

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6178

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 C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION
1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

CONFIDENTIAL

RCVD DEC 18 '12

OIL CONS. DIV.

DIST. 3

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-043-21131		*Pool Code 97981	*Pool Name WILDCAT (GALLUP)
*Property Code 39433	*Property Name LYBROOK D22-2206		*Well Number 01H
*GRID No. 282327	*Operator Name ENCANA OIL & GAS (USA) INC.		*Elevation 7187'

10 Surface Location

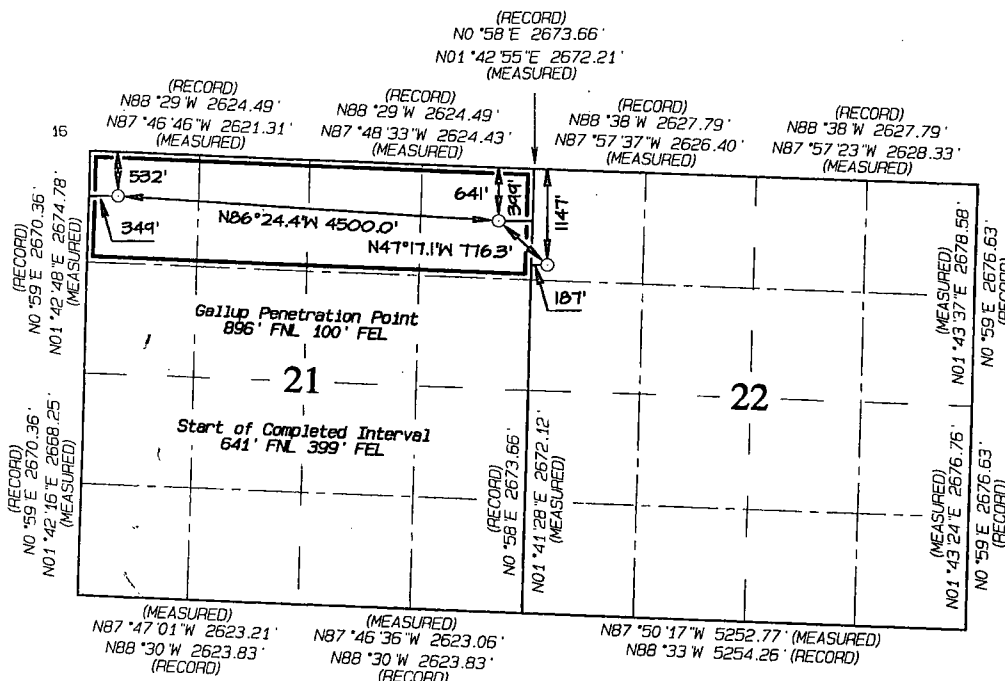
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	22	22N	6W		1147	NORTH	187	WEST	SANDOVAL

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
D	21	22N	6W		532	NORTH	349	WEST	SANDOVAL

12 Dedicated Acres 160.00 Acres N/2 N/2 - Section 21					13 Joint or Infill		14 Consolidation Code		15 Order No.	
--	--	--	--	--	--------------------	--	-----------------------	--	--------------	--

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 or working interest or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by this division.

Signature: *Brenda R. Linster* Date: 12/14/12
Printed Name: Brenda R. Linster, Regulatory Lead
E-mail Address: brenda.linster@encana.com

18 SURVEYOR CERTIFICATION

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

Date of Survey: MARCH 30, 2012

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

END-OF-LATERAL
532' FNL 349' FNL
SECTION 21, T22N, R6W
LAT: 36.12961°N
LONG: 107.48121°W
DATUM: NAD1927
LAT: 36.12962°N
LONG: 107.48181°W
DATUM: NAD1983

POINT-OF-ENTRY
641' FNL 399' FNL
SECTION 21, T22N, R6W
LAT: 36.12899°N
LONG: 107.46599°W
DATUM: NAD1927
LAT: 36.12900°N
LONG: 107.46660°W
DATUM: NAD1983

SURFACE LOCATION
1147' FNL 187' FNL
SECTION 22, T22N, R6W
LAT: 36.12756°N
LONG: 107.46404°W
DATUM: NAD1927
LAT: 36.12758°N
LONG: 107.46464°W
DATUM: NAD1983

AV

DEVIATION SURVEYS

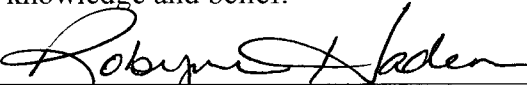
MD (Feet)	Inclination (Degree)
470	0.75
970	0.75
1500	0.75
2000	0.75
2500	2
2650	2
2850	2.25
2970	2.25
3105	2
3250	2
3350	1.75
3550	1.5
4025	2
4245	3
4370	1.75
4550	2.25
4750	2
4950	1.25
5200	1.25
5450	1

RCVD DEC 18 '12
OIL CONS. DIV.
DIST. 3

CONFIDENTIAL

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

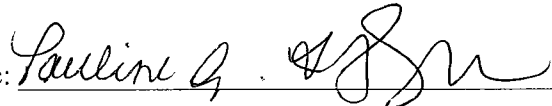
12/13/12
12/13/12

ACKNOWLEDGMENT

State of Colorado
City and County of Denver

This instrument was acknowledged before me on this 13th day of December, 2012 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.

