

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

'API Number 30-043-21194	'Pool Code 42289	'Pool Name LYBROOK GALLUP
'Property Code 40416	'Property Name LYBROOK M28-2306	'Well Number 03H
'OGRID No. 282327	'Operator Name ENCANA OIL & GAS (USA) INC.	'Elevation 7220'

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	28	23N	6W		349	SOUTH	1295	WEST	SANDOVAL

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot 1th	Feet from the	North/South line	Feet from the	East/West line	County
M	33	23N	6W		350	SOUTH	2040	WEST	SANDOVAL

¹² Dedicated Acres 160.00 Acres
E/2 W/2 - Section 33

¹³ Joint or Infill¹⁴ Consolidation Code

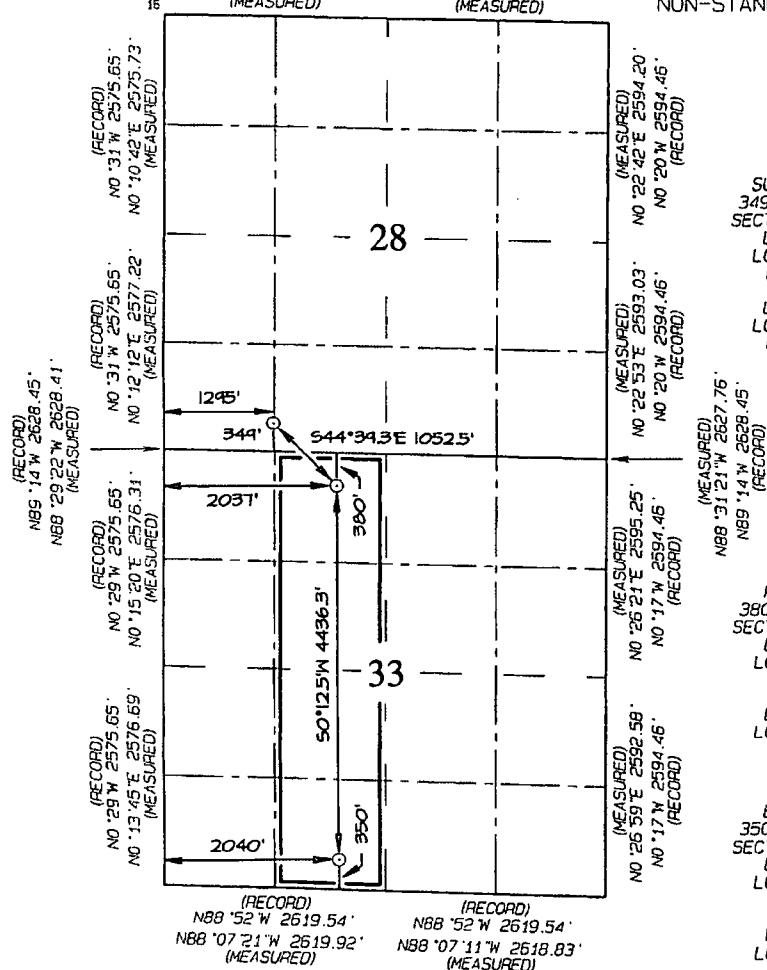
5	Order No.
---	-----------

RCVD SEP 25 '14
OIL CONS. DIV.

15

(RECORD)	(RECORD)
N89°36'W 2636.04'	N89°36'W 2636.04'
N88°52'16"W 2636.60'	N88°53'37"W 2636.01'
(MEASURED)	(MEASURED)

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



SURFACE LOCATION
349' FSL 1295' FWL
SECTION 28, T23N, R6W
LAT: 36.19022 'N
LONG: 107.47725 'W
DATUM: NAD1927

LAT: 36.19023 'N
LONG: 107.47786 'W
DATUM: NAD1983

POINT-OF-ENTRY
380' FNL 2037' FWL
SECTION 33, T23N, R6W
LAT: 35.18818°N
LONG: 107.47471°W
DATUM: NAD1927

LAT: 36.18820°N
LONG: 107.47532°W
DATUM: NAD1983

END-OF-LATERAL
350' FSL 2040' FWL
SECTION 33, T23N, R6W
LAT: 36.17600 'N
LONG: 107.47458 'W
DATUM: NAD1927

LAT: 36.17601°N
LONG: 107.47518°W
DATUM: NAD1983

DICT 2

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 a mineral working interest or a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature _____

Katie Wegner

Printed Name _____

Katie.Wegner@encana.com

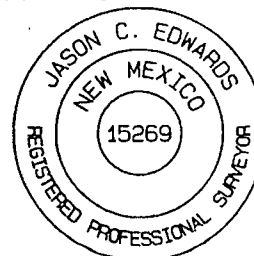
E-mail Address

¹⁸ SURVEYOR CERTIFICATION

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

Date Revised: AUGUST 18, 2014
Survey Date: SEPTEMBER 5, 2012

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

Am

CONFIDENTIAL

DEVIATION SURVEYS
Well Name: Lybrook M28-2306 03H
API: 30-043-21194

MD (Feet)	Inclination (Degree)
410'	0.20
726'	1.30
1042'	0.20
1357'	0.40
1673'	0.40
1989'	0.70
2306'	1.40
2622'	0.50
2971'	0.50
3286'	0.50
3602'	4.00

OPERATOR CERTIFICATION

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

Cristi Bauer
Cristi Bauer, Operations Technician

9/22/14
Date

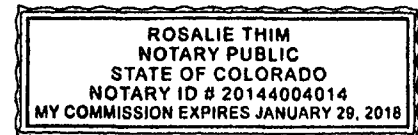
ACKNOWLEDGMENT

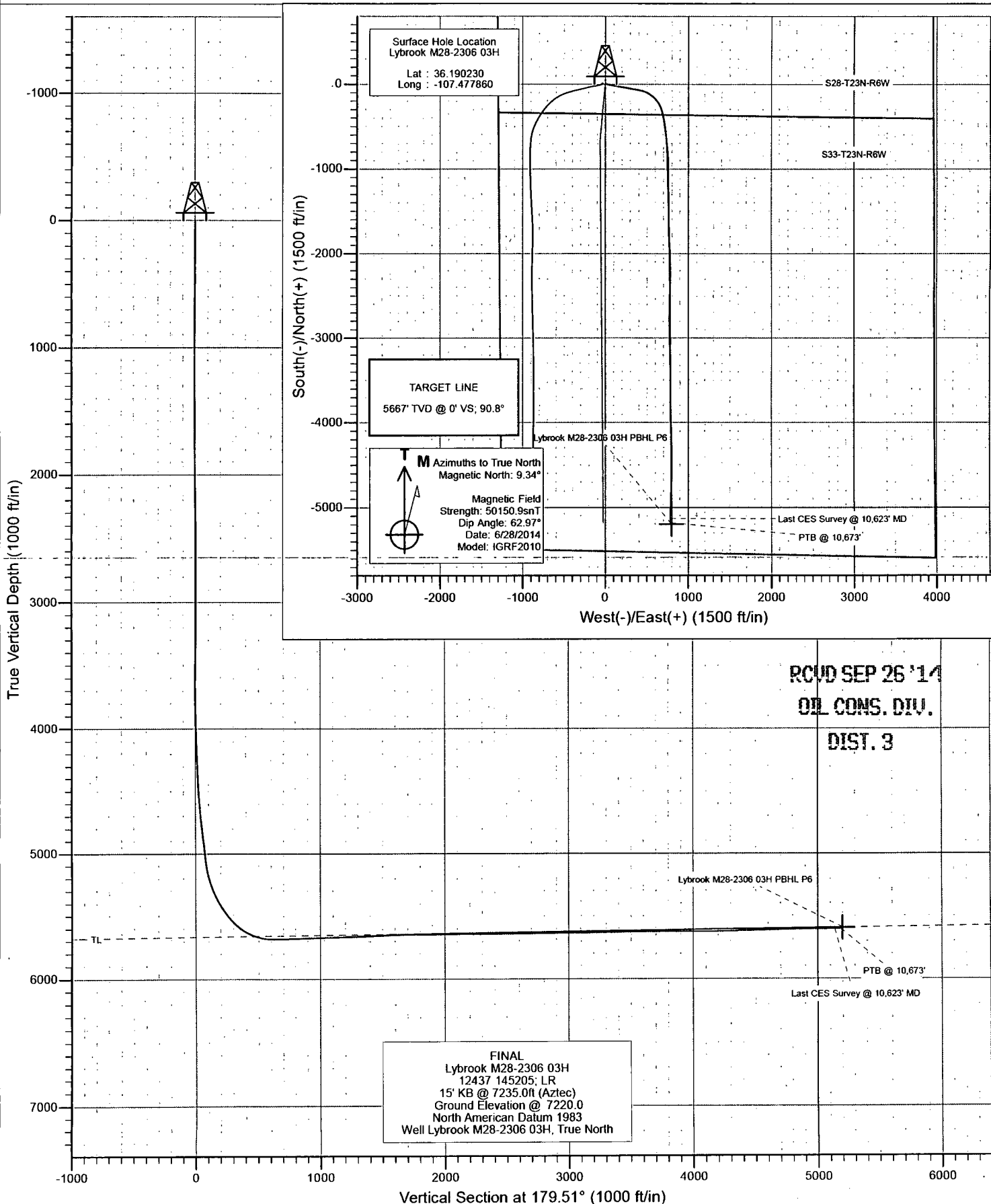
State of Colorado
City and County of Denver

This instrument was acknowledged before me on this 22 day of September, 2014 by Cristi Bauer 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.

