

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

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: 2-5-15

Well information;

Operator Encana, Well Name and Number Lybrook m26 2306 #2H

API# 30-043-21251, Section 26, Township 23 N/S, Range 6 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.

Charles Bern
NMOCD Approved by Signature

6-22-2015
Date XC

JUN 15 2015

Form 3160-3
(March 2012)

FEB 06 2015

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

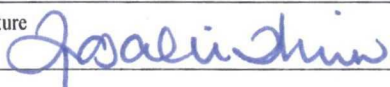
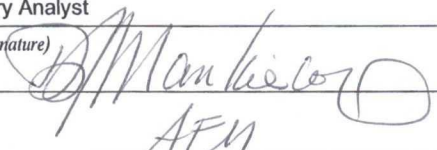
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM 117564
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> 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 M26-2306 02H
3b. Phone No. (include area code) 720-876-3740		9. API Well No. 30-043-21251
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 1002' FSL and 474' FWL, Section 26, T23N, R6W At proposed prod. zone 662' FSL and 808' FWL, Section 27, T23N, R6W		10. Field and Pool, or Exploratory Counselors Gallup-Dakota
11. Sec., T. R. M. or Blk. and Survey or Area Section 26, T23N, R6W NMPM SHL Sec 27, T23N, R6W		12. County or Parish Sandoval
13. State NM		14. Distance in miles and direction from nearest town or post office* +/- 56.6 miles South from the intersection of US HWY 550 & HWY 64 in Bloomfield, NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of acres in lease NMNM 117564- 1283.52 1323.52	17. Spacing Unit dedicated to this well 320.00 acres- S/2 Section 27, T23N, R6W
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth 5,404' TVD; 10,095' MD	20. BLM/BIA Bond No. on file COB-000235
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6,953' GL; 6,969' KB	22. Approximate date work will start* 07/01/2015	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:

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature 	Name (Printed/Typed) Rosalie Thim	Date 2/6/15
Title Regulatory Analyst		
Approved by (Signature) 	Name (Printed/Typed) AFM	Date 6/11/15
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)

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

NMCCD

*(Instructions on page 2)

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

DISTRICT I
1626 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-9720

DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (505) 748-1283 Fax: (505) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Ateco, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit one copy to appropriate
District Office

FEB 06 2015

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30.043.21251	² Pool Code 13379	³ Pool Name COUNSELORS GALLUP-DAKOTA
⁴ Property Code 314991	⁵ Property Name LYBROOK M26-2306	⁶ Well Number 02H
⁷ GRID No. 282327	⁸ Operator Name ENCANA OIL & GAS (USA) INC.	⁹ Elevation 6953.4

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	26	23N	6W		1002'	SOUTH	474'	WEST	SANDOVAL

