

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2014

SUNDRY NOTICES AND REPORTS ON WELLS
**Do not use this form for proposals to drill or to re-enter an
abandoned well. Use Form 3160-3 (APD) for such proposals.**

5. Lease Serial No. NMNM 118132
6. If Indian, Allottee or Tribe Name N/A
NOV 14 2014

SUBMIT IN TRIPLICATE – Other instructions on page 2.

1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other		7. If Unit of CA/Agreement, Name and/or No. N/A
2. Name of Operator Encana Oil & Gas (USA) Inc.		8. Well Name and No. Lybrook M11-2308 01H
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202	3b. Phone No. (include area code) 720-876-5867	9. API Well No. 30-045-35514
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) SHL: 362' FSL and 203' FWL Sec 11, T23N, R8W BHL: 430' FSL and 330' FWL Sec 10, T23N, R8W		10. Field and Pool or Exploratory Area Basin Mancos Gas/Nageezi Gallup
		11. County or Parish, State San Juan, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☒ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleation in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Encana Oil & Gas (USA) Inc. (Encana) wishes to modify the drilling plan for the Lybrook M11-2308 01H well to cement the 4 1/2" production liner, instead of running open hole swell packers, as previously planned. Attached is an updated Directional Drilling Plan, 10-Point Drilling Plan and Wellbore Diagram that reflect this change. Please note, the 7" ICP was also moved from approximately 72 degrees to approximately 55 degrees.

OIL CONS. DIV DIST. 3

NOV 17 2014

CONDITIONS OF APPROVAL

Adhere to previously issued stipulations

**BLM'S APPROVAL OR ACCEPTANCE OF THIS
ACTION DOES NOT RELIEVE THE LESSEE AND
OPERATOR FROM OBTAINING ANY OTHER
AUTHORIZATION REQUIRED FOR OPERATIONS
ON FEDERAL AND INDIAN LANDS**

**ADHERE TO PREVIOUS NMOCD
CONDITIONS OF APPROVAL**

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed) Cristi Bauer		Title Operations Technician
Signature <i>Cristi Bauer</i>		Date 11/13/14

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by <i>William Tambekou</i>	Title Petroleum Engineer	Date 11/14/2014
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office FFO

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Lybrook M11-2308 #01H

SHL: SW/4 SW/4 11 23N 8W, 362' FSL, 203' FWL

BHL: SW/4 SW/4 10 23N 8W, 430' FSL, 330' FWL

San Juan, New Mexico

**Encana Oil & Gas (USA) Inc.
Drilling Plan**

OIL CONS. DIV DIST. 3
NOV 17 2014

1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

Formation	Depth (TVD) units = feet
San Jose Fn.	
Nacimiento Fn.	
Ojo Alamo Ss.	953
Kirtland Shale	1,072
Fruitland Coal	1,247
Pictured Cliffs Ss.	1,578
Lewis Shale	1,662
Cliffhouse Ss.	2,356
Menefee Fn.	3,117
Point Lookout Ss.	3,979
Mancos Shale	4,164
Mancos Silt	4,867
Gallup Fn.	4,966

The referenced surface elevation is 6905', KB 6921'

**2. ESTIMATED DEPTH OF POTENTIAL WATER, OIL, GAS,
& OTHER MINERAL BEARING FORMATIONS**

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,247
Oil/Gas	Pictured Cliffs Ss.	1,578
Oil/Gas	Cliffhouse Ss.	2,356
Gas	Menefee Fn.	3,117
Oil/Gas	Point Lookout Ss.	3,979
Oil/Gas	Mancos Shale	4,164
Oil/Gas	Mancos Silt	4,867
Oil/Gas	Gallup Fn.	4,966

All shows of fresh water and minerals will be reported and protected.

Lybrook M11-2308 #01H

SHL: SW/4 SW/4 11 23N 8W, 362' FSL, 203' FWL

BHL: SW/4 SW/4 10 23N 8W, 430' FSL, 330' FWL

San Juan, New Mexico

3. PRESSURE CONTROL

- a) Pressure control equipment and configuration will be designed to meet 2M standards.
- b) Working pressure on rams and BOPE will be 3,000 psi.
- c) Function test and visual inspection of the BOP will be conducted daily and noted in the IADC Daily Drilling Report.
- d) The Annular BOP will be pressure tested to a minimum of 50 percent of its rated working pressure.
- e) Blind and Pipe Rams/BOP will be tested against a test plug to 100 percent of rated working pressure.
- f) Pressure tests are required before drilling out from under all casing strings set and cemented in place.
- g) BOP controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.
- h) BOP testing procedures and testing frequency will conform to Onshore Order No. 2.
- i) BOP remote controls shall be located on the rig floor at a location readily accessible to the driller. Master controls shall be on the ground at the accumulator and shall have the capability to function all preventers.
- j) The kill line shall be 2-inch minimum and contain two kill line valves, one of which shall be a check valve.
- k) The choke line shall be a 2-inch minimum and contain two choke line valves (2-inch minimum).
- l) The choke and manifold shall contain two adjustable chokes.
- m) Hand wheels shall be installed on all ram preventers.
- n)

Safety valves and wrenches (with subs for drill string connections) shall be available on the rig floor at all times.

- o) Inside BOP or float sub shall also be available on the rig floor at all times.

Proposed BOP and choke manifold arrangements are attached.

4. CASING & CEMENTING PROGRAM

The proposed casing and cementing program has been designed to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. All indications of useable water shall be reported.

- a) The proposed casing design is as follows:

Casing	Depth (MD)	Hole Size	Csg Size	Weight	Grade
Conductor	0'-60'	26"	16"	42.09#	
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5263'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5163'-10214'	6 1/8"	4 1/2"	11.6#	B80*, LTC New

Casing String				Casing Strength Properties			Minimum Design Factors		
Size	Weight (ppf)	Grade	Connection	Collapse (psi)	Burst (psi)	Tensile (1000lbs)	Collapse	Burst	Tension
9 5/8"	36	J55	STC	2020	3520	394	1.125	1.1	1.5
7"	26	J55	LTC	4320	4980	367	1.125	1.1	1.5
4.5"	11.6	B80	LTC	6350	7780	201	1.125	1.1	1.5

*B80 pipe specifications are attached

Casing design is subject to revision based on geologic conditions encountered

Lybrook M11-2308 #01H**SHL: SW/4 SW/4 11 23N 8W, 362' FSL, 203' FWL****BHL: SW/4 SW/4 10 23N 8W, 430' FSL, 330' FWL****San Juan, New Mexico**

All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1,500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.

b) The proposed cementing program is as follows

Casing	Depth (MD)	Cement Volume (sacks)	Cement Type & Yield	Designed TOC	Centralizers
Conductor	0'-60'	100 sks	Type I Neat 16 ppg	Surface	None
Surface	0'-500'	228 sks	Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water	Surface	1 per joint on bottom 3 joints
Intermediate	0'-5263'	100% open hole excess Stage 1 Lead: 489 sks Stage 1 Tail: 375 sks	Lead: PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuft/sk Tail: Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuft/sk	Surface	1 every 3 joints through water bearing zones
Production Liner	5163'- 10214'	50% OH excess Stage 1 Blend Total: 286sks	Blend: Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwoc Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL- 52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk	Liner Hanger	N/A

Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above or equivalent slurries depending on service provider selected. Cement yields may change depending on slurries selected

All waiting on cement times shall be a minimum of 8 hours or adequate to achieve minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed horizontal well will have a kick off point of 4405'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5265'/10214'	Gallup

Lybrook M11-2308 #01H**SHL: SW/4 SW/4 11 23N 8W, 362' FSL, 203' FWL****BHL: SW/4 SW/4 10 23N 8W, 430' FSL, 330' FWL****San Juan, New Mexico****6. DRILLING FLUIDS PROGRAM****a) Surface through Intermediate Casing Point:**

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60'/60'	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0'-500'/500'	Fresh Water	8.3-10	60-70	NC
8 3/4"	500'/500'-5177'/5263'	Fresh Water LSND	8.3-10	40-50	8-10

b) Intermediate Casing Point to TD:

Hole Size (in)	Depth (TVD/MD)	Mud Type	Density (ppg)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	5177'/5263'- 5265'/10214'	Fresh Water LSND	8.3-10	15-25	<15

- c) There will be sufficient mud on location to control a blowout should one occur. Mud flow and volume will be monitored both visually and with electronic pit volume totalizers. Mud tests shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.
- d) A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water. Waste will be disposed of properly at an EPA-approved hazardous waste facility. Fresh water cuttings will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystems, Inc. The location will be lined in accordance with the Surface Use Plan of Operations.

7. TESTING, CORING, & LOGGING

- a) Drill Stem Testing - None anticipated.
- b) Coring - None anticipated.
- c) Mudd Logging - Mud loggers will be on location from kick off point to TD.
- d) Logging - See below

Cased Hole:

CBL/CCL/GR/VDL will be run as needed for perforating control

8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

The anticipated bottom hole pressure is +/- 2472 psi based on a 9.0 ppg at 5283' TVD of the horizontal lateral target. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H₂S is encountered, the guidelines in Onshore Order No. 6 will be followed.

