

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 86210
Phone: (575) 748-1283 Fax: (575) 746-9720

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 30-043-21151		*Pool Code 13379	*Pool Name COUNSELORS GALLUP-DAKOTA
*Property Code 40082	*Property Name LYBROOK M27-2306		*Well Number 04H
*GRID No. 282327	*Operator Name ENCANA OIL & GAS (USA) INC.		*Elevation 7132'

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	27	23N	6W		901	SOUTH	173	WEST	SANDOVAL

11 Bottom Hole Location If Different From Surface

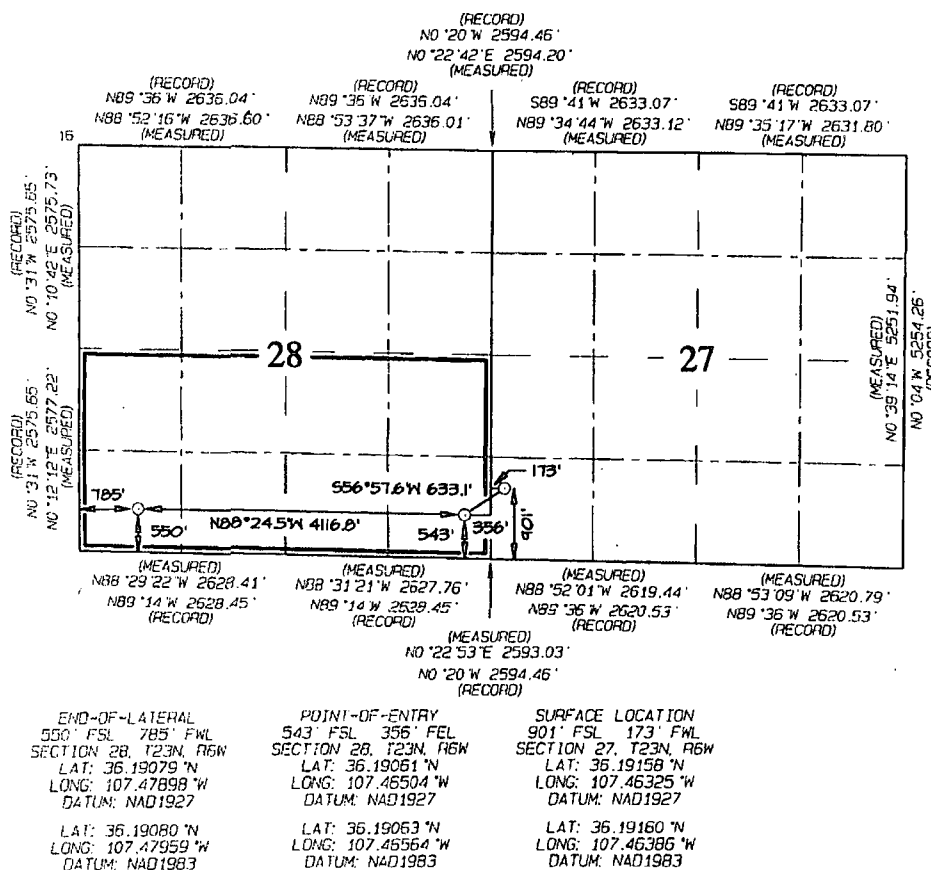
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	28	23N	6W		550	SOUTH	785	WEST	SANDOVAL

12 Dedicated Acres 320.00 Acres S/2 - Section 28					13 Joint or Infill	14 Consolidation Code	15 Order No.
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OIL CONS. DIV DIST. 3

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

MAR 14 2014



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: *Vy Nguyen*
Date: 3/11/14

Printed Name: Vy Nguyen
E-mail Address: vy.nguyen@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: NOVEMBER 26, 2013
Survey Date: DECEMBER 5, 2012

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

DEVIATION SURVEYS

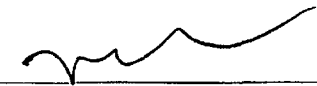
MD (Feet)	Inclination (Degree)
311	.5
680	.6
985	1.0
1292	.3
1603	.2
1917	.6
2232	.8
2547	1.2
2863	.5
3178	.1
3493	.2
3807	1.2
4123	1.2
4438	1.1
4753	.9
4897	10.4

OIL CONS. DIV DIST. 3

MAR 14 2014

OPERATOR CERTIFICATION

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



Vy Nguyen, Engineering Technologist

02/26/14

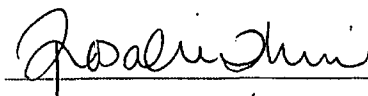
ACKNOWLEDGMENT

State of Colorado
City and County of Denver

This instrument was acknowledged before me on this 26th day of February, 2014 by Vy Nguyen as Attorney in Fact of Encana Oil & Gas (USA) Inc., on behalf of said corporation.

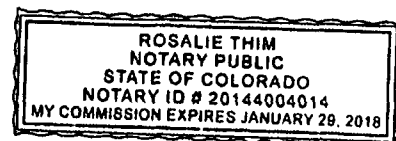
In witness whereof, I hereunto set my hand and official seal.

Notary Public:



My Commission Expires:

1/29/18

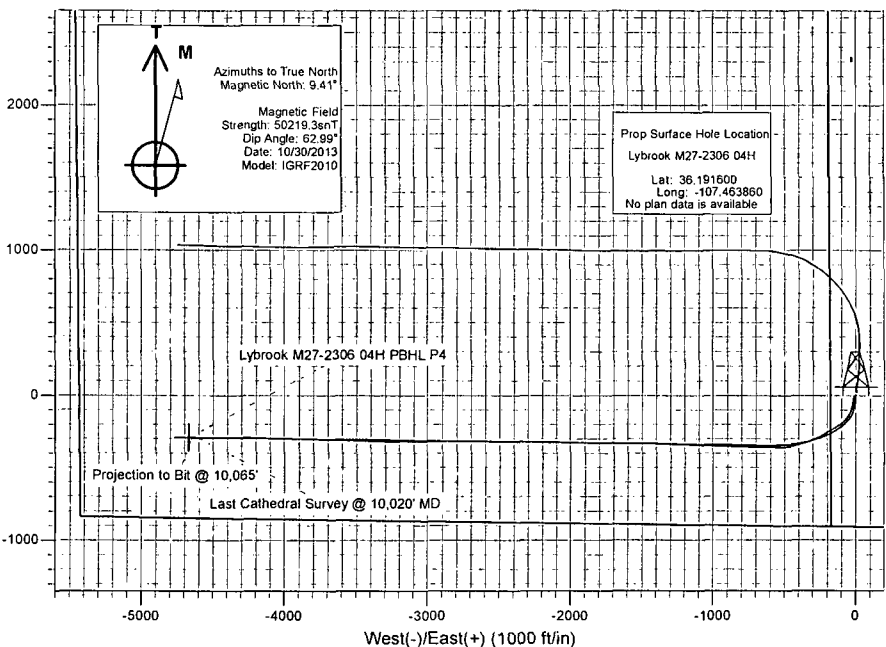
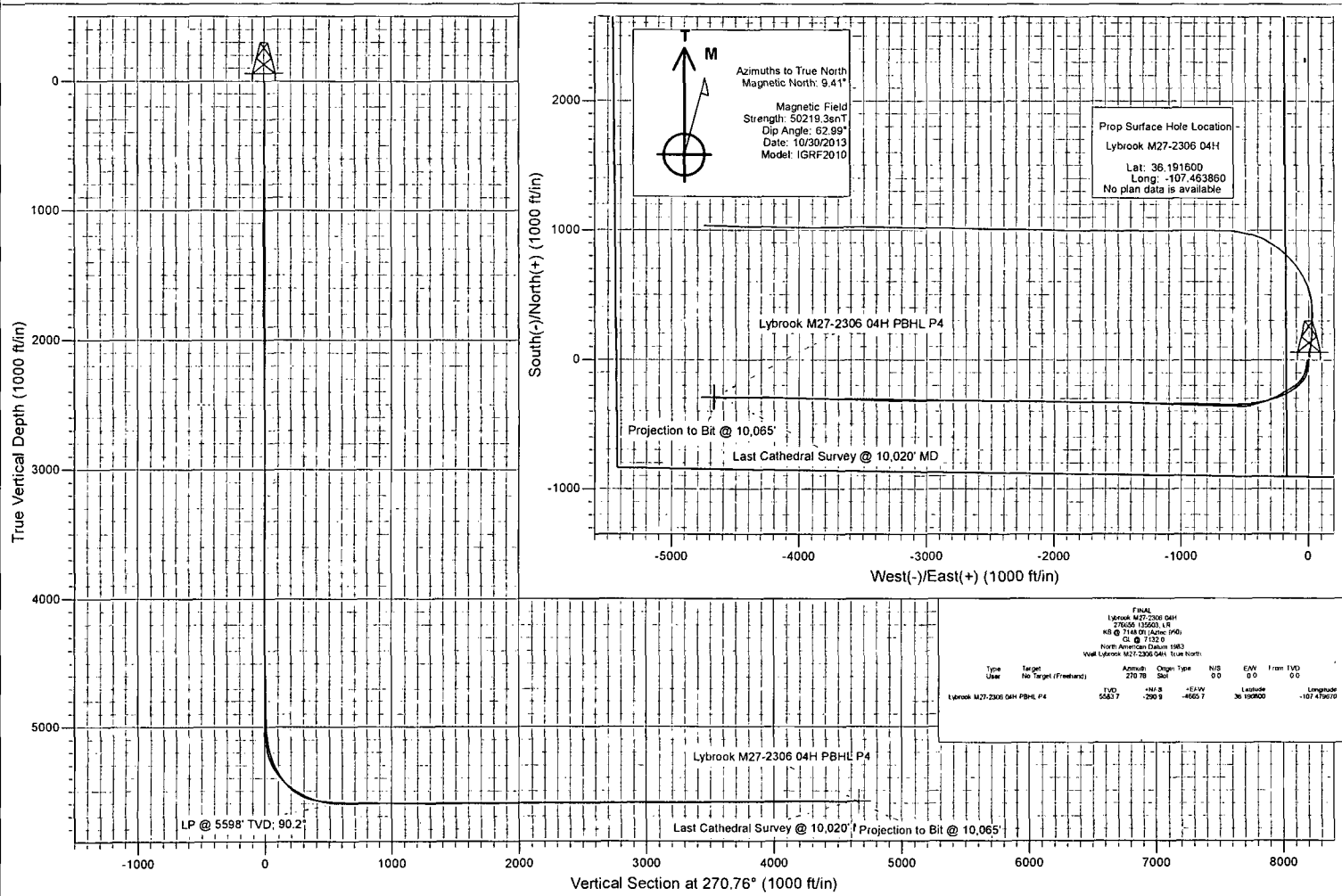


