



# Southwestern Drilling Mud Service, Inc.

P. O. BOX 2477 • 915 683-2801 24 HR.  
MIDLAND, TEXAS 79702

## Discussion of Recommendations (continued)

Viscous Sea Mud pills should be used periodically to provide good hole cleaning. These pills should also be used prior to running any test, logs or casing.

### INTERVAL 12,000-14,300'

After drilling out cement and shoe with existing brine water fluid, displace hole with pre-mixed fresh water mud weighing - 10.5 lb/gal. This mud can be pre-mixed during the 8-1/2" hole and stored on location in 500 bbl. tanks.

We recommend using a Fresh Water Gel and CMC mud system. This system will provide the best overall performance in terms of drilling performance and mud costs of the various systems available. This is a stable mud system and will be much easier to maintain than any other type of system.

Based on the Penroc well, mud weight requirements in this interval should be between 12 and 13 lb/gal. However, other offset wells in the area have used between 14 and 16 lb/gal. mud in this interval. Based on this information, we would recommend weighting up to 12 lb/gal immediately after displacement. Then, closely monitor all available pressure detection methods and allow the hole to dictate any mud weight changes.

While drilling, the mud system should be maintained with daily treatments of Fresh Water Gel, CMC, Caustic Soda and OS-12 (oxygen scavenger). Also, the use of small amounts of Desco and Super Treat is recommended to aid in controlling filtration and rheological properties.

Loss of circulation was not experienced in the Penroc well but all other offsets did have some problems with loss of circulation. The attached page of Lost Circulation Procedures, discusses methods of controlling any losses in this section.

The abnormal pressures anticipated in this interval will require the use of the following special equipment:

- 1) Bulk barite tanks
- 2) Mud-Gas Separator
- 3) Degasser
- 4) PVT sensor system
- 5) Flo-Sho sensor
- 6) 5 to 10,000 psi remote adjustable choke

We would recommend that this equipment be on location and operable prior to setting 7-5/8" protective casing.