

CONFIDENTIAL

District I
1500 N. French Drive, Hobbs, NM 88240
Phone (505) 393-6161 Fax (505) 393-0720
District II
1111 S. First Street, Artesia, NM 88213
Phone (505) 749-1201 Fax (505) 749-9720
District III
1000 Rio Brazos Road Aztec, NM 87410
Phone (505) 334-6170 Fax (505) 334-6170
District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone (505) 476-3460 Fax (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form O-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT
☒ As-Drilled

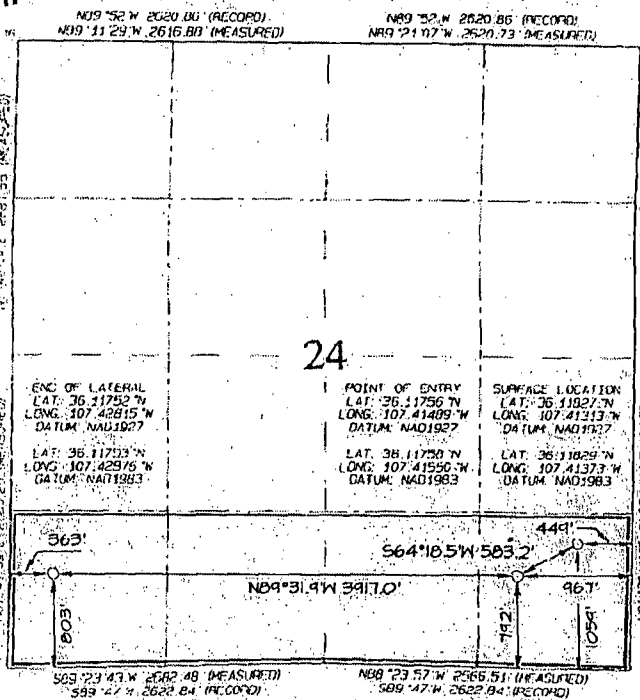
WELL LOCATION AND ACREAGE DEDICATION PLAN

API Number 30-043-21124		Pool Code 98032		Pool Name WILDCAT (GALLUP)	
Property Code 39970		Property Name LYBROOK P24-2205		Well Number 014	
Lease No. 282327		Operator Name ENCANA OIL & GAS (USA) INC.		Elevation 7178	
10 Surface Location					
UL of Lot No. P	Section 24	Township 22N	Range 6W	Lot No. 1059	Feet from the SOUTH 449
11 Bottom Hole Location If Different From Surface					
UL of Lot No. M	Section 24	Township 22N	Range 6W	Lot No. 803	Feet from the SOUTH 363
Undeclared Acres 160.0 Acres -- (5/2 S/2)		Competition Code		Order No.	

1671

OIL CONS. DIV. DIST. 3
MAY 22 2014

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



OPERATOR CERTIFICATION
I hereby certify that the information contained herein is true and correct to the best of my knowledge and belief, and that this information was obtained from reliable sources. I understand that this information is being used for the purpose of obtaining a well location and that I am responsible for the accuracy of the information provided.

Signature: *Katie Wegner*
Date: 05/12/14
Printed Name: Katie Wegner
E-mail Address: katie.wegner@encana.com

SURVEYOR CERTIFICATION
I hereby certify that the well location shown on this plan was located, marked, and measured in accordance with the rules and regulations of the State of New Mexico. I am a duly licensed professional surveyor and I am responsible for the accuracy of the information provided.

Date Revised: MAY 18, 2014
Survey Date: AUGUST 24, 2012
Signature and Seal of Professional Surveyor:
JASON C. EDWARDS
Certificate Number: 15269

AV

CONFIDENTIAL

DEVIATION SURVEYS

MD (Feet)	Inclination (Degree)
740	.6
1047	1.6
1351	1.4
1662	1
1978	.4
2293	.9
2608	.5
2923	.4
3238	.4
3553	.8
3868	.6
4164	1.5
4322	7.1
4479	6.4
4637	10.3

OIL CONS. DIV DIST. 3
MAY 22 2014

OPERATOR CERTIFICATION

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

Melissa Lasley
Melissa Lasley, Engineering Technologist

05/13/2014

ACKNOWLEDGMENT

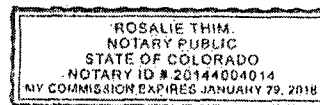
State of Colorado
City and County of Denver

This instrument was acknowledged before me on this 13th day of May, 2014 by Melissa Lasley 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.