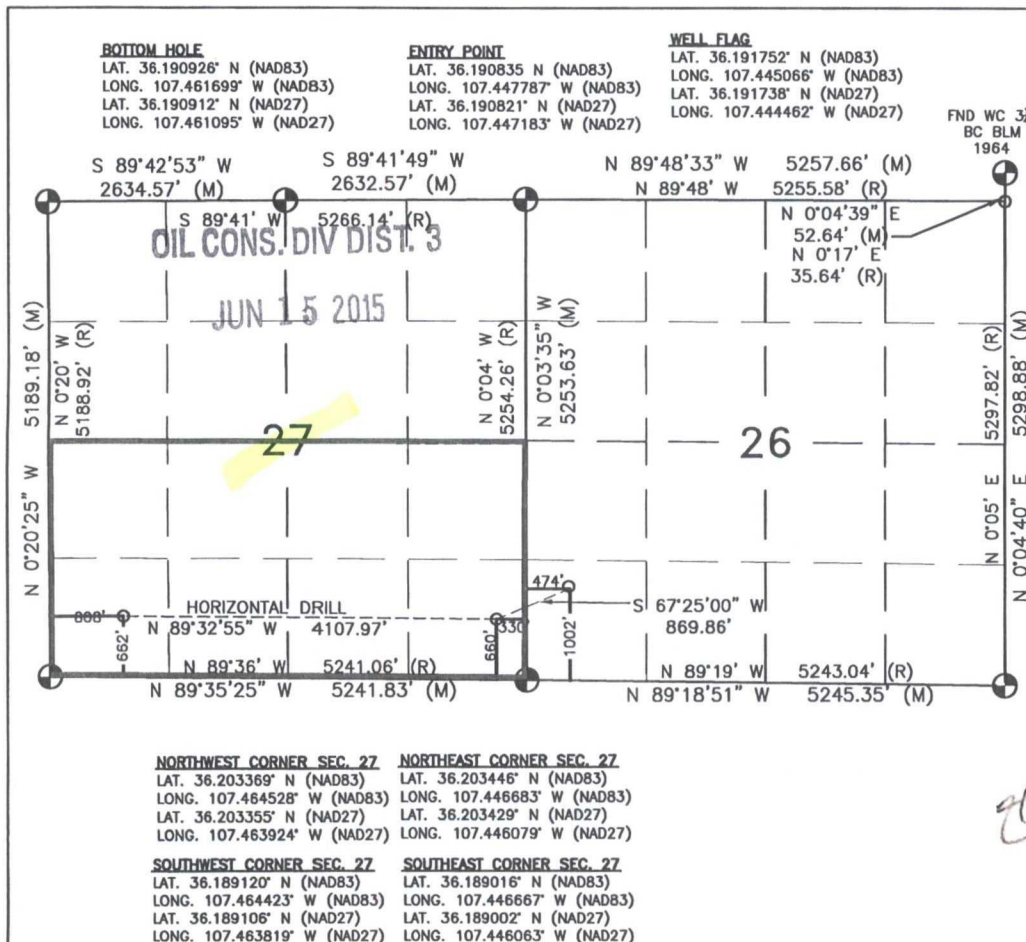
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	27	23N	6W		662'	SOUTH	808'	WEST	SANDOVAL

¹² Dedicated Acres 320.00 ACRES S/2 SEC. 27	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
---	-------------------------------	----------------------------------	-------------------------

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16



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.

Rosalie Thim
Signature Date

Rosalie Thim

Printed Name

rosalie.thim@encana.com

E-mail Address

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.

MAY 29, 2014

Date of Survey

Signature and Seal of Professional Surveyor:

David Russell
DAVID R. RUSSELL
REGISTERED PROFESSIONAL SURVEYOR
10201
DAVID RUSSELL
Certificate Number 10201

ALL CORNERS
FND 34' BC
BLM 1964

Lybrook M26-2306 02H

SHL: 1002' FSL, 474' FWL Sec 26 T23N R06W

BHL: 662' FSL, 808' FWL Sec 27 T23N R06W

Sandoval, 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.	1,389
Kirtland Shale	1,495
Fruitland Coal	1,671
Pictured Cliffs Ss.	1,923
Lewis Shale	2,040
Cliffhouse Ss.	2,746
Menefee Fn.	3,472
Point Lookout Ss.	4,164
Mancos Shale	4,360
Mancos Silt	4,949
Gallup Fn.	5,197
Base Gallup	5,526

The referenced surface elevation is 6953', KB 6969'

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

Substance	Formation	Depth (TVD) units = feet
Water/Gas	Fruitland Coal	1,671
Oil/Gas	Pictured Cliffs Ss.	1,923
Oil/Gas	Cliffhouse Ss.	2,746
Gas	Menefee Fn.	3,472
Oil/Gas	Point Lookout Ss.	4,164
Oil/Gas	Mancos Shale	4,360
Oil/Gas	Mancos Silt	4,949
Oil/Gas	Gallup Fn.	5,197

