

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary-Designate

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

David R. Catanach Division Director
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: 3-2-15

Well information;

Operator Encana, Well Name and Number Lybrook H03 2308 #2H

API# 30-045-35659, Section 3, Township 23 N/S, Range 8 E/W

Conditions of Approval:

(See the below checked and handwritten conditions)

- ☒ Notify Aztec OCD 24hrs prior to casing & cement.
- ☒ Hold C-104 for directional survey & "As Drilled" Plat
- ☒ Hold C-104 for NSL, NSP, DHC
- ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ☐ Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
 - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
 - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
 - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- ☐ Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ☒ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84
- ☒ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- ☒ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.

NMOCD Approved by Signature

4-24-2015
Date KC

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

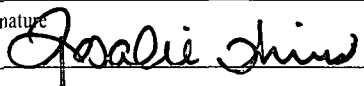
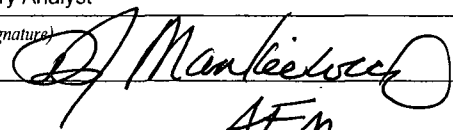
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM 120374
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☒ Multiple Zone		6. If Indian, Allottee or Tribe Name N/A
2. Name of Operator Encana Oil & Gas (USA) Inc.		7. If Unit or CA Agreement, Name and No. N/A
3a. Address 370 17th Street, Suite 1700 Denver, CO 80202		8. Lease Name and Well No. Lybrook H03-2308 02H
3b. Phone No. (include area code) 720-876-3740		9. API Well No. 30-045-35659
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface H 1589' FNL and 342' FEL Section 3, T23N, R8W SENE At proposed prod. zone H 1720' FNL and 330' FEL, Section 2, T23N, R8W SENE		10. Field and Pool, or Exploratory Basin Mancos Gas
14. Distance in miles and direction from nearest town or post office* +/- 41 miles south on HWY 550 from Bloomfield, NM		11. Sec., T. R. M. or Blk. and Survey or Area Section 3, T23N, R8W NMPM BHL Sec 2, T23N, R8W
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) BHL is 330' FEL Section 2, T23N, R8W	16. No. of acres in lease NMNM 120374- 483.44 acres	17. Spacing Unit dedicated to this well 323.44 acres- N/2 Section 2
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Well Pad is +/- 30' S of Lybrook H03-2308 01H	19. Proposed Depth 5,410' TVD; 10,467' MD	20. BLM/BIA Bond No. on file COB-000235
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,892' GL; 6,908' KB	22. Approximate date work will start* 09/02/2015	23. Estimated duration 20 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the BLM.

25. Signature 	Name (Printed/Typed) Rosalie Thim	Date 03/02/2015
Title Regulatory Analyst		
Approved by (Signature) 	Name (Printed/Typed) AFM	Date 4/16/15
Title AFM	Office FFO	

Application approval 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.
Conditions of approval, if any, are attached.

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.

(Continued on page 2)

*(Instructions on page 2)

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

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

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"

NMOC
AV

OIL CONS. DIV DIST. 3

APR 21 2015

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-8178 Fax: (505) 334-8170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 478-3460 Fax: (505) 478-3462

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 Dr.
Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-35659	² Pool Code 97232	³ Pool Name BASIN MANCOS GAS
⁴ Property Code 314772	⁵ Property Name LYBROOK H03-2308	⁶ Well Number 02H
⁷ GRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.	⁹ Elevation 6892.3'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	WEST/West line	County
H	3	23N	8W		1589'	NORTH	342'	EAST	SAN JUAN

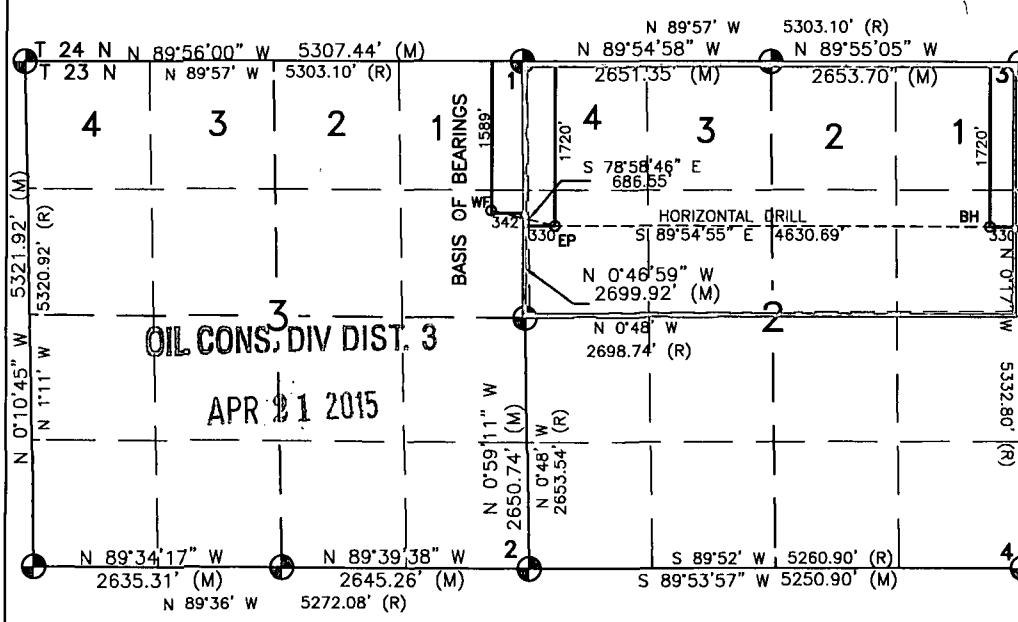
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	WEST/West line	County
H	2	23N	8W		1720'	NORTH	330'	EAST	SAN JUAN