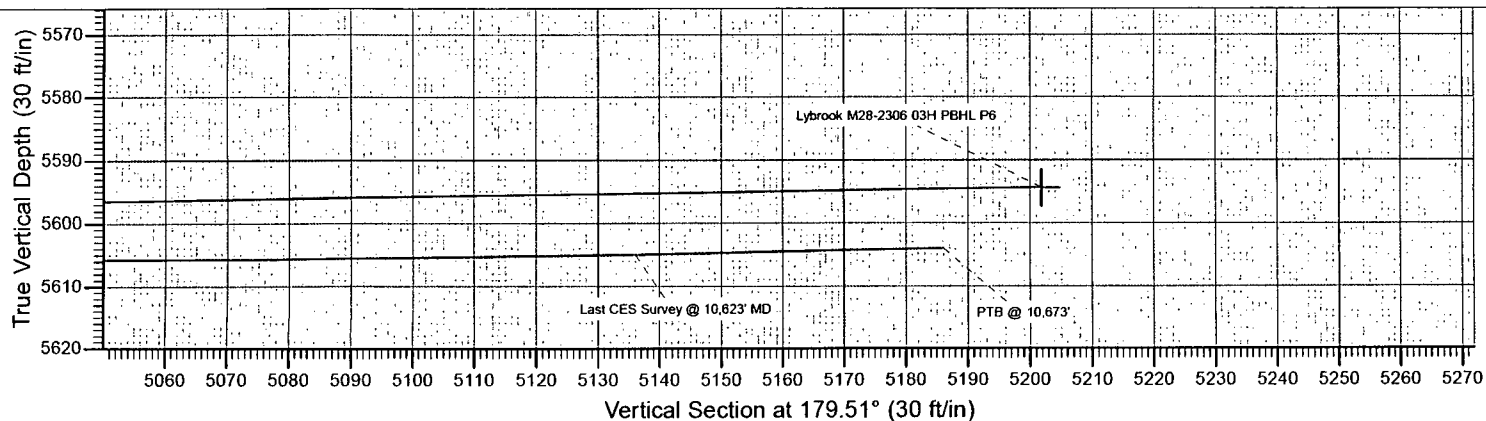
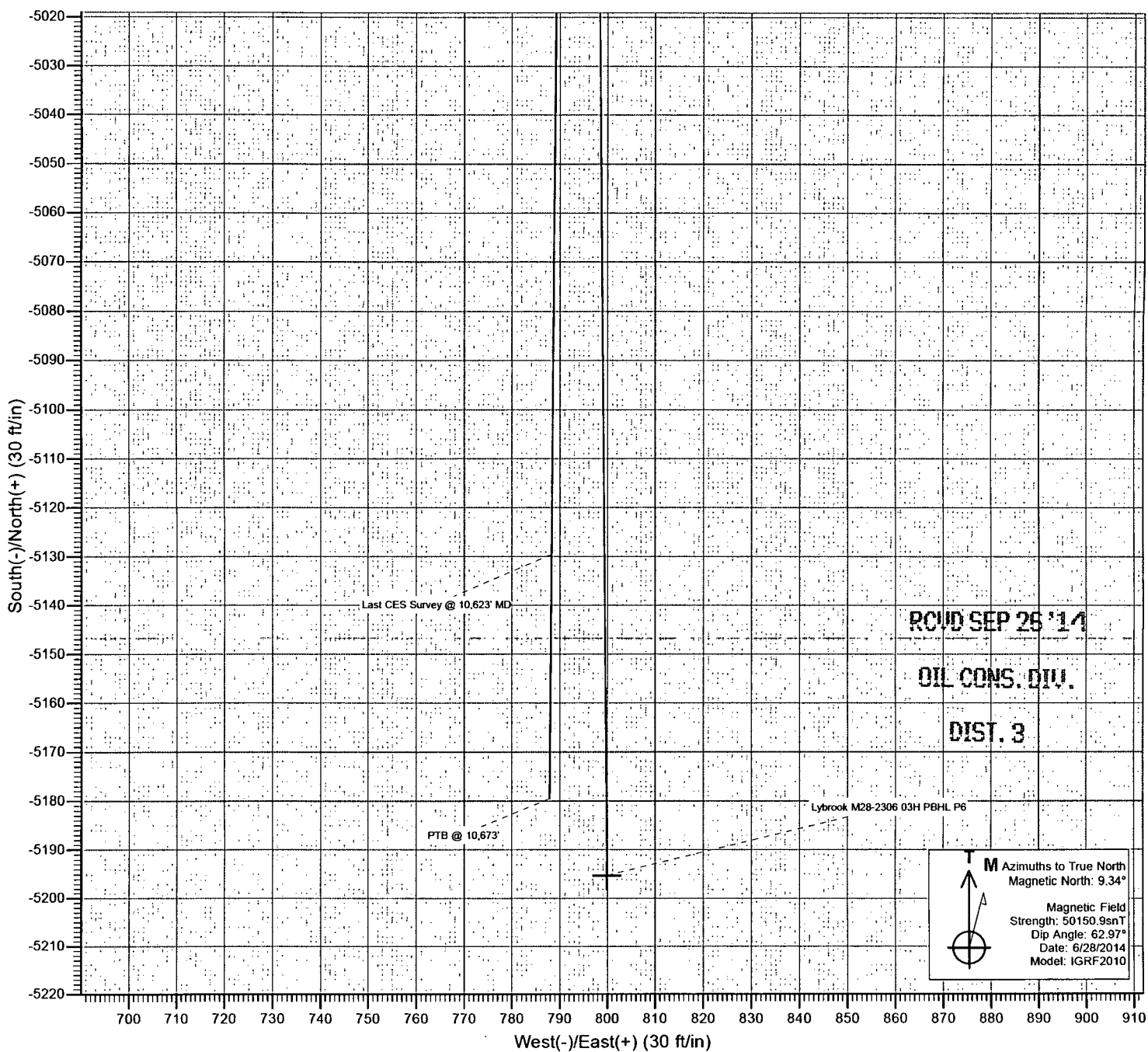
Notary Public Rosalie Thim
My Commission Expires: 1/29/18







Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 03H
Wellbore: Hz
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M28-2306 03H
Project:	Sandoval County, NM	TVD Reference:	15' KB @ 7235.0ft (Aztec)
Site:	Lybrook	MD Reference:	15' KB @ 7235.0ft (Aztec)
Well:	Lybrook M28-2306 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 M28-2306 03H					
Well Position	+N/-S	0.0 ft	Northing:	1,890,805.81 ft	Latitude:	36.190230
	+E/-W	0.0 ft	Easting:	1,278,105.54 ft	Longitude:	-107.477860
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,220.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	6/28/2014	(°)	(°)	(nT)
			9.34	62.97	50,151

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	179.51	

Survey Program	Date	7/7/2014			
From	To	Survey (Wellbore)	Tool Name	Description	
(ft)	(ft)				
220.0	10,673.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD	

