

A

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

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

Submit one copy to
Appropriate District Office

☐ AMENDED REPORT

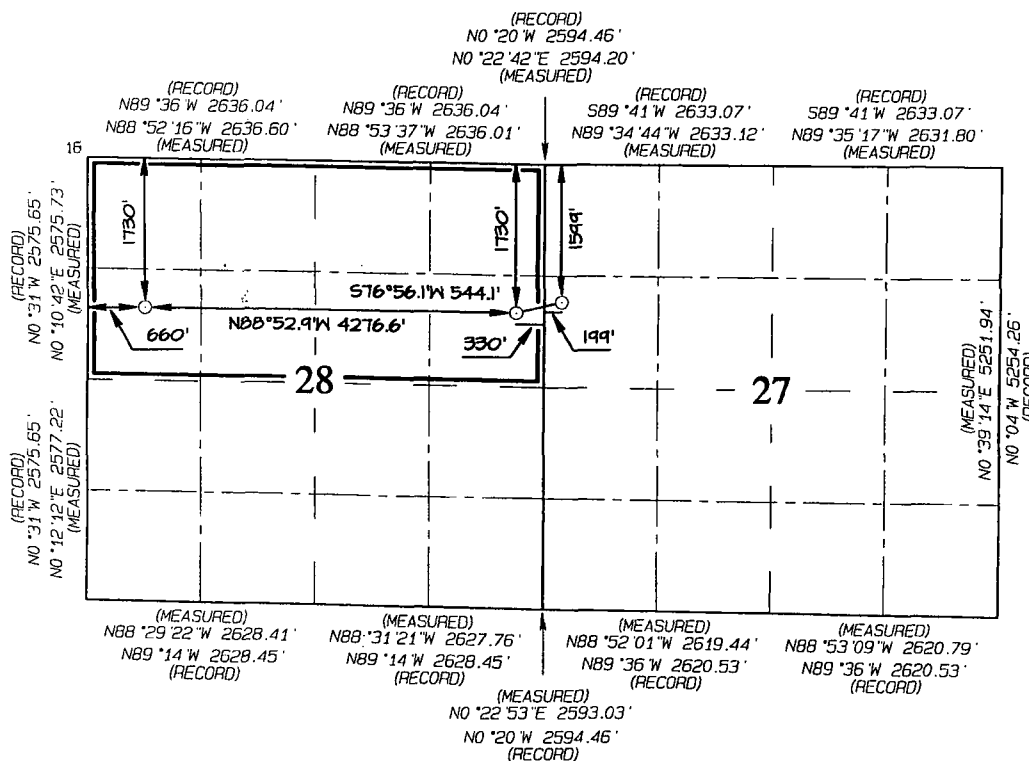
☒ As-Drilled
OIL CONS. DIV DIST. 3

MAR 18 2014

WELL LOCATION AND ACREAGE DEDICATION PLAT			
*API Number	*Pool Code	*Pool Name	
	13379	COUNSELORS GALLUP-DAKOTA	
*Property Code	*Property Name	*Well Number	
	LYBROOK E27-2306	03H	
*GRID No.	*Operator Name	*Elevation	
282327	ENCANA OIL & GAS (USA) INC.	7054'	

UL or lot no. E	Section 27	Township 23N	R# 6	DENIED	Feet from the 199	East/West line WEST	County SANDOVAL
					from Surface		
UL or lot no. E	Section 28	Township 23N	R# 6		Feet from the 660	East/West line WEST	County SANDOVAL
¹² Dedicated Acres 320.00 Acres N/2 - Section 28					¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. CONFIDENTIAL

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



END-OF-LATERAL
1730' FNL 660' FWL
SECTION 28, T23N, R6W
LAT: 36.19869°N
LONG: 107.47950°W
DATUM: NAD1927

LAT: 36.19871°N
LONG: 107.48010°W
DATUM: NAD1983

POINT-OF-ENTRY
1730' FNL 330' FEL
SECTION 28, T23N, R6W
LAT: 36.19861°N
LONG: 107.46501°W
DATUM: NAD1927

LAT: 36.19863 °N
LONG: 107.46561 °W
DATUM: NAD1983

SURFACE LOCATION
1599' FNL 199' FWL
SECTION 27, T23N, R6W
LAT: 36.19897°N
LONG: 107.46322°W
DATUM: NAD1927

LAT: 36.19898 *N
LONG: 107.46382 *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.

Amie Weis 03/14/14

Signature Date

Amie Weis

Printed Name

amie.weis@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: OCTOBER 22, 2013

Survey Date: OCTOBER 22, 2012

Signature and Seal of Professional Surveyor



JASON C. EDWARDS

Certificate Number 15269

DEVIATION SURVEYS

MD (Feet)	Inclination (Degree)
314	1.9
622	1.1
928	.8
1233	.8
1540	1.2
1854	.6
2169	1.1
2484	1.1
2798	.4
3114	.6
3429	.4
3744	.7
4059	.5
4374	.3
4689	.5
4860	8.3

OIL CONS. DIV DIST. 3

MAR 18 2014

OPERATOR CERTIFICATION

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

Amie Weis

Amie Weis, Completions Engineer

03/14/2014

ACKNOWLEDGMENT

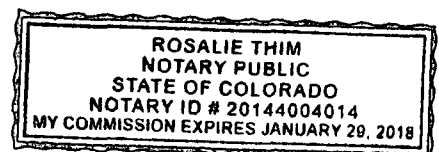
State of Colorado
City and County of Denver

This instrument was acknowledged before me on this 19th 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*