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on November 5, 2015. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

It is anticipated that the drilling of this well will take approximately 20 days.

LOC: Lybrook M11-2308 #01H County: San Juan WELL: Lybrook M11-2308 #01H			Encana Natural Gas WELL SUMMARY				ENG: Ty Soukup RIG: Aztec 920 GLE: 6905 RKBE: 6921		11/13/14	
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION	
			TVD	MD						
			60	60'		26	16" 42.09# 100sx Type I Neat 16.0ppg cmt	Fresh wtr 8.3-9.2		
Multi-Well pad take survey every stand and run anti-collision report prior to spud	None	San Jose Fn.	0			12 1/4	9 5/8" 36ppf J55 STC TOC Surface with 100% OH Excess: 228 sks Type III Cement + 1% bwoc Calcium Chloride + 0.25 lbs/sack Cello Flake + 0.2% bwoc FL-52A + 58.9% Fresh Water.	Fresh wtr 8.3-10	Vertical <1°	
		Nacimiento Fn. 9 5/8" Csg	0 500							
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5	No OH logs	Ojo Alamo Ss. Kirtland Shale	953 1,072			8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 864sks Stage 1 Lead: 489 sks Premium Lite FM + 3% CaCl2 + 0.25/sk Cello Flake + 5#/sk LCM-1 + 8% Bentonite + 0.4% FL-52A + 0.4% Sodium Metasilicate. Mixed at 12.1 ppg. Yield 2.13 cuft/sk. Stage 1 Tail: 375 sks Type III Cement + 1% CaCl2 + 0.25#/sk Cello Flake + 0.2% FL-52A. Mixed at 14.6 ppg. Yield 1.38 cuft/sk.	Fresh Wtr 8.3-10	Vertical <1°	
		Fruitland Coal	1,247							
		Pictured Cliffs Ss. Lewis Shale	1,578 1,662							
		Cliffhouse Ss. Menefee Fn.	2,356 3,117							
		Point Lookout Ss. Mancos Shale	3,979 4,164							
		KOP	4,405	4,405						
		Mancos Silt	4,867							
Surveys every 30' through the curve	Mud logger onsite	Gallup Fn.	4,966							
		7" Csg	5,177	5,263'						
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD	5,283 5,265	10,214		6 1/8	100' overlap at liner top 4951' Drilled Lateral		Horz Inc/TVD 90.2°deg/5283ft TD = 10213.8 MD	
		Base Gallup	5,279							
MWD Gamma Directional							4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 286sks Stage 1 Blend: 286 sks Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwoc Potassium Chloride + 0.25lbs/sack Cello Flake + 0.5% bwoc CD-32 + 1.15% bwoc FL-52A + 60 lbs/sack Calcium Carbonate + 124.4% Fresh Water. Yield 2.63 cuft/sk.	WBM 8.3-10		

NOTES:

- 1) Drill with 26" bit to 60', set 16" 42.09ppf conductor pipe
- 2) Drill surface to 500', R&C 9 5/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to KOP of 4405', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5263' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at -90 deg, drill lateral to 10214' run 4 1/2 inch cemented liner

OIL CONS. DIV DIST. 3

NOV 17 2014

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook M11-2308 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 6921.0usft (Aztec)
Project:	San Juan County, NM	MD Reference:	KB @ 6921.0usft (Aztec)
Site:	S11-T23N-R8W	North Reference:	True
Well:	Lybrook M11-2308 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #4		

Project	San Juan County, NM		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	S11-T23N-R8W		
Site Position:		Northing:	1,904,986.18 usft
From:	Lat/Long	Easting:	2,774,415.21 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	36.235280
		Longitude:	-107.659300
		Grid Convergence:	0.10 °

Well	Lybrook M11-2308 01H		
Well Position	+N/-S	0.0 usft	Northing: 1,904,986.18 usft
	+E/-W	0.0 usft	Easting: 2,774,415.21 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	36.235280
		Longitude:	-107.659300
		Ground Level:	6,905.0 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	3/28/2013	(°)	(°)	(nT)
			9.57	63.00	50,278

Design	Plan #4			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	270.46

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,405.0	0.00	0.00	4,405.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,563.0	15.80	73.78	4,561.0	6.0	20.8	10.00	10.00	0.00	73.78	
5,616.0	90.20	270.46	5,280.9	69.2	-533.8	10.00	7.07	-15.51	-162.69	Lybrook M11-2308 01
10,213.8	90.20	270.46	5,265.1	106.0	-5,131.4	0.00	0.00	0.00	0.00	Lybrook M11-2308 01

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Site: S11-T23N-R8W
 Well: Lybrook M11-2308 01H
 Wellbore: Hz
 Design: Plan #4

Local Co-ordinate Reference: Well Lybrook M11-2308 01H
 TVD Reference: KB @ 6921.0usft (Aztec)
 MD Reference: KB @ 6921.0usft (Aztec)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	9 5/8"
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
953.0	0.00	0.00	953.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,072.0	0.00	0.00	1,072.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,247.0	0.00	0.00	1,247.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,578.0	0.00	0.00	1,578.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,662.0	0.00	0.00	1,662.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,356.0	0.00	0.00	2,356.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,117.0	0.00	0.00	3,117.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
3,979.0	0.00	0.00	3,979.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,164.0	0.00	0.00	4,164.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Site: S11-T23N-R8W
Well: Lybrook M11-2308 01H
Wellbore: Hz
Design: Plan #4

