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CONFIDENTIAL

FORM APPROVED
OMB No 1004-0137
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NOV 29 2011

APPLICATION FOR PERMIT TO DRILL OR REENTER

5 Lease Serial No.
NM 90468 and NM 55836

6 If Indian, Allottee or Tribe Name

7 If Unit or CA Agreement, Name and No.

8 Lease Name and Well No.
Lybrook H04-2208 01H

9 API Well No.

30-045-35328

10 Field and Pool, or Exploratory

Lybrook Gallup (42289) Alamito Gallup

11 Sec., T. R. M. or Blk. and Survey or Area
Section 4, T22N, R8W NMPM

12 County or Parish
San Juan

13 State
NM

1a Type of work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2 Name of Operator Encana Oil & Gas (USA) Inc.

3a. Address 370 17th Street, Suite 1700
Denver, CO 80202

3b Phone No. (include area code)
720-876-3989

4 Location of Well (Report location clearly and in accordance with any State requirements *)

At surface H1980' FNL and 330' FEL Section 4 T22N, R8W

At proposed prod. zone G1980' FSL and 2310' FEL Section 5, T22N, R8W

14 Distance in miles and direction from nearest town or post office*
+/- 43.5 miles southerly of Farmington, NM

15 Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
BHL is 1980' from north lease line

16 No. of acres in lease
NM-90468 1041.3 acres
NM-76870 1376.5 acres

17 Spacing Unit dedicated to this well
940 acres

RCVD APR 11 '12

18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft
Fazer Federal 1 is 210' south of wellbore

19 Proposed Depth
5863' TVD/ 11739' MD

20 BLM/BIA Bond No. on file
CO-1461
OIL CONS. DIV.
DIST. 3

21 Elevations (Show whether DF, KDB, RT, GL, etc)
6850' GL, 6864' KB This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

22 Approximate date work will start*
02/01/2012

23 Estimated duration
45 days

24. Attachments

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

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.
- 2 A Drilling Plan.
- 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).

- 4 Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- 5 Operator certification
- 6 Such other site specific information and/or plans as may be required by the BLM.

25 Signature
Brenda R Linster

Name (Printed/Typed)
Brenda R. Linster

Date
11/14/11

Title
Regulatory Advisor

Approved by (Signature)
[Signature]

Name (Printed/Typed)

Date
4/5/12

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)

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

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

Hold C104
for Directional Survey
and "As Drilled" plat

NMOCD

Comply with 19.1516.10G 2

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".

APR 17 2012 ca

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

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

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

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

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION Division Field Office
Bureau of Land Management
1220 South St. Francis Drive
Santa Fe, NM 87505

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30.045-35328		Pool Code 1039	Pool Name ALAMITO - GALLUP
Property Code 39160	Property Name LYBROOK H04-2208		Well Number 01H
OGRIID No. 282327	Operator Name ENCANA OIL & GAS (USA) INC.		Elevation 6850'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot 1st	Feet from the	North/South line	Feet from the	East/West line	County
H	4	22N	8W		1980	NORTH	330	EAST	SAN JUAN

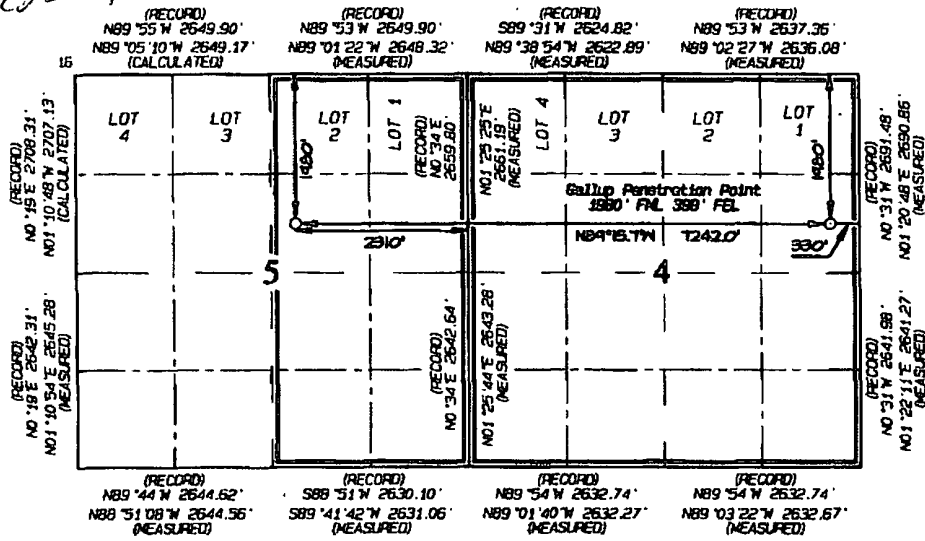
11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot 1st	Feet from the	North/South line	Feet from the	East/West line	County
G	5	22N	8W		1980	NORTH	2310	EAST	SAN JUAN

Dedicated Acres 240	Joint or Infill Joint	Consolidation Code 000-00	Order No.
Entire Section 4 & E/2 Section 5			

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

** See
COLLECTED
PLAT*



BOTTOM-HOLE
1980' FNL 2310' FEL
SECTION 5, T22N, R8W
LAT: 36.17064 N
LONG: 107.70294 W
DATUM: NAD1927

SURFACE LOCATION
1980' FNL 330' FEL
SECTION 4, T22N, R8W
LAT: 36.17069 N
LONG: 107.67840 W
DATUM: NAD1927

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 unless 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: *Brenda R. Linster* Date: *7/28/11*

Printed Name: **Brenda R. Linster**

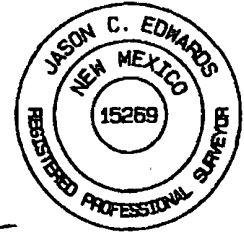
E-mail Address: **brenda.linster@encana.com**

18 SURVEYOR CERTIFICATION

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

Date of Survey: **JULY 25, 2011**

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

Directions from the Intersection of US Hwy 550 & US Hwy 64
in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Lybrook H04-2208 01H
1980' FNL & 330' FEL, Section 4, T22N, R8W, N.M.P.M., San Juan County, NM

Latitude: 36.17069°N Longitude: 107.67901°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 38.5 miles to Mile Marker 112.7;

Go right (Southerly) on County Road #7900 for 4.9 miles to fork in road;

Go straight (South-easterly) remaining on County Road #7900 for 150' to new access on right-hand side of existing roadway which continues for 1078' to staked location.

