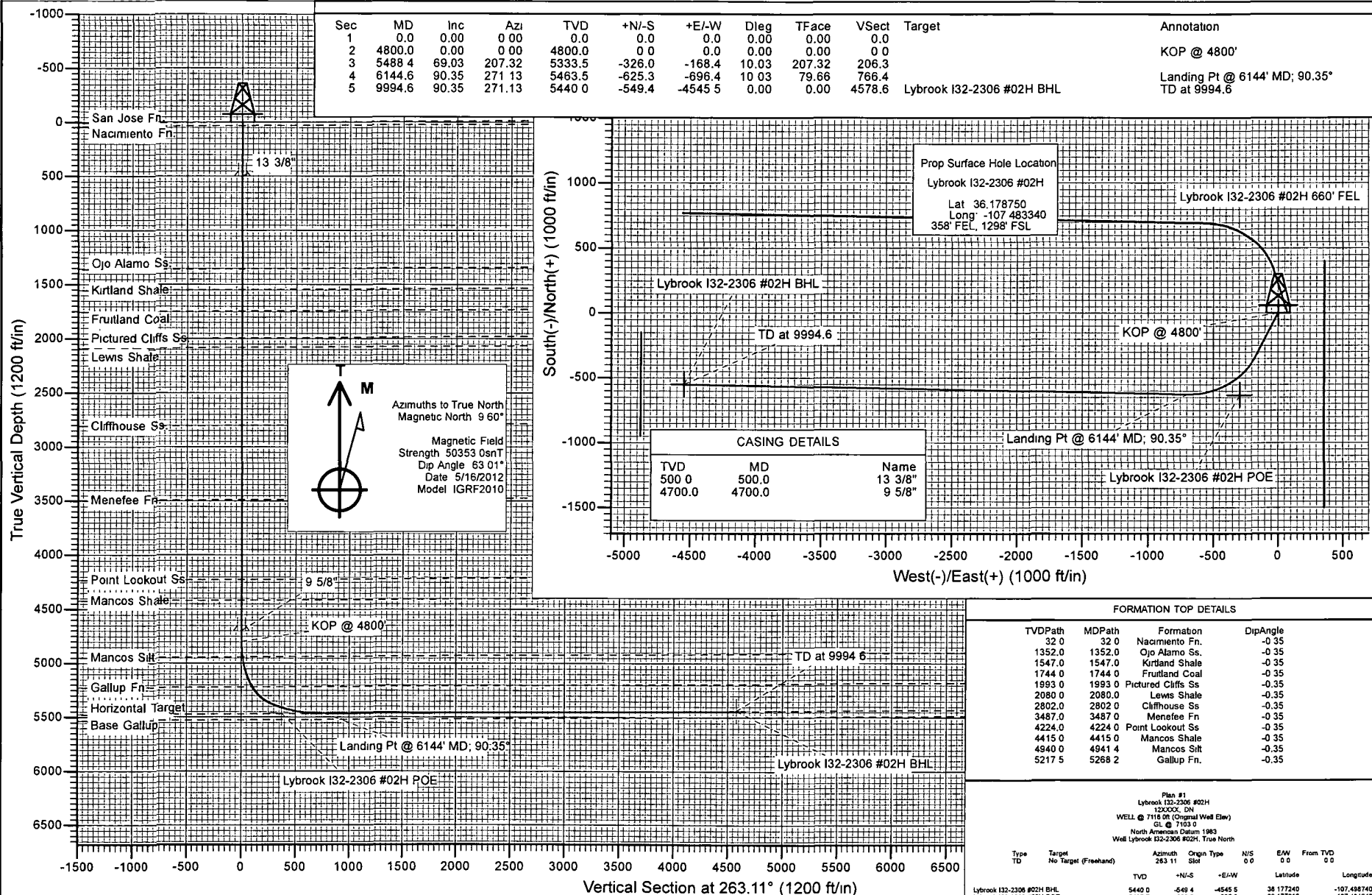
Go left (Easterly) for 0.3 miles to an existing wellpad from which new access to Encana Lybrook A32-2306 01H location continues for 1500' to new access on right-hand side which continues for an additional 3080' to Encana Lybrook I32-2306 02H location.

