

OPERATIONS PLAN

Well Name: Northeast Blanco Unit #58M
Location: 1130' FSL, 1675' FEL, Sec 13, T-31-N, R-7-W
San Juan County, NM
Latitude 36° 53.7, Longitude 107° 31.1
Formation: Blanco Mesaverde/Basin Dakota
Elevation: 6468' GL

<u>Formation Tops:</u>	<u>Top</u>	<u>Bottom</u>	<u>Contents</u>
Surface	San Jose	2370'	
Ojo Alamo	2370'	2500'	aquifer
Kirtland	2500'	2930'	gas
Fruitland	2930'	3295'	gas
Pictured Cliffs	3295'	3510'	gas
Lewis	3510'	4200'	gas
Intermediate TD	3610'		
Mesa Verde	4200'	4595'	gas
Chacra	4595'	5360'	gas
Massive Cliff House	5360'	5400'	gas
Menefee	5400'	5695'	gas
Massive Point Lookout	5695'	6020'	gas
Mancos	6020'	7010'	gas
Gallup	7010'	7730'	gas
Greenhorn	7730'	7790'	gas
Graneros	7790'	7906'	gas
Dakota	7906'		gas
Morrison	8149'		
TD	8200'		

Logging Program:

Cased hole - CBL-CCL-GR - TD to surface
Open hole - IEL-GR, CNL-CDL- TD to intermediate casing
Array Induction, CDL/CNL - intermediate TD to 2500'
Cores - none
Mudlog - 6000' to TD

Mud Program:

<u>Interval</u>	<u>Type</u>	<u>Weight</u>	<u>Vis.</u>	<u>Fluid Loss</u>
0- 200'	Spud	8.4-9.0	40-50	no control
200- 3610'	LSND	8.4-9.0	30-60	no control
3610- 7856'	Air/N2	n/a	n/a	n/a
7856- 8200'	LSND	8.4-9.0	30-60	no control

Pit levels will be visually monitored to detect gain or loss of fluid control.

Casing Program (as listed, the equivalent, or better):

<u>Hole Size</u>	<u>Depth Interval</u>	<u>Csg. Size</u>	<u>Wt.</u>	<u>Grade</u>
12 1/4"	0' - 200'	9 5/8"	32.3#	H-40
8 3/4"	0' - 3610'	7"	20.0#	J-55
6 1/4"	3510' - 8200'	4 1/2"	10.5#	J-55

Tubing Program:

0' - 8200' 2 3/8" 4.7# J-55

BOP Specifications, Wellhead and Tests:

Surface to Intermediate TD -

11" 3000 psi minimum double gate BOP stack (Reference Figure #1).
After nipple-up prior to drilling out surface casing, rams and casing will be tested to 600 psi for 30 minutes.

Intermediate TD to Total Depth -

11" 3000 psi minimum double gate BOP stack (Reference Figure #1).
After nipple-up prior to drilling out intermediate casing, rams and casing will be tested to 1500 psi for 30 minutes.

Surface to Total Depth -

2" nominal, 3000 psi minimum choke manifold (Reference Figure #3).

Completion Operations -

7 1/16" 3000 psi double gate BOP stack (Reference Figure #2).
After nipple-up prior to completion, pipe rams, casing and liner top will be tested to 2000 psi for 15 minutes.

Wellhead -

9 5/8" x 7" x 2 3/8" x 3000 psi tree assembly.

General -

- Pipe rams will be actuated once each day and blind rams will be actuated once each trip to test proper functioning.
- An upper kelly cock valve with handle available and drill string valves to fit each drill string will be available on the rig floors at all times.
- BOP pit level drill will be conducted weekly for each drilling crew.
- All BOP tests and drills will be recorded in daily drilling reports.
- Blind and pipe rams will be equipped with extension hand wheels.

Cementing:

9 5/8" surface casing - cement with 159 sx Class "B" cement with 1/4# celloflake/sx and 3% calcium chloride (188 cu.ft. of slurry, 200% excess to circulate to surface). WOC 8 hrs. Test casing to 600 psi for 30 minutes.

Saw tooth guide shoe on bottom. Bowspring centralizers will be run in accordance with Onshore Order #2.

7" intermediate casing -

Lead w/376 sx 50/50 Class G/TXI lightweight w/2.5% sodium metasilicate, 2% calcium chloride, 10# gilsonite/sx and 1/2# celloflake/sx. Tail w/90 sx 50/50 Class "G" Poz w/2% calcium chloride, 2% gel, 1/4 pps celloflake, 5 pps gilsonite, 0.1% antifoam agent (1085 cu.ft. of slurry, 100% excess to circulate to surface.) WOC minimum of 8 hours before drilling out intermediate casing. If cement does not circulate to surface, a CBL will be run during completion operations to determine TOC. Test casing to 1500 psi for 30 minutes.

See attached alternative intermediate lead slurry.

