

## CEMENTING PROGRAM

### Surface Casing:

Cement with 500 sacks of Class "C" with 2% CaCl<sub>2</sub>. The required pump time is 90 minutes at a bottom hole temperature of 70 degrees F. The minimum waiting time on the cement is 12 hours. The recommended pump rate is 8 BPM.

Cement Properties:	Slurry Weight.....	14.8 ppg
	Slurry Yield .....	1.34 cu-ft/sx

The cement must circulate to surface per BLM specifications. If the cement does not circulate, run a temperature survey six to eight hours after cementing. Record the top of cement and call the BLM office in Carlsbad at (505) 887-6544 and the Texaco Denver Division office for proper procedure to bring cement to surface. Remedial cementing will be completed prior to resuming drilling operations. Normal procedure is to run one inch tubing down the annulus to the top of cement and circulate additional cement to surface.

### First Intermediate Casing:

lb/sx Cement with 1200 sacks of 35/65 pozmix Class "H" with 6% gel, 5% salt, 1/4 cellophane flakes followed by 100 sacks of Class "H" neat. The required pump time 165 minutes at 100 degrees F. The minimum waiting time on the cement is 12 hours. The recommended pump rate is 8 BPM.

Cement Properties:	Slurry Weight (lead)	12.8 ppg
	(tail)	15.6 ppg
	Slurry Yield (lead)	1.94 cu-ft/sx
	(tail)	1.18 cu-ft/sx

The cement volume is based on the 11" by 8-5/8" annular volume plus 100% excess and 11-3/4" by 8-5/8" annular volume plus 13% excess. Cement is designed to circulate to surface. If the cement does not circulate, run a temperature survey six to eight hours after cementing. **The casing slips will not be set until the top of cement is determined. Consult with the Denver Division office for additional weight to be set on slips. Note weight of casing as cemented.**

No immediate remedial action is required in the event cement does not circulate. The BLM would perfor 100' of cement tie back into the surface casing. Remedial action would be required if pressure were to develop between the 11-3/4" and the 8-5/8" casing strings.