

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: (505) 748-1283 Fax: (505) 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) 476-3450 Fax: (505) 476-3452

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 30-043-21153		*Pool Code 13379	*Pool Name COUNSELORS GALLUP-DAKOTA
*Property Code 40082	*Property Name LYBROOK M27-2306		*Well Number 02H
*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		931	SOUTH	177	WEST	SANDOVAL

11 Bottom Hole Location If Different From Surface

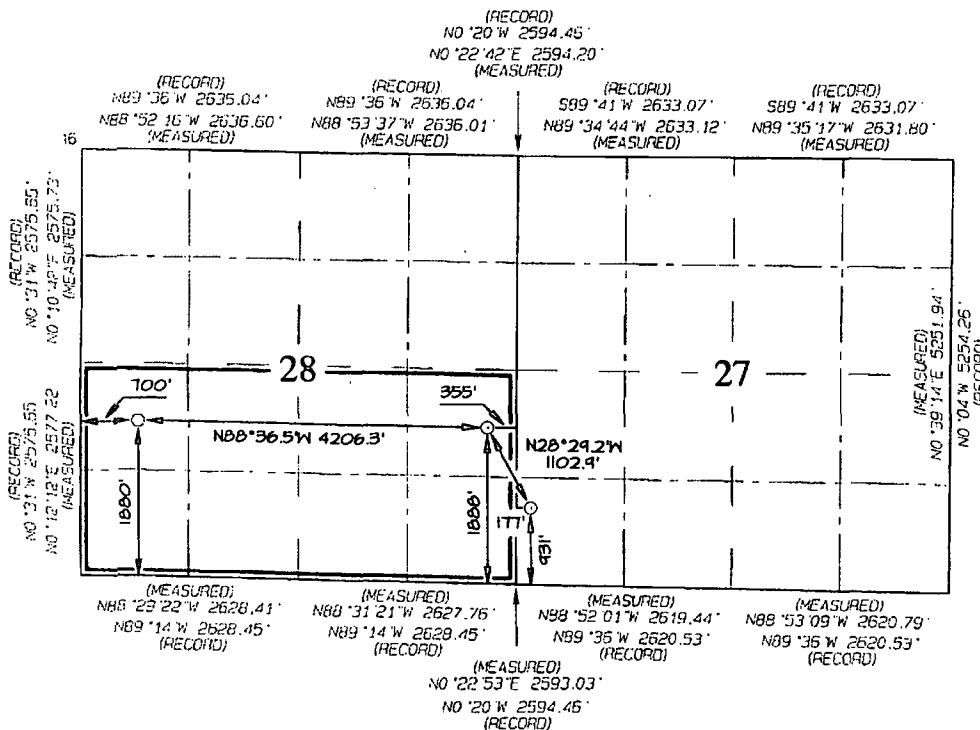
UL or Lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	28	23N	6W		1880	SOUTH	700	WEST	SANDOVAL

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

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS
BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

MAR 14 2014



END-OF-LATERAL
1880' FSL 700' FWL
SECTION 28, T23N, R6W
LAT: 36.19444° N
LONG: 107.47931° W
DATUM: NAD1927

LAT: 36.19446° N
LONG: 107.47992° W
DATUM: NAD1983

POINT-OF-ENTRY
1888' FSL 355' FEL
SECTION 28, T23N, R6W
LAT: 36.19431° N
LONG: 107.46506° W
DATUM: NAD1927

LAT: 36.19432° N
LONG: 107.46567° W
DATUM: NAD1983

SURFACE LOCATION
931' FSL 177' FWL
SECTION 27, T23N, R6W
LAT: 36.19166° N
LONG: 107.46324° W
DATUM: NAD1927

LAT: 36.19168° N
LONG: 107.46384° 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: *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 9, 2013
Survey Date: DECEMBER 5, 2012

Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
REGISTERED PROFESSIONAL SURVEYOR
15269

JASON C. EDWARDS
Certificate Number 15269

DEVIATION SURVEYS

MD (Feet)	Inclination (Degree)
375	.7
683	.4
989	.5
1295	1.3
1605	2.3
1920	.4
2236	.6
2551	1.6
2866	.2
3180	.2
3494	.2
3810	.5
4124	.6
4439	.7
4754	.6
4956	10.8

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.

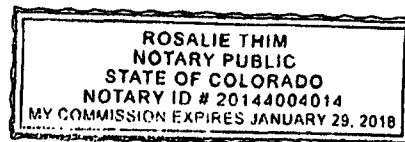
Notary Public:

Rosalie Thim

My Commission Expires:

1/29/18

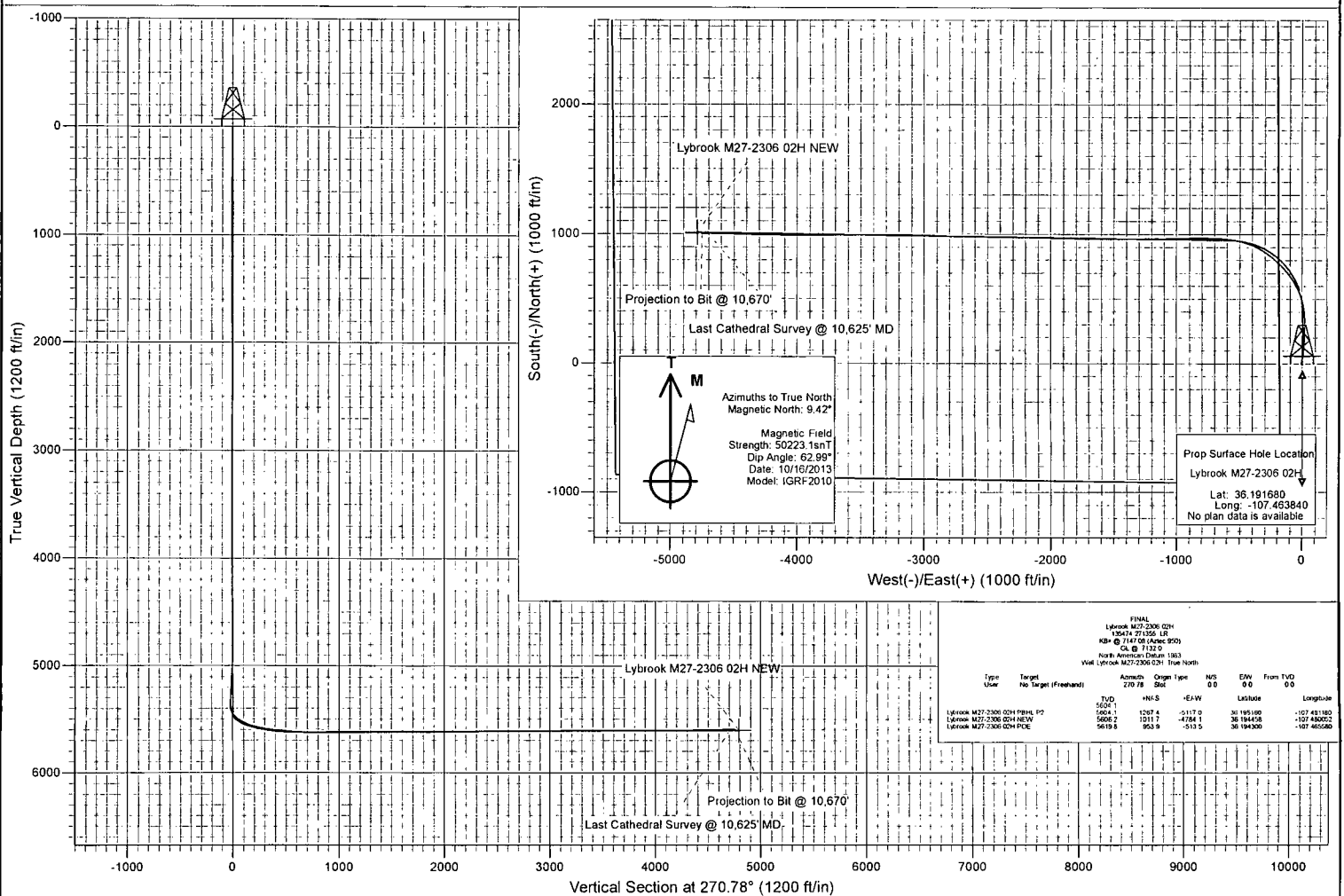
AV



OIL CONS. DIV DIST. 3
MAR 14 2014



Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M27-2306 02H
Wellbore: Hz
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB= @ 7147.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB= @ 7147.0ft (Aztec 950)
Well:	Lybrook M27-2306 02H	North Reference:	True
Wellbore:	H2	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 02H					
Well Position	+N/-S	0.0 ft	Northing:	1,891,281.61 ft	Latitude:	36.191680
	+E/-W	0.0 ft	Easting:	1,282,249.32 ft	Longitude:	-107.463840
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	10/16/2013	9.42	62.99	50,223

