

DRILLING PROCEDURE

April 12, 1978

BIG EDDY UNIT NO. 61 (13,250')
1980' FSL, 1980' FWL, Sec 15, T21S, R29E
Eddy County, New Mexico

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

Surface Casing: A 15" hole will be drilled to 400' with a fresh water gel spud mud, 8.5 ppg, 40-50 viscosity. Loss circulation material will be used if circulation is lost. It may be necessary to dry drill. 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 290 sx Class "C" + 2% CaCl₂, 14.8 ppg, 1.32 ft³/sk, 100% excess.

Nipple Up: The casing head will be an 11-3/4" x 12", 3000 WP. Minimum BOPE is 2 hydraulic operated rams 10", 3000 WP, BEPCO II (attached). Pressure test stack, choke manifold, and surface casing to 1000 psi before drilling out.

Intermediate Casing: An 11" hole will be drilled to ±3250' (T/Delaware) with 10 ppg brine water with a 9+ pH. Viscosity should be maintained between 34-37 sec with salt gel. Loss circulation may occur around 1000' to 3250'. If loss circulation occurs, ground paper may be added as needed. 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 3250'

0-2472	2472'	24#/ft	K-55	ST&C
2472-3250	778'	32#/ft	K-55	ST&C

The casing will be run with dual float equipment and centralizers on bottom 3 joints. The casing will be cemented in two stages as follows: A DV tool will be set at ±800' with 2 centralizers and 2 cement baskets below DV tool.

1st Stage: Cement with approx 475 sx Hallco Lite with 2% CaCl₂, 1/4#/sk Floeal. Tail with 200 sx Class "C" with 2% CaCl₂. WOC 4 hours.

2nd Stage: Cement with approx 150 sx Hallco Lite with 2% CaCl₂ and 1/4#/sk Floeal. Tail with 100 sx Class "C" with 2% CaCl₂.

Nipple Up: The BOP's should be removed and the 11-3/4" head should be cut off and removed. A 10", 5000 WP casing head will be welded on the 8-5/8". 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 between the 8-5/8" and 11-3/4" if it is not full. Nipple up blowout preventers as per BEPCO IV (attached).

Production Hole: A 7-7/8" hole will be drilled from ±3250' to TD. The drilling fluid will be fresh water lime, 9+ pH to 11000; 10# brine + 3% KCl + lime + pH to 13000; 10# to 10.2# brine + 3% KCl + Drispac 32-34 vis, 9+ pH, < 10 cc WL to TD. A mud-gas separator and rotating head should be installed before reaching 10000'.