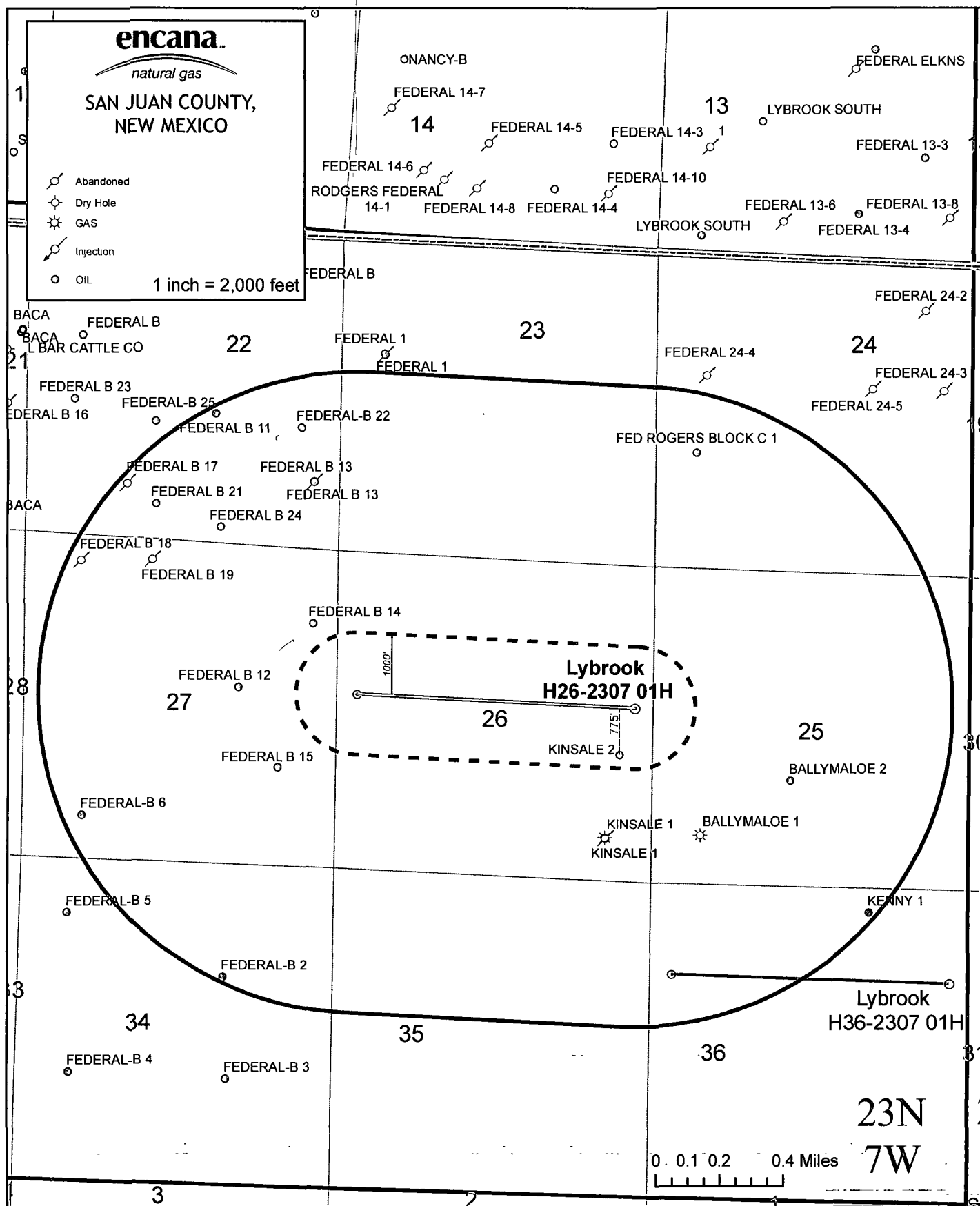
encana.

natural gas

**SAN JUAN COUNTY,
NEW MEXICO**

-  Abandoned
-  Dry Hole
-  GAS
-  Injection
-  OIL

1 inch = 2,000 feet



SHEET D

Lybrook H04-2208 01H
SHL: SENE Section 4, T22N, R8W
1980 FNL and 330 FEL
BHL: SWNE Section 5, T22N, R8W
1980 FNL and 2310 FEL
San Juan County, New Mexico
Lease Number: NM 90468 and NM 55836

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

1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

<u>Formation</u>	<u>Depth (TVD)</u>
Ojo Alamo	429'
Kirtland	566'
Fruitland Coal	768'
Pictured Cliffs	1119'
Lewis	1261'
Cliffhouse	1862'
Menefee	2586'
Point Lookout	3485'
Mancos	3646'
Gallup	4441'
Upper Carlile	5032'
Juana Lopez	5093'
Lower Carlile	5204'
Greenhorn	5435'
Graneros	5482'
Dakota	5532'
Morrison	5763'

The referenced surface elevation is 6850', KB 6864'

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

<u>Substance</u>	<u>Formation</u>	<u>Depth (TVD)</u>
Water	Ojo Alamo	429'
Gas	Fruitland Coal	768'
Gas	Pictured Cliffs	1119'
Gas	Cliffhouse	1862'
Gas	Point Lookout	3485'
Oil/Gas	Mancos	3646'
Oil/Gas	Dakota	5532'

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

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.

