

Well: Branex-COG Fed Com 25H

Hole Volumes						
Hole	Hole Section (Length)	Casing	Capacity (ft <sup>3</sup> /Lin.ft)	Cu.Ft	Total Cu.Ft	% Excess
Prod	0-2250 (2250)	7"	0.1585	356.6	356.6	0
Prod	2250-5829 (3579)	7"	0.1503	537.9	1494.4	99.2
Prod	5829-6657 (828)	5.5"	0.2526	209.1		99.2
Prod	6657-10970 (4313)	5.5"	0.1733	747.4		99.2

Cement Volumes					
Blend	Cement Sacks	Yield	Weight	Volume	Total Volume
35:65:6	500	2.01	12.5	1005	3334
50:50:02	1700	1.37	14	2329	

% Excess Calculation			
Total Volume	3334		2977.4
Cu.Ft	-356.6		/1494.4
	2977.4		99.2%excess

#### Casing Program

	Collapse SF	Burst SF	Tension SF
BLM Minimum Safety Factor	1.125	1	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Assumed 9.0ppg MW equivalent pore pressure from 9 5/8" shoe to deepest TVD in wellbore.

BLM standard formulas were used on all SF calculations.

Casing design does meet and/or exceed BLM's minimum standards.

The pipe will be kept at a minimum 1/3 fluid fill to avoid approaching the collapse pressure rating of the casing.

This well is not located within the Capitan Reef.

This well is not located in the SOPA or in the R-111-P.

This well is not located in a high or critical Cave/Karst area.

This is not a walking operation.

We will not be pre-setting casing.

All completion intervals are planned to be fracture stimulated.

### Contingent Multi-Stage Cement Discussion:

COG does not anticipate losing circulation or encountering water flows while drilling this well. If these situations arise, COG requests approval in this APD to set DV tools where necessary immediately without having to shut down the rig and wait for sundry approval.

#### Lost Circulation or Water flow Contingent DV Tool Cement Plans are as follows:

1. If lost circulation occurs while drilling the 12 ¼" intermediate hole, it may become necessary to set a DV tool in the 9 5/8" casing. The DV tool depth will be based on hole conditions and cement volumes will be adjusted proportionally. If the DV Tool is needed, it will be set a minimum of 50 feet below the previous casing and a minimum of 200 feet above the current shoe.
2. If water flows in the San Andres are encountered, it may become necessary to set a DV tool in the 7" casing. These water flows normally occur in areas where produced water disposal is happening. This dense cement is used to combat water flows. This cement recipe also has a right angle set time and is mixed a little under saturated so the water flow will be absorbed by cement. The DV tool depth will be based on hole conditions and cement volumes will be adjusted proportionally. If the DV tool is needed, it will be set a minimum of 50 feet below the previous casing and a minimum of 200 feet above the current shoe.

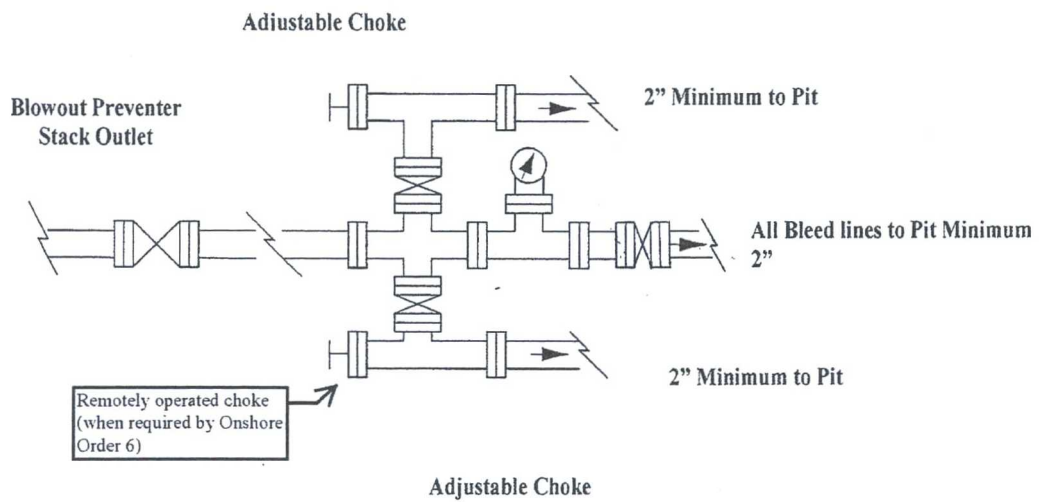
Casing	Bottom MD of Segment	Lead or Tail	Cement Type	Additives	Quantity (Sks)	Yield (cu.ft./sk)	Density (lbs./gal)
Inter. Multi-Stage	+/- 1055'	1 <sup>st</sup> Lead	50:50:10 C: Poz:Gel	5% Salt + 5 pps LCM + 0.25 pps CF	150	2.45	11.8
		1 <sup>st</sup> Tail	Class C	2% Cacl2	200	1.32	14.8
		2 <sup>nd</sup> Lead	50:50:10 C: Poz:Gel	5% Salt + 5 pps LCM + 0.25 pps CF	200	2.45	11.8
Prod. Multi-Stage	+/- 4000'	1 <sup>st</sup> Lead	35:65:6 C:Poz Gel	5% salt+5 pps LCM+0.2% SMS + 1% FL-25+1% BA-58+0.3% FL-52A+ 0.125 pps CF	200	2.01	12.5
		1 <sup>st</sup> Tail	Class C	0.3% R-3 + 1.5% CD-32	1350	1.37	14
		2 <sup>nd</sup> Lead	35:65:6 C:Poz Gel	5% salt + 5 pp LCM + 0.2% SMS + 1% FL-25+ 1% BA-58 + 0.3% FL-52A + 0.125 pps CF	650	2.01	12.5
		2 <sup>nd</sup> Tail	50:50:2 C: PozGel	5% salt + 3 pps LCM + 0.6% SMS + 1% FL-25 + 1% BA-58 + 0.125 pps CF	150	0.99	16.8

# COG Operating LLC

## Exhibit #9

### Choke Schematic

Choke Manifold Requirement (2000 psi WP)



## **NOTES REGARDING THE BLOWOUT PREVENTERS**

### **Master Drilling Plan Eddy County, New Mexico**

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

# Exhibit #10

## 13 5/8" 2K ANNULAR