¹² Dedicated Acres 323.44 ACRES N/2 SEC. 2	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16

WELL FLAG LAT. 36.259189° N (NAD83) LONG. 107.661331° W (NAD83) LAT. 36.259176° N (NAD27) LONG. 107.660720° W (NAD27)	ENTRY POINT LAT. 36.258828° N (NAD83) LONG. 107.659040° W (NAD83) LAT. 36.258815° N (NAD27) LONG. 107.658430° W (NAD27)	BOTTOM HOLE LAT. 36.258807° N (NAD83) LONG. 107.643345° W (NAD83) LAT. 36.258794° N (NAD27) LONG. 107.642735° W (NAD27)	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 the division. Signature: <i>Rosalie Thim</i> Date: 3/2/15 Printed Name: Rosalie Thim E-mail Address: rosalie.thim@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. JANUARY 28, 2014 Date of Survey Signature and Seal of Professional Surveyor: DAVID R. RUSSELL REGISTERED PROFESSIONAL LAND SURVEYOR NEW MEXICO 10201 Certificate Number: 10201

SHEET A

Lybrook H03-2308 02H

SHL: 1589' FNL, 342' FEL Sec 3, T23N, R8W

BHL: 1720' FNL, 330' FEL Sec 2, T23N, R8W

San Juan, New Mexico

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

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.	n/a
Nacimiento Fn.	surface
Ojo Alamo Ss.	1,033
Kirtland Shale	1,206
Fruitland Coal	1,522
Pictured Cliffs Ss.	1,742
Lewis Shale	1,839
Cliffhouse Ss.	2,575
Menefee Fn.	3,281
Point Lookout Ss.	4,025
Mancos Shale	4,333
Mancos Silt	4,875
Gallup Fn.	5,121
Base Gallup	5,486

The referenced surface elevation is 6892', KB 6908'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,522
Oil/Gas	Pictured Cliffs Ss.	1,742
Oil/Gas	Cliffhouse Ss.	2,575
Gas	Menefee Fn.	3,281
Oil/Gas	Point Lookout Ss.	4,025
Oil/Gas	Mancos Shale	4,333
Oil/Gas	Mancos Silt	4,875
Oil/Gas	Gallup Fn.	5,121

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

Lybrook H03-2308 02H**SHL: 1589' FNL, 342' FEL Sec 3, T23N, R8W****BHL: 1720' FNL, 330' FEL Sec 2, T23N, R8W****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'-5396'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5296'-10467'	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 H03-2308 02H**SHL: 1589' FNL, 342' FEL Sec 3, T23N, R8W****BHL: 1720' FNL, 330' FEL Sec 2, T23N, R8W****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'-5396'	100% open hole excess Stage 1 Lead: 502 sks Stage 1 Tail: 384 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	5296'- 10467'	50% OH excess Stage 1 Blend Total: 293sks	Blend: Premium Lite High Strength FM + 0.7% bwoc R-3 + 3% bwow 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 4355'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5410'/10467'	Gallup

Lybrook H03-2308 02H

SHL: 1589' FNL, 342' FEL Sec 3, T23N, R8W

BHL: 1720' FNL, 330' FEL Sec 2, T23N, R8W

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'-5287'/5396'	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"	5287'/5396'- 5410'/10467'	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 +/- 2536 psi based on a 9.0 ppg at 5419' 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 September 2, 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: 1589' FNL, 342' FEL Sec 3, T23N, R8W			Encana Natural Gas						ENG: Michael Sanch RIG: Aztec 950 GLE: 6892 RKBE: 6908		3/2/15	
County: San Juan			WELL SUMMARY									
MWD	OPEN HOLE	FORM	DEPTH			HOLE	CASING	MW	DEVIATION			
LWD	LOGGING		TVD	MD			SPECS	MUD TYPE	INFORMATION			
			60	60'								
		San Jose Fn.	0			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											
		Nacimiento Fn.	surface			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°		
		9 5/8" Csg	500	500.00								
		Ojo Alamo Ss. Kirtland Shale	1,033 1,206									
		Fruitland Coal	1,522									
		Pictured Cliffs Ss. Lewis Shale	1,742 1,839									
		Cliffhouse Ss. Menefee Fn.	2,575 3,281									
		Point Lookout Ss. Mancos Shale	4,025 4,333									
Survey Every 60'-120', updating anticollision report after surveys. Stop operations and contact drilling engineer if separation factor approaches 1.5	No OH logs					8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 886sks Stage 1 Lead: 502 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.	Fresh Wtr 8.3-10		Vertical <1°		
		KOP	4,355	4,355								
		Mancos Silt	4,875									
		Gallup Fn.	5,121									
Surveys every 30' through the curve	Mud logger onsite	7" Csg	5,287	5,396'								