Local Co-ordinate Reference: Well Lybrook M11-2308 01H
TVD Reference: KB @ 6921.0usft (Aztec)
MD Reference: KB @ 6921.0usft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	
4,405.0	0.00	0.00	4,405.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4405' MD
4,450.0	4.50	73.78	4,450.0	0.5	1.7	-1.7	10.00	10.00	
4,500.0	9.50	73.78	4,499.6	2.2	7.5	-7.5	10.00	10.00	
4,550.0	14.50	73.78	4,548.5	5.1	17.5	-17.5	10.00	10.00	
4,563.0	15.80	73.78	4,561.0	6.0	20.8	-20.7	10.00	10.00	10° Build/Turn
4,600.0	12.31	68.61	4,596.9	8.9	29.3	-29.2	10.00	-9.42	
4,650.0	7.91	54.68	4,646.1	12.8	37.1	-37.0	10.00	-8.79	
4,700.0	4.86	17.39	4,695.8	16.8	40.5	-40.4	10.00	-6.11	
4,750.0	5.87	322.73	4,745.6	20.9	39.6	-39.4	10.00	2.03	
4,800.0	9.76	298.68	4,795.2	25.0	34.3	-34.1	10.00	7.78	
4,850.0	14.35	289.00	4,844.1	29.0	24.8	-24.5	10.00	9.18	
4,873.9	16.62	286.28	4,867.1	30.9	18.7	-18.4	10.00	9.53	Mancos Silt
4,900.0	19.14	284.02	4,891.9	33.0	10.9	-10.7	10.00	9.64	
4,950.0	24.02	280.99	4,938.4	37.0	-7.0	7.3	10.00	9.75	
4,980.5	27.01	279.65	4,965.9	39.3	-19.9	20.3	10.00	9.82	Gallup Fn.
5,000.0	28.94	278.93	4,983.1	40.8	-29.0	29.3	10.00	9.85	
5,050.0	33.87	277.43	5,025.8	44.5	-54.8	55.1	10.00	9.88	
5,100.0	38.83	276.27	5,066.1	48.0	-84.2	84.6	10.00	9.91	
5,150.0	43.79	275.34	5,103.6	51.3	-117.0	117.4	10.00	9.92	
5,200.0	48.76	274.56	5,138.2	54.4	-153.0	153.4	10.00	9.94	
5,250.0	53.73	273.89	5,169.5	57.3	-191.9	192.3	10.00	9.95	
5,262.7	55.00	273.74	5,176.9	58.0	-202.2	202.6	10.00	9.95	ICP @ 55°
5,300.0	58.71	273.31	5,197.2	59.9	-233.3	233.8	10.00	9.95	
5,350.0	63.69	272.78	5,221.3	62.2	-277.1	277.6	10.00	9.96	
5,400.0	68.67	272.29	5,241.5	64.2	-322.7	323.3	10.00	9.96	
5,450.0	73.65	271.84	5,257.7	65.9	-370.0	370.5	10.00	9.96	
5,500.0	78.63	271.41	5,269.6	67.3	-418.5	419.1	10.00	9.97	
5,550.0	83.62	271.00	5,277.3	68.3	-467.9	468.4	10.00	9.97	
5,550.1	83.62	271.00	5,277.4	68.3	-468.0	468.6	0.00	0.00	Base Gallup
5,600.0	88.60	270.59	5,280.7	69.0	-517.8	518.3	10.03	9.99	
5,616.0	90.20	270.46	5,280.9	69.2	-533.8	534.3	10.00	9.97	LP @ 5280' TVD; 90.2°
5,700.0	90.20	270.46	5,280.6	69.8	-617.8	618.3	0.00	0.00	
5,800.0	90.20	270.46	5,280.3	70.6	-717.8	718.3	0.00	0.00	
5,900.0	90.20	270.46	5,279.9	71.4	-817.8	818.3	0.00	0.00	
6,000.0	90.20	270.46	5,279.6	72.2	-917.8	918.3	0.00	0.00	
6,100.0	90.20	270.46	5,279.2	73.0	-1,017.8	1,018.3	0.00	0.00	
6,200.0	90.20	270.46	5,278.9	73.9	-1,117.7	1,118.3	0.00	0.00	
6,300.0	90.20	270.46	5,278.5	74.7	-1,217.7	1,218.3	0.00	0.00	
6,400.0	90.20	270.46	5,278.2	75.5	-1,317.7	1,318.3	0.00	0.00	
6,500.0	90.20	270.46	5,277.9	76.3	-1,417.7	1,418.3	0.00	0.00	
6,600.0	90.20	270.46	5,277.5	77.1	-1,517.7	1,518.3	0.00	0.00	
6,700.0	90.20	270.46	5,277.2	77.9	-1,617.7	1,618.3	0.00	0.00	
6,800.0	90.20	270.46	5,276.8	78.7	-1,717.7	1,718.3	0.00	0.00	
6,900.0	90.20	270.46	5,276.5	79.5	-1,817.7	1,818.3	0.00	0.00	
7,000.0	90.20	270.46	5,276.1	80.3	-1,917.7	1,918.3	0.00	0.00	
7,100.0	90.20	270.46	5,275.8	81.1	-2,017.7	2,018.3	0.00	0.00	
7,200.0	90.20	270.46	5,275.5	81.9	-2,117.7	2,118.3	0.00	0.00	
7,300.0	90.20	270.46	5,275.1	82.7	-2,217.7	2,218.3	0.00	0.00	
7,400.0	90.20	270.46	5,274.8	83.5	-2,317.7	2,318.3	0.00	0.00	
7,500.0	90.20	270.46	5,274.4	84.3	-2,417.7	2,418.3	0.00	0.00	
7,600.0	90.20	270.46	5,274.1	85.1	-2,517.7	2,518.3	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook M11-2308 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 6921.0usft (Aztec)
Project:	San Juan County, NM	MD Reference:	KB @ 6921.0usft (Aztec)
Site:	S11-T23N-R8W	North Reference:	True
Well:	Lybrook M11-2308 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #4		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
7,700.0	90.20	270.46	5,273.7	85.9	-2,617.7	2,618.3	0.00	0.00	
7,800.0	90.20	270.46	5,273.4	86.7	-2,717.7	2,718.3	0.00	0.00	
7,900.0	90.20	270.46	5,273.0	87.5	-2,817.7	2,818.3	0.00	0.00	
8,000.0	90.20	270.46	5,272.7	88.3	-2,917.7	2,918.3	0.00	0.00	
8,100.0	90.20	270.46	5,272.4	89.1	-3,017.7	3,018.3	0.00	0.00	
8,200.0	90.20	270.46	5,272.0	89.9	-3,117.7	3,118.3	0.00	0.00	
8,300.0	90.20	270.46	5,271.7	90.7	-3,217.7	3,218.3	0.00	0.00	
8,400.0	90.20	270.46	5,271.3	91.5	-3,317.7	3,318.3	0.00	0.00	
8,500.0	90.20	270.46	5,271.0	92.3	-3,417.7	3,418.3	0.00	0.00	
8,600.0	90.20	270.46	5,270.6	93.1	-3,517.7	3,518.3	0.00	0.00	
8,700.0	90.20	270.46	5,270.3	93.9	-3,617.7	3,618.3	0.00	0.00	
8,800.0	90.20	270.46	5,270.0	94.7	-3,717.6	3,718.3	0.00	0.00	
8,900.0	90.20	270.46	5,269.6	95.5	-3,817.6	3,818.3	0.00	0.00	
9,000.0	90.20	270.46	5,269.3	96.3	-3,917.6	3,918.3	0.00	0.00	
9,100.0	90.20	270.46	5,268.9	97.1	-4,017.6	4,018.3	0.00	0.00	
9,200.0	90.20	270.46	5,268.6	97.9	-4,117.6	4,118.3	0.00	0.00	
9,300.0	90.20	270.46	5,268.2	98.7	-4,217.6	4,218.3	0.00	0.00	
9,400.0	90.20	270.46	5,267.9	99.5	-4,317.6	4,318.3	0.00	0.00	
9,500.0	90.20	270.46	5,267.5	100.3	-4,417.6	4,418.3	0.00	0.00	
9,600.0	90.20	270.46	5,267.2	101.1	-4,517.6	4,518.3	0.00	0.00	
9,700.0	90.20	270.46	5,266.9	101.9	-4,617.6	4,618.3	0.00	0.00	
9,800.0	90.20	270.46	5,266.5	102.7	-4,717.6	4,718.3	0.00	0.00	
9,900.0	90.20	270.46	5,266.2	103.5	-4,817.6	4,818.3	0.00	0.00	
9,937.4	90.20	270.46	5,266.0	103.8	-4,855.0	4,855.7	0.00	0.00	Horizontal Target
10,000.0	90.20	270.46	5,265.8	104.3	-4,917.6	4,918.3	0.00	0.00	
10,100.0	90.20	270.46	5,265.5	105.1	-5,017.6	5,018.3	0.00	0.00	
10,200.0	90.20	270.46	5,265.1	105.9	-5,117.6	5,118.3	0.00	0.00	
10,213.8	90.20	270.46	5,265.1	106.0	-5,131.4	5,132.1	0.00	0.00	PBHL @ 10213' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Lybrook M11-2308 01H I - hit/miss target - Shape - Point	0.00	0.00	5,280.9	69.2	-533.8	1,905,054.39	2,773,881.31	36.235470	-107.661110
Lybrook M11-2308 01H I - plan hits target center - Point	0.00	0.00	5,265.1	106.0	-5,131.4	1,905,082.99	2,769,283.67	36.235570	-107.676700

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
5,262.7	5,176.9	ICP @ 55°	0	0
500.0	500.0	9 5/8"	0	0

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook M11-2308 01H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 6921.0usft (Aztec)
Project:	San Juan County, NM	MD Reference:	KB @ 6921.0usft (Aztec)
Site:	S11-T23N-R8W	North Reference:	True
Well:	Lybrook M11-2308 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #4		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
953.0	953.0	Ojo Alamo Ss.		-0.20	270.46
1,072.0	1,072.0	Kirtland Shale		-0.20	270.46
1,247.0	1,247.0	Fruitland Coal		-0.20	270.46
1,578.0	1,578.0	Pictured Cliffs Ss.		-0.20	270.46
1,662.0	1,662.0	Lewis Shale		-0.20	270.46
2,356.0	2,356.0	Cliffhouse Ss.		-0.20	270.46
3,117.0	3,117.0	Menefee Fn.		-0.20	270.46
3,979.0	3,979.0	Point Lookout Ss.		-0.20	270.46
4,164.0	4,164.0	Mancos Shale		-0.20	270.46
4,873.9	4,867.0	Mancos Silt		-0.20	270.46
4,980.5	4,966.0	Gallup Fn.		-0.20	270.46
5,550.1	5,279.0	Base Gallup		-0.20	270.46
9,937.4	5,283.0	Horizontal Target		-0.20	270.46

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,405.0	4,405.0	0.0	0.0	KOP @ 4405' MD
4,563.0	4,561.0	6.0	20.8	10° Build/Turn
5,616.0	5,280.9	69.2	-533.8	LP @ 5280' TVD; 90.2°
10,213.8	5,265.1	106.0	-5,131.4	PBHL @ 10213' MD

EnCana Oil & Gas (USA) Inc

San Juan County, NM

S11-T23N-R8W

Lybrook M11-2308 01H

Hz

Plan #4

Anticollision Report

11 November, 2014

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook M11-2308 01H
Project:	San Juan County, NM	TVD Reference:	KB @ 6921.0usft (Aztec)
Reference Site:	S11-T23N-R8W	MD Reference:	KB @ 6921.0usft (Aztec)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Lybrook M11-2308 01H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #4	Offset TVD Reference:	Offset Datum

Reference	Plan #4		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 5,280.0usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	11/11/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	10,213.8	Plan #4 (Hz)	MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S11-T23N-R8W						
Hutton Canyon Unit M11-2308 02H - Hz - Plan #2	3,500.0	3,499.0	30.9	18.7	2.539	CC, ES, SF
Hutton Canyon Unit M11-2308 03H - HZ - Plan #1	1,800.0	1,799.0	29.2	23.0	4.686	CC, ES
Hutton Canyon Unit M11-2308 03H - HZ - Plan #1	1,900.0	1,898.6	29.9	23.3	4.550	SF

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Reference Site: S11-T23N-R8W
 Site Error: 0.0usft
 Reference Well: Lybrook M11-2308 01H
 Well Error: 0.0usft
 Reference Wellbore: Hz
 Reference Design: Plan #4