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Formations /
Depth	(°)	(°)	Depth	(ft)	(ft)	Section	Rate	Rate	Comments
(ft)			(ft)			(ft)	(°/100ft)	(°/100ft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
220.0	0.50	71.90	220.0	0.3	0.9	-0.3	0.23	0.23	
283.0	0.50	83.50	283.0	0.4	1.4	-0.4	0.16	0.00	
346.0	0.30	84.40	346.0	0.5	1.9	-0.4	0.32	-0.32	
410.0	0.20	122.30	410.0	0.4	2.1	-0.4	0.29	-0.16	
436.0	0.30	111.40	436.0	0.4	2.2	-0.4	0.42	0.38	
536.0	0.10	159.50	536.0	0.2	2.5	-0.2	0.24	-0.20	
599.0	1.00	69.60	599.0	0.3	3.1	-0.3	1.59	1.43	
663.0	1.20	59.60	663.0	0.9	4.2	-0.8	0.43	0.31	
726.0	1.30	63.00	726.0	1.5	5.4	-1.5	0.20	0.16	
789.0	0.80	61.70	789.0	2.1	6.4	-2.0	0.79	-0.79	
852.0	0.40	46.20	851.9	2.4	6.9	-2.4	0.68	-0.63	
915.0	0.60	72.50	914.9	2.7	7.4	-2.6	0.48	0.32	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M28-2306 03H
TVD Reference: 15' KB @ 7235.0ft (Aztec)
MD Reference: 15' KB @ 7235.0ft (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
978.0	0.20	123.50	977.9	2.7	7.8	-2.6	0.79	-0.63	
1,042.0	0.20	225.60	1,041.9	2.6	7.8	-2.5	0.49	0.00	
1,104.0	0.30	221.40	1,103.9	2.4	7.6	-2.3	0.16	0.16	
1,167.0	0.20	193.40	1,166.9	2.1	7.5	-2.1	0.25	-0.16	
1,231.0	0.10	214.20	1,230.9	2.0	7.4	-1.9	0.18	-0.16	
1,294.0	0.20	262.90	1,293.9	1.9	7.3	-1.9	0.24	0.16	
1,357.0	0.40	298.40	1,356.9	2.0	7.0	-2.0	0.42	0.32	
1,420.0	0.20	290.80	1,419.9	2.2	6.7	-2.1	0.32	-0.32	
1,484.0	0.40	305.60	1,483.9	2.3	6.4	-2.3	0.33	0.31	
1,547.0	0.40	297.70	1,546.9	2.6	6.1	-2.5	0.09	0.00	
1,610.0	0.40	300.40	1,609.9	2.8	5.7	-2.7	0.03	0.00	
1,673.0	0.40	286.70	1,672.9	2.9	5.3	-2.9	0.15	0.00	
1,736.0	0.40	271.80	1,735.9	3.0	4.8	-3.0	0.16	0.00	
1,799.0	0.50	267.00	1,798.9	3.0	4.3	-3.0	0.17	0.16	
1,863.0	0.50	255.40	1,862.9	2.9	3.8	-2.9	0.16	0.00	
1,926.0	0.60	249.70	1,925.9	2.7	3.2	-2.7	0.18	0.16	
1,989.0	0.70	229.00	1,988.9	2.4	2.6	-2.4	0.40	0.16	
2,053.0	0.80	228.30	2,052.9	1.8	2.0	-1.8	0.16	0.16	
2,116.0	0.80	221.40	2,115.9	1.2	1.4	-1.2	0.15	0.00	
2,180.0	0.60	217.40	2,179.9	0.6	0.9	-0.6	0.32	-0.31	
2,243.0	0.90	178.60	2,242.9	-0.2	0.7	0.2	0.91	0.48	
2,306.0	1.40	171.60	2,305.9	-1.4	0.8	1.4	0.82	0.79	
2,369.0	1.50	166.00	2,368.9	-3.0	1.1	3.0	0.28	0.16	
2,432.0	0.50	144.60	2,431.9	-4.0	1.5	4.0	1.67	-1.59	
2,495.0	0.30	86.60	2,494.9	-4.2	1.8	4.2	0.68	-0.32	
2,559.0	0.20	327.90	2,558.9	-4.1	1.9	4.1	0.68	-0.16	
2,622.0	0.50	348.50	2,621.9	-3.7	1.8	3.8	0.51	0.48	
2,719.0	0.20	317.60	2,718.9	-3.2	1.6	3.2	0.35	-0.31	
2,782.0	0.10	256.60	2,781.9	-3.1	1.5	3.2	0.28	-0.16	
2,845.0	0.30	229.00	2,844.9	-3.3	1.3	3.3	0.34	0.32	
2,908.0	0.50	216.90	2,907.9	-3.6	1.0	3.6	0.34	0.32	
2,971.0	0.50	233.60	2,970.9	-4.0	0.6	4.0	0.23	0.00	
3,035.0	0.60	273.60	3,034.9	-4.1	0.1	4.1	0.61	0.16	
3,097.0	0.60	286.80	3,096.8	-4.0	-0.6	4.0	0.22	0.00	
3,160.0	0.60	282.60	3,159.8	-3.8	-1.2	3.8	0.07	0.00	
3,223.0	0.50	279.30	3,222.8	-3.7	-1.8	3.7	0.17	-0.16	
3,286.0	0.50	336.70	3,285.8	-3.4	-2.2	3.4	0.76	0.00	
3,350.0	0.50	340.10	3,349.8	-2.9	-2.4	2.9	0.05	0.00	
3,413.0	0.80	10.00	3,412.8	-2.2	-2.4	2.2	0.70	0.48	
3,476.0	1.80	31.80	3,475.8	-0.9	-1.8	0.9	1.74	1.59	
3,539.0	3.00	58.20	3,538.8	0.8	0.1	-0.8	2.54	1.90	
3,602.0	4.00	80.40	3,601.6	2.0	3.7	-2.0	2.65	1.59	
3,665.0	4.70	99.30	3,664.5	2.0	8.4	-1.9	2.52	1.11	
3,728.0	5.90	103.30	3,727.2	0.8	14.1	-0.7	1.99	1.90	
3,792.0	6.30	102.70	3,790.8	-0.7	20.7	0.9	0.63	0.62	
3,854.0	7.10	96.20	3,852.4	-1.9	27.8	2.1	1.78	1.29	
3,917.0	7.80	96.90	3,914.9	-2.8	36.0	3.1	1.12	1.11	
3,981.0	8.10	102.60	3,978.3	-4.3	44.7	4.7	1.32	0.47	
4,044.0	8.00	104.30	4,040.6	-6.4	53.3	6.8	0.41	-0.16	
4,107.0	8.50	101.20	4,103.0	-8.4	62.1	8.9	1.06	0.79	
4,170.0	9.80	100.80	4,165.2	-10.3	71.9	10.9	2.07	2.06	
4,234.0	10.90	101.30	4,228.1	-12.5	83.2	13.2	1.72	1.72	
4,297.0	12.00	102.20	4,289.9	-15.0	95.4	15.9	1.77	1.75	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M28-2306 03H
TVD Reference: 15' KB @ 7235.0ft (Aztec)
MD Reference: 15' KB @ 7235.0ft (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
4,360.0	13.70	102.20	4,351.3	-18.0	109.1	18.9	2.70	2.70	
4,424.0	13.80	101.00	4,413.5	-21.1	124.0	22.1	0.47	0.16	
4,455.0	15.10	99.40	4,443.5	-22.4	131.6	23.5	4.39	4.19	
4,487.0	16.60	98.80	4,474.3	-23.8	140.3	25.0	4.72	4.69	
4,518.0	18.00	99.00	4,503.9	-25.2	149.4	26.5	4.52	4.52	
4,550.0	19.40	98.70	4,534.2	-26.8	159.5	28.2	4.39	4.37	
4,582.0	20.80	99.30	4,564.2	-28.5	170.4	30.0	4.42	4.37	
4,613.0	22.10	100.00	4,593.1	-30.4	181.5	32.0	4.27	4.19	
4,645.0	23.60	100.10	4,622.6	-32.6	193.8	34.3	4.69	4.69	
4,676.0	25.00	100.20	4,650.8	-34.8	206.3	36.6	4.52	4.52	
4,708.0	26.70	100.50	4,679.6	-37.4	220.1	39.2	5.33	5.31	
4,740.0	28.40	100.50	4,708.0	-40.1	234.6	42.1	5.31	5.31	
4,771.0	28.30	100.20	4,735.3	-42.7	249.1	44.8	0.56	-0.32	
4,803.0	28.30	100.80	4,763.5	-45.5	264.0	47.7	0.89	0.00	
4,834.0	30.70	100.50	4,790.4	-48.3	279.0	50.7	7.76	7.74	
4,866.0	34.80	99.80	4,817.3	-51.3	296.1	53.9	12.87	12.81	
4,897.0	35.90	98.60	4,842.6	-54.2	313.8	56.9	4.20	3.55	
4,929.0	34.10	99.20	4,868.8	-57.0	331.9	59.9	5.73	-5.62	
4,961.0	31.50	101.10	4,895.7	-60.1	349.0	63.1	8.74	-8.12	
4,992.0	29.20	102.40	4,922.5	-63.3	364.3	66.4	7.72	-7.42	
5,024.0	28.50	102.00	4,950.5	-66.5	379.4	69.8	2.27	-2.19	
5,056.0	28.30	101.60	4,978.7	-69.6	394.3	73.0	0.86	-0.62	
5,087.0	28.70	101.60	5,005.9	-72.6	408.8	76.1	1.29	1.29	
5,119.0	28.30	101.00	5,034.0	-75.6	423.7	79.2	1.54	-1.25	
5,151.0	29.40	100.90	5,062.1	-78.5	438.9	82.3	3.44	3.44	
5,182.0	29.60	103.30	5,089.0	-81.7	453.8	85.6	3.87	0.65	
5,214.0	29.10	107.90	5,116.9	-85.9	468.9	89.9	7.22	-1.56	
5,246.0	28.70	112.70	5,145.0	-91.3	483.4	95.4	7.35	-1.25	
5,277.0	29.10	116.80	5,172.1	-97.6	497.0	101.8	6.52	1.29	
5,309.0	29.10	119.70	5,200.1	-104.9	510.7	109.3	4.41	0.00	
5,341.0	29.90	121.80	5,227.9	-113.0	524.3	117.5	4.09	2.50	
5,372.0	31.70	122.90	5,254.5	-121.5	537.7	126.1	6.08	5.81	
5,404.0	33.00	125.70	5,281.6	-131.1	551.8	135.9	6.20	4.06	
5,435.0	34.30	128.60	5,307.4	-141.5	565.5	146.4	6.67	4.19	
5,467.0	35.80	131.30	5,333.6	-153.3	579.6	158.3	6.74	4.69	
5,499.0	36.10	134.60	5,359.5	-166.1	593.3	171.2	6.13	0.94	
5,530.0	37.10	137.50	5,384.4	-179.4	606.1	184.6	6.44	3.23	
5,562.0	38.20	139.80	5,409.7	-194.1	619.0	199.4	5.58	3.44	
5,594.0	38.50	142.50	5,434.8	-209.6	631.5	215.0	5.32	0.94	