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

Lybrook M26-2306 02H

SHL: 1002' FSL, 474' FWL Sec 26 T23N R06W

BHL: 662' FSL, 808' FWL Sec 27 T23N R06W

Sandoval, 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'-5371'	8 3/4"	7"	26#	J55, LTC New
Production Liner	5271'-10095'	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 M26-2306 02H**SHL: 1002' FSL, 474' FWL Sec 26 T23N R06W****BHL: 662' FSL, 808' FWL Sec 27 T23N R06W****Sandoval, 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'-5371'	100% open hole excess Stage 1 Lead: 499 sks Stage 1 Tail: 382 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	5271'-10095'	50% OH excess Stage 1 Blend Total: 274sks	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 4684'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	5404'/10095'	Gallup

Lybrook M26-2306 02H**SHL: 1002' FSL, 474' FWL Sec 26 T23N R06W****BHL: 662' FSL, 808' FWL Sec 27 T23N R06W****Sandoval, 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'-5270'/5371'	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"	5270'/5371'- 5404'/10095'	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 +/- 2553 psi based on a 9.0 ppg at 5455' 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 July 1, 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: 1002' FSL, 474' FWL Sec 26 T23N R06E County: Sandoval WELL: Lybrook M26-2306 02H			Encana Natural Gas WELL SUMMARY				ENG: Michael Sanch RIG: Unassigned GLE: 6953.4 RKBE: 6969.4		2-2-15	
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH TVDMD				HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			60 0	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. Nacimiento Fn. 9 5/8" Csg	surface 500	500.00			12 1/4	9 5/8" 36ppf J55 LTC 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°
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 Fruitland Coal Pictured Cliffs Ss. Lewis Shale Cliffhouse Ss. Menefee Fn. Point Lookout Ss. Mancos Shale	1,389 1,495 1,671 1,923 2,040 2,746 3,472 4,164 4,360				8 3/4	7" 26ppf J55 LTC TOC @ surface (100% OH excess - 70% Lead 30% Tail) Stage 1 Total: 882sks Stage 1 Lead: 499 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: 382 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°
Surveys every 30' through the curve	Mud logger onsite	KOP Mancos Silt Gallup Fn. 7" Csg	4,684 4,949 5,197 5,270	4,684						
Surveys every stand to TD unless directed otherwise by Geologist	No OH Logs	Horizontal Target TD Base Gallup	5,455 5,404 5,526	10,095			6 1/8	100' overlap at liner top 4723' Drilled Lateral		Horz Inc/TVD 90.6deg/5455.4ft TD = 10094.5 MD
MWD Gamma Directional								4 1/2" 11.6ppf SB80 LTC TOC @ hanger (50% OH excess) Stage 1 Total: 274sks Stage 1 Blend: 274 sks 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.	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 4684', 8 3/4 inch holesize
- 5) Start curve at 10deg/100' build rate
- 6) Drill to csg point of 5371' MD
- 7) R&C 7" csg, circ cmt to surface
- 8) Land at ~55 deg, drill lateral to 10095' run 4 1/2 inch cemented liner