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	270.78

Survey Program		Date 10/29/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
138.0	10,670.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD

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	
138.0	0.40	45.60	138.0	0.3	0.3	-0.3	0.29	0.29	
225.0	0.60	53.00	225.0	0.8	0.9	-0.9	0.24	0.23	
316.0	0.80	61.80	316.0	1.4	1.9	-1.8	0.25	0.22	
375.0	0.70	71.30	375.0	1.7	2.6	-2.5	0.27	-0.17	
438.0	0.40	79.30	438.0	1.9	3.2	-3.1	0.49	-0.48	
487.0	0.30	93.80	487.0	1.9	3.4	-3.4	0.27	-0.20	
561.0	0.20	85.40	561.0	1.9	3.8	-3.7	0.14	-0.14	
622.0	0.20	58.50	622.0	2.0	4.0	-3.9	0.15	0.00	
683.0	0.40	165.00	683.0	1.8	4.1	-4.1	0.81	0.33	
745.0	0.50	149.30	745.0	1.4	4.3	-4.3	0.25	0.16	
806.0	0.40	157.00	806.0	1.0	4.5	-4.5	0.19	-0.16	
867.0	0.60	173.70	867.0	0.4	4.6	-4.6	0.40	0.33	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB= @ 7147.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB= @ 7147.0ft (Aztec 950)
Well:	Lybrook M27-2306 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
928.0	0.60	179.80	928.0	-0.2	4.7	-4.7	0.10	0.00	
989.0	0.50	196.60	989.0	-0.8	4.6	-4.6	0.31	-0.16	
1,051.0	0.90	214.80	1,051.0	-1.4	4.2	-4.3	0.73	0.65	
1,112.0	1.20	222.20	1,112.0	-2.3	3.5	-3.6	0.54	0.49	
1,173.0	1.20	223.20	1,172.9	-3.2	2.7	-2.7	0.03	0.00	
1,234.0	1.50	216.00	1,233.9	-4.3	1.8	-1.8	0.56	0.49	
1,295.0	1.30	174.00	1,294.9	-5.7	1.4	-1.5	1.67	-0.33	
1,356.0	0.80	108.90	1,355.9	-6.5	1.9	-1.9	1.98	-0.82	
1,418.0	1.00	47.60	1,417.9	-6.3	2.7	-2.7	1.51	0.32	
1,479.0	1.90	2.90	1,478.9	-4.9	3.1	-3.2	2.26	1.48	
1,542.0	2.00	356.90	1,541.8	-2.8	3.1	-3.1	0.36	0.16	
1,605.0	2.30	359.70	1,604.8	-0.4	3.0	-3.0	0.50	0.48	
1,668.0	2.30	342.60	1,667.7	2.1	2.6	-2.6	1.09	0.00	
1,731.0	2.60	341.00	1,730.7	4.6	1.8	-1.7	0.49	0.48	
1,794.0	1.30	321.50	1,793.6	6.5	0.9	-0.8	2.29	-2.06	
1,857.0	1.10	293.50	1,856.6	7.3	-0.1	0.2	0.97	-0.32	
1,920.0	0.40	259.00	1,919.6	7.5	-0.9	1.0	1.27	-1.11	
1,983.0	0.40	199.90	1,982.6	7.3	-1.2	1.3	0.63	0.00	
2,046.0	0.50	191.20	2,045.6	6.8	-1.3	1.4	0.19	0.16	
2,109.0	0.60	225.90	2,108.6	6.3	-1.6	1.7	0.54	0.16	
2,173.0	0.60	244.30	2,172.6	5.9	-2.1	2.2	0.30	0.00	
2,236.0	0.60	233.10	2,235.6	5.6	-2.7	2.8	0.19	0.00	
2,299.0	0.50	263.90	2,298.6	5.4	-3.2	3.3	0.49	-0.16	
2,362.0	0.40	56.60	2,361.6	5.4	-3.3	3.4	1.39	-0.16	
2,425.0	0.40	69.00	2,424.6	5.6	-2.9	3.0	0.14	0.00	
2,488.0	1.10	149.20	2,487.6	5.2	-2.4	2.5	1.75	1.11	
2,551.0	1.60	161.80	2,550.6	3.9	-1.8	1.9	0.92	0.79	
2,613.0	1.60	163.70	2,612.6	2.2	-1.3	1.3	0.09	0.00	
2,676.0	0.90	139.60	2,675.5	1.0	-0.7	0.8	1.37	-1.11	
2,740.0	0.80	102.40	2,739.5	0.5	0.0	0.0	0.86	-0.16	
2,803.0	0.40	134.60	2,802.5	0.2	0.6	-0.6	0.81	-0.63	
2,866.0	0.20	172.80	2,865.5	0.0	0.8	-0.8	0.43	-0.32	
2,928.0	0.20	208.80	2,927.5	-0.2	0.7	-0.7	0.20	0.00	
2,991.0	0.20	147.70	2,990.5	-0.4	0.7	-0.7	0.32	0.00	
3,054.0	0.20	188.40	3,053.5	-0.6	0.8	-0.8	0.22	0.00	
3,117.0	0.20	154.90	3,116.5	-0.8	0.8	-0.8	0.18	0.00	
3,180.0	0.20	116.20	3,179.5	-1.0	1.0	-1.0	0.21	0.00	
3,243.0	0.40	166.90	3,242.5	-1.2	1.1	-1.1	0.50	0.32	
3,306.0	0.70	199.40	3,305.5	-1.8	1.0	-1.1	0.67	0.48	
3,369.0	0.40	191.60	3,368.5	-2.4	0.9	-0.9	0.49	-0.48	
3,432.0	0.20	205.90	3,431.5	-2.7	0.8	-0.8	0.34	-0.32	
3,494.0	0.20	301.50	3,493.5	-2.7	0.6	-0.7	0.48	0.00	
3,558.0	0.20	129.20	3,557.5	-2.7	0.6	-0.7	0.62	0.00	
3,621.0	0.20	99.40	3,620.5	-2.8	0.8	-0.8	0.16	0.00	
3,684.0	0.10	236.90	3,683.5	-2.9	0.9	-0.9	0.45	-0.16	
3,747.0	0.30	227.70	3,746.5	-3.0	0.7	-0.7	0.32	0.32	
3,810.0	0.50	209.20	3,809.5	-3.4	0.4	-0.5	0.37	0.32	
3,873.0	0.50	340.00	3,872.5	-3.4	0.2	-0.3	1.44	0.00	
3,936.0	0.80	328.30	3,935.5	-2.7	-0.1	0.1	0.52	0.48	
3,999.0	0.90	319.90	3,998.5	-2.0	-0.7	0.6	0.25	0.16	
4,061.0	0.70	312.10	4,060.5	-1.3	-1.2	1.2	0.37	-0.32	
4,124.0	0.60	303.90	4,123.5	-0.9	-1.8	1.8	0.22	-0.16	
4,187.0	0.80	308.50	4,186.5	-0.4	-2.4	2.4	0.33	0.32	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB= @ 7147.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB= @ 7147.0ft (Aztec 950)
Well:	Lybrook M27-2306 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
4,250.0	1.00	310.80	4,249.5	0.2	-3.2	3.2	0.32	0.32	
4,313.0	0.80	315.00	4,312.5	0.9	-3.9	3.9	0.33	-0.32	
4,376.0	1.10	307.00	4,375.5	1.5	-4.7	4.7	0.52	0.48	
4,439.0	0.70	325.90	4,438.5	2.2	-5.4	5.4	0.78	-0.63	
4,502.0	0.80	338.00	4,501.5	2.9	-5.8	5.8	0.30	0.16	
4,565.0	0.30	303.10	4,564.5	3.4	-6.1	6.1	0.92	-0.79	
4,628.0	0.40	223.00	4,627.5	3.4	-6.4	6.4	0.73	0.16	
4,691.0	0.50	168.90	4,690.5	2.9	-6.5	6.5	0.66	0.16	
4,754.0	0.60	167.80	4,753.5	2.3	-6.4	6.4	0.16	0.16	
4,815.0	0.40	163.00	4,814.4	1.8	-6.2	6.2	0.33	-0.33	
4,861.0	0.50	163.50	4,860.4	1.5	-6.1	6.1	0.22	0.22	
4,893.0	1.50	24.90	4,892.4	1.7	-5.9	5.9	5.95	3.12	
4,924.0	5.90	15.60	4,923.4	3.6	-5.3	5.4	14.28	14.19	
4,956.0	10.80	13.10	4,955.0	8.1	-4.2	4.3	15.35	15.31	
4,987.0	14.50	13.40	4,985.3	14.7	-2.6	2.8	11.94	11.94	
5,018.0	17.70	13.90	5,015.0	23.1	-0.6	0.9	10.33	10.32	
5,050.0	21.20	12.90	5,045.2	33.5	1.9	-1.4	10.99	10.94	
5,081.0	23.80	11.20	5,073.9	45.1	4.3	-3.7	8.64	8.39	
5,113.0	26.70	7.80	5,102.8	58.5	6.6	-5.8	10.13	9.06	
5,144.0	29.60	5.20	5,130.1	73.1	8.2	-7.2	10.16	9.35	
5,176.0	32.40	4.10	5,157.6	89.5	9.5	-8.3	8.93	8.75	
5,207.0	34.80	4.90	5,183.4	106.6	10.9	-9.4	7.87	7.74	
5,239.0	37.30	4.80	5,209.2	125.3	12.5	-10.8	7.81	7.81	
5,270.0	39.70	5.50	5,233.5	144.6	14.2	-12.2	7.87	7.74	
5,302.0	42.00	4.70	5,257.7	165.4	16.1	-13.8	7.37	7.19	
5,333.0	44.50	4.20	5,280.3	186.6	17.7	-15.2	8.14	8.06	
5,365.0	47.80	3.00	5,302.4	209.6	19.2	-16.3	10.66	10.31	
5,396.0	51.40	3.00	5,322.5	233.2	20.4	-17.2	11.61	11.61	
5,428.0	54.50	1.90	5,341.8	258.7	21.5	-18.0	10.07	9.69	
5,459.0	57.70	0.90	5,359.1	284.4	22.1	-18.2	10.66	10.32	
5,491.0	60.00	358.30	5,375.7	311.8	21.9	-17.7	10.00	7.19	
5,522.0	63.20	358.00	5,390.4	339.0	21.0	-16.4	10.36	10.32	
5,554.0	66.50	358.50	5,404.0	368.0	20.1	-15.1	10.41	10.31	
5,586.0	67.90	355.20	5,416.4	397.4	18.5	-13.1	10.46	4.37	
5,617.0	68.60	351.50	5,427.9	426.0	15.2	-9.4	11.31	2.26	
5,648.0	68.20	348.10	5,439.7	455.3	9.9	-3.7	9.96	-1.25	
5,680.0	68.90	344.50	5,451.0	483.3	3.1	3.5	11.04	2.26	
5,712.0	69.90	341.50	5,462.3	512.0	-5.7	12.6	9.32	3.12	
5,743.0	69.40	337.90	5,473.1	539.2	-15.8	23.1	11.01	-1.61	
5,775.0	69.00	335.30	5,484.4	566.7	-27.6	35.3	7.70	-1.25	
5,806.0	69.50	332.40	5,495.4	592.7	-40.4	48.5	8.90	1.61	