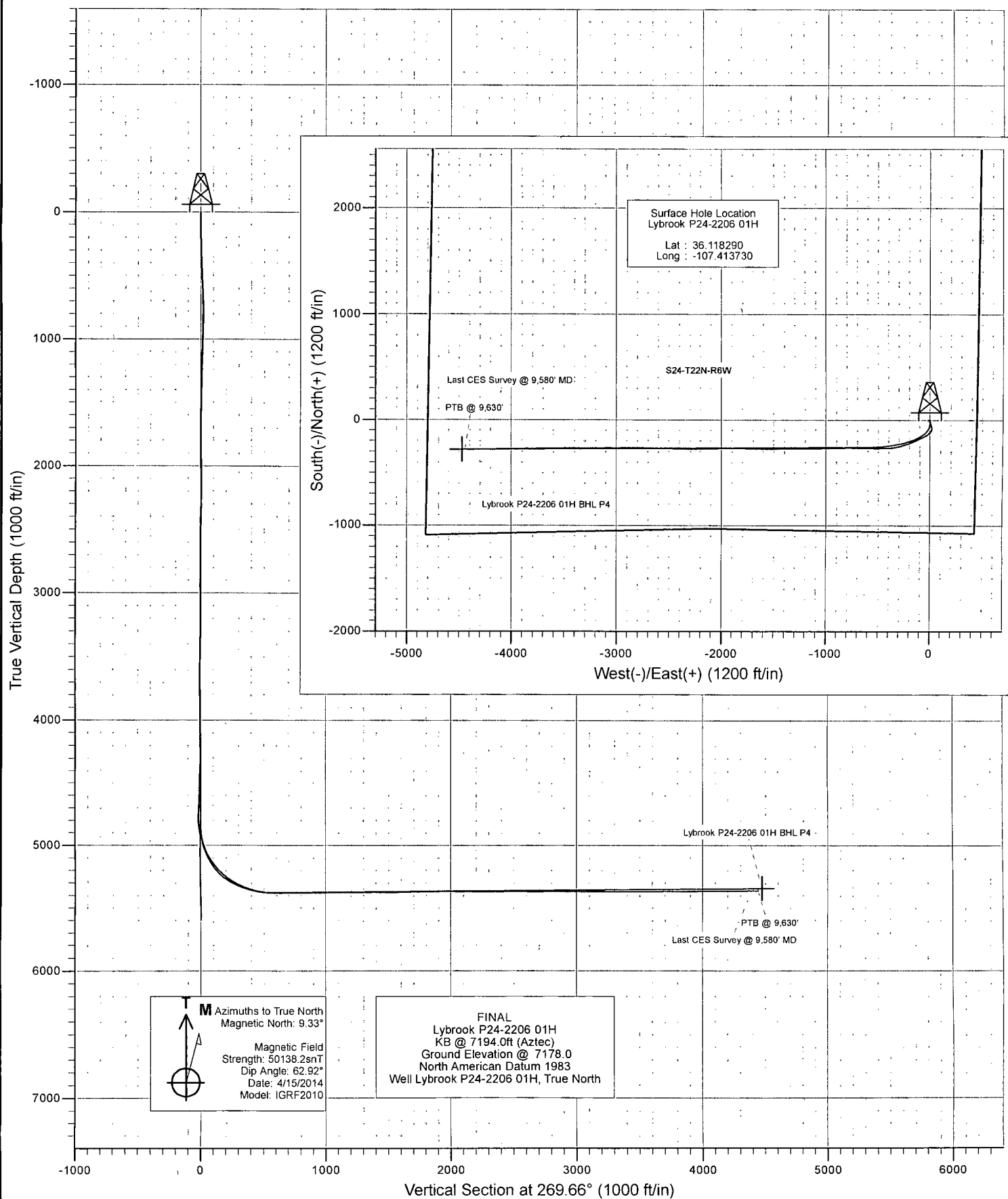
Notary Public: *Rosalie Thim*

My Commission Expires: 1/29/2018



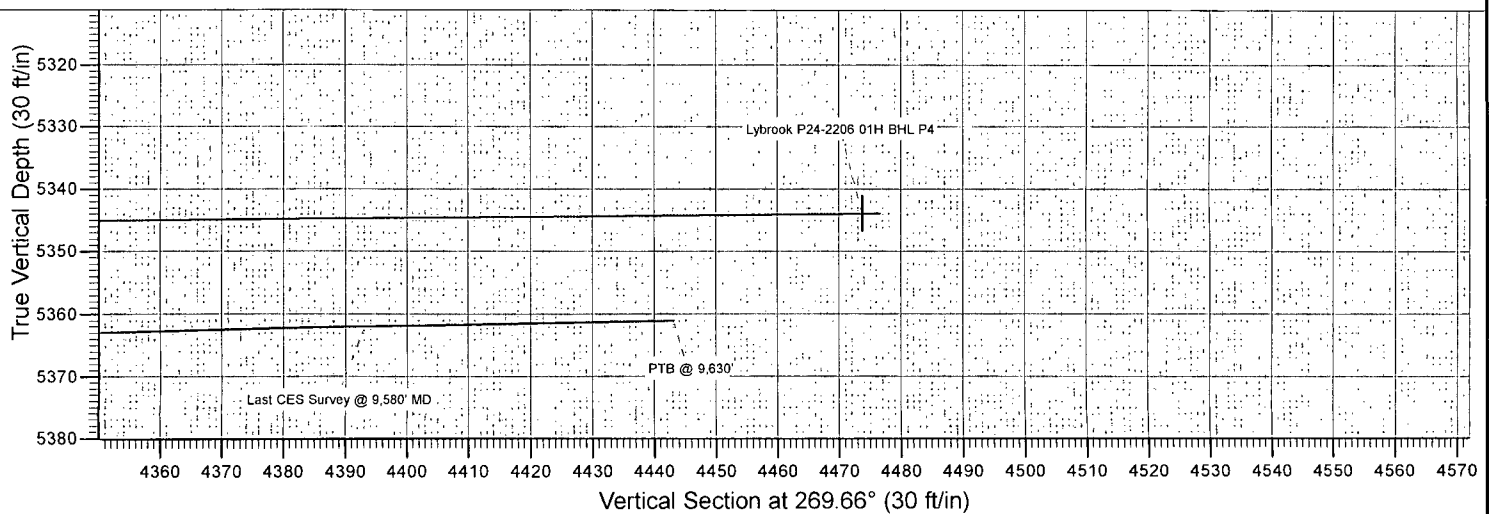
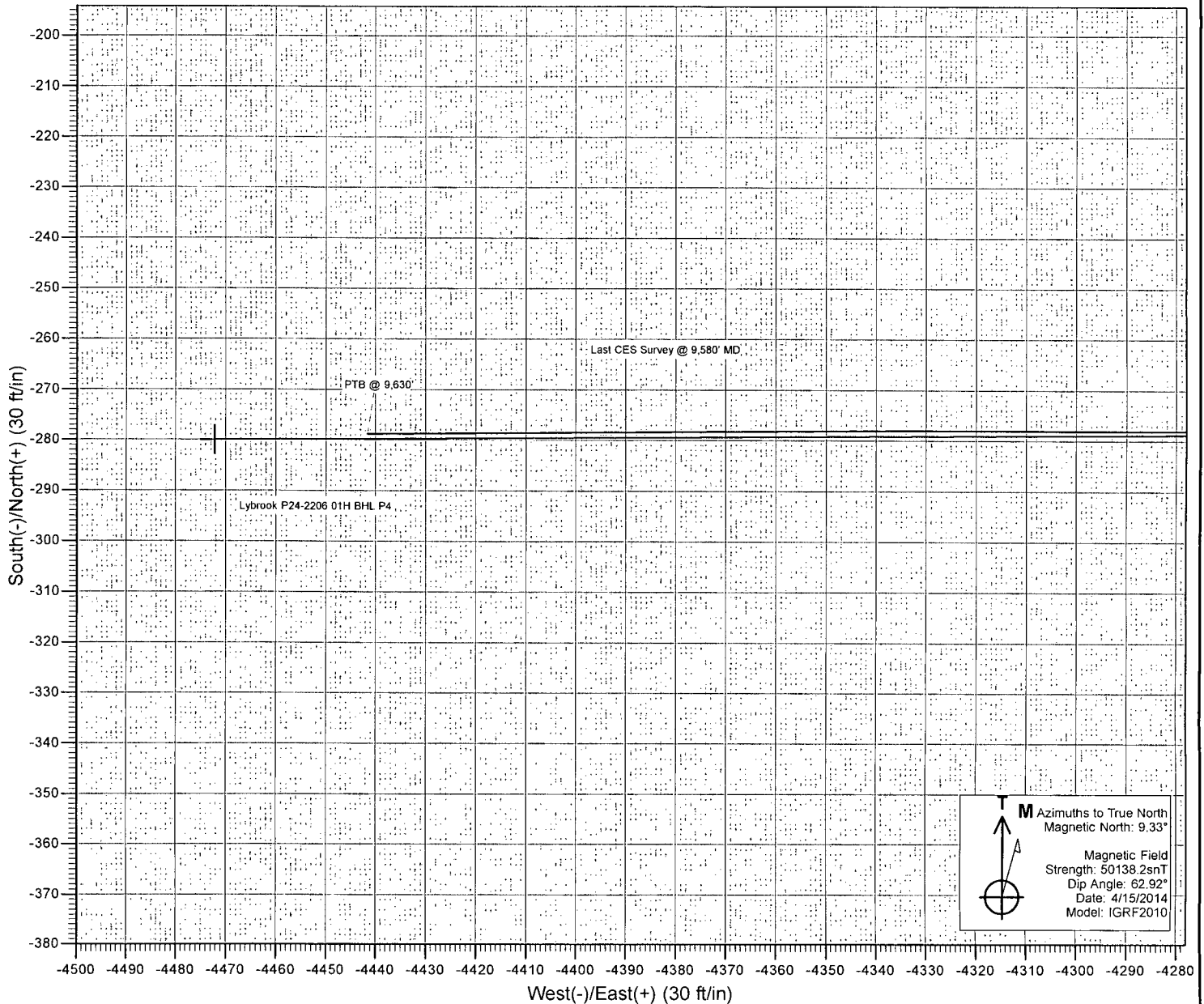


Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook P24-2206 01H
 Wellbore: LATERAL
 Design: FINAL



encana

Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook P24-2206 01H
Wellbore: LATERAL
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook P24-2206 01H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7194.0ft (Aztec)
Site:	Lybrook	MD Reference:	KB @ 7194.0ft (Aztec)
Well:	Lybrook P24-2206 01H	North Reference:	True
Wellbore:	LATERAL	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 P24-2206 01H		
Well Position	+N/-S	0.0 ft	Northing: 1,864,383.89 ft
	+E/-W	0.0 ft	Easting: 1,296,715.85 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	36.118290
		Longitude:	-107.413730
		Ground Level:	7,178.0 ft

Wellbore	LATERAL				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/15/2014	9.33	62.92	50,138

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	4,120.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	269.66	