5,645.0	39.20	149.00	5,474.5	-236.0	649.5	241.5	8.11	1.37	
5,677.0	40.60	154.30	5,499.1	-254.0	659.2	259.7	11.49	4.37	
5,709.0	42.90	158.10	5,523.0	-273.5	667.8	279.2	10.68	7.19	
5,740.0	45.40	161.30	5,545.2	-293.8	675.2	299.5	10.80	8.06	
5,772.0	48.50	163.10	5,567.1	-316.0	682.4	321.9	10.52	9.69	
5,804.0	52.10	165.40	5,587.5	-339.7	689.0	345.6	12.53	11.25	
5,835.0	55.80	167.10	5,605.7	-364.1	695.0	370.0	12.73	11.94	
5,867.0	59.70	168.10	5,622.8	-390.5	700.8	396.5	12.47	12.19	
5,898.0	63.80	168.90	5,637.5	-417.3	706.2	423.3	13.42	13.23	
5,930.0	67.90	170.70	5,650.6	-446.0	711.4	452.1	13.80	12.81	
5,962.0	71.60	171.50	5,661.6	-475.7	716.0	481.8	11.80	11.56	
5,993.0	75.80	172.60	5,670.3	-505.1	720.2	511.3	13.97	13.55	
6,025.0	79.90	173.00	5,677.1	-536.1	724.1	542.3	12.87	12.81	
6,053.0	83.90	173.70	5,681.0	-563.7	727.3	569.9	14.50	14.29	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M28-2306 03H
TVD Reference: 15' KB @ 7235.0ft (Aztec)
MD Reference: 15' KB @ 7235.0ft (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
6,094.0	88.90	172.20	5,683.6	-604.3	732.3	610.5	12.73	12.20	
6,125.0	91.00	173.30	5,683.6	-635.0	736.2	641.3	7.65	6.77	
6,157.0	91.30	173.30	5,683.0	-666.8	739.9	673.1	0.94	0.94	
6,188.0	92.20	174.40	5,682.0	-697.6	743.3	703.9	4.58	2.90	
6,220.0	92.40	174.20	5,680.8	-729.4	746.4	735.8	0.88	0.62	
6,252.0	92.80	174.10	5,679.3	-761.2	749.7	767.6	1.29	1.25	
6,283.0	92.30	175.40	5,677.9	-792.1	752.5	798.5	4.49	-1.61	
6,315.0	90.80	176.20	5,677.1	-824.0	754.9	830.4	5.31	-4.69	
6,346.0	91.10	176.90	5,676.5	-854.9	756.7	861.3	2.46	0.97	
6,378.0	91.50	178.10	5,675.8	-886.9	758.1	893.3	3.95	1.25	
6,441.0	92.00	178.30	5,673.9	-949.8	760.1	956.3	0.85	0.79	
6,504.0	91.70	179.30	5,671.9	-1,012.7	761.4	1,019.2	1.66	-0.48	
6,567.0	91.20	180.20	5,670.3	-1,075.7	761.7	1,082.2	1.63	-0.79	
6,630.0	92.10	180.00	5,668.5	-1,138.7	761.6	1,145.2	1.46	1.43	
6,694.0	91.20	179.80	5,666.6	-1,202.7	761.7	1,209.1	1.44	-1.41	
6,754.0	91.20	179.00	5,665.4	-1,262.7	762.3	1,269.1	1.33	0.00	
6,815.0	92.40	178.40	5,663.4	-1,323.6	763.7	1,330.1	2.20	1.97	
6,876.0	93.80	178.80	5,660.1	-1,384.5	765.2	1,391.0	2.39	2.30	
6,937.0	93.70	179.00	5,656.1	-1,445.4	766.4	1,451.9	0.37	-0.16	
6,998.0	93.20	180.60	5,652.5	-1,506.2	766.6	1,512.7	2.74	-0.82	
7,059.0	92.50	179.60	5,649.4	-1,567.2	766.5	1,573.7	2.00	-1.15	
7,120.0	91.20	179.20	5,647.5	-1,628.1	767.1	1,634.6	2.23	-2.13	
7,181.0	89.80	179.40	5,646.9	-1,689.1	767.9	1,695.6	2.32	-2.30	
7,242.0	89.20	178.40	5,647.5	-1,750.1	769.0	1,756.6	1.91	-0.98	
7,303.0	89.70	177.70	5,648.1	-1,811.1	771.1	1,817.6	1.41	0.82	
7,364.0	90.00	177.10	5,648.2	-1,872.0	773.9	1,878.6	1.10	0.49	
7,424.0	90.70	176.60	5,647.9	-1,931.9	777.2	1,938.5	1.43	1.17	
7,486.0	90.90	177.90	5,647.0	-1,993.8	780.2	2,000.4	2.12	0.32	
7,546.0	90.40	178.80	5,646.3	-2,053.8	781.9	2,060.4	1.72	-0.83	
7,607.0	90.80	179.10	5,645.7	-2,114.8	783.0	2,121.4	0.82	0.66	
7,668.0	89.50	179.70	5,645.5	-2,175.8	783.6	2,182.4	2.35	-2.13	
7,729.0	89.90	179.80	5,645.8	-2,236.8	783.9	2,243.4	0.68	0.66	
7,789.0	91.10	180.30	5,645.3	-2,296.8	783.9	2,303.4	2.17	2.00	
7,851.0	91.40	180.80	5,644.0	-2,358.8	783.3	2,365.4	0.94	0.48	
7,912.0	89.60	181.20	5,643.4	-2,419.8	782.2	2,426.4	3.02	-2.95	
7,975.0	90.00	181.30	5,643.6	-2,482.7	780.8	2,489.3	0.65	0.63	
8,038.0	90.70	181.20	5,643.3	-2,545.7	779.4	2,552.3	1.12	1.11	
8,101.0	91.40	181.30	5,642.1	-2,608.7	778.1	2,615.3	1.12	1.11	
8,165.0	92.30	181.50	5,640.0	-2,672.6	776.5	2,679.2	1.44	1.41	
8,228.0	91.10	181.60	5,638.2	-2,735.6	774.8	2,742.1	1.91	-1.90	
8,291.0	90.50	180.20	5,637.3	-2,798.6	773.8	2,805.1	2.42	-0.95	
8,355.0	90.00	179.20	5,637.0	-2,862.6	774.2	2,869.1	1.75	-0.78	
8,418.0	90.60	178.70	5,636.7	-2,925.6	775.3	2,932.1	1.24	0.95	
8,481.0	91.10	178.80	5,635.7	-2,988.5	776.7	2,995.1	0.81	0.79	
8,544.0	90.80	178.10	5,634.7	-3,051.5	778.4	3,058.0	1.21	-0.48	
8,607.0	89.50	178.10	5,634.5	-3,114.5	780.5	3,121.0	2.06	-2.06	
8,671.0	90.20	178.20	5,634.7	-3,178.4	782.5	3,185.0	1.10	1.09	
8,733.0	91.10	177.90	5,634.0	-3,240.4	784.6	3,247.0	1.53	1.45	
8,796.0	92.10	179.50	5,632.2	-3,303.4	786.1	3,310.0	2.99	1.59	
8,859.0	92.00	179.30	5,630.0	-3,366.3	786.7	3,372.9	0.35	-0.16	
8,923.0	90.60	179.60	5,628.5	-3,430.3	787.3	3,436.9	2.24	-2.19	
8,986.0	89.80	180.20	5,628.3	-3,493.3	787.5	3,499.9	1.59	-1.27	
9,049.0	90.40	179.90	5,628.2	-3,556.3	787.4	3,562.9	1.06	0.95	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M28-2306 03H
TVD Reference: 15' KB @ 7235.0ft (Aztec)
MD Reference: 15' KB @ 7235.0ft (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
9,112.0	91.50	180.20	5,627.2	-3,619.3	787.3	3,625.9	1.81	1.75	
9,175.0	90.60	179.80	5,626.0	-3,682.3	787.3	3,688.9	1.56	-1.43	
9,239.0	88.90	180.20	5,626.3	-3,746.3	787.3	3,752.9	2.73	-2.66	
9,301.0	90.10	180.50	5,626.8	-3,808.3	787.0	3,814.8	2.00	1.94	
9,365.0	90.60	179.10	5,626.4	-3,872.3	787.2	3,878.8	2.32	0.78	
9,428.0	90.30	177.10	5,625.9	-3,935.2	789.3	3,941.8	3.21	-0.48	
9,492.0	91.30	177.10	5,625.0	-3,999.1	792.5	4,005.8	1.56	1.56	
9,555.0	91.20	177.60	5,623.7	-4,062.0	795.4	4,068.7	0.81	-0.16	
9,618.0	89.80	178.60	5,623.1	-4,125.0	797.5	4,131.7	2.73	-2.22	
9,681.0	90.10	178.90	5,623.2	-4,188.0	798.9	4,194.7	0.67	0.48	
9,744.0	90.60	178.70	5,622.8	-4,251.0	800.2	4,257.7	0.85	0.79	
9,808.0	91.80	179.30	5,621.4	-4,314.9	801.3	4,321.6	2.10	1.87	
9,871.0	92.20	179.60	5,619.3	-4,377.9	801.9	4,384.6	0.79	0.63	
9,934.0	91.10	180.20	5,617.4	-4,440.9	802.0	4,447.6	1.99	-1.75	
9,997.0	90.90	179.90	5,616.3	-4,503.9	802.0	4,510.6	0.57	-0.32	
10,060.0	92.10	180.20	5,614.7	-4,566.8	801.9	4,573.5	1.96	1.90	
10,123.0	92.00	180.90	5,612.4	-4,629.8	801.3	4,636.5	1.12	-0.16	
10,185.0	91.40	182.00	5,610.6	-4,691.8	799.8	4,698.4	2.02	-0.97	
10,249.0	91.40	182.40	5,609.0	-4,755.7	797.3	4,762.3	0.62	0.00	
10,312.0	90.10	182.00	5,608.2	-4,818.6	794.9	4,825.3	2.16	-2.06	
10,375.0	90.70	181.70	5,607.8	-4,881.6	792.9	4,888.2	1.06	0.95	
10,438.0	91.50	181.90	5,606.6	-4,944.6	790.9	4,951.1	1.31	1.27	
10,502.0	89.90	180.80	5,605.8	-5,008.5	789.4	5,015.1	3.03	-2.50	
10,565.0	90.30	180.30	5,605.7	-5,071.5	788.8	5,078.1	1.02	0.63	
10,623.0	91.10	180.50	5,605.0	-5,129.5	788.4	5,136.1	1.42	1.38	Last CES Survey @ 10,623' MD
10,673.0	91.10	180.50	5,604.0	-5,179.5	787.9	5,186.0	0.00	0.00	PTB @ 10,673'

