

## Drilling Procedure

Hat Mesa #2 1980' FWL & 1980' FNL, Sec. 3, T-21S, R-32 E  
Lea County, New Mexico, Hat Mesa Morrow Field

Conductor Pipe: 16" conductor pipe will be set at 40' + with a rathole machine and cemented to the bottom of the cellar with ready-mix cement.

Surface Casing: 11-3/4" casing will be set @ 450' in a 15' hole. The drilling fluid will be a fresh water gel spud mud, 8.5 ppg., 40-50 viscosity. LCM may be used if circulation is lost. If LCM is used and circulation is not gained, the hole may be dry drilled to casing point. The casing will be 11-3/4", 42#/ft, H-40, ST&C run with a guide shoe, insert float and three centralizers. The casing is to be cemented to surface with 320 sx. Class "C" + 2% CaCl<sub>2</sub>, 14.8 ppg., 1.32 ft<sup>3</sup>/sx, 100% excess.

Nipple Up: The casing head will be 11-3/4" SW x 12" 3000 WP. Minimum BOP is two hydraulic operated rams 10" 3000 WP BEPCO II (attached). Pressure test stack, choke manifold, and surface casing to 1000 psi before drilling out.

Bottom Hole Assembly's: The suggested BHA for the 11" Intermediate hole should consist of the following:

- A. Stabilizer above bit
- B. 10' short drill collar
- C. Stabilizer
- D. Remaining drill collars & drill pipe

The suggested BHA for the 7-7/8" Production hole should consist of the following:

- A. 6 point reamer above bit
- B. 10' short drill collar
- C. One stabilizer
- D. 30' drill collar
- E. One stabilizer
- F. Remaining drill collars & drill pipe

Intermediate Casing: 8-5/8" casing will be set @ 5800' in an 11" hole. The drilling fluid will be 10 ppg. Brine Water, 9 + Ph. From 3300' to 5800', viscosity should be maintained between 34-37 sec. with salt gel. Loss circulation is expected in the Capitan Reef (3550'). Ground paper has been a successful LCM for seepage losses. Gross losses usually result in dry drilling. A caliper survey should be run to determine the required cement volume.

### 8-5/8" Casing Design for 5800'

<u>Segment No.</u>	<u>Grade</u>	<u>Joints</u>	<u>Weight</u>	<u>Length</u>	<u>Top</u>	<u>Bottom</u>
1	S-80*	5	32	1120'	4680'	5800'
2	K-55*	5	32	2060'	2620'	4680'
3	S-80*	5	28	2620'	0'	2620'

\* Special Drift for 7-7/8" Bit.

The 8-5/8" casing will be run with a float shoe, float collar, DV tool, and two cement baskets. Centralizers should be run on the bottom three joints, the two joints with cement baskets and one just above the DV tool. The float collar should be one joint above the shoe and the baskets should be on the 2 joints below the DV tool. The DV tool should be run at the top of the salt (3250' approx.). The first stage cement will be about 400 sx. Halco "light" + 3 lb/sx Gilsonite + 1/4#/sx floccel, 12.9 ppg, 1.97 ft<sup>3</sup>/sx tailed with 200 sx Class "C" + 2% CaCl<sub>2</sub>, 14.8 ppg, 1.32 ft<sup>3</sup>/sx. The second stage cement will be about 550 sx. Halco "light" + 3#/sx. Gilsonite + 1/4#/sx floccel + 15#/sx salt + 1% CaCl<sub>2</sub>, 13.2 ppg., 1.96 ft<sup>3</sup>/sx. Tailed with 100 sx Class "C" + 2% CaCl<sub>2</sub>, 14.8 ppg., 1.32 ft<sup>3</sup>/sx. Displace cement with fresh water. While running casing assure that casing is full at least every 400'.

Nipple UP: The BOP's should be removed and the 11-3/4" head should be cut off & removed. An 8-5/8" SW x 10" 5000 WP casing head will be welded on the 8-5/8" casing. The 8-5/8" above the 11-3/4" cut off should be as short as possible. Cement should stand to the 11-3/4" cut off. (A few sacks should be left on the ground to grout