Local Co-ordinate Reference: Well Lybrook M11-2308 01H
 TVD Reference: KB @ 6921.0usft (Aztec)
 MD Reference: KB @ 6921.0usft (Aztec)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: USA EDM 5000 Multi Users DB
 Offset TVD Reference: Offset Datum

Offset Design S11-T23N-R8W - Hutton Canyon Unit M11-2308 02H - Hz - Plan #2														Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)					
0.0	0.0	0.0	0.0	0.0	0.0	-135.02	-21.8	-21.8	30.9						
100.0	100.0	99.0	99.0	0.1	0.1	-135.02	-21.8	-21.8	30.9	30.6	0.29	105.207			
200.0	200.0	199.0	199.0	0.3	0.3	-135.02	-21.8	-21.8	30.9	30.2	0.64	48.072			
300.0	300.0	299.0	299.0	0.5	0.5	-135.02	-21.8	-21.8	30.9	29.9	0.99	31.145			
400.0	400.0	399.0	399.0	0.7	0.7	-135.02	-21.8	-21.8	30.9	29.5	1.34	23.034			
500.0	500.0	499.0	499.0	0.8	0.8	-135.02	-21.8	-21.8	30.9	29.2	1.69	18.275			
600.0	600.0	599.0	599.0	1.0	1.0	-135.02	-21.8	-21.8	30.9	28.8	2.04	15.146			
700.0	700.0	699.0	699.0	1.2	1.2	-135.02	-21.8	-21.8	30.9	28.5	2.39	12.932			
800.0	800.0	799.0	799.0	1.4	1.4	-135.02	-21.8	-21.8	30.9	28.1	2.74	11.282			
900.0	900.0	899.0	899.0	1.5	1.5	-135.02	-21.8	-21.8	30.9	27.8	3.09	10.006			
1,000.0	1,000.0	999.0	999.0	1.7	1.7	-135.02	-21.8	-21.8	30.9	27.4	3.43	8.989			
1,100.0	1,100.0	1,099.0	1,099.0	1.9	1.9	-135.02	-21.8	-21.8	30.9	27.1	3.78	8.160			
1,200.0	1,200.0	1,199.0	1,199.0	2.1	2.1	-135.02	-21.8	-21.8	30.9	26.7	4.13	7.471			
1,300.0	1,300.0	1,299.0	1,299.0	2.2	2.2	-135.02	-21.8	-21.8	30.9	26.4	4.48	6.889			
1,400.0	1,400.0	1,399.0	1,399.0	2.4	2.4	-135.02	-21.8	-21.8	30.9	26.0	4.83	6.391			
1,500.0	1,500.0	1,499.0	1,499.0	2.6	2.6	-135.02	-21.8	-21.8	30.9	25.7	5.18	5.960			
1,600.0	1,600.0	1,599.0	1,599.0	2.8	2.8	-135.02	-21.8	-21.8	30.9	25.3	5.53	5.584			
1,700.0	1,700.0	1,699.0	1,699.0	2.9	2.9	-135.02	-21.8	-21.8	30.9	25.0	5.88	5.252			
1,800.0	1,800.0	1,799.0	1,799.0	3.1	3.1	-135.02	-21.8	-21.8	30.9	24.6	6.23	4.958			
1,900.0	1,900.0	1,899.0	1,899.0	3.3	3.3	-135.02	-21.8	-21.8	30.9	24.3	6.58	4.695			
2,000.0	2,000.0	1,999.0	1,999.0	3.5	3.5	-135.02	-21.8	-21.8	30.9	24.0	6.93	4.458			
2,100.0	2,100.0	2,099.0	2,099.0	3.6	3.6	-135.02	-21.8	-21.8	30.9	23.6	7.27	4.244			
2,200.0	2,200.0	2,199.0	2,199.0	3.8	3.8	-135.02	-21.8	-21.8	30.9	23.3	7.62	4.050			
2,300.0	2,300.0	2,299.0	2,299.0	4.0	4.0	-135.02	-21.8	-21.8	30.9	22.9	7.97	3.873			
2,400.0	2,400.0	2,399.0	2,399.0	4.2	4.2	-135.02	-21.8	-21.8	30.9	22.6	8.32	3.710			
2,500.0	2,500.0	2,499.0	2,499.0	4.3	4.3	-135.02	-21.8	-21.8	30.9	22.2	8.67	3.561			
2,600.0	2,600.0	2,599.0	2,599.0	4.5	4.5	-135.02	-21.8	-21.8	30.9	21.9	9.02	3.423			
2,700.0	2,700.0	2,699.0	2,699.0	4.7	4.7	-135.02	-21.8	-21.8	30.9	21.5	9.37	3.296			
2,800.0	2,800.0	2,799.0	2,799.0	4.9	4.9	-135.02	-21.8	-21.8	30.9	21.2	9.72	3.177			
2,900.0	2,900.0	2,899.0	2,899.0	5.0	5.0	-135.02	-21.8	-21.8	30.9	20.8	10.07	3.067			
3,000.0	3,000.0	2,999.0	2,999.0	5.2	5.2	-135.02	-21.8	-21.8	30.9	20.5	10.42	2.964			
3,100.0	3,100.0	3,099.0	3,099.0	5.4	5.4	-135.02	-21.8	-21.8	30.9	20.1	10.77	2.868			
3,200.0	3,200.0	3,199.0	3,199.0	5.6	5.6	-135.02	-21.8	-21.8	30.9	19.8	11.11	2.778			
3,300.0	3,300.0	3,299.0	3,299.0	5.7	5.7	-135.02	-21.8	-21.8	30.9	19.4	11.46	2.693			
3,400.0	3,400.0	3,399.0	3,399.0	5.9	5.9	-135.02	-21.8	-21.8	30.9	19.1	11.81	2.614			
3,500.0	3,500.0	3,499.0	3,499.0	6.1	6.1	-135.02	-21.8	-21.8	30.9	18.7	12.16	2.539 CC, ES, SF			
3,600.0	3,600.0	3,597.5	3,597.5	6.3	6.3	-137.91	-24.5	-22.2	33.1	20.6	12.51	2.647			
3,700.0	3,700.0	3,695.5	3,695.0	6.4	6.4	-144.84	-32.7	-23.2	40.3	27.4	12.86	3.132			
3,800.0	3,800.0	3,792.1	3,790.8	6.6	6.6	-151.60	-46.0	-24.9	53.0	39.8	13.21	4.009			
3,900.0	3,900.0	3,887.1	3,883.9	6.8	6.8	-157.06	-64.2	-27.2	71.4	57.8	13.58	5.253			
4,000.0	4,000.0	3,979.7	3,973.7	7.0	7.1	-160.91	-86.8	-30.0	95.3	81.3	13.98	6.814			
4,100.0	4,100.0	4,069.7	4,059.6	7.1	7.3	-163.57	-113.2	-33.4	124.4	110.0	14.41	8.633			
4,200.0	4,200.0	4,156.6	4,141.2	7.3	7.6	-165.43	-142.9	-37.1	158.5	143.6	14.88	10.653			
4,300.0	4,300.0	4,240.2	4,218.3	7.5	8.0	-166.76	-175.2	-41.2	197.2	181.8	15.38	12.821			
4,405.0	4,405.0	4,324.3	4,294.1	7.7	8.4	-167.77	-211.3	-45.8	242.5	226.6	15.95	15.203			
4,450.0	4,450.0	4,358.9	4,324.7	7.7	8.6	116.26	-227.2	-47.8	264.1	248.8	15.31	17.252			
4,500.0	4,499.6	4,400.0	4,360.7	7.8	8.8	114.29	-246.9	-50.3	290.5	275.1	15.44	18.817			
4,550.0	4,548.5	4,429.7	4,388.4	7.9	9.0	112.20	-261.6	-52.2	319.3	303.7	15.55	20.524			
4,563.0	4,561.0	4,438.3	4,393.8	8.0	9.1	111.70	-265.9	-52.7	327.1	311.5	15.59	20.983			
4,600.0	4,596.9	4,462.3	4,414.4	8.0	9.2	120.52	-278.3	-54.3	349.9	334.2	15.69	22.302			
4,650.0	4,646.1	4,500.0	4,446.2	8.1	9.5	138.63	-298.2	-56.8	380.9	365.1	15.87	24.007			
4,700.0	4,695.8	4,526.7	4,468.6	8.2	9.7	179.32	-312.7	-58.6	411.9	395.8	16.06	25.649			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S11-T23N-R8W
Site Error: 0.0usft
Reference Well: Lybrook M11-2308 01H
Well Error: 0.0usft
Reference Wellbore: Hz
Reference Design: Plan #4