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M28-2306 03H
TVD Reference: 15' KB @ 7235.0ft (Aztec)
MD Reference: 15' KB @ 7235.0ft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: USA EDM 5000 Multi Users DB

Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lybrook M28-2306 03H - actual wellpath misses target center by 26.4ft at 6296.3ft MD (5677.5 TVD, -805.3 N, 753.6 E) - Point	0.00	0.00	5,657.6	-803.5	770.8	1,889,992.63	1,278,866.12	36.188023	-107.475248
Lybrook M28-2306 03H - actual wellpath misses target center by 19.8ft at 10673.0ft MD (5604.0 TVD, -5179.5 N, 787.9 E) - Point	0.00	0.00	5,605.3	-5,195.2	799.9	1,885,600.87	1,278,839.65	36.175960	-107.475150
Lybrook M28-2306 03H - actual wellpath misses target center by 35.8ft at 10673.0ft MD (5604.0 TVD, -5179.5 N, 787.9 E) - Point	0.00	0.00	5,574.2	-5,195.2	799.9	1,885,600.87	1,278,839.65	36.175960	-107.475150
Lybrook M28-2306 03H - actual wellpath misses target center by 22.0ft at 10673.0ft MD (5604.0 TVD, -5179.5 N, 787.9 E) - Point	0.00	0.00	5,594.4	-5,195.2	799.9	1,885,600.87	1,278,839.65	36.175960	-107.475150
Lybrook M28-2306 03H - actual wellpath misses target center by 23.3ft at 6184.5ft MD (5682.2 TVD, -694.1 N, 742.9 E) - Point	0.00	0.00	5,668.2	-691.7	761.4	1,890,104.51	1,278,858.14	36.188330	-107.475280
Lybrook M28-2306 03H - actual wellpath misses target center by 5.4ft at 7013.8ft MD (5651.6 TVD, -1522.0 N, 766.5 E) - Point	0.00	0.00	5,656.6	-1,522.3	768.6	1,889,273.94	1,278,854.80	36.186049	-107.475256
Lybrook M28-2306 03H - actual wellpath misses target center by 20.4ft at 6296.1ft MD (5677.5 TVD, -805.0 N, 753.5 E) - Point	0.00	0.00	5,666.8	-803.5	770.8	1,889,992.63	1,278,866.12	36.188023	-107.475248
Lybrook M28-2306 03H - actual wellpath misses target center by 31.1ft at 6184.9ft MD (5682.2 TVD, -694.5 N, 743.0 E) - Point	0.00	0.00	5,657.2	-691.7	761.4	1,890,104.51	1,278,858.14	36.188330	-107.475280
Lybrook M28-2306 03H - actual wellpath misses target center by 34.8ft at 6185.0ft MD (5682.2 TVD, -694.6 N, 743.0 E) - Point	0.00	0.00	5,652.8	-691.7	761.4	1,890,104.51	1,278,858.14	36.188330	-107.475280

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,957.6	5,667.0	TL		-0.80	179.00

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,623.0	5,605.0	-5,129.5	788.4	Last CES Survey @ 10,623' MD
10,673.0	5,604.0	-5,179.5	787.9	PTB @ 10,673'

Checked By: _____ Approved By: _____ Date: _____

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

Lybrook

Lybrook M28-2306 03H

Hz

Design: FINAL

Survey Report - Geographic

07 July, 2014

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M28-2306 03H
TVD Reference: 15' KB @ 7235.0ft (Aztec)
MD Reference: 15' KB @ 7235.0ft (Aztec)
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
Geo Datum: North American Datum 1983
Map Zone: New Mexico Central Zone

System Datum: Mean Sea Level

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 M28-2306 03H

Well Position: +N/-S 0.0 ft Northing: 1,890,805.81 ft Latitude: 36.190230
+E/-W 0.0 ft Easting: 1,278,105.54 ft Longitude: -107.477860
Position Uncertainty: 0.0 ft Wellhead Elevation: ft Ground Level: 7,220.0 ft

Wellbore: Hz

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/28/2014	9.34	62.97	50,151

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	179.51

Survey Program Date: 7/7/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
220.0	10,673.0	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	1,890,805.81	1,278,105.54	36.190230	-107.477860
220.0	0.50	71.90	220.0	0.3	0.9	1,890,806.10	1,278,106.45	36.190231	-107.477857
283.0	0.50	83.50	283.0	0.4	1.4	1,890,806.21	1,278,106.99	36.190231	-107.477855
346.0	0.30	84.40	346.0	0.5	1.9	1,890,806.25	1,278,107.43	36.190231	-107.477854
410.0	0.20	122.30	410.0	0.4	2.1	1,890,806.21	1,278,107.69	36.190231	-107.477853
436.0	0.30	111.40	436.0	0.4	2.2	1,890,806.16	1,278,107.79	36.190231	-107.477853
536.0	0.10	159.50	536.0	0.2	2.5	1,890,805.98	1,278,108.06	36.190231	-107.477852
599.0	1.00	69.60	599.0	0.3	3.1	1,890,806.11	1,278,108.60	36.190231	-107.477850
663.0	1.20	59.60	663.0	0.9	4.2	1,890,806.63	1,278,109.70	36.190232	-107.477846
726.0	1.30	63.00	726.0	1.5	5.4	1,890,807.27	1,278,110.92	36.190234	-107.477842
789.0	0.80	61.70	789.0	2.1	6.4	1,890,807.79	1,278,111.95	36.190236	-107.477839
852.0	0.40	46.20	851.9	2.4	6.9	1,890,808.15	1,278,112.50	36.190237	-107.477837

