

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

CONFIDENTIAL

OIL CONS. DIV DIST. 3

WELL LOCATION AND ACREAGE DEDICATION PLAT

'API Number 30-043-21142	'Pool Code 42289	'Pool Name LYBROOK GALLUP	OCT 01 2013
'Property Code 40046	'Property Name LYBROOK E29-2306		'Well Number 03H
'UGRID No. 282327	'Operator Name ENCANA OIL & GAS (USA) INC.		'Elevation 7080'

¹⁰ Surface Location

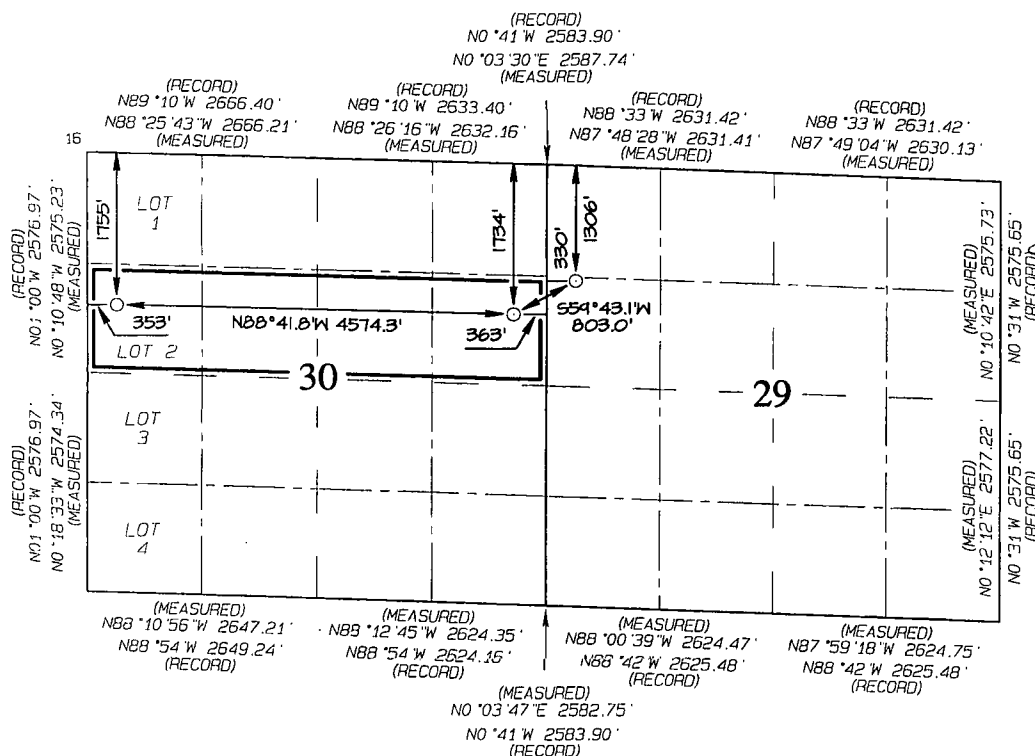
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	29	23N	6W		1306	NORTH	330	WEST	SANDOVAL

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
E	30	23N	6W	2	1755	NORTH	353	WEST	SANDOVAL

12	Dedicated Acres	160.91 Acres S/2 N/2 - Section 30	13	Joint or Infill	14	Consolidation Code	15	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



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 working interest or has a pooling agreement or a compulsory pooling order heretofore entered by the Division.

K. Schmidt Baden 10/1/13

Signature _____ Date _____

Printed Name
robynn.haden@encana.com

E-mail Address

¹⁸ SURVEYOR CERTIFICATION

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

Date Revised: OCTOBER 1, 2013
Survey Date: SEPTEMBER 25, 2012

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

END-OF-LATERAL
1755' FNL 353' FWL
SECTION 30, T23N, R6W
LAT: 36.19920°N
LONG: 107.51628°W
DATUM: NAD1927

LAT: 36.19921 *N
LONG: 107.51688 *W
DATUM: NAD1983

POINT-OF-ENTRY
1734' FNL 363' FEL
SECTION 30, T23N, R6W
LAT: 36.19908°N
LONG: 107.50078°W
DATUM: NAD1927

LAT: 36.19909 *N
LONG: 107.50138 *W
DATUM: NAD1983

SURFACE LOCATION
1306' FNL 330' FWL
SECTION 29, T23N, R6W
LAT: 36.20021°N
LONG: 107.49845°W
DATUM: NAD1927

LAT: 36.20023°N
LONG: 107.49905°W
DATUM: NAD1983

A

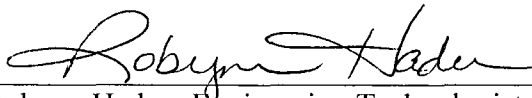
DEVIATION SURVEYS

CONFIDENTIAL

MD (Feet)	Inclination (Degree)
554	.60
798	.60
1104	1
1411	.40
1723	.20
2039	.20
2354	.50
2670	.40
2985	.40
3299	.50
3613	.40
3926	.80
4241	.70
4554	.40
4825	.40

OPERATOR CERTIFICATION

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



Robynn Haden, Engineering Technologist

9/26/13

9/26/13

ACKNOWLEDGMENT

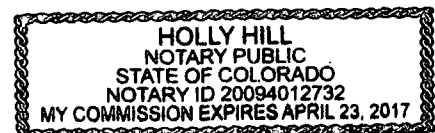
State of Colorado
City and County of Denver

This instrument was acknowledged before me on this 26th day of September 2013 by Robynn Haden as Attorney in Fact of Encana Oil & Gas (USA) Inc., on behalf of said corporation.

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

Notary Public: 