OIL CONS. DIV DIST. 3

MAR 14 2014



Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook M27-2306 04H
 Wellbore: Hz
 Design: FINAL

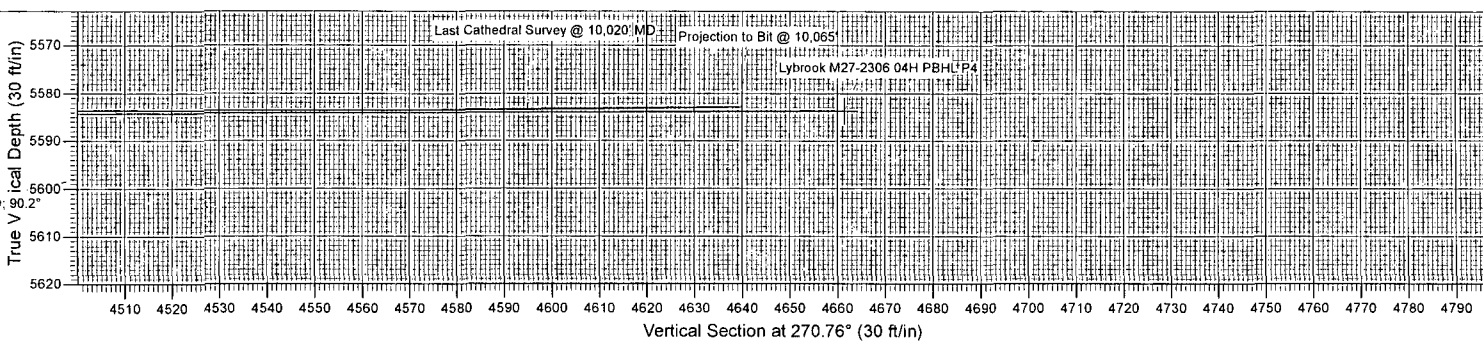
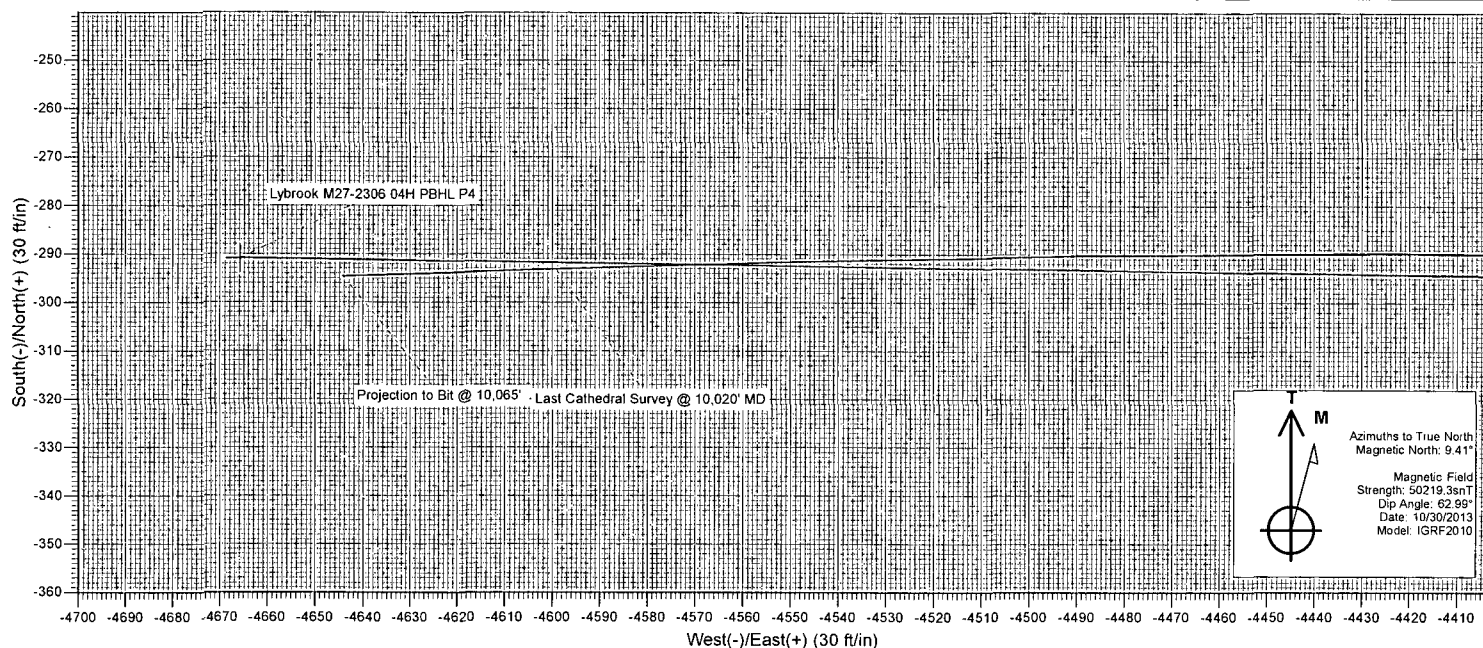


FINAL									
Lybrook M27-2306 04H									
27600 100000 100									
KS @ 7148 01 (Active) (MD)									
CS @ 7152 0									
North American Datum 1983									
Well Lybrook M27-2306 04H True North									
Type	Target	Acct	Origin	Type	N/S	E/W	From	TVD	
User	No Target (Freehand)	270 78	Stol		0 0	0 0	0 0		
Lybrook M27-2306 04H PBHL P4		TVD	N/S	E/W	Latitude	Longitude			
		5581.7	-N/S	-E/W	36.191600	-107.463860			

Vertical Section at 270.76° (1000 ft/in)



Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M27-2306 04H
Wellbore: Hz
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 04H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7148.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB @ 7148.0ft (Aztec 950)
Well:	Lybrook M27-2306 04H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	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 M27-2306 04H					
Well Position	+N/-S	0.0 ft	Northing:	1,891,252.56 ft	Latitude:	36.191600
	+E/-W	0.0 ft	Easting:	1,282,243.06 ft	Longitude:	-107.463860
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,132.0 ft	