7" intermediate casing alternative two stage: Stage collar at 2830'. First stage: cement with 183 sx 50/50 Class "G" Poz w/2% calcium chloride, 2% gel, 1/4 pps celloflake, 5 pps gilsonite, 0.1% antifoam agent. Second stage: 330 sx 50/50 Class G/TXI lightweight w/2.5% sodium metasilicate, 2% calcium chloride, 10# gilsonite/sx and 1/2# celloflake/sx (1085 cu.ft., 100% excess to circulate to surface).

Cement nose guide shoe on bottom with float collar spaced on top of shoe joint. Bowspring centralizers spaced every other joint off bottom, to the base of the Ojo Alamo at 2500'. Two turbolating centralizers at the base of the Ojo Alamo at 2500'. Bowspring centralizers spaced every fourth joint from the base of the Ojo Alamo to the base of the surface casing.

4 1/2" Production Casing -

Cement to cover minimum of 100' of 4 1/2" x 7" overlap. Lead with 468 sx 50/50 Class "G" Poz with 5% gel, 0.25# celloflake/sx, 5# gilsonite/sx, 0.1% retardant and 0.25% fluid loss additive, 0.15% dispersant, 0.1% antifoam agent (674 cu.ft.), 40% excess to cement 4 1/2" x 7" overlap). WOC a minimum of 18 hrs prior to completing.

4 1/2" production casing alternative: Lead w/184 sx 9.5 PPG Litecrete Blend w/0.11% dispersant, 0.5% fluid loss. Tail w/180 sx Class G 50/50 poz w/5% gel, 0.25 pps celloflake, 5 pps gilsonite, 0.25% fluid loss, 0.15% dispersant, 0.1% retarder, 0.1% antifoam (721 cu.ft., 50% excess to cement 4 1/2" x 7" overlap).

Note: If open hole logs are run, cement volumes will be based on 25% excess over caliper volumes.

Cement float shoe on bottom with float collar spaced on top of float shoe.

Note: To facilitate higher hydraulic stimulation completion work, no liner hanger will be used. In its place, a long string of 4 1/2" casing will be run and cemented with a minimum of 100' of cement overlap between the 4 1/2" x 7" casing strings. After completion of the well, a 4 1/2" retrievable bridge plug will be set below the top of cement in the 4 1/2" x 7" overlap. The 4 1/2" casing will then be backed off above the top of cement in the 4 1/2" x 7" overlap and laid down. The 4 1/2" bridge plug will then be retrieved and the production tubing will be run to produce the well.

- If hole conditions permit, an adequate water spacer will be pumped ahead of each cement job to prevent cement/ mud contamination or cement hydration.

Special Drilling Operations (Gas/Mist Drilling):

The following equipment will be operational while gas/mist drilling:

- An anchored blooie line will be utilized to discharge all cuttings and circulating medium to the blow pit a minimum of 100' from the wellhead.
- The blooie line will be equipped with an automatic igniter or pilot light.
- Compressors will be located a minimum of 100' from the wellhead in the opposite direction from the blooie line.
- Engines will have spark arresters or water cooled exhaust.
- Deduster equipment will be utilized.
- The rotating head will be properly lubricated and maintained.
- A float valve will be utilized above the bit.
- Mud circulating equipment, water, and mud materials will be sufficient to maintain control of the well.

Additional Information:

- The Dakota and Mesa Verde formations will be completed and commingled.
- No abnormal temperatures or hazards are anticipated.
- Anticipated pore pressures are as follows:

Fruitland Coal	300 psi
Pictured Cliffs	600 psi
Mesa Verde	700 psi
Dakota	2500 psi
- Sufficient LCM will be added to the mud system to maintain well control, if lost circulation is encountered.
- The east half of Section 13 is dedicated to the Mesa Verde and Dakota in this well.
- This gas is dedicated.

Bennan D. Short
Drilling Engineer

8/29/01
Date

Alternative Intermediate Lead Slurry

Dowell-

Class G: D49(50:50) w/ 2.5% D79, 2% S1, 10pps D24, .5pps D29, .2%D46

where: D49-TXI Light weight Cement
D79-Sodium Metasilicate
S1-Calcium Chloride
D24-Gilsonite
D46-Antifoam Agent

Properties-

Density:11.4 lb/gal
Yield:2.58 cu ft./sk
Water:14.55 gal/sk
Thick Time 70 b.c.(deg F): 4:06(101)
Free Water:0
Fluid Loss:462ml/30 min
CS(crush)@24hr:394
CS(crush)@48hr:550

Halliburton-

Class H 47#/sk, 37#/sk Blended Silicalite, 3% Bentonite, 4% Calcium Chloride

Properties-

Density:11.4 lb/gal
Yield:2.42 cu.ft./sk
Water:14.02 gal/sk
Thick Time(70 bc): 11:00+
Fluid Loss: 702 cc/30min
Free Water: 0%
Compressive Strength (@25:19) :500
Compressive Strength (@48:00) :630