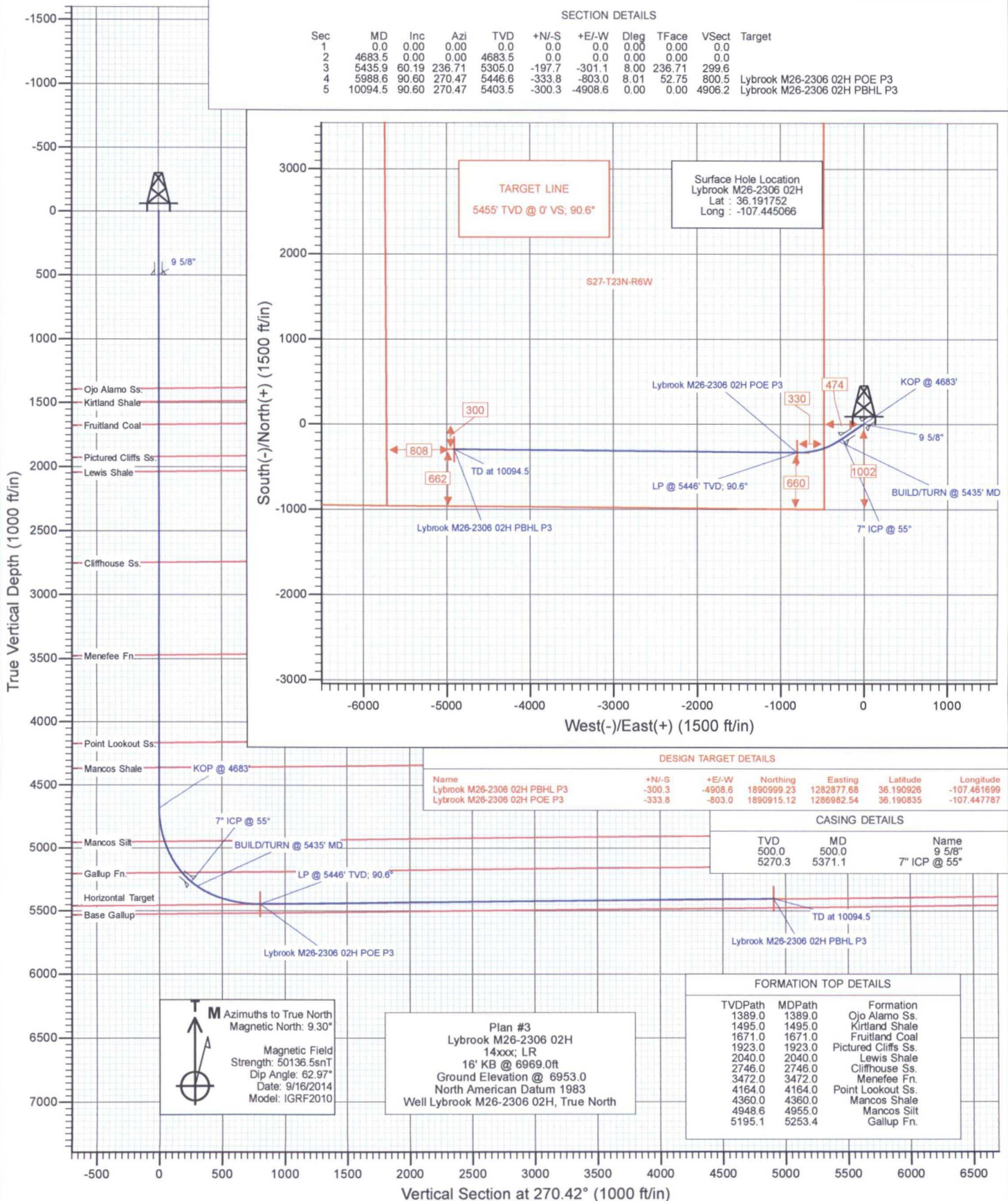
Project: Sandoval County, NM
 Site: S26-T23N-R6W
 Well: Lybrook M26-2306 02H
 Wellbore: HZ
 Design: Plan #3

JUN 15 2015

 CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4683.5	0.00	0.00	4683.5	0.0	0.0	0.00	0.00	0.0	
3	5435.9	60.19	236.71	5305.0	-197.7	-301.1	8.00	236.71	299.6	
4	5988.6	90.60	270.47	5446.6	-333.8	-803.0	8.01	52.75	800.5	Lybrook M26-2306 02H POE P3
5	10094.5	90.60	270.47	5403.5	-300.3	-4908.6	0.00	0.00	4906.2	Lybrook M26-2306 02H PBHL P3