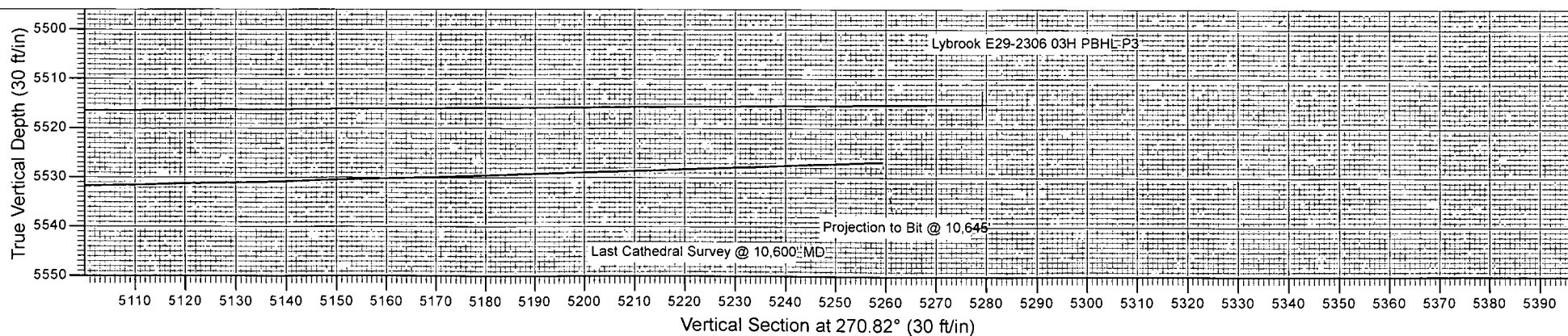
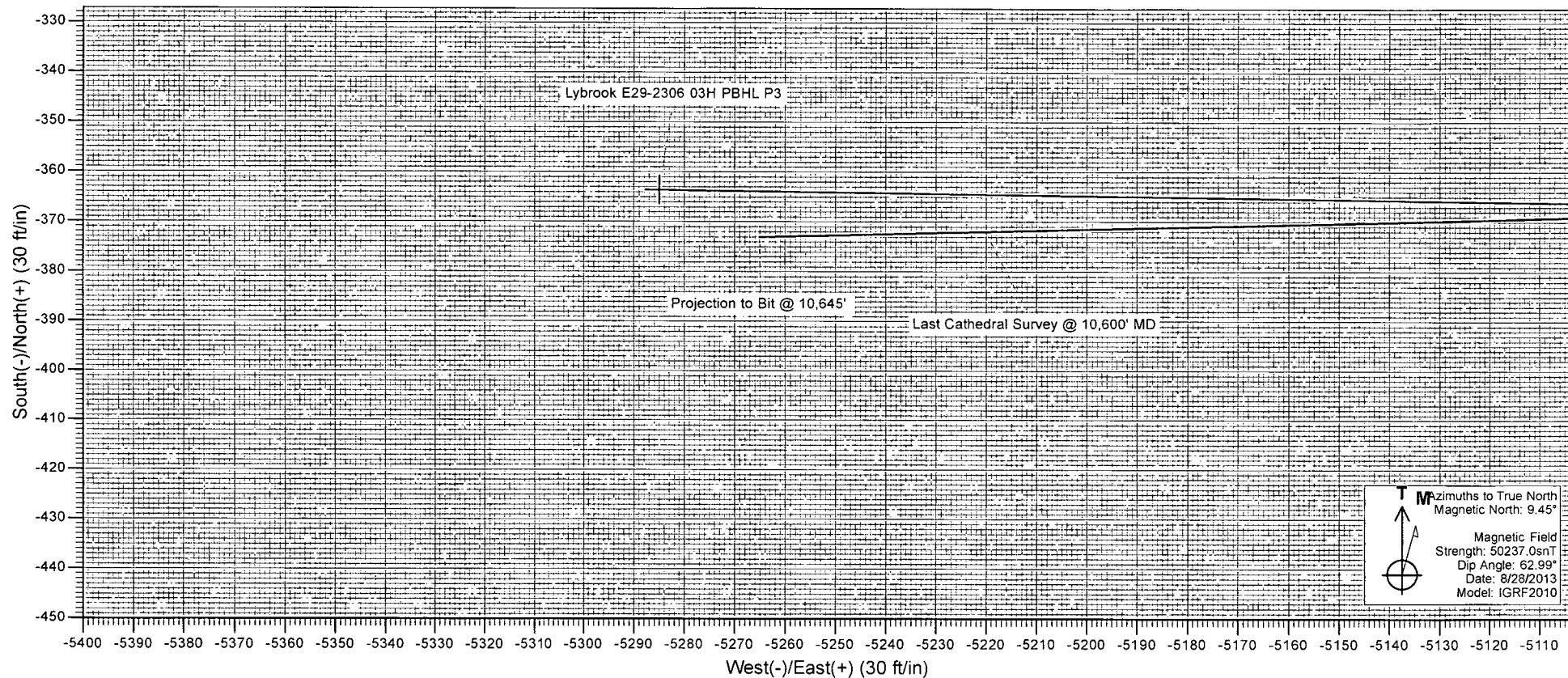
My Commission Expires: April 23, 2017



Type	Target	Az/mut	Origin	N/S	E/W	From
User	No Target (Freehand)	Type	Time	0.0	0.0	TVD
Lybrook E29-2306 Q34 PBHL P3	5715.1	+N-S	+E-W	36	18920	-107.51860
Lybrook E29-2306 Q34 POE P3	5647.5	-429.6	-655.1	36	18950	-107.52170



Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E29-2306 03H
Wellbore: Hz
Design: FINAL



Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E29-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook E29-2306 03H
TVD Reference: KBE @ 7096.0ft (Aztec 950)
MD Reference: KBE @ 7096.0ft (Aztec 950)
North Reference: True
Survey Calculation Method: Minimum Curvature
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 E29-2306 03H					
Well Position	+N/-S	0.0 ft	Northing:	1,894,526.04 ft	Latitude:	36.200230
	+E/-W	0.0 ft	Easting:	1,271,899.41 ft	Longitude:	-107.499050
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,080.0 ft	

