UNITED STATES

DEFARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

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5. Lease Number SF-079045
 If Indian, All. or Tribe Name
7. Unit Agreement Name Northeast Blanco Unit
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8. Well Name & Number
Northeast Blanco U #5 9. API Well No.
30-045-30282 10. Field and Pool
Blanco MV/Basin DK 11. County and State San Juan Co, NM
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OPERATIONS PLAN

Well Name: Northeast Blanco Unit #57M

Location: 660'FSL, 1980'FEL, Sec 21, T-31-N, R-7-W

San Juan County, NM

Latitude 36° 52.8, Longitude 107° 34.4

Formation: Blanco Mesaverde/Basin Dakota

Elevation: 6379'GL

Formation Tops:	Top	Bottom	Contents
Surface	San Jose	2206'	
Ojo Alamo	2206'	2311 ′	aquifer
Kirtland	2311 ′	2781 '	gas
Fruitland	2781'	3141'	gas
Pictured Cliffs	3141'	3341'	gas
Lewis	3341'	4021'	gas
Intermediate TD	3441'		
Mesa Verde	4021'	4441"	gas
Chacra	4441'	5211 ′	gas
Massive Cliff House	5211'	5241'	gas
Menefee	5241'	5521 ′	gas
Massive Point Lookout	5521'	5856'	gas
Mancos	5856 ′	6841 '	gas
Gallup	6841 '	7581 ′	gas
Greenhorn	7581'	7621'	gas
Graneros	7621'	7802'	gas
Dakota	7802 '	8012'	gas
Morrison	8012 '		
TD	י0508		

Logging Program:

Cased hole - CBL-CCL-GR - TD to surface
Open hole - Array Induction, Neutron-Density - TD to 2300'
DIL/GR, CNL/CDL - TD to intermediate casing
Mudlog - 7000' to TD
Cores - none

Mud Program:

Interval	Туре	Weight	Vis.	Fluid Loss
0- 200'	Spud	8.4-9.0	40-50	no control
200- 3441'	LSND	8.4-9.0	30-60	no control
3441- 7752'	Air/N2	n/a	n/a	n/a
7 752- 8050'	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):

Hole Size	Depth Interval	Csg.Size	<u>Wt.</u>	Grade
12 1/4"	0' - 200'	9 5/8"	32.3#	H-40
8 3/4"	0' - 3441'	7 "	20.0#	J-55
6 1/4"	3341' - 8050'	4 1/2"	10.5#	J-55

Tubing Program:

0' - 8050' 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/356 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 (1034 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 2681'. First stage: cement with 178 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: 312 sx 50/50 Class G/TXI lightweight w/2.5% sodium metasilicate, 2% calcium chloride, 10# gilsonite/sx and 1/2# celloflake/sx (1034 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 2311'. Two turbolating centralizers at the base of the Ojo Alamo at 2311'. 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 470 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 (676
 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/181 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 (724 cu.ft., 50% excess to cement 4 ½" 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 21 is dedicated to the Mesa Verde and Dakota in this well.
- This gas is dedicated.

Drilling Engineer

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