Local Co-ordinate Reference: Well Lybrook M11-2308 01H
TVD Reference: KB @ 6921.0usft (Aztec)
MD Reference: KB @ 6921.0usft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S11-T23N-R8W - Hutton Canyon Unit M11-2308 02H - Hz - Plan #2													Offset Site Error: 0.0 usft	
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis		Distance							Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis			
4,750.0	4,745.6	4,558.1	4,494.6	8.3	9.9	-123.26	-330.2	-60.8	442.6	426.4	16.27	27.207		
4,800.0	4,795.2	4,588.7	4,519.5	8.4	10.1	-96.95	-347.7	-63.1	473.1	456.6	16.48	28.710		
4,850.0	4,844.1	4,618.3	4,543.4	8.5	10.4	-85.39	-365.0	-65.2	503.2	486.5	16.68	30.173		
4,900.0	4,891.9	4,646.6	4,566.0	8.5	10.6	-78.82	-382.1	-67.4	532.9	516.1	16.86	31.609		
4,950.0	4,938.4	4,673.7	4,587.4	8.6	10.9	-74.40	-398.6	-69.5	562.3	545.3	17.03	33.027		
5,000.0	4,983.1	4,700.0	4,607.8	8.8	11.1	-71.14	-415.0	-71.6	591.4	574.2	17.18	34.428		
5,050.0	5,025.8	4,723.6	4,625.9	8.9	11.3	-68.44	-430.0	-73.5	620.1	602.8	17.32	35.800		
5,100.0	5,066.1	4,746.2	4,643.1	9.1	11.5	-66.17	-444.5	-75.3	648.6	631.2	17.47	37.137		
5,150.0	5,103.6	4,767.1	4,658.8	9.4	11.7	-64.13	-458.2	-77.0	676.9	659.3	17.62	38.425		
5,200.0	5,138.2	4,800.0	4,683.2	9.8	12.0	-63.28	-480.1	-79.8	705.1	687.2	17.84	39.525		
5,250.0	5,169.5	4,800.0	4,683.2	10.2	12.0	-60.13	-480.1	-79.8	732.6	714.7	17.94	40.842		
5,300.0	5,197.2	4,819.4	4,697.4	10.7	12.2	-58.66	-493.2	-81.5	760.1	742.0	18.17	41.840		
5,350.0	5,221.3	4,833.2	4,707.5	11.4	12.4	-56.91	-502.7	-82.7	787.3	768.9	18.40	42.792		
5,400.0	5,241.5	4,845.2	4,716.1	12.1	12.5	-55.17	-510.9	-83.7	814.2	795.6	18.66	43.642		
5,450.0	5,257.7	4,855.3	4,723.3	12.9	12.6	-53.42	-517.9	-84.6	840.7	821.8	18.94	44.389		
5,500.0	5,269.6	4,863.6	4,729.2	13.8	12.7	-51.68	-523.7	-85.3	866.8	847.5	19.25	45.027		
5,550.0	5,277.3	4,869.9	4,733.7	14.8	12.8	-49.95	-528.1	-85.9	892.3	872.7	19.59	45.550		
5,600.0	5,280.7	4,874.3	4,736.8	15.8	12.8	-48.23	-531.2	-86.3	917.2	897.2	19.96	45.951		
5,616.0	5,280.9	4,875.3	4,737.5	16.1	12.8	-47.68	-531.9	-86.4	925.0	904.9	20.09	46.052		
5,700.0	5,280.6	4,880.1	4,740.8	17.9	12.9	-48.02	-535.2	-86.8	968.7	947.2	21.46	45.138		
5,800.0	5,280.3	4,900.0	4,754.8	20.0	13.1	-49.42	-549.4	-88.6	1,027.3	1,003.9	23.46	43.798		
5,900.0	5,279.9	4,900.0	4,754.8	22.3	13.1	-49.42	-549.4	-88.6	1,091.7	1,066.6	25.14	43.418		
6,000.0	5,279.6	4,900.0	4,754.8	24.6	13.1	-49.42	-549.4	-88.6	1,161.2	1,134.3	26.87	43.214		
6,100.0	5,279.2	4,900.0	4,754.8	26.9	13.1	-49.42	-549.4	-88.6	1,234.8	1,206.2	28.62	43.142		
6,200.0	5,278.9	4,900.0	4,754.8	29.2	13.1	-49.42	-549.4	-88.6	1,312.0	1,281.6	30.40	43.162		
6,300.0	5,278.5	4,914.7	4,765.0	31.6	13.3	-50.45	-559.9	-89.9	1,391.9	1,359.3	32.60	42.691		
6,400.0	5,278.2	4,920.6	4,769.0	34.0	13.3	-50.86	-564.1	-90.4	1,474.3	1,439.7	34.61	42.595		
6,500.0	5,277.9	4,926.5	4,773.1	36.4	13.4	-51.28	-568.4	-91.0	1,558.7	1,522.1	36.65	42.528		
6,600.0	5,277.5	4,932.5	4,777.2	38.8	13.5	-51.70	-572.8	-91.5	1,644.9	1,606.2	38.72	42.480		
6,700.0	5,277.2	4,938.6	4,781.3	41.2	13.5	-52.11	-577.1	-92.1	1,732.5	1,691.7	40.82	42.443		
6,800.0	5,276.8	4,944.6	4,785.4	43.6	13.6	-52.53	-581.6	-92.6	1,821.3	1,778.4	42.94	42.412		
6,900.0	5,276.5	4,950.8	4,789.6	46.0	13.7	-52.96	-586.0	-93.2	1,911.3	1,866.2	45.10	42.383		
7,000.0	5,276.1	4,956.9	4,793.7	48.4	13.7	-53.38	-590.6	-93.8	2,002.1	1,954.9	47.27	42.354		
7,100.0	5,275.8	4,963.1	4,797.9	50.9	13.8	-53.80	-595.1	-94.4	2,093.8	2,044.3	49.47	42.324		
7,200.0	5,275.5	4,969.4	4,802.0	53.3	13.9	-54.23	-599.7	-94.9	2,186.2	2,134.5	51.69	42.291		
7,300.0	5,275.1	4,975.6	4,806.2	55.7	13.9	-54.65	-604.4	-95.5	2,279.2	2,225.2	53.94	42.255		
7,400.0	5,274.8	4,982.0	4,810.4	58.2	14.0	-55.08	-609.1	-96.1	2,372.7	2,316.5	56.20	42.215		
7,500.0	5,274.4	5,000.0	4,822.3	60.6	14.2	-56.29	-622.6	-97.8	2,466.8	2,407.8	59.00	41.812		
7,600.0	5,274.1	5,000.0	4,822.3	63.1	14.2	-56.29	-622.6	-97.8	2,561.2	2,500.2	61.03	41.963		
7,700.0	5,273.7	5,000.0	4,822.3	65.5	14.2	-56.29	-622.6	-97.8	2,656.0	2,593.0	63.07	42.110		
7,800.0	5,273.4	5,000.0	4,822.3	68.0	14.2	-56.29	-622.6	-97.8	2,751.2	2,686.1	65.11	42.252		
7,900.0	5,273.0	5,014.3	4,831.5	70.4	14.4	-57.23	-633.3	-99.2	2,846.7	2,778.9	67.84	41.960		
8,000.0	5,272.7	5,020.9	4,835.8	72.9	14.5	-57.67	-638.3	-99.8	2,942.5	2,872.3	70.23	41.899		
8,100.0	5,272.4	5,027.5	4,840.1	75.4	14.6	-58.10	-643.4	-100.5	3,038.5	2,965.9	72.63	41.836		
8,200.0	5,272.0	5,034.2	4,844.3	77.8	14.6	-58.53	-648.5	-101.1	3,134.8	3,059.7	75.05	41.770		
8,300.0	5,271.7	5,040.9	4,848.6	80.3	14.7	-58.96	-653.6	-101.8	3,231.3	3,153.8	77.49	41.702		
8,400.0	5,271.3	5,047.7	4,852.9	82.7	14.8	-59.40	-658.8	-102.4	3,327.9	3,248.0	79.94	41.632		
8,500.0	5,271.0	5,054.5	4,857.2	85.2	14.9	-59.83	-664.0	-103.1	3,424.7	3,342.3	82.40	41.560		
8,600.0	5,270.6	5,061.3	4,861.5	87.6	15.0	-60.26	-669.3	-103.7	3,521.7	3,436.9	84.89	41.488		
8,700.0	5,270.3	5,068.3	4,865.8	90.1	15.1	-60.69	-674.7	-104.4	3,618.9	3,531.5	87.38	41.414		
8,800.0	5,270.0	5,075.2	4,870.2	92.6	15.1	-61.13	-680.1	-105.1	3,716.2	3,626.3	89.89	41.339		
8,900.0	5,269.6	5,082.2	4,874.5	95.0	15.2	-61.56	-685.6	-105.8	3,813.6	3,721.1	92.42	41.264		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S11-T23N-R8W
Site Error: 0.0usft
Reference Well: Lybrook M11-2308 01H
Well Error: 0.0usft
Reference Wellbore: Hz
Reference Design: Plan #4