5,838.0	71.70	329.20	5,506.0	619.0	-55.1	63.6	11.67	6.87	
5,870.0	72.90	326.60	5,515.8	644.9	-71.3	80.1	8.60	3.75	
5,901.0	73.20	325.40	5,524.8	669.4	-87.9	97.0	3.83	0.97	
5,933.0	73.20	322.80	5,534.1	694.3	-105.9	115.3	7.78	0.00	
5,964.0	73.60	319.80	5,542.9	717.4	-124.5	134.2	9.36	1.29	
5,996.0	75.30	317.30	5,551.5	740.5	-144.9	154.9	9.21	5.31	
6,027.0	77.20	315.50	5,558.9	762.3	-165.6	176.0	8.33	6.13	
6,059.0	78.90	312.60	5,565.5	784.1	-188.1	198.8	10.34	5.31	
6,090.0	80.20	310.40	5,571.1	804.3	-211.0	221.9	8.14	4.19	
6,122.0	80.40	308.30	5,576.5	824.3	-235.4	246.6	6.50	0.62	
6,153.0	80.10	305.80	5,581.8	842.7	-259.7	271.2	8.01	-0.97	
6,185.0	81.10	303.10	5,587.0	860.6	-285.8	297.5	8.89	3.12	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB= @ 7147.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB= @ 7147.0ft (Aztec 950)
Well:	Lybrook M27-2306 02H	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)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
6,216.0	82.40	300.80	5,591.4	876.8	-311.8	323.7	8.46	4.19	
6,248.0	82.40	297.50	5,595.7	892.3	-339.5	351.6	10.22	0.00	
6,279.0	82.70	294.60	5,599.7	905.7	-367.1	379.4	9.33	0.97	
6,311.0	83.70	291.90	5,603.5	918.3	-396.3	408.8	8.94	3.12	
6,335.0	84.80	289.70	5,605.9	926.8	-418.6	431.2	10.21	4.58	
6,372.0	85.80	284.90	5,608.9	937.7	-453.8	466.5	13.21	2.70	
6,402.0	86.00	283.70	5,611.1	945.1	-482.8	495.6	4.05	0.67	
6,433.0	86.20	282.10	5,613.2	952.0	-513.0	525.9	5.19	0.65	
6,463.0	86.40	280.20	5,615.1	957.8	-542.3	555.3	6.36	0.67	
6,494.0	86.60	278.40	5,617.0	962.8	-572.9	585.9	5.83	0.65	
6,525.0	86.40	275.90	5,618.9	966.7	-603.6	616.7	8.08	-0.65	
6,557.0	86.60	273.60	5,620.8	969.3	-635.4	648.5	7.20	0.62	
6,588.0	86.90	271.80	5,622.6	970.8	-666.3	679.5	5.88	0.97	
6,620.0	88.00	270.90	5,624.0	971.5	-698.3	711.4	4.44	3.44	
6,651.0	89.40	270.80	5,624.7	972.0	-729.2	742.4	4.53	4.52	
6,683.0	90.90	270.30	5,624.6	972.3	-761.2	774.4	4.94	4.69	
6,746.0	90.70	269.20	5,623.8	972.0	-824.2	837.4	1.77	-0.32	
6,808.0	90.00	269.60	5,623.4	971.4	-886.2	899.4	1.30	-1.13	
6,871.0	90.70	269.70	5,623.0	971.0	-949.2	962.4	1.12	1.11	
6,934.0	90.40	269.40	5,622.4	970.5	-1,012.2	1,025.3	0.67	-0.48	
6,997.0	90.10	269.40	5,622.1	969.8	-1,075.2	1,088.3	0.48	-0.48	
7,060.0	89.80	269.10	5,622.2	969.0	-1,138.2	1,151.3	0.67	-0.48	
7,123.0	90.40	269.40	5,622.1	968.2	-1,201.2	1,214.3	1.06	0.95	
7,187.0	89.90	269.60	5,621.9	967.6	-1,265.2	1,278.3	0.84	-0.78	
7,249.0	90.40	269.30	5,621.7	967.0	-1,327.2	1,340.2	0.94	0.81	
7,312.0	89.90	269.60	5,621.6	966.4	-1,390.2	1,403.2	0.93	-0.79	
7,375.0	90.30	269.40	5,621.5	965.9	-1,453.2	1,466.2	0.71	0.63	
7,438.0	89.90	269.80	5,621.4	965.4	-1,516.2	1,529.2	0.90	-0.63	
7,501.0	90.30	269.60	5,621.2	965.1	-1,579.2	1,592.2	0.71	0.63	
7,564.0	90.20	270.30	5,621.0	965.0	-1,642.2	1,655.2	1.12	-0.16	
7,627.0	90.00	271.20	5,620.9	965.9	-1,705.2	1,718.2	1.46	-0.32	
7,689.0	90.40	271.10	5,620.6	967.1	-1,767.2	1,780.2	0.67	0.65	
7,752.0	89.80	271.20	5,620.5	968.4	-1,830.2	1,843.2	0.97	-0.95	
7,815.0	90.40	271.20	5,620.4	969.7	-1,893.1	1,906.2	0.95	0.95	
7,878.0	90.00	271.90	5,620.2	971.4	-1,956.1	1,969.2	1.28	-0.63	
7,941.0	90.60	271.60	5,619.9	973.3	-2,019.1	2,032.2	1.06	0.95	
8,004.0	90.70	271.80	5,619.2	975.2	-2,082.1	2,095.1	0.35	0.16	
8,067.0	90.10	271.40	5,618.7	976.9	-2,145.0	2,158.1	1.14	-0.95	
8,131.0	90.60	271.20	5,618.3	978.4	-2,209.0	2,222.1	0.84	0.78	
8,194.0	91.00	270.40	5,617.4	979.3	-2,272.0	2,285.1	1.42	0.63	
8,257.0	90.90	270.80	5,616.4	979.9	-2,335.0	2,348.1	0.65	-0.16	
8,320.0	90.30	271.20	5,615.7	981.0	-2,398.0	2,411.1	1.14	-0.95	
8,383.0	90.00	270.80	5,615.6	982.1	-2,461.0	2,474.1	0.79	-0.48	
8,446.0	90.30	270.50	5,615.4	982.9	-2,524.0	2,537.1	0.67	0.48	
8,510.0	90.60	270.20	5,614.9	983.2	-2,588.0	2,601.1	0.66	0.47	
8,572.0	90.60	270.50	5,614.3	983.6	-2,650.0	2,663.1	0.48	0.00	
8,635.0	90.90	271.60	5,613.4	984.8	-2,712.9	2,726.1	1.81	0.48	
8,698.0	90.30	271.70	5,612.8	986.6	-2,775.9	2,789.1	0.97	-0.95	
8,761.0	90.90	271.40	5,612.1	988.3	-2,838.9	2,852.1	1.06	0.95	
8,824.0	89.80	271.20	5,611.7	989.7	-2,901.9	2,915.1	1.77	-1.75	
8,887.0	89.90	270.60	5,611.9	990.7	-2,964.9	2,978.1	0.97	0.16	
8,950.0	90.50	271.00	5,611.7	991.6	-3,027.8	3,041.1	1.14	0.95	
9,013.0	90.60	270.10	5,611.1	992.2	-3,090.8	3,104.1	1.44	0.16	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB= @ 7147.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB= @ 7147.0ft (Aztec 950)
Well:	Lybrook M27-2306 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
9,076.0	91.30	270.20	5,610.0	992.4	-3,153.8	3,167.0	1.12	1.11	
9,139.0	90.90	270.30	5,608.8	992.6	-3,216.8	3,230.0	0.65	-0.63	
9,202.0	90.60	271.00	5,608.0	993.3	-3,279.8	3,293.0	1.21	-0.48	
9,265.0	90.50	271.50	5,607.4	994.7	-3,342.8	3,356.0	0.81	-0.16	
9,328.0	90.30	271.60	5,606.9	996.4	-3,405.8	3,419.0	0.35	-0.32	
9,391.0	89.50	270.50	5,607.1	997.6	-3,468.8	3,482.0	2.16	-1.27	
9,453.0	90.00	270.20	5,607.3	998.0	-3,530.7	3,544.0	0.94	0.81	
9,516.0	90.10	269.10	5,607.3	997.6	-3,593.7	3,607.0	1.75	0.16	
9,579.0	90.20	268.40	5,607.1	996.2	-3,656.7	3,670.0	1.12	0.16	
9,642.0	90.50	268.00	5,606.7	994.2	-3,719.7	3,732.9	0.79	0.48	
9,705.0	90.70	269.00	5,606.1	992.6	-3,782.7	3,795.8	1.62	0.32	
9,768.0	90.40	269.50	5,605.5	991.7	-3,845.7	3,858.8	0.93	-0.48	
9,830.0	90.50	269.70	5,605.0	991.3	-3,907.7	3,920.8	0.36	0.16	
9,893.0	90.40	270.80	5,604.5	991.6	-3,970.7	3,983.8	1.75	-0.16	
9,956.0	90.90	270.70	5,603.8	992.4	-4,033.6	4,046.8	0.81	0.79	
10,020.0	89.70	270.30	5,603.4	993.0	-4,097.6	4,110.8	1.98	-1.87	
10,083.0	89.90	270.50	5,603.6	993.4	-4,160.6	4,173.8	0.45	0.32	
10,146.0	90.60	271.80	5,603.4	994.7	-4,223.6	4,236.8	2.34	1.11	
10,209.0	90.50	270.80	5,602.8	996.1	-4,286.6	4,299.8	1.60	-0.16	
10,272.0	90.50	271.40	5,602.2	997.3	-4,349.6	4,362.8	0.95	0.00	
10,335.0	90.90	271.90	5,601.5	999.1	-4,412.6	4,425.8	1.02	0.63	
10,397.0	91.00	271.20	5,600.4	1,000.8	-4,474.5	4,487.7	1.14	0.16	
10,460.0	91.10	272.00	5,599.3	1,002.6	-4,537.5	4,550.7	1.28	0.16	
10,523.0	91.80	271.80	5,597.7	1,004.7	-4,600.4	4,613.7	1.16	1.11	
10,586.0	90.60	270.30	5,596.4	1,005.8	-4,663.4	4,676.7	3.05	-1.90	
10,625.0	91.40	271.20	5,595.7	1,006.3	-4,702.4	4,715.7	3.09	2.05	Last Cathedral Survey @ 10,625' MD
10,670.0	91.40	271.20	5,594.6	1,007.3	-4,747.4	4,760.7	0.00	0.00	Projection to Bit @ 10,670'

