

CONFIDENTIAL

AMENDED

District I
1325 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION
1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

☒ As-Drilled

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-043-21146		*Pool Code 42289		*Pool Name LYBROOK GALLUP	
*Property Code 39785		*Property Name LYBROOK M31-2306			*Well Number 02H
*OGRID 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	1224	SOUTH	437	WEST	SANDOVAL

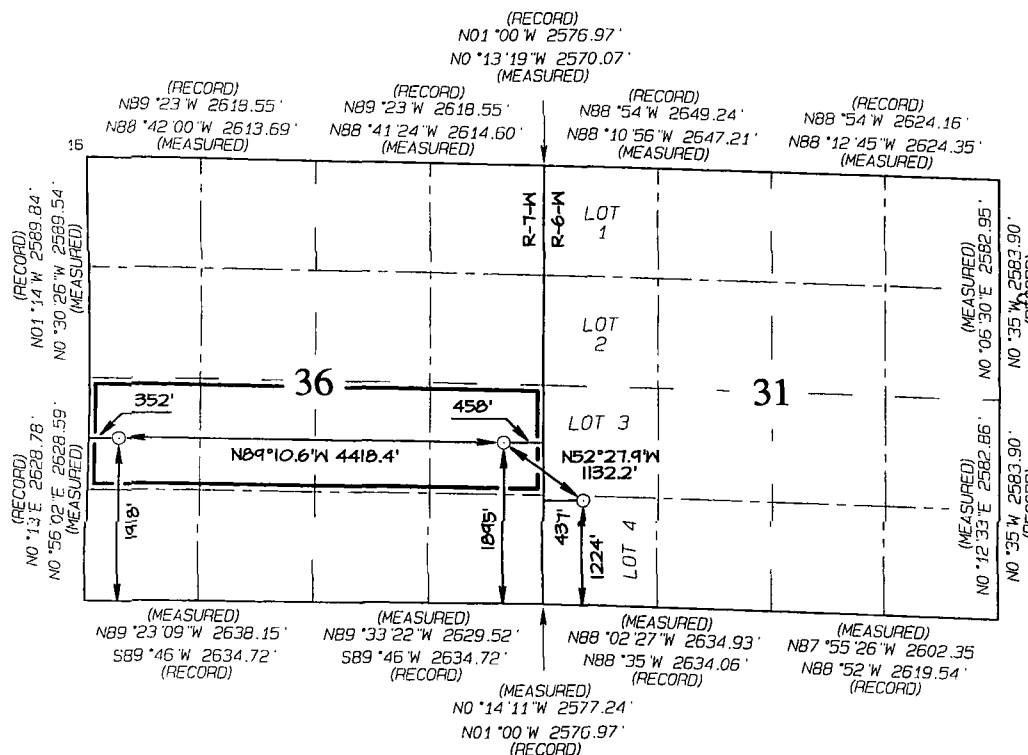
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	36	23N	7W		1918	SOUTH	352	WEST	SANDOVAL

¹² Dedicated Acres 160.0 Acres N/2 S/2 - Section 36		¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. RCVD SEP 11 '13 OIL CONS. DIV.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE
BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

DIST. 3



END-OF-LATERAL
1918' FSL 352' FWL
SECTION 36, T23N, R7W
LAT: 36.18097°N
LONG: 107.53360°W
DATUM: NAD1927

LAT: 36.18098°N
LONG: 107.53421°W
DATUM: NAD1983

POINT-OF-ENTRY
1895' FSL 458' FEL
SECTION 36, T23N, R7W
LAT: 36.18095°N
LONG: 107.51863°W
DATUM: NAD1927

LAT: 36.18097°N
LONG: 107.51924°W
DATUM: NAD1983

SURFACE LOCATION
1224' FSL 437' FWL
SECTION 31, T23N, R6W
LAT: 36.17909°N
LONG: 107.51556°W
DATUM: NAD1927

LAT: 36.17910°N
LONG: 107.51617°W
DATUM: NAD1983

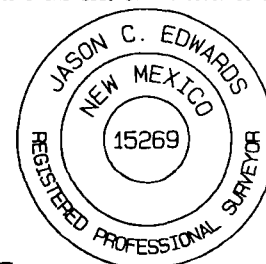
AV

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: Robynn Haden Date: 9/11/13
Printed Name: Robynn Haden
E-mail Address: robynn.haden@encana.com

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

Date Revised: SEPTEMBER 5, 2013
Date of Survey: MARCH 23, 2012
Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

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DEVIATION SURVEYS

MD (Feet)	Inclination (Degree)
625	.80
869	.30
1175	.80
1482	.40
1797	.70
2112	.90
2427	.70
2742	.60
3057	.90
3372	.70
3687	.50
4001	.50
4316	.30
4573	.40

RCVD SEP 11 '13
OIL CONS. DIV.
DIST. 3

OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Robynn Haden

Robynn Haden, Engineering Technologist

8/22/13

8/22/13

ACKNOWLEDGMENT

State of Colorado
City and County of Denver

This instrument was acknowledged before me on this 22nd day of August, 2013 by Robynn Haden as Attorney in Fact of Encana Oil & Gas (USA) Inc., on behalf of said corporation.

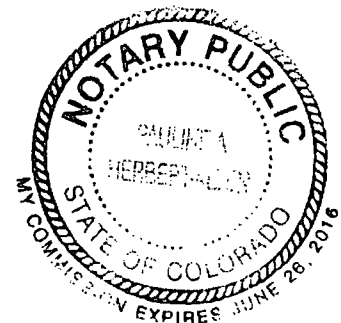
In witness whereof, I hereunto set my hand and official seal.

Notary Public:

Pauline A. Herbert-Alton
PAULINE A. HERBERT-ALTON

My Commission Expires:

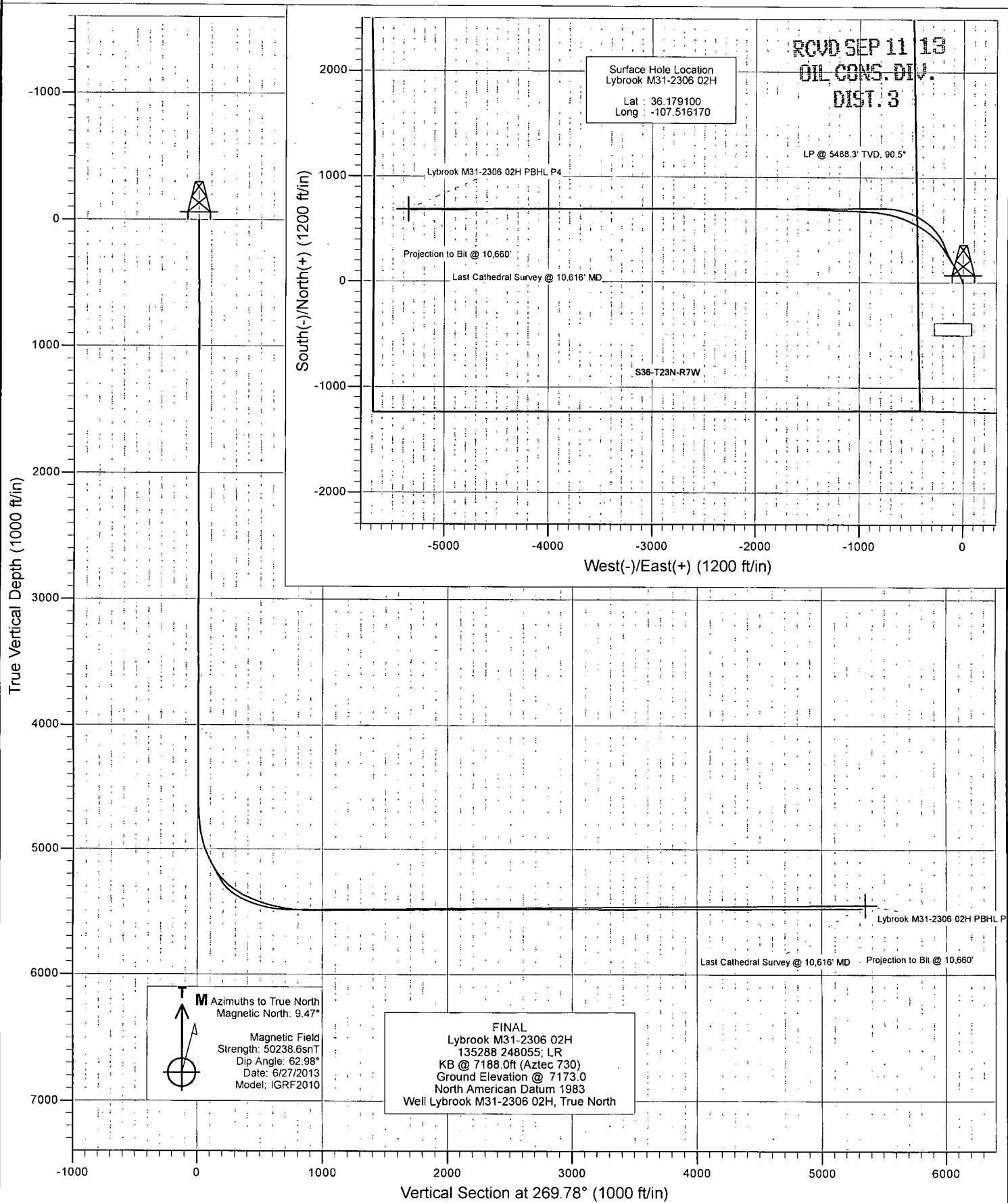
June 26, 2016



CONFIDENTIAL

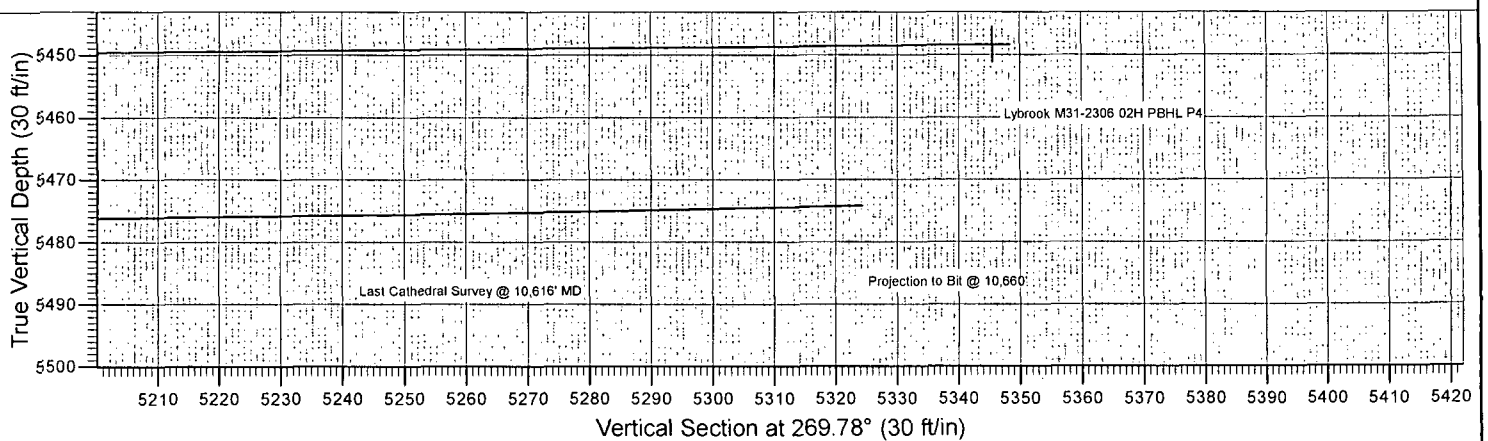
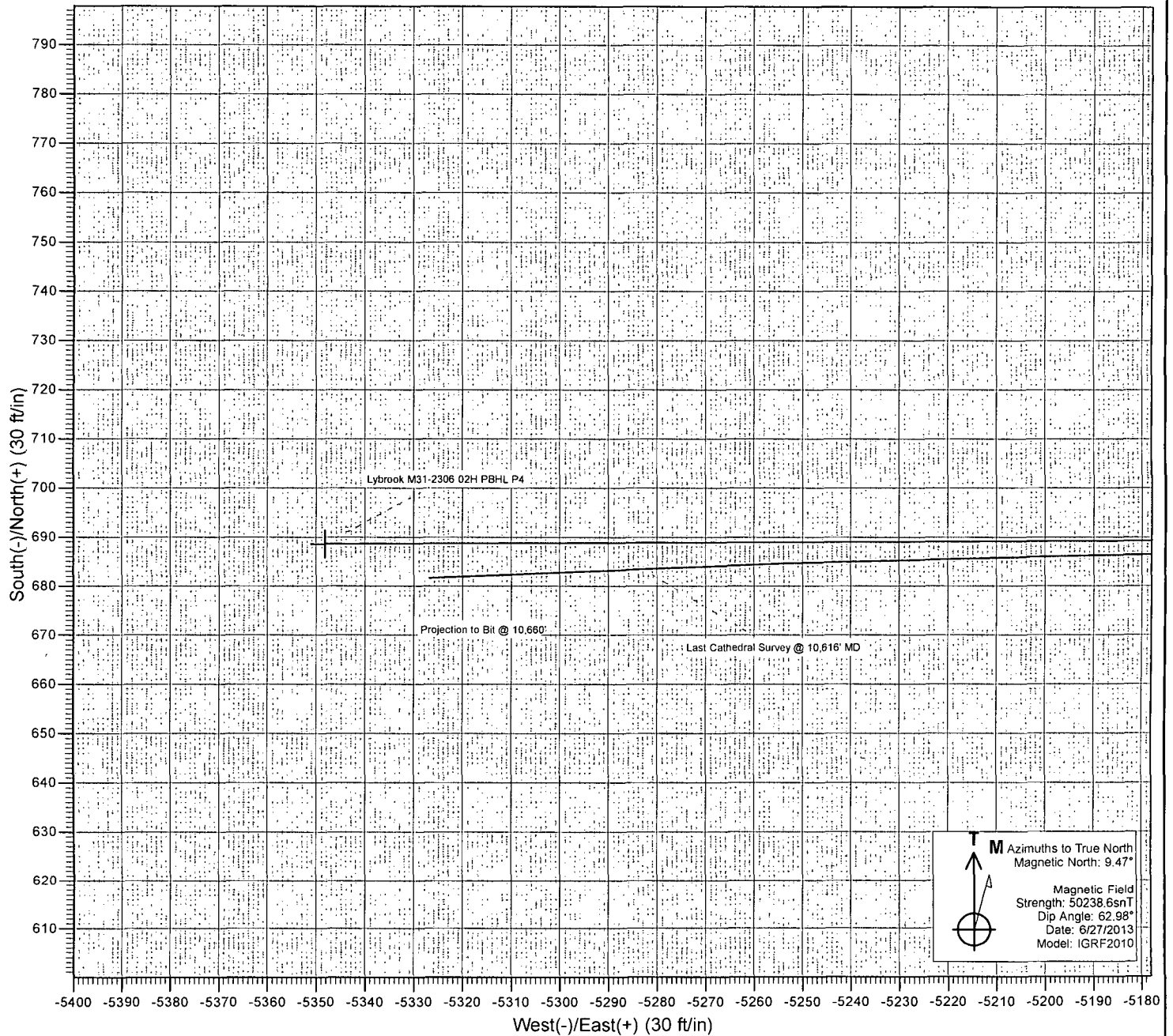


Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook M31-2306 02H
 Wellbore: Hz
 Design: FINAL





Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M31-2306 02H
Wellbore: Hz
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M31-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7188.0ft (Aztec 730)
Site:	Lybrook	MD Reference:	KB @ 7188.0ft (Aztec 730)
Well:	Lybrook M31-2306 02H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

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 M31-2306 02H					
Well Position	+N/-S	0.0 ft	Northing:	1,886,899.35 ft	Latitude:	36.179100
	+E/-W	0.0 ft	Easting:	1,266,747.68 ft	Longitude:	-107.516170
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	6/27/2013	9.47	62.98	50,239