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M28-2306 03H
TVD Reference: 15' KB @ 7235.0ft (Aztec)
MD Reference: 15' KB @ 7235.0ft (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
915.0	0.60	72.50	914.9	2.7	7.4	1,890,808.39	1,278,112.98	36.190237	-107.477835
978.0	0.20	123.50	977.9	2.7	7.8	1,890,808.42	1,278,113.38	36.190238	-107.477834
1,042.0	0.20	225.60	1,041.9	2.6	7.8	1,890,808.28	1,278,113.39	36.190237	-107.477834
1,104.0	0.30	221.40	1,103.9	2.4	7.6	1,890,808.09	1,278,113.21	36.190237	-107.477834
1,167.0	0.20	193.40	1,166.9	2.1	7.5	1,890,807.86	1,278,113.07	36.190236	-107.477835
1,231.0	0.10	214.20	1,230.9	2.0	7.4	1,890,807.71	1,278,113.01	36.190236	-107.477835
1,294.0	0.20	262.90	1,293.9	1.9	7.3	1,890,807.65	1,278,112.87	36.190235	-107.477836
1,357.0	0.40	298.40	1,356.9	2.0	7.0	1,890,807.74	1,278,112.57	36.190236	-107.477837
1,420.0	0.20	290.80	1,419.9	2.2	6.7	1,890,807.89	1,278,112.27	36.190236	-107.477838
1,484.0	0.40	305.60	1,483.9	2.3	6.4	1,890,808.06	1,278,111.99	36.190236	-107.477839
1,547.0	0.40	297.70	1,546.9	2.6	6.1	1,890,808.30	1,278,111.62	36.190237	-107.477840
1,610.0	0.40	300.40	1,609.9	2.8	5.7	1,890,808.52	1,278,111.24	36.190238	-107.477841
1,673.0	0.40	286.70	1,672.9	2.9	5.3	1,890,808.70	1,278,110.84	36.190238	-107.477842
1,736.0	0.40	271.80	1,735.9	3.0	4.8	1,890,808.77	1,278,110.41	36.190238	-107.477844
1,799.0	0.50	267.00	1,798.9	3.0	4.3	1,890,808.77	1,278,109.92	36.190238	-107.477846
1,863.0	0.50	255.40	1,862.9	2.9	3.8	1,890,808.69	1,278,109.37	36.190238	-107.477847
1,926.0	0.60	249.70	1,925.9	2.7	3.2	1,890,808.52	1,278,108.79	36.190238	-107.477849
1,989.0	0.70	229.00	1,988.9	2.4	2.6	1,890,808.16	1,278,108.18	36.190237	-107.477851
2,053.0	0.80	228.30	2,052.9	1.8	2.0	1,890,807.61	1,278,107.55	36.190235	-107.477854
2,116.0	0.80	221.40	2,115.9	1.2	1.4	1,890,807.00	1,278,106.92	36.190233	-107.477856
2,180.0	0.60	217.40	2,179.9	0.6	0.9	1,890,806.40	1,278,106.41	36.190232	-107.477857
2,243.0	0.90	178.60	2,242.9	-0.2	0.7	1,890,805.65	1,278,106.22	36.190230	-107.477858
2,306.0	1.40	171.60	2,305.9	-1.4	0.8	1,890,804.39	1,278,106.32	36.190226	-107.477858
2,369.0	1.50	166.00	2,368.9	-3.0	1.1	1,890,802.82	1,278,106.62	36.190222	-107.477856
2,432.0	0.50	144.60	2,431.9	-4.0	1.5	1,890,801.80	1,278,106.96	36.190219	-107.477855
2,495.0	0.30	86.60	2,494.9	-4.2	1.8	1,890,801.58	1,278,107.28	36.190219	-107.477854
2,559.0	0.20	327.90	2,558.9	-4.1	1.9	1,890,801.68	1,278,107.39	36.190219	-107.477854
2,622.0	0.50	348.50	2,621.9	-3.7	1.8	1,890,802.05	1,278,107.28	36.190220	-107.477854
2,719.0	0.20	317.60	2,718.9	-3.2	1.6	1,890,802.59	1,278,107.09	36.190221	-107.477855
2,782.0	0.10	256.60	2,781.9	-3.1	1.5	1,890,802.66	1,278,106.97	36.190221	-107.477855
2,845.0	0.30	229.00	2,844.9	-3.3	1.3	1,890,802.54	1,278,106.79	36.190221	-107.477856
2,908.0	0.50	216.90	2,907.9	-3.6	1.0	1,890,802.21	1,278,106.49	36.190220	-107.477857
2,971.0	0.50	233.60	2,970.9	-4.0	0.6	1,890,801.84	1,278,106.10	36.190219	-107.477858
3,035.0	0.60	273.60	3,034.9	-4.1	0.1	1,890,801.70	1,278,105.54	36.190219	-107.477860
3,097.0	0.60	286.80	3,096.8	-4.0	-0.6	1,890,801.82	1,278,104.91	36.190219	-107.477862
3,160.0	0.60	282.60	3,159.8	-3.8	-1.2	1,890,802.00	1,278,104.27	36.190220	-107.477864
3,223.0	0.50	279.30	3,222.8	-3.7	-1.8	1,890,802.12	1,278,103.68	36.190220	-107.477866
3,286.0	0.50	336.70	3,285.8	-3.4	-2.2	1,890,802.42	1,278,103.30	36.190221	-107.477868
3,350.0	0.50	340.10	3,349.8	-2.9	-2.4	1,890,802.94	1,278,103.11	36.190222	-107.477868
3,413.0	0.80	10.00	3,412.8	-2.2	-2.4	1,890,803.64	1,278,103.10	36.190224	-107.477868
3,476.0	1.80	31.80	3,475.8	-0.9	-1.8	1,890,804.90	1,278,103.71	36.190228	-107.477866
3,539.0	3.00	58.20	3,538.8	0.8	0.1	1,890,806.59	1,278,105.65	36.190232	-107.477860
3,602.0	4.00	80.40	3,601.6	2.0	3.7	1,890,807.78	1,278,109.24	36.190236	-107.477848
3,665.0	4.70	99.30	3,664.5	2.0	8.4	1,890,807.67	1,278,113.95	36.190235	-107.477832
3,728.0	5.90	103.30	3,727.2	0.8	14.1	1,890,806.43	1,278,119.63	36.190232	-107.477813
3,792.0	6.30	102.70	3,790.8	-0.7	20.7	1,890,804.82	1,278,126.24	36.190228	-107.477790
3,854.0	7.10	96.20	3,852.4	-1.9	27.8	1,890,803.57	1,278,133.35	36.190225	-107.477766
3,917.0	7.80	96.90	3,914.9	-2.8	36.0	1,890,802.53	1,278,141.46	36.190222	-107.477738
3,981.0	8.10	102.60	3,978.3	-4.3	44.7	1,890,800.92	1,278,150.15	36.190218	-107.477709
4,044.0	8.00	104.30	4,040.6	-6.4	53.3	1,890,798.76	1,278,158.70	36.190213	-107.477680
4,107.0	8.50	101.20	4,103.0	-8.4	62.1	1,890,796.66	1,278,167.49	36.190207	-107.477650
4,170.0	9.80	100.80	4,165.2	-10.3	71.9	1,890,794.62	1,278,177.30	36.190202	-107.477617
4,234.0	10.90	101.30	4,228.1	-12.5	83.2	1,890,792.28	1,278,188.56	36.190196	-107.477578
4,297.0	12.00	102.20	4,289.9	-15.0	95.4	1,890,789.57	1,278,200.77	36.190189	-107.477537
4,360.0	13.70	102.20	4,351.3	-18.0	109.1	1,890,786.44	1,278,214.42	36.190181	-107.477491