Lybrook H04-2208 01H

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San Juan County, New Mexico

Lease Number: NM 90468 and NM 55836

- e) Blind and Pipe Rams/BOP will be tested against a test plug to either 70 percent of the casings internal yield pressure or 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	Hole Size	Csg Size	Weight	Grade
Conductor	0-60'	26"	20"	94#	H40, STC New
Surface	0'-500'	17 1/2"	13 3/8"	48#	H40, STC New
Intermediate	0'-4000'	12 1/4"	9 5/8"	40#	J55, STC New
Production Liner	3800'-11739'	8 1/2"	5 1/2"	17#	B80*, LTC New

Casing String				Casing Strength Properties			Minimum Design Factors		
Size	Weight (lb/ft)	Grade	Connection	Collapse (psi)	Burst (psi)	Tensile (1000lb)	Collapse	Burst	Tension
13 3/8"	48	H40	STC	740	1730	322	1.125	1.1	1.5
9 5/8"	40	J55	STC	2570	3950	452	1.125	1.1	1.5
5 1/2"	17	B80	LTC	6290	7740	320	1.125	1.1	1.5

*B80 pipe specifications are attached

Casing design is subject to revision based on geologic conditions encountered.

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.

Lybrook H04-2208 01H

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b) The proposed cementing program is as follows:

Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

Casing	Depth	Cement Volume (sacks)	Cement Type&Yield	Designed TOC	Centralizers
Conductor	60'	80sk	Redi-mix Construction Grade Cement	Surface	None
Surface	500'	Lead: 130sk Tail: 100sk	Lead: Varicem Poz Cmt 1% Cal-Seal 12.7ppg, 1.78cuft/sk Tail: Type III Prem Plus 6% Salt 13.5ppg 1.77cuft/sk	Surface	1 per joint on bottom 3 joints, turbolizers will be used at the Ojo Alamo
Intermediate	4000'	50% open hole excess Lead: 1145sk Tail: 176sk	Lead: Fillseal Poz Cmt 1% foam 13ppg, 1.43cuft/sk Tail: HalCem Class H 1% foam 13ppg 1.43cuft/sk	Surface	1 per joint for bottom 3 joints, 1 every 3 joints for remaining joints
Production Liner*	3800'-11739'	None – External casing packers	N/A	N/A	N/A

*Production liner clarification: Utilizing external swell casing packer system for zonal isolation will not use cement in the production liner.

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 adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

Comply w/ NMAC 19.15.16-10.G.2

5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed well will be drilled in two phases. A pilot hole will be drilled in the first phase, followed by kicking off a horizontal lateral in the existing wellbore in the second phase. The intent of drilling a pilot hole is to obtain open hole log and core data. The intent of the second phase of the well is to plug back the pilot hole with cement to the kick off point. After plugging back, the plan is to drill a horizontal lateral from the kick off point in the existing wellbore to the proposed bottom hole location.

Directional plans are attached.

Lybrook H04-2208 01H

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Lease Number: NM 90468 and NM 55836

Well Phase	Description	Proposed Depth (TVD/MD)	Formation
1	Vertical Pilot Hole	5863'/5863'	Morrison
2	Horizontal Lateral	4742'/11739'	Gallup

Proposed Plug Back Procedure:

TOPS: TVD
KOP 4169'
Graneros Shale 5482'
Dakota 5532'

Set 2 cement plugs in 8 1/2" hole

Plug A: Bottom plug over Dakota

Plug B: Kick plug at KOP

Plug A

1. TIH to TD of vertical pilot hole at 5863'
2. Spot 400' cement plug from 5463' - 5863'
 - a. 135sx of Class A cement (1.18ft³/sk yield)
 - b. Spot tuned spacer
3. Pull uphole and reverse out
4. TIH and tag plug, proceed when cement is solid
5. Fill hole and move uphole to spot kick plug

Plug B

1. Spot 300' kick plug from 4069' - 4369'
 - a. 91sx of Class A cement with salt (1.3ft³/sk yield)
 - b. Spot tuned spacer
2. Pull uphole and reverse out
3. Pump bottoms up 2 times, pull uphole
4. Tag plug, drill ahead to KOP when cement is solid

6. DRILLING FLUIDS PROGRAM

a) Phase 1, Vertical Pilot Hole:

Hole Size (in)	TVD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
26"	0-60'	Fresh Water	8.3-9.2	38-100	4-28
17 1/2"	0-500'	Fresh Water	8.4-8.6	60-70	NC
12 1/4"	500-4000'	Fresh Water LSND	8.5-8.8	40-50	8-10
8 1/2"	4000-5863'	Fresh Water LSND	8.5-8.8	40-50	8-10

b) Phase 2, Kick off to Horizontal Lateral:

Hole Size (in)	TVD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
8 1/2"	4169' (KOP)- 11739'	Synthetic Oil Based Mud	8.6-9.0	15-25	<15

Lybrook H04-2208 01H

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1980 FNL and 2310 FEL

San Juan County, New Mexico

Lease Number: NM 90468 and NM 55836

- 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, including fresh water and oil-based operations. 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 and LOGGING

- a) Drill Stem Testing – None anticipated
- b) Coring – Obtain core starting in the Mancos formation. Specific cored intervals will be determined real time by onsite geologists.
- c) Mud Logging – Mud loggers will be on location from Surface Casing to TD.
- d) Logging – See Below

Open Hole:

Triple combo with Spectral Gamma TD to surface casing

Specialty logs will be decided real time by onsite geologists

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 +/- 2744 psi based on a 9.0 ppg at 5863' TVD of the vertical pilot hole. 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 March 1, 2012. 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 45 days.