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook M26-2306 02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16' KB @ 6969.0ft
Project:	Sandoval County, NM	MD Reference:	16' KB @ 6969.0ft
Site:	S26-T23N-R6W	North Reference:	True
Well:	Lybrook M26-2306 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

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

Site	S26-T23N-R6W				
Site Position:		Northing:	1,890,393.73 ft	Latitude:	36.189558
From:	Lat/Long	Easting:	1,291,584.38 ft	Longitude:	-107.432173
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-0.70 °

Well	Lybrook M26-2306 02H					
Well Position	+N/-S	0.0 ft	Northing:	1,891,239.04 ft	Latitude:	36.191752
	+E/-W	0.0 ft	Easting:	1,287,789.58 ft	Longitude:	-107.445066
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	6,953.0 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/16/2014	9.30	62.97	50,137

Design	Plan #3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	270.42

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,683.5	0.00	0.00	4,683.5	0.0	0.0	0.00	0.00	0.00	0.00	
5,435.9	60.19	236.71	5,305.0	-197.7	-301.1	8.00	8.00	0.00	236.71	
5,988.6	90.60	270.47	5,446.6	-333.8	-803.0	8.01	5.50	6.11	52.75	Lybrook M26-2306 02
10,094.5	90.60	270.47	5,403.5	-300.3	-4,908.6	0.00	0.00	0.00	0.00	Lybrook M26-2306 02

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: S26-T23N-R6W
Well: Lybrook M26-2306 02H
Wellbore: HZ
Design: Plan #3

Local Co-ordinate Reference: Well Lybrook M26-2306 02H
TVD Reference: 16' KB @ 6969.0ft
MD Reference: 16' KB @ 6969.0ft
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	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	
1,100.0	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	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,389.0	0.00	0.00	1,389.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,495.0	0.00	0.00	1,495.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,671.0	0.00	0.00	1,671.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
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	
1,923.0	0.00	0.00	1,923.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,040.0	0.00	0.00	2,040.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
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	
2,600.0	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	
2,746.0	0.00	0.00	2,746.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
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	
3,300.0	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	
3,472.0	0.00	0.00	3,472.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
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	
4,100.0	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	Point Lookout Ss.
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	

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: Sandoval County, NM
 Site: S26-T23N-R6W
 Well: Lybrook M26-2306 02H
 Wellbore: HZ
 Design: Plan #3