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB= @ 7147.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB= @ 7147.0ft (Aztec 950)
Well:	Lybrook M27-2306 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 M27-2306 02H	0.00	0.00	5,619.8	953.9	-513.5	1,892,241.82	1,281,747.83	36.194300	-107.465580
- actual wellpath misses target center by 6.8ft at 6434.3ft MD (5613.3 TVD, 952.3 N, -514.2 E)									
- Point									
Lybrook M27-2306 02H	0.00	0.00	5,604.1	1,267.4	-5,117.0	1,892,612.94	1,277,148.61	36.195160	-107.481180
- actual wellpath misses target center by 452.1ft at 10670.0ft MD (5594.6 TVD, 1007.3 N, -4747.4 E)									
- Point									
Lybrook M27-2306 02H	0.00	0.00	5,604.1	1,016.2	-5,114.1	1,892,361.72	1,277,148.37	36.194470	-107.481170
- actual wellpath misses target center by 366.9ft at 10670.0ft MD (5594.6 TVD, 1007.3 N, -4747.4 E)									
- Point									
Lybrook M27-2306 02H	0.00	0.00	5,606.2	1,011.7	-4,784.1	1,892,353.12	1,277,478.27	36.194458	-107.480052
- actual wellpath misses target center by 38.8ft at 10670.0ft MD (5594.6 TVD, 1007.3 N, -4747.4 E)									
- Point									