10. NOTIFICATION REQUIREMENTS & OTHER ITEMS

- a) The spud date will be reported orally to the Authorized Officer within 24 hours prior to spudding. Written notification via a Sundry Notice (Form 3160-5) will be submitted to the Authorized Officer within 5 days of spudding.
- b) The Authorized Officer will be notified at least 24 hours in advance of BOP pressure tests.

Lybrook H04-2208 01H

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San Juan County, New Mexico

Lease Number: NM 90468 and NM 55836

- c) The Authorized Officer will be notified at least 24 hours in advance of running and cementing casing strings.
- d) A Sundry Notice (Form 3160-5) will be submitted to the Authorized Officer within 30 days of setting each string of casing. Information will include the size, grade, weight of casing set, hole size, setting depth, amounts and type of cement used, whether cement circulated to the top of the cement behind the casing, depth of cementing tools used, casing test method and results, and the date the work was done.
- e) Should the well be successfully completed for production, the Authorized Officer will be notified orally within 24 hours of placing the well on production. Written notification via a Sundry Notice (Form 3160-5) will be submitted to the Authorized Officer within 5 days of placing on production.
- f) Whether the well is completed as a dry hole or as a producer, a Well Completion and Recompletion Report and Log (Form 3160-4) will be submitted no later than 30 days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3160. One copy of all logs, core descriptions, core analysis, well-test data, geologic summaries, sample descriptions, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. Samples (cuttings, fluids, and/or gases) will be submitted when requested by the Authorized Officer.
- g) Starting with the month in which operations commence and continuing each month until the well is physically plugged and abandoned, this well will be reported on Form 3160-6, Monthly Report of Operations. Reports will be filed by the 10th day of the second month following the operation month.
- h) All off-lease storage, off-lease measurement, commingling on-lease or off-lease will have prior written approval from the Authorized Officer.
- i) Oil and gas measurement facilities will be installed on the well location. Oil and gas meters will be calibrated in place prior to any deliveries. The Authorized Officer will be provided with a date and time for the initial meter calibration and all future meter proving schedules. A copy of the meter calibration reports will be submitted to the Authorized Officer. All meter measurement facilities will conform to the API standards for liquid hydrocarbons and to AGA standards for natural gas measurement.
- j) A site facility diagram as required by 43 CFR 3162.7-5(d) will be submitted within 60 days after measurement facilities are installed. Any venting or flaring of gas will be done in accordance with Notice to Lessees (NTL-4A) and may need prior approval from the Authorized Officer.
- k) Minor Events will be reported on the Monthly Report of Operations and Production (Form 3160-6). All undesirable events (fires, accidents, blowouts, spills, discharges) as specified in Notice to Lessee (NTL-3A) will be reported to the Authorized Officer. Major events will be reported verbally within 24 hours, followed by a written report within 15 days. Other than Major Events will be reported in writing within 15 days.

Encana Natural Gas



ENG: J. Fox/ A. 11/12/11
RIG:
GLE: xxx
RKBE: xxx

LOC: Sec 24-T22N-R8W
County: San Juan
WELL: Lybrook H04-2208 01H

WELL SUMMARY

MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			TVD	MD					
		Nacimiento	60	60'		26	20" 94# 80sx Type I Neat 48 8ppg cmt	Fresh wtr 8 3-9 2	
Surveys After csg is run	None Mud logger onsite at spud	Ojo Alamo Ss	429			17 1/2	13 3/8" 48ppf H40 STC TOC @ surface	Fresh wtr 8 4-8 6	Vertical <1°
Surveys every 500'	Triple combo	Kirtland Shale Fruitland Coal Pictured Cliffs Ss Lewis Shale Cliffhouse Ss Menefee Fn Point Lookout Ss Mancos Sh	566 768 1119 1261 1862 2586 3485 3646 4000			12 1/4	9 5/8" 40ppf J55 STC TOC @ surface	Fresh Wtr 8 5-8 8	Vertical <1°
Surveys every 500' Gyro at CP MWD Gamma Directional	Triple Combo	KICK OFF PT Gallup Top horz target Prodelta Gallup Upper Carlile Shale Juana Lopez Sh Lower Carlile Sh Greenhorn LS Graneros Sh Dakota Grp Morrison Pilot Hole TD	4169 4441 4741 4779 5032 5093 5204 5435 5482 5532 5763 5863	5074		8 1/2	5 1/2" 17ppf I/L80 LTC Running external swellable csg packers for isolation of prod string 6665' Lateral	Fresh Wtr LSND-in pilot 8 5-8 8 Switch to OBM at K/O 8 6-9 0 8 6-9 0 OBM	KOP 4169 10 deg/100' 4683'TVD TD = 11,739' MD

NOTES:

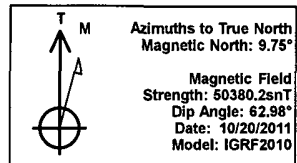
- 1) Drill with 26" bit to 60', set 20" 94# conductor pipe
- 2) Drill surface to 500', R&C 13 3/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to 4000', 12 1/4" hole size
- 5) Run OH logs, R&C 9 5/8" casing, circ cmt 50' into sur csg shoe
- 6) Drill 8 1/2" hole to core point, core Gallup/Niobrara & possibly Dakota, confirm coring details
- 7) RIH with 8 1/2" bit to drill 150' rathole, run OH logs
- 8) Plugback to 4000' with cmt
- 9) PU directional tools and K/O cmt plug and start curve at 10deg/100' build rate
- 10) Drill curve to 20-30deg then switch over to OBM system
- 11) Land at 90deg, drill 6665' lateral to 11739', run 5 1/2" liner with external swellable csg packers



Encana Oil & Gas
Project: San Juan Co., NM (NAD83)
Site: Sec.4-T22N-R8W
Well: Lybrook H04-2208 01H
Wellbore: Wellbore #1
Design: Design #1
Lat: 36.170690
Long: -107.679010
Pad GL: 6850.00
KB: WELL @ 6864.00usft