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/30/2013	9.41	62.99	50,219

Design	Hz				
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	270.76	

Survey Program		Date 11/19/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
138.0	10,065.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD

Survey									
Measured			Vertical			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	
138.0	1.00	2.80	138.0	1.2	0.1	0.0	0.72	0.72	
196.0	0.90	12.90	196.0	2.2	0.2	-0.2	0.34	-0.17	
253.0	0.50	15.20	253.0	2.8	0.4	-0.3	0.70	-0.70	
311.0	0.50	21.50	311.0	3.3	0.5	-0.5	0.09	0.00	
369.0	0.40	55.03	369.0	3.7	0.8	-0.7	0.48	-0.17	
448.0	0.40	119.60	448.0	3.7	1.2	-1.2	0.54	0.00	
557.0	0.20	134.70	557.0	3.4	1.7	-1.7	0.20	-0.18	
618.0	0.30	145.80	618.0	3.2	1.9	-1.8	0.18	0.16	
680.0	0.60	99.40	680.0	3.0	2.3	-2.2	0.72	0.48	
741.0	0.60	109.80	741.0	2.8	2.9	-2.9	0.18	0.00	
802.0	0.40	108.30	802.0	2.6	3.4	-3.4	0.33	-0.33	
863.0	0.70	97.30	863.0	2.5	4.0	-3.9	0.52	0.49	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 04H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7148.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB @ 7148.0ft (Aztec 950)
Well:	Lybrook M27-2306 04H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	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
924.0	0.80	102.90	924.0	2.4	4.8	-4.7	0.20	0.16	
985.0	1.00	112.10	985.0	2.1	5.7	-5.6	0.40	0.33	
1,048.0	0.20	86.90	1,047.9	1.9	6.3	-6.3	1.31	-1.27	
1,109.0	0.40	342.60	1,108.9	2.1	6.3	-6.3	0.80	0.33	
1,170.0	0.40	351.70	1,169.9	2.5	6.2	-6.2	0.10	0.00	
1,231.0	0.40	350.20	1,230.9	2.9	6.2	-6.1	0.02	0.00	
1,292.0	0.30	359.20	1,291.9	3.3	6.1	-6.1	0.19	-0.16	
1,354.0	0.10	330.10	1,353.9	3.5	6.1	-6.0	0.35	-0.32	
1,415.0	0.10	326.90	1,414.9	3.6	6.0	-6.0	0.01	0.00	
1,476.0	0.10	343.30	1,475.9	3.7	6.0	-5.9	0.05	0.00	
1,539.0	0.20	41.49	1,538.9	3.8	6.0	-6.0	0.27	0.16	
1,603.0	0.20	49.00	1,602.9	4.0	6.2	-6.2	0.04	0.00	
1,666.0	0.30	46.00	1,665.9	4.2	6.4	-6.4	0.16	0.16	
1,728.0	0.30	261.50	1,727.9	4.3	6.4	-6.3	0.92	0.00	
1,792.0	0.60	240.80	1,791.9	4.1	5.9	-5.9	0.53	0.47	
1,854.0	0.60	240.90	1,853.9	3.7	5.3	-5.3	0.00	0.00	
1,917.0	0.60	248.70	1,916.9	3.5	4.7	-4.7	0.13	0.00	
1,980.0	0.50	242.50	1,979.9	3.2	4.2	-4.2	0.18	-0.16	
2,043.0	0.40	231.10	2,042.9	3.0	3.8	-3.7	0.21	-0.16	
2,106.0	0.50	226.00	2,105.9	2.6	3.4	-3.4	0.17	0.16	
2,169.0	0.50	228.40	2,168.9	2.3	3.0	-3.0	0.03	0.00	
2,232.0	0.80	224.30	2,231.9	1.8	2.5	-2.5	0.48	0.48	
2,295.0	0.90	225.90	2,294.9	1.1	1.8	-1.8	0.16	0.16	
2,358.0	1.10	223.10	2,357.9	0.3	1.1	-1.1	0.33	0.32	
2,421.0	1.00	215.00	2,420.9	-0.6	0.3	-0.3	0.28	-0.16	
2,484.0	1.10	211.70	2,483.9	-1.5	-0.3	0.3	0.19	0.16	
2,547.0	1.20	206.80	2,546.9	-2.6	-0.9	0.9	0.22	0.16	
2,610.0	1.00	207.30	2,609.9	-3.7	-1.5	1.4	0.32	-0.32	
2,673.0	0.60	205.10	2,672.8	-4.5	-1.9	1.8	0.64	-0.63	
2,736.0	0.70	201.10	2,735.8	-5.2	-2.1	2.1	0.17	0.16	
2,799.0	0.60	204.20	2,798.8	-5.8	-2.4	2.3	0.17	-0.16	
2,863.0	0.50	216.60	2,862.8	-6.4	-2.7	2.6	0.24	-0.16	
2,926.0	0.30	205.90	2,925.8	-6.7	-2.9	2.9	0.34	-0.32	
2,989.0	0.40	232.80	2,988.8	-7.0	-3.2	3.1	0.30	0.16	
3,052.0	0.40	250.10	3,051.8	-7.2	-3.6	3.5	0.19	0.00	
3,115.0	0.20	352.40	3,114.8	-7.2	-3.8	3.7	0.77	-0.32	
3,178.0	0.10	41.50	3,177.8	-7.0	-3.8	3.7	0.24	-0.16	
3,241.0	0.20	345.30	3,240.8	-6.9	-3.8	3.7	0.26	0.16	
3,304.0	0.30	315.80	3,303.8	-6.7	-3.9	3.8	0.25	0.16	
3,367.0	0.40	308.80	3,366.8	-6.4	-4.2	4.1	0.17	0.16	
3,430.0	0.20	269.00	3,429.8	-6.3	-4.5	4.4	0.44	-0.32	
3,493.0	0.20	243.50	3,492.8	-6.3	-4.7	4.6	0.14	0.00	
3,556.0	0.20	236.30	3,555.8	-6.4	-4.9	4.8	0.04	0.00	
3,618.0	0.80	74.60	3,617.8	-6.4	-4.5	4.5	1.60	0.97	
3,681.0	1.10	102.90	3,680.8	-6.4	-3.5	3.5	0.87	0.48	
3,744.0	1.20	114.40	3,743.8	-6.8	-2.3	2.3	0.40	0.16	
3,807.0	1.20	128.60	3,806.8	-7.5	-1.2	1.1	0.47	0.00	
3,871.0	1.00	115.90	3,870.8	-8.1	-0.2	0.1	0.49	-0.31	
3,934.0	0.30	78.90	3,933.8	-8.4	0.5	-0.6	1.24	-1.11	
3,997.0	0.10	147.30	3,996.8	-8.4	0.6	-0.8	0.44	-0.32	
4,060.0	0.10	340.90	4,059.8	-8.4	0.7	-0.8	0.32	0.00	
4,123.0	1.20	331.50	4,122.8	-7.7	0.3	-0.4	1.75	1.75	
4,186.0	1.30	323.70	4,185.8	-6.6	-0.4	0.3	0.31	0.16	