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/28/2013	9.45	62.99	50,237

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	270.82	

Survey Program	Date	9/10/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
554.0	10,645.0	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	
554.0	0.60	237.50	554.0	-1.6	-2.4	2.4	0.11	0.11	
615.0	0.70	256.60	615.0	-1.8	-3.1	3.1	0.39	0.16	
676.0	0.70	255.80	676.0	-2.0	-3.8	3.8	0.02	0.00	
737.0	0.60	258.40	737.0	-2.1	-4.5	4.4	0.17	-0.16	
798.0	0.60	251.90	798.0	-2.3	-5.1	5.1	0.11	0.00	
859.0	0.60	85.10	859.0	-2.4	-5.1	5.0	1.95	0.00	
920.0	1.10	74.60	920.0	-2.2	-4.2	4.2	0.86	0.82	
982.0	0.90	76.00	982.0	-1.9	-3.1	3.1	0.32	-0.32	
1,043.0	0.90	74.60	1,042.9	-1.7	-2.2	2.2	0.04	0.00	
1,104.0	1.00	77.00	1,103.9	-1.4	-1.2	1.2	0.18	0.16	
1,166.0	1.00	63.40	1,165.9	-1.1	-0.2	0.2	0.38	0.00	
1,227.0	0.90	63.20	1,226.9	-0.6	0.7	-0.7	0.16	-0.16	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E29-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook E29-2306 03H
TVD Reference: KBE @ 7096.0ft (Aztec 950)
MD Reference: KBE @ 7096.0ft (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)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
1,288.0	0.60	48.20	1,287.9	-0.2	1.3	-1.3	0.58	-0.49	
1,349.0	0.40	51.80	1,348.9	0.2	1.7	-1.7	0.33	-0.33	
1,411.0	0.40	64.40	1,410.9	0.4	2.1	-2.1	0.14	0.00	
1,472.0	0.40	76.50	1,471.9	0.5	2.5	-2.5	0.14	0.00	
1,535.0	0.10	87.90	1,534.9	0.6	2.8	-2.8	0.48	-0.48	
1,598.0	0.30	36.90	1,597.9	0.7	2.9	-2.9	0.40	0.32	
1,660.0	0.40	51.80	1,659.9	1.0	3.2	-3.2	0.22	0.16	
1,723.0	0.20	50.40	1,722.9	1.2	3.5	-3.4	0.32	-0.32	
1,786.0	0.20	84.60	1,785.9	1.3	3.7	-3.6	0.19	0.00	
1,849.0	0.10	156.50	1,848.9	1.2	3.8	-3.8	0.31	-0.16	
1,913.0	0.04	313.30	1,912.9	1.2	3.8	-3.8	0.22	-0.09	
1,976.0	0.10	29.50	1,975.9	1.2	3.8	-3.8	0.16	0.10	
2,039.0	0.20	352.00	2,038.9	1.4	3.8	-3.8	0.21	0.16	
2,102.0	0.20	343.30	2,101.9	1.6	3.8	-3.7	0.05	0.00	
2,165.0	0.30	247.60	2,164.9	1.7	3.6	-3.6	0.60	0.16	
2,228.0	0.50	254.30	2,227.9	1.5	3.2	-3.1	0.33	0.32	
2,291.0	0.60	267.10	2,290.9	1.4	2.6	-2.5	0.25	0.16	
2,354.0	0.50	247.00	2,353.9	1.3	2.0	-2.0	0.34	-0.16	
2,417.0	0.60	232.10	2,416.9	1.0	1.5	-1.5	0.28	0.16	
2,480.0	0.40	233.80	2,479.9	0.7	1.0	-1.0	0.32	-0.32	
2,543.0	0.50	253.00	2,542.9	0.5	0.6	-0.6	0.29	0.16	
2,607.0	0.50	259.50	2,606.9	0.3	0.1	0.0	0.09	0.00	
2,670.0	0.40	248.50	2,669.9	0.2	-0.4	0.4	0.21	-0.16	
2,733.0	0.40	237.40	2,732.9	0.0	-0.8	0.8	0.12	0.00	
2,796.0	0.60	250.50	2,795.9	-0.2	-1.3	1.3	0.36	0.32	
2,860.0	0.50	254.40	2,859.9	-0.4	-1.9	1.9	0.17	-0.16	
2,922.0	0.60	266.10	2,921.9	-0.5	-2.5	2.5	0.24	0.16	
2,985.0	0.40	254.80	2,984.9	-0.6	-3.0	3.0	0.35	-0.32	
3,048.0	0.50	249.40	3,047.9	-0.8	-3.5	3.5	0.17	0.16	
3,111.0	0.60	241.70	3,110.9	-1.0	-4.0	4.0	0.20	0.16	
3,173.0	0.10	204.40	3,172.9	-1.2	-4.3	4.3	0.85	-0.81	
3,236.0	0.30	123.30	3,235.9	-1.3	-4.2	4.2	0.48	0.32	
3,299.0	0.50	177.80	3,298.9	-1.7	-4.1	4.1	0.65	0.32	
3,362.0	0.30	220.90	3,361.9	-2.1	-4.2	4.1	0.55	-0.32	
3,425.0	0.30	225.80	3,424.9	-2.4	-4.4	4.4	0.04	0.00	
3,487.0	0.20	184.40	3,486.9	-2.6	-4.5	4.5	0.32	-0.16	
3,550.0	0.60	167.50	3,549.9	-3.0	-4.5	4.4	0.66	0.63	
3,613.0	0.40	166.90	3,612.9	-3.5	-4.3	4.3	0.32	-0.32	
3,675.0	0.20	148.70	3,674.9	-3.8	-4.2	4.2	0.35	-0.32	
3,739.0	0.20	165.70	3,738.9	-4.0	-4.2	4.1	0.09	0.00	
3,801.0	0.40	153.30	3,800.9	-4.3	-4.0	4.0	0.34	0.32	
3,864.0	0.40	153.80	3,863.9	-4.7	-3.8	3.8	0.01	0.00	
3,926.0	0.80	12.70	3,925.9	-4.5	-3.6	3.6	1.84	0.65	
3,989.0	0.70	354.90	3,988.9	-3.7	-3.6	3.5	0.40	-0.16	
4,052.0	0.50	342.20	4,051.9	-3.1	-3.7	3.7	0.38	-0.32	
4,115.0	0.60	330.60	4,114.9	-2.5	-3.9	3.9	0.24	0.16	
4,178.0	0.40	298.80	4,177.9	-2.1	-4.3	4.3	0.53	-0.32	
4,241.0	0.70	314.60	4,240.8	-1.7	-4.8	4.7	0.53	0.48	
4,303.0	0.60	20.70	4,302.8	-1.2	-4.9	4.9	1.15	-0.16	
4,366.0	0.70	28.70	4,365.8	-0.5	-4.6	4.6	0.21	0.16	
4,429.0	0.80	24.20	4,428.8	0.2	-4.3	4.3	0.18	0.16	
4,491.0	0.70	11.70	4,490.8	1.0	-4.0	4.0	0.31	-0.16	
4,554.0	0.40	26.70	4,553.8	1.6	-3.8	3.8	0.52	-0.48	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E29-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook E29-2306 03H
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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
4,617.0	0.20	4.70	4,616.8	1.9	-3.7	3.7	0.36	-0.32	
4,680.0	0.30	295.90	4,679.8	2.0	-3.9	3.9	0.47	0.16	
4,743.0	0.04	279.50	4,742.8	2.1	-4.0	4.1	0.42	-0.41	
4,803.0	0.50	225.50	4,802.8	1.9	-4.2	4.3	0.80	0.77	
4,825.0	0.40	206.60	4,824.8	1.8	-4.3	4.4	0.81	-0.45	
4,856.0	1.30	221.40	4,855.8	1.4	-4.6	4.6	2.96	2.90	
4,887.0	5.50	224.30	4,886.8	0.1	-5.9	5.9	13.56	13.55	
4,919.0	10.20	226.90	4,918.5	-2.9	-9.0	9.0	14.73	14.69	
4,950.0	13.30	225.10	4,948.8	-7.3	-13.6	13.5	10.07	10.00	
4,982.0	14.70	225.00	4,979.8	-12.8	-19.0	18.9	4.38	4.37	
5,013.0	15.30	222.90	5,009.8	-18.6	-24.6	24.3	2.61	1.94	
5,045.0	17.80	216.80	5,040.5	-25.6	-30.4	30.0	9.50	7.81	
5,076.0	20.80	214.20	5,069.7	-33.9	-36.3	35.9	10.06	9.68	
5,107.0	23.00	215.40	5,098.5	-43.4	-42.9	42.3	7.24	7.10	
5,139.0	25.80	217.40	5,127.6	-54.0	-50.8	50.0	9.12	8.75	
5,170.0	28.70	219.20	5,155.2	-65.2	-59.6	58.7	9.72	9.35	
5,201.0	32.00	220.10	5,181.9	-77.2	-69.6	68.5	10.75	10.65	
5,232.0	34.30	218.70	5,207.9	-90.3	-80.4	79.1	7.82	7.42	
5,263.0	37.10	217.60	5,233.0	-104.5	-91.5	90.0	9.27	9.04	
5,295.0	40.60	217.00	5,258.0	-120.5	-103.7	101.9	11.00	10.94	
5,326.0	45.30	214.30	5,280.6	-137.7	-116.0	114.0	16.28	15.16	
5,357.0	49.10	212.70	5,301.7	-156.7	-128.5	126.3	12.83	12.26	
5,389.0	51.90	212.80	5,322.1	-177.4	-141.9	139.3	8.75	8.75	
5,420.0	53.30	216.10	5,340.9	-197.7	-155.8	153.0	9.59	4.52	
5,452.0	54.50	220.70	5,359.8	-218.0	-171.9	168.7	12.20	3.75	
5,484.0	56.20	223.60	5,377.9	-237.5	-189.5	186.1	9.15	5.31	
5,515.0	58.10	226.80	5,394.8	-255.8	-208.0	204.3	10.62	6.13	
5,547.0	59.90	229.60	5,411.2	-274.1	-228.5	224.5	9.37	5.62	
5,578.0	61.50	233.40	5,426.4	-290.9	-249.6	245.4	11.87	5.16	
5,610.0	62.50	235.80	5,441.4	-307.3	-272.6	268.2	7.32	3.12	
5,641.0	64.60	238.10	5,455.3	-322.4	-295.9	291.3	9.49	6.77	
5,672.0	66.90	241.20	5,468.0	-336.7	-320.3	315.4	11.75	7.42	