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	269.78	

Survey Program		Date	7/17/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
625.0	10,660.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
625.0	0.80	251.10	625.0	-1.4	-4.1	4.1	0.13	0.13	
686.0	1.10	272.60	686.0	-1.5	-5.1	5.1	0.76	0.49	
747.0	1.00	294.70	747.0	-1.3	-6.2	6.2	0.68	-0.16	
808.0	1.10	273.20	808.0	-1.0	-7.3	7.3	0.66	0.16	
869.0	0.30	220.30	868.9	-1.1	-7.9	7.9	1.56	-1.31	
930.0	0.40	244.70	929.9	-1.3	-8.2	8.2	0.29	0.16	
992.0	0.90	169.90	991.9	-1.9	-8.3	8.4	1.43	0.81	
1,053.0	1.00	157.60	1,052.9	-2.9	-8.1	8.1	0.37	0.16	
1,114.0	0.60	157.30	1,113.9	-3.6	-7.7	7.7	0.66	-0.66	
1,175.0	0.80	108.60	1,174.9	-4.1	-7.2	7.2	0.99	0.33	
1,235.0	0.60	84.40	1,234.9	-4.2	-6.5	6.5	0.59	-0.33	
1,296.0	0.10	266.50	1,295.9	-4.2	-6.2	6.2	1.15	-0.82	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M31-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7188.0ft (Aztec 730)
Site:	Lybrook	MD Reference:	KB @ 7188.0ft (Aztec 730)
Well:	Lybrook M31-2306 02H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
1,357.0	0.50	152.30	1,356.9	-4.4	-6.2	6.2	0.90	0.66	
1,419.0	0.50	166.10	1,418.9	-4.9	-6.0	6.0	0.19	0.00	
1,482.0	0.40	184.60	1,481.9	-5.4	-5.9	5.9	0.28	-0.16	
1,545.0	0.40	219.60	1,544.9	-5.8	-6.1	6.1	0.38	0.00	
1,608.0	0.40	139.00	1,607.9	-6.1	-6.1	6.1	0.82	0.00	
1,671.0	0.40	116.10	1,670.9	-6.4	-5.7	5.8	0.25	0.00	
1,734.0	0.20	58.70	1,733.9	-6.4	-5.4	5.5	0.54	-0.32	
1,797.0	0.70	345.40	1,796.9	-6.0	-5.4	5.5	1.06	0.79	
1,860.0	1.00	29.30	1,859.9	-5.1	-5.3	5.3	1.10	0.48	
1,923.0	0.80	27.10	1,922.9	-4.3	-4.8	4.8	0.32	-0.32	
1,986.0	0.70	358.50	1,985.9	-3.5	-4.6	4.6	0.61	-0.16	
2,049.0	1.10	24.70	2,048.9	-2.5	-4.4	4.4	0.90	0.63	
2,112.0	0.90	346.10	2,111.9	-1.5	-4.2	4.2	1.09	-0.32	
2,175.0	1.50	353.80	2,174.9	-0.2	-4.4	4.4	0.98	0.95	
2,238.0	1.10	40.70	2,237.8	1.1	-4.1	4.1	1.74	-0.63	
2,301.0	0.30	343.30	2,300.8	1.7	-3.8	3.8	1.54	-1.27	
2,364.0	0.10	121.80	2,363.8	1.8	-3.8	3.8	0.60	-0.32	
2,427.0	0.70	333.80	2,426.8	2.1	-3.9	3.9	1.25	0.95	
2,490.0	0.40	12.60	2,489.8	2.7	-4.0	4.0	0.73	-0.48	
2,553.0	0.60	308.50	2,552.8	3.1	-4.2	4.2	0.88	0.32	
2,616.0	1.00	348.20	2,615.8	3.9	-4.6	4.6	1.05	0.63	
2,679.0	1.10	301.10	2,678.8	4.7	-5.3	5.2	1.34	0.16	
2,742.0	0.60	27.30	2,741.8	5.3	-5.6	5.6	1.93	-0.79	
2,805.0	0.70	77.90	2,804.8	5.7	-5.1	5.1	0.89	0.16	
2,868.0	1.00	56.00	2,867.8	6.1	-4.3	4.2	0.69	0.48	
2,931.0	0.30	54.90	2,930.8	6.5	-3.7	3.6	1.11	-1.11	
2,994.0	0.40	65.20	2,993.8	6.7	-3.3	3.3	0.19	0.16	
3,057.0	0.90	48.80	3,056.8	7.1	-2.8	2.7	0.84	0.79	
3,120.0	0.10	145.80	3,119.8	7.4	-2.4	2.3	1.46	-1.27	
3,183.0	0.60	27.30	3,182.8	7.6	-2.2	2.1	1.04	0.79	
3,246.0	0.20	351.00	3,245.8	8.0	-2.0	2.0	0.72	-0.63	
3,309.0	0.20	359.00	3,308.8	8.2	-2.1	2.0	0.04	0.00	
3,372.0	0.70	286.90	3,371.8	8.4	-2.4	2.4	1.06	0.79	
3,435.0	1.00	228.20	3,434.8	8.2	-3.2	3.2	1.39	0.48	
3,498.0	0.80	224.30	3,497.8	7.5	-3.9	3.9	0.33	-0.32	
3,561.0	1.30	255.70	3,560.8	7.0	-4.9	4.9	1.18	0.79	
3,624.0	0.50	256.80	3,623.8	6.8	-5.9	5.9	1.27	-1.27	
3,687.0	0.50	204.50	3,686.7	6.5	-6.3	6.2	0.70	0.00	
3,750.0	0.80	243.50	3,749.7	6.0	-6.8	6.8	0.82	0.48	
3,813.0	0.70	220.50	3,812.7	5.5	-7.4	7.4	0.50	-0.16	
3,876.0	0.50	202.10	3,875.7	5.0	-7.8	7.8	0.44	-0.32	
3,938.0	0.10	150.70	3,937.7	4.7	-7.8	7.8	0.72	-0.65	
4,001.0	0.50	104.40	4,000.7	4.6	-7.6	7.5	0.69	0.63	
4,064.0	0.60	117.80	4,063.7	4.3	-7.0	7.0	0.26	0.16	
4,127.0	0.50	167.20	4,126.7	3.9	-6.6	6.6	0.74	-0.16	
4,190.0	0.40	255.90	4,189.7	3.6	-6.8	6.8	1.01	-0.16	
4,253.0	0.50	37.40	4,252.7	3.8	-6.8	6.8	1.35	0.16	
4,316.0	0.30	49.60	4,315.7	4.1	-6.5	6.5	0.34	-0.32	
4,379.0	0.10	41.60	4,378.7	4.2	-6.4	6.4	0.32	-0.32	
4,443.0	0.50	128.80	4,442.7	4.1	-6.1	6.1	0.79	0.62	
4,506.0	0.60	152.20	4,505.7	3.6	-5.8	5.7	0.39	0.16	
4,537.0	0.40	122.80	4,536.7	3.4	-5.6	5.6	1.03	-0.65	
4,573.0	0.40	272.70	4,572.7	3.4	-5.6	5.6	2.15	0.00	