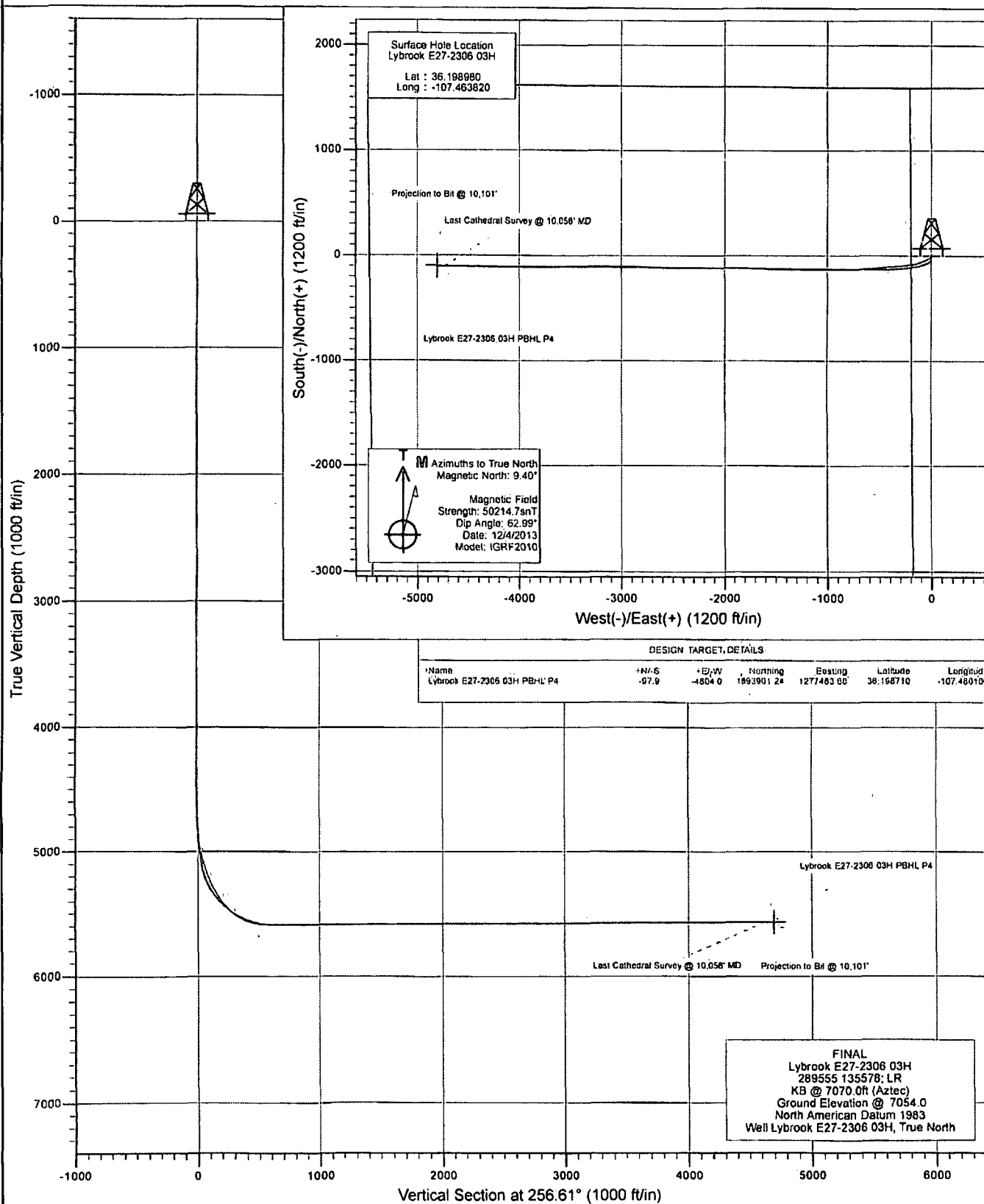
My Commission Expires: 1/29/18



MAR 18 2014

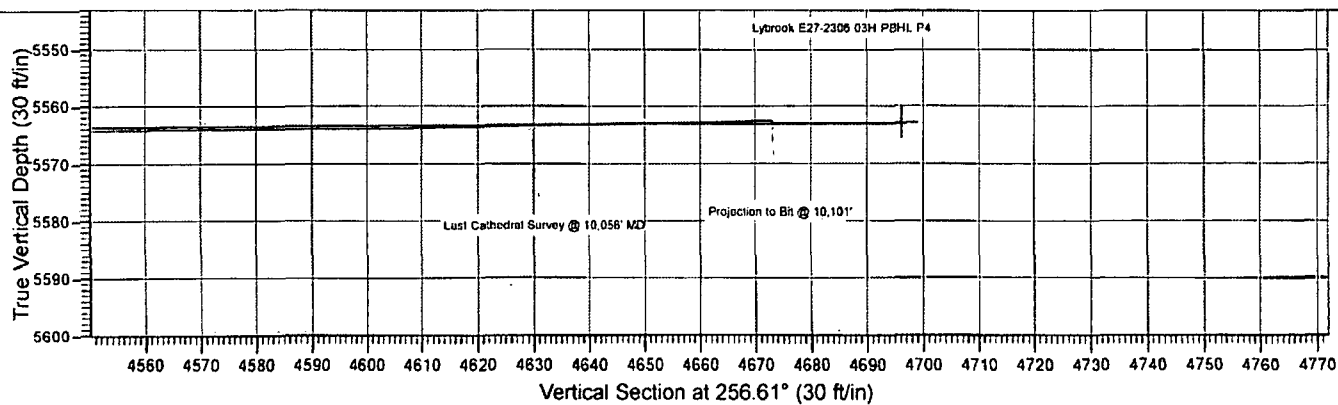
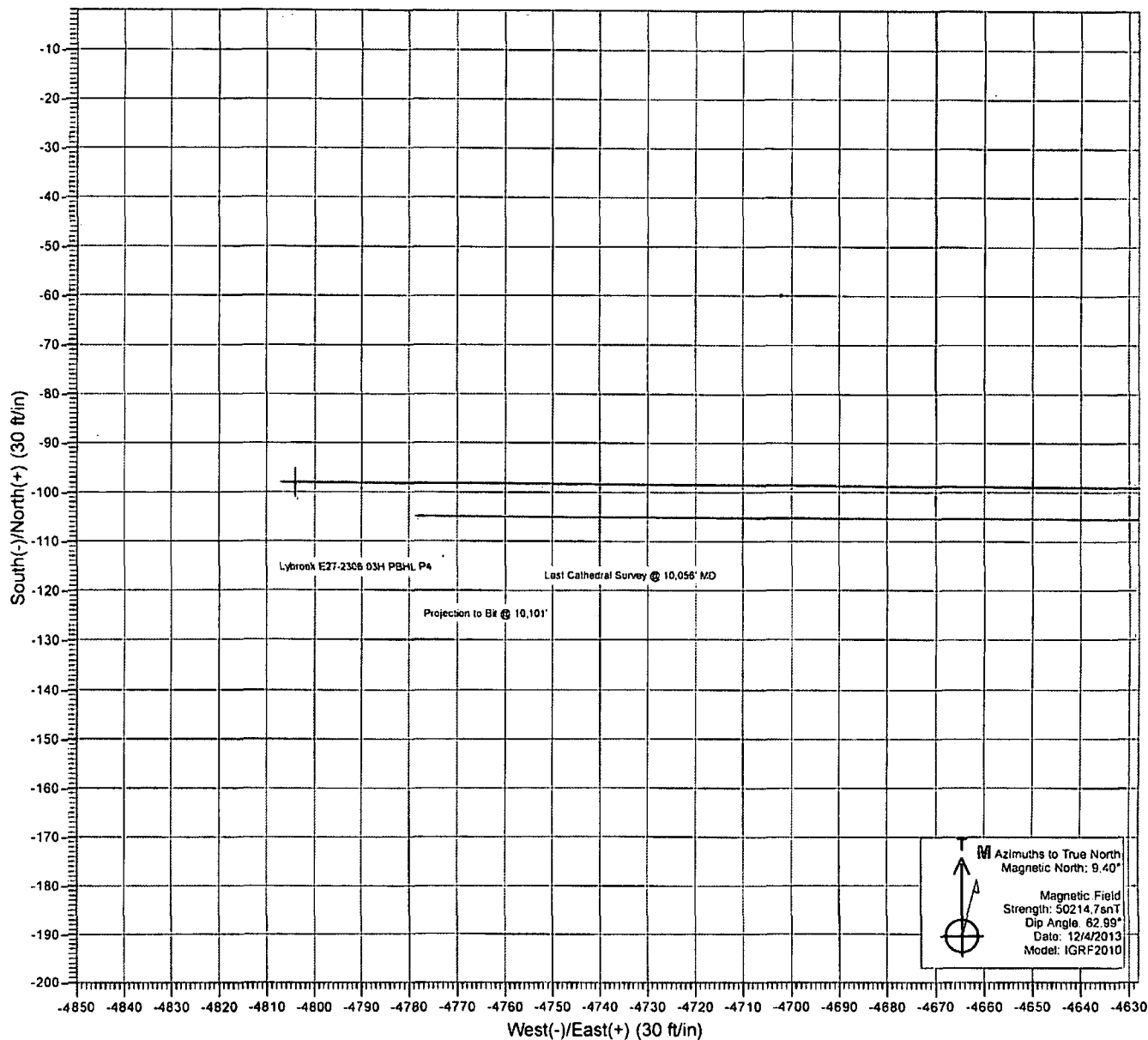


Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook E27-2306 03H
 Wellbore: Hz
 Design: FINAL





Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E27-2306 03H
Wellbore: Hz
Design: FINAL



Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well Lybrook E27-2306 03H	
Project: Sandoval County, NM	TVD Reference: KB @ 7070.0ft (Aztec)	
Site: Lybrook	MD Reference: KB @ 7070.0ft (Aztec)	
Well: Lybrook E27-2306 03H	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 E27-2306 03H					
Well Position	+N/-S	0.0 ft	Northing:	1,893,939.02 ft	Latitude:	36.198980
	+E/-W	0.0 ft	Easting:	1,282,288.48 ft	Longitude:	-107.463820
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,054.0 ft	

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/4/2013	9.40	62.99	50,215

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	4,752.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	258.61	

Survey Program		Date	12/26/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
136.0	4,752.0	Survey #1 (Pilot Hole)	Geolink MWD	Geolink MWD	
4,764.0	10,101.0	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	
136.0	1.00	206.80	136.0	-1.1	-0.5	0.8	0.74	0.74	
195.0	1.50	207.00	195.0	-2.2	-1.1	1.6	0.85	0.85	
254.0	1.90	199.20	254.0	-3.8	-1.8	2.8	0.78	0.68	
314.0	1.90	205.60	313.9	-5.7	-2.5	3.8	0.35	0.00	
373.0	1.90	200.70	372.9	-7.5	-3.3	5.0	0.28	0.00	
436.0	1.90	190.10	435.9	-9.5	-3.9	6.0	0.58	0.00	
480.0	1.20	174.90	479.8	-10.6	-4.0	6.3	1.83	-1.59	
561.0	0.60	167.40	560.8	-11.9	-3.8	6.4	0.75	-0.74	
622.0	1.10	87.40	621.8	-12.2	-3.1	5.9	1.90	0.82	
683.0	1.10	73.10	682.8	-12.0	-2.0	4.7	0.45	0.00	
744.0	2.50	35.20	743.8	-10.7	-0.7	3.1	2.90	2.30	