Cathedral Energy Services

Survey Report

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Project:	Sandoval County, NM	TVD Reference:	KB @ 7148.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB @ 7148.0ft (Aztec 950)
Well:	Lybrook M27-2306 04H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	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
4,249.0	1.00	318.30	4,248.7	-5.6	-1.2	1.1	0.51	-0.48	
4,312.0	0.90	317.50	4,311.7	-4.8	-1.9	1.8	0.16	-0.16	
4,375.0	1.00	315.80	4,374.7	-4.1	-2.6	2.6	0.16	0.16	
4,438.0	1.10	320.50	4,437.7	-3.2	-3.4	3.3	0.21	0.16	
4,501.0	1.10	325.20	4,500.7	-2.2	-4.1	4.1	0.14	0.00	
4,564.0	1.20	318.60	4,563.7	-1.2	-4.9	4.9	0.26	0.16	
4,628.0	1.20	316.70	4,627.7	-0.3	-5.8	5.8	0.06	0.00	
4,691.0	1.00	310.90	4,690.7	0.6	-6.7	6.7	0.36	-0.32	
4,753.0	0.90	319.60	4,752.7	1.3	-7.4	7.4	0.28	-0.16	
4,771.0	1.00	321.60	4,770.7	1.5	-7.6	7.6	0.59	0.56	
4,802.0	0.80	323.40	4,801.7	1.9	-7.9	7.9	0.65	-0.65	
4,834.0	2.10	205.60	4,833.6	1.6	-8.3	8.3	8.04	4.06	
4,865.0	6.30	198.50	4,864.6	-0.5	-9.1	9.0	13.63	13.55	
4,897.0	10.40	194.10	4,896.2	-5.0	-10.3	10.2	12.96	12.81	
4,928.0	13.70	191.30	4,926.5	-11.3	-11.7	11.6	10.81	10.65	
4,960.0	16.10	187.60	4,957.4	-19.4	-13.0	12.8	8.06	7.50	
4,992.0	18.90	187.00	4,988.0	-29.0	-14.3	13.9	8.77	8.75	
5,023.0	21.50	187.70	5,017.1	-39.6	-15.6	15.1	8.42	8.39	
5,054.0	23.10	189.20	5,045.7	-51.2	-17.4	16.7	5.48	5.16	
5,086.0	25.20	190.00	5,074.9	-64.1	-19.6	18.7	6.64	6.56	
5,117.0	27.70	192.10	5,102.7	-77.7	-22.2	21.2	8.61	8.06	
5,149.0	29.60	194.40	5,130.8	-92.6	-25.7	24.5	6.86	5.94	
5,180.0	28.80	200.90	5,157.8	-107.0	-30.3	28.9	10.54	-2.58	
5,211.0	29.50	207.50	5,184.9	-120.8	-36.5	34.9	10.61	2.26	
5,243.0	30.20	211.70	5,212.7	-134.6	-44.4	42.6	6.89	2.19	
5,274.0	29.40	216.50	5,239.6	-147.4	-53.0	51.0	8.11	-2.58	
5,305.0	29.90	219.50	5,266.5	-159.4	-62.4	60.3	5.05	1.61	
5,337.0	32.10	223.50	5,293.9	-171.8	-73.4	71.1	9.42	6.87	
5,368.0	33.80	227.70	5,320.0	-183.5	-85.4	83.0	9.18	5.48	
5,400.0	35.80	232.30	5,346.2	-195.3	-99.4	96.8	10.31	6.25	
5,431.0	36.70	237.60	5,371.2	-205.8	-114.4	111.7	10.52	2.90	
5,462.0	39.10	239.20	5,395.7	-215.7	-130.6	127.7	8.37	7.74	
5,494.0	42.30	239.70	5,420.0	-226.3	-148.6	145.6	10.05	10.00	
5,526.0	45.70	239.10	5,443.0	-237.7	-167.7	164.6	10.70	10.62	
5,557.0	49.00	238.50	5,464.0	-249.5	-187.2	183.9	10.74	10.65	
5,589.0	52.80	239.70	5,484.2	-262.2	-208.5	205.0	12.23	11.87	
5,620.0	57.10	240.80	5,502.0	-274.8	-230.6	226.9	14.17	13.87	
5,652.0	61.40	242.70	5,518.3	-287.8	-254.8	250.9	14.37	13.44	
5,683.0	64.60	245.70	5,532.4	-299.8	-279.6	275.6	13.45	10.32	
5,715.0	68.70	247.90	5,545.1	-311.4	-306.6	302.5	14.28	12.81	
5,746.0	72.40	249.70	5,555.4	-321.9	-333.9	329.6	13.13	11.94	
5,778.0	76.20	252.90	5,564.1	-331.8	-363.1	358.6	15.29	11.87	
5,809.0	79.20	255.90	5,570.7	-339.9	-392.2	387.7	13.53	9.68	
5,841.0	83.00	258.10	5,575.6	-347.0	-423.0	418.4	13.68	11.87	
5,872.0	84.10	261.20	5,579.1	-352.6	-453.3	448.6	10.55	3.55	
5,906.0	85.40	265.60	5,582.2	-356.5	-487.0	482.2	13.44	3.82	
5,947.0	86.80	271.80	5,585.0	-357.4	-527.8	523.0	15.47	3.41	
6,008.0	87.10	271.50	5,588.2	-355.6	-588.7	583.9	0.70	0.49	
6,069.0	88.60	270.30	5,590.5	-354.7	-649.7	644.9	3.15	2.46	
6,131.0	89.10	269.90	5,591.8	-354.6	-711.6	706.9	1.03	0.81	
6,193.0	89.70	271.10	5,592.4	-354.0	-773.6	768.9	2.16	0.97	
6,256.0	89.70	271.50	5,592.8	-352.6	-836.6	831.9	0.63	0.00	
6,319.0	88.60	272.50	5,593.7	-350.4	-899.6	894.8	2.36	-1.75	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 04H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7148.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB @ 7148.0ft (Aztec 950)
Well:	Lybrook M27-2306 04H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	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
6,381.0	88.80	272.70	5,595.1	-347.6	-961.5	956.8	0.46	0.32	
6,444.0	89.00	272.90	5,596.3	-344.5	-1,024.4	1,019.7	0.45	0.32	
6,507.0	89.90	273.30	5,596.9	-341.1	-1,087.3	1,082.7	1.56	1.43	
6,570.0	88.70	272.30	5,597.7	-338.0	-1,150.2	1,145.6	2.48	-1.90	
6,633.0	88.80	272.10	5,599.1	-335.6	-1,213.2	1,208.6	0.35	0.16	
6,696.0	89.50	272.30	5,600.0	-333.2	-1,276.1	1,271.6	1.16	1.11	
6,759.0	89.70	272.00	5,600.4	-330.8	-1,339.1	1,334.6	0.57	0.32	
6,822.0	89.20	270.50	5,601.0	-329.5	-1,402.1	1,397.6	2.51	-0.79	
6,885.0	89.40	269.70	5,601.8	-329.4	-1,465.0	1,460.5	1.31	0.32	
6,948.0	91.10	270.10	5,601.5	-329.5	-1,528.0	1,523.5	2.77	2.70	
7,011.0	92.20	270.40	5,599.7	-329.2	-1,591.0	1,586.5	1.81	1.75	
7,074.0	90.40	270.80	5,598.3	-328.5	-1,654.0	1,649.5	2.93	-2.86	
7,137.0	90.40	270.50	5,597.8	-327.8	-1,717.0	1,712.5	0.48	0.00	
7,200.0	90.90	270.70	5,597.1	-327.2	-1,780.0	1,775.5	0.85	0.79	
7,263.0	90.10	271.80	5,596.6	-325.8	-1,843.0	1,838.5	2.16	-1.27	
7,326.0	90.70	271.30	5,596.1	-324.1	-1,905.9	1,901.5	1.24	0.95	
7,389.0	90.50	270.60	5,595.5	-323.0	-1,968.9	1,964.5	1.16	-0.32	
7,452.0	91.20	270.50	5,594.5	-322.4	-2,031.9	2,027.5	1.12	1.11	
7,515.0	90.30	271.30	5,593.7	-321.4	-2,094.9	2,090.4	1.91	-1.43	
7,578.0	90.80	271.00	5,593.1	-320.2	-2,157.9	2,153.4	0.93	0.79	
7,641.0	89.80	271.40	5,592.8	-318.9	-2,220.9	2,216.4	1.71	-1.59	
7,704.0	90.50	271.20	5,592.6	-317.4	-2,283.8	2,279.4	1.16	1.11	
7,767.0	89.50	270.70	5,592.6	-316.4	-2,346.8	2,342.4	1.77	-1.59	
7,829.0	90.00	270.60	5,592.9	-315.7	-2,408.8	2,404.4	0.82	0.81	
7,892.0	90.90	270.10	5,592.4	-315.3	-2,471.8	2,467.4	1.63	1.43	
7,955.0	89.90	270.40	5,592.0	-315.0	-2,534.8	2,530.4	1.66	-1.59	
8,018.0	90.30	270.20	5,591.8	-314.7	-2,597.8	2,593.4	0.71	0.63	
8,081.0	90.80	270.20	5,591.2	-314.5	-2,660.8	2,656.4	0.79	0.79	
8,144.0	90.00	270.10	5,590.8	-314.3	-2,723.8	2,719.4	1.28	-1.27	
8,207.0	90.90	270.10	5,590.3	-314.2	-2,786.8	2,782.4	1.43	1.43	
8,269.0	89.60	269.90	5,590.0	-314.2	-2,848.8	2,844.4	2.12	-2.10	
8,332.0	90.40	269.30	5,590.0	-314.6	-2,911.8	2,907.4	1.59	1.27	
8,395.0	88.90	268.70	5,590.4	-315.7	-2,974.8	2,970.4	2.56	-2.38	
8,459.0	89.40	269.00	5,591.4	-317.0	-3,038.8	3,034.3	0.91	0.78	
8,522.0	89.70	270.10	5,591.9	-317.5	-3,101.8	3,097.3	1.81	0.48	
8,585.0	90.10	269.70	5,592.0	-317.6	-3,164.8	3,160.3	0.90	0.63	
8,648.0	90.70	269.20	5,591.5	-318.2	-3,227.8	3,223.3	1.24	0.95	
8,711.0	91.50	271.10	5,590.3	-318.1	-3,290.8	3,286.2	3.27	1.27	
8,774.0	90.90	271.70	5,589.0	-316.5	-3,353.7	3,349.2	1.35	-0.95	
8,837.0	91.50	271.70	5,587.7	-314.7	-3,416.7	3,412.2	0.95	0.95	
8,900.0	91.10	272.60	5,586.3	-312.3	-3,479.6	3,475.2	1.56	-0.63	
8,963.0	90.40	271.90	5,585.4	-309.8	-3,542.6	3,538.1	1.57	-1.11	
9,026.0	89.30	271.80	5,585.6	-307.8	-3,605.5	3,601.1	1.75	-1.75	
9,089.0	90.40	271.90	5,585.8	-305.7	-3,668.5	3,664.1	1.75	1.75	
9,152.0	90.30	272.10	5,585.4	-303.5	-3,731.5	3,727.1	0.35	-0.16	
9,215.0	90.70	271.60	5,584.8	-301.5	-3,794.4	3,790.1	1.02	0.63	
9,279.0	89.50	271.50	5,584.7	-299.8	-3,858.4	3,854.1	1.88	-1.87	
9,342.0	90.10	271.50	5,584.9	-298.1	-3,921.4	3,917.1	0.95	0.95	
9,405.0	90.60	271.20	5,584.6	-296.6	-3,984.4	3,980.1	0.93	0.79	
9,468.0	90.90	270.80	5,583.7	-295.6	-4,047.3	4,043.1	0.79	0.48	
9,531.0	91.00	272.10	5,582.7	-294.0	-4,110.3	4,106.0	2.07	0.16	
9,594.0	89.60	271.20	5,582.4	-292.1	-4,173.3	4,169.0	2.64	-2.22	
9,657.0	90.00	270.80	5,582.6	-291.0	-4,236.3	4,232.0	0.90	0.63	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 04H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7148.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB @ 7148.0ft (Aztec 950)
Well:	Lybrook M27-2306 04H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	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
9,720.0	90.50	270.40	5,582.3	-290.4	-4,299.3	4,295.0	1.02	0.79	
9,783.0	89.30	270.50	5,582.4	-289.9	-4,362.3	4,358.0	1.91	-1.90	
9,846.0	89.40	269.90	5,583.1	-289.7	-4,425.3	4,421.0	0.97	0.16	
9,909.0	89.90	269.10	5,583.5	-290.2	-4,488.3	4,484.0	1.50	0.79	
9,972.0	90.00	268.40	5,583.6	-291.6	-4,551.2	4,547.0	1.12	0.16	
10,020.0	90.60	268.10	5,583.3	-293.1	-4,599.2	4,594.9	1.40	1.25	Last Cathedral Survey @ 10,020' MD
10,065.0	90.60	268.10	5,582.8	-294.6	-4,644.2	4,639.9	0.00	0.00	Projection to Bit @ 10,065'

Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	
- Shape									Latitude Longitude
Lybrook M27-2306 04H		0.00	0.00	5,583.7	-290.9	-4,665.7	1,891,020.08	1,277,574.05	36.190800 -107.479670
- survey misses target center by 21.9ft at 10065.0ft MD (5582.8 TVD, -294.6 N, -4644.2 E)									
- Point									
Lybrook M27-2306 04H		0.00	0.00	5,585.2	-236.2	-5,096.6	1,891,080.15	1,277,143.91	36.190950 -107.481130
- survey misses target center by 456.2ft at 10065.0ft MD (5582.8 TVD, -294.6 N, -4644.2 E)									
- Point									
Lybrook M27-2306 04H		0.00	0.00	5,585.2	-283.5	-5,096.6	1,891,032.82	1,277,143.31	36.190820 -107.481130
- survey misses target center by 452.5ft at 10065.0ft MD (5582.8 TVD, -294.6 N, -4644.2 E)									
- Point									
Lybrook M27-2306 04H		0.00	0.00	5,585.2	419.1	-5,102.4	1,891,735.50	1,277,146.33	36.192750 -107.481150
- survey misses target center by 848.1ft at 10065.0ft MD (5582.8 TVD, -294.6 N, -4644.2 E)									
- Point									
Lybrook M27-2306 04H		0.00	0.00	5,598.3	-345.9	-498.7	1,890,912.97	1,281,740.03	36.190650 -107.465550
- survey misses target center by 18.9ft at 5918.6ft MD (5583.2 TVD, -357.2 N, -499.5 E)									
- Point									
Lybrook M27-2306 04H		0.00	0.00	5,588.2	356.8	-504.6	1,891,615.64	1,281,742.93	36.192580 -107.465570
- survey misses target center by 693.8ft at 5607.9ft MD (5495.2 TVD, -269.9 N, -221.8 E)									
- Point									

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,020.0	5,583.3	-293.1	-4,599.2	Last Cathedral Survey @ 10,020' MD
10,065.0	5,582.8	-294.6	-4,644.2	Projection to Bit @ 10,065'

Checked By: _____ Approved By: _____ Date: _____

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

Lybrook

Lybrook M27-2306 04H

Hz

OIL CONS. DIV DIST. 3
MAR 14 2014

Design: FINAL

Survey Report - Geographic

20 November, 2013

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 04H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7148.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB @ 7148.0ft (Aztec 950)
Well:	Lybrook M27-2306 04H	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 M27-2306 04H					
Well Position	+N/-S	0.0 ft	Northing:	1,891,252.56 ft	Latitude:	36.191600
	+E/-W	0.0 ft	Easting:	1,282,243.06 ft	Longitude:	-107.463860
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,132.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/30/2013	9.41	62.99	50,219

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	270.76

Survey Program		Date	11/20/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
138.0	10,065.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD	

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map	Latitude	Longitude
Depth	(°)	(°)	Depth	(ft)	(ft)	Northing	Easting		
(ft)			(ft)			(ft)	(ft)		
0.0	0.00	0.00	0.0	0.0	0.0	1,891,252.56	1,282,243.06	36.191600	-107.463860
138.0	1.00	2.80	138.0	1.2	0.1	1,891,253.76	1,282,243.13	36.191603	-107.463860
196.0	0.90	12.90	196.0	2.2	0.2	1,891,254.71	1,282,243.27	36.191606	-107.463860
253.0	0.50	15.20	253.0	2.8	0.4	1,891,255.39	1,282,243.44	36.191608	-107.463859
311.0	0.50	21.50	311.0	3.3	0.5	1,891,255.86	1,282,243.61	36.191609	-107.463859
369.0	0.40	55.03	369.0	3.7	0.8	1,891,256.21	1,282,243.87	36.191610	-107.463858
448.0	0.40	119.60	448.0	3.7	1.2	1,891,256.23	1,282,244.34	36.191610	-107.463856
557.0	0.20	134.70	557.0	3.4	1.7	1,891,255.90	1,282,244.80	36.191609	-107.463855
618.0	0.30	145.80	618.0	3.2	1.9	1,891,255.69	1,282,244.96	36.191609	-107.463854
680.0	0.60	99.40	680.0	3.0	2.3	1,891,255.50	1,282,245.37	36.191608	-107.463853
741.0	0.60	109.80	741.0	2.8	2.9	1,891,255.33	1,282,245.98	36.191608	-107.463850
802.0	0.40	108.30	802.0	2.6	3.4	1,891,255.15	1,282,246.49	36.191607	-107.463849