Cathedral Energy Services

Survey Report

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Well:	Lybrook M31-2306 02H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
4,605.0	2.00	334.70	4,604.7	3.9	-6.0	6.0	5.77	5.00	
4,636.0	4.70	342.10	4,635.7	5.6	-6.6	6.6	8.80	8.71	
4,668.0	7.10	340.90	4,667.5	8.7	-7.6	7.6	7.51	7.50	
4,699.0	8.90	340.10	4,698.2	12.8	-9.1	9.0	5.82	5.81	
4,730.0	11.60	341.50	4,728.7	18.0	-10.9	10.8	8.75	8.71	
4,762.0	13.80	340.10	4,759.9	24.6	-13.2	13.1	6.94	6.87	
4,793.0	16.70	338.50	4,789.8	32.2	-16.1	16.0	9.45	9.35	
4,825.0	19.20	336.50	4,820.2	41.4	-19.9	19.7	8.05	7.81	
4,856.0	21.50	334.80	4,849.3	51.2	-24.3	24.1	7.66	7.42	
4,888.0	24.30	333.80	4,878.8	62.4	-29.7	29.5	8.83	8.75	
4,919.0	26.60	332.60	4,906.8	74.3	-35.8	35.5	7.60	7.42	
4,951.0	29.10	330.50	4,935.1	87.4	-42.9	42.5	8.39	7.81	
4,982.0	31.60	329.60	4,961.8	101.0	-50.7	50.3	8.20	8.06	
5,014.0	33.80	329.70	4,988.7	115.9	-59.4	59.0	6.88	6.87	
5,045.0	35.80	329.00	5,014.2	131.1	-68.5	68.0	6.58	6.45	
5,077.0	38.50	328.40	5,039.7	147.6	-78.5	77.9	8.51	8.44	
5,108.0	40.70	326.80	5,063.6	164.3	-89.1	88.5	7.82	7.10	
5,140.0	42.70	326.60	5,087.5	182.1	-100.8	100.1	6.26	6.25	
5,171.0	43.90	325.70	5,110.0	199.7	-112.6	111.9	4.35	3.87	
5,203.0	45.70	325.90	5,132.7	218.4	-125.3	124.5	5.64	5.62	
5,234.0	47.60	326.00	5,154.0	237.1	-137.9	137.0	6.13	6.13	
5,266.0	50.20	326.10	5,175.1	257.1	-151.4	150.4	8.13	8.12	
5,297.0	52.90	326.60	5,194.3	277.3	-164.8	163.8	8.80	8.71	
5,329.0	55.50	328.30	5,213.0	299.2	-178.8	177.6	9.20	8.12	
5,360.0	56.90	328.30	5,230.3	321.1	-192.3	191.1	4.52	4.52	
5,392.0	57.70	324.40	5,247.6	343.5	-207.2	205.9	10.56	2.50	
5,423.0	58.80	322.00	5,263.9	364.6	-223.0	221.6	7.48	3.55	
5,455.0	59.90	319.30	5,280.2	385.9	-240.5	239.0	8.03	3.44	
5,486.0	60.60	315.90	5,295.6	405.7	-258.6	257.1	9.79	2.26	
5,518.0	61.80	313.00	5,311.0	425.4	-278.7	277.0	8.78	3.75	
5,549.0	63.40	311.80	5,325.3	443.9	-299.0	297.3	6.20	5.16	
5,581.0	64.30	310.50	5,339.4	462.8	-320.6	318.8	4.61	2.81	
5,612.0	65.20	307.60	5,352.6	480.5	-342.4	340.5	8.94	2.90	
5,644.0	66.10	304.50	5,365.8	497.6	-366.0	364.0	9.26	2.81	
5,675.0	66.80	302.80	5,378.2	513.4	-389.6	387.6	5.51	2.26	
5,707.0	68.50	301.00	5,390.4	529.0	-414.7	412.7	7.43	5.31	
5,738.0	70.20	299.00	5,401.3	543.5	-439.9	437.8	8.16	5.48	
5,770.0	71.90	297.90	5,411.7	557.9	-466.5	464.3	6.23	5.31	
5,801.0	72.70	296.10	5,421.1	571.3	-492.8	490.6	6.10	2.58	
5,833.0	73.40	294.80	5,430.5	584.5	-520.4	518.2	4.46	2.19	
5,864.0	74.10	292.80	5,439.1	596.5	-547.7	545.4	6.59	2.26	
5,895.0	75.00	290.90	5,447.4	607.6	-575.4	573.0	6.58	2.90	
5,927.0	76.00	289.10	5,455.4	618.2	-604.5	602.1	6.28	3.12	
5,958.0	77.40	288.10	5,462.5	627.8	-633.1	630.7	5.50	4.52	
5,990.0	78.90	286.30	5,469.1	637.1	-663.0	660.6	7.23	4.69	
6,021.0	80.90	284.60	5,474.5	645.2	-692.4	689.9	8.41	6.45	
6,053.0	82.30	282.30	5,479.2	652.6	-723.2	720.7	8.35	4.37	
6,084.0	83.80	280.40	5,483.0	658.6	-753.4	750.8	7.77	4.84	
6,116.0	84.90	278.80	5,486.1	664.0	-784.8	782.2	6.05	3.44	
6,132.0	85.70	277.80	5,487.4	666.3	-800.5	798.0	7.99	5.00	
6,179.0	87.20	275.50	5,490.3	671.7	-847.1	844.6	5.83	3.19	
6,242.0	89.40	273.80	5,492.2	676.8	-909.9	907.3	4.41	3.49	
6,305.0	90.40	272.80	5,492.3	680.4	-972.8	970.2	2.24	1.59	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M31-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7188.0ft (Aztec 730)
Site:	Lybrook	MD Reference:	KB @ 7188.0ft (Aztec 730)
Well:	Lybrook M31-2306 02H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
6,367.0	91.30	272.60	5,491.4	683.3	-1,034.7	1,032.1	1.49	1.45	
6,430.0	90.70	271.40	5,490.3	685.5	-1,097.7	1,095.0	2.13	-0.95	
6,493.0	91.10	270.90	5,489.3	686.8	-1,160.6	1,158.0	1.02	0.63	
6,556.0	90.40	271.70	5,488.5	688.2	-1,223.6	1,221.0	1.69	-1.11	
6,619.0	90.40	272.30	5,488.0	690.4	-1,286.6	1,283.9	0.95	0.00	
6,682.0	91.30	271.70	5,487.1	692.6	-1,349.5	1,346.9	1.72	1.43	
6,745.0	90.30	271.80	5,486.2	694.5	-1,412.5	1,409.8	1.60	-1.59	
6,808.0	90.10	271.40	5,486.0	696.3	-1,475.5	1,472.8	0.71	-0.32	
6,871.0	90.30	271.60	5,485.8	698.0	-1,538.5	1,535.8	0.45	0.32	
6,934.0	89.10	271.80	5,486.1	699.8	-1,601.4	1,598.7	1.93	-1.90	
6,997.0	90.20	271.30	5,486.5	701.5	-1,664.4	1,661.7	1.92	1.75	
7,061.0	89.60	270.80	5,486.6	702.7	-1,728.4	1,725.7	1.22	-0.94	
7,124.0	91.10	270.30	5,486.2	703.3	-1,791.4	1,788.7	2.51	2.38	
7,186.0	90.90	269.70	5,485.1	703.3	-1,853.4	1,850.7	1.02	-0.32	
7,249.0	90.00	269.70	5,484.7	703.0	-1,916.4	1,913.7	1.43	-1.43	
7,312.0	90.00	269.50	5,484.7	702.5	-1,979.4	1,976.7	0.32	0.00	
7,375.0	89.80	269.40	5,484.8	701.9	-2,042.4	2,039.7	0.35	-0.32	
7,438.0	90.70	269.10	5,484.5	701.1	-2,105.4	2,102.6	1.51	1.43	
7,501.0	89.90	269.80	5,484.2	700.5	-2,168.4	2,165.6	1.69	-1.27	
7,564.0	90.40	269.90	5,484.0	700.3	-2,231.4	2,228.6	0.81	0.79	
7,627.0	89.50	270.20	5,484.0	700.4	-2,294.4	2,291.6	1.51	-1.43	
7,690.0	90.20	270.40	5,484.2	700.7	-2,357.3	2,354.6	1.16	1.11	
7,753.0	90.70	269.90	5,483.7	700.9	-2,420.3	2,417.6	1.12	0.79	
7,816.0	90.00	270.20	5,483.3	700.9	-2,483.3	2,480.6	1.21	-1.11	
7,879.0	90.60	270.40	5,483.0	701.3	-2,546.3	2,543.6	1.00	0.95	
7,942.0	89.80	270.20	5,482.8	701.6	-2,609.3	2,606.6	1.31	-1.27	
8,005.0	89.70	270.20	5,483.1	701.8	-2,672.3	2,669.6	0.16	-0.16	
8,068.0	90.40	270.20	5,483.0	702.0	-2,735.3	2,732.6	1.11	1.11	
8,131.0	90.00	270.60	5,482.8	702.5	-2,798.3	2,795.6	0.90	-0.63	
8,194.0	89.50	270.20	5,483.1	702.9	-2,861.3	2,858.6	1.02	-0.79	
8,257.0	90.10	270.20	5,483.3	703.1	-2,924.3	2,921.6	0.95	0.95	
8,321.0	91.10	270.10	5,482.6	703.3	-2,988.3	2,985.6	1.57	1.56	
8,384.0	90.70	270.00	5,481.6	703.4	-3,051.3	3,048.6	0.65	-0.63	
8,447.0	90.00	269.50	5,481.2	703.1	-3,114.3	3,111.6	1.37	-1.11	
8,509.0	89.00	269.30	5,481.8	702.4	-3,176.3	3,173.6	1.64	-1.61	
8,572.0	89.90	269.30	5,482.4	701.7	-3,239.3	3,236.6	1.43	1.43	
8,635.0	89.90	269.20	5,482.5	700.8	-3,302.3	3,299.6	0.16	0.00	
8,699.0	90.40	268.40	5,482.3	699.5	-3,366.3	3,363.6	1.47	0.78	
8,762.0	90.00	269.10	5,482.1	698.1	-3,429.3	3,426.6	1.28	-0.63	
8,825.0	89.80	269.50	5,482.2	697.4	-3,492.3	3,489.6	0.71	-0.32	
8,888.0	90.70	269.10	5,481.9	696.6	-3,555.3	3,552.6	1.56	1.43	
8,951.0	89.90	269.80	5,481.6	696.0	-3,618.3	3,615.6	1.69	-1.27	
9,014.0	90.80	269.60	5,481.2	695.7	-3,681.3	3,678.6	1.46	1.43	
9,077.0	89.90	270.20	5,480.8	695.5	-3,744.3	3,741.6	1.72	-1.43	
9,140.0	89.40	269.80	5,481.2	695.5	-3,807.2	3,804.6	1.02	-0.79	
9,202.0	90.40	269.60	5,481.3	695.2	-3,869.2	3,866.5	1.64	1.61	
9,266.0	89.70	270.20	5,481.3	695.1	-3,933.2	3,930.5	1.44	-1.09	
9,329.0	89.30	269.70	5,481.8	695.1	-3,996.2	3,993.5	1.02	-0.63	
9,392.0	90.50	269.30	5,481.9	694.5	-4,059.2	4,056.5	2.01	1.90	
9,455.0	89.80	269.40	5,481.8	693.8	-4,122.2	4,119.5	1.12	-1.11	
9,518.0	89.80	270.20	5,482.0	693.6	-4,185.2	4,182.5	1.27	0.00	
9,581.0	90.40	269.50	5,481.9	693.4	-4,248.2	4,245.5	1.46	0.95	
9,644.0	89.70	270.20	5,481.8	693.2	-4,311.2	4,308.5	1.57	-1.11	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M31-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7188.0ft (Aztec 730)
Site:	Lybrook	MD Reference:	KB @ 7188.0ft (Aztec 730)
Well:	Lybrook M31-2306 02H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments	
9,706.0	90.50	270.30	5,481.7	693.5	-4,373.2	4,370.5	1.30	1.29		
9,769.0	90.10	270.30	5,481.4	693.8	-4,436.2	4,433.5	0.63	-0.63		
9,832.0	90.00	269.30	5,481.3	693.6	-4,499.2	4,496.5	1.60	-0.16		
9,895.0	90.40	268.90	5,481.1	692.6	-4,562.2	4,559.5	0.90	0.63		
9,958.0	89.30	268.00	5,481.3	690.9	-4,625.2	4,622.5	2.26	-1.75		
10,021.0	90.20	267.70	5,481.6	688.6	-4,688.1	4,685.5	1.51	1.43		
10,084.0	90.70	268.60	5,481.1	686.5	-4,751.1	4,748.4	1.63	0.79		
10,146.0	90.30	269.00	5,480.5	685.2	-4,813.1	4,810.4	0.91	-0.65		
10,209.0	90.70	270.10	5,480.0	684.7	-4,876.1	4,873.4	1.86	0.63		
10,272.0	90.70	270.80	5,479.2	685.2	-4,939.1	4,936.4	1.11	0.00		
10,335.0	91.40	270.50	5,478.0	685.9	-5,002.1	4,999.4	1.21	1.11		
10,397.0	90.20	270.50	5,477.2	686.5	-5,064.0	5,061.4	1.94	-1.94		
10,460.0	90.40	270.10	5,476.8	686.8	-5,127.0	5,124.4	0.71	0.32		
10,523.0	90.60	269.00	5,476.3	686.3	-5,190.0	5,187.4	1.77	0.32		
10,586.0	90.70	268.00	5,475.6	684.7	-5,253.0	5,250.3	1.60	0.16		
10,616.0	91.20	267.60	5,475.1	683.5	-5,283.0	5,280.3	2.13	1.67	Last Cathedral Survey @ 10,616' MD Projection to Bit @ 10,660'	
10,660.0	91.20	267.60	5,474.2	681.7	-5,326.9	5,324.3	0.00	0.00		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M31-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7188.0ft (Aztec 730)
Site:	Lybrook	MD Reference:	KB @ 7188.0ft (Aztec 730)
Well:	Lybrook M31-2306 02H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Lybrook M31-2306 02H	0.00	0.00	5,488.3	706.3	-779.2	1,887,615.76	1,265,977.75	36.181040	-107.518810
- actual wellpath misses target center by 42.8ft at 6116.8ft MD (5486.2 TVD, 664.1 N, -785.5 E)									
- Point									
Lybrook M31-2306 02H	0.00	0.00	5,461.3	688.6	-5,348.2	1,887,657.66	1,261,408.93	36.180990	-107.534290
- actual wellpath misses target center by 25.8ft at 10660.0ft MD (5474.2 TVD, 681.7 N, -5326.9 E)									
- Point									
Lybrook M31-2306 02H	0.00	0.00	5,501.3	706.3	-779.2	1,887,615.76	1,265,977.75	36.181040	-107.518810
- actual wellpath misses target center by 45.3ft at 6117.9ft MD (5486.3 TVD, 664.2 N, -786.6 E)									
- Point									
Lybrook M31-2306 02H	0.00	0.00	5,448.4	688.6	-5,348.2	1,887,657.66	1,261,408.93	36.180990	-107.534290
- actual wellpath misses target center by 34.1ft at 10660.0ft MD (5474.2 TVD, 681.7 N, -5326.9 E)									
- Point									
Lybrook M31-2306 02H	0.00	0.00	5,501.3	706.3	-779.2	1,887,615.76	1,265,977.75	36.181040	-107.518810
- actual wellpath misses target center by 45.3ft at 6117.9ft MD (5486.3 TVD, 664.2 N, -786.6 E)									
- Point									
Lybrook M31-2306 02H	0.00	0.00	5,461.3	688.6	-5,348.2	1,887,657.66	1,261,408.93	36.180990	-107.534290
- actual wellpath misses target center by 25.8ft at 10660.0ft MD (5474.2 TVD, 681.7 N, -5326.9 E)									
- Point									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,616.0	5,475.1	683.5	-5,283.0	Last Cathedral Survey @ 10,616' MD
10,660.0	5,474.2	681.7	-5,326.9	Projection to Bit @ 10,660'