Local Co-ordinate Reference: Well Lybrook M11-2308 01H
TVD Reference: KB @ 6921.0usft (Aztec)
MD Reference: KB @ 6921.0usft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S11-T23N-R8W - Hutton Canyon Unit M11-2308 02H - Hz - Plan #2														Offset Site Error: 0.0 usft	
Survey Program: 0-Geolink MWD														Offset Well Error: 0.0 usft	
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor			
9,000.0	5,269.3	5,100.0	4,885.4	97.5	15.4	-82.64	-699.5	-107.6	3,911.1	3,815.6	95.50	40.953			
9,100.0	5,268.9	5,100.0	4,885.4	100.0	15.4	-82.64	-699.5	-107.6	4,008.7	3,911.0	97.69	41.034			
9,200.0	5,268.6	5,100.0	4,885.4	102.4	15.4	-82.64	-699.5	-107.6	4,106.4	4,008.5	99.88	41.113			
9,300.0	5,268.2	5,110.7	4,891.9	104.9	15.6	-83.28	-707.9	-108.6	4,204.2	4,101.6	102.64	40.962			
9,400.0	5,267.9	5,117.9	4,896.2	107.4	15.7	-83.70	-713.7	-109.4	4,302.1	4,198.9	105.22	40.887			
9,500.0	5,267.5	5,125.2	4,900.6	109.8	15.8	-84.13	-719.5	-110.1	4,400.1	4,292.3	107.81	40.813			
9,600.0	5,267.2	5,132.6	4,905.0	112.3	15.9	-84.55	-725.3	-110.8	4,498.1	4,387.7	110.41	40.739			
9,700.0	5,266.9	5,139.9	4,909.3	114.8	16.0	-84.98	-731.2	-111.6	4,596.3	4,483.2	113.02	40.666			
9,800.0	5,266.5	5,148.0	4,914.1	117.2	16.1	-85.43	-737.7	-112.4	4,694.4	4,578.8	115.68	40.582			
9,900.0	5,266.2	5,157.3	4,919.6	119.7	16.2	-85.96	-745.2	-113.3	4,792.7	4,674.3	118.40	40.479			
10,000.0	5,265.8	5,166.6	4,925.1	122.2	16.3	-86.47	-752.6	-114.3	4,891.0	4,769.9	121.12	40.380			
10,100.0	5,265.5	5,175.9	4,930.5	124.6	16.4	-86.98	-760.1	-115.2	4,989.3	4,865.5	123.85	40.285			
10,200.0	5,265.1	5,185.2	4,936.0	127.1	16.5	-87.49	-767.5	-116.2	5,087.7	4,961.1	126.58	40.193			
10,213.8	5,265.1	5,186.5	4,936.8	127.4	16.5	-87.56	-768.6	-116.3	5,101.3	4,974.3	126.96	40.180			
10,214.5	5,265.1	5,186.6	4,936.8	127.5	16.5	-87.56	-768.6	-116.3	5,102.0	4,975.0	126.98	40.180			

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Reference Site: S11-T23N-R8W
 Site Error: 0.0usft
 Reference Well: Lybrook M11-2308 01H
 Well Error: 0.0usft
 Reference Wellbore: Hz
 Reference Design: Plan #4

Local Co-ordinate Reference: Well Lybrook M11-2308 01H
 TVD Reference: KB @ 6921.0usft (Aztec)
 MD Reference: KB @ 6921.0usft (Aztec)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Output errors are at 2.00 sigma
 Database: USA EDM 5000 Multi Users DB
 Offset TVD Reference: Offset Datum

Offset Design S11-T23N-R8W - Hutton Canyon Unit M11-2308 03H - HZ - Plan #1													Offset Site Error: 0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	46.68	20.0	21.2	29.2				
100.0	100.0	99.0	99.0	0.1	0.1	46.68	20.0	21.2	29.2	28.9	0.29	99.443	
200.0	200.0	199.0	199.0	0.3	0.3	46.68	20.0	21.2	29.2	28.5	0.64	45.438	
300.0	300.0	299.0	299.0	0.5	0.5	46.68	20.0	21.2	29.2	28.2	0.99	29.439	
400.0	400.0	399.0	399.0	0.7	0.7	46.68	20.0	21.2	29.2	27.8	1.34	21.772	
500.0	500.0	499.0	499.0	0.8	0.8	46.68	20.0	21.2	29.2	27.5	1.69	17.274	
600.0	600.0	599.0	599.0	1.0	1.0	46.68	20.0	21.2	29.2	27.1	2.04	14.316	
700.0	700.0	699.0	699.0	1.2	1.2	46.68	20.0	21.2	29.2	26.8	2.39	12.223	
800.0	800.0	799.0	799.0	1.4	1.4	46.68	20.0	21.2	29.2	26.4	2.74	10.664	
900.0	900.0	899.0	899.0	1.5	1.5	46.68	20.0	21.2	29.2	26.1	3.09	9.458	
1,000.0	1,000.0	999.0	999.0	1.7	1.7	46.68	20.0	21.2	29.2	25.7	3.43	8.497	
1,100.0	1,100.0	1,099.0	1,099.0	1.9	1.9	46.68	20.0	21.2	29.2	25.4	3.78	7.713	
1,200.0	1,200.0	1,199.0	1,199.0	2.1	2.1	46.68	20.0	21.2	29.2	25.1	4.13	7.061	
1,300.0	1,300.0	1,299.0	1,299.0	2.2	2.2	46.68	20.0	21.2	29.2	24.7	4.48	6.511	
1,400.0	1,400.0	1,399.0	1,399.0	2.4	2.4	46.68	20.0	21.2	29.2	24.4	4.83	6.041	
1,500.0	1,500.0	1,499.0	1,499.0	2.6	2.6	46.68	20.0	21.2	29.2	24.0	5.18	5.634	
1,600.0	1,600.0	1,599.0	1,599.0	2.8	2.8	46.68	20.0	21.2	29.2	23.7	5.53	5.278	
1,700.0	1,700.0	1,699.0	1,699.0	2.9	2.9	46.68	20.0	21.2	29.2	23.3	5.88	4.965	
1,800.0	1,800.0	1,799.0	1,799.0	3.1	3.1	46.68	20.0	21.2	29.2	23.0	6.23	4.686 CC, ES	
1,900.0	1,900.0	1,898.6	1,898.5	3.3	3.3	42.82	21.9	20.3	29.9	23.3	6.58	4.550 SF	
2,000.0	2,000.0	1,997.7	1,997.5	3.5	3.5	32.41	27.7	17.6	32.9	26.0	6.92	4.751	
2,100.0	2,100.0	2,096.2	2,095.3	3.6	3.7	19.36	37.3	13.1	39.7	32.5	7.28	5.460	
2,200.0	2,200.0	2,193.5	2,191.6	3.8	3.9	7.80	50.5	6.9	51.5	43.9	7.65	6.742	
2,300.0	2,300.0	2,289.5	2,285.7	4.0	4.1	-0.75	67.2	-0.9	68.5	60.4	8.04	8.511	
2,400.0	2,400.0	2,383.7	2,377.4	4.2	4.4	-6.67	86.9	-10.2	90.2	81.7	8.48	10.632	
2,500.0	2,500.0	2,475.9	2,466.2	4.3	4.7	-10.74	109.6	-20.8	116.3	107.3	8.96	12.974	
2,600.0	2,600.0	2,566.0	2,551.8	4.5	5.1	-13.60	134.8	-32.6	146.5	137.0	9.49	15.437	
2,700.0	2,700.0	2,653.7	2,634.1	4.7	5.5	-15.66	162.3	-45.5	180.6	170.6	10.07	17.941	
2,800.0	2,800.0	2,738.8	2,712.7	4.9	6.0	-17.19	191.7	-59.3	218.4	207.7	10.69	20.433	
2,900.0	2,900.0	2,821.2	2,787.8	5.0	6.5	-18.34	222.6	-73.8	259.6	248.2	11.35	22.879	
3,000.0	3,000.0	2,900.0	2,858.2	5.2	7.1	-19.23	254.5	-88.7	304.0	292.0	12.03	25.275	
3,100.0	3,100.0	2,979.2	2,927.9	5.4	7.7	-19.95	288.6	-104.8	351.5	338.8	12.76	27.541	
3,200.0	3,200.0	3,066.5	3,004.0	5.6	8.3	-20.58	327.2	-122.9	400.2	386.7	13.58	29.474	
3,300.0	3,300.0	3,153.7	3,080.2	5.7	9.0	-21.07	365.8	-141.0	449.0	434.6	14.41	31.159	
3,400.0	3,400.0	3,241.0	3,156.3	5.9	9.7	-21.47	404.4	-159.1	497.7	482.5	15.25	32.633	
3,500.0	3,500.0	3,328.3	3,232.5	6.1	10.4	-21.80	443.0	-177.2	546.5	530.4	16.11	33.931	
3,600.0	3,600.0	3,415.5	3,308.6	6.3	11.2	-22.07	481.6	-195.3	595.3	578.3	16.97	35.081	
3,700.0	3,700.0	3,502.8	3,384.8	6.4	11.9	-22.30	520.1	-213.4	644.1	626.2	17.84	36.106	
3,800.0	3,800.0	3,590.1	3,460.9	6.6	12.6	-22.50	558.7	-231.5	692.9	674.1	18.71	37.023	
3,900.0	3,900.0	3,677.3	3,537.1	6.8	13.4	-22.68	597.3	-249.6	741.7	722.1	19.60	37.848	
4,000.0	4,000.0	3,764.6	3,613.2	7.0	14.1	-22.83	635.9	-267.7	790.5	770.0	20.48	38.596	
4,100.0	4,100.0	3,851.9	3,689.4	7.1	14.8	-22.96	674.5	-285.8	839.3	817.9	21.37	39.275	
4,200.0	4,200.0	3,939.1	3,765.5	7.3	15.6	-23.08	713.1	-303.9	888.1	865.8	22.26	39.895	
4,300.0	4,300.0	4,026.4	3,841.7	7.5	16.3	-23.19	751.6	-321.9	936.9	913.7	23.15	40.463	
4,405.0	4,405.0	6,310.8	5,261.9	7.7	14.4	49.57	313.4	368.0	984.7	962.9	21.79	45.191	
4,450.0	4,450.0	6,311.1	5,261.9	7.7	14.4	-27.88	313.2	368.1	944.9	923.4	21.56	43.834	
4,500.0	4,499.6	6,313.2	5,261.9	7.8	14.4	-32.98	311.7	369.5	899.7	878.0	21.71	41.437	
4,550.0	4,548.5	6,317.1	5,261.8	7.9	14.5	-39.58	308.7	372.1	853.4	831.5	21.88	39.000	
4,563.0	4,561.0	6,318.4	5,261.8	8.0	14.5	-41.60	307.7	373.0	841.2	819.3	21.93	38.351	
4,600.0	4,596.9	6,321.6	5,261.8	8.0	14.5	-28.32	305.4	375.1	806.7	784.9	21.89	36.853	
4,650.0	4,646.1	6,323.3	5,261.8	8.1	14.6	-6.68	304.1	376.2	761.6	739.7	21.89	34.791	
4,700.0	4,695.8	6,322.0	5,261.8	8.2	14.5	35.62	305.1	375.4	718.8	696.8	21.91	32.812	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Reference Site: S11-T23N-R8W
 Site Error: 0.0usft
 Reference Well: Lybrook M11-2308 01H
 Well Error: 0.0usft
 Reference Wellbore: Hz
 Reference Design: Plan #4