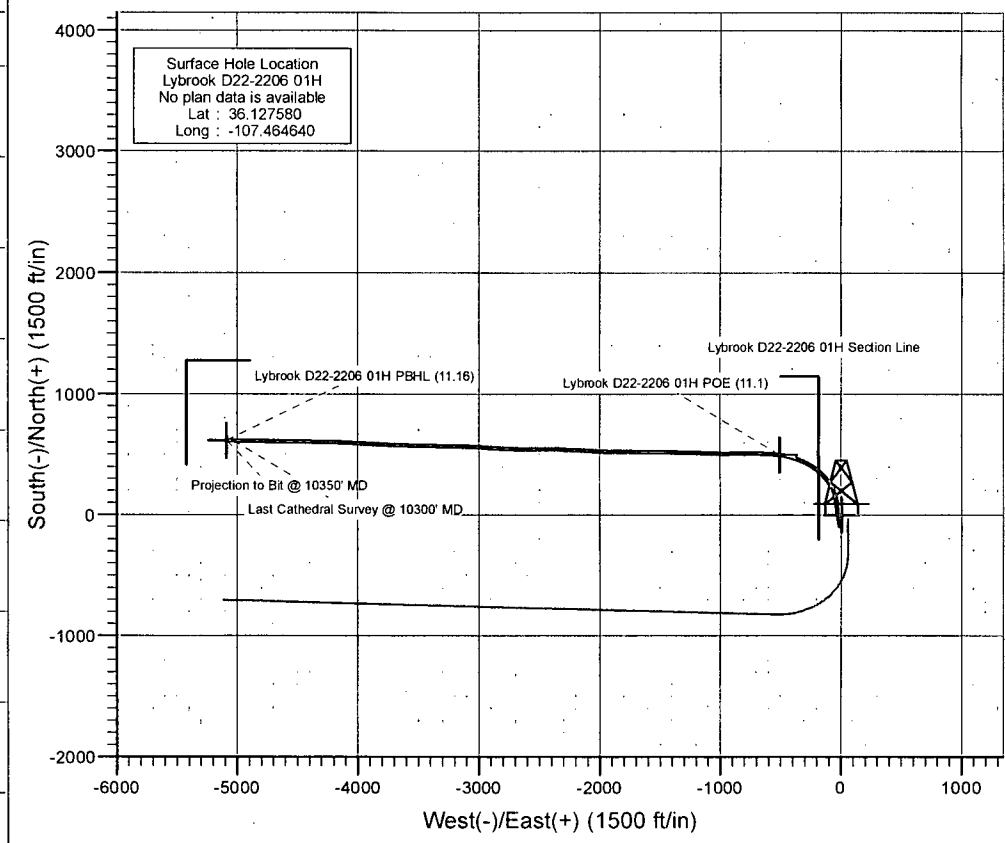
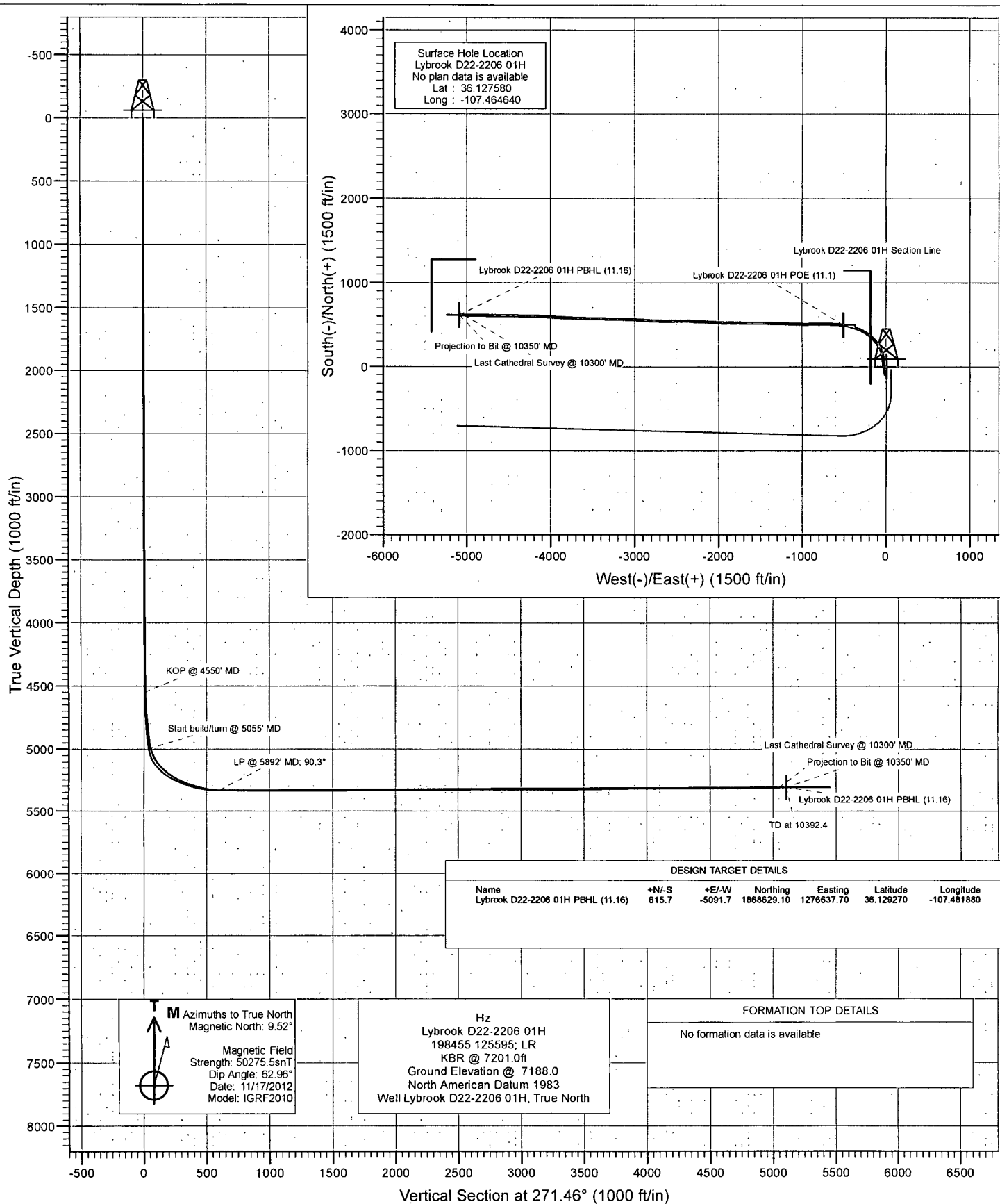
Notary Public: 