Checked By: _____	Approved By: _____	Date: _____
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CONFIDENTIAL

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION
1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT
☒ As Drilled

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-043-21146	² Pool Code 42289	³ Pool Name LYBROOK GALLUP
⁴ Property Code 39785	⁵ Property Name LYBROOK M31-2306	⁶ Well Number 02H
⁷ GRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.	⁹ 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	1224	SOUTH	437	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
L	36	23N	7W		1846	SOUTH	342	WEST	SANDOVAL

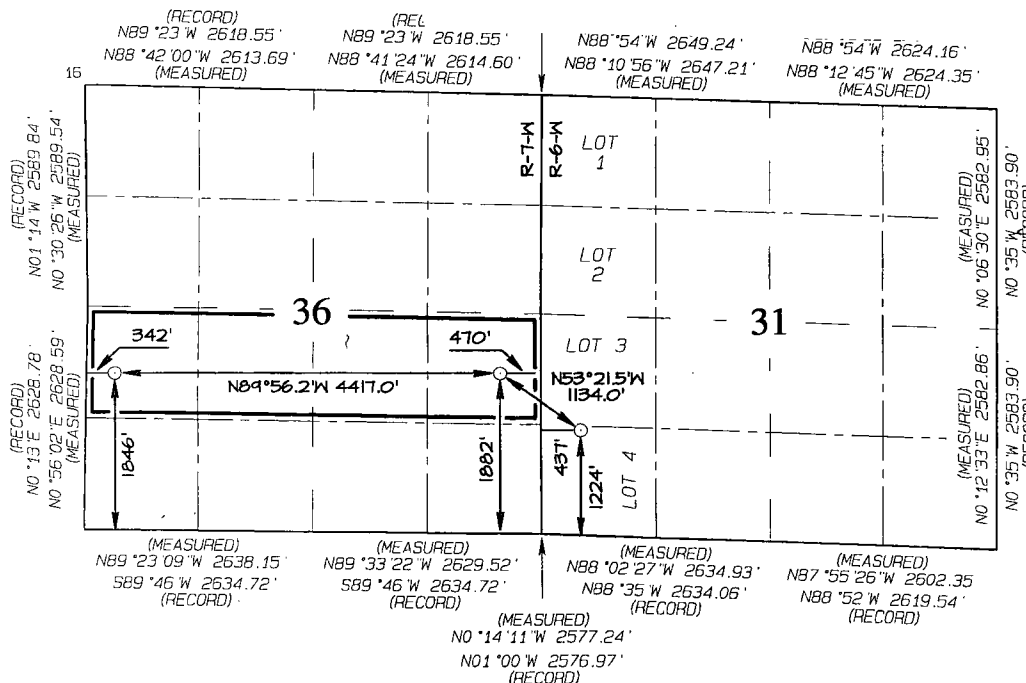
¹² Dedicated Acres 160.0 Acres N/2 S/2 - Section 36	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. RCVD AUG 26 '13 OIL CONS. DIV.
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NO ALLOWABLE WI
BEEN CONSOLIDATE

DENIED

NTIL ALL INTERESTS HAVE
APPROVED BY THE DIVISION

DIST. 3



END-OF-LATERAL
1846' FSL 342' FWL
SECTION 36, T23N, R7W
LAT: 36.18077°N
LONG: 107.53364°W
DATUM: NAD1927

LAT: 36.18078°N
LONG: 107.53424°W
DATUM: NAD1983

POINT-OF-ENTRY
1882' FSL 470' FEL
SECTION 36, T23N, R7W
LAT: 36.18092°N
LONG: 107.51867°W
DATUM: NAD1927

LAT: 36.18093°N
LONG: 107.51928°W
DATUM: NAD1983

SURFACE LOCATION
1224' FSL 437' FWL
SECTION 31, T23N, R6W
LAT: 36.17909°N
LONG: 107.51556°W
DATUM: NAD1927

LAT: 36.17910°N
LONG: 107.51617°W
DATUM: NAD1983

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: *Robynn Haden* Date: 8/6/13

Printed Name
Robynn Haden
robynn.haden@encana.com

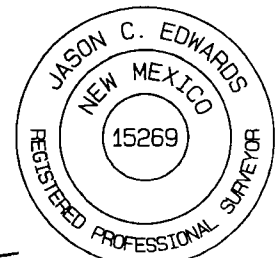
E-mail Address

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: AUGUST 16, 2013
Date of Survey: MARCH 23, 2012

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

DEVIATION SURVEYS

CONFIDENTIAL

MD (Feet)	Inclination (Degree)
625	.80
869	.30
1175	.80
1482	.40
1797	.70
2112	.90
2427	.70
2742	.60
3057	.90
3372	.70
3687	.50
4001	.50
4316	.30
4573	.40

RCVD AUG 26 '13
OIL CONS. DIV.
DIST. 3

OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Robynn Haden

Robynn Haden, Engineering Technologist

8/22/13

8/22/13

ACKNOWLEDGMENT

State of Colorado
City and County of Denver

This instrument was acknowledged before me on this 22nd day of August, 2013 by Robynn Haden as Attorney in Fact of Encana Oil & Gas (USA) Inc., on behalf of said corporation.