5,704.0	67.70	244.50	5,480.3	-350.1	-346.6	341.5	9.84	2.50	
5,735.0	69.10	246.80	5,491.8	-362.0	-372.8	367.6	8.24	4.52	
5,767.0	70.90	249.60	5,502.7	-373.2	-400.7	395.3	9.96	5.62	
5,799.0	73.20	252.60	5,512.6	-383.0	-429.5	424.0	11.45	7.19	
5,830.0	75.30	254.60	5,521.0	-391.5	-458.1	452.5	9.19	6.77	
5,862.0	76.50	256.90	5,528.8	-399.1	-488.2	482.5	7.92	3.75	
5,893.0	78.60	259.60	5,535.5	-405.2	-517.9	512.0	10.87	6.77	
5,923.0	80.80	262.50	5,540.8	-409.8	-547.0	541.1	12.01	7.33	
5,956.0	82.80	267.00	5,545.5	-412.8	-579.5	573.6	14.79	6.06	
5,987.0	84.70	267.60	5,548.9	-414.3	-610.3	604.3	6.42	6.13	
6,018.0	87.10	266.80	5,551.1	-415.8	-641.2	635.2	8.16	7.74	
6,050.0	89.60	266.60	5,552.0	-417.6	-673.1	667.1	7.84	7.81	
6,113.0	91.10	269.20	5,551.7	-419.9	-736.1	730.0	4.76	2.38	
6,176.0	90.80	269.30	5,550.6	-420.8	-799.1	792.9	0.50	-0.48	
6,239.0	91.20	269.30	5,549.5	-421.5	-862.0	855.9	0.63	0.63	
6,302.0	91.00	270.00	5,548.3	-421.9	-925.0	918.9	1.16	-0.32	
6,365.0	90.90	271.00	5,547.3	-421.4	-988.0	981.9	1.60	-0.16	
6,428.0	89.60	271.40	5,547.0	-420.0	-1,051.0	1,044.9	2.16	-2.06	
6,490.0	89.40	271.70	5,547.5	-418.4	-1,113.0	1,106.9	0.58	-0.32	
6,554.0	91.10	272.00	5,547.2	-416.3	-1,176.9	1,170.9	2.70	2.66	
6,617.0	90.50	271.50	5,546.4	-414.4	-1,239.9	1,233.8	1.24	-0.95	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E29-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook E29-2306 03H
TVD Reference: KBE @ 7096.0ft (Aztec 950)
MD Reference: KBE @ 7096.0ft (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)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
6,679.0	89.30	270.70	5,546.5	-413.2	-1,301.9	1,295.8	2.33	-1.94	
6,743.0	90.50	270.20	5,546.6	-412.7	-1,365.9	1,359.8	2.03	1.87	
6,805.0	89.40	269.60	5,546.6	-412.8	-1,427.9	1,421.8	2.02	-1.77	
6,868.0	90.40	269.40	5,546.8	-413.3	-1,490.9	1,484.8	1.62	1.59	
6,931.0	91.70	269.00	5,545.6	-414.2	-1,553.9	1,547.8	2.16	2.06	
6,993.0	91.90	270.10	5,543.7	-414.7	-1,615.8	1,609.7	1.80	0.32	
7,056.0	91.90	270.90	5,541.6	-414.2	-1,678.8	1,672.7	1.27	0.00	
7,119.0	90.00	270.40	5,540.5	-413.4	-1,741.8	1,735.7	3.12	-3.02	
7,182.0	89.10	270.00	5,541.0	-413.2	-1,804.8	1,798.7	1.56	-1.43	
7,245.0	90.50	269.30	5,541.2	-413.6	-1,867.7	1,861.7	2.48	2.22	
7,308.0	90.10	269.60	5,540.9	-414.2	-1,930.8	1,924.6	0.79	-0.63	
7,371.0	90.60	271.10	5,540.5	-413.8	-1,993.8	1,987.6	2.51	0.79	
7,434.0	90.10	271.90	5,540.1	-412.2	-2,056.7	2,050.6	1.50	-0.79	
7,497.0	89.50	272.20	5,540.4	-409.9	-2,119.7	2,113.6	1.06	-0.95	
7,560.0	88.70	271.80	5,541.3	-407.7	-2,182.6	2,176.6	1.42	-1.27	
7,624.0	89.70	271.10	5,542.2	-406.1	-2,246.6	2,240.6	1.91	1.56	
7,687.0	90.00	271.20	5,542.4	-404.8	-2,309.6	2,303.6	0.50	0.48	
7,749.0	90.40	270.90	5,542.2	-403.7	-2,371.6	2,365.6	0.81	0.65	
7,812.0	90.60	270.50	5,541.6	-402.9	-2,434.6	2,428.6	0.71	0.32	
7,875.0	90.60	270.70	5,541.0	-402.3	-2,497.6	2,491.6	0.32	0.00	
7,938.0	90.50	271.20	5,540.4	-401.2	-2,560.6	2,554.6	0.81	-0.16	
8,001.0	90.90	271.80	5,539.6	-399.6	-2,623.5	2,617.6	1.14	0.63	
8,064.0	90.00	272.10	5,539.1	-397.4	-2,686.5	2,680.5	1.51	-1.43	
8,127.0	89.30	270.80	5,539.5	-395.8	-2,749.5	2,743.5	2.34	-1.11	
8,190.0	90.30	270.90	5,539.7	-394.9	-2,812.5	2,806.5	1.60	1.59	
8,253.0	90.40	271.10	5,539.3	-393.8	-2,875.5	2,869.5	0.35	0.16	
8,316.0	89.90	270.20	5,539.2	-393.1	-2,938.5	2,932.5	1.63	-0.79	
8,379.0	90.20	270.10	5,539.1	-392.9	-3,001.5	2,995.5	0.50	0.48	
8,442.0	90.10	268.80	5,538.9	-393.5	-3,064.4	3,058.5	2.07	-0.16	
8,505.0	90.80	269.80	5,538.4	-394.3	-3,127.4	3,121.5	1.94	1.11	
8,568.0	91.10	269.80	5,537.4	-394.5	-3,190.4	3,184.5	0.48	0.48	
8,631.0	91.40	270.10	5,536.0	-394.6	-3,253.4	3,247.4	0.67	0.48	
8,694.0	91.00	270.70	5,534.7	-394.1	-3,316.4	3,310.4	1.14	-0.63	
8,757.0	91.00	271.50	5,533.6	-392.9	-3,379.4	3,373.4	1.27	0.00	
8,820.0	90.00	272.40	5,533.1	-390.8	-3,442.3	3,436.4	2.14	-1.59	
8,883.0	90.30	275.00	5,532.9	-386.7	-3,505.2	3,499.3	4.15	0.48	
8,946.0	89.40	274.60	5,533.1	-381.5	-3,568.0	3,562.2	1.56	-1.43	
9,009.0	90.10	274.80	5,533.3	-376.3	-3,630.8	3,625.0	1.16	1.11	
9,072.0	89.50	275.20	5,533.6	-370.8	-3,693.5	3,687.8	1.14	-0.95	
9,135.0	89.20	275.90	5,534.3	-364.7	-3,756.2	3,750.6	1.21	-0.48	
9,198.0	88.30	273.60	5,535.6	-359.5	-3,819.0	3,813.5	3.92	-1.43	
9,261.0	87.50	269.90	5,538.0	-357.6	-3,881.9	3,876.4	6.00	-1.27	
9,324.0	88.30	267.90	5,540.3	-358.8	-3,944.9	3,939.3	3.42	1.27	
9,387.0	90.20	266.40	5,541.1	-361.9	-4,007.8	4,002.2	3.84	3.02	
9,451.0	92.10	266.20	5,539.8	-366.0	-4,071.6	4,066.0	2.99	2.97	
9,513.0	91.50	268.00	5,537.9	-369.2	-4,133.5	4,127.8	3.06	-0.97	
9,576.0	91.00	269.60	5,536.5	-370.5	-4,196.5	4,190.7	2.66	-0.79	
9,640.0	89.90	270.10	5,536.0	-370.7	-4,260.5	4,254.7	1.89	-1.72	
9,702.0	90.90	270.10	5,535.5	-370.6	-4,322.5	4,316.7	1.61	1.61	
9,766.0	90.20	271.20	5,534.9	-369.8	-4,386.5	4,380.7	2.04	-1.09	
9,829.0	89.50	270.90	5,535.1	-368.7	-4,449.4	4,443.7	1.21	-1.11	
9,892.0	90.00	270.40	5,535.4	-368.0	-4,512.4	4,506.7	1.12	0.79	
9,955.0	89.20	269.10	5,535.8	-368.2	-4,575.4	4,569.7	2.42	-1.27	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E29-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook E29-2306 03H
TVD Reference: KBE @ 7096.0ft (Aztec 950)
MD Reference: KBE @ 7096.0ft (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)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
10,018.0	89.90	269.30	5,536.3	-369.1	-4,638.4	4,632.7	1.16	1.11	
10,081.0	90.50	270.10	5,536.1	-369.4	-4,701.4	4,695.7	1.59	0.95	
10,144.0	90.70	271.50	5,535.4	-368.6	-4,764.4	4,758.7	2.24	0.32	
10,207.0	89.90	272.00	5,535.1	-366.6	-4,827.4	4,821.6	1.50	-1.27	
10,270.0	90.30	270.00	5,535.0	-365.5	-4,890.4	4,884.6	3.24	0.63	
10,332.0	90.60	269.70	5,534.5	-365.7	-4,952.4	4,946.6	0.68	0.48	
10,395.0	90.90	268.70	5,533.7	-366.6	-5,015.4	5,009.6	1.66	0.48	
10,458.0	91.50	268.10	5,532.4	-368.3	-5,078.3	5,072.5	1.35	0.95	
10,521.0	91.30	268.70	5,530.8	-370.1	-5,141.3	5,135.4	1.00	-0.32	
10,600.0	92.10	268.60	5,528.5	-372.0	-5,220.2	5,214.4	1.02	1.01	Last Cathedral Survey @ 10,600' MD
10,645.0	92.10	268.60	5,526.8	-373.1	-5,265.2	5,259.3	0.00	0.00	Projection to Bit @ 10,645'