encana™

natural gas

Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook I32-2306 #02H
Wellbore: HZ
Design: Plan #1

CATHEDRAL



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook I32-2306 #02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7116.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7116.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook I32-2306 #02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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

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

Well	Lybrook I32-2306 #02H		
Well Position	+N/-S	0.0 ft	Northing: 1,886,647.15 ft
	+E/-W	0.0 ft	Easting: 1,276,435.31 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	36.178750
		Longitude:	-107.483340
		Ground Level:	7,103.0 ft

Wellbore	HZ		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	5/16/2012	9.60
			Dip Angle
			(°)
			63.01
			Field Strength
			(nT)
			50,353

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			Direction
			(°)
			263.11

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	
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,488.4	69.03	207.32	5,333.5	-326.0	-168.4	10.03	10.03	0.00	207.32	
6,144.6	90.35	271.13	5,463.5	-625.3	-696.4	10.03	3.25	9.72	79.66	
9,994.6	90.35	271.13	5,440.0	-549.4	-4,545.5	0.00	0.00	0.00	0.00	Lybrook I32-2306 #02

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook I32-2306 #02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7116 0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7116.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook I32-2306 #02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	Lybrook I32-2306 #02H 660' FEL
32.0	0.00	0.00	32.0	0.0	0.0	0.0	0.00	0.00	Nacimiento Fn
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	13 3/8"
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	
1,352.0	0.00	0.00	1,352.0	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	
1,547.0	0.00	0.00	1,547.0	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	
1,744.0	0.00	0.00	1,744.0	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	
1,993.0	0.00	0.00	1,993.0	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	
2,080.0	0.00	0.00	2,080.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
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	
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	
2,802.0	0.00	0.00	2,802.0	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	
3,487.0	0.00	0.00	3,487.0	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	
4,224.0	0.00	0.00	4,224.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.