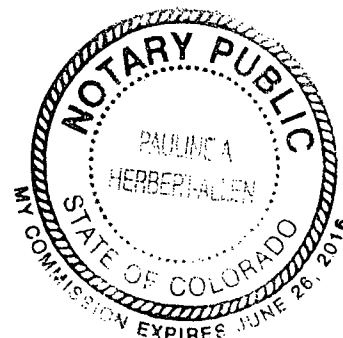
In witness whereof, I hereunto set my hand and official seal.

Notary Public:

Pauline A. Herbert-Alten
PAULINE A. HERBERT-ALTEN

My Commission Expires:

June 26, 2016



Cathedral Energy Services
Survey Report

CONFIDENTIAL

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M31-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7188.0ft (Aztec 730)
Site:	Lybrook	MD Reference:	KB @ 7188.0ft (Aztec 730)
Well:	Lybrook M31-2306 02H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Project	Sandoval County, NM	RCVD AUG 26 '13	
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983	OIL CONS. DIV.	
Map Zone:	New Mexico Central Zone	DIST. 3	

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 02H				
Well Position	+N/-S	0.0 ft	Northing:	1,886,899.35 ft	Latitude:
	+E/-W	0.0 ft	Easting:	1,266,747.68 ft	Longitude:
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	6/27/2013	9.47	62.98	50,239

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	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	

Survey Program	Date	7/17/2013		
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
625.0	10,660.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD

Survey									
Measured			Vertical				Dogleg	Build	Formations /
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Section	Rate	Rate	Comments
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
625.0	0.80	251.10	625.0	-1.4	-4.1	4.1	0.13	0.13	
686.0	1.10	272.60	686.0	-1.5	-5.1	5.1	0.76	0.49	
747.0	1.00	294.70	747.0	-1.3	-6.2	6.2	0.68	-0.16	
808.0	1.10	273.20	808.0	-1.0	-7.3	7.3	0.66	0.16	
869.0	0.30	220.30	868.9	-1.1	-7.9	7.9	1.56	-1.31	
930.0	0.40	244.70	929.9	-1.3	-8.2	8.2	0.29	0.16	
992.0	0.90	169.90	991.9	-1.9	-8.3	8.4	1.43	0.81	
1,053.0	1.00	157.60	1,052.9	-2.9	-8.1	8.1	0.37	0.16	
1,114.0	0.60	157.30	1,113.9	-3.6	-7.7	7.7	0.66	-0.66	
1,175.0	0.80	108.60	1,174.9	-4.1	-7.2	7.2	0.99	0.33	
1,235.0	0.60	84.40	1,234.9	-4.2	-6.5	6.5	0.59	-0.33	
1,296.0	0.10	266.50	1,295.9	-4.2	-6.2	6.2	1.15	-0.82	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M31-2306 02H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M31-2306 02H
TVD Reference: KB @ 7188.0ft (Aztec 730)
MD Reference: KB @ 7188.0ft (Aztec 730)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
1,357.0	0.50	152.30	1,356.9	-4.4	-6.2	6.2	0.90	0.66	
1,419.0	0.50	166.10	1,418.9	-4.9	-6.0	6.0	0.19	0.00	
1,482.0	0.40	184.60	1,481.9	-5.4	-5.9	5.9	0.28	-0.16	
1,545.0	0.40	219.60	1,544.9	-5.8	-6.1	6.1	0.38	0.00	
1,608.0	0.40	139.00	1,607.9	-6.1	-6.1	6.1	0.82	0.00	
1,671.0	0.40	116.10	1,670.9	-6.4	-5.7	5.8	0.25	0.00	
1,734.0	0.20	58.70	1,733.9	-6.4	-5.4	5.5	0.54	-0.32	
1,797.0	0.70	345.40	1,796.9	-6.0	-5.4	5.5	1.06	0.79	
1,860.0	1.00	29.30	1,859.9	-5.1	-5.3	5.3	1.10	0.48	
1,923.0	0.80	27.10	1,922.9	-4.3	-4.8	4.8	0.32	-0.32	
1,986.0	0.70	358.50	1,985.9	-3.5	-4.6	4.6	0.61	-0.16	
2,049.0	1.10	24.70	2,048.9	-2.5	-4.4	4.4	0.90	0.63	
2,112.0	0.90	346.10	2,111.9	-1.5	-4.2	4.2	1.09	-0.32	
2,175.0	1.50	353.80	2,174.9	-0.2	-4.4	4.4	0.98	0.95	
2,238.0	1.10	40.70	2,237.8	1.1	-4.1	4.1	1.74	-0.63	
2,301.0	0.30	343.30	2,300.8	1.7	-3.8	3.8	1.54	-1.27	
2,364.0	0.10	121.80	2,363.8	1.8	-3.8	3.8	0.60	-0.32	
2,427.0	0.70	333.80	2,426.8	2.1	-3.9	3.9	1.25	0.95	
2,490.0	0.40	12.60	2,489.8	2.7	-4.0	4.0	0.73	-0.48	
2,553.0	0.60	308.50	2,552.8	3.1	-4.2	4.2	0.88	0.32	
2,616.0	1.00	348.20	2,615.8	3.9	-4.6	4.6	1.05	0.63	
2,679.0	1.10	301.10	2,678.8	4.7	-5.3	5.2	1.34	0.16	
2,742.0	0.60	27.30	2,741.8	5.3	-5.6	5.6	1.93	-0.79	
2,805.0	0.70	77.90	2,804.8	5.7	-5.1	5.1	0.89	0.16	
2,868.0	1.00	56.00	2,867.8	6.1	-4.3	4.2	0.69	0.48	
2,931.0	0.30	54.90	2,930.8	6.5	-3.7	3.6	1.11	-1.11	
2,994.0	0.40	65.20	2,993.8	6.7	-3.3	3.3	0.19	0.16	
3,057.0	0.90	48.80	3,056.8	7.1	-2.8	2.7	0.84	0.79	
3,120.0	0.10	145.80	3,119.8	7.4	-2.4	2.3	1.46	-1.27	
3,183.0	0.60	27.30	3,182.8	7.6	-2.2	2.1	1.04	0.79	
3,246.0	0.20	351.00	3,245.8	8.0	-2.0	2.0	0.72	-0.63	
3,309.0	0.20	359.00	3,308.8	8.2	-2.1	2.0	0.04	0.00	
3,372.0	0.70	286.90	3,371.8	8.4	-2.4	2.4	1.06	0.79	
3,435.0	1.00	228.20	3,434.8	8.2	-3.2	3.2	1.39	0.48	
3,498.0	0.80	224.30	3,497.8	7.5	-3.9	3.9	0.33	-0.32	
3,561.0	1.30	255.70	3,560.8	7.0	-4.9	4.9	1.18	0.79	
3,624.0	0.50	256.80	3,623.8	6.8	-5.9	5.9	1.27	-1.27	
3,687.0	0.50	204.50	3,686.7	6.5	-6.3	6.2	0.70	0.00	
3,750.0	0.80	243.50	3,749.7	6.0	-6.8	6.8	0.82	0.48	
3,813.0	0.70	220.50	3,812.7	5.5	-7.4	7.4	0.50	-0.16	
3,876.0	0.50	202.10	3,875.7	5.0	-7.8	7.8	0.44	-0.32	
3,938.0	0.10	150.70	3,937.7	4.7	-7.8	7.8	0.72	-0.65	
4,001.0	0.50	104.40	4,000.7	4.6	-7.6	7.5	0.69	0.63	
4,064.0	0.60	117.80	4,063.7	4.3	-7.0	7.0	0.26	0.16	
4,127.0	0.50	167.20	4,126.7	3.9	-6.6	6.6	0.74	-0.16	
4,190.0	0.40	255.90	4,189.7	3.6	-6.8	6.8	1.01	-0.16	
4,253.0	0.50	37.40	4,252.7	3.8	-6.8	6.8	1.35	0.16	
4,316.0	0.30	49.60	4,315.7	4.1	-6.5	6.5	0.34	-0.32	
4,379.0	0.10	41.60	4,378.7	4.2	-6.4	6.4	0.32	-0.32	
4,443.0	0.50	128.80	4,442.7	4.1	-6.1	6.1	0.79	0.62	
4,506.0	0.60	152.20	4,505.7	3.6	-5.8	5.7	0.39	0.16	
4,537.0	0.40	122.80	4,536.7	3.4	-5.6	5.6	1.03	-0.65	
4,573.0	0.40	272.70	4,572.7	3.4	-5.6	5.6	2.15	0.00	