Design Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
10,625.0	5,595.7	1,006.3	-4,702.4	Last Cathedral Survey @ 10,625' MD
10,670.0	5,594.6	1,007.3	-4,747.4	Projection to Bit @ 10,670'

Checked By: _____ Approved By: _____ Date: _____

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

Lybrook

Lybrook M27-2306 02H

Hz

Design: FINAL

Survey Report - Geographic

29 October, 2013

OIL CONS. DIV DIST. 3

MAR 14 2014

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB= @ 7147.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB= @ 7147.0ft (Aztec 950)
Well:	Lybrook M27-2306 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 M27-2306 02H					
Well Position	+N/-S	0.0 ft	Northing:	1,891,281.61 ft	Latitude:	36.191680
	+E/-W	0.0 ft	Easting:	1,282,249.32 ft	Longitude:	-107.463840
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	10/16/2013	9.42	62.99	50,223

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	270.78	

Survey Program		Date	10/29/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
138.0	10,670.0	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	1,891,281.61	1,282,249.32	36.191680	-107.463840
138.0	0.40	45.60	138.0	0.3	0.3	1,891,281.94	1,282,249.67	36.191681	-107.463839
225.0	0.60	53.00	225.0	0.8	0.9	1,891,282.42	1,282,250.26	36.191682	-107.463837
316.0	0.80	61.80	316.0	1.4	1.9	1,891,283.00	1,282,251.21	36.191684	-107.463834
375.0	0.70	71.30	375.0	1.7	2.6	1,891,283.30	1,282,251.91	36.191685	-107.463832
438.0	0.40	79.30	438.0	1.9	3.2	1,891,283.46	1,282,252.50	36.191685	-107.463830
487.0	0.30	93.80	487.0	1.9	3.4	1,891,283.48	1,282,252.79	36.191685	-107.463829
561.0	0.20	85.40	561.0	1.9	3.8	1,891,283.47	1,282,253.12	36.191685	-107.463828
622.0	0.20	58.50	622.0	2.0	4.0	1,891,283.53	1,282,253.31	36.191686	-107.463827
683.0	0.40	165.00	683.0	1.8	4.1	1,891,283.38	1,282,253.46	36.191685	-107.463826
745.0	0.50	149.30	745.0	1.4	4.3	1,891,282.94	1,282,253.65	36.191684	-107.463826
806.0	0.40	157.00	806.0	1.0	4.5	1,891,282.51	1,282,253.86	36.191683	-107.463825

Cathedral Energy Services

Survey Report - Geographic

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Site:	Lybrook	MD Reference:	KB= @ 7147.0ft (Aztec 950)
Well:	Lybrook M27-2306 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)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
867.0	0.60	173.70	867.0	0.4	4.6	1,891,281.99	1,282,253.97	36.191681	-107.463825
928.0	0.60	179.80	928.0	-0.2	4.7	1,891,281.36	1,282,254.00	36.191680	-107.463824
989.0	0.50	196.60	989.0	-0.8	4.6	1,891,280.78	1,282,253.92	36.191678	-107.463825
1,051.0	0.90	214.80	1,051.0	-1.4	4.2	1,891,280.13	1,282,253.55	36.191676	-107.463826
1,112.0	1.20	222.20	1,112.0	-2.3	3.5	1,891,279.27	1,282,252.84	36.191674	-107.463828
1,173.0	1.20	223.20	1,172.9	-3.2	2.7	1,891,278.34	1,282,251.96	36.191671	-107.463831
1,234.0	1.50	216.00	1,233.9	-4.3	1.8	1,891,277.24	1,282,251.04	36.191668	-107.463834
1,295.0	1.30	174.00	1,294.9	-5.7	1.4	1,891,275.91	1,282,250.63	36.191664	-107.463836
1,356.0	0.80	108.90	1,355.9	-6.5	1.9	1,891,275.08	1,282,251.09	36.191662	-107.463834
1,418.0	1.00	47.60	1,417.9	-6.3	2.7	1,891,275.30	1,282,251.91	36.191663	-107.463831
1,479.0	1.90	2.90	1,478.9	-4.9	3.1	1,891,276.66	1,282,252.37	36.191667	-107.463830
1,542.0	2.00	356.90	1,541.8	-2.8	3.1	1,891,278.80	1,282,252.39	36.191672	-107.463830
1,605.0	2.30	359.70	1,604.8	-0.4	3.0	1,891,281.16	1,282,252.35	36.191679	-107.463830
1,668.0	2.30	342.60	1,667.7	2.1	2.6	1,891,283.64	1,282,252.00	36.191686	-107.463831
1,731.0	2.60	341.00	1,730.7	4.6	1.8	1,891,286.20	1,282,251.19	36.191693	-107.463834
1,794.0	1.30	321.50	1,793.6	6.5	0.9	1,891,288.13	1,282,250.30	36.191698	-107.463837
1,857.0	1.10	293.50	1,856.6	7.3	-0.1	1,891,288.94	1,282,249.31	36.191700	-107.463841
1,920.0	0.40	259.00	1,919.6	7.5	-0.9	1,891,289.15	1,282,248.54	36.191701	-107.463843
1,983.0	0.40	199.90	1,982.6	7.3	-1.2	1,891,288.90	1,282,248.25	36.191700	-107.463844
2,046.0	0.50	191.20	2,045.6	6.8	-1.3	1,891,288.43	1,282,248.11	36.191699	-107.463845
2,109.0	0.60	225.90	2,108.6	6.3	-1.6	1,891,287.93	1,282,247.82	36.191697	-107.463846
2,173.0	0.60	244.30	2,172.6	5.9	-2.1	1,891,287.56	1,282,247.27	36.191696	-107.463847
2,236.0	0.60	233.10	2,235.6	5.6	-2.7	1,891,287.23	1,282,246.70	36.191695	-107.463849
2,299.0	0.50	263.90	2,298.6	5.4	-3.2	1,891,287.01	1,282,246.17	36.191695	-107.463851
2,362.0	0.40	56.60	2,361.6	5.4	-3.3	1,891,287.10	1,282,246.08	36.191695	-107.463852
2,425.0	0.40	69.00	2,424.6	5.6	-2.9	1,891,287.29	1,282,246.47	36.191696	-107.463850
2,488.0	1.10	149.20	2,487.6	5.2	-2.4	1,891,286.85	1,282,246.98	36.191694	-107.463848
2,551.0	1.60	161.80	2,550.6	3.9	-1.8	1,891,285.48	1,282,247.54	36.191691	-107.463846
2,613.0	1.60	163.70	2,612.6	2.2	-1.3	1,891,283.83	1,282,248.04	36.191686	-107.463845
2,676.0	0.90	139.60	2,675.5	1.0	-0.7	1,891,282.60	1,282,248.59	36.191683	-107.463843
2,740.0	0.80	102.40	2,739.5	0.5	0.0	1,891,282.11	1,282,249.35	36.191681	-107.463840
2,803.0	0.40	134.60	2,802.5	0.2	0.6	1,891,281.85	1,282,249.93	36.191681	-107.463838
2,866.0	0.20	172.80	2,865.5	0.0	0.8	1,891,281.59	1,282,250.10	36.191680	-107.463838
2,928.0	0.20	208.80	2,927.5	-0.2	0.7	1,891,281.39	1,282,250.05	36.191679	-107.463838
2,991.0	0.20	147.70	2,990.5	-0.4	0.7	1,891,281.20	1,282,250.06	36.191679	-107.463838
3,054.0	0.20	188.40	3,053.5	-0.6	0.8	1,891,280.99	1,282,250.10	36.191678	-107.463838
3,117.0	0.20	154.90	3,116.5	-0.8	0.8	1,891,280.79	1,282,250.13	36.191678	-107.463838
3,180.0	0.20	116.20	3,179.5	-1.0	1.0	1,891,280.64	1,282,250.27	36.191677	-107.463837
3,243.0	0.40	166.90	3,242.5	-1.2	1.1	1,891,280.37	1,282,250.41	36.191677	-107.463837
3,306.0	0.70	199.40	3,305.5	-1.8	1.0	1,891,279.79	1,282,250.33	36.191675	-107.463837
3,369.0	0.40	191.60	3,368.5	-2.4	0.9	1,891,279.22	1,282,250.15	36.191674	-107.463837
3,432.0	0.20	205.90	3,431.5	-2.7	0.8	1,891,278.91	1,282,250.05	36.191673	-107.463838
3,494.0	0.20	301.50	3,493.5	-2.7	0.6	1,891,278.87	1,282,249.91	36.191673	-107.463838
3,558.0	0.20	129.20	3,557.5	-2.7	0.6	1,891,278.85	1,282,249.91	36.191673	-107.463838
3,621.0	0.20	99.40	3,620.5	-2.8	0.8	1,891,278.76	1,282,250.10	36.191672	-107.463838
3,684.0	0.10	236.90	3,683.5	-2.9	0.9	1,891,278.72	1,282,250.16	36.191672	-107.463837
3,747.0	0.30	227.70	3,746.5	-3.0	0.7	1,891,278.58	1,282,249.99	36.191672	-107.463838
3,810.0	0.50	209.20	3,809.5	-3.4	0.4	1,891,278.23	1,282,249.73	36.191671	-107.463839
3,873.0	0.50	340.00	3,872.5	-3.4	0.2	1,891,278.25	1,282,249.50	36.191671	-107.463840
3,936.0	0.80	328.30	3,935.5	-2.7	-0.1	1,891,278.89	1,282,249.18	36.191673	-107.463841
3,999.0	0.90	319.90	3,998.5	-2.0	-0.7	1,891,279.65	1,282,248.64	36.191675	-107.463842
4,061.0	0.70	312.10	4,060.5	-1.3	-1.2	1,891,280.28	1,282,248.06	36.191676	-107.463845
4,124.0	0.60	303.90	4,123.5	-0.9	-1.8	1,891,280.73	1,282,247.50	36.191678	-107.463846
4,187.0	0.80	308.50	4,186.5	-0.4	-2.4	1,891,281.19	1,282,246.89	36.191679	-107.463848
4,250.0	1.00	310.80	4,249.5	0.2	-3.2	1,891,281.84	1,282,246.14	36.191681	-107.463851

