

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

RECEIVED

SEP 20 2012

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

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

5. Lease Serial No.  
NM NM 109389

6. If Indian, Allottee or Tribe Name

**SUBMIT IN TRIPLICATE** - Other instructions on page 2.

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

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)  
720-876-3437

7. If Unit of CA/Agreement, Name and/or No

8. Well Name and No.  
Lybrook D22-2206 01H

9. API Well No.  
30-043-21131

10. Field and Pool or Exploratory Area  
WC Gallup

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
SHL: 1147' FNL and 187' FWL Sec 22, T22N, R6W  
BHL: 660' FNL and 330' FWL Sec 21, T22, R6W

11. Country or Parish, State  
Sandoval, NM

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

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

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

Encana Oil & Gas (USA) Inc. (Encana) would like to revise casing, cement, and BOP plans for the Lybrook D22-2206 01H well. Encana would like to change surface casing from 13 3/8" to 9 5/8", intermediate casing from 9 5/8" to 7" (changing the setting depth from 4330' to 5310' TVD/5600' MD), and production liner from 5 1/2" to 4 1/2". Please see attached 10 point drilling plan, wellbore diagram, BOP diagram and casing specs.

RCVD OCT 3 '12  
OIL CONS. DIV.

DIST. 3

Hold C104  
for Directional Survey  
and "As Drilled" plat

Indicate packer  
setting depth

CONFIDENTIAL

**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**

**CONDITIONS OF APPROVAL**  
Adhere to previously issued stipulations.

14. I hereby certify that the foregoing is true and correct  
Name (Printed/Typed)

Amanda Cavoto

Title Engineering Technologist

Signature

*Amanda Cavoto*

Date

09/19/12

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

Troy L. Salyers

Title Petroleum Engineer

Date 9/25/2012

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon

Office FFO

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

(Instructions on page 2)

NMOC  
AV

Hold C104  
for Directional Survey  
and "As Drilled" at

Lybrook D22-2206 01H  
API: 30-043-21131  
SHL: NWNW Section 22, T22N, R6W  
1147 FNL and 187 FWL  
BHL: NWNW Section 21, T22N, R6W  
660 FNL and 330 FWL  
Sandoval County, New Mexico  
Lease Number: NM NM 109389

## 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	1243'
Kirtland	1388'
Fruitland Coal	1514'
Pictured Cliffs	1839'
Lewis	1931'
Cliffhouse	2592'
Menefee	3301'
Point Lookout	4102'
Mancos	4277'
Gallup	5096'

The referenced surface elevation is 7187', KB 7200'

### 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	1243'
Gas	Fruitland Coal	1514'
Gas	Pictured Cliffs	1839'
Gas	Cliffhouse	2592'
Gas	Point Lookout	4102'
Oil/Gas	Mancos	4277'

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

### 3. PRESSURE CONTROL

- Pressure control equipment and configuration will be designed to meet 2M standards.
- Working pressure on rams and BOPE will be 3,000 psi
- Function test and visual inspection of the BOP will be conducted daily and noted in the IADC Daily Drilling Report.
- The Annular BOP will be pressure tested to a minimum of 50 percent of its rated working pressure.
- Blind and Pipe Rams/BOP will be tested against a test plug to 100 percent of rated working pressure.
- Pressure tests are required before drilling out from under all casing strings set and cemented in place.
- BOP controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.
- BOP testing procedures and testing frequency will conform to Onshore Order No. 2.

**Lybrook D22-2206 01H**

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- 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:

<b>Casing</b>	<b>Depth</b>	<b>Hole Size</b>	<b>Csg Size</b>	<b>Weight</b>	<b>Grade</b>
Conductor	0-60'	30"	20"	94#	H40, STC New
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5600'	8 1/2"	7"	26#	J55, LTC New
Production Liner	5400'-10393'	6 1/8"	4 1/2"	11.6#	B80*, LTC New

<b>Casing String</b>				<b>Casing Strength Properties</b>			<b>Minimum Design Factors</b>		
<b>Size</b>	<b>Weight (lb/ft)</b>	<b>Grade</b>	<b>Connection</b>	<b>Collapse (psi)</b>	<b>Burst (psi)</b>	<b>Tensile (1000lb)</b>	<b>Collapse</b>	<b>Burst</b>	<b>Tension</b>
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 1/2"	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.