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 04H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7148.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB @ 7148.0ft (Aztec 950)
Well:	Lybrook M27-2306 04H	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)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
863.0	0.70	97.30	863.0	2.5	4.0	1,891,255.03	1,282,247.06	36.191607	-107.463847
924.0	0.80	102.90	924.0	2.4	4.8	1,891,254.88	1,282,247.84	36.191607	-107.463844
985.0	1.00	112.10	984.9	2.1	5.7	1,891,254.57	1,282,248.74	36.191606	-107.463841
1,048.0	0.20	86.90	1,047.9	1.9	6.3	1,891,254.36	1,282,249.36	36.191605	-107.463839
1,109.0	0.40	342.60	1,108.9	2.1	6.3	1,891,254.57	1,282,249.40	36.191606	-107.463839
1,170.0	0.40	351.70	1,169.9	2.5	6.2	1,891,254.98	1,282,249.32	36.191607	-107.463839
1,231.0	0.40	350.20	1,230.9	2.9	6.2	1,891,255.41	1,282,249.25	36.191608	-107.463839
1,292.0	0.30	359.20	1,291.9	3.3	6.1	1,891,255.78	1,282,249.22	36.191609	-107.463840
1,354.0	0.10	330.10	1,353.9	3.5	6.1	1,891,255.98	1,282,249.19	36.191610	-107.463840
1,415.0	0.10	326.90	1,414.9	3.6	6.0	1,891,256.08	1,282,249.14	36.191610	-107.463840
1,476.0	0.10	343.30	1,475.9	3.7	6.0	1,891,256.17	1,282,249.10	36.191610	-107.463840
1,539.0	0.20	41.49	1,538.9	3.8	6.0	1,891,256.31	1,282,249.15	36.191611	-107.463840
1,603.0	0.20	49.00	1,602.9	4.0	6.2	1,891,256.46	1,282,249.31	36.191611	-107.463839
1,666.0	0.30	46.00	1,665.9	4.2	6.4	1,891,256.65	1,282,249.52	36.191612	-107.463839
1,728.0	0.30	261.50	1,727.9	4.3	6.4	1,891,256.73	1,282,249.48	36.191612	-107.463839
1,792.0	0.60	240.80	1,791.9	4.1	5.9	1,891,256.55	1,282,249.02	36.191611	-107.463840
1,854.0	0.60	240.90	1,853.9	3.7	5.3	1,891,256.24	1,282,248.44	36.191610	-107.463842
1,917.0	0.60	248.70	1,916.9	3.5	4.7	1,891,255.97	1,282,247.85	36.191610	-107.463844
1,980.0	0.50	242.50	1,979.9	3.2	4.2	1,891,255.73	1,282,247.29	36.191609	-107.463846
2,043.0	0.40	231.10	2,042.9	3.0	3.8	1,891,255.47	1,282,246.87	36.191608	-107.463847
2,106.0	0.50	226.00	2,105.9	2.6	3.4	1,891,255.15	1,282,246.50	36.191607	-107.463849
2,169.0	0.50	228.40	2,168.9	2.3	3.0	1,891,254.78	1,282,246.09	36.191606	-107.463850
2,232.0	0.80	224.30	2,231.9	1.8	2.5	1,891,254.29	1,282,245.57	36.191605	-107.463852
2,295.0	0.90	225.90	2,294.9	1.1	1.8	1,891,253.64	1,282,244.90	36.191603	-107.463854
2,358.0	1.10	223.10	2,357.9	0.3	1.1	1,891,252.86	1,282,244.12	36.191601	-107.463857
2,421.0	1.00	215.00	2,420.9	-0.6	0.3	1,891,251.98	1,282,243.38	36.191598	-107.463859
2,484.0	1.10	211.70	2,483.9	-1.5	-0.3	1,891,251.02	1,282,242.74	36.191596	-107.463861
2,547.0	1.20	206.80	2,546.9	-2.6	-0.9	1,891,249.93	1,282,242.11	36.191593	-107.463863
2,610.0	1.00	207.30	2,609.9	-3.7	-1.5	1,891,248.85	1,282,241.55	36.191590	-107.463865
2,673.0	0.60	205.10	2,672.8	-4.5	-1.9	1,891,248.07	1,282,241.15	36.191588	-107.463867
2,736.0	0.70	201.10	2,735.8	-5.2	-2.1	1,891,247.42	1,282,240.86	36.191586	-107.463868
2,799.0	0.60	204.20	2,798.8	-5.8	-2.4	1,891,246.76	1,282,240.58	36.191584	-107.463868
2,863.0	0.50	216.60	2,862.8	-6.4	-2.7	1,891,246.24	1,282,240.27	36.191583	-107.463869
2,926.0	0.30	205.90	2,925.8	-6.7	-2.9	1,891,245.87	1,282,240.03	36.191582	-107.463870
2,989.0	0.40	232.80	2,988.8	-7.0	-3.2	1,891,245.59	1,282,239.78	36.191581	-107.463871
3,052.0	0.40	250.10	3,051.8	-7.2	-3.6	1,891,245.39	1,282,239.39	36.191580	-107.463872
3,115.0	0.20	352.40	3,114.8	-7.2	-3.8	1,891,245.43	1,282,239.17	36.191580	-107.463873
3,178.0	0.10	41.50	3,177.8	-7.0	-3.8	1,891,245.58	1,282,239.19	36.191581	-107.463873
3,241.0	0.20	345.30	3,240.8	-6.9	-3.8	1,891,245.72	1,282,239.20	36.191581	-107.463873
3,304.0	0.30	315.80	3,303.8	-6.7	-3.9	1,891,245.95	1,282,239.06	36.191582	-107.463874
3,367.0	0.40	308.80	3,366.8	-6.4	-4.2	1,891,246.21	1,282,238.78	36.191582	-107.463874
3,430.0	0.20	269.00	3,429.8	-6.3	-4.5	1,891,246.35	1,282,238.50	36.191583	-107.463875
3,493.0	0.20	243.50	3,492.8	-6.3	-4.7	1,891,246.30	1,282,238.29	36.191583	-107.463876
3,556.0	0.20	236.30	3,555.8	-6.4	-4.9	1,891,246.19	1,282,238.10	36.191582	-107.463877
3,618.0	0.80	74.60	3,617.8	-6.4	-4.5	1,891,246.24	1,282,238.43	36.191583	-107.463876
3,681.0	1.10	102.90	3,680.8	-6.4	-3.5	1,891,246.21	1,282,239.44	36.191583	-107.463872
3,744.0	1.20	114.40	3,743.8	-6.8	-2.3	1,891,245.79	1,282,240.63	36.191581	-107.463868
3,807.0	1.20	128.60	3,806.8	-7.5	-1.2	1,891,245.09	1,282,241.73	36.191580	-107.463864
3,871.0	1.00	115.90	3,870.8	-8.1	-0.2	1,891,244.42	1,282,242.75	36.191578	-107.463861
3,934.0	0.30	78.90	3,933.8	-8.4	0.5	1,891,244.20	1,282,243.41	36.191577	-107.463859
3,997.0	0.10	147.30	3,996.8	-8.4	0.6	1,891,244.18	1,282,243.60	36.191577	-107.463858
4,060.0	0.10	340.90	4,059.8	-8.4	0.7	1,891,244.19	1,282,243.61	36.191577	-107.463858
4,123.0	1.20	331.50	4,122.8	-7.7	0.3	1,891,244.82	1,282,243.28	36.191579	-107.463859
4,186.0	1.30	323.70	4,185.8	-6.6	-0.4	1,891,245.99	1,282,242.56	36.191582	-107.463862
4,249.0	1.00	318.30	4,248.7	-5.6	-1.2	1,891,246.99	1,282,241.78	36.191585	-107.463864