Cathedral Energy Services

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 Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook E27-2306 03H
 Wellbore: Hz
 Design: FINAL

Local Co-ordinate Reference: Well Lybrook E27-2306 03H
 TVD Reference: KB @ 7070.0ft (Aztec)
 MD Reference: KB @ 7070.0ft (Aztec)
 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
805.0	2.90	33.80	804.7	-8.4	1.0	1.0	0.66	0.66	
867.0	1.40	18.30	866.7	-6.3	2.1	-0.6	2.57	-2.42	
928.0	0.80	346.80	927.7	-5.2	2.2	-0.9	1.36	-0.98	
989.0	1.00	344.90	988.6	-4.3	2.0	-0.9	0.33	0.33	
1,050.0	1.00	345.80	1,049.6	-3.3	1.7	-0.9	0.03	0.00	
1,111.0	1.00	342.90	1,110.6	-2.2	1.4	-0.9	0.08	0.00	
1,172.0	0.80	347.40	1,171.6	-1.3	1.2	-0.8	0.35	-0.33	
1,233.0	0.80	347.30	1,232.6	-0.5	1.0	-0.8	0.00	0.00	
1,294.0	0.80	344.20	1,293.6	0.4	0.8	-0.8	0.07	0.00	
1,356.0	0.80	337.30	1,355.6	1.2	0.5	-0.7	0.16	0.00	
1,417.0	0.70	335.80	1,416.6	1.9	0.2	-0.6	0.17	-0.16	
1,478.0	0.80	332.10	1,477.6	2.6	-0.2	-0.4	0.18	0.16	
1,540.0	1.20	332.20	1,539.6	3.6	-0.7	-0.2	0.65	0.65	
1,603.0	1.20	344.00	1,602.6	4.8	-1.2	0.0	0.39	0.00	
1,666.0	1.10	343.70	1,665.6	6.0	-1.5	0.1	0.16	-0.16	
1,729.0	0.50	326.50	1,728.6	6.8	-1.8	0.2	1.02	-0.95	
1,791.0	0.30	165.00	1,790.6	6.9	-2.0	0.3	1.27	-0.32	
1,854.0	0.60	182.70	1,853.5	6.4	-1.9	0.4	0.52	0.48	
1,917.0	0.80	144.00	1,916.5	5.7	-1.7	0.3	0.79	0.32	
1,980.0	1.00	154.70	1,979.5	4.9	-1.2	0.0	0.41	0.32	
2,043.0	0.90	143.60	2,042.5	4.0	-0.7	-0.3	0.33	-0.16	
2,106.0	1.10	161.10	2,105.5	3.0	-0.2	-0.5	0.58	0.32	
2,169.0	1.10	166.10	2,168.5	1.8	0.2	-0.6	0.15	0.00	
2,232.0	0.90	182.20	2,231.5	0.8	0.3	-0.5	0.54	-0.32	
2,295.0	1.10	188.70	2,294.5	-0.3	0.2	-0.1	0.36	0.32	
2,358.0	1.10	179.20	2,357.5	-1.5	0.1	0.3	0.29	0.00	
2,421.0	0.90	191.30	2,420.5	-2.6	0.0	0.6	0.46	-0.32	
2,484.0	1.10	186.80	2,483.5	-3.7	-0.2	1.0	0.34	0.32	
2,547.0	1.40	173.80	2,546.4	-5.1	-0.1	1.3	0.65	0.48	
2,609.0	0.80	147.00	2,608.4	-6.2	0.2	1.3	1.25	-0.97	
2,672.0	0.70	130.90	2,671.4	-6.8	0.7	0.9	0.37	-0.16	
2,735.0	0.40	50.00	2,734.4	-6.9	1.2	0.5	1.19	-0.48	
2,798.0	0.40	67.40	2,797.4	-6.7	1.5	0.1	0.19	0.00	
2,861.0	0.70	71.60	2,860.4	-6.5	2.1	-0.5	0.48	0.48	
2,924.0	0.70	65.70	2,923.4	-6.2	2.8	-1.3	0.11	0.00	
2,988.0	1.00	40.00	2,987.4	-5.6	3.5	-2.1	0.75	0.47	
3,051.0	1.10	35.90	3,050.4	-4.7	4.2	-3.0	0.20	0.16	
3,114.0	0.60	12.30	3,113.4	-3.9	4.7	-3.6	0.95	-0.79	
3,177.0	0.60	339.80	3,176.4	-3.3	4.6	-3.7	0.53	0.00	
3,240.0	0.40	306.70	3,239.4	-2.8	4.3	-3.6	0.55	-0.32	
3,303.0	0.10	232.00	3,302.4	-2.7	4.1	-3.4	0.61	-0.48	
3,366.0	0.30	206.30	3,365.4	-2.9	4.0	-3.2	0.40	0.38	
3,429.0	0.40	237.20	3,428.4	-3.2	3.7	-2.9	0.29	0.14	
3,492.0	0.40	229.10	3,491.4	-3.5	3.4	-2.5	0.09	0.00	
3,555.0	0.40	197.70	3,554.4	-3.8	3.1	-2.2	0.34	0.00	
3,618.0	0.50	166.10	3,617.4	-4.3	3.0	-2.0	0.21	0.16	
3,681.0	0.80	166.20	3,680.4	-5.0	3.0	-1.7	0.48	0.48	
3,744.0	0.70	196.40	3,743.4	-5.8	2.8	-1.4	0.26	-0.16	
3,807.0	0.40	47.10	3,806.4	-6.0	2.9	-1.4	1.69	-0.48	
3,870.0	0.60	40.50	3,869.4	-5.6	3.2	-1.8	0.33	0.32	
3,933.0	0.50	36.30	3,932.4	-5.2	3.6	-2.3	0.17	-0.16	
3,996.0	0.70	25.10	3,995.4	-4.6	3.9	-2.8	0.37	0.32	
4,059.0	0.50	12.90	4,058.4	-4.0	4.2	-3.1	0.37	-0.32	

