

Cementing Procedure on Production Casing:

The production string will be cemented to surface in two stages with a DV tool or (Halliburton Multiple Stage Cementer) set at 2370'. The first stage will consist of a 270 sx. slurry of Class "C" + 2%  $\text{CaCl}_2$ , 14.8 ppg, 1.32 ft.<sup>3</sup>/sx. When all the cement is mixed and in the casing, release bottom shutoff plug for stage job. Pump until sharp pressure increase is noted indicating plug has bumped. Drop bomb, waiting calculated time until seated, and pressure to open ports on stage tool open. Circulate out any excess cement around the stage tool. One and half circulations should be adequate. Wait at least four hours for cement to gain initial strength. Mix and pump second stage consisting of 490 sacks of Class "C" + 2%  $\text{CaCl}_2$ , 14.8 ppg, 1.32 ft.<sup>3</sup>/sx. Volumes may be re-evaluated for these two stages after reviewing the caliper log. All volumes were based on a 7-7/8" hole enlarged to a nine and half inch hole. After all cement is in the casing, release top closing plug and follow with three barrels of cement. Pump until sharp increase is noted indicating plug has bumped. Hold pressure on DV tool for 5-6 minutes and then release to make sure stage tool holds. A period of 18 hrs. should be allowed for setting of the cement.