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 04H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7148.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB @ 7148.0ft (Aztec 950)
Well:	Lybrook M27-2306 04H	North Reference:	True
Wellbore:	H2	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)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
4,312.0	0.90	317.50	4,311.7	-4.8	-1.9	1,891,247.77	1,282,241.09	36.191587	-107.463867
4,375.0	1.00	315.80	4,374.7	-4.1	-2.6	1,891,248.54	1,282,240.39	36.191589	-107.463869
4,438.0	1.10	320.50	4,437.7	-3.2	-3.4	1,891,249.41	1,282,239.63	36.191591	-107.463872
4,501.0	1.10	325.20	4,500.7	-2.2	-4.1	1,891,250.38	1,282,238.91	36.191594	-107.463874
4,564.0	1.20	318.60	4,563.7	-1.2	-4.9	1,891,251.38	1,282,238.14	36.191597	-107.463877
4,628.0	1.20	316.70	4,627.7	-0.3	-5.8	1,891,252.38	1,282,237.25	36.191599	-107.463880
4,691.0	1.00	310.90	4,690.7	0.6	-6.7	1,891,253.23	1,282,236.40	36.191602	-107.463883
4,753.0	0.90	319.60	4,752.7	1.3	-7.4	1,891,253.97	1,282,235.68	36.191604	-107.463885
4,771.0	1.00	321.60	4,770.7	1.5	-7.6	1,891,254.20	1,282,235.49	36.191604	-107.463886
4,802.0	0.80	323.40	4,801.7	1.9	-7.9	1,891,254.59	1,282,235.20	36.191605	-107.463887
4,834.0	2.10	205.60	4,833.6	1.6	-8.3	1,891,254.25	1,282,234.81	36.191604	-107.463888
4,865.0	6.30	198.50	4,864.6	-0.5	-9.1	1,891,252.13	1,282,234.00	36.191599	-107.463891
4,897.0	10.40	194.10	4,896.2	-5.0	-10.3	1,891,247.68	1,282,232.68	36.191586	-107.463895
4,928.0	13.70	191.30	4,926.5	-11.3	-11.7	1,891,241.38	1,282,231.20	36.191569	-107.463900
4,960.0	16.10	187.60	4,957.4	-19.4	-13.0	1,891,233.28	1,282,229.77	36.191547	-107.463904
4,992.0	18.90	187.00	4,988.0	-29.0	-14.3	1,891,223.75	1,282,228.43	36.191520	-107.463909
5,023.0	21.50	187.70	5,017.1	-39.6	-15.6	1,891,213.16	1,282,226.93	36.191491	-107.463913
5,054.0	23.10	189.20	5,045.7	-51.2	-17.4	1,891,201.55	1,282,225.05	36.191459	-107.463919
5,086.0	25.20	190.00	5,074.9	-64.1	-19.6	1,891,188.67	1,282,222.70	36.191424	-107.463927
5,117.0	27.70	192.10	5,102.7	-77.7	-22.2	1,891,175.16	1,282,219.87	36.191387	-107.463936
5,149.0	29.60	194.40	5,130.8	-92.6	-25.7	1,891,160.27	1,282,216.16	36.191346	-107.463947
5,180.0	28.80	200.90	5,157.8	-107.0	-30.3	1,891,145.93	1,282,211.41	36.191306	-107.463963
5,211.0	29.50	207.50	5,184.9	-120.8	-36.5	1,891,132.26	1,282,205.05	36.191268	-107.463984
5,243.0	30.20	211.70	5,212.7	-134.6	-44.4	1,891,118.53	1,282,197.01	36.191230	-107.464011
5,274.0	29.40	216.50	5,239.6	-147.4	-53.0	1,891,105.88	1,282,188.23	36.191195	-107.464040
5,305.0	29.90	219.50	5,266.5	-159.4	-62.4	1,891,093.92	1,282,178.64	36.191162	-107.464072
5,337.0	32.10	223.50	5,293.9	-171.8	-73.4	1,891,081.73	1,282,167.55	36.191128	-107.464109
5,368.0	33.80	227.70	5,320.0	-183.5	-85.4	1,891,070.11	1,282,155.36	36.191096	-107.464150
5,400.0	35.80	232.30	5,346.2	-195.3	-99.4	1,891,058.57	1,282,141.22	36.191064	-107.464197
5,431.0	36.70	237.60	5,371.2	-205.8	-114.4	1,891,048.24	1,282,126.09	36.191035	-107.464248
5,462.0	39.10	239.20	5,395.7	-215.7	-130.6	1,891,038.48	1,282,109.75	36.191008	-107.464303
5,494.0	42.30	239.70	5,420.0	-226.3	-148.6	1,891,028.10	1,282,091.65	36.190978	-107.464364
5,526.0	45.70	239.10	5,443.0	-237.7	-167.7	1,891,017.02	1,282,072.38	36.190947	-107.464429
5,557.0	49.00	238.50	5,464.0	-249.5	-187.2	1,891,005.45	1,282,052.73	36.190915	-107.464495
5,589.0	52.80	239.70	5,484.2	-262.2	-208.5	1,890,992.98	1,282,031.27	36.190880	-107.464567
5,620.0	57.10	240.80	5,502.0	-274.8	-230.6	1,890,980.67	1,282,009.08	36.190845	-107.464642
5,652.0	61.40	242.70	5,518.3	-287.8	-254.8	1,890,967.97	1,281,984.70	36.190810	-107.464724
5,683.0	64.60	245.70	5,532.4	-299.8	-279.6	1,890,956.27	1,281,959.68	36.190777	-107.464808
5,715.0	68.70	247.90	5,545.1	-311.4	-306.6	1,890,945.05	1,281,932.54	36.190745	-107.464899
5,746.0	72.40	249.70	5,555.4	-321.9	-333.9	1,890,934.83	1,281,905.16	36.190716	-107.464992
5,778.0	76.20	252.90	5,564.1	-331.8	-363.1	1,890,925.33	1,281,875.87	36.190689	-107.465091
5,809.0	79.20	255.90	5,570.7	-339.9	-392.2	1,890,917.56	1,281,846.60	36.190666	-107.465189
5,841.0	83.00	258.10	5,575.6	-347.0	-423.0	1,890,910.83	1,281,815.72	36.190647	-107.465294
5,872.0	84.10	261.20	5,579.1	-352.6	-453.3	1,890,905.68	1,281,785.35	36.190632	-107.465396
5,906.0	85.40	265.60	5,582.2	-356.5	-487.0	1,890,902.21	1,281,751.68	36.190621	-107.465510
5,947.0	86.80	271.80	5,585.0	-357.4	-527.8	1,890,901.80	1,281,710.80	36.190618	-107.465649
6,008.0	87.10	271.50	5,588.2	-355.6	-588.7	1,890,904.31	1,281,649.94	36.190623	-107.465855
6,069.0	88.60	270.30	5,590.5	-354.7	-649.7	1,890,906.03	1,281,589.01	36.190626	-107.466062
6,131.0	89.10	269.90	5,591.8	-354.6	-711.6	1,890,906.92	1,281,527.03	36.190626	-107.466272
6,193.0	89.70	271.10	5,592.4	-354.0	-773.6	1,890,908.23	1,281,465.05	36.190628	-107.466482
6,256.0	89.70	271.50	5,592.8	-352.6	-836.6	1,890,910.45	1,281,402.09	36.190632	-107.466695
6,319.0	88.60	272.50	5,593.7	-350.4	-899.6	1,890,913.44	1,281,339.17	36.190638	-107.466909
6,381.0	88.80	272.70	5,595.1	-347.6	-961.5	1,890,917.02	1,281,277.29	36.190645	-107.467118
6,444.0	89.00	272.90	5,596.3	-344.5	-1,024.4	1,890,920.89	1,281,214.42	36.190654	-107.467332
6,507.0	89.90	273.30	5,596.9	-341.1	-1,087.3	1,890,925.08	1,281,151.56	36.190663	-107.467545