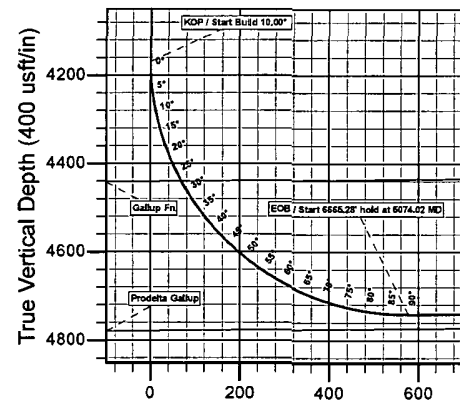
GREAT WHITE
DIRECTIONAL SERVICES™
an Archer company

PROJECT DETAILS: San Juan Co., NM (NAD83)	
Geodetic System: US State Plane 1983	
Datum: North American Datum 1983	
Ellipsoid: GRS 1980	
Zone: New Mexico Western Zone	
System Datum: Mean Sea Level	



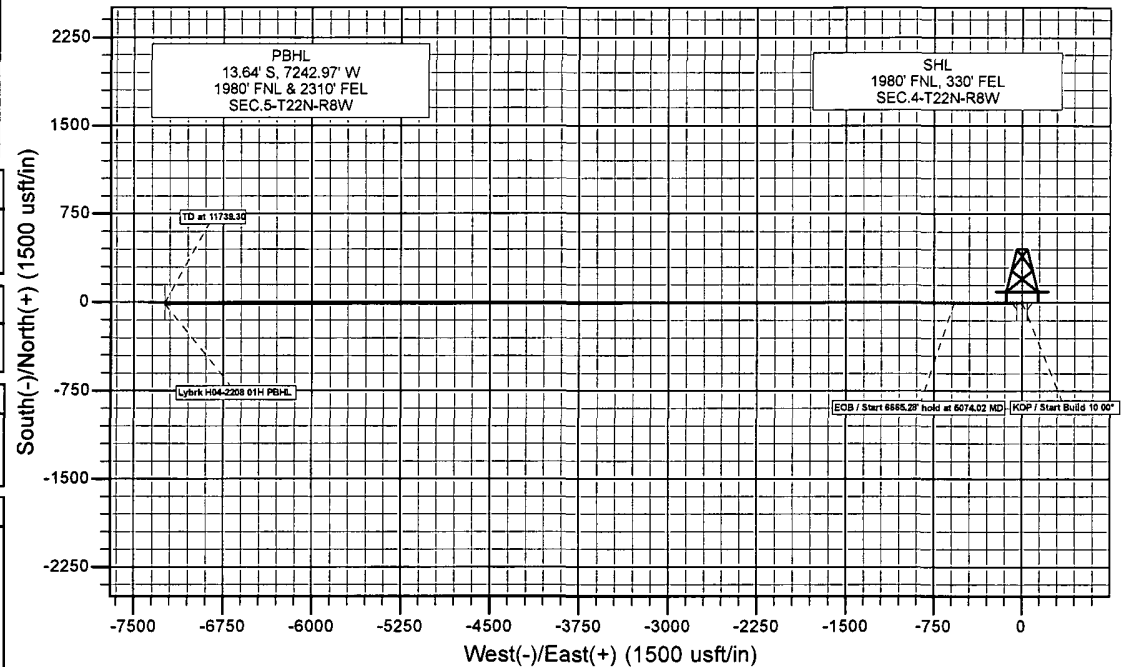
WELL DETAILS: Lybrook H04-2208 01H					
+N/-S	+E/-W	Northing	Ground Level: 6850.00	Latitude	Longitude
0.00	0.00	1881464.253	2768640.009	36.170690	-107.679010
Slot					

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Lybrk H04-2208 01H PBHL	4683.79	-13.64	-7242.97	36.170650	-107.703550
Shape Point					

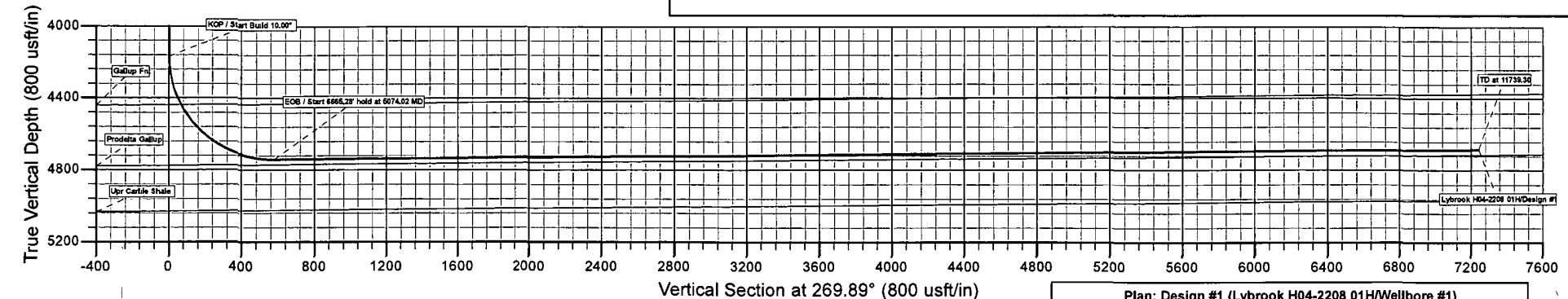


CASING DETAILS				
TVD	MD	Name	Size	
500.00	500.00	13 3/8" Csg.	13-3/8	
4000.00	4000.00	9 5/8" Csg.	9-5/8	

FORMATION TOP DETAILS				
TVDPath	MDPath	Formation		
429.00	429.00	Ojo Alamo Ss.		
566.00	566.00	Kirtland Shale		
768.00	768.00	Fruitland Coal		
1119.00	1119.00	Pictured Cliffs Ss.		
1261.00	1261.00	Lewis Shale		
1862.00	1862.00	Cliffhouse Ss.		
2586.00	2586.00	Menefee Fm.		
3485.00	3485.00	Point Lookout Ss.		
3646.00	3646.00	Mancos Shale		
4440.40	4451.74	Gallup Fm.		



SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	KOP / Start Build 10.00°
4169.02	0.00	0.00	4169.02	0.00	0.00	0.00	0.00	0.00	EOB / Start 6665.28' hold at 5074.02 MD
5074.02	90.50	269.89	4741.96	-1.09	-577.96	10.00	269.89	577.96	TD at 11739.30
11739.30	90.50	269.89	4683.79	-13.64	-7242.97	0.00	0.00	7242.98	



Plan: Design #1 (Lybrook H04-2208 01H/Wellbore #1)
Created By: Bret Wolford Date: 10/12, October 20 2011

Database:	EDMDBBW	Local Co-ordinate Reference:	Well Lybrook H04-2208 01H
Company:	Encana Oil & Gas	TVD Reference:	WELL @ 6864.00usft
Project:	San Juan Co., NM (NAD83)	MD Reference:	WELL @ 6864.00usft
Site:	Sec.4-T22N-R8W	North Reference:	True
Well:	Lybrook H04-2208 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	San Juan Co., NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site		Sec.4-T22N-R8W			
Site Position:		Northing:	1,881,464.253 usft	Latitude:	36.170690
From:	Lat/Long	Easting:	2,768,640.009 usft	Longitude:	-107.679010
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.09 °

Well	Lybrook H04-2208 01H					
Well Position	+N-S	0.00 usft	Northing:	1,881,464.253 usft	Latitude:	36.170690
	+E-W	0.00 usft	Easting:	2,768,640.009 usft	Longitude:	-107.679010
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	6,850.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	10/20/11	9.75	62.98	50,380

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	4,683.79	0.00	0.00	269.89

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,169.02	0.00	0.00	4,169.02	0.00	0.00	0.00	0.00	0.00	0.00	
5,074.02	90.50	269.89	4,741.96	-1.09	-577.96	10.00	10.00	0.00	269.89	Lybrk H04-2208 01H I
11,739.30	90.50	269.89	4,683.79	-13.64	-7,242.97	0.00	0.00	0.00	0.00	Lybrk H04-2208 01H I

Database:	EDMDBBW	Local Co-ordinate Reference:	Well Lybrook H04-2208 01H
Company:	Encana Oil & Gas	TVD Reference:	WELL @ 6864 00usft
Project:	San Juan Co., NM (NAD83)	MD Reference:	WELL @ 6864.00usft
Site:	Sec.4-T22N-R8W	North Reference:	True
Well:	Lybrook H04-2208 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #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 (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
Ojo Alamo Ss.									
429.00	0.00	0.00	429.00	0.00	0.00	0.00	0.00	0.00	0.00
13 3/8" Csg.									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Kirtland Shale									
566.00	0.00	0.00	566.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
Fruitland Coal									
768.00	0.00	0.00	768.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
Pictured Cliffs Ss.									
1,119.00	0.00	0.00	1,119.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
Lewis Shale									
1,261.00	0.00	0.00	1,261.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
Cliffhouse Ss.									
1,862.00	0.00	0.00	1,862.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
Menefee Fn.									
2,586.00	0.00	0.00	2,586.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
Point Lookout Ss.									
3,485.00	0.00	0.00	3,485.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00