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 E29-2306 03H I - actual wellpath misses target center by 13.7ft at 6032.6ft MD (5551.7 TVD, -416.6 N, -655.7 E) - Point	0.00	0.00	5,547.5	-429.6	-655.1	1,894,104.91	1,271,238.85	36.199050	-107.501270
Lybrook E29-2306 03H I - actual wellpath misses target center by 24.8ft at 10645.0ft MD (5526.8 TVD, -373.1 N, -5265.2 E) - Point	0.00	0.00	5,515.1	-363.6	-5,285.0	1,894,230.53	1,266,610.21	36.199230	-107.516960

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
10,600.0	5,528.5	-372.0	-5,220.2	Last Cathedral Survey @ 10,600' MD
10,645.0	5,526.8	-373.1	-5,265.2	Projection to Bit @ 10,645'

Checked By: _____ Approved By: _____ Date: _____

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

Lybrook

Lybrook E29-2306 03H

Hz

Design: FINAL

Survey Report - Geographic

11 September, 2013

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E29-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook E29-2306 03H
TVD Reference: KBE @ 7096.0ft (Aztec 950)
MD Reference: KBE @ 7096.0ft (Aztec 950)
North Reference: True
Survey Calculation Method: Minimum Curvature
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 E29-2306 03H					
Well Position	+N/-S	0.0 ft	Northing:	1,894,526.04 ft	Latitude:	36.200230
	+E/-W	0.0 ft	Easting:	1,271,899.41 ft	Longitude:	-107.499050
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,080.0 ft	

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/28/2013	9.45	62.99	50,237

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	270.82	

Survey Program	Date 9/10/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
554.0	10,645.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	1,894,526.04	1,271,899.41	36.200230	-107.499050
554.0	0.60	237.50	554.0	-1.6	-2.4	1,894,524.51	1,271,896.94	36.200226	-107.499059
615.0	0.70	256.60	615.0	-1.8	-3.1	1,894,524.26	1,271,896.31	36.200225	-107.499061
676.0	0.70	255.80	676.0	-2.0	-3.8	1,894,524.10	1,271,895.58	36.200225	-107.499063
737.0	0.60	258.40	737.0	-2.1	-4.5	1,894,523.95	1,271,894.90	36.200224	-107.499065
798.0	0.60	251.90	798.0	-2.3	-5.1	1,894,523.79	1,271,894.29	36.200224	-107.499068
859.0	0.60	85.10	859.0	-2.4	-5.1	1,894,523.72	1,271,894.30	36.200224	-107.499067
920.0	1.10	74.60	920.0	-2.2	-4.2	1,894,523.89	1,271,895.18	36.200224	-107.499064
982.0	0.90	76.00	982.0	-1.9	-3.1	1,894,524.15	1,271,896.23	36.200225	-107.499061
1,043.0	0.90	74.60	1,042.9	-1.7	-2.2	1,894,524.39	1,271,897.16	36.200225	-107.499058
1,104.0	1.00	77.00	1,103.9	-1.4	-1.2	1,894,524.62	1,271,898.15	36.200226	-107.499054
1,166.0	1.00	63.40	1,165.9	-1.1	-0.2	1,894,524.97	1,271,899.16	36.200227	-107.499051