Planning Report

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Project:	Sandoval County, NM	MD Reference:	WELL @ 7116.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook I32-2306 #02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,300.0	0 00	0 00	4,300.0	0 0	0 0	0 0	0.00	0.00	
4,400.0	0 00	0.00	4,400.0	0 0	0.0	0.0	0 00	0 00	
4,415.0	0 00	0 00	4,415.0	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	
4,600.0	0 00	0 00	4,600.0	0 0	0 0	0 0	0.00	0.00	
4,700.0	0 00	0.00	4,700.0	0 0	0 0	0 0	0 00	0 00	9 5/8"
4,800.0	0 00	0 00	4,800.0	0 0	0 0	0 0	0.00	0 00	KOP @ 4800'
4,900.0	10 03	207 32	4,899.5	-7.8	-4.0	4.9	10.03	10 03	
4,941.4	14 18	207 32	4,940.0	-15.5	-8.0	9.8	10 03	10 03	Mancos Silt
5,000.0	20 06	207.32	4,995.9	-30.8	-15.9	19.5	10 03	10 03	
5,100.0	30 08	207 32	5,086.4	-68.4	-35.3	43.3	10 03	10 03	
5,200.0	40.11	207 32	5,168.1	-119.4	-61.7	75.6	10 03	10 03	
5,268.2	46 95	207 32	5,217.5	-161.1	-83.2	101.9	10 03	10 03	Gallup Fn
5,300.0	50 14	207 32	5,238.6	-182.3	-94.2	115.4	10 03	10.03	
5,400.0	60 17	207.32	5,295.7	-255.1	-131.8	161.4	10 03	10 03	
5,488.4	69 03	207 32	5,333.5	-326.0	-168.4	206.3	10 03	10 03	
5,500.0	69 24	208 55	5,337.7	-335.5	-173.5	212.5	10 03	1.84	
5,600.0	71 43	218 94	5,371.4	-413.7	-225.7	273.8	10.03	2.18	
5,700.0	74.16	229.05	5,401.0	-482.2	-292.0	347.8	10.03	2.73	
5,800.0	77.35	238.86	5,425.7	-539.1	-370.3	432.3	10 03	3.19	Lybrook I32-2306 #02H POE
5,900.0	80.88	248.41	5,444.6	-582.7	-458.2	524.8	10 03	3.54	
6,000.0	84.66	257.78	5,457.2	-611.4	-553.0	622.4	10 03	3.78	
6,100.0	88.59	267.03	5,463.1	-624.6	-651.8	722.1	10 03	3.92	
6,144.6	90 35	271.13	5,463.5	-625.3	-696.4	766.4	10 02	3.96	Landing Pt @ 6144' MD; 90.35°
6,200.0	90 35	271 13	5,463.2	-624.2	-751.8	821.3	0 00	0.00	
6,300.0	90.35	271 13	5,462.6	-622.2	-851.8	920.3	0 00	0 00	
6,400.0	90 35	271.13	5,462.0	-620.3	-951.8	1,019.3	0.00	0 00	
6,500.0	90 35	271 13	5,461.4	-618.3	-1,051.7	1,118.3	0 00	0 00	
6,600.0	90.35	271 13	5,460.8	-616.3	-1,151.7	1,217.3	0 00	0 00	
6,700.0	90 35	271 13	5,460.2	-614.4	-1,251.7	1,316.4	0 00	0 00	
6,800.0	90 35	271.13	5,459.5	-612.4	-1,351.7	1,415.4	0 00	0 00	
6,900.0	90 35	271 13	5,458.9	-610.4	-1,451.7	1,514.4	0.00	0 00	
7,000.0	90.35	271 13	5,458.3	-608.4	-1,551.6	1,613.4	0 00	0 00	
7,100.0	90 35	271 13	5,457.7	-606.5	-1,651.6	1,712.4	0 00	0.00	
7,200.0	90 35	271 13	5,457.1	-604.5	-1,751.6	1,811.5	0 00	0.00	
7,300.0	90 35	271.13	5,456.5	-602.5	-1,851.6	1,910.5	0 00	0 00	
7,400.0	90.35	271 13	5,455.9	-600.6	-1,951.5	2,009.5	0 00	0 00	
7,500.0	90.35	271 13	5,455.3	-598.6	-2,051.5	2,108.5	0 00	0 00	
7,600.0	90 35	271 13	5,454.7	-596.6	-2,151.5	2,207.5	0 00	0 00	
7,700.0	90 35	271 13	5,454.0	-594.6	-2,251.5	2,306.6	0 00	0 00	
7,800.0	90.35	271 13	5,453.4	-592.7	-2,351.5	2,405.6	0.00	0 00	
7,900.0	90 35	271 13	5,452.8	-590.7	-2,451.4	2,504.6	0 00	0 00	
8,000.0	90.35	271 13	5,452.2	-588.7	-2,551.4	2,603.6	0 00	0 00	
8,100.0	90 35	271 13	5,451.6	-586.8	-2,651.4	2,702.6	0 00	0 00	
8,200.0	90 35	271.13	5,451.0	-584.8	-2,751.4	2,801.7	0.00	0.00	
8,300.0	90 35	271 13	5,450.4	-582.8	-2,851.4	2,900.7	0 00	0 00	
8,400.0	90 35	271 13	5,449.8	-580.8	-2,951.3	2,999.7	0.00	0 00	
8,500.0	90.35	271 13	5,449.2	-578.9	-3,051.3	3,098.7	0.00	0 00	
8,600.0	90.35	271 13	5,448.5	-576.9	-3,151.3	3,197.7	0.00	0 00	
