APD - South Mattix Unit Federal #45 Page 2

9. The proposed casing program is as follows:

 Surface:
 13-3/8" 48# H40 ST&C new casing set at 300'

 Intermediate:
 8-5/8" 32# K55 ST&C new casing from 0-1100'

 Production:
 5-1/2" 17# L80 LT&C new casing from 0-6500'

 DV Tool @ 3500'

10. Casing setting depth and cementing program:

- A. 13-3/8" surface casing set at 300' in 17-1/2" hole. Circulate cement with 390sx Premium Plus cement w/ 2% CaCl₂. If cement does not circulate, a temperature survey will be run to find the TOC and then finish cementing to surface through 1" using Class C with 2% CaCl₂.
- B. 8-5/8" intermediate casing set at 1100' in 11" hole. Circulate cement with 525sx Premium Plus cement w/ 4% Gel + 2% CaCl₂ + .25#/sx Flocele followed by 200sx Premium Plus cement w/ 2% CaCl₂ + .25#/sx Flocele.

If cement does not circulate, a temperature survey will be run to find the TOC and then finish cementing to surface through 1" using Class C with 2% CaCl₂.

- Note: Cement volumes may be adjusted according to fluid caliper.
- C. 5-1/2" production casing set at 6500'. Circulate cement 1st stage-285sx Interfill C cement followed by 395sx Premium Plus Cement with .3% CFR-3 + .3% D-AIR-1 + .4% LAP-1. 2nd stage-240sx Interfill C cement followed by 395sx Premium Plus Cement with 2% CaCl₂.

Note: Cement volumes may need to be adjusted to hole caliper.

11. Pressure Control Equipment

- 0' 300' None
- 300' 1100' 11" 5M blind and pipe with 5M annular preventer.
- 1100' 6500' 11" 5000# ram type preventers with one set blind rams and one set pipe rams and a 5000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head below 5300'. Exhibit A.

A kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.