Local Co-ordinate Reference: Well Lybrook M11-2308 01H
 TVD Reference: KB @ 6921.0usft (Aztec)
 MD Reference: KB @ 6921.0usft (Aztec)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: USA EDM 5000 Multi Users DB
 Offset TVD Reference: Offset Datum

Offset Design S11-T23N-R8W - Hutton Canyon Unit M11-2308 03H - HZ - Plan #1													Offset Site Error: 0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error: 0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor	Warning
4,750.0	4,745.6	6,317.8	5,261.8	8.3	14.5	93.40	308.2	372.6	678.9	657.0	21.89	31.020	
4,800.0	4,795.2	6,310.8	5,261.9	8.4	14.4	119.23	313.5	367.9	642.9	621.0	21.81	29.475	
4,850.0	4,844.1	6,300.9	5,262.0	8.5	14.3	129.70	320.9	361.4	611.5	589.9	21.67	28.216	
4,900.0	4,891.9	6,288.2	5,262.1	8.5	14.2	134.68	330.4	353.0	585.8	564.3	21.49	27.260	
4,950.0	4,938.4	6,272.9	5,262.3	8.6	14.0	137.03	341.8	342.8	566.5	545.2	21.28	26.619	
5,000.0	4,983.1	6,255.0	5,262.5	8.8	13.9	137.79	355.2	331.0	554.1	533.0	21.06	26.315	
5,050.0	5,025.8	6,234.7	5,262.7	8.9	13.7	137.42	370.4	317.5	549.0	528.2	20.79	26.406	
5,059.5	5,033.6	6,230.6	5,262.7	9.0	13.7	137.24	373.5	314.8	548.9	528.2	20.74	26.466	
5,100.0	5,066.1	6,212.2	5,262.9	9.1	13.6	136.12	387.3	302.6	551.3	530.8	20.50	26.885	
5,150.0	5,103.6	6,187.6	5,263.2	9.4	13.5	134.01	405.8	286.3	560.4	540.1	20.33	27.573	
5,200.0	5,138.2	6,161.0	5,263.5	9.8	13.6	131.14	425.6	268.7	575.8	555.5	20.36	28.290	
5,250.0	5,169.5	6,132.8	5,263.8	10.2	13.6	127.56	446.8	250.0	596.7	576.1	20.56	29.015	
5,300.0	5,197.2	6,103.1	5,264.1	10.7	13.7	123.32	469.0	230.3	622.1	601.1	20.99	29.631	
5,350.0	5,221.3	6,072.1	5,264.4	11.4	13.8	118.48	492.2	209.8	651.1	629.4	21.71	29.988	
5,400.0	5,241.5	6,040.1	5,264.7	12.1	13.9	113.15	516.2	188.6	682.9	660.3	22.63	30.180	
5,450.0	5,257.7	6,007.4	5,265.1	12.9	14.1	107.47	540.7	168.9	716.8	693.1	23.67	30.285	
5,500.0	5,269.6	5,974.1	5,265.4	13.8	14.3	101.63	565.7	144.9	752.2	727.4	24.77	30.363	
5,550.0	5,277.3	5,939.3	5,265.7	14.8	14.4	95.78	591.7	121.8	788.6	762.7	25.83	30.533	
5,600.0	5,280.7	5,899.2	5,264.6	15.8	14.7	89.97	621.6	95.1	825.3	798.6	26.74	30.859	
5,616.0	5,280.9	5,886.3	5,263.8	16.1	14.8	88.16	631.1	86.4	837.1	810.1	27.01	30.989	
5,700.0	5,280.6	5,818.0	5,255.5	17.9	15.3	87.55	681.0	40.4	898.5	870.1	28.43	31.608	
5,800.0	5,280.3	5,736.6	5,237.3	20.0	15.9	86.23	738.3	-14.3	970.8	940.5	30.28	32.058	
5,900.0	5,279.9	5,657.2	5,211.0	22.3	16.7	84.46	791.4	-67.0	1,042.4	1,010.1	32.30	32.272	
6,000.0	5,279.6	5,581.6	5,178.5	24.6	17.4	82.42	838.9	-116.0	1,113.8	1,079.3	34.44	32.340	
6,100.0	5,279.2	5,511.1	5,141.9	26.9	18.1	80.28	879.9	-160.2	1,185.3	1,148.7	36.64	32.351	
6,200.0	5,278.9	5,446.4	5,103.2	29.2	18.7	78.16	914.3	-198.9	1,257.4	1,218.6	38.85	32.365	
6,300.0	5,278.5	5,387.8	5,064.4	31.6	19.2	76.11	942.7	-232.3	1,330.4	1,289.4	41.04	32.413	
6,400.0	5,278.2	5,335.2	5,026.6	34.0	19.7	74.20	965.7	-260.8	1,404.5	1,361.3	43.19	32.516	
6,500.0	5,277.9	5,288.1	4,990.6	36.4	20.1	72.44	984.2	-284.8	1,479.8	1,434.5	45.29	32.672	
6,600.0	5,277.5	5,250.0	4,960.1	38.8	20.4	70.99	997.7	-303.2	1,556.5	1,509.1	47.37	32.861	
6,700.0	5,277.2	5,208.7	4,925.8	41.2	20.7	69.38	1,010.7	-322.1	1,634.5	1,585.2	49.35	33.123	
6,800.0	5,276.8	5,175.4	4,897.1	43.6	20.9	68.07	1,020.0	-336.4	1,713.9	1,662.6	51.31	33.401	
6,900.0	5,276.5	5,150.0	4,874.9	46.0	21.0	67.06	1,026.4	-346.8	1,794.7	1,741.4	53.30	33.672	
7,000.0	5,276.1	5,118.8	4,846.9	48.4	21.2	65.82	1,033.3	-358.8	1,876.6	1,821.5	55.16	34.022	
7,100.0	5,275.8	5,100.0	4,829.8	50.9	21.3	65.06	1,037.0	-365.7	1,959.8	1,902.7	57.13	34.307	
7,200.0	5,275.5	5,073.1	4,805.0	53.3	21.4	63.98	1,041.6	-375.1	2,044.1	1,985.1	58.93	34.688	
7,300.0	5,275.1	5,050.0	4,783.5	55.7	21.5	63.04	1,045.0	-382.6	2,129.4	2,068.6	60.73	35.061	
7,400.0	5,274.8	5,035.7	4,770.0	58.2	21.6	62.46	1,046.8	-387.1	2,215.6	2,153.0	62.65	35.367	
7,500.0	5,274.4	5,019.5	4,754.6	60.6	21.6	61.80	1,048.6	-392.0	2,302.8	2,238.3	64.49	35.705	
7,600.0	5,274.1	5,000.0	4,736.1	63.1	21.7	61.01	1,050.4	-397.5	2,390.7	2,324.5	66.24	36.093	
7,700.0	5,273.7	5,000.0	4,736.1	65.5	21.7	61.01	1,050.4	-397.5	2,479.4	2,411.1	68.38	36.259	
7,800.0	5,273.4	4,978.6	4,715.5	68.0	21.7	60.13	1,051.9	-403.2	2,568.8	2,498.8	70.01	36.690	
7,900.0	5,273.0	4,967.1	4,704.4	70.4	21.8	59.67	1,052.5	-406.1	2,658.8	2,587.0	71.85	37.006	
8,000.0	5,272.7	4,950.0	4,687.8	72.9	21.8	58.97	1,053.1	-410.1	2,749.5	2,676.0	73.51	37.404	
8,100.0	5,272.4	4,950.0	4,687.8	75.4	21.8	58.97	1,053.1	-410.1	2,840.6	2,765.0	75.61	37.588	
8,200.0	5,272.0	4,950.0	4,687.8	77.8	21.8	58.97	1,053.1	-410.1	2,932.3	2,854.6	77.72	37.730	
8,300.0	5,271.7	4,929.0	4,667.3	80.3	21.8	58.11	1,053.5	-414.8	3,024.4	2,945.2	79.18	38.196	
8,400.0	5,271.3	4,921.0	4,659.5	82.7	21.8	57.78	1,053.5	-416.5	3,117.0	3,035.9	81.01	38.474	
8,500.0	5,271.0	4,900.0	4,638.9	85.2	21.9	56.93	1,053.2	-420.6	3,210.0	3,127.6	82.39	38.962	
8,600.0	5,270.6	4,900.0	4,638.9	87.6	21.9	56.93	1,053.2	-420.6	3,303.3	3,218.8	84.45	39.114	
8,700.0	5,270.3	4,900.0	4,638.9	90.1	21.9	56.93	1,053.2	-420.6	3,396.9	3,310.4	86.52	39.263	
8,800.0	5,270.0	4,900.0	4,638.9	92.6	21.9	56.93	1,053.2	-420.6	3,490.9	3,402.3	88.58	39.409	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S11-T23N-R8W
Site Error: 0.0usft
Reference Well: Lybrook M11-2308 01H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #4