8,700.0	90 35	271.13	5,447.9	-574.9	-3,251.3	3,296.8	0.00	0 00	
8,800.0	90 35	271 13	5,447.3	-572.9	-3,351.2	3,395.8	0 00	0 00	
8,900.0	90 35	271 13	5,446.7	-571.0	-3,451.2	3,494.8	0 00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook I32-2306 #02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7116.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7116.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook I32-2306 #02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,000.0	90.35	271.13	5,446.1	-569.0	-3,551.2	3,593.8	0.00	0.00	
9,100.0	90.35	271.13	5,445.5	-567.0	-3,651.2	3,692.8	0.00	0.00	
9,200.0	90.35	271.13	5,444.9	-565.1	-3,751.2	3,791.9	0.00	0.00	
9,300.0	90.35	271.13	5,444.3	-563.1	-3,851.1	3,890.9	0.00	0.00	
9,400.0	90.35	271.13	5,443.7	-561.1	-3,951.1	3,989.9	0.00	0.00	
9,500.0	90.35	271.13	5,443.1	-559.1	-4,051.1	4,088.9	0.00	0.00	
9,600.0	90.35	271.13	5,442.4	-557.2	-4,151.1	4,187.9	0.00	0.00	
9,700.0	90.35	271.13	5,441.8	-555.2	-4,251.1	4,287.0	0.00	0.00	
9,800.0	90.35	271.13	5,441.2	-553.2	-4,351.0	4,386.0	0.00	0.00	
9,900.0	90.35	271.13	5,440.6	-551.3	-4,451.0	4,485.0	0.00	0.00	
9,994.6	90.35	271.13	5,440.0	-549.4	-4,545.5	4,578.6	0.00	0.00	TD at 9994.6 - Lybrook I32-2306 #02H BHL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lybrook I32-2306 #02H - hit/miss target - Shape	0.00	0.00	5,440.0	-549.4	-4,545.5	1,886,155.58	1,271,883.16	36 177240	-107 498740
- plan hits target center									
- Polygon									
Point 1			5,440.0	400.0	-330.0	1,886,559.74	1,271,558.27		
Point 2			5,440.0	-400.0	-330.0	1,885,759.80	1,271,548.10		
Lybrook I32-2306 #02H - plan misses target center by 127.1ft at 5800.0ft MD (5425.7 TVD, -539.1 N, -370.3 E) - Point	0.00	0.00	5,465.7	-633.5	-295.2	1,886,017.48	1,276,132.12	36 177010	-107 484340
Lybrook I32-2306 #02H - plan misses target center by 5440.0ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E) - Polygon	0.00	0.00	-5,440.0	0.0	0.0	1,886,647.15	1,276,435.31	36 178750	-107 483340
Point 1			-5,440.0	400.0	358.0	1,887,042.57	1,276,798.37		
Point 2			-5,440.0	-1,500.0	358.0	1,885,142.72	1,276,774.22		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
500.0	500.0	13 3/8"	13.375	17.500	
4,700.0	4,700.0	9 5/8"	9.625	12.250	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook 132-2306 #02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7116.0ft (Original Well Elev)
Project:	Sandoval County, NM	MD Reference:	WELL @ 7116.0ft (Original Well Elev)
Site:	Lybrook	North Reference:	True
Well:	Lybrook 132-2306 #02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
32 0	32 0	Nacimiento Fn		-0 35	271.13
1,352 0	1,352 0	Ojo Alamo Ss		-0 35	271 13
1,547 0	1,547 0	Kirtland Shale		-0 35	271.13
1,744.0	1,744 0	Fruitland Coal		-0 35	271 13
1,993 0	1,993 0	Pictured Cliffs Ss		-0 35	271.13
2,080 0	2,080 0	Lewis Shale		-0 35	271 13
2,802.0	2,802 0	Cliffhouse Ss		-0 35	271 13
3,487.0	3,487 0	Menefee Fn.		-0.35	271.13
4,224 0	4,224 0	Point Lookout Ss		-0.35	271.13
4,415 0	4,415 0	Mancos Shale		-0.35	271 13
4,941.4	4,940 0	Mancos Silt		-0 35	271 13
5,268 2	5,218 0	Gallup Fn.		-0 35	271 13

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,800 0	4,800.0	0 0	0.0	KOP @ 4800'
6,144 6	5,463 5	-625 3	-696 4	Landing Pt @ 6144' MD, 90 35°
9,994 6	5,440 0	-549.4	-4,545 5	TD at 9994.6