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:  
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.

**Lybrook D22-2206 01H**  
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Casing	Depth	Cement Volume (sacks)	Cement Type&Yield	Designed TOC	Centralizers
Conductor	60'	100sk	Type I Neat 14.8ppg	Surface	None
Surface	500'	178sk	Type III Cement + 1% CaCl + 0.25lb/sk Cello Flake + 0.2% FL, 14.6ppg, 1.38cuf/sk	Surface	1 turbolizer per joint on bottom 3 joints
Intermediate	5310'TVD/ 5600'MD	30% open hole excess Lead: 155sk Tail: 436sk	<b>Lead:</b> PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuf/sk <b>Tail:</b> Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuf/sk	Surface	1 per joint for bottom 3 joints, 1 every 3 joints for remaining joints
Production Liner*	5400'MD- 10393'MD	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.

## 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 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 to original APD.

Well Phase	Description	Proposed Depth (TVD/MD)	Formation
1	Vertical Pilot Hole	5610'/5610'	Gallup
2	Horizontal Lateral	5305'/10393'	Gallup

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**Proposed Plug Back Procedure:**

KOP 4430'

Set kick plug at KOP

1. Spot 300' kick plug from 4330' – 4630'
  - a. 91sx of Class A cement with salt (1.3ft<sup>3</sup>/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) Vertical Pilot Hole:

Hole Size (in)	TVD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60'	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0-500'	Fresh Water	8.4-8.6	60-70	NC
8 1/2"	500-5610'	Fresh Water LSND	8.5-8.8	40-50	8-10

b) Kick off Point to Intermediate Casing Point:

Hole Size (in)	TVD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
8 1/2"	4430' (KOP)- 5310' (5600'MD)	Fresh Water LSND	8.5-8.8	40-50	8-10

c) Intermediate Casing Point to TD:

Hole Size (in)	Depth (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	5600'MD- 10393'MD	Synthetic Oil Based Mud	8.6-9.0	15-25	<15

- d) 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.
- e) 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.

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## **7. TESTING, CORING and LOGGING**

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

Open Hole:

Triple combo with Spectral Gamma TD to intermediate 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**


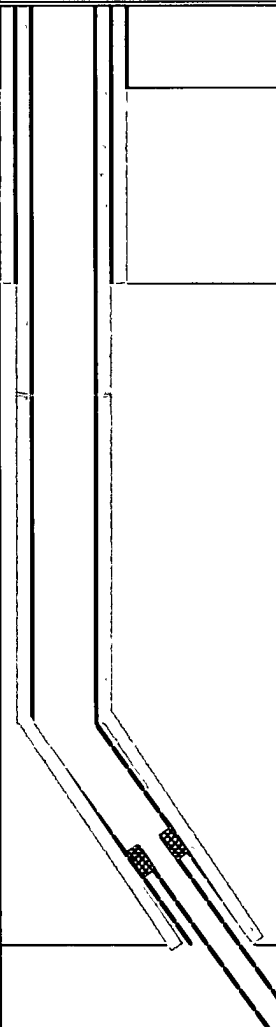
The anticipated bottom hole pressure is +/- 2,625 psi based on a 9.0 ppg at 5610' TVD of the vertical pilot hole. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H<sub>2</sub>S is encountered, the guidelines in Onshore Order No. 6 will be followed.

## **9. ANTICIPATED START DATE AND DURATION OF OPERATIONS**

Drilling is estimated to commence on November 9, 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 25 days.