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E29-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook E29-2306 03H
TVD Reference: KBE @ 7096.0ft (Aztec 950)
MD Reference: KBE @ 7096.0ft (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
1,227.0	0.90	63.20	1,226.9	-0.6	0.7	1,894,525.41	1,271,900.07	36.200228	-107.499048
1,288.0	0.60	48.20	1,287.9	-0.2	1.3	1,894,525.83	1,271,900.74	36.200230	-107.499046
1,349.0	0.40	51.80	1,348.9	0.2	1.7	1,894,526.17	1,271,901.15	36.200231	-107.499044
1,411.0	0.40	64.40	1,410.9	0.4	2.1	1,894,526.40	1,271,901.52	36.200231	-107.499043
1,472.0	0.40	76.50	1,471.9	0.5	2.5	1,894,526.53	1,271,901.92	36.200232	-107.499042
1,535.0	0.10	87.90	1,534.9	0.6	2.8	1,894,526.58	1,271,902.19	36.200232	-107.499041
1,598.0	0.30	36.90	1,597.9	0.7	2.9	1,894,526.71	1,271,902.35	36.200232	-107.499040
1,660.0	0.40	51.80	1,659.9	1.0	3.2	1,894,526.97	1,271,902.62	36.200233	-107.499039
1,723.0	0.20	50.40	1,722.9	1.2	3.5	1,894,527.18	1,271,902.88	36.200233	-107.499039
1,786.0	0.20	84.60	1,785.9	1.3	3.7	1,894,527.26	1,271,903.07	36.200234	-107.499038
1,849.0	0.10	156.50	1,848.9	1.2	3.8	1,894,527.21	1,271,903.20	36.200233	-107.499037
1,913.0	0.04	313.30	1,912.9	1.2	3.8	1,894,527.18	1,271,903.21	36.200233	-107.499037
1,976.0	0.10	29.50	1,975.9	1.2	3.8	1,894,527.24	1,271,903.22	36.200234	-107.499037
2,039.0	0.20	352.00	2,038.9	1.4	3.8	1,894,527.40	1,271,903.24	36.200234	-107.499037
2,102.0	0.20	343.30	2,101.9	1.6	3.8	1,894,527.61	1,271,903.19	36.200235	-107.499038
2,165.0	0.30	247.60	2,164.9	1.7	3.6	1,894,527.66	1,271,903.01	36.200235	-107.499038
2,228.0	0.50	254.30	2,227.9	1.5	3.2	1,894,527.52	1,271,902.59	36.200234	-107.499040
2,291.0	0.60	267.10	2,290.9	1.4	2.6	1,894,527.44	1,271,901.99	36.200234	-107.499042
2,354.0	0.50	247.00	2,353.9	1.3	2.0	1,894,527.32	1,271,901.41	36.200234	-107.499044
2,417.0	0.60	232.10	2,416.9	1.0	1.5	1,894,527.02	1,271,900.89	36.200233	-107.499045
2,480.0	0.40	233.80	2,479.9	0.7	1.0	1,894,526.69	1,271,900.45	36.200232	-107.499047
2,543.0	0.50	253.00	2,542.9	0.5	0.6	1,894,526.49	1,271,900.01	36.200231	-107.499048
2,607.0	0.50	259.50	2,606.9	0.3	0.1	1,894,526.36	1,271,899.46	36.200231	-107.499050
2,670.0	0.40	248.50	2,669.9	0.2	-0.4	1,894,526.24	1,271,898.99	36.200231	-107.499052
2,733.0	0.40	237.40	2,732.9	0.0	-0.8	1,894,526.05	1,271,898.60	36.200230	-107.499053
2,796.0	0.60	250.50	2,795.9	-0.2	-1.3	1,894,525.82	1,271,898.10	36.200229	-107.499055
2,860.0	0.50	254.40	2,859.9	-0.4	-1.9	1,894,525.64	1,271,897.51	36.200229	-107.499057
2,922.0	0.60	266.10	2,921.9	-0.5	-2.5	1,894,525.56	1,271,896.92	36.200229	-107.499059
2,985.0	0.40	254.80	2,984.9	-0.6	-3.0	1,894,525.48	1,271,896.38	36.200228	-107.499061
3,048.0	0.50	249.40	3,047.9	-0.8	-3.5	1,894,525.34	1,271,895.91	36.200228	-107.499062
3,111.0	0.60	241.70	3,110.9	-1.0	-4.0	1,894,525.09	1,271,895.36	36.200227	-107.499064
3,173.0	0.10	204.40	3,172.9	-1.2	-4.3	1,894,524.89	1,271,895.05	36.200227	-107.499065
3,236.0	0.30	123.30	3,235.9	-1.3	-4.2	1,894,524.75	1,271,895.16	36.200226	-107.499065
3,299.0	0.50	177.80	3,298.9	-1.7	-4.1	1,894,524.38	1,271,895.31	36.200225	-107.499064
3,362.0	0.30	220.90	3,361.9	-2.1	-4.2	1,894,523.98	1,271,895.20	36.200224	-107.499064
3,425.0	0.30	225.80	3,424.9	-2.4	-4.4	1,894,523.75	1,271,894.97	36.200224	-107.499065
3,487.0	0.20	184.40	3,486.9	-2.6	-4.5	1,894,523.53	1,271,894.85	36.200223	-107.499066
3,550.0	0.60	167.50	3,549.9	-3.0	-4.5	1,894,523.09	1,271,894.90	36.200222	-107.499065
3,613.0	0.40	166.90	3,612.9	-3.5	-4.3	1,894,522.56	1,271,895.02	36.200220	-107.499065
3,675.0	0.20	148.70	3,674.9	-3.8	-4.2	1,894,522.25	1,271,895.12	36.200220	-107.499065
3,739.0	0.20	165.70	3,738.9	-4.0	-4.2	1,894,522.05	1,271,895.20	36.200219	-107.499064
3,801.0	0.40	153.30	3,800.9	-4.3	-4.0	1,894,521.75	1,271,895.32	36.200218	-107.499064
3,864.0	0.40	153.80	3,863.9	-4.7	-3.8	1,894,521.35	1,271,895.51	36.200217	-107.499063
3,926.0	0.80	12.70	3,925.9	-4.5	-3.6	1,894,521.58	1,271,895.71	36.200218	-107.499063
3,989.0	0.70	354.90	3,988.9	-3.7	-3.6	1,894,522.39	1,271,895.78	36.200220	-107.499062
4,052.0	0.50	342.20	4,051.9	-3.1	-3.7	1,894,523.03	1,271,895.67	36.200222	-107.499063
4,115.0	0.60	330.60	4,114.9	-2.5	-3.9	1,894,523.59	1,271,895.43	36.200223	-107.499064
4,178.0	0.40	298.80	4,177.9	-2.1	-4.3	1,894,523.98	1,271,895.08	36.200224	-107.499065
4,241.0	0.70	314.60	4,240.8	-1.7	-4.8	1,894,524.37	1,271,894.62	36.200225	-107.499066
4,303.0	0.60	20.70	4,302.8	-1.2	-4.9	1,894,524.94	1,271,894.47	36.200227	-107.499067
4,366.0	0.70	28.70	4,365.8	-0.5	-4.6	1,894,525.58	1,271,894.78	36.200229	-107.499066
4,429.0	0.80	24.20	4,428.8	0.2	-4.3	1,894,526.31	1,271,895.16	36.200231	-107.499065
4,491.0	0.70	11.70	4,490.8	1.0	-4.0	1,894,527.08	1,271,895.42	36.200233	-107.499064
4,554.0	0.40	26.70	4,553.8	1.6	-3.8	1,894,527.65	1,271,895.60	36.200234	-107.499063
4,617.0	0.20	4.70	4,616.8	1.9	-3.7	1,894,527.95	1,271,895.72	36.200235	-107.499063