Cathedral Energy Services

Survey Report

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Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M31-2306 02H
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North Reference: True
Survey Calculation Method: Minimum Curvature
Database: USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
4,605.0	2.00	334.70	4,604.7	3.9	-6.0	6.0	5.77	5.00	
4,636.0	4.70	342.10	4,635.7	5.6	-6.6	6.6	8.80	8.71	
4,668.0	7.10	340.90	4,667.5	8.7	-7.6	7.6	7.51	7.50	
4,699.0	8.90	340.10	4,698.2	12.8	-9.1	9.0	5.82	5.81	
4,730.0	11.60	341.50	4,728.7	18.0	-10.9	10.8	8.75	8.71	
4,762.0	13.80	340.10	4,759.9	24.6	-13.2	13.1	6.94	6.87	
4,793.0	16.70	338.50	4,789.8	32.2	-16.1	16.0	9.45	9.35	
4,825.0	19.20	336.50	4,820.2	41.4	-19.9	19.7	8.05	7.81	
4,856.0	21.50	334.80	4,849.3	51.2	-24.3	24.1	7.66	7.42	
4,888.0	24.30	333.80	4,878.8	62.4	-29.7	29.5	8.83	8.75	
4,919.0	26.60	332.60	4,906.8	74.3	-35.8	35.5	7.60	7.42	
4,951.0	29.10	330.50	4,935.1	87.4	-42.9	42.5	8.39	7.81	
4,982.0	31.60	329.60	4,961.8	101.0	-50.7	50.3	8.20	8.06	
5,014.0	33.80	329.70	4,988.7	115.9	-59.4	59.0	6.88	6.87	
5,045.0	35.80	329.00	5,014.2	131.1	-68.5	68.0	6.58	6.45	
5,077.0	38.50	328.40	5,039.7	147.6	-78.5	77.9	8.51	8.44	
5,108.0	40.70	326.80	5,063.6	164.3	-89.1	88.5	7.82	7.10	
5,140.0	42.70	326.60	5,087.5	182.1	-100.8	100.1	6.26	6.25	
5,171.0	43.90	325.70	5,110.0	199.7	-112.6	111.9	4.35	3.87	
5,203.0	45.70	325.90	5,132.7	218.4	-125.3	124.5	5.64	5.62	
5,234.0	47.60	326.00	5,154.0	237.1	-137.9	137.0	6.13	6.13	
5,266.0	50.20	326.10	5,175.1	257.1	-151.4	150.4	8.13	8.12	
5,297.0	52.90	326.60	5,194.3	277.3	-164.8	163.8	8.80	8.71	
5,329.0	55.50	328.30	5,213.0	299.2	-178.8	177.6	9.20	8.12	
5,360.0	56.90	328.30	5,230.3	321.1	-192.3	191.1	4.52	4.52	
5,392.0	57.70	324.40	5,247.6	343.5	-207.2	205.9	10.56	2.50	
5,423.0	58.80	322.00	5,263.9	364.6	-223.0	221.6	7.48	3.55	
5,455.0	59.90	319.30	5,280.2	385.9	-240.5	239.0	8.03	3.44	
5,486.0	60.60	315.90	5,295.6	405.7	-258.6	257.1	9.79	2.26	
5,518.0	61.80	313.00	5,311.0	425.4	-278.7	277.0	8.78	3.75	
5,549.0	63.40	311.80	5,325.3	443.9	-299.0	297.3	6.20	5.16	
5,581.0	64.30	310.50	5,339.4	462.8	-320.6	318.8	4.61	2.81	
5,612.0	65.20	307.60	5,352.6	480.5	-342.4	340.5	8.94	2.90	
5,644.0	66.10	304.50	5,365.8	497.6	-366.0	364.0	9.26	2.81	
5,675.0	66.80	302.80	5,378.2	513.4	-389.6	387.6	5.51	2.26	
5,707.0	68.50	301.00	5,390.4	529.0	-414.7	412.7	7.43	5.31	
5,738.0	70.20	299.00	5,401.3	543.5	-439.9	437.8	8.16	5.48	
5,770.0	71.90	297.90	5,411.7	557.9	-466.5	464.3	6.23	5.31	
5,801.0	72.70	296.10	5,421.1	571.3	-492.8	490.6	6.10	2.58	
5,833.0	73.40	294.80	5,430.5	584.5	-520.4	518.2	4.46	2.19	
5,864.0	74.10	292.80	5,439.1	596.5	-547.7	545.4	6.59	2.26	
5,895.0	75.00	290.90	5,447.4	607.6	-575.4	573.0	6.58	2.90	
5,927.0	76.00	289.10	5,455.4	618.2	-604.5	602.1	6.28	3.12	
5,958.0	77.40	288.10	5,462.5	627.8	-633.1	630.7	5.50	4.52	
5,990.0	78.90	286.30	5,469.1	637.1	-663.0	660.6	7.23	4.69	
6,021.0	80.90	284.60	5,474.5	645.2	-692.4	689.9	8.41	6.45	
6,053.0	82.30	282.30	5,479.2	652.6	-723.2	720.7	8.35	4.37	
6,084.0	83.80	280.40	5,483.0	658.6	-753.4	750.8	7.77	4.84	
6,116.0	84.90	278.80	5,486.1	664.0	-784.8	782.2	6.05	3.44	
6,132.0	85.70	277.80	5,487.4	666.3	-800.5	798.0	7.99	5.00	
6,179.0	87.20	275.50	5,490.3	671.7	-847.1	844.6	5.83	3.19	
6,242.0	89.40	273.80	5,492.2	676.8	-909.9	907.3	4.41	3.49	
6,305.0	90.40	272.80	5,492.3	680.4	-972.8	970.2	2.24	1.59	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
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Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M31-2306 02H
TVD Reference: KB @ 7188.0ft (Aztec 730)
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Survey Calculation Method: Minimum Curvature
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Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
6,367.0	91.30	272.60	5,491.4	683.3	-1,034.7	1,032.1	1.49	1.45	
6,430.0	90.70	271.40	5,490.3	685.5	-1,097.7	1,095.0	2.13	-0.95	
6,493.0	91.10	270.90	5,489.3	686.8	-1,160.6	1,158.0	1.02	0.63	
6,556.0	90.40	271.70	5,488.5	688.2	-1,223.6	1,221.0	1.69	-1.11	
6,619.0	90.40	272.30	5,488.0	690.4	-1,286.6	1,283.9	0.95	0.00	
6,682.0	91.30	271.70	5,487.1	692.6	-1,349.5	1,346.9	1.72	1.43	
6,745.0	90.30	271.80	5,486.2	694.5	-1,412.5	1,409.8	1.60	-1.59	
6,808.0	90.10	271.40	5,486.0	696.3	-1,475.5	1,472.8	0.71	-0.32	
6,871.0	90.30	271.60	5,485.8	698.0	-1,538.5	1,535.8	0.45	0.32	
6,934.0	89.10	271.80	5,486.1	699.8	-1,601.4	1,598.7	1.93	-1.90	
6,997.0	90.20	271.30	5,486.5	701.5	-1,664.4	1,661.7	1.92	1.75	
7,061.0	89.60	270.80	5,486.6	702.7	-1,728.4	1,725.7	1.22	-0.94	
7,124.0	91.10	270.30	5,486.2	703.3	-1,791.4	1,788.7	2.51	2.38	
7,186.0	90.90	269.70	5,485.1	703.3	-1,853.4	1,850.7	1.02	-0.32	
7,249.0	90.00	269.70	5,484.7	703.0	-1,916.4	1,913.7	1.43	-1.43	
7,312.0	90.00	269.50	5,484.7	702.5	-1,979.4	1,976.7	0.32	0.00	
7,375.0	89.80	269.40	5,484.8	701.9	-2,042.4	2,039.7	0.35	-0.32	
7,438.0	90.70	269.10	5,484.5	701.1	-2,105.4	2,102.6	1.51	1.43	
7,501.0	89.90	269.80	5,484.2	700.5	-2,168.4	2,165.6	1.69	-1.27	
7,564.0	90.40	269.90	5,484.0	700.3	-2,231.4	2,228.6	0.81	0.79	
7,627.0	89.50	270.20	5,484.0	700.4	-2,294.4	2,291.6	1.51	-1.43	
7,690.0	90.20	270.40	5,484.2	700.7	-2,357.3	2,354.6	1.16	1.11	
7,753.0	90.70	269.90	5,483.7	700.9	-2,420.3	2,417.6	1.12	0.79	
7,816.0	90.00	270.20	5,483.3	700.9	-2,483.3	2,480.6	1.21	-1.11	
7,879.0	90.60	270.40	5,483.0	701.3	-2,546.3	2,543.6	1.00	0.95	
7,942.0	89.80	270.20	5,482.8	701.6	-2,609.3	2,606.6	1.31	-1.27	
8,005.0	89.70	270.20	5,483.1	701.8	-2,672.3	2,669.6	0.16	-0.16	
8,068.0	90.40	270.20	5,483.0	702.0	-2,735.3	2,732.6	1.11	1.11	
8,131.0	90.00	270.60	5,482.8	702.5	-2,798.3	2,795.6	0.90	-0.63	
8,194.0	89.50	270.20	5,483.1	702.9	-2,861.3	2,858.6	1.02	-0.79	
8,257.0	90.10	270.20	5,483.3	703.1	-2,924.3	2,921.6	0.95	0.95	
8,321.0	91.10	270.10	5,482.6	703.3	-2,988.3	2,985.6	1.57	1.56	
8,384.0	90.70	270.00	5,481.6	703.4	-3,051.3	3,048.6	0.65	-0.63	
8,447.0	90.00	269.50	5,481.2	703.1	-3,114.3	3,111.6	1.37	-1.11	
8,509.0	89.00	269.30	5,481.8	702.4	-3,176.3	3,173.6	1.64	-1.61	
8,572.0	89.90	269.30	5,482.4	701.7	-3,239.3	3,236.6	1.43	1.43	
8,635.0	89.90	269.20	5,482.5	700.8	-3,302.3	3,299.6	0.16	0.00	
8,699.0	90.40	268.40	5,482.3	699.5	-3,366.3	3,363.6	1.47	0.78	
8,762.0	90.00	269.10	5,482.1	698.1	-3,429.3	3,426.6	1.28	-0.63	
8,825.0	89.80	269.50	5,482.2	697.4	-3,492.3	3,489.6	0.71	-0.32	
8,888.0	90.70	269.10	5,481.9	696.6	-3,555.3	3,552.6	1.56	1.43	
8,951.0	89.90	269.80	5,481.6	696.0	-3,618.3	3,615.6	1.69	-1.27	
9,014.0	90.80	269.60	5,481.2	695.7	-3,681.3	3,678.6	1.46	1.43	
9,077.0	89.90	270.20	5,480.8	695.5	-3,744.3	3,741.6	1.72	-1.43	
9,140.0	89.40	269.80	5,481.2	695.5	-3,807.2	3,804.6	1.02	-0.79	
9,202.0	90.40	269.60	5,481.3	695.2	-3,869.2	3,866.5	1.64	1.61	
9,266.0	89.70	270.20	5,481.3	695.1	-3,933.2	3,930.5	1.44	-1.09	
9,329.0	89.30	269.70	5,481.8	695.1	-3,996.2	3,993.5	1.02	-0.63	
9,392.0	90.50	269.30	5,481.9	694.5	-4,059.2	4,056.5	2.01	1.90	
9,455.0	89.80	269.40	5,481.8	693.8	-4,122.2	4,119.5	1.12	-1.11	
9,518.0	89.80	270.20	5,482.0	693.6	-4,185.2	4,182.5	1.27	0.00	
9,581.0	90.40	269.50	5,481.9	693.4	-4,248.2	4,245.5	1.46	0.95	
9,644.0	89.70	270.20	5,481.8	693.2	-4,311.2	4,308.5	1.57	-1.11	