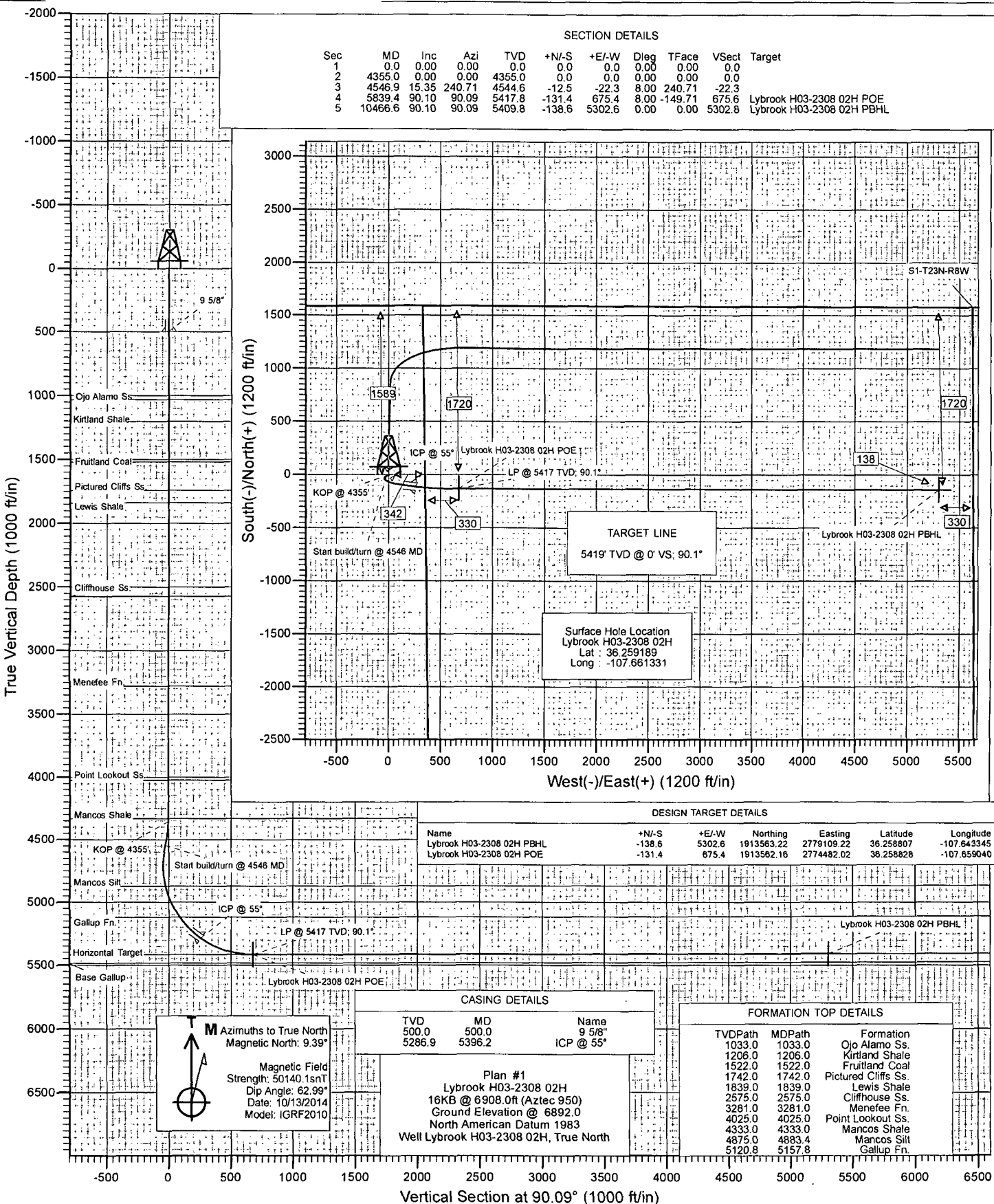
NOTES:

- 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 4355', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5396' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at ~90 deg, drill lateral to 10467' run 4 1/2 inch cemented liner

encana

natural gas

Project: San Juan County, NM
Site: S3-T23N-R8W
Well: Lybrook H03-2308 02H
Wellbore: HZ
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook H03-2308 02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16KB @ 6908.0usft (Aztec 950)
Project:	San Juan County, NM	MD Reference:	16KB @ 6908.0usft (Aztec 950)
Site:	S3-T23N-R8W	North Reference:	True
Well:	Lybrook H03-2308 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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	S3-T23N-R8W				
Site Position:		Northing:	1,913,716.56 usft	Latitude:	36.259266
From:	Lat/Long	Easting:	2,773,794.27 usft	Longitude:	-107.661353
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.10 °

Well	Lybrook H03-2308 02H					
Well Position	+N/-S	0.0 usft	Northing:	1,913,688.54 usft	Latitude:	36.259189
	+E/-W	0.0 usft	Easting:	2,773,800.81 usft	Longitude:	-107.661331
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	6,892.0 usft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/13/2014	9.39	62.99	50,140

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	90.09

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	
4,355.0	0.00	0.00	4,355.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,546.9	15.35	240.71	4,544.6	-12.5	-22.3	8.00	8.00	0.00	240.71	
5,839.4	90.10	90.09	5,417.8	-131.4	675.4	8.00	5.78	-11.65	-149.71	Lybrook H03-2308 02
10,466.6	90.10	90.09	5,409.7	-138.6	5,302.6	0.00	0.00	0.00	0.00	Lybrook H03-2308 02

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan County, NM
 Site: S3-T23N-R8W
 Well: Lybrook H03-2308 02H
 Wellbore: HZ
 Design: Plan #1