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB= @ 7147.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB= @ 7147.0ft (Aztec 950)
Well:	Lybrook M27-2306 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)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude	
4,313.0	0.80	315.00	4,312.5	0.9	-3.9	1,891,282.52	1,282,245.42	36.191682	-107.463854	
4,376.0	1.10	307.00	4,375.5	1.5	-4.7	1,891,283.20	1,282,244.63	36.191684	-107.463856	
4,439.0	0.70	325.90	4,438.5	2.2	-5.4	1,891,283.89	1,282,243.94	36.191686	-107.463859	
4,502.0	0.80	338.00	4,501.5	2.9	-5.8	1,891,284.62	1,282,243.57	36.191688	-107.463860	
4,565.0	0.30	303.10	4,564.5	3.4	-6.1	1,891,285.12	1,282,243.28	36.191690	-107.463861	
4,628.0	0.40	223.00	4,627.5	3.4	-6.4	1,891,285.06	1,282,242.99	36.191689	-107.463862	
4,691.0	0.50	168.90	4,690.5	2.9	-6.5	1,891,284.63	1,282,242.88	36.191688	-107.463862	
4,754.0	0.60	167.80	4,753.5	2.3	-6.4	1,891,284.03	1,282,243.00	36.191687	-107.463862	
4,815.0	0.40	163.00	4,814.4	1.8	-6.2	1,891,283.52	1,282,243.12	36.191685	-107.463861	
4,861.0	0.50	163.50	4,860.4	1.5	-6.1	1,891,283.17	1,282,243.22	36.191684	-107.463861	
4,893.0	1.50	24.90	4,892.4	1.7	-5.9	1,891,283.41	1,282,243.44	36.191685	-107.463860	
4,924.0	5.90	15.60	4,923.4	3.6	-5.3	1,891,285.31	1,282,244.07	36.191690	-107.463858	
4,956.0	10.80	13.10	4,955.0	8.1	-4.2	1,891,289.80	1,282,245.24	36.191702	-107.463854	
4,987.0	14.50	13.40	4,985.3	14.7	-2.6	1,891,296.39	1,282,246.89	36.191721	-107.463849	
5,018.0	17.70	13.90	5,015.0	23.1	-0.6	1,891,304.71	1,282,249.02	36.191744	-107.463842	
5,050.0	21.20	12.90	5,045.2	33.5	1.9	1,891,315.05	1,282,251.61	36.191772	-107.463834	
5,081.0	23.80	11.20	5,073.9	45.1	4.3	1,891,326.62	1,282,254.22	36.191804	-107.463826	
5,113.0	26.70	7.80	5,102.8	58.5	6.6	1,891,340.05	1,282,256.62	36.191841	-107.463818	
5,144.0	29.60	5.20	5,130.1	73.1	8.2	1,891,354.56	1,282,258.44	36.191881	-107.463812	
5,176.0	32.40	4.10	5,157.6	89.5	9.5	1,891,370.96	1,282,259.98	36.191926	-107.463808	
5,207.0	34.80	4.90	5,183.4	106.6	10.9	1,891,388.04	1,282,261.54	36.191973	-107.463803	
5,239.0	37.30	4.80	5,209.2	125.3	12.5	1,891,406.79	1,282,263.37	36.192024	-107.463798	
5,270.0	39.70	5.50	5,233.5	144.6	14.2	1,891,425.98	1,282,265.34	36.192077	-107.463792	
5,302.0	42.00	4.70	5,257.7	165.4	16.1	1,891,446.80	1,282,267.46	36.192134	-107.463786	
5,333.0	44.50	4.20	5,280.3	186.6	17.7	1,891,467.96	1,282,269.37	36.192193	-107.463780	
5,365.0	47.80	3.00	5,302.4	209.6	19.2	1,891,490.96	1,282,271.10	36.192256	-107.463775	
5,396.0	51.40	3.00	5,322.5	233.2	20.4	1,891,514.52	1,282,272.63	36.192321	-107.463771	
5,428.0	54.50	1.90	5,341.8	258.7	21.5	1,891,540.01	1,282,274.04	36.192391	-107.463767	
5,459.0	57.70	0.90	5,359.1	284.4	22.1	1,891,565.72	1,282,274.98	36.192461	-107.463765	
5,491.0	60.00	358.30	5,375.7	311.8	21.9	1,891,593.10	1,282,275.13	36.192537	-107.463766	
5,522.0	63.20	358.00	5,390.4	339.0	21.0	1,891,620.36	1,282,274.59	36.192611	-107.463769	
5,554.0	66.50	358.50	5,404.0	368.0	20.1	1,891,649.32	1,282,274.07	36.192691	-107.463772	
5,586.0	67.90	355.20	5,416.4	397.4	18.5	1,891,678.79	1,282,272.81	36.192772	-107.463778	
5,617.0	68.60	351.50	5,427.9	426.0	15.2	1,891,707.42	1,282,269.83	36.192850	-107.463789	
5,649.0	68.20	348.10	5,439.7	455.3	9.9	1,891,736.76	1,282,264.93	36.192931	-107.463807	
5,680.0	68.90	344.50	5,451.0	483.3	3.1	1,891,764.87	1,282,258.45	36.193008	-107.463830	
5,712.0	69.90	341.50	5,462.3	512.0	-5.7	1,891,793.62	1,282,250.05	36.193086	-107.463860	
5,743.0	69.40	337.90	5,473.1	539.2	-15.8	1,891,821.00	1,282,240.31	36.193161	-107.463894	
5,775.0	69.00	335.30	5,484.4	566.7	-27.6	1,891,848.59	1,282,228.78	36.193237	-107.463934	
5,806.0	69.50	332.40	5,495.4	592.7	-40.4	1,891,874.77	1,282,216.33	36.193308	-107.463977	
5,838.0	71.70	329.20	5,506.0	619.0	-55.1	1,891,901.29	1,282,201.93	36.193380	-107.464027	
5,870.0	72.90	326.60	5,515.8	644.9	-71.3	1,891,927.31	1,282,186.06	36.193451	-107.464082	
5,901.0	73.20	325.40	5,524.8	669.4	-87.9	1,891,952.10	1,282,169.78	36.193519	-107.464138	
5,933.0	73.20	322.80	5,534.1	694.3	-105.9	1,891,977.14	1,282,152.13	36.193587	-107.464199	
5,964.0	73.60	319.80	5,542.9	717.4	-124.5	1,892,000.55	1,282,133.85	36.193651	-107.464262	
5,996.0	75.30	317.30	5,551.5	740.5	-144.9	1,892,023.90	1,282,113.74	36.193714	-107.464331	
6,027.0	77.20	315.50	5,558.9	762.3	-165.6	1,892,045.96	1,282,093.25	36.193774	-107.464402	
6,059.0	78.90	312.60	5,565.5	784.1	-188.1	1,892,068.01	1,282,071.02	36.193834	-107.464478	
6,090.0	80.20	310.40	5,571.1	804.3	-211.0	1,892,088.50	1,282,048.44	36.193889	-107.464555	
6,122.0	80.40	308.30	5,576.5	824.3	-235.4	1,892,108.80	1,282,024.30	36.193944	-107.464638	
6,153.0	80.10	305.80	5,581.8	842.7	-259.7	1,892,127.51	1,282,000.15	36.193995	-107.464720	
6,185.0	81.10	303.10	5,587.0	860.6	-285.8	1,892,145.69	1,281,974.34	36.194044	-107.464809	
6,216.0	82.40	300.80	5,591.4	876.8	-311.8	1,892,162.25	1,281,948.52	36.194088	-107.464897	
6,248.0	82.40	297.50	5,595.7	892.3	-339.5	1,892,178.04	1,281,921.01	36.194131	-107.464991	
6,279.0	82.70	294.60	5,599.7	905.7	-367.1	1,892,191.88	1,281,893.57	36.194168	-107.465084	