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M27-2306 04H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M27-2306 04H
TVD Reference: KB @ 7148.0ft (Aztec 950)
MD Reference: KB @ 7148.0ft (Aztec 950)
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)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
6,570.0	88.70	272.30	5,597.7	-338.0	-1,150.2	1,890,928.95	1,281,088.69	36.190672	-107.467758
6,633.0	88.80	272.10	5,599.1	-335.6	-1,213.2	1,890,932.15	1,281,025.78	36.190678	-107.467971
6,696.0	89.50	272.30	5,600.0	-333.2	-1,276.1	1,890,935.36	1,280,962.87	36.190685	-107.468184
6,759.0	89.70	272.00	5,600.4	-330.8	-1,339.1	1,890,938.51	1,280,899.95	36.190691	-107.468398
6,822.0	89.20	270.50	5,601.0	-329.5	-1,402.1	1,890,940.67	1,280,836.99	36.190695	-107.468611
6,885.0	89.40	269.70	5,601.8	-329.4	-1,465.0	1,890,941.57	1,280,774.01	36.190695	-107.468825
6,948.0	91.10	270.10	5,601.5	-329.5	-1,528.0	1,890,942.25	1,280,711.01	36.190695	-107.469038
7,011.0	92.20	270.40	5,599.7	-329.2	-1,591.0	1,890,943.31	1,280,648.05	36.190696	-107.469251
7,074.0	90.40	270.80	5,598.3	-328.5	-1,654.0	1,890,944.76	1,280,585.08	36.190698	-107.469465
7,137.0	90.40	270.50	5,597.8	-327.8	-1,717.0	1,890,946.26	1,280,522.10	36.190700	-107.469678
7,200.0	90.90	270.70	5,597.1	-327.2	-1,780.0	1,890,947.71	1,280,459.12	36.190701	-107.469892
7,263.0	90.10	271.80	5,596.6	-325.8	-1,843.0	1,890,949.87	1,280,396.17	36.190705	-107.470105
7,326.0	90.70	271.30	5,596.1	-324.1	-1,905.9	1,890,952.36	1,280,333.22	36.190710	-107.470319
7,389.0	90.50	270.60	5,595.5	-323.0	-1,968.9	1,890,954.19	1,280,270.25	36.190713	-107.470532
7,452.0	91.20	270.50	5,594.5	-322.4	-2,031.9	1,890,955.59	1,280,207.27	36.190714	-107.470745
7,515.0	90.30	271.30	5,593.7	-321.4	-2,094.9	1,890,957.36	1,280,144.30	36.190717	-107.470959
7,578.0	90.80	271.00	5,593.1	-320.2	-2,157.9	1,890,959.42	1,280,081.34	36.190720	-107.471172
7,641.0	89.80	271.40	5,592.8	-318.9	-2,220.9	1,890,961.52	1,280,018.38	36.190724	-107.471386
7,704.0	90.50	271.20	5,592.6	-317.4	-2,283.8	1,890,963.74	1,279,955.42	36.190728	-107.471599
7,767.0	89.50	270.70	5,592.6	-316.4	-2,346.8	1,890,965.57	1,279,892.44	36.190731	-107.471813
7,829.0	90.00	270.60	5,592.9	-315.7	-2,408.8	1,890,967.05	1,279,830.46	36.190733	-107.472023
7,892.0	90.90	270.10	5,592.4	-315.3	-2,471.8	1,890,968.22	1,279,767.47	36.190734	-107.472236
7,955.0	89.90	270.40	5,592.0	-315.0	-2,534.8	1,890,969.29	1,279,704.49	36.190735	-107.472450
8,018.0	90.30	270.20	5,591.8	-314.7	-2,597.8	1,890,970.41	1,279,641.50	36.190735	-107.472663
8,081.0	90.80	270.20	5,591.2	-314.5	-2,660.8	1,890,971.41	1,279,578.51	36.190736	-107.472877
8,144.0	90.00	270.10	5,590.8	-314.3	-2,723.8	1,890,972.37	1,279,515.52	36.190736	-107.473090
8,207.0	90.90	270.10	5,590.3	-314.2	-2,786.8	1,890,973.26	1,279,452.53	36.190737	-107.473304
8,269.0	89.60	269.90	5,590.0	-314.2	-2,848.8	1,890,974.04	1,279,390.53	36.190737	-107.473514
8,332.0	90.40	269.30	5,590.0	-314.6	-2,911.8	1,890,974.39	1,279,327.53	36.190735	-107.473727
8,395.0	88.90	268.70	5,590.4	-315.7	-2,974.8	1,890,974.08	1,279,264.54	36.190732	-107.473940
8,459.0	89.40	269.00	5,591.4	-317.0	-3,038.8	1,890,973.59	1,279,200.55	36.190729	-107.474157
8,522.0	89.70	270.10	5,591.9	-317.5	-3,101.8	1,890,973.89	1,279,137.55	36.190728	-107.474371
8,585.0	90.10	269.70	5,592.0	-317.6	-3,164.8	1,890,974.57	1,279,074.56	36.190727	-107.474584
8,648.0	90.70	269.20	5,591.5	-318.2	-3,227.8	1,890,974.75	1,279,011.56	36.190726	-107.474798
8,711.0	91.50	271.10	5,590.3	-318.1	-3,290.8	1,890,975.70	1,278,948.58	36.190726	-107.475011
8,774.0	90.90	271.70	5,589.0	-316.5	-3,353.7	1,890,978.03	1,278,885.64	36.190730	-107.475224
8,837.0	91.50	271.70	5,587.7	-314.7	-3,416.7	1,890,980.68	1,278,822.71	36.190735	-107.475438
8,900.0	91.10	272.60	5,586.3	-312.3	-3,479.6	1,890,983.83	1,278,759.80	36.190742	-107.475651
8,963.0	90.40	271.90	5,585.4	-309.8	-3,542.6	1,890,987.10	1,278,696.89	36.190749	-107.475864
9,026.0	89.30	271.80	5,585.6	-307.8	-3,605.5	1,890,989.92	1,278,633.96	36.190754	-107.476078
9,089.0	90.40	271.90	5,585.8	-305.7	-3,668.5	1,890,992.74	1,278,571.02	36.190760	-107.476291
9,152.0	90.30	272.10	5,585.4	-303.5	-3,731.5	1,890,995.72	1,278,508.09	36.190766	-107.476504
9,215.0	90.70	271.60	5,584.8	-301.5	-3,794.4	1,890,998.55	1,278,445.16	36.190771	-107.476718
9,279.0	89.50	271.50	5,584.7	-299.8	-3,858.4	1,891,001.08	1,278,381.21	36.190776	-107.476935
9,342.0	90.10	271.50	5,584.9	-298.1	-3,921.4	1,891,003.51	1,278,318.26	36.190780	-107.477148
9,405.0	90.60	271.20	5,584.6	-296.6	-3,984.4	1,891,005.79	1,278,255.30	36.190785	-107.477361
9,468.0	90.90	270.80	5,583.7	-295.6	-4,047.3	1,891,007.67	1,278,192.34	36.190788	-107.477575
9,531.0	91.00	272.10	5,582.7	-294.0	-4,110.3	1,891,010.06	1,278,129.39	36.190792	-107.477788
9,594.0	89.60	271.20	5,582.4	-292.1	-4,173.3	1,891,012.66	1,278,066.45	36.190797	-107.478002
9,657.0	90.00	270.80	5,582.6	-291.0	-4,236.3	1,891,014.54	1,278,003.48	36.190800	-107.478215
9,720.0	90.50	270.40	5,582.3	-290.4	-4,299.3	1,891,015.99	1,277,940.49	36.190802	-107.478428
9,783.0	89.30	270.50	5,582.4	-289.9	-4,362.3	1,891,017.28	1,277,877.51	36.190803	-107.478642
9,846.0	89.40	269.90	5,583.1	-289.7	-4,425.3	1,891,018.28	1,277,814.52	36.190804	-107.478855
9,909.0	89.90	269.10	5,583.5	-290.2	-4,488.3	1,891,018.52	1,277,751.52	36.190802	-107.479069
9,972.0	90.00	268.40	5,583.6	-291.6	-4,551.2	1,891,017.94	1,277,688.53	36.190798	-107.479282

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 04H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7148.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB @ 7148.0ft (Aztec 950)
Well:	Lybrook M27-2306 04H	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)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
10,020.0	90.60	268.10	5,583.3	-293.1	-4,599.2	1,891,017.07	1,277,640.54	36.190794	-107.479445
Last Cathedral Survey @ 10,020' MD									
10,065.0	90.60	268.10	5,582.8	-294.6	-4,644.2	1,891,016.14	1,277,595.55	36.190790	-107.479597
Projection to Bit @ 10,065'									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Lybrook M27-2306 04H	0.00	0.00	5,583.7	-290.9	-4,665.7	1,891,020.08	1,277,574.05	36.190800	-107.479670
- actual wellpath misses target center by 21.9ft at 10065.0ft MD (5582.8 TVD, -294.6 N, -4644.2 E)									
- Point									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,020.0	5,583.3	-293.1	-4,599.2	Last Cathedral Survey @ 10,020' MD
10,065.0	5,582.8	-294.6	-4,644.2	Projection to Bit @ 10,065'

Checked By: _____	Approved By: _____	Date: _____
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