Local Co-ordinate Reference: Well Lybrook H03-2308 02H
 TVD Reference: 16KB @ 6908.0usft (Aztec 950)
 MD Reference: 16KB @ 6908.0usft (Aztec 950)
 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	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,033.0	0.00	0.00	1,033.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
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	
1,206.0	0.00	0.00	1,206.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
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	
1,522.0	0.00	0.00	1,522.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,742.0	0.00	0.00	1,742.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,839.0	0.00	0.00	1,839.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
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	
2,400.0	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	
2,575.0	0.00	0.00	2,575.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
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	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,281.0	0.00	0.00	3,281.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
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	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,025.0	0.00	0.00	4,025.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook H03-2308 02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16KB @ 6908.0usft (Aztec 950)
Project:	San Juan County, NM	MD Reference:	16KB @ 6908.0usft (Aztec 950)
Site:	S3-T23N-R8W	North Reference:	True
Well:	Lybrook H03-2308 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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
4,333.0	0.00	0.00	4,333.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,355.0	0.00	0.00	4,355.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4355'
4,400.0	3.60	240.71	4,400.0	-0.7	-1.2	-1.2	8.00	8.00	
4,500.0	11.60	240.71	4,499.0	-7.2	-12.8	-12.7	8.00	8.00	
4,546.9	15.35	240.71	4,544.6	-12.5	-22.3	-22.3	8.00	8.00	Start build/turn @ 4546 MD
4,600.0	11.87	230.23	4,596.2	-19.4	-32.6	-32.6	8.00	-6.55	
4,700.0	7.75	188.15	4,694.9	-32.7	-41.5	-41.4	8.00	-4.12	
4,800.0	10.32	137.83	4,793.8	-46.0	-36.4	-36.4	8.00	2.57	
4,883.4	15.58	119.01	4,875.0	-57.0	-21.6	-21.5	8.00	6.30	Mancos Silt
4,900.0	16.74	116.71	4,891.0	-59.2	-17.5	-17.4	8.00	7.02	
5,000.0	24.11	107.62	4,984.7	-71.9	14.9	15.0	8.00	7.37	
5,100.0	31.78	102.67	5,072.9	-83.8	60.1	60.2	8.00	7.66	
5,157.8	36.27	100.68	5,120.8	-90.4	91.8	91.9	8.00	7.77	Gallup Fn.
5,200.0	39.56	99.49	5,154.1	-94.9	117.3	117.4	8.00	7.81	
5,300.0	47.41	97.22	5,226.6	-104.8	185.3	185.5	8.00	7.85	
5,396.2	55.00	95.52	5,286.9	-113.0	259.8	260.0	8.00	7.88	ICP @ 55°
5,400.0	55.30	95.46	5,289.0	-113.3	262.9	263.1	8.00	7.90	
5,500.0	63.20	94.00	5,340.1	-120.4	348.5	348.7	8.00	7.91	
5,600.0	71.12	92.74	5,378.9	-125.7	440.4	440.6	8.00	7.92	
5,700.0	79.04	91.60	5,404.6	-129.4	536.9	537.1	8.00	7.93	
5,800.0	86.97	90.51	5,416.8	-131.2	636.0	636.2	8.00	7.93	
5,839.4	90.10	90.09	5,417.8	-131.4	675.4	675.6	8.00	7.93	LP @ 5417 TVD; 90.1° - Lybrook H03-2308 02H
5,900.0	90.10	90.09	5,417.7	-131.5	736.0	736.2	0.00	0.00	
6,000.0	90.10	90.09	5,417.5	-131.7	836.0	836.2	0.00	0.00	
6,100.0	90.10	90.09	5,417.3	-131.8	936.0	936.2	0.00	0.00	
6,200.0	90.10	90.09	5,417.2	-132.0	1,036.0	1,036.2	0.00	0.00	
6,300.0	90.10	90.09	5,417.0	-132.1	1,136.0	1,136.2	0.00	0.00	
6,400.0	90.10	90.09	5,416.8	-132.3	1,236.0	1,236.2	0.00	0.00	
6,500.0	90.10	90.09	5,416.6	-132.4	1,336.0	1,336.2	0.00	0.00	
6,600.0	90.10	90.09	5,416.5	-132.6	1,436.0	1,436.2	0.00	0.00	
6,700.0	90.10	90.09	5,416.3	-132.7	1,536.0	1,536.2	0.00	0.00	
6,800.0	90.10	90.09	5,416.1	-132.9	1,636.0	1,636.2	0.00	0.00	
6,900.0	90.10	90.09	5,416.0	-133.0	1,736.0	1,736.2	0.00	0.00	
7,000.0	90.10	90.09	5,415.8	-133.2	1,836.0	1,836.2	0.00	0.00	
7,100.0	90.10	90.09	5,415.6	-133.4	1,936.0	1,936.2	0.00	0.00	
7,200.0	90.10	90.09	5,415.4	-133.5	2,036.0	2,036.2	0.00	0.00	
7,300.0	90.10	90.09	5,415.3	-133.7	2,136.0	2,136.2	0.00	0.00	
7,400.0	90.10	90.09	5,415.1	-133.8	2,236.0	2,236.2	0.00	0.00	
7,500.0	90.10	90.09	5,414.9	-134.0	2,336.0	2,336.2	0.00	0.00	
7,600.0	90.10	90.09	5,414.7	-134.1	2,436.0	2,436.2	0.00	0.00	
7,700.0	90.10	90.09	5,414.6	-134.3	2,536.0	2,536.2	0.00	0.00	
7,800.0	90.10	90.09	5,414.4	-134.4	2,636.0	2,636.2	0.00	0.00	
7,900.0	90.10	90.09	5,414.2	-134.6	2,736.0	2,736.2	0.00	0.00	
8,000.0	90.10	90.09	5,414.0	-134.7	2,836.0	2,836.2	0.00	0.00	
8,100.0	90.10	90.09	5,413.9	-134.9	2,936.0	2,936.2	0.00	0.00	
8,200.0	90.10	90.09	5,413.7	-135.1	3,036.0	3,036.2	0.00	0.00	
8,300.0	90.10	90.09	5,413.5	-135.2	3,136.0	3,136.2	0.00	0.00	
8,400.0	90.10	90.09	5,413.3	-135.4	3,236.0	3,236.2	0.00	0.00	
8,500.0	90.10	90.09	5,413.2	-135.5	3,336.0	3,336.2	0.00	0.00	
8,600.0	90.10	90.09	5,413.0	-135.7	3,436.0	3,436.2	0.00	0.00	
8,700.0	90.10	90.09	5,412.8	-135.8	3,536.0	3,536.2	0.00	0.00	
8,800.0	90.10	90.09	5,412.6	-136.0	3,636.0	3,636.2	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook H03-2308 02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16KB @ 6908.0usft (Aztec 950)
Project:	San Juan County, NM	MD Reference:	16KB @ 6908.0usft (Aztec 950)
Site:	S3-T23N-R8W	North Reference:	True
Well:	Lybrook H03-2308 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