Local Co-ordinate Reference: Well Lybrook M11-2308 01H
TVD Reference: KB @ 6921.0usft (Aztec)
MD Reference: KB @ 6921.0usft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Offset Design S11-T23N-R8W - Hutton Canyon Unit M11-2308 03H - HZ - Plan #1													Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Total Uncertainty Axis	Separation Factor		
8,900.0	5,269.6	4,900.0	4,638.9	95.0	21.9	56.93	1,053.2	-420.6	3,585.2	3,494.6	90.65	39.551		
9,000.0	5,269.3	4,900.0	4,638.9	97.5	21.9	56.93	1,053.2	-420.6	3,679.8	3,587.1	92.71	39.691		
9,100.0	5,268.9	4,877.6	4,616.8	100.0	21.9	56.01	1,052.4	-424.5	3,774.5	3,680.6	93.86	40.212		
9,200.0	5,268.6	4,872.7	4,612.0	102.4	21.9	55.81	1,052.1	-425.3	3,869.5	3,773.8	95.70	40.433		
9,300.0	5,268.2	4,868.1	4,607.5	104.9	21.9	55.62	1,051.9	-426.1	3,964.8	3,867.3	97.54	40.647		
9,400.0	5,267.9	4,850.0	4,589.6	107.4	21.9	54.89	1,050.6	-428.7	4,060.4	3,961.6	98.77	41.111		
9,500.0	5,267.5	4,850.0	4,589.6	109.8	21.9	54.89	1,050.6	-428.7	4,156.0	4,055.2	100.79	41.236		
9,600.0	5,267.2	4,850.0	4,589.6	112.3	21.9	54.89	1,050.6	-428.7	4,251.8	4,149.0	102.80	41.358		
9,700.0	5,266.9	4,850.0	4,589.6	114.8	21.9	54.89	1,050.6	-428.7	4,347.9	4,243.0	104.83	41.477		
9,800.0	5,266.5	4,850.0	4,589.6	117.2	21.9	54.89	1,050.6	-428.7	4,444.1	4,337.2	106.85	41.593		
9,900.0	5,266.2	4,850.0	4,589.6	119.7	21.9	54.89	1,050.6	-428.7	4,540.4	4,431.6	108.87	41.706		
10,000.0	5,265.8	4,850.0	4,589.6	122.2	21.9	54.89	1,050.6	-428.7	4,636.9	4,526.1	110.89	41.817		
10,100.0	5,265.5	4,850.0	4,589.6	124.6	21.9	54.89	1,050.6	-428.7	4,733.6	4,620.7	112.91	41.924		
10,200.0	5,265.1	4,850.0	4,589.6	127.1	21.9	54.89	1,050.6	-428.7	4,830.4	4,715.5	114.93	42.029		
10,213.8	5,265.1	4,850.0	4,589.6	127.4	21.9	54.89	1,050.6	-428.7	4,843.7	4,728.5	115.21	42.043		
10,214.5	5,265.1	4,850.0	4,589.6	127.5	21.9	54.89	1,050.6	-428.7	4,844.4	4,729.2	115.22	42.044		

Cathedral Energy Services

Anticollision Report

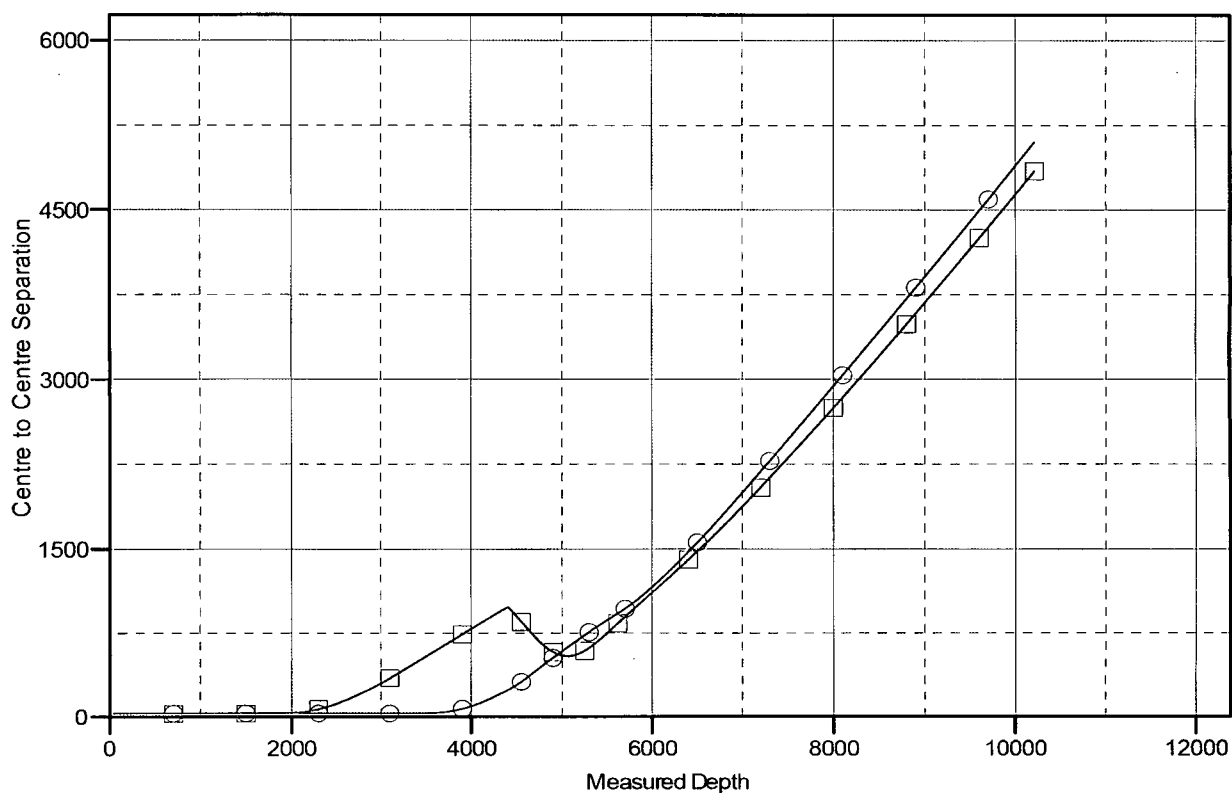
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan County, NM
Reference Site: S11-T23N-R8W
Site Error: 0.0usft
Reference Well: Lybrook M11-2308 01H
Well Error: 0.0usft
Reference Wellbore: Hz
Reference Design: Plan #4

Local Co-ordinate Reference: Well Lybrook M11-2308 01H
TVD Reference: KB @ 6921.0usft (Aztec)
MD Reference: KB @ 6921.0usft (Aztec)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB @ 6921.0usft (Aztec)
 Offset Depths are relative to Offset Datum
 Central Meridian is -107.83333 °

Coordinates are relative to: Lybrook M11-2308 01H
 Coordinate System is US State Plane 1983, New Mexico Western Zone
 Grid Convergence at Surface is: 0.10°

Ladder Plot



LEGEND

- Hutton Canyon Unit M11-2308 02H, Hz, Plan #2 V0 - Hutton Canyon Unit M11-2308 03H, Hz, Plan #1 V0