Local Co-ordinate Reference: Well Lybrook M26-2306 02H
 TVD Reference: 16' KB @ 6969.0ft
 MD Reference: 16' KB @ 6969.0ft
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,360.0	0.00	0.00	4,360.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	
4,683.5	0.00	0.00	4,683.5	0.0	0.0	0.0	0.00	0.00	KOP @ 4683'
4,700.0	1.32	236.71	4,700.0	-0.1	-0.2	0.2	8.00	8.00	
4,800.0	9.32	236.71	4,799.5	-5.2	-7.9	7.9	8.00	8.00	
4,900.0	17.32	236.71	4,896.7	-17.8	-27.1	27.0	8.00	8.00	
4,955.0	21.72	236.71	4,948.6	-27.9	-42.5	42.3	8.00	8.00	Mancos Silt
5,000.0	25.32	236.71	4,989.8	-37.8	-57.5	57.2	8.00	8.00	
5,100.0	33.31	236.71	5,076.9	-64.6	-98.4	97.9	8.00	8.00	
5,200.0	41.31	236.71	5,156.4	-97.8	-149.0	148.3	8.00	8.00	
5,253.4	45.58	236.71	5,195.1	-118.0	-179.7	178.8	8.00	8.00	Gallup Fn.
5,300.0	49.31	236.71	5,226.7	-136.8	-208.4	207.4	8.00	8.00	
5,371.1	55.00	236.71	5,270.3	-167.6	-255.3	254.1	8.00	8.00	7" ICP @ 55°
5,400.0	57.31	236.71	5,286.4	-180.8	-275.4	274.1	8.00	8.00	
5,435.9	60.19	236.71	5,305.0	-197.7	-301.1	299.6	8.00	8.00	BUILD/TURN @ 5435' MD
5,500.0	63.37	241.28	5,335.3	-226.7	-349.4	347.8	8.01	4.97	
5,600.0	68.61	247.92	5,376.0	-265.7	-431.9	430.0	8.01	5.24	
5,700.0	74.08	254.09	5,408.0	-296.5	-521.4	519.3	8.01	5.48	
5,800.0	79.73	259.93	5,430.7	-318.3	-616.3	613.9	8.01	5.64	
5,900.0	85.47	265.56	5,443.6	-330.8	-714.6	712.1	8.01	5.75	
5,988.6	90.60	270.47	5,446.6	-333.8	-803.0	800.5	8.01	5.79	LP @ 5446' TVD; 90.6°
6,000.0	90.60	270.47	5,446.5	-333.7	-814.4	811.9	0.00	0.00	
6,100.0	90.60	270.47	5,445.4	-332.9	-914.4	911.9	0.00	0.00	
6,200.0	90.60	270.47	5,444.4	-332.1	-1,014.4	1,011.9	0.00	0.00	
6,300.0	90.60	270.47	5,443.3	-331.3	-1,114.4	1,111.9	0.00	0.00	
6,400.0	90.60	270.47	5,442.3	-330.5	-1,214.4	1,211.9	0.00	0.00	
6,500.0	90.60	270.47	5,441.2	-329.7	-1,314.4	1,311.9	0.00	0.00	
6,600.0	90.60	270.47	5,440.2	-328.8	-1,414.4	1,411.9	0.00	0.00	
6,700.0	90.60	270.47	5,439.1	-328.0	-1,514.4	1,511.9	0.00	0.00	
6,800.0	90.60	270.47	5,438.1	-327.2	-1,614.3	1,611.9	0.00	0.00	
6,900.0	90.60	270.47	5,437.0	-326.4	-1,714.3	1,711.9	0.00	0.00	
7,000.0	90.60	270.47	5,436.0	-325.6	-1,814.3	1,811.9	0.00	0.00	
7,100.0	90.60	270.47	5,434.9	-324.8	-1,914.3	1,911.9	0.00	0.00	
7,200.0	90.60	270.47	5,433.9	-323.9	-2,014.3	2,011.9	0.00	0.00	
7,300.0	90.60	270.47	5,432.8	-323.1	-2,114.3	2,111.9	0.00	0.00	
7,400.0	90.60	270.47	5,431.8	-322.3	-2,214.3	2,211.9	0.00	0.00	
7,500.0	90.60	270.47	5,430.8	-321.5	-2,314.3	2,311.9	0.00	0.00	
7,600.0	90.60	270.47	5,429.7	-320.7	-2,414.3	2,411.9	0.00	0.00	
7,700.0	90.60	270.47	5,428.7	-319.9	-2,514.3	2,511.9	0.00	0.00	
7,800.0	90.60	270.47	5,427.6	-319.0	-2,614.3	2,611.9	0.00	0.00	
7,900.0	90.60	270.47	5,426.6	-318.2	-2,714.3	2,711.8	0.00	0.00	
8,000.0	90.60	270.47	5,425.5	-317.4	-2,814.2	2,811.8	0.00	0.00	
8,100.0	90.60	270.47	5,424.5	-316.6	-2,914.2	2,911.8	0.00	0.00	
8,200.0	90.60	270.47	5,423.4	-315.8	-3,014.2	3,011.8	0.00	0.00	
8,300.0	90.60	270.47	5,422.4	-315.0	-3,114.2	3,111.8	0.00	0.00	
8,400.0	90.60	270.47	5,421.3	-314.1	-3,214.2	3,211.8	0.00	0.00	
8,500.0	90.60	270.47	5,420.3	-313.3	-3,314.2	3,311.8	0.00	0.00	
8,600.0	90.60	270.47	5,419.2	-312.5	-3,414.2	3,411.8	0.00	0.00	
8,700.0	90.60	270.47	5,418.2	-311.7	-3,514.2	3,511.8	0.00	0.00	
8,800.0	90.60	270.47	5,417.1	-310.9	-3,614.2	3,611.8	0.00	0.00	