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
8,900.0	90.10	90.09	5,412.5	-136.1	3,736.0	3,736.2	0.00	0.00	
9,000.0	90.10	90.09	5,412.3	-136.3	3,836.0	3,836.2	0.00	0.00	
9,100.0	90.10	90.09	5,412.1	-136.5	3,936.0	3,936.2	0.00	0.00	
9,200.0	90.10	90.09	5,411.9	-136.6	4,036.0	4,036.2	0.00	0.00	
9,300.0	90.10	90.09	5,411.8	-136.8	4,136.0	4,136.2	0.00	0.00	
9,400.0	90.10	90.09	5,411.6	-136.9	4,236.0	4,236.2	0.00	0.00	
9,500.0	90.10	90.09	5,411.4	-137.1	4,336.0	4,336.2	0.00	0.00	
9,600.0	90.10	90.09	5,411.2	-137.2	4,436.0	4,436.2	0.00	0.00	
9,700.0	90.10	90.09	5,411.1	-137.4	4,536.0	4,536.2	0.00	0.00	
9,800.0	90.10	90.09	5,410.9	-137.5	4,636.0	4,636.2	0.00	0.00	
9,900.0	90.10	90.09	5,410.7	-137.7	4,736.0	4,736.2	0.00	0.00	
10,000.0	90.10	90.09	5,410.6	-137.8	4,836.0	4,836.2	0.00	0.00	
10,100.0	90.10	90.09	5,410.4	-138.0	4,936.0	4,936.2	0.00	0.00	
10,200.0	90.10	90.09	5,410.2	-138.2	5,036.0	5,036.2	0.00	0.00	
10,300.0	90.10	90.09	5,410.0	-138.3	5,136.0	5,136.2	0.00	0.00	
10,400.0	90.10	90.09	5,409.9	-138.5	5,236.0	5,236.2	0.00	0.00	
10,466.6	90.10	90.09	5,409.7	-138.6	5,302.6	5,302.8	0.00	0.00	TD at 10466.6 - Lybrook H03-2308 02H PBHL

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Lybrook H03-2308 02H I	0.00	0.00	5,409.7	-138.6	5,302.6	1,913,559.39	2,779,103.66	36.258807	-107.643345
- plan hits target center									
- Point									
Lybrook H03-2308 02H I	0.00	0.00	5,417.8	-131.4	675.4	1,913,558.33	2,774,476.47	36.258828	-107.659040
- plan hits target center									
- Point									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
5,396.2	5,286.9	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 H03-2308 02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16KB @ 6908.0usft (Aztec 950)
Project:	San Juan County, NM	MD Reference:	16KB @ 6908.0usft (Aztec 950)
Site:	S3-T23N-R8W	North Reference:	True
Well:	Lybrook H03-2308 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,033.0	1,033.0	Ojo Alamo Ss.		-0.10	90.09
1,206.0	1,206.0	Kirtland Shale		-0.10	90.09
1,522.0	1,522.0	Fruitland Coal		-0.10	90.09
1,742.0	1,742.0	Pictured Cliffs Ss.		-0.10	90.09
1,839.0	1,839.0	Lewis Shale		-0.10	90.09
2,575.0	2,575.0	Cliffhouse Ss.		-0.10	90.09
3,281.0	3,281.0	Menefee Fn.		-0.10	90.09
4,025.0	4,025.0	Point Lookout Ss.		-0.10	90.09
4,333.0	4,333.0	Mancos Shale		-0.10	90.09
4,883.4	4,875.0	Mancos Silt		-0.10	90.09
5,157.8	5,121.0	Gallup Fn.		-0.10	90.09

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,355.0	4,355.0	0.0	0.0	KOP @ 4355'
4,546.9	4,544.6	-12.5	-22.3	Start build/turn @ 4546 MD
5,839.4	5,417.8	-131.4	675.4	LP @ 5417 TVD; 90.1°
10,466.6	5,409.7	-138.6	5,302.6	TD at 10466.6

EnCana Oil & Gas (USA) Inc

San Juan County, NM

S3-T23N-R8W

Lybrook H03-2308 02H

HZ

Plan #1

Anticollision Report

14 October, 2014

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook H03-2308 02H
Project:	San Juan County, NM	TVD Reference:	16KB @ 6908.0ft (Aztec 950)
Reference Site:	S3-T23N-R8W	MD Reference:	16KB @ 6908.0ft (Aztec 950)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook H03-2308 02H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.0ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,246.7ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	Systematic Ellipse
Scan Method:	Closest Approach 3D
Error Surface:	Elliptical Conic