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M28-2306 03H
Project:	Sandoval County, NM	TVD Reference:	15' KB @ 7235.0ft (Aztec)
Site:	Lybrook	MD Reference:	15' KB @ 7235.0ft (Aztec)
Well:	Lybrook M28-2306 03H	North Reference:	True
Wellbore:	H2	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
4,424.0	13.80	101.00	4,413.5	-21.1	124.0	1,890,783.19	1,278,229.28	36.190172	-107.477440
4,455.0	15.10	99.40	4,443.5	-22.4	131.6	1,890,781.73	1,278,236.88	36.190169	-107.477414
4,487.0	16.60	98.80	4,474.3	-23.8	140.3	1,890,780.24	1,278,245.49	36.190165	-107.477385
4,518.0	18.00	99.00	4,503.9	-25.2	149.4	1,890,778.70	1,278,254.58	36.190161	-107.477354
4,550.0	19.40	98.70	4,534.2	-26.8	159.5	1,890,776.99	1,278,264.69	36.190156	-107.477320
4,582.0	20.80	99.30	4,564.2	-28.5	170.4	1,890,775.13	1,278,275.53	36.190152	-107.477283
4,613.0	22.10	100.00	4,593.1	-30.4	181.5	1,890,773.09	1,278,286.68	36.190147	-107.477245
4,645.0	23.60	100.10	4,622.6	-32.6	193.8	1,890,770.76	1,278,298.89	36.190141	-107.477204
4,676.0	25.00	100.20	4,650.8	-34.8	206.3	1,890,768.36	1,278,311.42	36.190134	-107.477161
4,708.0	26.70	100.50	4,679.6	-37.4	220.1	1,890,765.68	1,278,325.11	36.190127	-107.477115
4,740.0	28.40	100.50	4,708.0	-40.1	234.6	1,890,762.80	1,278,339.63	36.190120	-107.477065
4,771.0	28.30	100.20	4,735.3	-42.7	249.1	1,890,759.97	1,278,354.07	36.190113	-107.477016
4,803.0	28.30	100.80	4,763.5	-45.5	264.0	1,890,757.01	1,278,368.95	36.190105	-107.476966
4,834.0	30.70	100.50	4,790.4	-48.3	279.0	1,890,754.01	1,278,383.92	36.190097	-107.476915
4,866.0	34.80	99.80	4,817.3	-51.3	296.1	1,890,750.75	1,278,400.91	36.190089	-107.476857
4,897.0	35.90	98.60	4,842.6	-54.2	313.8	1,890,747.66	1,278,418.58	36.190081	-107.476797
4,929.0	34.10	99.20	4,868.8	-57.0	331.9	1,890,744.59	1,278,436.68	36.190073	-107.476736
4,961.0	31.50	101.10	4,895.7	-60.1	349.0	1,890,741.33	1,278,453.70	36.190065	-107.476678
4,992.0	29.20	102.40	4,922.5	-63.3	364.3	1,890,737.95	1,278,468.99	36.190056	-107.476626
5,024.0	28.50	102.00	4,950.5	-66.5	379.4	1,890,734.50	1,278,484.04	36.190047	-107.476575
5,056.0	28.30	101.60	4,978.7	-69.6	394.3	1,890,731.20	1,278,498.90	36.190039	-107.476524
5,087.0	28.70	101.60	5,005.9	-72.6	408.8	1,890,728.04	1,278,513.35	36.190031	-107.476475
5,119.0	28.30	101.00	5,034.0	-75.6	423.7	1,890,724.86	1,278,528.28	36.190022	-107.476424
5,151.0	29.40	100.90	5,062.1	-78.5	438.9	1,890,721.73	1,278,543.40	36.190014	-107.476373
5,182.0	29.60	103.30	5,089.0	-81.7	453.8	1,890,718.35	1,278,558.29	36.190006	-107.476323
5,214.0	29.10	107.90	5,116.9	-85.9	468.9	1,890,713.94	1,278,573.33	36.189994	-107.476271
5,246.0	28.70	112.70	5,145.0	-91.3	483.4	1,890,708.40	1,278,587.76	36.189979	-107.476222
5,277.0	29.10	116.80	5,172.1	-97.6	497.0	1,890,701.96	1,278,601.27	36.189962	-107.476176
5,309.0	29.10	119.70	5,200.1	-104.9	510.7	1,890,694.42	1,278,614.88	36.189942	-107.476130
5,341.0	29.90	121.80	5,227.9	-113.0	524.3	1,890,686.19	1,278,628.32	36.189920	-107.476084
5,372.0	31.70	122.90	5,254.5	-121.5	537.7	1,890,677.53	1,278,641.62	36.189896	-107.476038
5,404.0	33.00	125.70	5,281.6	-131.1	551.8	1,890,667.70	1,278,655.63	36.189870	-107.475991
5,435.0	34.30	128.60	5,307.4	-141.5	565.5	1,890,657.15	1,278,669.18	36.189841	-107.475944
5,467.0	35.80	131.30	5,333.6	-153.3	579.6	1,890,645.17	1,278,683.11	36.189809	-107.475896
5,499.0	36.10	134.60	5,359.5	-166.1	593.3	1,890,632.20	1,278,696.69	36.189774	-107.475850
5,530.0	37.10	137.50	5,384.4	-179.4	606.1	1,890,618.73	1,278,709.34	36.189737	-107.475806
5,562.0	38.20	139.80	5,409.7	-194.1	619.0	1,890,603.89	1,278,722.06	36.189697	-107.475763
5,594.0	38.50	142.50	5,434.8	-209.6	631.5	1,890,588.28	1,278,734.32	36.189654	-107.475720
5,645.0	39.20	149.00	5,474.5	-236.0	649.5	1,890,561.63	1,278,751.96	36.189582	-107.475660
5,677.0	40.60	154.30	5,499.1	-254.0	659.2	1,890,543.45	1,278,761.45	36.189532	-107.475627
5,709.0	42.90	158.10	5,523.0	-273.5	667.8	1,890,523.85	1,278,769.79	36.189479	-107.475598
5,740.0	45.40	161.30	5,545.2	-293.8	675.2	1,890,503.51	1,278,777.01	36.189423	-107.475572
5,772.0	48.50	163.10	5,567.1	-316.0	682.4	1,890,481.16	1,278,783.86	36.189362	-107.475548
5,804.0	52.10	165.40	5,587.5	-339.7	689.0	1,890,457.38	1,278,790.23	36.189297	-107.475525
5,835.0	55.80	167.10	5,605.7	-364.1	695.0	1,890,432.97	1,278,795.87	36.189230	-107.475505
5,867.0	59.70	168.10	5,622.8	-390.5	700.8	1,890,406.47	1,278,801.34	36.189157	-107.475486
5,898.0	63.80	168.90	5,637.5	-417.3	706.2	1,890,379.65	1,278,806.44	36.189084	-107.475467
5,930.0	67.90	170.70	5,650.6	-446.0	711.4	1,890,350.85	1,278,811.24	36.189005	-107.475450
5,962.0	71.60	171.50	5,661.6	-475.7	716.0	1,890,321.14	1,278,815.50	36.188924	-107.475434
5,993.0	75.80	172.60	5,670.3	-505.1	720.2	1,890,291.63	1,278,819.24	36.188843	-107.475420
6,025.0	79.90	173.00	5,677.1	-536.1	724.1	1,890,260.55	1,278,822.77	36.188757	-107.475407
6,053.0	83.90	173.70	5,681.0	-563.7	727.3	1,890,232.98	1,278,825.63	36.188682	-107.475396
6,094.0	88.90	172.20	5,683.6	-604.3	732.3	1,890,192.33	1,278,830.13	36.188570	-107.475379
6,125.0	91.00	173.30	5,683.6	-635.0	736.2	1,890,161.53	1,278,833.66	36.188486	-107.475366
6,157.0	91.30	173.30	5,683.0	-666.8	739.9	1,890,129.71	1,278,836.99	36.188399	-107.475353