Database:	EDMDBBW	Local Co-ordinate Reference:	Well Lybrook H04-2208 01H
Company:	Encana Oil & Gas	TVD Reference:	WELL @ 6864.00usft
Project:	San Juan Co., NM (NAD83)	MD Reference:	WELL @ 6864.00usft
Site:	Sec.4-T22N-R8W	North Reference:	True
Well:	Lybrook H04-2208 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #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 (°/100usft)	Turn Rate (°/100usft)
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
Mancos Shale									
3,646.00	0.00	0.00	3,646.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8" Csg.									
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP / Start Build 10.00°									
4,169.02	0.00	0.00	4,169.02	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	3.10	269.89	4,199.98	0.00	-0.84	0.84	10.00	10.00	0.00
4,250.00	8.10	269.89	4,249.73	-0.01	-5.71	5.71	10.00	10.00	0.00
4,300.00	13.10	269.89	4,298.86	-0.03	-14.91	14.91	10.00	10.00	0.00
4,350.00	18.10	269.89	4,347.01	-0.05	-28.35	28.35	10.00	10.00	0.00
4,400.00	23.10	269.89	4,393.79	-0.09	-45.93	45.93	10.00	10.00	0.00
4,450.00	28.10	269.89	4,438.87	-0.13	-67.53	67.53	10.00	10.00	0.00
Gallup Fn.									
4,451.74	28.27	269.89	4,440.40	-0.13	-68.35	68.35	10.00	10.00	0.00
4,500.00	33.10	269.89	4,481.90	-0.18	-92.97	92.97	10.00	10.00	0.00
4,550.00	38.10	269.89	4,522.54	-0.23	-122.06	122.06	10.00	10.00	0.00
4,600.00	43.10	269.89	4,560.49	-0.29	-154.59	154.59	10.00	10.00	0.00
4,650.00	48.10	269.89	4,595.47	-0.36	-190.30	190.30	10.00	10.00	0.00
4,700.00	53.10	269.89	4,627.19	-0.43	-228.93	228.93	10.00	10.00	0.00
4,750.00	58.10	269.89	4,655.43	-0.51	-270.17	270.17	10.00	10.00	0.00
4,800.00	63.10	269.89	4,679.97	-0.59	-313.71	313.71	10.00	10.00	0.00
4,850.00	68.10	269.89	4,700.62	-0.68	-359.23	359.23	10.00	10.00	0.00
4,900.00	73.10	269.89	4,717.23	-0.77	-406.38	406.38	10.00	10.00	0.00
4,950.00	78.10	269.89	4,729.66	-0.86	-454.79	454.79	10.00	10.00	0.00
5,000.00	83.10	269.89	4,737.83	-0.95	-504.10	504.10	10.00	10.00	0.00
5,050.00	88.10	269.89	4,741.66	-1.04	-553.94	553.94	10.00	10.00	0.00
EOB / Start 6665.28° hold at 5074.02 MD									
5,074.02	90.50	269.89	4,741.96	-1.09	-577.96	577.96	10.00	10.00	0.00
5,100.00	90.50	269.89	4,741.73	-1.14	-603.94	603.94	0.00	0.00	0.00
5,200.00	90.50	269.89	4,740.86	-1.33	-703.93	703.93	0.00	0.00	0.00
5,300.00	90.50	269.89	4,739.98	-1.51	-803.93	803.93	0.00	0.00	0.00
5,400.00	90.50	269.89	4,739.11	-1.70	-903.92	903.93	0.00	0.00	0.00
5,500.00	90.50	269.89	4,738.24	-1.89	-1,003.92	1,003.92	0.00	0.00	0.00
5,600.00	90.50	269.89	4,737.37	-2.08	-1,103.92	1,103.92	0.00	0.00	0.00
5,700.00	90.50	269.89	4,736.49	-2.27	-1,203.91	1,203.91	0.00	0.00	0.00
5,800.00	90.50	269.89	4,735.62	-2.46	-1,303.91	1,303.91	0.00	0.00	0.00
5,900.00	90.50	269.89	4,734.75	-2.64	-1,403.90	1,403.91	0.00	0.00	0.00
6,000.00	90.50	269.89	4,733.88	-2.83	-1,503.90	1,503.90	0.00	0.00	0.00
6,100.00	90.50	269.89	4,733.00	-3.02	-1,603.90	1,603.90	0.00	0.00	0.00
6,200.00	90.50	269.89	4,732.13	-3.21	-1,703.89	1,703.89	0.00	0.00	0.00
6,300.00	90.50	269.89	4,731.26	-3.40	-1,803.89	1,803.89	0.00	0.00	0.00
6,400.00	90.50	269.89	4,730.38	-3.59	-1,903.88	1,903.89	0.00	0.00	0.00
6,500.00	90.50	269.89	4,729.51	-3.77	-2,003.88	2,003.88	0.00	0.00	0.00
6,600.00	90.50	269.89	4,728.64	-3.96	-2,103.88	2,103.88	0.00	0.00	0.00
6,700.00	90.50	269.89	4,727.77	-4.15	-2,203.87	2,203.88	0.00	0.00	0.00
6,800.00	90.50	269.89	4,726.89	-4.34	-2,303.87	2,303.87	0.00	0.00	0.00
6,900.00	90.50	269.89	4,726.02	-4.53	-2,403.86	2,403.87	0.00	0.00	0.00
7,000.00	90.50	269.89	4,725.15	-4.72	-2,503.86	2,503.86	0.00	0.00	0.00