My Commission Expires: June 26, 2016





Project: Sandoval County, NM
 Site: Lybrook
 Well: Lybrook D22-2206 01H
 Wellbore: Hz
 Design: Hz



Surface Hole Location
 Lybrook D22-2206 01H
 No plan data is available
 Lat : 36.127580
 Long : -107.464640

DESIGN TARGET DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Lybrook D22-2206 01H PBHL (11.16)	615.7	-5091.7	1888629.10	1278637.70	36.129270	-107.481880

M Azimuths to True North
 Magnetic North: 9.52°
 Magnetic Field
 Strength: 50275.5snT
 Dip Angle: 62.96°
 Date: 11/17/2012
 Model: IGRF2010

Hz
 Lybrook D22-2206 01H
 198455 125595; LR
 KBR @ 7201.0ft
 Ground Elevation @ 7188.0
 North American Datum 1983
 Well Lybrook D22-2206 01H, True North

FORMATION TOP DETAILS
 No formation data is available

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook D22-2206 01H
Wellbore: Hz
Design: Hz

Local Co-ordinate Reference: Well Lybrook D22-2206 01H
TVD Reference: KBR @ 7201.0ft
MD Reference: KBR @ 7201.0ft
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 D22-2206 01H					
Well Position	+N/-S	0.0 ft	Northing:	1,867,949.79 ft	Latitude:	36.127580
	+E/-W	0.0 ft	Easting:	1,281,721.33 ft	Longitude:	-107.464640
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,188.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/17/2012	9.52	62.96	50,276

Design	Hz			
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	271.46

Survey Program		Date	12/3/2012		
From	To	Survey (Wellbore)	Tool Name	Description	
(ft)	(ft)				
500.0	4,450.0	Survey #1 (Hz)	Gyro	Gyro	
4,477.0	10,350.0	Survey #2 (Hz)	MWD	Geolink MWD	

Survey										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Formations / Comments	
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
500.0	0.34	316.94	500.0	1.1	-1.0	1.1	0.07	0.07		
525.0	0.19	305.42	525.0	1.2	-1.1	1.1	0.66	-0.63		
550.0	0.20	302.77	550.0	1.2	-1.2	1.2	0.07	0.06		
575.0	0.17	286.09	575.0	1.3	-1.3	1.3	0.24	-0.11		
600.0	0.29	295.35	600.0	1.3	-1.3	1.4	0.50	0.48		
625.0	0.20	285.24	625.0	1.3	-1.4	1.5	0.42	-0.38		
650.0	0.13	224.12	650.0	1.3	-1.5	1.5	0.71	-0.27		
675.0	0.15	216.44	675.0	1.3	-1.5	1.6	0.12	0.09		
700.0	0.20	185.01	700.0	1.2	-1.6	1.6	0.43	0.20		
725.0	0.28	181.64	725.0	1.1	-1.6	1.6	0.30	0.30		
750.0	0.33	166.41	750.0	1.0	-1.6	1.6	0.38	0.20		

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook D22-2206 01H
Wellbore: Hz
Design: Hz