Cathedral Energy Services

Survey Report

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Wellbore: Hz
Design: FINAL

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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
4,121.0	0.50	35.00	4,120.4	-3.5	4.4	-3.4	0.31	0.00	
4,185.0	0.70	25.10	4,184.3	-2.9	4.7	-3.9	0.35	0.31	
4,248.0	0.40	54.50	4,247.3	-2.4	5.0	-4.3	0.64	-0.48	
4,311.0	0.60	99.40	4,310.3	-2.4	5.5	-4.9	0.67	0.32	
4,374.0	0.30	349.00	4,373.3	-2.2	5.8	-5.2	1.20	-0.48	
4,436.0	0.50	290.20	4,435.3	-2.0	5.6	-4.9	0.69	0.32	
4,500.0	0.40	271.80	4,499.3	-1.9	5.1	-4.5	0.27	-0.16	
4,563.0	0.60	272.30	4,562.3	-1.9	4.5	-4.0	0.32	0.32	
4,626.0	0.70	256.00	4,625.3	-2.0	3.8	-3.3	0.33	0.16	
4,689.0	0.50	252.30	4,688.3	-2.1	3.2	-2.6	0.32	-0.32	
4,752.0	0.60	217.20	4,751.3	-2.5	2.7	-2.1	0.55	0.16	
4,764.0	1.30	206.50	4,763.3	-2.6	2.6	-1.9	5.99	5.83	
4,797.0	4.30	212.30	4,796.3	-4.0	1.8	-0.8	9.12	9.09	
4,828.0	8.20	218.80	4,827.1	-6.7	-0.2	1.8	12.76	12.58	
4,860.0	8.30	219.80	4,858.8	-10.3	-3.1	5.4	0.55	0.31	
4,892.0	8.00	218.30	4,890.4	-13.8	-6.0	9.0	1.15	-0.94	
4,923.0	7.60	217.70	4,921.2	-17.1	-8.6	12.3	1.32	-1.29	
4,954.0	9.10	226.60	4,951.8	-20.4	-11.6	16.0	6.37	4.84	
4,985.0	11.90	238.20	4,982.3	-23.8	-16.1	21.2	11.27	9.03	
5,017.0	15.10	242.30	5,013.4	-27.5	-22.6	28.3	10.43	10.00	
5,048.0	17.70	242.90	5,043.2	-31.5	-30.4	36.8	8.40	8.39	
5,080.0	19.40	244.20	5,073.5	-36.0	-39.5	46.8	5.47	5.31	
5,112.0	19.40	243.90	5,103.7	-40.7	-49.0	57.1	0.31	0.00	
5,143.0	18.50	243.50	5,133.0	-45.1	-58.1	66.9	2.93	-2.90	
5,174.0	17.90	241.60	5,162.5	-49.6	-66.7	76.3	2.72	-1.94	
5,206.0	19.80	242.70	5,192.7	-54.4	-75.8	86.3	6.04	5.94	
5,237.0	23.00	246.50	5,221.6	-59.3	-86.0	97.4	11.24	10.32	
5,268.0	25.90	250.20	5,249.8	-64.0	-98.0	110.1	10.57	9.35	
5,300.0	28.50	253.40	5,278.3	-68.5	-111.9	124.7	9.32	8.12	
5,331.0	29.20	254.80	5,305.4	-72.6	-126.2	139.6	3.14	2.26	
5,363.0	31.50	253.00	5,333.0	-77.1	-141.8	155.8	7.73	7.19	
5,394.0	32.60	256.30	5,359.3	-81.4	-157.6	172.2	6.67	3.55	
5,426.0	35.20	258.40	5,385.9	-85.3	-175.0	190.0	8.91	8.12	
5,457.0	38.30	259.30	5,410.7	-88.9	-193.2	208.6	10.15	10.00	
5,488.0	41.70	261.00	5,434.5	-92.3	-212.9	228.5	11.52	10.97	
5,520.0	44.40	263.40	5,457.8	-95.3	-234.5	250.2	9.87	8.44	
5,551.0	48.20	264.80	5,479.3	-97.6	-256.8	272.4	12.68	12.26	
5,583.0	52.60	265.90	5,499.6	-99.6	-281.4	296.8	14.00	13.75	
5,614.0	56.90	266.00	5,517.5	-101.3	-306.6	321.7	13.87	13.87	
5,646.0	61.10	265.40	5,534.0	-103.4	-334.0	348.8	13.22	13.12	
5,677.0	66.00	265.10	5,547.8	-105.7	-361.6	376.3	15.83	15.81	
5,709.0	70.60	265.10	5,559.6	-108.2	-391.2	405.7	14.37	14.37	
5,740.0	75.50	265.50	5,568.7	-110.7	-420.8	435.0	15.85	15.81	
5,757.0	78.00	265.60	5,572.6	-112.0	-437.3	451.3	14.73	14.72	
5,777.0	80.10	263.40	5,576.4	-113.8	-456.8	470.7	15.06	10.50	
5,807.0	84.60	264.20	5,580.4	-117.0	-486.3	500.2	15.23	15.00	
5,838.0	86.70	265.10	5,582.7	-119.9	-517.1	530.8	7.37	6.77	
5,868.0	88.60	266.00	5,583.9	-122.3	-547.0	560.4	7.01	6.33	
5,900.0	89.00	266.10	5,584.6	-124.5	-578.9	592.0	1.29	1.25	
5,931.0	89.40	266.30	5,585.0	-126.5	-609.8	622.6	1.44	1.29	
5,994.0	89.90	266.50	5,585.4	-130.5	-672.7	684.7	0.85	0.79	
6,056.0	89.30	268.50	5,585.9	-133.2	-734.7	745.5	3.37	-0.97	
6,119.0	89.80	268.80	5,586.4	-134.7	-797.6	807.1	0.93	0.79	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E27-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook E27-2306 03H
TVD Reference: KB @ 7070.0ft (Aztec)
MD Reference: KB @ 7070.0ft (Aztec)
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
6,182.0	90.10	268.60	5,586.4	-136.1	-860.6	868.7	0.57	0.48	
6,245.0	91.00	270.30	5,585.8	-136.7	-923.6	930.2	3.05	1.43	
6,308.0	89.30	269.70	5,585.6	-136.7	-986.6	991.5	2.86	-2.70	
6,371.0	90.20	269.40	5,585.9	-137.2	-1,049.6	1,052.9	1.51	1.43	
6,434.0	90.80	269.60	5,585.4	-137.7	-1,112.6	1,114.3	1.00	0.95	
6,497.0	91.90	269.50	5,583.9	-138.2	-1,175.6	1,175.6	1.75	1.75	
6,560.0	90.50	270.80	5,582.6	-138.1	-1,238.6	1,236.9	3.03	-2.22	
6,623.0	90.80	270.40	5,581.9	-137.4	-1,301.6	1,298.0	0.79	0.48	
6,686.0	90.10	272.40	5,581.4	-135.9	-1,364.5	1,358.9	3.36	-1.11	
6,749.0	90.50	272.10	5,581.0	-133.4	-1,427.5	1,419.6	0.79	0.63	
6,811.0	90.30	272.40	5,580.6	-131.0	-1,489.4	1,479.3	0.58	-0.32	
6,874.0	90.90	272.70	5,579.9	-128.2	-1,552.4	1,539.9	1.06	0.95	
6,938.0	90.00	271.10	5,579.4	-126.0	-1,616.3	1,601.6	2.87	-1.41	
7,000.0	90.10	271.30	5,579.4	-124.7	-1,678.3	1,661.6	0.36	0.18	
7,063.0	90.80	271.60	5,578.9	-123.1	-1,741.3	1,722.5	1.21	1.11	
7,126.0	89.90	270.80	5,578.5	-121.8	-1,804.3	1,783.5	1.91	-1.43	
7,190.0	89.90	271.00	5,578.6	-120.8	-1,868.3	1,845.5	0.31	0.00	
7,253.0	90.60	271.00	5,578.3	-119.7	-1,931.3	1,906.5	1.11	1.11	
7,316.0	90.10	269.60	5,578.0	-119.4	-1,994.3	1,967.7	2.36	-0.79	
7,379.0	90.60	270.30	5,577.6	-119.4	-2,057.3	2,029.0	1.37	0.79	
7,442.0	89.50	269.30	5,577.5	-119.7	-2,120.3	2,090.3	2.36	-1.75	
7,505.0	89.70	269.20	5,578.0	-120.5	-2,183.2	2,151.8	0.35	0.32	
7,568.0	90.00	269.40	5,578.1	-121.3	-2,246.2	2,213.3	0.57	0.48	
7,630.0	90.00	269.40	5,578.1	-121.9	-2,308.2	2,273.7	0.00	0.00	
7,693.0	90.80	269.50	5,577.7	-122.5	-2,371.2	2,335.2	1.28	1.27	
7,757.0	90.60	271.00	5,576.9	-122.2	-2,435.2	2,397.4	2.36	-0.31	
7,820.0	90.90	270.50	5,576.1	-121.4	-2,498.2	2,458.4	0.93	0.48	
7,883.0	91.10	272.30	5,575.0	-119.9	-2,561.2	2,519.3	2.87	0.32	
7,946.0	90.40	271.50	5,574.1	-117.8	-2,624.1	2,580.1	1.69	-1.11	
8,009.0	91.00	271.50	5,573.4	-116.1	-2,687.1	2,641.0	0.95	0.95	
8,072.0	89.00	271.10	5,573.4	-114.7	-2,750.1	2,701.9	3.24	-3.17	
8,135.0	89.60	271.60	5,574.1	-113.2	-2,813.1	2,762.9	1.24	0.95	
8,198.0	90.60	272.20	5,574.0	-111.1	-2,876.0	2,823.6	1.85	1.59	
8,260.0	89.90	272.40	5,573.8	-108.6	-2,938.0	2,883.3	1.17	-1.13	
8,324.0	89.70	272.10	5,574.0	-108.1	-3,001.9	2,944.9	0.56	-0.31	
8,387.0	90.40	271.90	5,573.9	-103.9	-3,064.9	3,005.7	1.16	1.11	
8,449.0	90.50	269.80	5,573.4	-103.0	-3,126.9	3,065.8	3.39	0.16	
8,512.0	90.80	270.10	5,572.7	-103.1	-3,189.9	3,127.1	0.67	0.48	
8,575.0	91.40	270.40	5,571.5	-102.8	-3,252.9	3,188.3	1.06	0.95	
8,638.0	90.50	269.30	5,570.5	-103.0	-3,315.9	3,249.6	2.26	-1.43	
8,699.0	90.40	269.00	5,570.0	-103.9	-3,378.8	3,309.1	0.52	-0.16	
8,762.0	90.40	268.70	5,569.6	-105.1	-3,439.8	3,370.7	0.48	0.00	
8,826.0	89.40	267.90	5,569.7	-107.0	-3,503.8	3,433.4	2.00	-1.56	
8,889.0	90.20	268.20	5,569.9	-109.2	-3,566.8	3,495.1	1.36	1.27	
8,952.0	90.90	268.40	5,569.3	-111.0	-3,629.7	3,556.8	1.16	1.11	
9,015.0	91.60	269.00	5,567.9	-112.5	-3,692.7	3,618.4	1.46	1.11	
9,078.0	89.10	269.60	5,567.5	-113.2	-3,755.7	3,679.9	4.08	-3.97	
9,140.0	90.00	269.70	5,568.0	-113.6	-3,817.7	3,740.3	1.46	1.45	
9,203.0	90.50	270.00	5,567.7	-113.8	-3,880.7	3,801.6	0.93	0.79	
9,267.0	90.60	270.40	5,567.1	-113.6	-3,944.7	3,863.8	0.64	0.16	
9,329.0	91.10	271.20	5,566.2	-112.7	-4,006.7	3,923.9	1.52	0.81	
9,393.0	89.30	269.90	5,566.0	-112.1	-4,070.7	3,986.0	3.47	-2.81	
9,456.0	89.70	270.10	5,566.5	-112.1	-4,133.7	4,047.3	0.71	0.63	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook E27-2308 03H
 Wellbore: Hz
 Design: FINAL