Survey Program	Date 4/28/2014				
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
557.0	4,120.0	Survey #1 (PILOT HOLE)	Geolink MWD	Geolink MWD	
4,164.0	9,630.0	Survey #1 (LATERAL)	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	
557.0	3.10	275.30	556.7	1.4	-15.0	15.0	0.56	0.56	
618.0	1.80	261.20	617.7	1.4	-17.6	17.6	2.33	-2.13	
679.0	1.40	259.30	678.6	1.1	-19.3	19.3	0.66	-0.66	
740.0	0.60	211.50	739.6	0.7	-20.2	20.2	1.79	-1.31	
802.0	0.50	195.30	801.6	0.2	-20.4	20.4	0.30	-0.16	
863.0	0.90	86.10	862.6	-0.1	-20.0	20.0	1.91	0.66	
924.0	1.50	91.90	923.6	-0.1	-18.7	18.7	1.00	0.98	
985.0	1.50	90.30	984.6	-0.1	-17.1	17.1	0.07	0.00	
1,047.0	1.60	84.00	1,046.6	0.0	-15.5	15.5	0.32	0.16	
1,107.0	1.60	80.80	1,106.6	0.2	-13.8	13.8	0.15	0.00	
1,168.0	1.80	89.80	1,167.5	0.4	-12.0	12.0	0.55	0.33	

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 Design: FINAL

Local Co-ordinate Reference: Well Lybrook P24-2206 01H
 TVD Reference: KB @ 7194.0ft (Aztec)
 MD Reference: KB @ 7194.0ft (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
1,230.0	1.50	94.00	1,229.5	0.3	-10.2	10.2	0.52	-0.48	
1,291.0	1.50	95.60	1,290.5	0.2	-8.6	8.6	0.07	0.00	
1,351.0	1.40	95.40	1,350.5	0.0	-7.1	7.1	0.17	-0.17	
1,412.0	0.80	70.10	1,411.5	0.1	-6.0	6.0	1.24	-0.98	
1,473.0	0.80	46.00	1,472.4	0.5	-5.3	5.3	0.55	0.00	
1,536.0	0.80	48.20	1,535.4	1.1	-4.6	4.6	0.05	0.00	
1,599.0	0.80	44.70	1,598.4	1.8	-4.0	4.0	0.08	0.00	
1,662.0	1.00	31.70	1,661.4	2.5	-3.4	3.4	0.45	0.32	
1,725.0	0.90	34.20	1,724.4	3.4	-2.8	2.8	0.17	-0.16	
1,788.0	0.60	300.70	1,787.4	4.0	-2.8	2.8	1.76	-0.48	
1,851.0	0.70	288.80	1,850.4	4.3	-3.5	3.4	0.27	0.16	
1,915.0	0.40	220.40	1,914.4	4.2	-4.0	4.0	1.04	-0.47	
1,978.0	0.40	201.30	1,977.4	3.9	-4.2	4.2	0.21	0.00	
2,041.0	0.70	195.20	2,040.4	3.3	-4.4	4.4	0.48	0.48	
2,104.0	0.90	211.90	2,103.4	2.5	-4.8	4.7	0.48	0.32	
2,167.0	0.80	200.80	2,166.4	1.7	-5.2	5.2	0.31	-0.16	
2,230.0	0.60	123.50	2,229.4	1.1	-5.0	5.0	1.41	-0.32	
2,293.0	0.90	90.80	2,292.4	0.9	-4.3	4.3	0.81	0.48	
2,356.0	0.90	99.20	2,355.4	0.8	-3.3	3.3	0.21	0.00	
2,419.0	0.80	99.30	2,418.4	0.6	-2.4	2.4	0.16	-0.16	
2,482.0	0.80	102.70	2,481.4	0.5	-1.5	1.5	0.08	0.00	
2,545.0	0.70	99.30	2,544.4	0.3	-0.7	0.7	0.17	-0.16	
2,608.0	0.50	92.30	2,607.4	0.2	0.0	0.0	0.34	-0.32	
2,671.0	0.30	78.40	2,670.4	0.3	0.4	-0.4	0.35	-0.32	
2,734.0	0.10	52.00	2,733.4	0.3	0.6	-0.6	0.34	-0.32	
2,797.0	0.10	68.10	2,796.4	0.4	0.7	-0.7	0.04	0.00	
2,860.0	0.10	204.20	2,859.4	0.4	0.7	-0.7	0.29	0.00	
2,923.0	0.40	204.80	2,922.4	0.1	0.6	-0.6	0.48	0.48	
2,986.0	0.50	208.30	2,985.3	-0.3	0.4	-0.4	0.16	0.16	
3,049.0	0.50	198.80	3,048.3	-0.8	0.2	-0.2	0.13	0.00	
3,112.0	0.80	178.10	3,111.3	-1.5	0.1	-0.1	0.60	0.48	
3,175.0	0.80	181.70	3,174.3	-2.4	0.1	-0.1	0.08	0.00	
3,238.0	0.40	109.60	3,237.3	-2.9	0.3	-0.3	1.23	-0.63	
3,301.0	0.70	69.10	3,300.3	-2.9	0.8	-0.8	0.75	0.48	
3,364.0	0.60	74.40	3,363.3	-2.6	1.5	-1.5	0.19	-0.16	
3,427.0	0.40	83.30	3,426.3	-2.5	2.1	-2.0	0.34	-0.32	
3,490.0	0.80	77.00	3,489.3	-2.4	2.7	-2.7	0.64	0.63	
3,553.0	0.80	73.60	3,552.3	-2.2	3.6	-3.5	0.08	0.00	
3,616.0	1.10	352.90	3,615.3	-1.5	3.9	-3.9	1.99	0.48	
3,679.0	1.90	348.20	3,678.3	0.2	3.6	-3.6	1.28	1.27	
3,742.0	1.50	336.80	3,741.3	2.0	3.1	-3.1	0.83	-0.63	
3,805.0	1.10	331.80	3,804.2	3.2	2.5	-2.5	0.66	-0.63	
3,868.0	0.60	296.80	3,867.2	3.9	1.9	-1.9	1.11	-0.79	
3,931.0	0.50	273.80	3,930.2	4.1	1.3	-1.3	0.38	-0.16	
3,994.0	0.40	252.90	3,993.2	4.0	0.8	-0.9	0.30	-0.16	
4,057.0	0.40	237.90	4,056.2	3.9	0.4	-0.5	0.17	0.00	
4,120.0	0.70	240.40	4,119.2	3.6	-0.1	0.1	0.48	0.48	
4,164.0	1.50	254.50	4,163.2	3.3	-0.9	0.9	1.91	1.82	
4,196.0	1.50	247.80	4,195.2	3.0	-1.7	1.6	0.55	0.00	
4,227.0	2.60	201.20	4,226.2	2.2	-2.3	2.3	6.16	3.55	
4,259.0	5.60	179.30	4,258.1	0.0	-2.5	2.5	10.41	9.37	
4,290.0	6.60	178.40	4,288.9	-3.3	-2.5	2.5	3.24	3.23	
4,322.0	7.10	171.10	4,320.7	-7.1	-2.1	2.2	3.13	1.56	