Local Co-ordinate Reference: Well Lybrook D22-2206 01H
TVD Reference: KBR @ 7201.0ft
MD Reference: KBR @ 7201.0ft
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
775.0	0.30	173.47	775.0	0.8	-1.5	1.6	0.19	-0.11	
800.0	0.39	193.41	800.0	0.7	-1.5	1.6	0.61	0.38	
825.0	0.46	186.61	825.0	0.5	-1.6	1.6	0.34	0.27	
850.0	0.41	193.39	850.0	0.3	-1.6	1.6	0.28	-0.19	
875.0	0.49	194.57	875.0	0.1	-1.7	1.7	0.32	0.32	
900.0	0.50	182.38	900.0	-0.1	-1.7	1.7	0.42	0.03	
925.0	0.44	191.90	925.0	-0.3	-1.7	1.7	0.40	-0.26	
950.0	0.48	189.40	950.0	-0.5	-1.8	1.7	0.20	0.18	
975.0	0.56	191.92	975.0	-0.7	-1.8	1.8	0.31	0.30	
1,000.0	0.49	188.50	1,000.0	-0.9	-1.8	1.8	0.31	-0.29	
1,025.0	0.38	199.81	1,025.0	-1.1	-1.9	1.9	0.55	-0.43	
1,050.0	0.45	202.34	1,050.0	-1.3	-1.9	1.9	0.30	0.29	
1,075.0	0.38	205.72	1,075.0	-1.4	-2.0	2.0	0.31	-0.30	
1,100.0	0.37	205.82	1,100.0	-1.6	-2.1	2.0	0.03	-0.03	
1,125.0	0.53	190.85	1,125.0	-1.8	-2.1	2.1	0.81	0.66	
1,150.0	0.58	196.06	1,150.0	-2.0	-2.2	2.1	0.26	0.17	
1,175.0	0.44	209.64	1,175.0	-2.2	-2.3	2.2	0.73	-0.56	
1,200.0	0.51	197.43	1,200.0	-2.4	-2.4	2.3	0.51	0.31	
1,225.0	0.53	193.42	1,225.0	-2.6	-2.4	2.4	0.17	0.08	
1,250.0	0.53	187.53	1,250.0	-2.9	-2.5	2.4	0.22	0.00	
1,275.0	0.61	196.83	1,275.0	-3.1	-2.5	2.4	0.47	0.29	
1,300.0	0.67	194.52	1,300.0	-3.4	-2.6	2.5	0.27	0.25	
1,325.0	0.60	197.27	1,325.0	-3.6	-2.7	2.6	0.32	-0.29	
1,350.0	0.50	202.99	1,350.0	-3.9	-2.8	2.7	0.43	-0.38	
1,375.0	0.45	197.34	1,375.0	-4.0	-2.8	2.7	0.27	-0.20	
1,400.0	0.52	187.72	1,400.0	-4.3	-2.9	2.8	0.43	0.28	
1,425.0	0.59	185.72	1,425.0	-4.5	-2.9	2.8	0.28	0.27	
1,450.0	0.65	194.16	1,450.0	-4.8	-2.9	2.8	0.43	0.23	
1,475.0	0.71	183.74	1,475.0	-5.1	-3.0	2.9	0.56	0.27	
1,500.0	0.77	184.86	1,500.0	-5.4	-3.0	2.9	0.26	0.25	
1,525.0	0.82	179.21	1,525.0	-5.7	-3.0	2.9	0.35	0.17	
1,550.0	0.86	180.03	1,550.0	-6.1	-3.0	2.9	0.19	0.19	
1,575.0	0.89	180.85	1,575.0	-6.5	-3.0	2.9	0.13	0.12	
1,600.0	1.04	178.98	1,600.0	-6.9	-3.0	2.8	0.61	0.59	
1,625.0	0.90	188.45	1,625.0	-7.3	-3.0	2.9	0.85	-0.56	
1,650.0	0.93	185.61	1,649.9	-7.7	-3.1	2.9	0.22	0.13	
1,675.0	1.00	193.58	1,674.9	-8.1	-3.2	3.0	0.60	0.26	
1,700.0	0.94	195.22	1,699.9	-8.5	-3.3	3.1	0.26	-0.24	
1,725.0	0.97	194.89	1,724.9	-8.9	-3.4	3.2	0.12	0.11	
1,750.0	0.96	194.01	1,749.9	-9.3	-3.5	3.2	0.06	-0.02	
1,775.0	0.93	187.97	1,774.9	-9.7	-3.6	3.3	0.42	-0.14	
1,800.0	0.98	187.14	1,799.9	-10.2	-3.6	3.4	0.20	0.20	
1,825.0	1.04	197.99	1,824.9	-10.6	-3.7	3.4	0.80	0.25	
1,850.0	1.00	198.12	1,849.9	-11.0	-3.9	3.6	0.17	-0.17	
1,875.0	1.09	201.12	1,874.9	-11.4	-4.0	3.7	0.44	0.38	
1,900.0	0.94	188.93	1,899.9	-11.9	-4.1	3.8	1.05	-0.61	
1,925.0	0.91	181.16	1,924.9	-12.3	-4.2	3.8	0.52	-0.14	
1,950.0	0.96	178.22	1,949.9	-12.7	-4.2	3.8	0.30	0.23	
1,975.0	1.04	176.54	1,974.9	-13.1	-4.1	3.8	0.33	0.31	
2,000.0	1.08	171.82	1,999.9	-13.6	-4.1	3.7	0.38	0.16	
2,025.0	1.12	172.13	2,024.9	-14.0	-4.0	3.7	0.16	0.15	
2,050.0	1.15	174.40	2,049.9	-14.5	-4.0	3.6	0.23	0.14	
2,075.0	1.10	180.96	2,074.9	-15.0	-3.9	3.6	0.56	-0.22	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook D22-2206 01H
Wellbore: Hz
Design: Hz