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Lybrook M26-2306 02H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	16' KB @ 6969.0ft
Project:	Sandoval County, NM	MD Reference:	16' KB @ 6969.0ft
Site:	S26-T23N-R6W	North Reference:	True
Well:	Lybrook M26-2306 02H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
8,900.0	90.60	270.47	5,416.1	-310.1	-3,714.2	3,711.8	0.00	0.00	
9,000.0	90.60	270.47	5,415.0	-309.2	-3,814.2	3,811.8	0.00	0.00	
9,100.0	90.60	270.47	5,414.0	-308.4	-3,914.1	3,911.8	0.00	0.00	
9,200.0	90.60	270.47	5,412.9	-307.6	-4,014.1	4,011.8	0.00	0.00	
9,300.0	90.60	270.47	5,411.9	-306.8	-4,114.1	4,111.8	0.00	0.00	
9,400.0	90.60	270.47	5,410.8	-306.0	-4,214.1	4,211.8	0.00	0.00	
9,500.0	90.60	270.47	5,409.8	-305.2	-4,314.1	4,311.8	0.00	0.00	
9,600.0	90.60	270.47	5,408.7	-304.3	-4,414.1	4,411.8	0.00	0.00	
9,700.0	90.60	270.47	5,407.7	-303.5	-4,514.1	4,511.7	0.00	0.00	
9,800.0	90.60	270.47	5,406.6	-302.7	-4,614.1	4,611.7	0.00	0.00	
9,900.0	90.60	270.47	5,405.6	-301.9	-4,714.1	4,711.7	0.00	0.00	
10,000.0	90.60	270.47	5,404.5	-301.1	-4,814.1	4,811.7	0.00	0.00	
10,094.5	90.60	270.47	5,403.5	-300.3	-4,908.6	4,906.2	0.00	0.00	TD at 10094.5

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Lybrook M26-2306 02H - plan hits target center - Point	0.00	0.00	5,446.6	-333.8	-803.0	1,890,915.12	1,286,982.54	36.190835	-107.447787
Lybrook M26-2306 02H - plan misses target center by 6.5ft at 10094.5ft MD (5403.5 TVD, -300.3 N, -4908.6 E) - Point	0.00	0.00	5,403.5	-303.7	-4,914.1	1,890,995.91	1,282,872.07	36.190917	-107.461718
Lybrook M26-2306 02H - plan misses target center by 478.1ft at 10094.5ft MD (5403.5 TVD, -300.3 N, -4908.6 E) - Point	0.00	0.00	5,398.6	-300.2	-5,386.7	1,891,005.20	1,282,399.63	36.190926	-107.463319
Lybrook M26-2306 02H - plan hits target center - Point	0.00	0.00	5,446.6	-333.8	-803.0	1,890,915.12	1,286,982.54	36.190835	-107.447787
Lybrook M26-2306 02H - plan hits target center - Point	0.00	0.00	5,403.5	-300.3	-4,908.6	1,890,999.23	1,282,877.68	36.190926	-107.461699

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
500.0	500.0	9 5/8"	0.000	0.000
5,371.1	5,270.3	7" ICP @ 55°	0.000	0.000

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: Sandoval County, NM
Site: S26-T23N-R6W
Well: Lybrook M26-2306 02H
Wellbore: HZ
Design: Plan #3