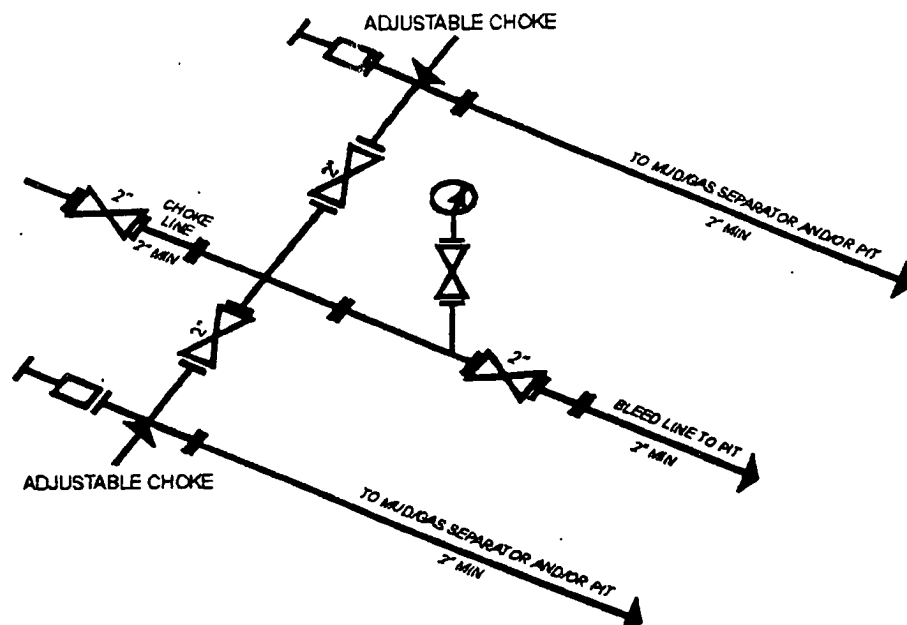
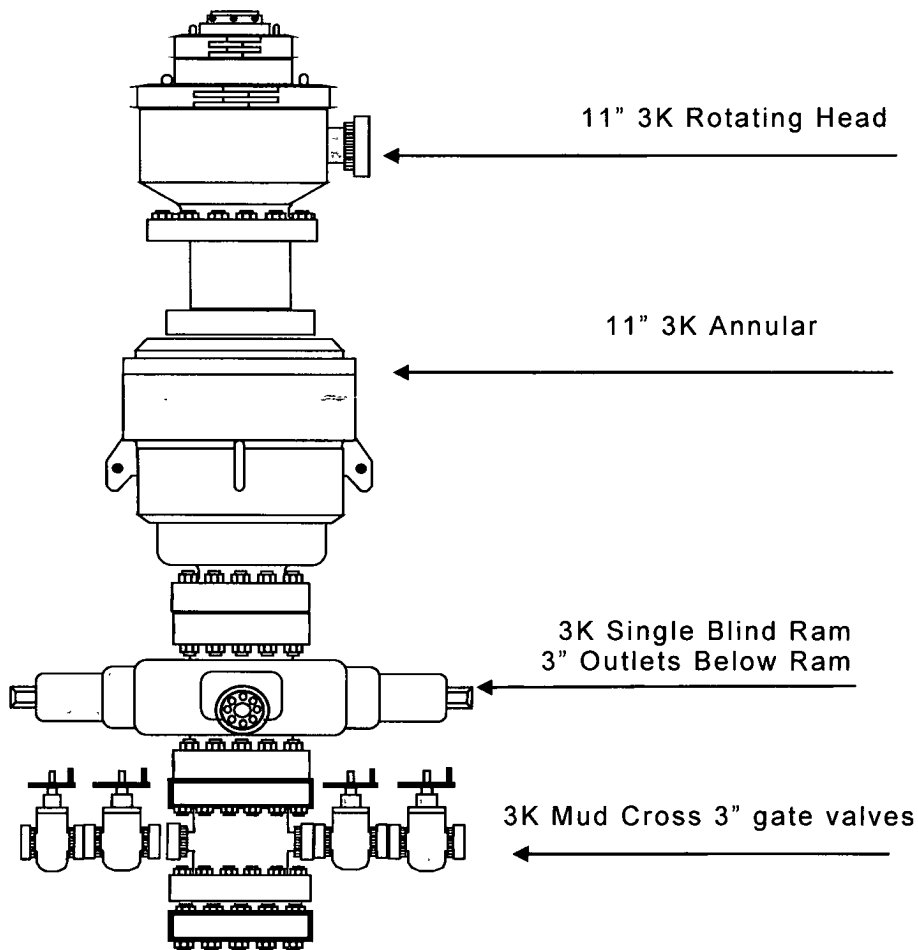
LOC: Sec 22, T22N, R6W County: Sandoval WELL: Lybrook D22-2206 01H			Encana Natural Gas WELL SUMMARY						ENG: J. Fox/ A. RIG: GLE: 7187 RKBE: 7200	9/19/12
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION	
			TVD	MD						
			60	60'		30	20" 94# 100sx Type I Neat 48 8ppg cmt	Fresh wtr 8 3-9 2		
Surveys After csg is run	None					12 1/4	9 5/8" 36ppf J55 STC  TOC @ surface	Fresh wtr 8 4-8 6	Vertical ~ <1°	
Surveys every 500'	No OH logs          Mud logger onsite	Ojo Alamo Kirtland Shale  Fruitland Coal  Pictured Cliffs Ss Lewis Shale  Cliffhouse Ss Menefee Fn Point Lookout Ss Mancos Sh  KICK OFF PT   Mancos Silt Gallup Top	1243 1388  1514  1839 1931  2592 3301 4102 4277  4430  4842 5096  5310	5600		8 1/2	7" 26ppf J55 LTC       TOC @ surface	Fresh Wtr 8 5-8 8	Vertical ~ <1°      KOP 4430 10 deg/100'	
Surveys every 500' Gyro at CP MWD Gamma Directional	No OH Logs	horz target Base Gallup      Pilot Hole TD	5341 5410     5610	5808		6 1/8	200' overlap at liner top  4585' Lateral	8 6-9 0 OBM  OBM 8 6-9 0	5deg updip s TD = 10393' MD 5305' TVD	
							4 1/2" 11.6ppf SB80 LTC  Running external swellable csg packers for isolation of prod string			