Cathedral Energy Services

Survey Report

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 Design: FINAL

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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
4,353.0	7.40	162.40	4,351.4	-10.9	-1.2	1.3	3.67	0.97	
4,385.0	7.40	161.60	4,383.2	-14.9	0.1	0.0	0.32	0.00	
4,416.0	7.20	160.80	4,413.9	-18.6	1.3	-1.2	0.72	-0.65	
4,448.0	7.00	160.80	4,445.7	-22.3	2.6	-2.5	0.62	-0.62	
4,479.0	6.40	159.30	4,476.5	-25.7	3.9	-3.7	2.02	-1.94	
4,511.0	6.00	158.50	4,508.3	-28.9	5.1	-4.9	1.28	-1.25	
4,543.0	6.20	168.70	4,540.1	-32.2	6.1	-5.9	3.44	0.62	
4,574.0	7.70	172.60	4,570.9	-35.9	6.7	-6.4	5.07	4.84	
4,605.0	9.00	173.30	4,601.6	-40.4	7.2	-7.0	4.21	4.19	
4,637.0	10.30	169.90	4,633.1	-45.7	8.0	-7.7	4.43	4.06	
4,668.0	12.10	164.70	4,663.5	-51.5	9.3	-9.0	6.65	5.81	
4,700.0	13.40	160.30	4,694.7	-58.3	11.5	-11.1	5.07	4.06	
4,732.0	14.40	160.50	4,725.8	-65.5	14.1	-13.7	3.13	3.12	
4,763.0	14.20	170.30	4,755.8	-72.9	16.0	-15.6	7.83	-0.65	
4,794.0	14.20	184.30	4,785.9	-80.4	16.3	-15.9	11.05	0.00	
4,826.0	14.90	193.80	4,816.9	-88.3	15.1	-14.5	7.76	2.19	
4,857.0	15.60	202.00	4,846.8	-96.1	12.6	-12.0	7.31	2.26	
4,889.0	16.00	209.90	4,877.6	-103.9	8.7	-8.1	6.83	1.25	
4,920.0	17.00	217.70	4,907.3	-111.2	3.8	-3.2	7.83	3.23	
4,952.0	18.50	225.70	4,937.8	-118.4	-2.7	3.4	8.94	4.69	
4,983.0	20.50	229.00	4,967.0	-125.4	-10.3	11.0	7.36	6.45	
5,015.0	22.10	231.90	4,996.8	-132.8	-19.2	20.0	5.99	5.00	
5,047.0	23.90	235.70	5,026.3	-140.2	-29.3	30.2	7.29	5.62	
5,078.0	25.20	239.20	5,054.5	-147.1	-40.2	41.1	6.29	4.19	
5,110.0	26.20	243.50	5,083.3	-153.7	-52.4	53.3	6.61	3.13	
5,142.0	29.30	244.50	5,111.6	-160.3	-65.8	66.7	9.80	9.69	
5,174.0	33.60	245.40	5,138.9	-167.3	-80.9	81.9	13.52	13.44	
5,205.0	36.70	246.20	5,164.3	-174.6	-97.2	98.2	10.11	10.00	
5,237.0	40.60	245.50	5,189.2	-182.8	-115.4	116.5	12.26	12.19	
5,268.0	43.60	245.90	5,212.2	-191.4	-134.3	135.5	9.72	9.68	
5,300.0	48.00	247.20	5,234.5	-200.5	-155.4	156.6	14.05	13.75	
5,331.0	53.00	248.00	5,254.3	-209.6	-177.5	178.7	16.25	16.13	
5,363.0	57.20	248.80	5,272.6	-219.2	-201.9	203.2	13.28	13.12	
5,394.0	60.10	250.70	5,288.7	-228.4	-226.7	228.1	10.72	9.35	
5,425.0	63.00	253.10	5,303.5	-236.9	-252.6	254.0	11.57	9.35	
5,457.0	65.30	256.00	5,317.4	-244.5	-280.4	281.8	10.87	7.19	
5,489.0	68.10	258.60	5,330.1	-251.0	-309.0	310.5	11.50	8.75	
5,520.0	70.80	261.10	5,341.0	-256.1	-337.6	339.1	11.53	8.71	
5,552.0	73.40	263.60	5,350.8	-260.1	-367.8	369.3	11.01	8.12	
5,583.0	75.90	265.90	5,359.0	-262.9	-397.6	399.1	10.78	8.06	
5,615.0	78.00	268.60	5,366.2	-264.3	-428.7	430.2	10.52	6.56	
5,630.0	78.70	269.60	5,369.3	-264.6	-443.4	444.9	8.03	4.67	
5,660.0	80.60	270.50	5,374.6	-264.6	-472.9	474.4	6.99	6.33	
5,691.0	83.80	270.60	5,378.8	-264.3	-503.6	505.1	10.33	10.32	
5,721.0	87.90	271.10	5,381.0	-263.8	-533.5	535.1	13.77	13.67	
5,751.0	89.60	271.20	5,381.7	-263.2	-563.5	565.0	5.68	5.67	
5,814.0	90.60	271.40	5,381.6	-261.8	-626.5	628.0	1.62	1.59	
5,877.0	90.90	270.00	5,380.7	-261.0	-689.5	691.0	2.27	0.48	
5,940.0	89.80	269.60	5,380.4	-261.2	-752.5	754.0	1.86	-1.75	
6,004.0	90.10	269.00	5,380.4	-262.0	-816.5	818.0	1.05	0.47	
6,067.0	90.80	268.90	5,379.9	-263.2	-879.4	881.0	1.12	1.11	
6,130.0	90.30	269.40	5,379.3	-264.1	-942.4	944.0	1.12	-0.79	
6,193.0	90.50	268.60	5,378.9	-265.2	-1,005.4	1,007.0	1.31	0.32	

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 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
6,256.0	90.80	267.40	5,378.2	-267.4	-1,068.4	1,069.9	1.96	0.48	
6,319.0	90.50	270.00	5,377.4	-268.8	-1,131.3	1,132.9	4.15	-0.48	
6,376.0	90.60	270.80	5,376.9	-268.4	-1,188.3	1,189.9	1.41	0.18	
6,439.0	90.20	270.20	5,376.5	-267.9	-1,251.3	1,252.9	1.14	-0.63	
6,502.0	90.60	269.10	5,376.0	-268.3	-1,314.3	1,315.9	1.86	0.63	
6,565.0	90.30	269.50	5,375.5	-269.0	-1,377.3	1,378.9	0.79	-0.48	
6,629.0	90.20	267.50	5,375.2	-270.7	-1,441.3	1,442.9	3.13	-0.16	
6,692.0	90.60	269.10	5,374.8	-272.6	-1,504.3	1,505.9	2.62	0.63	
6,755.0	90.60	269.80	5,374.1	-273.2	-1,567.3	1,568.9	1.11	0.00	
6,818.0	90.70	270.00	5,373.4	-273.3	-1,630.3	1,631.9	0.35	0.16	
6,881.0	91.30	272.70	5,372.3	-271.8	-1,693.2	1,694.8	4.39	0.95	
6,944.0	90.70	272.30	5,371.2	-269.1	-1,756.2	1,757.7	1.14	-0.95	
7,007.0	91.50	271.90	5,370.0	-266.8	-1,819.1	1,820.7	1.42	1.27	
7,070.0	91.70	270.30	5,368.3	-265.5	-1,882.1	1,883.6	2.56	0.32	
7,133.0	90.10	268.70	5,367.3	-266.1	-1,945.0	1,946.6	3.59	-2.54	
7,196.0	88.70	268.30	5,367.9	-267.7	-2,008.0	2,009.6	2.31	-2.22	
7,259.0	89.20	268.30	5,369.1	-269.6	-2,071.0	2,072.5	0.79	0.79	
7,322.0	90.20	268.70	5,369.4	-271.3	-2,134.0	2,135.5	1.71	1.59	
7,385.0	89.30	269.50	5,369.7	-272.3	-2,197.0	2,198.5	1.91	-1.43	
7,448.0	89.80	269.70	5,370.2	-272.7	-2,259.9	2,261.5	0.85	0.79	
7,511.0	90.90	269.80	5,369.8	-273.0	-2,322.9	2,324.5	1.75	1.75	
7,574.0	90.30	271.70	5,369.1	-272.1	-2,385.9	2,387.5	3.16	-0.95	
7,637.0	90.30	270.80	5,368.8	-270.8	-2,448.9	2,450.5	1.43	0.00	
7,700.0	89.70	271.50	5,368.8	-269.5	-2,511.9	2,513.5	1.46	-0.95	
7,763.0	90.10	271.20	5,368.9	-268.0	-2,574.9	2,576.4	0.79	0.63	
7,826.0	89.40	271.20	5,369.2	-266.7	-2,637.9	2,639.4	1.11	-1.11	
7,889.0	89.70	271.30	5,369.7	-265.3	-2,700.9	2,702.4	0.50	0.48	
7,952.0	90.80	271.40	5,369.4	-263.8	-2,763.8	2,765.4	1.75	1.75	
8,014.0	90.20	270.50	5,368.9	-262.8	-2,825.8	2,827.3	1.74	-0.97	
8,077.0	90.10	268.90	5,368.7	-263.1	-2,888.8	2,890.3	2.54	-0.16	
8,140.0	89.60	269.80	5,368.9	-263.9	-2,951.8	2,953.3	1.63	-0.79	
8,203.0	90.40	270.50	5,368.9	-263.7	-3,014.8	3,016.3	1.69	1.27	
8,265.0	89.50	269.70	5,368.9	-263.6	-3,076.8	3,078.3	1.94	-1.45	
8,329.0	90.20	269.60	5,369.1	-264.0	-3,140.8	3,142.3	1.10	1.09	
8,392.0	90.00	268.50	5,369.0	-265.0	-3,203.8	3,205.3	1.77	-0.32	
8,454.0	89.60	269.40	5,369.2	-266.2	-3,265.8	3,267.3	1.59	-0.65	
8,518.0	90.80	270.90	5,369.0	-266.0	-3,329.8	3,331.3	3.00	1.87	
8,580.0	88.80	269.40	5,369.2	-265.8	-3,391.8	3,393.3	4.03	-3.23	
8,643.0	90.10	269.30	5,369.8	-266.5	-3,454.8	3,456.3	2.07	2.06	
8,706.0	91.00	269.20	5,369.2	-267.4	-3,517.8	3,519.3	1.44	1.43	
8,768.0	89.50	269.10	5,368.9	-268.3	-3,579.8	3,581.3	2.42	-2.42	
8,831.0	89.50	268.40	5,369.5	-269.7	-3,642.7	3,644.3	1.11	0.00	
8,894.0	90.10	268.70	5,369.7	-271.3	-3,705.7	3,707.3	1.06	0.95	
8,957.0	91.10	268.80	5,369.0	-272.6	-3,768.7	3,770.2	1.60	1.59	
9,020.0	90.80	269.80	5,368.0	-273.4	-3,831.7	3,833.2	1.66	-0.48	
9,083.0	89.60	268.00	5,367.8	-274.6	-3,894.7	3,896.2	3.43	-1.90	
9,145.0	90.50	268.50	5,367.7	-276.5	-3,956.6	3,958.2	1.66	1.45	
9,208.0	91.30	268.80	5,366.7	-278.0	-4,019.6	4,021.2	1.36	1.27	
9,272.0	91.00	269.80	5,365.4	-278.8	-4,083.6	4,085.2	1.63	-0.47	
9,335.0	89.30	270.50	5,365.3	-278.6	-4,146.6	4,148.2	2.92	-2.70	
9,398.0	90.50	270.10	5,365.4	-278.3	-4,209.6	4,211.2	2.01	1.90	
9,461.0	91.10	270.40	5,364.5	-278.0	-4,272.6	4,274.2	1.06	0.95	
9,523.0	91.40	269.70	5,363.2	-277.9	-4,334.6	4,336.2	1.23	0.48	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook P24-2206 01H
Wellbore: LATERAL
Design: FINAL