Local Co-ordinate Reference: Well Lybrook D22-2206 01H
TVD Reference: KBR @ 7201.0ft
MD Reference: KBR @ 7201.0ft
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
2,100.0	1.23	187.93	2,099.9	-15.5	-4.0	3.6	0.76	0.51	
2,125.0	1.51	183.96	2,124.9	-16.1	-4.0	3.6	1.19	1.13	
2,150.0	1.60	175.49	2,149.9	-16.8	-4.0	3.6	0.99	0.36	
2,175.0	1.57	167.20	2,174.9	-17.5	-3.9	3.5	0.92	-0.12	
2,200.0	1.48	167.37	2,199.8	-18.1	-3.8	3.3	0.36	-0.36	
2,225.0	1.43	168.48	2,224.8	-18.7	-3.7	3.2	0.21	-0.18	
2,250.0	1.34	168.94	2,249.8	-19.3	-3.5	3.0	0.36	-0.36	
2,275.0	1.31	170.96	2,274.8	-19.9	-3.4	2.9	0.22	-0.12	
2,300.0	1.39	169.56	2,299.8	-20.5	-3.3	2.8	0.34	0.31	
2,325.0	1.39	174.28	2,324.8	-21.1	-3.3	2.7	0.46	0.01	
2,350.0	1.41	175.90	2,349.8	-21.7	-3.2	2.6	0.17	0.07	
2,375.0	1.46	177.24	2,374.8	-22.3	-3.2	2.6	0.25	0.21	
2,400.0	1.52	179.84	2,399.8	-23.0	-3.1	2.6	0.35	0.23	
2,425.0	1.43	180.55	2,424.8	-23.6	-3.1	2.5	0.38	-0.37	
2,450.0	1.52	182.22	2,449.8	-24.3	-3.2	2.5	0.39	0.35	
2,475.0	1.52	183.45	2,474.8	-24.9	-3.2	2.6	0.14	0.03	
2,500.0	1.30	186.41	2,499.7	-25.5	-3.2	2.6	0.95	-0.90	
2,525.0	1.20	189.95	2,524.7	-26.1	-3.3	2.7	0.49	-0.38	
2,550.0	1.24	195.43	2,549.7	-26.6	-3.4	2.8	0.49	0.13	
2,575.0	1.21	191.18	2,574.7	-27.1	-3.6	2.9	0.38	-0.09	
2,600.0	1.43	187.93	2,599.7	-27.7	-3.7	3.0	0.90	0.85	
2,625.0	1.45	184.65	2,624.7	-28.3	-3.7	3.0	0.34	0.09	
2,650.0	1.45	182.19	2,649.7	-28.9	-3.8	3.0	0.25	0.00	
2,675.0	1.55	176.69	2,674.7	-29.6	-3.8	3.0	0.70	0.40	
2,700.0	1.56	180.88	2,699.7	-30.3	-3.7	3.0	0.46	0.06	
2,725.0	1.69	181.11	2,724.7	-31.0	-3.8	3.0	0.48	0.48	
2,750.0	1.74	180.55	2,749.7	-31.7	-3.8	3.0	0.23	0.22	
2,775.0	1.79	182.76	2,774.7	-32.5	-3.8	3.0	0.32	0.18	
2,800.0	1.90	184.23	2,799.6	-33.3	-3.8	3.0	0.51	0.47	
2,825.0	1.93	185.33	2,824.6	-34.1	-3.9	3.0	0.19	0.12	
2,850.0	1.99	184.62	2,849.6	-35.0	-4.0	3.1	0.23	0.21	
2,875.0	2.02	186.03	2,874.6	-35.9	-4.1	3.2	0.25	0.16	
2,900.0	1.90	186.56	2,899.6	-36.7	-4.2	3.2	0.51	-0.51	
2,925.0	1.93	186.93	2,924.6	-37.5	-4.3	3.3	0.14	0.13	
2,950.0	1.92	183.78	2,949.6	-38.4	-4.3	3.4	0.43	-0.06	
2,975.0	1.93	184.76	2,974.5	-39.2	-4.4	3.4	0.15	0.07	
3,000.0	1.93	186.63	2,999.5	-40.1	-4.5	3.5	0.25	0.00	
3,025.0	1.84	188.00	3,024.5	-40.9	-4.6	3.5	0.41	-0.37	
3,050.0	1.79	190.72	3,049.5	-41.6	-4.7	3.7	0.40	-0.21	
3,075.0	1.71	190.78	3,074.5	-42.4	-4.9	3.8	0.34	-0.34	
3,100.0	1.69	185.01	3,099.5	-43.1	-5.0	3.9	0.69	-0.07	
3,125.0	1.69	184.54	3,124.5	-43.9	-5.0	3.9	0.06	0.01	
3,150.0	1.76	183.58	3,149.5	-44.6	-5.1	3.9	0.32	0.30	
3,175.0	1.71	182.73	3,174.4	-45.4	-5.1	4.0	0.23	-0.21	
3,200.0	1.77	183.14	3,199.4	-46.1	-5.2	4.0	0.24	0.23	
3,225.0	1.82	187.43	3,224.4	-46.9	-5.2	4.0	0.57	0.19	
3,250.0	1.72	188.04	3,249.4	-47.7	-5.3	4.1	0.38	-0.37	
3,275.0	1.74	189.76	3,274.4	-48.4	-5.4	4.2	0.21	0.05	
3,300.0	1.69	184.94	3,299.4	-49.2	-5.5	4.3	0.61	-0.20	
3,325.0	1.65	189.26	3,324.4	-49.9	-5.6	4.4	0.52	-0.13	
3,350.0	1.56	193.93	3,349.4	-50.6	-5.8	4.5	0.63	-0.35	
3,375.0	1.68	195.27	3,374.4	-51.3	-6.0	4.6	0.47	0.45	
3,400.0	1.64	192.25	3,399.3	-52.0	-6.1	4.8	0.38	-0.14	