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E29-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook E29-2306 03H
TVD Reference: KBE @ 7096.0ft (Aztec 950)
MD Reference: KBE @ 7096.0ft (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
4,680.0	0.30	295.90	4,679.8	2.0	-3.9	1,894,528.14	1,271,895.58	36.200236	-107.499063
4,743.0	0.04	279.50	4,742.8	2.1	-4.0	1,894,528.21	1,271,895.41	36.200236	-107.499064
4,803.0	0.50	225.50	4,802.8	1.9	-4.2	1,894,528.04	1,271,895.20	36.200235	-107.499065
4,825.0	0.40	206.60	4,824.8	1.8	-4.3	1,894,527.90	1,271,895.10	36.200235	-107.499065
4,856.0	1.30	221.40	4,855.8	1.4	-4.6	1,894,527.55	1,271,894.81	36.200234	-107.499066
4,887.0	5.50	224.30	4,886.8	0.1	-5.9	1,894,526.23	1,271,893.52	36.200230	-107.499070
4,919.0	10.20	226.90	4,918.5	-2.9	-9.0	1,894,523.24	1,271,890.34	36.200222	-107.499081
4,950.0	13.30	225.10	4,948.8	-7.3	-13.6	1,894,518.90	1,271,885.75	36.200210	-107.499096
4,982.0	14.70	225.00	4,979.8	-12.8	-19.0	1,894,513.51	1,271,880.21	36.200195	-107.499115
5,013.0	15.30	222.90	5,009.8	-18.6	-24.6	1,894,507.80	1,271,874.57	36.200179	-107.499134
5,045.0	17.80	216.80	5,040.5	-25.6	-30.4	1,894,500.87	1,271,868.67	36.200160	-107.499153
5,076.0	20.80	214.20	5,069.7	-33.9	-36.3	1,894,492.59	1,271,862.63	36.200137	-107.499173
5,107.0	23.00	215.40	5,098.5	-43.4	-42.9	1,894,483.19	1,271,855.91	36.200111	-107.499196
5,139.0	25.80	217.40	5,127.6	-54.0	-50.8	1,894,472.66	1,271,847.92	36.200082	-107.499222
5,170.0	28.70	219.20	5,155.2	-65.2	-59.6	1,894,461.65	1,271,838.97	36.200051	-107.499252
5,201.0	32.00	220.10	5,181.9	-77.2	-69.6	1,894,449.72	1,271,828.82	36.200018	-107.499286
5,232.0	34.30	218.70	5,207.9	-90.3	-80.4	1,894,436.76	1,271,817.90	36.199982	-107.499323
5,263.0	37.10	217.60	5,233.0	-104.5	-91.5	1,894,422.68	1,271,806.55	36.199943	-107.499360
5,295.0	40.60	217.00	5,258.0	-120.5	-103.7	1,894,406.87	1,271,794.19	36.199899	-107.499402
5,326.0	45.30	214.30	5,280.6	-137.7	-116.0	1,894,389.86	1,271,781.68	36.199852	-107.499443
5,357.0	49.10	212.70	5,301.7	-156.7	-128.5	1,894,371.06	1,271,768.89	36.199800	-107.499486
5,389.0	51.90	212.80	5,322.1	-177.4	-141.9	1,894,350.47	1,271,755.27	36.199743	-107.499531
5,420.0	53.30	216.10	5,340.9	-197.7	-155.8	1,894,330.35	1,271,741.08	36.199687	-107.499578
5,452.0	54.50	220.70	5,359.8	-218.0	-171.9	1,894,310.31	1,271,724.76	36.199631	-107.499633
5,484.0	56.20	223.60	5,377.9	-237.5	-189.5	1,894,291.03	1,271,706.84	36.199578	-107.499693
5,515.0	58.10	226.80	5,394.8	-255.8	-208.0	1,894,272.93	1,271,688.13	36.199527	-107.499755
5,547.0	59.90	229.60	5,411.2	-274.1	-228.5	1,894,254.92	1,271,667.45	36.199477	-107.499824
5,578.0	61.50	233.40	5,426.4	-290.9	-249.6	1,894,238.38	1,271,646.08	36.199431	-107.499896
5,610.0	62.50	235.80	5,441.4	-307.3	-272.6	1,894,222.31	1,271,622.84	36.199386	-107.499974
5,641.0	64.60	238.10	5,455.3	-322.4	-295.9	1,894,207.48	1,271,599.38	36.199345	-107.500053
5,672.0	66.90	241.20	5,468.0	-336.7	-320.3	1,894,193.52	1,271,574.81	36.199305	-107.500136
5,704.0	67.70	244.50	5,480.3	-350.1	-346.6	1,894,180.40	1,271,548.37	36.199268	-107.500225
5,735.0	69.10	246.80	5,491.8	-362.0	-372.8	1,894,168.86	1,271,521.97	36.199236	-107.500314
5,767.0	70.90	249.60	5,502.7	-373.2	-400.7	1,894,158.05	1,271,493.91	36.199205	-107.500408
5,799.0	73.20	252.60	5,512.6	-383.0	-429.5	1,894,148.57	1,271,464.99	36.199178	-107.500506
5,830.0	75.30	254.60	5,521.0	-391.5	-458.1	1,894,140.52	1,271,436.26	36.199155	-107.500603
5,862.0	76.50	256.90	5,528.8	-399.1	-488.2	1,894,133.27	1,271,406.09	36.199134	-107.500705
5,893.0	78.60	259.60	5,535.5	-405.2	-517.9	1,894,127.49	1,271,376.38	36.199117	-107.500805
5,923.0	80.80	262.50	5,540.8	-409.8	-547.0	1,894,123.28	1,271,347.17	36.199104	-107.500904
5,956.0	82.80	267.00	5,545.5	-412.8	-579.5	1,894,120.71	1,271,314.62	36.199096	-107.501014
5,987.0	84.70	267.60	5,548.9	-414.3	-610.3	1,894,119.66	1,271,283.82	36.199092	-107.501119
6,018.0	87.10	266.80	5,551.1	-415.8	-641.2	1,894,118.55	1,271,252.92	36.199088	-107.501223
6,050.0	89.60	266.60	5,552.0	-417.6	-673.1	1,894,117.12	1,271,220.97	36.199083	-107.501331
6,113.0	91.10	269.20	5,551.7	-419.9	-736.1	1,894,115.62	1,271,158.00	36.199077	-107.501545
6,176.0	90.80	269.30	5,550.6	-420.8	-799.1	1,894,115.61	1,271,095.00	36.199074	-107.501758
6,239.0	91.20	269.30	5,549.5	-421.5	-862.0	1,894,115.65	1,271,032.01	36.199072	-107.501972
6,302.0	91.00	270.00	5,548.3	-421.9	-925.0	1,894,116.07	1,270,969.03	36.199071	-107.502185
6,365.0	90.90	271.00	5,547.3	-421.4	-988.0	1,894,117.43	1,270,906.05	36.199073	-107.502399
6,428.0	89.60	271.40	5,547.0	-420.0	-1,051.0	1,894,119.57	1,270,843.09	36.199076	-107.502612
6,490.0	89.40	271.70	5,547.5	-418.4	-1,113.0	1,894,122.04	1,270,781.14	36.199081	-107.502822
6,554.0	91.10	272.00	5,547.2	-416.3	-1,176.9	1,894,124.93	1,270,717.21	36.199087	-107.503039
6,617.0	90.50	271.50	5,546.4	-414.4	-1,239.9	1,894,127.66	1,270,654.28	36.199092	-107.503252
6,679.0	89.30	270.70	5,546.5	-413.2	-1,301.9	1,894,129.65	1,270,592.31	36.199095	-107.503462
6,743.0	90.50	270.20	5,546.6	-412.7	-1,365.9	1,894,130.98	1,270,528.33	36.199096	-107.503679
6,805.0	89.40	269.60	5,546.6	-412.8	-1,427.9	1,894,131.67	1,270,466.33	36.199096	-107.503889