Survey Tool Program	Date	10/13/2014
From (ft)	To (ft)	Survey (Wellbore)
0.0	10,466.0	Plan #1 (HZ)
		Tool Name
		Geolink MWD
		Description
		Geolink MWD

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S3-T23N-R8W						
Lybrook H03-2308 01H - HZ - Plan #1	2,700.0	2,700.0	28.8	19.4	3.071	CC, ES, SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook H03-2308 02H
Project:	San Juan County, NM	TVD Reference:	16KB @ 6908.0ft (Aztec 950)
Reference Site:	S3-T23N-R8W	MD Reference:	16KB @ 6908.0ft (Aztec 950)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook H03-2308 02H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S3-T23N-R8W - Lybrook H03-2308 01H - HZ - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD												Offset Well Error:	0.0 ft
Reference	Offset		Semi Major Axis		Distance		Between		Total		Separation		Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (ft)	+E-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor	
0.0	0.0	0.0	0.0	0.0	0.0	-13.03	28.0	-6.5	28.8				
100.0	100.0	100.0	100.0	0.1	0.1	-13.03	28.0	-6.5	28.8	28.5	0.29	98.121	
200.0	200.0	200.0	200.0	0.3	0.3	-13.03	28.0	-6.5	28.8	28.1	0.64	44.794	
300.0	300.0	300.0	300.0	0.5	0.5	-13.03	28.0	-6.5	28.8	27.8	0.99	29.022	
400.0	400.0	400.0	400.0	0.7	0.7	-13.03	28.0	-6.5	28.8	27.4	1.34	21.464	
500.0	500.0	500.0	500.0	0.8	0.8	-13.03	28.0	-6.5	28.8	27.1	1.69	17.029	
600.0	600.0	600.0	600.0	1.0	1.0	-13.03	28.0	-6.5	28.8	26.7	2.04	14.113	
700.0	700.0	700.0	700.0	1.2	1.2	-13.03	28.0	-6.5	28.8	26.4	2.39	12.050	
800.0	800.0	800.0	800.0	1.4	1.4	-13.03	28.0	-6.5	28.8	26.0	2.74	10.513	
900.0	900.0	900.0	900.0	1.5	1.5	-13.03	28.0	-6.5	28.8	25.7	3.09	9.324	
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-13.03	28.0	-6.5	28.8	25.3	3.43	8.376	
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-13.03	28.0	-6.5	28.8	25.0	3.78	7.603	
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-13.03	28.0	-6.5	28.8	24.6	4.13	6.961	
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-13.03	28.0	-6.5	28.8	24.3	4.48	6.419	
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-13.03	28.0	-6.5	28.8	23.9	4.83	5.955	
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-13.03	28.0	-6.5	28.8	23.6	5.18	5.554	
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-13.03	28.0	-6.5	28.8	23.2	5.53	5.203	
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-13.03	28.0	-6.5	28.8	22.9	5.88	4.894	
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-13.03	28.0	-6.5	28.8	22.5	6.23	4.620	
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-13.03	28.0	-6.5	28.8	22.2	6.58	4.375	
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-13.03	28.0	-6.5	28.8	21.8	6.93	4.154	
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	-13.03	28.0	-6.5	28.8	21.5	7.27	3.955	
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	-13.03	28.0	-6.5	28.8	21.1	7.62	3.774	
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	-13.03	28.0	-6.5	28.8	20.8	7.97	3.609	
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	-13.03	28.0	-6.5	28.8	20.4	8.32	3.457	
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	-13.03	28.0	-6.5	28.8	20.1	8.67	3.318	
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	-13.03	28.0	-6.5	28.8	19.8	9.02	3.190	
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	-13.03	28.0	-6.5	28.8	19.4	9.37	3.071	CC, ES, SF
2,800.0	2,800.0	2,799.0	2,799.0	4.9	4.9	-12.21	29.7	-6.4	30.4	20.7	9.72	3.133	
2,900.0	2,900.0	2,897.8	2,897.8	5.0	5.0	-10.23	34.9	-6.3	35.5	25.4	10.07	3.526	
3,000.0	3,000.0	2,996.1	2,996.1	5.2	5.2	-7.94	43.3	-6.0	44.0	33.5	10.42	4.218	
3,100.0	3,100.0	3,093.7	3,092.4	5.4	5.4	-5.92	55.0	-5.7	55.8	45.1	10.78	5.178	
3,200.0	3,200.0	3,190.4	3,188.0	5.6	5.6	-4.31	69.9	-5.3	71.1	59.9	11.16	6.373	
3,300.0	3,300.0	3,285.9	3,281.8	5.7	5.8	-3.10	87.7	-4.8	89.7	78.2	11.55	7.768	
3,400.0	3,400.0	3,380.2	3,373.8	5.9	6.1	-2.20	108.4	-4.2	111.6	99.6	11.96	9.330	
3,500.0	3,500.0	3,473.0	3,463.6	6.1	6.4	-1.51	131.6	-3.5	136.6	124.2	12.39	11.026	
3,600.0	3,600.0	3,564.1	3,551.1	6.3	6.7	-1.00	157.3	-2.7	164.8	151.9	12.85	12.824	
3,700.0	3,700.0	3,653.5	3,636.0	6.4	7.0	-0.60	185.2	-1.9	195.9	182.6	13.33	14.696	
3,800.0	3,800.0	3,741.0	3,718.3	6.6	7.4	-0.28	215.0	-1.1	230.0	216.2	13.84	16.615	
3,900.0	3,900.0	3,826.6	3,797.7	6.8	7.8	-0.03	246.6	-0.1	267.0	252.6	14.38	18.561	
4,000.0	4,000.0	3,910.0	3,874.4	7.0	8.3	0.17	279.7	0.8	306.6	291.7	14.95	20.515	
4,100.0	4,100.0	3,991.3	3,948.0	7.1	8.8	0.33	314.1	1.8	348.9	333.4	15.54	22.458	
4,200.0	4,200.0	4,070.5	4,018.8	7.3	9.3	0.47	349.5	2.8	393.7	377.5	16.15	24.376	
4,300.0	4,300.0	4,147.4	4,086.6	7.5	9.8	0.58	385.8	3.9	440.9	424.1	16.78	26.270	
4,400.0	4,400.0	4,221.8	4,151.2	7.7	10.4	118.22	422.6	5.0	491.0	476.1	14.97	32.800	
4,500.0	4,499.0	4,301.6	4,219.9	7.8	11.0	114.82	463.3	6.1	547.4	532.1	15.28	35.830	
4,600.0	4,596.2	4,378.7	4,286.2	8.0	11.6	127.95	502.6	7.3	608.5	593.0	15.50	39.253	
4,700.0	4,694.9	4,456.6	4,353.3	8.2	12.2	176.51	542.3	8.4	670.7	654.9	15.78	42.506	
4,800.0	4,793.8	4,535.0	4,420.7	8.4	12.8	-128.37	582.3	9.6	732.2	716.0	16.23	45.120	
4,900.0	4,891.0	4,612.2	4,487.1	8.6	13.5	-103.81	621.6	10.7	792.1	775.4	16.75	47.280	
5,000.0	4,984.7	4,686.8	4,551.2	8.8	14.1	-92.28	659.6	11.8	850.3	833.0	17.30	49.148	
5,100.0	5,072.9	4,757.3	4,611.9	9.1	14.7	-85.55	695.6	12.9	906.8	888.9	17.87	50.751	