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook D22-2206 01H
Wellbore: Hz
Design: Hz

Local Co-ordinate Reference: Well Lybrook D22-2206 01H
TVD Reference: KBR @ 7201.0ft
MD Reference: KBR @ 7201.0ft
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
3,425.0	1.71	193.79	3,424.3	-52.7	-6.3	4.9	0.33	0.28	
3,450.0	1.77	195.05	3,449.3	-53.4	-6.5	5.1	0.29	0.24	
3,475.0	1.84	196.23	3,474.3	-54.2	-6.7	5.3	0.30	0.26	
3,500.0	1.88	197.33	3,499.3	-54.9	-6.9	5.5	0.23	0.18	
3,525.0	1.89	198.69	3,524.3	-55.7	-7.2	5.8	0.18	0.04	
3,550.0	1.96	196.86	3,549.3	-56.5	-7.4	6.0	0.39	0.30	
3,575.0	1.99	196.29	3,574.3	-57.3	-7.7	6.2	0.14	0.11	
3,600.0	1.99	195.42	3,599.2	-58.2	-7.9	6.4	0.12	-0.02	
3,625.0	1.97	194.92	3,624.2	-59.0	-8.1	6.6	0.10	-0.08	
3,650.0	1.89	190.10	3,649.2	-59.8	-8.3	6.8	0.72	-0.31	
3,675.0	1.90	191.13	3,674.2	-60.6	-8.5	6.9	0.14	0.04	
3,700.0	1.86	190.44	3,699.2	-61.5	-8.6	7.1	0.18	-0.15	
3,725.0	1.93	190.98	3,724.2	-62.3	-8.8	7.2	0.26	0.25	
3,750.0	1.94	190.98	3,749.2	-63.1	-8.9	7.3	0.06	0.06	
3,775.0	1.94	192.05	3,774.1	-63.9	-9.1	7.5	0.14	0.00	
3,800.0	1.91	190.80	3,799.1	-64.7	-9.3	7.6	0.22	-0.14	
3,825.0	1.95	190.60	3,824.1	-65.6	-9.4	7.8	0.17	0.17	
3,850.0	1.91	192.33	3,849.1	-66.4	-9.6	7.9	0.29	-0.17	
3,875.0	1.92	191.40	3,874.1	-67.2	-9.8	8.1	0.13	0.03	
3,900.0	1.98	191.80	3,899.1	-68.0	-9.9	8.2	0.27	0.27	
3,925.0	2.04	188.01	3,924.1	-68.9	-10.1	8.3	0.58	0.22	
3,950.0	2.11	187.79	3,949.0	-69.8	-10.2	8.4	0.28	0.28	
3,975.0	2.08	186.43	3,974.0	-70.7	-10.3	8.5	0.24	-0.13	
4,000.0	2.10	187.12	3,999.0	-71.6	-10.4	8.6	0.15	0.10	
4,025.0	2.08	185.27	4,024.0	-72.5	-10.5	8.7	0.29	-0.10	
4,050.0	2.10	186.59	4,049.0	-73.4	-10.6	8.8	0.21	0.09	
4,075.0	2.06	187.44	4,074.0	-74.3	-10.7	8.8	0.19	-0.15	
4,100.0	2.00	188.03	4,098.9	-75.2	-10.9	8.9	0.27	-0.26	
4,125.0	1.96	185.94	4,123.9	-76.1	-11.0	9.0	0.34	-0.17	
4,150.0	2.05	185.17	4,148.9	-76.9	-11.1	9.1	0.40	0.38	
4,175.0	2.18	184.21	4,173.9	-77.9	-11.1	9.1	0.54	0.52	
4,200.0	2.37	184.74	4,198.9	-78.8	-11.2	9.2	0.76	0.75	
4,225.0	2.44	184.04	4,223.9	-79.9	-11.3	9.2	0.30	0.27	
4,250.0	2.41	183.64	4,248.8	-80.9	-11.4	9.3	0.14	-0.12	
4,275.0	2.43	184.60	4,273.8	-82.0	-11.4	9.3	0.19	0.10	
4,300.0	2.32	185.44	4,298.8	-83.0	-11.5	9.4	0.48	-0.46	
4,325.0	2.28	187.26	4,323.8	-84.0	-11.6	9.5	0.33	-0.16	
4,350.0	2.25	187.47	4,348.7	-85.0	-11.8	9.6	0.13	-0.12	
4,375.0	2.13	186.51	4,373.7	-86.0	-11.9	9.7	0.48	-0.46	
4,400.0	2.04	186.79	4,398.7	-86.9	-12.0	9.8	0.37	-0.37	
4,425.0	2.05	185.23	4,423.7	-87.8	-12.1	9.8	0.23	0.04	
4,450.0	1.99	183.34	4,448.7	-88.6	-12.1	9.9	0.37	-0.25	
4,477.0	1.50	210.40	4,475.7	-89.4	-12.4	10.1	3.49	-1.80	
4,509.0	1.50	321.10	4,507.7	-89.4	-12.8	10.5	7.71	0.00	
4,541.0	4.90	344.70	4,539.6	-87.8	-13.4	11.2	11.18	10.62	
4,572.0	9.30	351.40	4,570.4	-84.0	-14.2	12.0	14.42	14.19	
4,603.0	13.70	351.70	4,600.7	-77.9	-15.1	13.1	14.19	14.19	
4,635.0	16.50	351.90	4,631.6	-69.7	-16.3	14.5	8.75	8.75	
4,666.0	18.60	352.80	4,661.2	-60.4	-17.5	16.0	6.83	6.77	
4,698.0	22.10	353.00	4,691.2	-49.4	-18.9	17.6	10.94	10.94	
4,730.0	25.30	353.50	4,720.5	-36.6	-20.4	19.4	10.02	10.00	
4,762.0	26.20	351.70	4,749.3	-22.8	-22.2	21.6	3.73	2.81	
4,793.0	28.80	350.70	4,776.8	-8.7	-24.4	24.1	8.52	8.39	