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB= @ 7147.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB= @ 7147.0ft (Aztec 950)
Well:	Lybrook M27-2306 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)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
6,311.0	83.70	291.90	5,603.5	918.3	-396.3	1,892,204.79	1,281,864.54	36.194202	-107.465183
6,335.0	84.80	289.70	5,605.9	926.8	-418.6	1,892,213.54	1,281,842.33	36.194226	-107.465259
6,372.0	85.80	284.90	5,608.9	937.7	-453.8	1,892,224.94	1,281,807.28	36.194256	-107.465378
6,402.0	86.00	283.70	5,611.1	945.1	-482.8	1,892,232.69	1,281,778.38	36.194276	-107.465476
6,433.0	86.20	282.10	5,613.2	952.0	-513.0	1,892,239.97	1,281,748.32	36.194295	-107.465579
6,463.0	86.40	280.20	5,615.1	957.8	-542.3	1,892,246.13	1,281,719.03	36.194311	-107.465678
6,494.0	86.60	278.40	5,617.0	962.8	-572.9	1,892,251.51	1,281,688.56	36.194325	-107.465782
6,525.0	86.40	275.90	5,618.9	966.7	-603.6	1,892,255.75	1,281,657.91	36.194335	-107.465886
6,557.0	86.60	273.60	5,620.8	969.3	-635.4	1,892,258.79	1,281,626.12	36.194343	-107.465993
6,588.0	86.90	271.80	5,622.6	970.8	-666.3	1,892,260.63	1,281,595.22	36.194347	-107.466098
6,620.0	88.00	270.90	5,624.0	971.5	-698.3	1,892,261.79	1,281,563.28	36.194349	-107.466206
6,651.0	89.40	270.80	5,624.7	972.0	-729.2	1,892,262.63	1,281,532.30	36.194350	-107.466311
6,683.0	90.90	270.30	5,624.6	972.3	-761.2	1,892,263.34	1,281,500.31	36.194351	-107.466420
6,746.0	90.70	269.20	5,623.8	972.0	-824.2	1,892,263.85	1,281,437.31	36.194350	-107.466633
6,808.0	90.00	269.60	5,623.4	971.4	-886.2	1,892,263.98	1,281,375.32	36.194348	-107.466843
6,871.0	90.70	269.70	5,623.0	971.0	-949.2	1,892,264.38	1,281,312.32	36.194347	-107.467057
6,934.0	90.40	269.40	5,622.4	970.5	-1,012.2	1,892,264.68	1,281,249.32	36.194346	-107.467270
6,997.0	90.10	269.40	5,622.1	969.8	-1,075.2	1,892,264.81	1,281,186.32	36.194344	-107.467484
7,060.0	89.80	269.10	5,622.2	969.0	-1,138.2	1,892,264.77	1,281,123.32	36.194342	-107.467697
7,123.0	90.40	269.40	5,622.1	968.2	-1,201.2	1,892,264.73	1,281,060.32	36.194339	-107.467911
7,187.0	89.90	269.60	5,621.9	967.6	-1,265.2	1,892,264.98	1,280,996.33	36.194338	-107.468128
7,249.0	90.40	269.30	5,621.7	967.0	-1,327.2	1,892,265.16	1,280,934.33	36.194336	-107.468338
7,312.0	89.90	269.60	5,621.6	966.4	-1,390.2	1,892,265.34	1,280,871.33	36.194334	-107.468551
7,375.0	90.30	269.40	5,621.5	965.9	-1,453.2	1,892,265.58	1,280,808.33	36.194333	-107.468765
7,438.0	89.90	269.80	5,621.4	965.4	-1,516.2	1,892,265.93	1,280,745.33	36.194332	-107.468978
7,501.0	90.30	269.60	5,621.2	965.1	-1,579.2	1,892,266.39	1,280,682.33	36.194331	-107.469192
7,564.0	90.20	270.30	5,621.0	965.0	-1,642.2	1,892,267.12	1,280,619.34	36.194331	-107.469405
7,627.0	90.00	271.20	5,620.9	965.9	-1,705.2	1,892,268.73	1,280,556.36	36.194333	-107.469619
7,689.0	90.40	271.10	5,620.6	967.1	-1,767.2	1,892,270.75	1,280,494.39	36.194336	-107.469829
7,752.0	89.80	271.20	5,620.5	968.4	-1,830.2	1,892,272.80	1,280,431.42	36.194340	-107.470042
7,815.0	90.40	271.20	5,620.4	969.7	-1,893.1	1,892,274.91	1,280,368.46	36.194343	-107.470256
7,878.0	90.00	271.90	5,620.2	971.4	-1,956.1	1,892,277.40	1,280,305.51	36.194348	-107.470469
7,941.0	90.60	271.60	5,619.9	973.3	-2,019.1	1,892,280.11	1,280,242.57	36.194353	-107.470682
8,004.0	90.70	271.80	5,619.2	975.2	-2,082.1	1,892,282.77	1,280,179.63	36.194358	-107.470896
8,067.0	90.10	271.40	5,618.7	976.9	-2,145.0	1,892,285.32	1,280,116.68	36.194363	-107.471109
8,131.0	90.60	271.20	5,618.3	978.4	-2,209.0	1,892,287.57	1,280,052.72	36.194367	-107.471326
8,194.0	91.00	270.40	5,617.4	979.3	-2,272.0	1,892,289.24	1,279,989.75	36.194370	-107.471539
8,257.0	90.90	270.80	5,616.4	979.9	-2,335.0	1,892,290.69	1,279,926.78	36.194371	-107.471753
8,320.0	90.30	271.20	5,615.7	981.0	-2,398.0	1,892,292.57	1,279,863.81	36.194374	-107.471966
8,383.0	90.00	270.80	5,615.6	982.1	-2,461.0	1,892,294.46	1,279,800.84	36.194377	-107.472180
8,446.0	90.30	270.50	5,615.4	982.9	-2,524.0	1,892,295.96	1,279,737.86	36.194379	-107.472393
8,510.0	90.60	270.20	5,614.9	983.2	-2,588.0	1,892,297.15	1,279,673.87	36.194380	-107.472610
8,572.0	90.60	270.50	5,614.3	983.6	-2,650.0	1,892,298.31	1,279,611.89	36.194382	-107.472820
8,635.0	90.90	271.60	5,613.4	984.8	-2,712.9	1,892,300.25	1,279,548.92	36.194385	-107.473034
8,698.0	90.30	271.70	5,612.8	986.6	-2,775.9	1,892,302.85	1,279,485.98	36.194390	-107.473247
8,761.0	90.90	271.40	5,612.1	988.3	-2,838.9	1,892,305.34	1,279,423.03	36.194394	-107.473460
8,824.0	89.80	271.20	5,611.7	989.7	-2,901.9	1,892,307.56	1,279,360.07	36.194398	-107.473674
8,887.0	89.90	270.60	5,611.9	990.7	-2,964.9	1,892,309.34	1,279,297.10	36.194401	-107.473887
8,950.0	90.50	271.00	5,611.7	991.6	-3,027.8	1,892,311.01	1,279,234.12	36.194403	-107.474101
9,013.0	90.60	270.10	5,611.1	992.2	-3,090.8	1,892,312.40	1,279,171.14	36.194405	-107.474314
9,076.0	91.30	270.20	5,610.0	992.4	-3,153.8	1,892,313.35	1,279,108.16	36.194405	-107.474528
9,139.0	90.90	270.30	5,608.8	992.6	-3,216.8	1,892,314.42	1,279,045.18	36.194406	-107.474741
9,202.0	90.60	271.00	5,608.0	993.3	-3,279.8	1,892,315.92	1,278,982.20	36.194408	-107.474955
9,265.0	90.50	271.50	5,607.4	994.7	-3,342.8	1,892,318.08	1,278,919.24	36.194412	-107.475168
9,328.0	90.30	271.60	5,606.9	996.4	-3,405.8	1,892,320.57	1,278,856.29	36.194416	-107.475381