Local Co-ordinate Reference: Well Lybrook E27-2308 03H
 TVD Reference: KB @ 7070.0ft (Aztec)
 MD Reference: KB @ 7070.0ft (Aztec)
 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
9,519.0	90.60	270.30	5,566.4	-111.9	-4,186.7	4,108.5	1.46	1.43	
9,582.0	91.20	270.60	5,565.4	-111.4	-4,259.6	4,169.7	1.06	0.95	
9,644.0	89.50	270.90	5,565.0	-110.5	-4,321.6	4,229.8	2.78	-2.74	
9,707.0	89.60	271.00	5,565.5	-109.5	-4,384.6	4,290.9	0.22	0.16	
9,770.0	90.30	271.10	5,565.5	-108.3	-4,447.6	4,351.9	1.12	1.11	
9,833.0	90.80	271.60	5,564.9	-106.9	-4,510.6	4,412.8	1.12	0.79	
9,896.0	90.10	270.40	5,564.4	-105.8	-4,573.6	4,473.8	2.21	-1.11	
9,959.0	90.10	270.10	5,564.3	-105.5	-4,636.6	4,535.0	0.48	0.00	
10,025.0	90.60	270.30	5,563.9	-105.3	-4,702.6	4,599.2	0.82	0.76	
10,056.0	91.10	270.30	5,563.5	-105.1	-4,733.6	4,629.3	1.61	1.61	Last Cathedral Survey @ 10,056' MD
10,101.0	91.10	270.30	5,562.6	-104.9	-4,778.6	4,673.0	0.00	0.00	Projection to Bit @ 10,101'

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 E27-2306 03H I - actual wellpath misses target center by 539.8ft at 10101.0ft MD (5562.6 TVD, -104.9 N, -4778.6 E) - Point	0.00	0.00	5,544.1	-512.9	-5,131.6	1,893,490.39	1,277,150.89	36.197570	-107.481210
Lybrook E27-2306 03H I - actual wellpath misses target center by 421.8ft at 5874.6ft MD (5584.1 TVD, -122.7 N, -553.6 E) - Point	0.00	0.00	5,554.0	-542.5	-525.3	1,893,403.18	1,281,756.48	36.197490	-107.465600
Lybrook E27-2306 03H I - actual wellpath misses target center by 23.1ft at 5848.7ft MD (5583.3 TVD, -120.8 N, -527.8 E) - Point	0.00	0.00	5,561.1	-127.4	-528.2	1,893,818.22	1,281,758.73	36.198630	-107.465610
Lybrook E27-2306 03H I - actual wellpath misses target center by 26.3ft at 10101.0ft MD (5562.6 TVD, -104.9 N, -4778.6 E) - Point	0.00	0.00	5,562.9	-97.9	-4,804.0	1,893,901.24	1,277,483.68	36.198710	-107.480100
Lybrook E27-2306 03H I - actual wellpath misses target center by 539.8ft at 10101.0ft MD (5562.6 TVD, -104.9 N, -4778.6 E) - Point	0.00	0.00	5,544.1	-512.9	-5,131.6	1,893,490.39	1,277,150.89	36.197570	-107.481210
Lybrook E27-2306 03H I - actual wellpath misses target center by 356.4ft at 10101.0ft MD (5562.6 TVD, -104.9 N, -4778.6 E) - Point	0.00	0.00	5,544.1	-97.8	-5,134.4	1,893,905.44	1,277,153.21	36.198710	-107.481220

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,056.0	5,563.5	-105.1	-4,733.6	Last Cathedral Survey @ 10,056' MD
10,101.0	5,562.6	-104.9	-4,778.6	Projection to Bit @ 10,101'

Checked By: _____ Approved By: _____ Date: _____

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

Lybrook

Lybrook E27-2306 03H

Hz

Design: FINAL

Survey Report - Geographic

26 December, 2013

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook E27-2306 03H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7070.0ft (Aztec)
Site:	Lybrook	MD Reference:	KB @ 7070.0ft (Aztec)
Well:	Lybrook E27-2306 03H	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
From:	Lat/Long	Easting:	1,287,068.90 ft
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in
		Latitude:	36.168210
		Longitude:	-107.447150
		Grid Convergence:	-0.71 °

Well	Lybrook E27-2306 03H		
Well Position	+N/-S	0.0 ft	Northing:
	+E/-W	0.0 ft	Easting:
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	36.198980
		Longitude:	-107.463820
		Ground Level:	7,054.0 ft

Wellbore	Hz		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	12/4/2013	(°)
			9.40
			Dip Angle
			(°)
			62.99
			Field Strength
			(nT)
			50,215

Design	FINAL		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			Direction
			(°)
			256.61
			Tie On Depth:
			4,752.0

Survey Program	Date 12/26/2013		
From	To	Survey (Wellbore)	Tool Name
(ft)	(ft)		
136.0	4,752.0	Survey #1 (Pilot Hole)	Geolink MWD
4,764.0	10,101.0	Survey #1 (Hz)	Geolink MWD
			Description
			Geolink MWD
			Geolink MWD

Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map			
Depth	(°)	(°)	Depth	(ft)	(ft)	Northing	Easting	Latitude	Longitude	
(ft)			(ft)			(ft)	(ft)			
0.0	0.00	0.00	0.0	0.0	0.0	1,893,939.02	1,282,286.48	36.198980	-107.463820	
136.0	1.00	206.80	136.0	-1.1	-0.5	1,893,937.97	1,282,287.93	36.198977	-107.463822	
195.0	1.50	207.00	195.0	-2.2	-1.1	1,893,936.83	1,282,287.33	36.198974	-107.463824	
254.0	1.90	199.20	254.0	-3.8	-1.8	1,893,935.23	1,282,286.64	36.198970	-107.463826	
314.0	1.90	205.80	313.9	-5.7	-2.5	1,893,933.40	1,282,285.86	36.198965	-107.463829	
373.0	1.90	200.70	372.9	-7.5	-3.3	1,893,931.61	1,282,285.07	36.198960	-107.463832	
436.0	1.90	190.10	435.9	-9.5	-3.9	1,893,929.61	1,282,284.49	36.198954	-107.463833	
480.0	1.20	174.90	479.8	-10.6	-4.0	1,893,928.44	1,282,284.39	36.198951	-107.463834	
561.0	0.60	167.40	560.8	-11.9	-3.8	1,893,927.18	1,282,284.54	36.198947	-107.463833	
622.0	1.10	87.40	621.8	-12.2	-3.1	1,893,926.88	1,282,285.19	36.198947	-107.463831	
683.0	1.10	73.10	682.8	-12.0	-2.0	1,893,927.07	1,282,286.34	36.198947	-107.463827	