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	Local Co-ordinate Reference:	Well Lybrook H03-2308 02H
Project:	San Juan County, NM	TVD Reference:	16KB @ 6908.0ft (Aztec 950)
Reference Site:	S3-T23N-R8W	MD Reference:	16KB @ 6908.0ft (Aztec 950)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook H03-2308 02H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S3-T23N-R8W - Lybrook H03-2308 01H - HZ - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Total Uncertainty Axis	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,200.0	5,154.1	4,822.4	4,667.9	9.6	15.2	-80.97	728.7	13.8	962.0	943.5	18.50	52.008		
5,300.0	5,226.6	4,880.7	4,718.0	10.3	15.7	-77.41	758.5	14.7	1,016.4	997.1	19.24	52.813		
5,400.0	5,289.0	4,931.2	4,761.4	11.3	16.1	-74.28	784.2	15.5	1,070.1	1,050.0	20.14	53.130		
5,500.0	5,340.1	4,972.8	4,797.3	12.6	16.5	-71.23	805.4	16.1	1,123.5	1,102.3	21.18	53.042		
5,600.0	5,378.9	5,004.8	4,824.8	14.2	16.7	-68.08	821.7	16.5	1,176.6	1,154.3	22.32	52.726		
5,700.0	5,404.6	5,026.5	4,843.4	16.1	16.9	-64.73	832.8	16.9	1,229.3	1,205.8	23.48	52.366		

Cathedral Energy Services

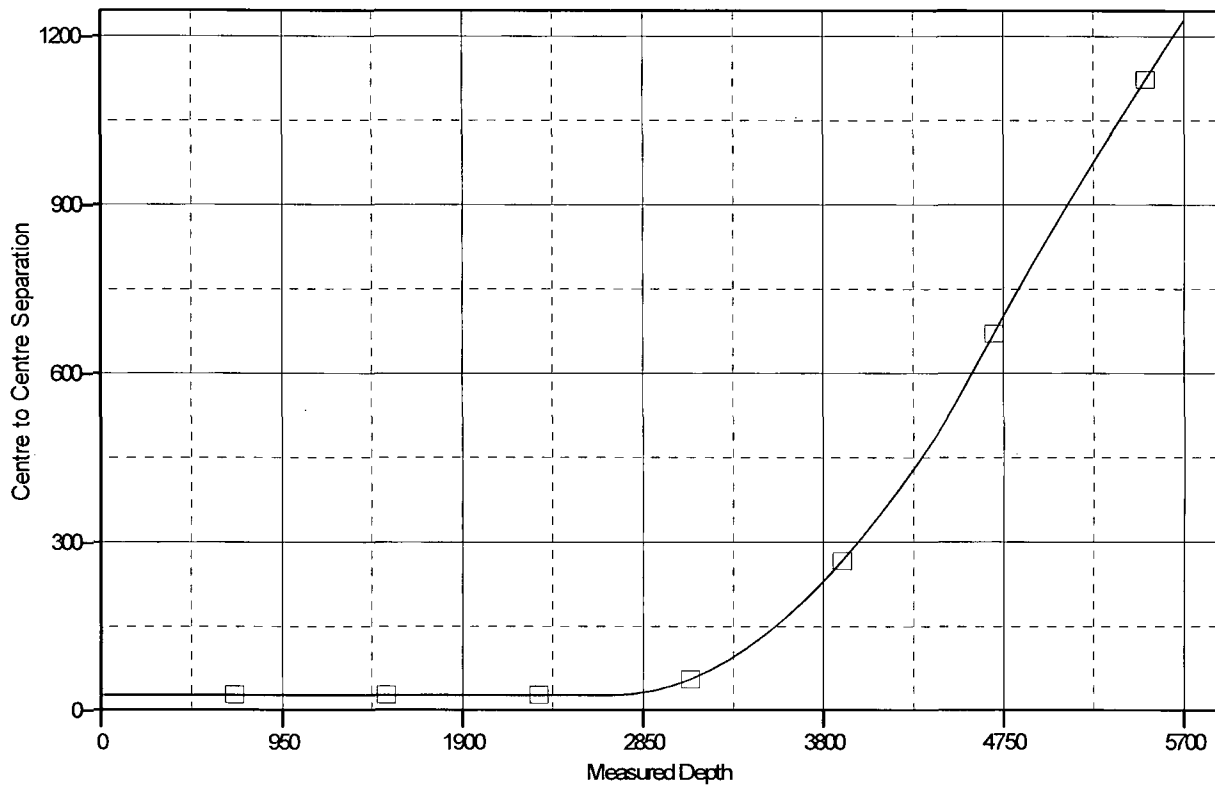
Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Lybrook H03-2308 02H
Project:	San Juan County, NM	TVD Reference:	16KB @ 6908.0ft (Aztec 950)
Reference Site:	S3-T23N-R8W	MD Reference:	16KB @ 6908.0ft (Aztec 950)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Lybrook H03-2308 02H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 16KB @ 6908.0ft (Aztec 950)
 Offset Depths are relative to Offset Datum
 Central Meridian is -107.833333 °