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M27-2306 02H
Project:	Sandoval County, NM	TVD Reference:	KB= @ 7147.0ft (Aztec 950)
Site:	Lybrook	MD Reference:	KB= @ 7147.0ft (Aztec 950)
Well:	Lybrook M27-2306 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)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
9,391.0	89.50	270.50	5,607.1	997.6	-3,468.8	1,892,322.51	1,278,793.32	36.194420	-107.475595
9,453.0	90.00	270.20	5,607.3	998.0	-3,530.7	1,892,323.67	1,278,731.34	36.194421	-107.475805
9,516.0	90.10	269.10	5,607.3	997.6	-3,593.7	1,892,324.07	1,278,668.34	36.194420	-107.476018
9,579.0	90.20	268.40	5,607.1	996.2	-3,656.7	1,892,323.49	1,278,605.34	36.194416	-107.476232
9,642.0	90.50	268.00	5,606.7	994.2	-3,719.7	1,892,322.30	1,278,542.35	36.194410	-107.476445
9,705.0	90.70	269.00	5,606.1	992.6	-3,782.7	1,892,321.43	1,278,479.36	36.194406	-107.476659
9,768.0	90.40	269.50	5,605.5	991.7	-3,845.7	1,892,321.40	1,278,416.37	36.194403	-107.476872
9,830.0	90.50	269.70	5,605.0	991.3	-3,907.7	1,892,321.74	1,278,354.37	36.194402	-107.477082
9,893.0	90.40	270.80	5,604.5	991.6	-3,970.7	1,892,322.80	1,278,291.38	36.194403	-107.477296
9,956.0	90.90	270.70	5,603.8	992.4	-4,033.6	1,892,324.42	1,278,228.41	36.194405	-107.477509
10,020.0	89.70	270.30	5,603.4	993.0	-4,097.6	1,892,325.78	1,278,164.42	36.194407	-107.477726
10,083.0	89.90	270.50	5,603.6	993.4	-4,160.6	1,892,327.00	1,278,101.44	36.194408	-107.477939
10,146.0	90.60	271.80	5,603.4	994.7	-4,223.6	1,892,329.06	1,278,038.47	36.194411	-107.478153
10,209.0	90.50	270.80	5,602.8	996.1	-4,286.6	1,892,331.27	1,277,975.52	36.194415	-107.478366
10,272.0	90.50	271.40	5,602.2	997.3	-4,349.6	1,892,333.27	1,277,912.55	36.194419	-107.478580
10,335.0	90.90	271.90	5,601.5	999.1	-4,412.6	1,892,335.87	1,277,849.61	36.194424	-107.478793
10,397.0	91.00	271.20	5,600.4	1,000.8	-4,474.5	1,892,338.32	1,277,787.67	36.194428	-107.479003
10,460.0	91.10	272.00	5,599.3	1,002.6	-4,537.5	1,892,340.87	1,277,724.73	36.194433	-107.479216
10,523.0	91.80	271.80	5,597.7	1,004.7	-4,600.4	1,892,343.75	1,277,661.81	36.194439	-107.479430
10,586.0	90.60	270.30	5,596.4	1,005.8	-4,663.4	1,892,345.69	1,277,598.86	36.194442	-107.479643
10,625.0	91.40	271.20	5,595.7	1,006.3	-4,702.4	1,892,346.69	1,277,559.88	36.194443	-107.479775
Last Cathedral Survey @ 10,625' MD									
10,670.0	91.40	271.20	5,594.6	1,007.3	-4,747.4	1,892,348.19	1,277,514.92	36.194446	-107.479928
Projection to Bit @ 10,670'									

Design Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude Longitude
Lybrook M27-2306 02H	- Shape	0.00	0.00	5,606.2	1,011.7	-4,784.1	1,892,353.12	1,277,478.27	36.194458 -107.480052
- actual wellpath misses target center by 38.8ft at 10670.0ft MD (5594.6 TVD, 1007.3 N, -4747.4 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
10,625.0	5,595.7	1,006.3	-4,702.4	Last Cathedral Survey @ 10,625' MD	
10,670.0	5,594.6	1,007.3	-4,747.4	Projection to Bit @ 10,670'	

Checked By: _____	Approved By: _____	Date: _____
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