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E27-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook E27-2306 03H
TVD Reference: KB @ 7070.0ft (Aztec)
MD Reference: KB @ 7070.0ft (Aztec)
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
744.0	2.50	35.20	743.8	-10.7	-0.7	1,893,928.31	1,282,287.68	36.198951	-107.463823
805.0	2.90	33.80	804.7	-8.4	1.0	1,893,930.66	1,282,289.34	36.198957	-107.463817
867.0	1.40	18.30	866.7	-6.3	2.1	1,893,932.67	1,282,290.47	36.198963	-107.463813
928.0	0.80	346.80	927.7	-5.2	2.2	1,893,933.79	1,282,290.62	36.198966	-107.463813
989.0	1.00	344.90	988.6	-4.3	2.0	1,893,934.72	1,282,290.40	36.198968	-107.463814
1,050.0	1.00	345.80	1,049.6	-3.3	1.7	1,893,935.75	1,282,290.14	36.198971	-107.463814
1,111.0	1.00	342.90	1,110.6	-2.2	1.4	1,893,936.78	1,282,289.87	36.198974	-107.463815
1,172.0	0.80	347.40	1,171.6	-1.3	1.2	1,893,937.71	1,282,289.63	36.198977	-107.463816
1,233.0	0.80	347.30	1,232.6	-0.5	1.0	1,893,938.54	1,282,289.46	36.198979	-107.463817
1,294.0	0.80	344.20	1,293.6	0.4	0.8	1,893,939.37	1,282,289.26	36.198981	-107.463818
1,356.0	0.80	337.30	1,355.6	1.2	0.5	1,893,940.19	1,282,288.98	36.198983	-107.463819
1,417.0	0.70	335.80	1,416.6	1.9	0.2	1,893,940.92	1,282,288.67	36.198985	-107.463820
1,478.0	0.80	332.10	1,477.6	2.6	-0.2	1,893,941.64	1,282,288.33	36.198987	-107.463821
1,540.0	1.20	332.20	1,539.6	3.6	-0.7	1,893,942.61	1,282,287.84	36.198990	-107.463823
1,603.0	1.20	344.00	1,602.6	4.8	-1.2	1,893,943.83	1,282,287.36	36.198993	-107.463824
1,666.0	1.10	343.70	1,665.6	6.0	-1.5	1,893,945.05	1,282,287.03	36.198997	-107.463825
1,729.0	0.50	326.50	1,728.6	6.8	-1.8	1,893,945.86	1,282,286.72	36.198999	-107.463827
1,791.0	0.30	165.00	1,790.6	6.9	-2.0	1,893,945.93	1,282,286.61	36.198999	-107.463827
1,854.0	0.60	182.70	1,853.5	6.4	-1.9	1,893,945.44	1,282,286.63	36.198998	-107.463827
1,917.0	0.80	144.00	1,916.5	5.7	-1.7	1,893,944.76	1,282,286.86	36.198996	-107.463826
1,980.0	1.00	154.70	1,979.5	4.9	-1.2	1,893,943.90	1,282,287.35	36.198993	-107.463824
2,043.0	0.90	143.60	2,042.5	4.0	-0.7	1,893,942.99	1,282,287.86	36.198991	-107.463823
2,106.0	1.10	161.10	2,105.5	3.0	-0.2	1,893,942.02	1,282,288.34	36.198988	-107.463821
2,169.0	1.10	166.10	2,168.5	1.8	0.2	1,893,940.86	1,282,288.67	36.198985	-107.463820
2,232.0	0.90	182.20	2,231.5	0.8	0.3	1,893,939.77	1,282,288.78	36.198982	-107.463819
2,295.0	1.10	188.70	2,294.5	-0.3	0.2	1,893,938.68	1,282,288.66	36.198979	-107.463820
2,358.0	1.10	179.20	2,357.5	-1.5	0.1	1,893,937.48	1,282,288.56	36.198976	-107.463820
2,421.0	0.90	191.30	2,420.5	-2.6	0.0	1,893,936.39	1,282,288.46	36.198973	-107.463820
2,484.0	1.10	186.80	2,483.5	-3.7	-0.2	1,893,935.31	1,282,288.27	36.198970	-107.463821
2,547.0	1.40	173.80	2,546.4	-5.1	-0.1	1,893,933.94	1,282,288.27	36.198966	-107.463821
2,609.0	0.80	147.00	2,608.4	-6.2	0.2	1,893,932.82	1,282,288.57	36.198963	-107.463820
2,672.0	0.70	130.90	2,671.4	-6.8	0.7	1,893,932.20	1,282,289.10	36.198961	-107.463818
2,735.0	0.40	50.00	2,734.4	-6.9	1.2	1,893,932.08	1,282,289.55	36.198961	-107.463816
2,798.0	0.40	67.40	2,797.4	-6.7	1.5	1,893,932.30	1,282,289.93	36.198962	-107.463815
2,861.0	0.70	71.60	2,860.4	-6.5	2.1	1,893,932.50	1,282,290.50	36.198962	-107.463813
2,924.0	0.70	65.70	2,923.4	-6.2	2.8	1,893,932.77	1,282,291.22	36.198963	-107.463811
2,988.0	1.00	40.00	2,987.4	-5.6	3.5	1,893,933.35	1,282,291.94	36.198965	-107.463808
3,051.0	1.10	35.90	3,050.4	-4.7	4.2	1,893,934.25	1,282,292.66	36.198967	-107.463806
3,114.0	0.60	12.30	3,113.4	-3.9	4.7	1,893,935.06	1,282,293.09	36.198969	-107.463804
3,177.0	0.60	339.80	3,176.4	-3.3	4.6	1,893,935.69	1,282,293.06	36.198971	-107.463805
3,240.0	0.40	306.70	3,239.4	-2.8	4.3	1,893,936.14	1,282,292.77	36.198972	-107.463806
3,303.0	0.10	232.00	3,302.4	-2.7	4.1	1,893,936.24	1,282,292.56	36.198973	-107.463806
3,356.0	0.30	206.30	3,355.4	-2.9	4.0	1,893,936.08	1,282,292.46	36.198972	-107.463807
3,429.0	0.40	237.20	3,428.4	-3.2	3.7	1,893,935.78	1,282,292.15	36.198971	-107.463808
3,492.0	0.40	229.10	3,491.4	-3.5	3.4	1,893,935.52	1,282,291.80	36.198971	-107.463809
3,555.0	0.40	197.70	3,554.4	-3.8	3.1	1,893,935.17	1,282,291.56	36.198970	-107.463810
3,618.0	0.50	186.10	3,617.4	-4.3	3.0	1,893,934.69	1,282,291.46	36.198968	-107.463810
3,681.0	0.80	186.20	3,680.4	-5.0	3.0	1,893,933.98	1,282,291.37	36.198966	-107.463810
3,744.0	0.70	196.40	3,743.4	-5.8	2.8	1,893,933.17	1,282,291.21	36.198964	-107.463811
3,807.0	0.40	47.10	3,806.4	-6.0	2.9	1,893,932.95	1,282,291.26	36.198964	-107.463811
3,870.0	0.60	40.50	3,869.4	-5.6	3.2	1,893,933.35	1,282,291.64	36.198965	-107.463809
3,933.0	0.50	36.30	3,932.4	-5.2	3.6	1,893,933.82	1,282,292.02	36.198966	-107.463808
3,996.0	0.70	25.10	3,995.4	-4.6	3.9	1,893,934.38	1,282,292.35	36.198967	-107.463807
4,059.0	0.50	12.90	4,058.4	-4.0	4.2	1,893,935.00	1,282,292.59	36.198969	-107.463806
4,121.0	0.50	35.00	4,120.4	-3.5	4.4	1,893,935.48	1,282,292.81	36.198971	-107.463805

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook E27-2306 03H
 Wellbore: Hz
 Design: FINAL