Local Co-ordinate Reference: Well Lybrook P24-2206 01H
TVD Reference: KB @ 7194.0ft (Aztec)
MD Reference: KB @ 7194.0ft (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
9,580.0	91.00	269.50	5,362.0	-278.3	-4,391.5	4,393.1	0.78	-0.70	Last CES Survey @ 9,580' MD
9,630.0	91.00	269.50	5,361.1	-278.8	-4,441.5	4,443.1	0.00	0.00	PTB @ 9,630'

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 P24-2206 01H	0.00	0.00	5,343.9	-280.0	-4,472.1	1,864,157.50	1,292,240.70	36.117520	-107.428870
- actual wellpath misses target center by 35.1ft at 9630.0ft MD (5361.1 TVD, -278.8 N, -4441.5 E)									
- Point									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
9,580.0	5,362.0	-278.3	-4,391.5	Last CES Survey @ 9,580' MD
9,630.0	5,361.1	-278.8	-4,441.5	PTB @ 9,630'

Checked By: _____ Approved By: _____ Date: _____

EnCana Oil & Gas (USA) Inc

Sandoval County, NM

Lybrook

Lybrook P24-2206 01H

LATERAL

Design: FINAL

Survey Report - Geographic

28 April, 2014

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook P24-2206 01H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7194.0ft (Aztec)
Site:	Lybrook	MD Reference:	KB @ 7194.0ft (Aztec)
Well:	Lybrook P24-2206 01H	North Reference:	True
Wellbore:	LATERAL	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 P24-2206 01H					
Well Position	+N/-S	0.0 ft	Northing:	1,864,383.89 ft	Latitude:	36.118290
	+E/-W	0.0 ft	Easting:	1,296,715.85 ft	Longitude:	-107.413730
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,178.0 ft

Wellbore	LATERAL				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/15/2014	9.33	62.92	50,138

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	4,120.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	269.66	

Survey Program	Date	4/28/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
557.0	4,120.0	Survey #1 (PILOT HOLE)	Geolink MWD	Geolink MWD
4,164.0	9,630.0	Survey #1 (LATERAL)	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	1,864,383.89	1,296,715.85	36.118290	-107.413730
557.0	3.10	275.30	556.7	1.4	-15.0	1,864,385.47	1,296,700.87	36.118294	-107.413781
618.0	1.80	261.20	617.7	1.4	-17.6	1,864,385.50	1,296,698.28	36.118294	-107.413790
679.0	1.40	259.30	678.6	1.1	-19.3	1,864,385.24	1,296,696.59	36.118293	-107.413796
740.0	0.60	211.50	739.6	0.7	-20.2	1,864,384.84	1,296,695.69	36.118292	-107.413799
802.0	0.50	195.30	801.6	0.2	-20.4	1,864,384.30	1,296,695.44	36.118290	-107.413799
863.0	0.90	86.10	862.6	-0.1	-20.0	1,864,384.07	1,296,695.85	36.118290	-107.413798
924.0	1.50	91.90	923.6	-0.1	-18.7	1,864,384.06	1,296,697.12	36.118290	-107.413794
985.0	1.50	90.30	984.6	-0.1	-17.1	1,864,384.02	1,296,698.72	36.118290	-107.413788
1,047.0	1.60	84.00	1,046.6	0.0	-15.5	1,864,384.08	1,296,700.39	36.118290	-107.413783
1,107.0	1.60	80.80	1,106.6	0.2	-13.8	1,864,384.28	1,296,702.06	36.118291	-107.413777

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook P24-2206 01H
 Wellbore: LATERAL
 Design: FINAL