Database:	EDMDBBW	Local Co-ordinate Reference:	Well Lybrook H04-2208 01H
Company:	Encana Oil & Gas	TVD Reference:	WELL @ 6864.00usft
Project:	San Juan Co., NM (NAD83)	MD Reference:	WELL @ 6864.00usft
Site:	Sec.4-T22N-R8W	North Reference:	True
Well:	Lybrook H04-2208 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #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 (°/100usft)	Turn Rate (°/100usft)
7,100.00	90.50	269.89	4,724.28	-4.91	-2,603.86	2,603.86	0.00	0.00	0.00
7,200.00	90.50	269.89	4,723.40	-5.09	-2,703.85	2,703.86	0.00	0.00	0.00
7,300.00	90.50	269.89	4,722.53	-5.28	-2,803.85	2,803.85	0.00	0.00	0.00
7,400.00	90.50	269.89	4,721.66	-5.47	-2,903.84	2,903.85	0.00	0.00	0.00
7,500.00	90.50	269.89	4,720.79	-5.66	-3,003.84	3,003.85	0.00	0.00	0.00
7,600.00	90.50	269.89	4,719.91	-5.85	-3,103.84	3,103.84	0.00	0.00	0.00
7,700.00	90.50	269.89	4,719.04	-6.04	-3,203.83	3,203.84	0.00	0.00	0.00
7,800.00	90.50	269.89	4,718.17	-6.22	-3,303.83	3,303.83	0.00	0.00	0.00
7,900.00	90.50	269.89	4,717.29	-6.41	-3,403.82	3,403.83	0.00	0.00	0.00
8,000.00	90.50	269.89	4,716.42	-6.60	-3,503.82	3,503.83	0.00	0.00	0.00
8,100.00	90.50	269.89	4,715.55	-6.79	-3,603.82	3,603.82	0.00	0.00	0.00
8,200.00	90.50	269.89	4,714.68	-6.98	-3,703.81	3,703.82	0.00	0.00	0.00
8,300.00	90.50	269.89	4,713.80	-7.17	-3,803.81	3,803.81	0.00	0.00	0.00
8,400.00	90.50	269.89	4,712.93	-7.35	-3,903.80	3,903.81	0.00	0.00	0.00
8,500.00	90.50	269.89	4,712.06	-7.54	-4,003.80	4,003.81	0.00	0.00	0.00
8,600.00	90.50	269.89	4,711.19	-7.73	-4,103.80	4,103.80	0.00	0.00	0.00
8,700.00	90.50	269.89	4,710.31	-7.92	-4,203.79	4,203.80	0.00	0.00	0.00
8,800.00	90.50	269.89	4,709.44	-8.11	-4,303.79	4,303.80	0.00	0.00	0.00
8,900.00	90.50	269.89	4,708.57	-8.30	-4,403.78	4,403.79	0.00	0.00	0.00
9,000.00	90.50	269.89	4,707.70	-8.48	-4,503.78	4,503.79	0.00	0.00	0.00
9,100.00	90.50	269.89	4,706.82	-8.67	-4,603.78	4,603.78	0.00	0.00	0.00
9,200.00	90.50	269.89	4,705.95	-8.86	-4,703.77	4,703.78	0.00	0.00	0.00
9,300.00	90.50	269.89	4,705.08	-9.05	-4,803.77	4,803.78	0.00	0.00	0.00
9,400.00	90.50	269.89	4,704.21	-9.24	-4,903.76	4,903.77	0.00	0.00	0.00
9,500.00	90.50	269.89	4,703.33	-9.43	-5,003.76	5,003.77	0.00	0.00	0.00
9,600.00	90.50	269.89	4,702.46	-9.61	-5,103.76	5,103.77	0.00	0.00	0.00
9,700.00	90.50	269.89	4,701.59	-9.80	-5,203.75	5,203.76	0.00	0.00	0.00
9,800.00	90.50	269.89	4,700.71	-9.99	-5,303.75	5,303.76	0.00	0.00	0.00
9,900.00	90.50	269.89	4,699.84	-10.18	-5,403.74	5,403.75	0.00	0.00	0.00
10,000.00	90.50	269.89	4,698.97	-10.37	-5,503.74	5,503.75	0.00	0.00	0.00
10,100.00	90.50	269.89	4,698.10	-10.56	-5,603.74	5,603.75	0.00	0.00	0.00
10,200.00	90.50	269.89	4,697.22	-10.74	-5,703.73	5,703.74	0.00	0.00	0.00
10,300.00	90.50	269.89	4,696.35	-10.93	-5,803.73	5,803.74	0.00	0.00	0.00
10,400.00	90.50	269.89	4,695.48	-11.12	-5,903.72	5,903.73	0.00	0.00	0.00
10,500.00	90.50	269.89	4,694.61	-11.31	-6,003.72	6,003.73	0.00	0.00	0.00
10,600.00	90.50	269.89	4,693.73	-11.50	-6,103.72	6,103.73	0.00	0.00	0.00
10,700.00	90.50	269.89	4,692.86	-11.69	-6,203.71	6,203.72	0.00	0.00	0.00
10,800.00	90.50	269.89	4,691.99	-11.88	-6,303.71	6,303.72	0.00	0.00	0.00
10,900.00	90.50	269.89	4,691.12	-12.06	-6,403.70	6,403.72	0.00	0.00	0.00
11,000.00	90.50	269.89	4,690.24	-12.25	-6,503.70	6,503.71	0.00	0.00	0.00
11,100.00	90.50	269.89	4,689.37	-12.44	-6,603.70	6,603.71	0.00	0.00	0.00
11,200.00	90.50	269.89	4,688.50	-12.63	-6,703.69	6,703.70	0.00	0.00	0.00
11,300.00	90.50	269.89	4,687.62	-12.82	-6,803.69	6,803.70	0.00	0.00	0.00
11,400.00	90.50	269.89	4,686.75	-13.01	-6,903.68	6,903.70	0.00	0.00	0.00
11,500.00	90.50	269.89	4,685.88	-13.19	-7,003.68	7,003.69	0.00	0.00	0.00
11,600.00	90.50	269.89	4,685.01	-13.38	-7,103.68	7,103.69	0.00	0.00	0.00
11,700.00	90.50	269.89	4,684.13	-13.57	-7,203.67	7,203.69	0.00	0.00	0.00
TD at 11739.30 - Lybrk H04-2208 01H PBHL									
11,739.30	90.50	269.89	4,683.79	-13.64	-7,242.97	7,242.98	0.00	0.00	0.00

Database:	EDMDBBW	Local Co-ordinate Reference:	Well Lybrook H04-2208 01H
Company:	Encana Oil & Gas	TVD Reference:	WELL @ 6864.00usft
Project:	San Juan Co., NM (NAD83)	MD Reference:	WELL @ 6864.00usft
Site:	Sec.4-T22N-R8W	North Reference:	True
Well:	Lybrook H04-2208 01H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
Lybrk H04-2208 01H PB	0.00	0.00	4,683.79	-13.64	-7,242.97	1,881,439.094	2,761,397.073	36.170650	-107.703550
- plan hits target center									
- Point									

Casing Points

Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(usft)	(usft)		(")	(")
4,000.00	4,000.00	9 5/8" Csg.	9-5/8	12-1/4
500.00	500.00	13 3/8" Csg.	13-3/8	17-1/2

Formations

Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
429.00	429.00	Ojo Alamo Ss.		-0.50	269.89
566.00	566.00	Kirtland Shale		-0.50	269.89
768.00	768.00	Fruitland Coal		-0.50	269.89
1,119.00	1,119.00	Pictured Cliffs Ss.		-0.50	269.89
1,261.00	1,261.00	Lewis Shale		-0.50	269.89
1,862.00	1,862.00	Cliffhouse Ss.		-0.50	269.89
2,586.00	2,586.00	Menefee Fn.		-0.50	269.89
3,485.00	3,485.00	Point Lookout Ss.		-0.50	269.89
3,646.00	3,646.00	Mancos Shale		-0.50	269.89
4,451.74	4,441.00	Gallup Fn.		-0.50	269.89

Plan Annotations

Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S	+E/-W	
(usft)	(usft)	(usft)	(usft)	
4,169.02	4,169.02	0.00	0.00	KOP / Start Build 10.00°
5,074.02	4,741.96	-1.09	-577.96	EOB / Start 6665.28' hold at 5074.02 MD
11,739.30	4,683.79	-13.64	-7,242.97	TD at 11739.30

Lybrook H04-2208 01H