Cathedral Energy Services

Survey Report

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Project: Sandoval County, NM
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Wellbore: Hz
Design: Hz

Local Co-ordinate Reference: Well Lybrook D22-2206 01H
TVD Reference: KBR @ 7201.0ft
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North Reference: True
Survey Calculation Method: Minimum Curvature
Database: USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
4,826.0	32.10	351.60	4,805.2	7.9	-26.9	27.1	10.09	10.00	
4,857.0	35.20	351.90	4,831.0	24.9	-29.4	30.0	10.01	10.00	
4,889.0	36.40	352.90	4,857.0	43.4	-31.9	33.0	4.17	3.75	
4,921.0	38.80	354.20	4,882.3	62.8	-34.1	35.7	7.90	7.50	
4,953.0	40.50	354.50	4,907.0	83.1	-36.1	38.2	5.35	5.31	
4,984.0	42.00	353.80	4,930.3	103.5	-38.2	40.8	5.06	4.84	
5,016.0	43.60	353.20	4,953.8	125.1	-40.6	43.8	5.16	5.00	
5,048.0	44.10	348.40	4,976.9	146.9	-44.2	47.9	10.51	1.56	
5,080.0	44.70	343.30	4,999.7	168.6	-49.6	53.9	11.31	1.87	
5,111.0	45.10	339.50	5,021.7	189.4	-56.6	61.4	8.75	1.29	
5,143.0	46.40	335.60	5,044.0	210.5	-65.4	70.7	9.63	4.06	
5,175.0	47.60	332.00	5,065.8	231.5	-75.7	81.6	9.04	3.75	
5,206.0	48.40	328.10	5,086.6	251.5	-87.2	93.6	9.70	2.58	
5,238.0	49.80	324.60	5,107.6	271.6	-100.6	107.5	9.35	4.37	
5,270.0	52.30	322.00	5,127.7	291.5	-115.5	122.9	10.05	7.81	
5,302.0	54.60	319.20	5,146.7	311.4	-131.8	139.7	10.05	7.19	
5,333.0	56.60	316.40	5,164.2	330.3	-149.0	157.4	9.85	6.45	
5,366.0	58.50	313.50	5,181.9	350.0	-168.7	177.6	9.39	5.76	
5,397.0	59.50	310.00	5,197.9	367.7	-188.5	197.8	10.20	3.23	
5,429.0	60.50	306.20	5,213.9	384.8	-210.3	220.1	10.75	3.12	
5,461.0	62.40	302.70	5,229.2	400.7	-233.5	243.6	11.29	5.94	
5,493.0	64.40	299.40	5,243.6	415.4	-258.0	268.5	11.14	6.25	
5,524.0	66.50	296.60	5,256.4	428.6	-282.9	293.8	10.65	6.77	
5,556.0	68.70	294.10	5,268.6	441.3	-309.7	320.8	9.97	6.87	
5,588.0	70.80	291.80	5,279.7	453.0	-337.3	348.7	9.41	6.56	
5,619.0	72.60	290.10	5,289.4	463.5	-364.8	376.5	7.80	5.81	
5,651.0	74.60	287.90	5,298.5	473.5	-393.8	405.7	9.09	6.25	
5,683.0	76.50	285.10	5,306.5	482.3	-423.5	435.7	10.35	5.94	
5,715.0	77.70	282.70	5,313.6	489.8	-453.8	466.1	8.22	3.75	
5,746.0	79.40	280.90	5,319.8	496.0	-483.5	496.0	7.90	5.48	
5,774.0	81.00	277.50	5,324.5	500.4	-510.8	523.3	13.26	5.71	
5,805.0	83.90	275.00	5,328.6	503.8	-541.3	554.0	12.30	9.35	
5,835.0	86.70	272.10	5,331.1	505.6	-571.1	583.8	13.41	9.33	
5,866.0	89.70	272.10	5,332.0	506.7	-602.1	614.8	9.68	9.68	
5,927.0	89.70	271.40	5,332.4	508.6	-663.1	675.8	1.15	0.00	
5,989.0	89.40	270.60	5,332.8	509.7	-725.1	737.8	1.38	-0.48	
6,050.0	89.10	270.60	5,333.6	510.3	-786.1	798.8	0.49	-0.49	
6,111.0	88.60	269.20	5,334.9	510.2	-847.0	859.8	2.44	-0.82	
6,172.0	89.00	270.70	5,336.1	510.2	-908.0	920.7	2.54	0.66	
6,233.0	90.00	271.00	5,336.7	511.1	-969.0	981.7	1.71	1.64	
6,296.0	90.80	271.10	5,336.2	512.2	-1,032.0	1,044.7	1.28	1.27	
6,360.0	90.90	271.10	5,335.3	513.5	-1,096.0	1,108.7	0.16	0.16	
6,423.0	89.70	270.20	5,335.0	514.2	-1,159.0	1,171.7	2.38	-1.90	
6,487.0	90.00	270.80	5,335.1	514.7	-1,223.0	1,235.7	1.05	0.47	
6,550.0	89.30	272.50	5,335.5	516.5	-1,285.9	1,298.7	2.92	-1.11	
6,614.0	90.40	273.00	5,335.7	519.6	-1,349.9	1,362.7	1.89	1.72	
6,677.0	90.90	272.10	5,335.0	522.4	-1,412.8	1,425.7	1.63	0.79	
6,741.0	90.00	270.60	5,334.5	523.9	-1,476.8	1,489.6	2.73	-1.41	
6,804.0	89.80	270.40	5,334.6	524.5	-1,539.8	1,552.6	0.45	-0.32	
6,868.0	90.40	271.30	5,334.5	525.4	-1,603.8	1,616.6	1.69	0.94	
6,931.0	90.50	270.60	5,334.0	526.5	-1,666.8	1,679.6	1.12	0.16	
6,995.0	90.90	269.80	5,333.2	526.7	-1,730.8	1,743.6	1.40	0.62	
7,058.0	89.40	269.20	5,333.0	526.1	-1,793.7	1,806.6	2.56	-2.38	