# WELLHEAD BLOWOUT CONTROL SYSTEM



Well name and number:

Lybrook D22-2206 01H







# Boomerang Tube LLC

## CASING (OR) TUBING DESCRIPTION AND PERFORMANCE PROPERTIES

Pipe Outside Diameter (ins)	_____	4.500
Pipe Wall Thickness (ins)	_____	0.250
Nominal Weight Per Foot (lbs)	_____	11.60
Thread Name	_____	Long Thread CSG
Grade Name	_____	SB-80
Pipe Minimum Yield (psi)	_____	80,000
Pipe Minimum Ultimate (psi)	_____	90,000
Coupling Minimum Yield (psi)	_____	80,000
Coupling Minimum Ultimate (psi)	_____	100,000
Coupling or Joint Outside Diameter (ins)	_____	5.000
Drift Diameter (ins)	_____	3.875
Plain End Weight per Foot (lbs)	_____	11.36
Joint Strength (lbs)	_____	201,000
Internal Yield (psi)	_____	7,780
Collapse Rating (psi)	_____	6,350

## MAXIMUM DEPTH/LENGTH BASED ON MUD WTS & SAFETY FACTORS

Drilling Mud Weight (ppg)	_____	9.625
Tension Safety Factor	_____	1.80
Maximum Tension Length (ft)	_____	9,630
Internal Yield Safety Factor	_____	1.10
Maximum Depth for Internal Yield (ft)	_____	14,150
Collapse Safety Factor	_____	1.125
Maximum Collapse Depth (ft)	_____	11,290

## API RELATED VALUES and INTERMEDIATE CALCULATION RESULTS

Coupling Thread Fracture Strength	_____	464,000
Pipe Thread Fracture Strength (lbs)	_____	201,000
Pipe Body Plain End Yield (lbs)	_____	267,000
Round Thread Pull-Out (lbs)	_____	219,000
Minimum Make-up Torque (ft-lbs)	_____	1,640
Nominal Make-up Torque (ft-lbs)	_____	2,190
Maximum Make-up Torque (ft-lbs)	_____	2,740
Coupling Internal Yield (psi)	_____	10,660
Pipe Body Internal Yield (psi)	_____	7,780
Leak @ E1 or E7 plane (psi)	_____	17,920
Pipe Hydrostatic Test Pressure @ 80 % SMYS	_____	7,100