Local Co-ordinate Reference: Well Lybrook P24-2206 01H
 TVD Reference: KB @ 7194.0ft (Aztec)
 MD Reference: KB @ 7194.0ft (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	
1,168.0	1.80	89.80	1,167.5	0.4	-12.0	1,864,384.40	1,296,703.86	36.118291	-107.413771	
1,230.0	1.50	94.00	1,229.5	0.3	-10.2	1,864,384.33	1,296,705.64	36.118291	-107.413765	
1,291.0	1.50	95.60	1,290.5	0.2	-8.6	1,864,384.17	1,296,707.23	36.118291	-107.413759	
1,351.0	1.40	95.40	1,350.5	0.0	-7.1	1,864,384.01	1,296,708.74	36.118290	-107.413754	
1,412.0	0.80	70.10	1,411.5	0.1	-6.0	1,864,384.07	1,296,709.88	36.118290	-107.413750	
1,473.0	0.80	46.00	1,472.4	0.5	-5.3	1,864,384.50	1,296,710.59	36.118292	-107.413748	
1,536.0	0.80	48.20	1,535.4	1.1	-4.6	1,864,385.09	1,296,711.24	36.118293	-107.413746	
1,599.0	0.80	44.70	1,598.4	1.8	-4.0	1,864,385.69	1,296,711.89	36.118295	-107.413744	
1,662.0	1.00	31.70	1,661.4	2.5	-3.4	1,864,386.47	1,296,712.50	36.118297	-107.413742	
1,725.0	0.90	34.20	1,724.4	3.4	-2.8	1,864,387.34	1,296,713.07	36.118299	-107.413740	
1,788.0	0.60	300.70	1,787.4	4.0	-2.8	1,864,387.91	1,296,713.07	36.118301	-107.413740	
1,851.0	0.70	288.80	1,850.4	4.3	-3.5	1,864,388.21	1,296,712.43	36.118302	-107.413742	
1,915.0	0.40	220.40	1,914.4	4.2	-4.0	1,864,388.18	1,296,711.91	36.118302	-107.413744	
1,978.0	0.40	201.30	1,977.4	3.9	-4.2	1,864,387.81	1,296,711.69	36.118301	-107.413745	
2,041.0	0.70	195.20	2,040.4	3.3	-4.4	1,864,387.23	1,296,711.50	36.118299	-107.413745	
2,104.0	0.90	211.90	2,103.4	2.5	-4.8	1,864,386.44	1,296,711.13	36.118297	-107.413746	
2,167.0	0.80	200.80	2,166.4	1.7	-5.2	1,864,385.62	1,296,710.70	36.118295	-107.413748	
2,230.0	0.60	123.50	2,229.4	1.1	-5.0	1,864,385.02	1,296,710.81	36.118293	-107.413747	
2,293.0	0.90	90.80	2,292.4	0.9	-4.3	1,864,384.83	1,296,711.58	36.118292	-107.413745	
2,356.0	0.90	99.20	2,355.4	0.8	-3.3	1,864,384.73	1,296,712.56	36.118292	-107.413741	
2,419.0	0.80	99.30	2,418.4	0.6	-2.4	1,864,384.57	1,296,713.48	36.118292	-107.413738	
2,482.0	0.80	102.70	2,481.4	0.5	-1.5	1,864,384.39	1,296,714.34	36.118291	-107.413735	
2,545.0	0.70	99.30	2,544.4	0.3	-0.7	1,864,384.22	1,296,715.15	36.118291	-107.413733	
2,608.0	0.50	92.30	2,607.4	0.2	0.0	1,864,384.14	1,296,715.80	36.118291	-107.413730	
2,671.0	0.30	78.40	2,670.4	0.3	0.4	1,864,384.16	1,296,716.24	36.118291	-107.413729	
2,734.0	0.10	52.00	2,733.4	0.3	0.6	1,864,384.22	1,296,716.45	36.118291	-107.413728	
2,797.0	0.10	68.10	2,796.4	0.4	0.7	1,864,384.27	1,296,716.54	36.118291	-107.413728	
2,860.0	0.10	204.20	2,859.4	0.4	0.7	1,864,384.24	1,296,716.57	36.118291	-107.413728	
2,923.0	0.40	204.80	2,922.4	0.1	0.6	1,864,384.00	1,296,716.45	36.118290	-107.413728	
2,986.0	0.50	208.30	2,985.3	-0.3	0.4	1,864,383.56	1,296,716.22	36.118289	-107.413729	
3,049.0	0.50	198.80	3,048.3	-0.8	0.2	1,864,383.06	1,296,716.00	36.118288	-107.413730	
3,112.0	0.80	178.10	3,111.3	-1.5	0.1	1,864,382.36	1,296,715.92	36.118286	-107.413730	
3,175.0	0.80	181.70	3,174.3	-2.4	0.1	1,864,381.48	1,296,715.91	36.118283	-107.413730	
3,238.0	0.40	109.60	3,237.3	-2.9	0.3	1,864,380.96	1,296,716.10	36.118282	-107.413729	
3,301.0	0.70	69.10	3,300.3	-2.9	0.8	1,864,381.02	1,296,716.66	36.118282	-107.413727	
3,364.0	0.60	74.40	3,363.3	-2.6	1.5	1,864,381.24	1,296,717.34	36.118283	-107.413725	
3,427.0	0.40	83.30	3,426.3	-2.5	2.1	1,864,381.35	1,296,717.88	36.118283	-107.413723	
3,490.0	0.80	77.00	3,489.3	-2.4	2.7	1,864,381.46	1,296,718.53	36.118283	-107.413721	
3,553.0	0.80	73.60	3,552.3	-2.2	3.6	1,864,381.68	1,296,719.38	36.118284	-107.413718	
3,616.0	1.10	352.90	3,615.3	-1.5	3.9	1,864,382.40	1,296,719.74	36.118286	-107.413717	
3,679.0	1.90	348.20	3,678.3	0.2	3.6	1,864,384.02	1,296,719.47	36.118291	-107.413718	
3,742.0	1.50	336.80	3,741.3	2.0	3.1	1,864,385.81	1,296,718.95	36.118295	-107.413720	
3,805.0	1.10	331.80	3,804.2	3.2	2.5	1,864,387.11	1,296,718.36	36.118299	-107.413722	
3,868.0	0.60	296.80	3,867.2	3.9	1.9	1,864,387.79	1,296,717.78	36.118301	-107.413724	
3,931.0	0.50	273.80	3,930.2	4.1	1.3	1,864,387.97	1,296,717.22	36.118301	-107.413726	
3,994.0	0.40	252.90	3,993.2	4.0	0.8	1,864,387.93	1,296,716.73	36.118301	-107.413727	
4,057.0	0.40	237.90	4,056.2	3.9	0.4	1,864,387.75	1,296,716.33	36.118301	-107.413729	
4,120.0	0.70	240.40	4,119.2	3.6	-0.1	1,864,387.45	1,296,715.81	36.118300	-107.413731	
4,164.0	1.50	254.50	4,163.2	3.3	-0.9	1,864,387.17	1,296,715.02	36.118299	-107.413733	
4,196.0	1.50	247.80	4,195.2	3.0	-1.7	1,864,386.91	1,296,714.22	36.118298	-107.413736	
4,227.0	2.60	201.20	4,226.2	2.2	-2.3	1,864,386.11	1,296,713.58	36.118296	-107.413738	
4,259.0	5.60	179.30	4,258.1	0.0	-2.5	1,864,383.88	1,296,713.31	36.118290	-107.413739	
4,290.0	6.60	178.40	4,288.9	-3.3	-2.5	1,864,380.58	1,296,713.34	36.118281	-107.413739	
4,322.0	7.10	171.10	4,320.7	-7.1	-2.1	1,864,376.79	1,296,713.65	36.118270	-107.413737	
4,353.0	7.40	162.40	4,351.4	-10.9	-1.2	1,864,372.98	1,296,714.51	36.118260	-107.413734	