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Lybrook M26-2306 02H
 16' KB @ 6969.0ft
 16' KB @ 6969.0ft
 True
 Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,389.0	1,389.0	Ojo Alamo Ss.		-0.60	270.42
1,495.0	1,495.0	Kirtland Shale		-0.60	270.42
1,671.0	1,671.0	Fruitland Coal		-0.60	270.42
1,923.0	1,923.0	Pictured Cliffs Ss.		-0.60	270.42
2,040.0	2,040.0	Lewis Shale		-0.60	270.42
2,746.0	2,746.0	Cliffhouse Ss.		-0.60	270.42
3,472.0	3,472.0	Menefee Fn.		-0.60	270.42
4,164.0	4,164.0	Point Lookout Ss.		-0.60	270.42
4,360.0	4,360.0	Mancos Shale		-0.60	270.42
4,955.0	4,949.0	Mancos Silt		-0.60	270.42
5,253.4	5,197.0	Gallup Fn.		-0.60	270.42

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,683.5	4,683.5	0.0	0.0	KOP @ 4683'
5,435.9	5,305.0	-197.7	-301.1	BUILD/TURN @ 5435' MD
5,988.6	5,446.6	-333.8	-803.0	LP @ 5446' TVD; 90.6°
10,094.5	5,403.5	-300.3	-4,908.6	TD at 10094.5

Lybrook M26-2306 02H

**SHL: SWSW Section 26, T23N, R6W
1002 FSL and 474 FWL**

**BHL: SWSW Section 27, T23N, R6W
662 FSL and 808 FWL**

San Juan County, New Mexico

Lease Number: NMNM 117564

Topsoil will be stockpiled separate from subsoil with a noticeable gap left between the stockpiles. Vehicle/equipment traffic will be prevented from crossing topsoil stockpiles.

Topsoil will not be stripped when soils are moisture-saturated or frozen below the stripping depth.

If the location becomes prone to wind or water erosion, Encana will take appropriate measures to prevent topsoil loss from wind. Such measures may include using tackifiers or water to wet the topsoil stockpile so that a crust is created across the exposed soil to prevent soil loss.

3. All construction materials for the well pad will consist of native borrow and subsoil accumulated during well pad construction. If additional fill or surfacing material is required, it will be obtained from existing permitted or private sources and will be hauled in by trucks over existing access roads.

The maximum cut will be approximately 14.2 feet on the corner 2 and the maximum fill will be approximately 12.6 feet on corner 6.

4. As determined during the onsite on July 24, 14, the following best management practices will be implemented:
 - a. Water will be diverted around the pad from corner 2 into a newly constructed silt trap near corner 1. Water will be diverted around the pad from corner 2 toward corner 3.
 - b. One silt trap will be installed in EOD at corner 1. See Sheet G-2 for details.
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 Standard SF-299 Application for authorization to construct, operate, maintain and terminate a 482 foot, up to 6-inch outside diameter, buried steel well connect pipeline that was submitted to the Bureau of Land Management on June 27, 2014.

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

ENCANA OIL & GAS (USA) INC.

LYBROOK M26-2306 #02H

1002' FSL & 474' FWL

LOCATED IN THE SW/4 SW/4 OF SECTION 26, T23N, R6W, N.M.P.M.,
SANDOVAL COUNTY, NEW MEXICO

DIRECTIONS

- 1) FROM THE INTERSECTION OF HWY 64 & HWY 550 IN BLOOMFIELD, GO SOUTH ON HWY 550, 54.5 MILES TO INDIAN SERVICE ROAD 471 (M.P. 97.1) .
- 2) TURN RIGHT ONTO ISR 471 AND GO 2.0 MILES TO ACCESS ROAD ON LEFT.
- 3) FOLLOW ACCESS ROAD 0.1 MILE TO STAKED ACCESS.

WELL FLAG LOCATED AT LAT. 36.191752° N, LONG.107.445066° W (NAD 83).



WELLHEAD BLOWOUT CONTROL SYSTEM

encana

Well Name and Number:
Lybrook M26-2306 02H

