

APPLICATION FOR DRILLING

Diamond Mound Federal Well No. 2

Page 2

install 12" API 3000 psi WP BOP stack (consisting of 1 pipe ram, 1 blind ram, 1 bag type BOP) to drill 7-7/8" production hole.

Production: 9000' of 4½" 11.6# K-55 LT&C new casing cemented with sufficient volume (estimated 700 sx) to cover all pay. Cement will be Class "H" with 0.5% fluid loss additive and 5# KCL.

Choke, kill, and fill lines are indicated in Exhibit VI. BOPs will be tested with rig pumps prior to drilling below 8-5/8" casing shoe. BOPs will be tested again by independent concern prior to reaching 6000'. BOPs will be worked once each day, with blind rams worked only on trips.

5. Circulating Medium and Control Equipment:

0-350' Drill 17½" hole with fresh water spud mud, while circulating through a small portion of the plastic lined reserve pit. Mud weight 8.6-9.2 PPG with 45-85 viscosity.

350'-1700' Drill 11" hole with brine water and periodically "sweep" hole with higher viscosity pills. Saturated brine is necessary to prevent leaching salt sections and encouraging hole enlargement. Circulate through a controlled portion of lined reserve pit. Mud weight 9.8-10.1 PPG with 28-32 viscosity.

1700'-9000' Drill 7-7/8" hole with fresh water while circulating through reserve pit. Will attempt to drill to 8000' using water with some lost circulation materials, however, may have to mud up with gel-polymer system at approximately 5000' if losses are too high. Will drill from 8000'-9000' with gel-polymer system. Maximum mud weight 9.2-9.5 with 40-45 viscosity.

A full opening safety valve, to fit the drill string in use, will be kept on the rig floor at all times. Kelly cock, safety valve, choke and kill lines will be tested at same time that BOP tests are run. A float will be run in the drill string just above the bit to further aid in safety.

6. There is no coring program planned for this well. It is possible that a drillstem test will be run in the Strawn (8200'-8400') and Morrow (8550'-8650'). The logging program will consist of a gamma ray log from total depth to surface. Neutron-density-caliper and dual induction logs will be run from 1600' to total depth.
7. Maximum anticipated bottom hole pressure is 3300 psi at approximately 8500' based on offset well data. Mud weight required to offset this pressure is 7.5 PPG. Maximum bottom hole temperature should approach 130° F. No sour gas is expected.
8. Anticipated starting date is April 14, 1978, with completion of drilling operations on May 14, 1978. Completion operations (perforating and stimulating) will immediately follow the drilling operations.