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook P24-2206 01H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7194.0ft (Aztec)
Site:	Lybrook	MD Reference:	KB @ 7194.0ft (Aztec)
Well:	Lybrook P24-2206 01H	North Reference:	True
Wellbore:	LATERAL	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		
4,385.0	7.40	161.60	4,383.2	-14.9	0.1	1,864,369.04	1,296,715.74	36.118249	-107.413730	
4,416.0	7.20	160.80	4,413.9	-18.6	1.3	1,864,365.30	1,296,716.96	36.118239	-107.413726	
4,448.0	7.00	160.80	4,445.7	-22.3	2.6	1,864,361.55	1,296,718.22	36.118229	-107.413721	
4,479.0	6.40	159.30	4,476.5	-25.7	3.9	1,864,358.14	1,296,719.41	36.118219	-107.413717	
4,511.0	6.00	158.50	4,508.3	-28.9	5.1	1,864,354.90	1,296,720.61	36.118211	-107.413713	
4,543.0	6.20	168.70	4,540.1	-32.2	6.1	1,864,351.63	1,296,721.52	36.118202	-107.413710	
4,574.0	7.70	172.60	4,570.9	-35.9	6.7	1,864,347.93	1,296,722.08	36.118191	-107.413708	
4,605.0	9.00	173.30	4,601.6	-40.4	7.2	1,864,343.45	1,296,722.57	36.118179	-107.413706	
4,637.0	10.30	169.90	4,633.1	-45.7	8.0	1,864,338.14	1,296,723.30	36.118165	-107.413703	
4,668.0	12.10	164.70	4,663.5	-51.5	9.3	1,864,332.26	1,296,724.58	36.118149	-107.413699	
4,700.0	13.40	160.30	4,694.7	-58.3	11.5	1,864,325.51	1,296,726.63	36.118130	-107.413691	
4,732.0	14.40	160.50	4,725.8	-65.5	14.1	1,864,318.24	1,296,729.12	36.118110	-107.413683	
4,763.0	14.20	170.30	4,755.8	-72.9	16.0	1,864,310.83	1,296,730.96	36.118090	-107.413676	
4,794.0	14.20	184.30	4,785.9	-80.4	16.3	1,864,303.29	1,296,731.23	36.118069	-107.413675	
4,826.0	14.90	193.80	4,816.9	-88.3	15.1	1,864,295.39	1,296,729.86	36.118047	-107.413679	
4,857.0	15.60	202.00	4,846.8	-96.1	12.6	1,864,287.69	1,296,727.25	36.118026	-107.413688	
4,889.0	16.00	209.90	4,877.6	-103.9	8.7	1,864,279.92	1,296,723.35	36.118005	-107.413701	
4,920.0	17.00	217.70	4,907.3	-111.2	3.8	1,864,272.69	1,296,718.36	36.117985	-107.413717	
4,952.0	18.50	225.70	4,937.8	-118.4	-2.7	1,864,265.52	1,296,711.78	36.117965	-107.413739	
4,983.0	20.50	229.00	4,967.0	-125.4	-10.3	1,864,258.61	1,296,704.07	36.117946	-107.413765	
5,015.0	22.10	231.90	4,996.8	-132.8	-19.2	1,864,251.33	1,296,695.02	36.117925	-107.413795	
5,047.0	23.90	235.70	5,026.3	-140.2	-29.3	1,864,244.08	1,296,684.84	36.117905	-107.413830	
5,078.0	25.20	239.20	5,054.5	-147.1	-40.2	1,864,237.29	1,296,673.90	36.117886	-107.413866	
5,110.0	26.20	243.50	5,083.3	-153.7	-52.4	1,864,230.80	1,296,661.65	36.117868	-107.413908	
5,142.0	29.30	244.50	5,111.6	-160.3	-65.8	1,864,224.44	1,296,648.18	36.117850	-107.413953	
5,174.0	33.60	245.40	5,138.9	-167.3	-80.9	1,864,217.56	1,296,632.97	36.117830	-107.414004	
5,205.0	36.70	246.20	5,164.3	-174.6	-97.2	1,864,210.44	1,296,616.61	36.117810	-107.414059	
5,237.0	40.60	245.50	5,189.2	-182.8	-115.4	1,864,202.48	1,296,598.28	36.117788	-107.414121	
5,268.0	43.60	245.90	5,212.2	-191.4	-134.3	1,864,194.16	1,296,579.24	36.117764	-107.414185	
5,300.0	48.00	247.20	5,234.5	-200.5	-155.4	1,864,185.29	1,296,558.09	36.117739	-107.414256	
5,331.0	53.00	248.00	5,254.3	-209.6	-177.5	1,864,176.45	1,296,535.87	36.117714	-107.414331	
5,363.0	57.20	248.80	5,272.6	-219.2	-201.9	1,864,167.09	1,296,511.36	36.117688	-107.414414	
5,394.0	60.10	250.70	5,288.7	-228.4	-226.7	1,864,158.23	1,296,486.41	36.117663	-107.414498	
5,425.0	63.00	253.10	5,303.5	-236.9	-252.6	1,864,150.09	1,296,460.41	36.117639	-107.414586	
5,457.0	65.30	256.00	5,317.4	-244.5	-280.4	1,864,142.76	1,296,432.57	36.117618	-107.414679	
5,489.0	68.10	258.60	5,330.1	-251.0	-309.0	1,864,136.65	1,296,403.82	36.117601	-107.414777	
5,520.0	70.80	261.10	5,341.0	-256.1	-337.6	1,864,131.88	1,296,375.20	36.117587	-107.414873	
5,552.0	73.40	263.60	5,350.8	-260.1	-367.8	1,864,128.19	1,296,344.97	36.117576	-107.414975	
5,583.0	75.90	265.90	5,359.0	-262.9	-397.6	1,864,125.82	1,296,315.18	36.117568	-107.415076	
5,615.0	78.00	268.60	5,366.2	-264.3	-428.7	1,864,124.70	1,296,284.03	36.117564	-107.415182	
5,630.0	78.70	269.60	5,369.3	-264.6	-443.4	1,864,124.64	1,296,269.34	36.117563	-107.415231	
5,660.0	80.60	270.50	5,374.6	-264.6	-472.9	1,864,125.02	1,296,239.83	36.117563	-107.415331	
5,691.0	83.80	270.60	5,378.8	-264.3	-503.6	1,864,125.69	1,296,209.13	36.117564	-107.415435	
5,721.0	87.90	271.10	5,381.0	-263.8	-533.5	1,864,126.49	1,296,179.23	36.117565	-107.415536	
5,751.0	89.60	271.20	5,381.7	-263.2	-563.5	1,864,127.45	1,296,149.25	36.117567	-107.415638	
5,814.0	90.60	271.40	5,381.6	-261.8	-626.5	1,864,129.63	1,296,086.29	36.117571	-107.415851	
5,877.0	90.90	270.00	5,380.7	-261.0	-689.5	1,864,131.16	1,296,023.31	36.117573	-107.416064	
5,940.0	89.80	269.60	5,380.4	-261.2	-752.5	1,864,131.69	1,295,960.32	36.117572	-107.416278	
6,004.0	90.10	269.00	5,380.4	-262.0	-816.5	1,864,131.68	1,295,896.32	36.117570	-107.416494	
6,067.0	90.80	268.90	5,379.9	-263.2	-879.4	1,864,131.28	1,295,833.32	36.117567	-107.416708	
6,130.0	90.30	269.40	5,379.3	-264.1	-942.4	1,864,131.10	1,295,770.33	36.117565	-107.416921	
6,193.0	90.50	268.60	5,378.9	-265.2	-1,005.4	1,864,130.75	1,295,707.33	36.117562	-107.417134	
6,256.0	90.80	267.40	5,378.2	-267.4	-1,068.4	1,864,129.31	1,295,644.35	36.117555	-107.417347	
6,319.0	90.50	270.00	5,377.4	-268.8	-1,131.3	1,864,128.63	1,295,581.36	36.117552	-107.417560	
6,376.0	90.60	270.80	5,376.9	-268.4	-1,188.3	1,864,129.71	1,295,524.38	36.117553	-107.417753	

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook P24-2206 01H
 Wellbore: LATERAL
 Design: FINAL