Cathedral Energy Services

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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
7,122.0	89.30	269.70	5,333.7	525.5	-1,857.7	1,870.5	0.80	-0.16	
7,185.0	89.40	271.40	5,334.5	526.1	-1,920.7	1,933.5	2.70	0.16	
7,249.0	90.70	272.80	5,334.4	528.5	-1,984.7	1,997.5	2.99	2.03	
7,312.0	91.20	272.80	5,333.4	531.6	-2,047.6	2,060.5	0.79	0.79	
7,376.0	91.30	273.40	5,332.0	535.0	-2,111.5	2,124.4	0.95	0.16	
7,439.0	91.40	272.90	5,330.5	538.5	-2,174.4	2,187.4	0.81	0.16	
7,503.0	90.50	272.10	5,329.4	541.3	-2,238.3	2,251.4	1.88	-1.41	
7,566.0	90.30	272.10	5,329.0	543.6	-2,301.3	2,314.4	0.32	-0.32	
7,630.0	90.30	270.70	5,328.6	545.1	-2,365.2	2,378.4	2.19	0.00	
7,693.0	90.60	270.00	5,328.1	545.5	-2,428.2	2,441.3	1.21	0.48	
7,756.0	90.00	270.70	5,327.8	545.9	-2,491.2	2,504.3	1.46	-0.95	
7,820.0	90.50	270.20	5,327.5	546.4	-2,555.2	2,568.3	1.10	0.78	
7,884.0	90.00	271.30	5,327.3	547.2	-2,619.2	2,632.3	1.89	-0.78	
7,947.0	90.00	270.90	5,327.3	548.5	-2,682.2	2,695.3	0.63	0.00	
8,010.0	90.00	271.30	5,327.3	549.7	-2,745.2	2,758.3	0.63	0.00	
8,074.0	90.10	273.40	5,327.2	552.3	-2,809.1	2,822.3	3.28	0.16	
8,137.0	90.40	273.70	5,326.9	556.2	-2,872.0	2,885.3	0.67	0.48	
8,201.0	90.30	274.00	5,326.5	560.5	-2,935.9	2,949.2	0.49	-0.16	
8,264.0	90.00	272.80	5,326.4	564.2	-2,998.8	3,012.2	1.96	-0.48	
8,327.0	89.80	272.50	5,326.5	567.1	-3,061.7	3,075.2	0.57	-0.32	
8,391.0	90.90	271.60	5,326.1	569.4	-3,125.7	3,139.1	2.22	1.72	
8,454.0	90.00	270.50	5,325.6	570.6	-3,188.6	3,202.1	2.26	-1.43	
8,518.0	90.00	270.60	5,325.6	571.2	-3,252.6	3,266.1	0.16	0.00	
8,581.0	90.40	271.10	5,325.4	572.1	-3,315.6	3,329.1	1.02	0.63	
8,645.0	89.40	270.70	5,325.5	573.1	-3,379.6	3,393.1	1.68	-1.56	
8,708.0	90.60	271.10	5,325.5	574.1	-3,442.6	3,456.1	2.01	1.90	
8,772.0	90.90	271.60	5,324.6	575.6	-3,506.6	3,520.1	0.91	0.47	
8,835.0	90.80	270.60	5,323.7	576.8	-3,569.6	3,583.1	1.60	-0.16	
8,899.0	91.70	272.90	5,322.3	578.8	-3,633.5	3,647.1	3.86	1.41	
8,962.0	91.20	273.10	5,320.7	582.1	-3,696.4	3,710.0	0.85	-0.79	
9,026.0	90.30	272.30	5,319.9	585.1	-3,760.3	3,774.0	1.88	-1.41	
9,089.0	90.90	271.60	5,319.2	587.2	-3,823.3	3,837.0	1.46	0.95	
9,153.0	90.20	272.50	5,318.6	589.5	-3,887.2	3,901.0	1.78	-1.09	
9,216.0	90.70	272.20	5,318.1	592.1	-3,950.2	3,964.0	0.93	0.79	
9,279.0	90.80	273.50	5,317.3	595.3	-4,013.1	4,027.0	2.07	0.16	
9,343.0	90.40	272.60	5,316.6	598.7	-4,077.0	4,090.9	1.54	-0.62	
9,406.0	89.20	272.40	5,316.8	601.4	-4,140.0	4,153.9	1.93	-1.90	
9,470.0	89.40	272.60	5,317.6	604.2	-4,203.9	4,217.9	0.44	0.31	
9,533.0	90.40	271.20	5,317.7	606.3	-4,266.8	4,280.9	2.73	1.59	
9,597.0	89.90	270.80	5,317.6	607.4	-4,330.8	4,344.9	1.00	-0.78	
9,660.0	90.20	271.10	5,317.5	608.4	-4,393.8	4,407.9	0.67	0.48	
9,724.0	90.60	271.10	5,317.1	609.7	-4,457.8	4,471.9	0.62	0.62	
9,787.0	89.60	270.40	5,316.9	610.5	-4,520.8	4,534.9	1.94	-1.59	
9,851.0	90.10	270.40	5,317.1	610.9	-4,584.8	4,598.9	0.78	0.78	
9,914.0	90.70	270.50	5,316.7	611.4	-4,647.8	4,661.9	0.97	0.95	
9,978.0	90.10	270.60	5,316.2	612.1	-4,711.8	4,725.9	0.95	-0.94	
10,041.0	90.40	270.70	5,316.0	612.8	-4,774.8	4,788.9	0.50	0.48	
10,105.0	90.20	270.50	5,315.6	613.4	-4,838.8	4,852.8	0.44	-0.31	
10,168.0	90.70	270.60	5,315.1	614.0	-4,901.8	4,915.8	0.81	0.79	
10,232.0	91.20	270.00	5,314.1	614.4	-4,965.8	4,979.8	1.22	0.78	
10,300.0	91.60	270.40	5,312.4	614.6	-5,033.8	5,047.8	0.83	0.59	Last Cathedral Survey @ 10300' MD
10,350.0	91.60	270.40	5,311.0	615.0	-5,083.7	5,097.7	0.00	0.00	Projection to Bit @ 10350' MD

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: Lybrook
Well: Lybrook D22-2206 01H
Wellbore: Hz
Design: Hz

Local Co-ordinate Reference: Well Lybrook D22-2206 01H
TVD Reference: KBR @ 7201.0ft
MD Reference: KBR @ 7201.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: USA EDM 5000 Multi Users DB

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 D22-2206 01H I	0.00	0.00	-5,319.3	0.0	0.0	1,867,949.79	1,281,721.33	36.127580	-107.464640
- actual wellpath misses target center by 5319.3ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			-5,319.3	-200.0	-187.0	1,867,752.14	1,281,531.84		
Point 2			-5,319.3	1,147.0	-187.0	1,869,099.03	1,281,548.68		
Point 3			-5,319.3	1,147.0	-500.0	1,869,102.95	1,281,235.71		
Point 4			-5,319.3	1,147.0	-187.0	1,869,099.03	1,281,548.68		
Lybrook D22-2206 01H I	0.00	0.00	5,319.3	615.7	-5,091.7	1,868,629.10	1,276,637.70	36.129270	-107.481880
- actual wellpath misses target center by 11.5ft at 10350.0ft MD (5311.0 TVD, 615.0 N, -5083.7 E)									
- Polygon									
Point 1			5,319.3	-200.0	-330.0	1,868,433.25	1,276,305.22		
Point 2			5,319.3	660.0	-330.0	1,869,293.18	1,276,315.98		
Point 3			5,319.3	660.0	200.0	1,869,286.55	1,276,845.93		
Point 4			5,319.3	660.0	-330.0	1,869,293.18	1,276,315.98		
Lybrook D22-2206 01H I	0.00	0.00	5,333.3	498.8	-508.0	1,868,454.87	1,281,219.61	36.128950	-107.466360
- actual wellpath misses target center by 9.2ft at 5772.5ft MD (5324.3 TVD, 500.2 N, -509.3 E)									
- Point									
Lybrook D22-2206 01H I	0.00	0.00	5,309.3	615.7	-5,091.7	1,868,629.10	1,276,637.70	36.129270	-107.481880
- actual wellpath misses target center by 8.2ft at 10350.0ft MD (5311.0 TVD, 615.0 N, -5083.7 E)									
- Polygon									
Point 1			5,309.3	-200.0	-330.0	1,868,433.25	1,276,305.22		
Point 2			5,309.3	660.0	-330.0	1,869,293.18	1,276,315.98		
Point 3			5,309.3	660.0	200.0	1,869,286.55	1,276,845.93		
Point 4			5,309.3	660.0	-330.0	1,869,293.18	1,276,315.98		

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
10,300.0	5,312.4	614.6	-5,033.8	Last Cathedral Survey @ 10300' MD
10,350.0	5,311.0	615.0	-5,083.7	Projection to Bit @ 10350' MD

Checked By: _____ Approved By: _____ Date: _____