Cathedral Energy Services

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Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M31-2306 02H
TVD Reference: KB @ 7188.0ft (Aztec 730)
MD Reference: KB @ 7188.0ft (Aztec 730)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
9,706.0	90.50	270.30	5,481.7	693.5	-4,373.2	4,370.5	1.30	1.29	
9,769.0	90.10	270.30	5,481.4	693.8	-4,436.2	4,433.5	0.63	-0.63	
9,832.0	90.00	269.30	5,481.3	693.6	-4,499.2	4,496.5	1.60	-0.16	
9,895.0	90.40	268.90	5,481.1	692.6	-4,562.2	4,559.5	0.90	0.63	
9,958.0	89.30	268.00	5,481.3	690.9	-4,625.2	4,622.5	2.26	-1.75	
10,021.0	90.20	267.70	5,481.6	688.6	-4,688.1	4,685.5	1.51	1.43	
10,084.0	90.70	268.60	5,481.1	686.5	-4,751.1	4,748.4	1.63	0.79	
10,146.0	90.30	269.00	5,480.5	685.2	-4,813.1	4,810.4	0.91	-0.65	
10,209.0	90.70	270.10	5,480.0	684.7	-4,876.1	4,873.4	1.86	0.63	
10,272.0	90.70	270.80	5,479.2	685.2	-4,939.1	4,936.4	1.11	0.00	
10,335.0	91.40	270.50	5,478.0	685.9	-5,002.1	4,999.4	1.21	1.11	
10,397.0	90.20	270.50	5,477.2	686.5	-5,064.0	5,061.4	1.94	-1.94	
10,460.0	90.40	270.10	5,476.8	686.8	-5,127.0	5,124.4	0.71	0.32	
10,523.0	90.60	269.00	5,476.3	686.3	-5,190.0	5,187.4	1.77	0.32	
10,586.0	90.70	268.00	5,475.6	684.7	-5,253.0	5,250.3	1.60	0.16	
10,616.0	91.20	267.60	5,475.1	683.5	-5,283.0	5,280.3	2.13	1.67	Last Cathedral Survey @ 10,616' MD Projection to Bit @ 10,660'
10,660.0	91.20	267.60	5,474.2	681.7	-5,326.9	5,324.3	0.00	0.00	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M31-2306 02H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M31-2306 02H
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North Reference: True
Survey Calculation Method: Minimum Curvature
Database: USA EDM 5000 Multi Users DB

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 02H - actual wellpath misses target center by 42.8ft at 6116.8ft MD (5486.2 TVD, 664.1 N, -785.5 E) - Point	0.00	0.00	5,488.3	706.3	-779.2	1,887,615.76	1,265,977.75	36.181040	-107.518810
Lybrook M31-2306 02H - actual wellpath misses target center by 25.8ft at 10660.0ft MD (5474.2 TVD, 681.7 N, -5326.9 E) - Point	0.00	0.00	5,461.3	688.6	-5,348.2	1,887,657.66	1,261,408.93	36.180990	-107.534290
Lybrook M31-2306 02H - actual wellpath misses target center by 45.3ft at 6117.9ft MD (5486.3 TVD, 664.2 N, -786.6 E) - Point	0.00	0.00	5,501.3	706.3	-779.2	1,887,615.76	1,265,977.75	36.181040	-107.518810
Lybrook M31-2306 02H - actual wellpath misses target center by 34.1ft at 10660.0ft MD (5474.2 TVD, 681.7 N, -5326.9 E) - Point	0.00	0.00	5,448.4	688.6	-5,348.2	1,887,657.66	1,261,408.93	36.180990	-107.534290
Lybrook M31-2306 02H - actual wellpath misses target center by 45.3ft at 6117.9ft MD (5486.3 TVD, 664.2 N, -786.6 E) - Point	0.00	0.00	5,501.3	706.3	-779.2	1,887,615.76	1,265,977.75	36.181040	-107.518810
Lybrook M31-2306 02H - actual wellpath misses target center by 25.8ft at 10660.0ft MD (5474.2 TVD, 681.7 N, -5326.9 E) - Point	0.00	0.00	5,461.3	688.6	-5,348.2	1,887,657.66	1,261,408.93	36.180990	-107.534290

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,616.0	5,475.1	683.5	-5,283.0	Last Cathedral Survey @ 10,616' MD
10,660.0	5,474.2	681.7	-5,326.9	Projection to Bit @ 10,660'

Checked By: _____ Approved By: _____ Date: _____