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M28-2306 03H
TVD Reference: 15' KB @ 7235.0ft (Aztec)
MD Reference: 15' KB @ 7235.0ft (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
6,188.0	92.20	174.40	5,682.0	-697.6	743.3	1,890,098.87	1,278,839.92	36.188314	-107.475342
6,220.0	92.40	174.20	5,680.8	-729.4	746.4	1,890,067.01	1,278,842.69	36.188227	-107.475331
6,252.0	92.80	174.10	5,679.3	-761.2	749.7	1,890,035.17	1,278,845.55	36.188139	-107.475320
6,283.0	92.30	175.40	5,677.9	-792.1	752.5	1,890,004.30	1,278,847.99	36.188054	-107.475310
6,315.0	90.80	176.20	5,677.1	-824.0	754.9	1,889,972.37	1,278,849.93	36.187967	-107.475302
6,346.0	91.10	176.90	5,676.5	-854.9	756.7	1,889,941.41	1,278,851.40	36.187882	-107.475296
6,378.0	91.50	178.10	5,675.8	-886.9	758.1	1,889,909.44	1,278,852.39	36.187794	-107.475291
6,441.0	92.00	178.30	5,673.9	-949.8	760.1	1,889,846.48	1,278,853.57	36.187621	-107.475285
6,504.0	91.70	179.30	5,671.9	-1,012.7	761.4	1,889,783.51	1,278,854.09	36.187448	-107.475280
6,567.0	91.20	180.20	5,670.3	-1,075.7	761.7	1,889,720.54	1,278,853.57	36.187275	-107.475279
6,630.0	92.10	180.00	5,668.5	-1,138.7	761.6	1,889,657.57	1,278,852.67	36.187102	-107.475280
6,694.0	91.20	179.80	5,666.6	-1,202.7	761.7	1,889,593.60	1,278,851.97	36.186927	-107.475279
6,754.0	91.20	179.00	5,665.4	-1,262.7	762.3	1,889,533.61	1,278,851.84	36.186762	-107.475277
6,815.0	92.40	178.40	5,663.4	-1,323.6	763.7	1,889,472.65	1,278,852.45	36.186594	-107.475273
6,876.0	93.80	178.80	5,660.1	-1,384.5	765.2	1,889,411.74	1,278,853.17	36.186427	-107.475267
6,937.0	93.70	179.00	5,656.1	-1,445.4	766.4	1,889,350.87	1,278,853.56	36.186260	-107.475264
6,998.0	93.20	180.60	5,652.5	-1,506.2	766.6	1,889,289.99	1,278,853.01	36.186093	-107.475263
7,059.0	92.50	179.60	5,649.4	-1,567.2	766.5	1,889,229.07	1,278,852.13	36.185925	-107.475263
7,120.0	91.20	179.20	5,647.5	-1,628.1	767.1	1,889,168.11	1,278,852.00	36.185758	-107.475261
7,181.0	89.80	179.40	5,646.9	-1,689.1	767.9	1,889,107.11	1,278,851.97	36.185590	-107.475258
7,242.0	89.20	178.40	5,647.5	-1,750.1	769.0	1,889,046.11	1,278,852.37	36.185423	-107.475255
7,303.0	89.70	177.70	5,648.1	-1,811.1	771.1	1,888,985.13	1,278,853.67	36.185256	-107.475248
7,364.0	90.00	177.10	5,648.2	-1,872.0	773.9	1,888,924.16	1,278,855.67	36.185088	-107.475238
7,424.0	90.70	176.60	5,647.9	-1,931.9	777.2	1,888,864.22	1,278,858.21	36.184924	-107.475227
7,486.0	90.90	177.90	5,647.0	-1,993.8	780.2	1,888,802.27	1,278,860.40	36.184754	-107.475217
7,546.0	90.40	178.80	5,646.3	-2,053.8	781.9	1,888,742.28	1,278,861.36	36.184589	-107.475211
7,607.0	90.80	179.10	5,645.7	-2,114.8	783.0	1,888,681.28	1,278,861.71	36.184421	-107.475207
7,668.0	89.50	179.70	5,645.5	-2,175.8	783.6	1,888,620.28	1,278,861.58	36.184254	-107.475205
7,729.0	89.90	179.80	5,645.8	-2,236.8	783.9	1,888,559.29	1,278,861.07	36.184086	-107.475204
7,789.0	91.10	180.30	5,645.3	-2,296.8	783.9	1,888,499.30	1,278,860.26	36.183921	-107.475204
7,851.0	91.40	180.80	5,644.0	-2,358.8	783.3	1,888,437.33	1,278,858.88	36.183751	-107.475206
7,912.0	89.60	181.20	5,643.4	-2,419.8	782.2	1,888,376.36	1,278,857.04	36.183584	-107.475210
7,975.0	90.00	181.30	5,643.6	-2,482.7	780.8	1,888,313.40	1,278,854.87	36.183411	-107.475215
8,038.0	90.70	181.20	5,643.3	-2,545.7	779.4	1,888,250.44	1,278,852.70	36.183238	-107.475219
8,101.0	91.40	181.30	5,642.1	-2,608.7	778.1	1,888,187.48	1,278,850.53	36.183065	-107.475224
8,165.0	92.30	181.50	5,640.0	-2,672.6	776.5	1,888,123.56	1,278,848.16	36.182889	-107.475229
8,228.0	91.10	181.60	5,638.2	-2,735.6	774.8	1,888,060.64	1,278,845.66	36.182716	-107.475235
8,291.0	90.50	180.20	5,637.3	-2,798.6	773.8	1,887,997.67	1,278,843.87	36.182543	-107.475238
8,355.0	90.00	179.20	5,637.0	-2,862.6	774.2	1,887,933.68	1,278,843.40	36.182367	-107.475237
8,418.0	90.60	178.70	5,636.7	-2,925.6	775.3	1,887,870.68	1,278,843.75	36.182194	-107.475233
8,481.0	91.10	178.80	5,635.7	-2,988.5	776.7	1,887,807.69	1,278,844.33	36.182021	-107.475229
8,544.0	90.80	178.10	5,634.7	-3,051.5	778.4	1,887,744.70	1,278,845.24	36.181848	-107.475223
8,607.0	89.50	178.10	5,634.5	-3,114.5	780.5	1,887,681.72	1,278,846.53	36.181675	-107.475216
8,671.0	90.20	178.20	5,634.7	-3,178.4	782.5	1,887,617.73	1,278,847.79	36.181500	-107.475209
8,733.0	91.10	177.90	5,634.0	-3,240.4	784.6	1,887,555.75	1,278,849.11	36.181330	-107.475202
8,796.0	92.10	179.50	5,632.2	-3,303.4	786.1	1,887,492.78	1,278,849.74	36.181157	-107.475197
8,859.0	92.00	179.30	5,630.0	-3,366.3	786.7	1,887,429.82	1,278,849.61	36.180984	-107.475195
8,923.0	90.60	179.60	5,628.5	-3,430.3	787.3	1,887,365.84	1,278,849.41	36.180808	-107.475193
8,986.0	89.80	180.20	5,628.3	-3,493.3	787.5	1,887,302.84	1,278,848.72	36.180635	-107.475192
9,049.0	90.40	179.90	5,628.2	-3,556.3	787.4	1,887,239.85	1,278,847.87	36.180462	-107.475193
9,112.0	91.50	180.20	5,627.2	-3,619.3	787.3	1,887,176.87	1,278,847.02	36.180289	-107.475193
9,175.0	90.60	179.80	5,626.0	-3,682.3	787.3	1,887,113.88	1,278,846.22	36.180116	-107.475193
9,239.0	88.90	180.20	5,626.3	-3,746.3	787.3	1,887,049.89	1,278,845.41	36.179940	-107.475193
9,301.0	90.10	180.50	5,626.8	-3,808.3	787.0	1,886,987.90	1,278,844.25	36.179770	-107.475194
9,365.0	90.60	179.10	5,626.4	-3,872.3	787.2	1,886,923.91	1,278,843.66	36.179594	-107.475193

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook M28-2306 03H
Wellbore: Hz
Design: FINAL

Local Co-ordinate Reference: Well Lybrook M28-2306 03H
TVD Reference: 15' KB @ 7235.0ft (Aztec)
MD Reference: 15' KB @ 7235.0ft (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
9,428.0	90.30	177.10	5,625.9	-3,935.2	789.3	1,886,860.93	1,278,844.95	36.179421	-107.475186
9,492.0	91.30	177.10	5,625.0	-3,999.1	792.5	1,886,796.98	1,278,847.38	36.179246	-107.475175
9,555.0	91.20	177.60	5,623.7	-4,062.0	795.4	1,886,734.03	1,278,849.50	36.179073	-107.475165
9,618.0	89.80	178.60	5,623.1	-4,125.0	797.5	1,886,671.05	1,278,850.79	36.178900	-107.475158
9,681.0	90.10	178.90	5,623.2	-4,188.0	798.9	1,886,608.05	1,278,851.37	36.178727	-107.475154
9,744.0	90.60	178.70	5,622.8	-4,251.0	800.2	1,886,545.06	1,278,851.89	36.178554	-107.475149
9,808.0	91.80	179.30	5,621.4	-4,314.9	801.3	1,886,481.07	1,278,852.20	36.178378	-107.475145
9,871.0	92.20	179.60	5,619.3	-4,377.9	801.9	1,886,418.11	1,278,852.00	36.178205	-107.475143
9,934.0	91.10	180.20	5,617.4	-4,440.9	802.0	1,886,355.14	1,278,851.32	36.178032	-107.475143
9,997.0	90.90	179.90	5,616.3	-4,503.9	802.0	1,886,292.16	1,278,850.46	36.177859	-107.475143
10,060.0	92.10	180.20	5,614.7	-4,566.8	801.9	1,886,229.19	1,278,849.61	36.177686	-107.475143
10,123.0	92.00	180.90	5,612.4	-4,629.8	801.3	1,886,166.24	1,278,848.21	36.177513	-107.475145
10,185.0	91.40	182.00	5,610.6	-4,691.8	799.8	1,886,104.31	1,278,845.86	36.177343	-107.475151
10,249.0	91.40	182.40	5,609.0	-4,755.7	797.3	1,886,040.42	1,278,842.59	36.177167	-107.475159
10,312.0	90.10	182.00	5,608.2	-4,818.6	794.9	1,885,977.51	1,278,839.38	36.176995	-107.475167
10,375.0	90.70	181.70	5,607.8	-4,881.6	792.9	1,885,914.57	1,278,836.55	36.176822	-107.475174
10,438.0	91.50	181.90	5,606.6	-4,944.6	790.9	1,885,851.64	1,278,833.77	36.176649	-107.475181
10,502.0	89.90	180.80	5,605.8	-5,008.5	789.4	1,885,787.69	1,278,831.46	36.176473	-107.475186
10,565.0	90.30	180.30	5,605.7	-5,071.5	788.8	1,885,724.71	1,278,830.05	36.176300	-107.475188
10,623.0	91.10	180.50	5,605.0	-5,129.5	788.4	1,885,666.75	1,278,828.92	36.176141	-107.475189
Last CES Survey @ 10,623' MD									
10,673.0	91.10	180.50	5,604.0	-5,179.5	787.9	1,885,616.77	1,278,827.85	36.176003	-107.475191
PTB @ 10,673'									

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
- Shape									
Lybrook M28-2306 03H I	0.00	0.00	5,594.4	-5,195.2	799.9	1,885,600.87	1,278,839.65	36.175960	-107.475150
- actual wellpath misses target center by 22.0ft at 10673.0ft MD (5604.0 TVD, -5179.5 N, 787.9 E)									
- Point									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,957.6	5,660.2	TL		-0.80	179.00

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates	Comment
		+N/-S (ft)	+E/-W (ft)
10,623.0	5,605.0	-5,129.5	788.4
10,673.0	5,604.0	-5,179.5	787.9
Last CES Survey @ 10,623' MD			
PTB @ 10,673'			

Checked By: _____ Approved By: _____ Date: _____