Local Co-ordinate Reference: Well Lybrook P24-2206 01H
 TVD Reference: KB @ 7194.0ft (Aztec)
 MD Reference: KB @ 7194.0ft (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	
6,439.0	90.20	270.20	5,376.5	-267.9	-1,251.3	1,864,131.02	1,295,461.39	36.117554	-107.417967	
6,502.0	90.60	269.10	5,376.0	-268.3	-1,314.3	1,864,131.39	1,295,398.40	36.117553	-107.418180	
6,565.0	90.30	269.50	5,375.5	-269.0	-1,377.3	1,864,131.37	1,295,335.40	36.117551	-107.418393	
6,629.0	90.20	267.50	5,375.2	-270.7	-1,441.3	1,864,130.46	1,295,271.41	36.117546	-107.418610	
6,692.0	90.60	269.10	5,374.8	-272.6	-1,504.3	1,864,129.35	1,295,208.42	36.117541	-107.418823	
6,755.0	90.60	269.80	5,374.1	-273.2	-1,567.3	1,864,129.50	1,295,145.43	36.117540	-107.419036	
6,818.0	90.70	270.00	5,373.4	-273.3	-1,630.3	1,864,130.14	1,295,082.43	36.117539	-107.419249	
6,881.0	91.30	272.70	5,372.3	-271.8	-1,693.2	1,864,132.38	1,295,019.49	36.117543	-107.419463	
6,944.0	90.70	272.30	5,371.2	-269.1	-1,756.2	1,864,135.88	1,294,956.60	36.117551	-107.419676	
7,007.0	91.50	271.90	5,370.0	-266.8	-1,819.1	1,864,138.94	1,294,893.68	36.117557	-107.419889	
7,070.0	91.70	270.30	5,368.3	-265.5	-1,882.1	1,864,140.90	1,294,830.74	36.117560	-107.420102	
7,133.0	90.10	268.70	5,367.3	-266.1	-1,945.0	1,864,141.11	1,294,767.75	36.117559	-107.420315	
7,196.0	88.70	268.30	5,367.9	-267.7	-2,008.0	1,864,140.21	1,294,704.77	36.117554	-107.420528	
7,259.0	89.20	268.30	5,369.1	-269.6	-2,071.0	1,864,139.10	1,294,641.79	36.117549	-107.420741	
7,322.0	90.20	268.70	5,369.4	-271.3	-2,134.0	1,864,138.20	1,294,578.79	36.117545	-107.420955	
7,385.0	89.30	269.50	5,369.7	-272.3	-2,197.0	1,864,137.97	1,294,515.80	36.117542	-107.421168	
7,448.0	89.80	269.70	5,370.2	-272.7	-2,259.9	1,864,138.28	1,294,452.80	36.117541	-107.421381	
7,511.0	90.90	269.80	5,369.8	-273.0	-2,322.9	1,864,138.76	1,294,389.80	36.117540	-107.421594	
7,574.0	90.30	271.70	5,369.1	-272.1	-2,385.9	1,864,140.34	1,294,326.83	36.117542	-107.421808	
7,637.0	90.30	270.80	5,368.8	-270.8	-2,448.9	1,864,142.47	1,294,263.87	36.117546	-107.422021	
7,700.0	89.70	271.50	5,368.8	-269.5	-2,511.9	1,864,144.49	1,294,200.90	36.117549	-107.422234	
7,763.0	90.10	271.20	5,368.9	-268.0	-2,574.9	1,864,146.73	1,294,137.94	36.117554	-107.422447	
7,826.0	89.40	271.20	5,369.2	-266.7	-2,637.9	1,864,148.80	1,294,074.98	36.117557	-107.422661	
7,889.0	89.70	271.30	5,369.7	-265.3	-2,700.9	1,864,150.93	1,294,012.01	36.117561	-107.422874	
7,952.0	90.80	271.40	5,369.4	-263.8	-2,763.8	1,864,153.17	1,293,949.05	36.117565	-107.423087	
8,014.0	90.20	270.50	5,368.9	-262.8	-2,825.8	1,864,154.94	1,293,887.08	36.117568	-107.423297	
8,077.0	90.10	268.90	5,368.7	-263.1	-2,888.8	1,864,155.36	1,293,824.09	36.117567	-107.423510	
8,140.0	89.60	269.80	5,368.9	-263.9	-2,951.8	1,864,155.40	1,293,761.09	36.117565	-107.423723	
8,203.0	90.40	270.50	5,368.9	-263.7	-3,014.8	1,864,156.32	1,293,698.10	36.117565	-107.423937	
8,265.0	89.50	269.70	5,368.9	-263.6	-3,076.8	1,864,157.17	1,293,636.10	36.117566	-107.424147	
8,329.0	90.20	269.60	5,369.1	-264.0	-3,140.8	1,864,157.55	1,293,572.10	36.117564	-107.424363	
8,392.0	90.00	268.50	5,369.0	-265.0	-3,203.8	1,864,157.26	1,293,509.11	36.117562	-107.424576	
8,454.0	89.60	269.40	5,369.2	-266.2	-3,265.8	1,864,156.86	1,293,447.11	36.117558	-107.424786	
8,518.0	90.80	270.90	5,369.0	-266.0	-3,329.8	1,864,157.80	1,293,383.12	36.117559	-107.425003	
8,580.0	88.80	269.40	5,369.2	-265.8	-3,391.8	1,864,158.70	1,293,321.13	36.117559	-107.425213	
8,643.0	90.10	269.30	5,369.8	-266.5	-3,454.8	1,864,158.74	1,293,258.13	36.117557	-107.425426	
8,706.0	91.00	269.20	5,369.2	-267.4	-3,517.8	1,864,158.67	1,293,195.14	36.117555	-107.425639	
8,768.0	89.50	269.10	5,368.9	-268.3	-3,579.8	1,864,158.49	1,293,133.14	36.117553	-107.425849	
8,831.0	89.50	268.40	5,369.5	-269.7	-3,642.7	1,864,157.87	1,293,070.15	36.117549	-107.426062	
8,894.0	90.10	268.70	5,369.7	-271.3	-3,705.7	1,864,157.03	1,293,007.15	36.117544	-107.426276	
8,957.0	91.10	268.80	5,369.0	-272.6	-3,768.7	1,864,156.41	1,292,944.16	36.117541	-107.426489	
9,020.0	90.80	269.80	5,368.0	-273.4	-3,831.7	1,864,156.40	1,292,881.17	36.117538	-107.426702	
9,083.0	89.60	268.00	5,367.8	-274.6	-3,894.7	1,864,155.94	1,292,818.18	36.117535	-107.426915	
9,145.0	90.50	268.50	5,367.7	-276.5	-3,956.6	1,864,154.79	1,292,756.19	36.117530	-107.427125	
9,208.0	91.30	268.80	5,366.7	-278.0	-4,019.6	1,864,154.06	1,292,693.18	36.117526	-107.427338	
9,272.0	91.00	269.80	5,365.4	-278.8	-4,083.6	1,864,154.04	1,292,629.20	36.117524	-107.427555	
9,335.0	89.30	270.50	5,365.3	-278.6	-4,146.6	1,864,154.96	1,292,566.20	36.117524	-107.427768	
9,398.0	90.50	270.10	5,365.4	-278.3	-4,209.6	1,864,156.05	1,292,503.22	36.117525	-107.427982	
9,461.0	91.10	270.40	5,364.5	-278.0	-4,272.6	1,864,157.08	1,292,440.23	36.117526	-107.428195	
9,523.0	91.40	269.70	5,363.2	-277.9	-4,334.6	1,864,157.87	1,292,378.25	36.117526	-107.428405	
9,580.0	91.00	269.50	5,362.0	-278.3	-4,391.5	1,864,158.16	1,292,321.28	36.117525	-107.428598	
Last CES Survey @ 9,580' MD										
9,630.0	91.00	269.50	5,361.1	-278.8	-4,441.5	1,864,158.32	1,292,271.29	36.117523	-107.428767	
PTB @ 9,630'										

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook P24-2206 01H
Project:	Sandoval County, NM	TVD Reference:	KB @ 7194.0ft (Aztec)
Site:	Lybrook	MD Reference:	KB @ 7194.0ft (Aztec)
Well:	Lybrook P24-2206 01H	North Reference:	True
Wellbore:	LATERAL	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Design Targets

Target Name

- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Lybrook P24-2206 01H I	0.00	0.00	5,343.9	-280.0	-4,472.1	1,864,157.50	1,292,240.70	36.117520	-107.428870
- actual wellpath misses target center by 35.1ft at 9630.0ft MD (5361.1 TVD, -278.8 N, -4441.5 E)									
- Point									

Design Annotations

Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
9,580.0	5,362.0	-278.3	-4,391.5	Last CES Survey @ 9,580' MD
9,630.0	5,361.1	-278.8	-4,441.5	PTB @ 9,630'

Checked By: _____ Approved By: _____ Date: _____