Local Co-ordinate Reference: Well Lybrook E27-2306 03H
 TVD Reference: KB @ 7070.0ft (Aztec)
 MD Reference: KB @ 7070.0ft (Aztec)
 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
4,185.0	0.70	25.10	4,184.3	-2.9	4.7	1,893,936.06	1,282,293.14	36.198972	-107.463804
4,248.0	0.40	54.50	4,247.3	-2.4	5.0	1,893,936.53	1,282,293.49	36.198973	-107.463803
4,311.0	0.60	99.40	4,310.3	-2.4	5.5	1,893,936.60	1,282,293.99	36.198974	-107.463801
4,374.0	0.30	349.00	4,373.3	-2.2	5.8	1,893,936.70	1,282,294.29	36.198974	-107.463800
4,438.0	0.50	290.20	4,435.3	-2.0	5.6	1,893,936.98	1,282,294.01	36.198975	-107.463801
4,500.0	0.40	271.80	4,499.3	-1.9	5.1	1,893,937.07	1,282,293.52	36.198975	-107.463803
4,563.0	0.60	272.30	4,562.3	-1.9	4.5	1,893,937.09	1,282,292.97	36.198975	-107.463805
4,626.0	0.70	256.00	4,625.3	-2.0	3.8	1,893,937.02	1,282,292.27	36.198975	-107.463807
4,689.0	0.50	252.30	4,688.3	-2.1	3.2	1,893,936.85	1,282,291.83	36.198974	-107.463809
4,752.0	0.60	217.20	4,751.3	-2.5	2.7	1,893,936.51	1,282,291.17	36.198973	-107.463811
4,764.0	1.30	206.50	4,763.3	-2.6	2.6	1,893,936.34	1,282,291.07	36.198973	-107.463811
4,797.0	4.30	212.30	4,796.3	-4.0	1.8	1,893,934.97	1,282,290.22	36.198969	-107.463814
4,828.0	8.20	218.80	4,827.1	-6.7	-0.2	1,893,932.28	1,282,288.18	36.198962	-107.463821
4,860.0	8.30	219.80	4,858.8	-10.3	-3.1	1,893,928.77	1,282,285.23	36.198952	-107.463831
4,892.0	8.00	218.30	4,890.4	-13.8	-6.0	1,893,925.29	1,282,282.32	36.198942	-107.463841
4,923.0	7.60	217.70	4,921.2	-17.1	-8.6	1,893,922.01	1,282,279.89	36.198933	-107.463849
4,954.0	9.10	226.60	4,951.8	-20.4	-11.6	1,893,918.74	1,282,276.82	36.198924	-107.463860
4,985.0	11.90	238.20	4,982.3	-23.8	-16.1	1,893,915.42	1,282,272.08	36.198915	-107.463875
5,017.0	15.10	242.30	5,013.4	-27.5	-22.6	1,893,911.83	1,282,265.53	36.198905	-107.463897
5,048.0	17.70	242.90	5,043.2	-31.5	-30.4	1,893,907.90	1,282,257.71	36.198894	-107.463923
5,080.0	19.40	244.20	5,073.5	-36.0	-39.5	1,893,903.49	1,282,248.54	36.198881	-107.463954
5,112.0	19.40	243.90	5,103.7	-40.7	-48.0	1,893,898.96	1,282,238.93	36.198868	-107.463986
5,143.0	18.50	243.50	5,133.0	-45.1	-58.1	1,893,894.61	1,282,229.85	36.198856	-107.464017
5,174.0	17.90	241.60	5,162.5	-49.6	-66.7	1,893,890.26	1,282,221.20	36.198844	-107.464046
5,206.0	19.80	242.70	5,192.7	-54.4	-75.8	1,893,885.55	1,282,212.00	36.198831	-107.464077
5,237.0	23.00	246.50	5,221.6	-59.3	-86.0	1,893,880.85	1,282,201.71	36.198817	-107.464112
5,268.0	25.90	250.20	5,249.8	-64.0	-98.0	1,893,876.29	1,282,189.73	36.198804	-107.464152
5,300.0	28.50	253.40	5,278.3	-68.5	-111.9	1,893,871.92	1,282,175.78	36.198792	-107.464199
5,331.0	29.20	254.80	5,305.4	-72.6	-126.2	1,893,868.00	1,282,161.34	36.198781	-107.464248
5,363.0	31.50	253.00	5,333.0	-77.1	-141.8	1,893,863.70	1,282,145.76	36.198768	-107.464301
5,394.0	32.60	256.30	5,359.3	-81.4	-157.6	1,893,859.56	1,282,129.84	36.198756	-107.464354
5,426.0	35.20	258.40	5,385.9	-85.3	-175.0	1,893,855.88	1,282,112.38	36.198746	-107.464413
5,457.0	38.30	259.30	5,410.7	-88.9	-193.2	1,893,852.52	1,282,094.14	36.198736	-107.464475
5,488.0	41.70	261.00	5,434.5	-92.3	-212.9	1,893,849.37	1,282,074.47	36.198727	-107.464542
5,520.0	44.40	263.40	5,457.8	-95.3	-234.5	1,893,846.89	1,282,052.80	36.198718	-107.464615
5,551.0	48.20	264.80	5,479.3	-97.6	-256.8	1,893,844.67	1,282,030.48	36.198712	-107.464691
5,583.0	52.60	265.90	5,499.6	-99.6	-281.4	1,893,842.99	1,282,005.89	36.198707	-107.464774
5,614.0	56.90	266.00	5,517.5	-101.3	-306.6	1,893,841.52	1,281,980.82	36.198702	-107.464859
5,646.0	61.10	265.40	5,534.0	-103.4	-334.0	1,893,839.80	1,281,953.25	36.198696	-107.464952
5,677.0	66.00	265.10	5,547.8	-105.7	-361.6	1,893,837.85	1,281,925.58	36.198690	-107.465046
5,709.0	70.60	265.10	5,559.6	-108.2	-391.2	1,893,835.68	1,281,895.93	36.198683	-107.465146
5,740.0	75.50	265.50	5,568.7	-110.7	-420.8	1,893,833.62	1,281,866.36	36.198676	-107.465246
5,757.0	78.00	265.60	5,572.6	-112.0	-437.3	1,893,832.55	1,281,849.86	36.198673	-107.465302
5,777.0	80.10	263.40	5,576.4	-113.8	-456.8	1,893,830.91	1,281,830.29	36.198667	-107.465368
5,807.0	84.60	264.20	5,580.4	-117.0	-486.3	1,893,828.07	1,281,800.70	36.198659	-107.465468
5,838.0	86.70	265.10	5,582.7	-119.9	-517.1	1,893,825.57	1,281,769.90	36.198651	-107.465573
5,868.0	88.60	266.00	5,583.9	-122.3	-547.0	1,893,823.62	1,281,739.99	36.198644	-107.465674
5,900.0	89.00	266.10	5,584.6	-124.5	-578.9	1,893,821.82	1,281,708.04	36.198638	-107.465782
5,931.0	89.40	266.30	5,585.0	-126.5	-609.8	1,893,820.15	1,281,677.09	36.198633	-107.465887
5,994.0	89.90	266.50	5,585.4	-130.5	-672.7	1,893,816.98	1,281,614.17	36.198622	-107.466100
6,056.0	89.30	268.50	5,585.9	-133.2	-734.7	1,893,815.05	1,281,552.21	36.198614	-107.466310
6,119.0	89.80	268.80	5,586.4	-134.7	-797.6	1,893,814.36	1,281,489.21	36.198610	-107.466523
6,182.0	90.10	268.60	5,586.4	-136.1	-860.6	1,893,813.72	1,281,426.22	36.198606	-107.466737
6,245.0	91.00	270.30	5,585.8	-136.7	-923.6	1,893,813.90	1,281,363.22	36.198605	-107.466950
6,308.0	89.30	269.70	5,585.6	-136.7	-986.6	1,893,814.69	1,281,300.23	36.198605	-107.467164

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook E27-2308 03H
 Wellbore: Hz
 Design: FINAL