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E29-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook E29-2306 03H
TVD Reference: KBE @ 7096.0ft (Aztec 950)
MD Reference: KBE @ 7096.0ft (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
6,868.0	90.40	269.40	5,546.8	-413.3	-1,490.9	1,894,131.93	1,270,403.33	36.199095	-107.504103
6,931.0	91.70	269.00	5,545.6	-414.2	-1,553.9	1,894,131.86	1,270,340.34	36.199092	-107.504316
6,993.0	91.90	270.10	5,543.7	-414.7	-1,615.8	1,894,132.17	1,270,278.38	36.199091	-107.504526
7,056.0	91.90	270.90	5,541.6	-414.2	-1,678.8	1,894,133.53	1,270,215.43	36.199092	-107.504739
7,119.0	90.00	270.40	5,540.5	-413.4	-1,741.8	1,894,135.06	1,270,152.46	36.199094	-107.504953
7,182.0	89.10	270.00	5,541.0	-413.2	-1,804.8	1,894,136.09	1,270,089.47	36.199095	-107.505166
7,245.0	90.50	269.30	5,541.2	-413.6	-1,867.8	1,894,136.52	1,270,026.47	36.199094	-107.505380
7,308.0	90.10	269.60	5,540.9	-414.2	-1,930.8	1,894,136.72	1,269,963.47	36.199092	-107.505593
7,371.0	90.60	271.10	5,540.5	-413.8	-1,993.8	1,894,137.92	1,269,900.49	36.199093	-107.505807
7,434.0	90.10	271.90	5,540.1	-412.2	-2,056.7	1,894,140.38	1,269,837.54	36.199098	-107.506020
7,497.0	89.50	272.20	5,540.4	-409.9	-2,119.7	1,894,143.44	1,269,774.61	36.199104	-107.506234
7,560.0	88.70	271.80	5,541.3	-407.7	-2,182.6	1,894,146.45	1,269,711.69	36.199110	-107.506447
7,624.0	89.70	271.10	5,542.2	-406.1	-2,246.6	1,894,148.90	1,269,647.75	36.199114	-107.506664
7,687.0	90.00	271.20	5,542.4	-404.8	-2,309.6	1,894,150.97	1,269,584.78	36.199118	-107.506877
7,749.0	90.40	270.90	5,542.2	-403.7	-2,371.6	1,894,152.90	1,269,522.81	36.199121	-107.507087
7,812.0	90.60	270.50	5,541.6	-402.9	-2,434.6	1,894,154.49	1,269,459.83	36.199123	-107.507301
7,875.0	90.60	270.70	5,541.0	-402.3	-2,497.6	1,894,155.96	1,269,396.86	36.199125	-107.507514
7,938.0	90.50	271.20	5,540.4	-401.2	-2,560.6	1,894,157.81	1,269,333.89	36.199128	-107.507728
8,001.0	90.90	271.80	5,539.6	-399.6	-2,623.5	1,894,160.27	1,269,270.94	36.199132	-107.507941
8,064.0	90.00	272.10	5,539.1	-397.4	-2,686.5	1,894,163.23	1,269,208.01	36.199138	-107.508154
8,127.0	89.30	270.80	5,539.5	-395.8	-2,749.5	1,894,165.63	1,269,145.06	36.199142	-107.508368
8,190.0	90.30	270.90	5,539.7	-394.9	-2,812.5	1,894,167.38	1,269,082.09	36.199145	-107.508581
8,253.0	90.40	271.10	5,539.3	-393.8	-2,875.5	1,894,169.29	1,269,019.12	36.199148	-107.508795
8,316.0	89.90	270.20	5,539.2	-393.1	-2,938.5	1,894,170.81	1,268,956.13	36.199150	-107.509008
8,379.0	90.20	270.10	5,539.1	-392.9	-3,001.5	1,894,171.79	1,268,893.14	36.199150	-107.509222
8,442.0	90.10	268.80	5,538.9	-393.5	-3,064.4	1,894,172.00	1,268,830.14	36.199149	-107.509435
8,505.0	90.80	269.80	5,538.4	-394.3	-3,127.4	1,894,172.04	1,268,767.15	36.199147	-107.509649
8,568.0	91.10	269.80	5,537.4	-394.5	-3,190.4	1,894,172.63	1,268,704.16	36.199146	-107.509862
8,631.0	91.40	270.10	5,536.0	-394.6	-3,253.4	1,894,173.38	1,268,641.18	36.199146	-107.510076
8,694.0	91.00	270.70	5,534.7	-394.1	-3,316.4	1,894,174.64	1,268,578.21	36.199147	-107.510289
8,757.0	91.00	271.50	5,533.6	-392.9	-3,379.4	1,894,176.66	1,268,515.25	36.199150	-107.510503
8,820.0	90.00	272.40	5,533.1	-390.8	-3,442.3	1,894,179.61	1,268,452.32	36.199156	-107.510716
8,883.0	90.30	275.00	5,532.9	-386.7	-3,505.2	1,894,184.48	1,268,389.52	36.199167	-107.510929
8,946.0	89.40	274.60	5,533.1	-381.5	-3,568.0	1,894,190.56	1,268,326.81	36.199182	-107.511142
9,009.0	90.10	274.80	5,533.3	-376.3	-3,630.8	1,894,196.53	1,268,264.10	36.199196	-107.511354
9,072.0	89.50	275.20	5,533.6	-370.8	-3,693.5	1,894,202.83	1,268,201.41	36.199211	-107.511567
9,135.0	89.20	275.90	5,534.3	-364.7	-3,756.2	1,894,209.73	1,268,138.80	36.199228	-107.511780
9,198.0	88.30	273.60	5,535.6	-359.5	-3,819.0	1,894,215.75	1,268,076.10	36.199242	-107.511992
9,261.0	87.50	269.90	5,538.0	-357.6	-3,881.9	1,894,218.49	1,268,013.22	36.199247	-107.512206
9,324.0	88.30	267.90	5,540.3	-358.8	-3,944.9	1,894,218.09	1,267,950.26	36.199244	-107.512419
9,387.0	90.20	266.40	5,541.1	-361.9	-4,007.8	1,894,215.77	1,267,887.32	36.199235	-107.512632
9,451.0	92.10	266.20	5,539.8	-366.0	-4,071.6	1,894,212.46	1,267,823.42	36.199224	-107.512848
9,513.0	91.50	268.00	5,537.9	-369.2	-4,133.5	1,894,210.12	1,267,761.50	36.199215	-107.513058
9,576.0	91.00	269.60	5,536.5	-370.5	-4,196.5	1,894,209.62	1,267,698.52	36.199212	-107.513272
9,640.0	89.90	270.10	5,536.0	-370.7	-4,260.5	1,894,210.27	1,267,634.52	36.199211	-107.513488
9,702.0	90.90	270.10	5,535.5	-370.6	-4,322.5	1,894,211.18	1,267,572.53	36.199211	-107.513699
9,766.0	90.20	271.20	5,534.9	-369.8	-4,386.5	1,894,212.73	1,267,508.55	36.199213	-107.513915
9,829.0	89.50	270.90	5,535.1	-368.7	-4,449.4	1,894,214.69	1,267,445.59	36.199217	-107.514129
9,892.0	90.00	270.40	5,535.4	-368.0	-4,512.4	1,894,216.22	1,267,382.60	36.199218	-107.514342
9,955.0	89.20	269.10	5,535.8	-368.2	-4,575.4	1,894,216.76	1,267,319.61	36.199218	-107.514556
10,018.0	89.90	269.30	5,536.3	-369.1	-4,638.4	1,894,216.69	1,267,256.61	36.199215	-107.514769
10,081.0	90.50	270.10	5,536.1	-369.4	-4,701.4	1,894,217.17	1,267,193.62	36.199214	-107.514983
10,144.0	90.70	271.50	5,535.4	-368.6	-4,764.4	1,894,218.86	1,267,130.64	36.199217	-107.515196
10,207.0	89.90	272.00	5,535.1	-366.6	-4,827.4	1,894,221.59	1,267,067.70	36.199222	-107.515410
10,270.0	90.30	270.00	5,535.0	-365.5	-4,890.4	1,894,223.50	1,267,004.74	36.199225	-107.515623

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook E29-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook E29-2306 03H
TVD Reference: KBE @ 7096.0ft (Aztec 950)
MD Reference: KBE @ 7096.0ft (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
10,332.0	90.60	269.70	5,534.5	-365.7	-4,952.4	1,894,224.14	1,266,942.74	36.199224	-107.515833
10,395.0	90.90	268.70	5,533.7	-366.6	-5,015.4	1,894,224.07	1,266,879.75	36.199222	-107.516047
10,458.0	91.50	268.10	5,532.4	-368.3	-5,078.3	1,894,223.13	1,266,816.77	36.199217	-107.516260
10,521.0	91.30	268.70	5,530.8	-370.1	-5,141.3	1,894,222.18	1,266,753.80	36.199212	-107.516473
10,600.0	92.10	268.60	5,528.5	-372.0	-5,220.2	1,894,221.33	1,266,674.84	36.199207	-107.516741
Last Cathedral Survey @ 10,600' MD									
10,645.0	92.10	268.60	5,526.8	-373.1	-5,265.2	1,894,220.81	1,266,629.87	36.199204	-107.516893
Projection to Bit @ 10,645'									

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 E29-2306 03H I	0.00	0.00	5,515.1	-363.6	-5,285.0	1,894,230.54	1,266,610.21	36.199230	-107.516960
- actual wellpath misses target center by 24.8ft at 10645.0ft MD (5526.8 TVD, -373.1 N, -5265.2 E)									
- Point									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,600.0	5,528.5	-372.0	-5,220.2	Last Cathedral Survey @ 10,600' MD
10,645.0	5,526.8	-373.1	-5,265.2	Projection to Bit @ 10,645'

Checked By: _____ Approved By: _____ Date: _____