Coordinates are relative to: Lybrook H03-2308 02H
 Coordinate System is US State Plane 1983, New Mexico Western Zone
 Grid Convergence at Surface is: 0.10°

Ladder Plot



LEGEND

Lybrook H03-2308 01H, HZ, Plan #1 V0

Lybrook H03-2308 02H

**SHL: SENE Section 3, T23N, R8W
1589' FNL and 342' FEL**

**BHL: SENE Section 2, T23N, R8W
1720' FNL and 330' FEL**

San Juan County, New Mexico

Lease Number: NMNM 120374

- a. Water will be diverted around the pad from the center right toward corner 2 and around to the silt trap at corner 6. Water will be diverted around the pad from the center right toward corner 3 and around to the silt trap at corner 5.
 - b. One silt trap will be constructed in the EOD at corner 5. One silt trap will be constructed in the EOD at corner 6.
 5. Construction equipment may include chain saws, a brush hog, scraper, maintainer, excavator, and dozer. Construction for the access road and well pad will take approximately 2 to 4 weeks.
- C. Pipeline
- See the Plan of Development submitted with the final Standard SF-299 Application for authorization to construct, operate, maintain and terminate a 1014 foot, up to 6-inch outside diameter, buried steel well connect pipeline that was submitted to the BLM concurrently with the APD.

7. METHODS FOR HANDLING WASTE

A. Cuttings

1. A closed-loop system will be used. Cuttings will be moved through a shaker system on the drill rig that separates drilling fluids from the cuttings. Cuttings will be stored onsite in above-ground storage tanks. Cuttings will be pulled from the storage tanks, mixed with saw dust or similar absorbent material, and disposed of at the Envirotech, Inc. and/or Industrial Ecosystem, Inc. waste disposal facilities.
2. The closed-loop system storage tanks will be adequately sized to ensure confinement of all fluids and will provide sufficient freeboard to prevent uncontrolled releases.
3. A 20-mil liner will be installed under tanks, pumps, ancillary facilities, and truck loading/unloading areas associated with the closed-loop system.

B. Drilling Fluids

1. A closed-loop system will be used. Drilling fluids will be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids will be recycled and transferred to other permitted closed-loop systems or returned to the vendor for reuse, as practical. Residual fluids will be vacuumed from the storage tanks and disposed of at Basin Disposal, Inc. and/or Industrial Ecosystem, Inc. waste disposal facilities.
2. The closed-loop system storage tanks will be adequately sized to ensure confinement of all fluids and will provide sufficient freeboard to prevent uncontrolled releases.
3. The closed-loop system storage tanks will be placed in bermed secondary containment sized to accommodate a minimum of 110 percent of the volume of the largest storage tank.
4. A 20-mil liner will be installed under tanks, pumps, ancillary facilities, and truck loading/unloading areas associated with the closed-loop system.

C. Flowback Water

1. The water-based solution that flows back to the surface during and after completion operations will be placed in storage tanks on the location.

ENCANA OIL & GAS (USA) INC.

LYBROOK H03-2308 #02H

1589' FNL & 342' FEL

LOCATED IN THE SE/4 NE/4 OF SECTION 3,

T23N, R8W, N.M.P.M.,

SAN JUAN COUNTY, NEW MEXICO

DIRECTIONS

- 1) FROM THE INTERSECTION OF HWY 64 & HWY 550 IN BLOOMFIELD, GO SOUTH ON HWY 550, 41.0 MILES TO M.P. 110.6.
- 2) TURN LEFT AND GO 0.7 MILES TO WHERE ACCESS IS STAKED.

WELL FLAG LOCATED AT LAT. 36.259189° N, LONG. 107.661331° W (NAD 83).



WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Lybrook H03-2308 02H