Local Co-ordinate Reference: Well Lybrook E27-2306 03H
 TVD Reference: KB @ 7070.0ft (Aztec)
 MD Reference: KB @ 7070.0ft (Aztec)
 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
6,371.0	90.20	269.40	5,585.9	-137.2	-1,049.6	1,893,814.98	1,281,237.23	36.198603	-107.467377
6,434.0	90.80	269.60	5,585.4	-137.7	-1,112.6	1,893,815.22	1,281,174.24	36.198602	-107.467591
6,497.0	91.90	269.50	5,583.9	-138.2	-1,175.6	1,893,815.51	1,281,111.26	36.198600	-107.467804
6,560.0	90.50	270.80	5,582.6	-138.1	-1,238.6	1,893,816.47	1,281,048.28	36.198601	-107.468018
6,623.0	90.80	270.40	5,581.9	-137.4	-1,301.6	1,893,817.92	1,280,985.30	36.198603	-107.468231
6,686.0	90.10	272.40	5,581.4	-135.9	-1,364.5	1,893,820.24	1,280,922.35	36.198607	-107.468445
6,749.0	90.50	272.10	5,581.0	-133.4	-1,427.5	1,893,823.50	1,280,859.44	36.198614	-107.468658
6,811.0	90.30	272.40	5,580.6	-131.0	-1,489.4	1,893,826.71	1,280,797.52	36.198620	-107.468868
6,874.0	90.90	272.70	5,579.9	-128.2	-1,552.4	1,893,830.30	1,280,734.63	36.198628	-107.469081
6,938.0	90.00	271.10	5,579.4	-126.0	-1,616.3	1,893,833.22	1,280,670.70	36.198634	-107.469298
7,000.0	90.10	271.30	5,579.4	-124.7	-1,678.3	1,893,835.30	1,280,608.73	36.198637	-107.469508
7,063.0	90.80	271.60	5,578.9	-123.1	-1,741.3	1,893,837.68	1,280,545.78	36.198642	-107.469721
7,126.0	89.90	270.80	5,578.5	-121.8	-1,804.3	1,893,839.79	1,280,482.82	36.198645	-107.469935
7,190.0	89.90	271.00	5,578.6	-120.8	-1,868.3	1,893,841.59	1,280,418.84	36.198648	-107.470152
7,253.0	90.60	271.00	5,578.3	-119.7	-1,931.3	1,893,843.48	1,280,355.87	36.198651	-107.470365
7,316.0	90.10	269.60	5,578.0	-119.4	-1,994.3	1,893,844.60	1,280,292.89	36.198652	-107.470579
7,379.0	90.60	270.30	5,577.6	-119.4	-2,057.3	1,893,845.33	1,280,229.89	36.198652	-107.470792
7,442.0	89.50	269.30	5,577.5	-119.7	-2,120.3	1,893,845.90	1,280,166.90	36.198651	-107.471006
7,505.0	89.70	269.20	5,578.0	-120.5	-2,183.2	1,893,845.87	1,280,103.90	36.198649	-107.471219
7,568.0	90.00	269.40	5,578.1	-121.3	-2,246.2	1,893,845.88	1,280,040.90	36.198647	-107.471432
7,630.0	90.00	269.40	5,578.1	-121.9	-2,308.2	1,893,846.01	1,279,978.90	36.198645	-107.471643
7,693.0	90.80	269.50	5,577.7	-122.5	-2,371.2	1,893,846.19	1,279,915.90	36.198643	-107.471856
7,757.0	90.60	271.00	5,576.9	-122.2	-2,435.2	1,893,847.27	1,279,851.92	36.198644	-107.472073
7,820.0	90.90	270.50	5,576.1	-121.4	-2,498.2	1,893,848.89	1,279,788.94	36.198646	-107.472286
7,883.0	91.10	272.30	5,575.0	-119.9	-2,561.2	1,893,851.21	1,279,726.00	36.198651	-107.472500
7,946.0	90.40	271.50	5,574.1	-117.8	-2,624.1	1,893,854.09	1,279,663.07	36.198656	-107.472713
8,009.0	91.00	271.50	5,573.4	-116.1	-2,687.1	1,893,856.53	1,279,600.12	36.198661	-107.472927
8,072.0	89.00	271.10	5,573.4	-114.7	-2,750.1	1,893,858.74	1,279,537.16	36.198665	-107.473140
8,135.0	89.60	271.60	5,574.1	-113.2	-2,813.1	1,893,861.02	1,279,474.21	36.198669	-107.473353
8,198.0	90.60	272.20	5,574.0	-111.1	-2,876.0	1,893,863.89	1,279,411.28	36.198674	-107.473567
8,260.0	89.90	272.40	5,573.8	-108.6	-2,938.0	1,893,867.16	1,279,349.36	36.198681	-107.473777
8,324.0	89.70	272.10	5,574.0	-106.1	-3,001.9	1,893,870.47	1,279,285.45	36.198688	-107.473993
8,387.0	90.40	271.90	5,573.9	-103.9	-3,064.9	1,893,873.45	1,279,222.52	36.198694	-107.474207
8,449.0	90.50	269.80	5,573.4	-103.0	-3,126.9	1,893,875.15	1,279,160.55	36.198697	-107.474417
8,512.0	90.80	270.10	5,572.7	-103.1	-3,189.9	1,893,875.88	1,279,097.56	36.198697	-107.474630
8,575.0	91.40	270.40	5,571.5	-102.8	-3,252.9	1,893,876.95	1,279,034.58	36.198697	-107.474844
8,638.0	90.50	269.30	5,570.5	-103.0	-3,315.9	1,893,877.57	1,278,971.59	36.198697	-107.475057
8,699.0	90.40	269.00	5,570.0	-103.9	-3,376.8	1,893,877.43	1,278,910.59	36.198694	-107.475264
8,762.0	90.40	268.70	5,569.6	-105.1	-3,439.8	1,893,878.95	1,278,847.60	36.198691	-107.475477
8,826.0	89.40	267.90	5,569.7	-107.0	-3,503.8	1,893,875.85	1,278,783.81	36.198686	-107.475694
8,889.0	90.20	268.20	5,569.9	-109.2	-3,566.8	1,893,874.50	1,278,720.62	36.198680	-107.475908
8,952.0	90.90	268.40	5,569.3	-111.0	-3,629.7	1,893,873.42	1,278,657.64	36.198674	-107.476121
9,015.0	91.60	269.00	5,567.9	-112.5	-3,692.7	1,893,872.78	1,278,594.66	36.198671	-107.476334
9,078.0	89.10	269.60	5,567.5	-113.2	-3,755.7	1,893,872.80	1,278,531.66	36.198668	-107.476548
9,140.0	90.00	269.70	5,568.0	-113.6	-3,817.7	1,893,873.19	1,278,469.67	36.198667	-107.476758
9,203.0	90.50	270.00	5,567.7	-113.8	-3,880.7	1,893,873.82	1,278,406.67	36.198667	-107.476971
9,267.0	90.60	270.40	5,567.1	-113.6	-3,944.7	1,893,874.84	1,278,342.68	36.198667	-107.477188
9,329.0	91.10	271.20	5,566.2	-112.7	-4,006.7	1,893,876.48	1,278,280.71	36.198670	-107.477398
9,393.0	89.30	269.90	5,566.0	-112.1	-4,070.7	1,893,877.90	1,278,216.73	36.198671	-107.477615
9,456.0	89.70	270.10	5,566.5	-112.1	-4,133.7	1,893,878.68	1,278,153.74	36.198671	-107.477829
9,519.0	90.80	270.30	5,566.4	-111.9	-4,196.7	1,893,879.89	1,278,090.75	36.198672	-107.478042
9,582.0	91.20	270.80	5,565.4	-111.4	-4,259.6	1,893,880.98	1,278,027.77	36.198673	-107.478256
9,644.0	89.50	270.90	5,565.0	-110.5	-4,321.6	1,893,882.56	1,277,965.79	36.198676	-107.478466
9,707.0	89.60	271.00	5,565.5	-109.5	-4,384.6	1,893,884.40	1,277,902.82	36.198678	-107.478679
9,770.0	90.30	271.10	5,565.5	-108.3	-4,447.6	1,893,886.34	1,277,839.85	36.198682	-107.478893

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook E27-2306 03H
 Wellbore: Hz
 Design: FINAL

Local Co-ordinate Reference: Well Lybrook E27-2306 03H
 TVD Reference: KB @ 7070.0ft (Aztec)
 MD Reference: KB @ 7070.0ft (Aztec)
 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
9,833.0	90.80	271.60	5,564.9	-106.9	-4,510.6	1,893,888.61	1,277,776.90	36.198686	-107.479106
9,896.0	90.10	270.40	5,564.4	-105.8	-4,573.6	1,893,890.50	1,277,713.93	36.198689	-107.479320
9,959.0	90.10	270.10	5,564.3	-105.5	-4,638.6	1,893,891.58	1,277,650.94	36.198689	-107.479533
10,025.0	90.60	270.30	5,563.9	-105.3	-4,702.6	1,893,892.62	1,277,584.95	36.198690	-107.479757
10,056.0	91.10	270.30	5,563.5	-105.1	-4,733.6	1,893,893.17	1,277,553.95	36.198690	-107.479862
Last Cathedral Survey @ 10,056' MD									
10,101.0	91.10	270.30	5,562.6	-104.9	-4,778.6	1,893,893.97	1,277,508.97	36.198691	-107.480014
Projection to Bit @ 10,101'									

Design Targets

Target Name

- hit/miss target
- Shape

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lybrook E27-2306 03H I	0.00	0.00	5,562.8	-97.9	-4,804.0	1,893,901.25	1,277,483.67	36.198710	-107.480100
- actual wellpath misses target center by 26.3ft at 10101.0ft MD (5562.6 TVD, -104.9 N, -4778.6 E)									
- Point									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,056.0	5,563.5	-105.1	-4,733.6	Last Cathedral Survey @ 10,056' MD
10,101.0	5,562.6	-104.9	-4,778.6	Projection to Bit @ 10,101'

Checked By: _____ Approved By: _____ Date: _____