Drilling tutorial

Fluids management

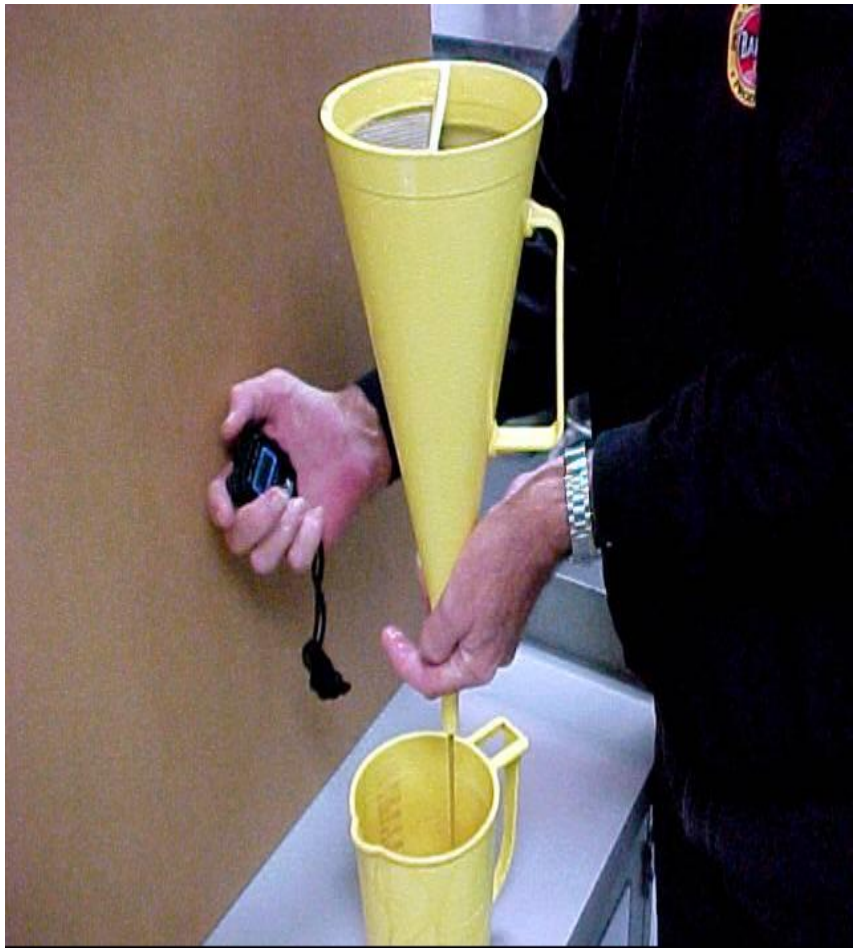
Parameters for Drilling Fluids

- Density of drilling mud keep under 9lbs /gal

- Grout density- same coming out of the hole as leaving the grouter +/- .2 lbs/gal

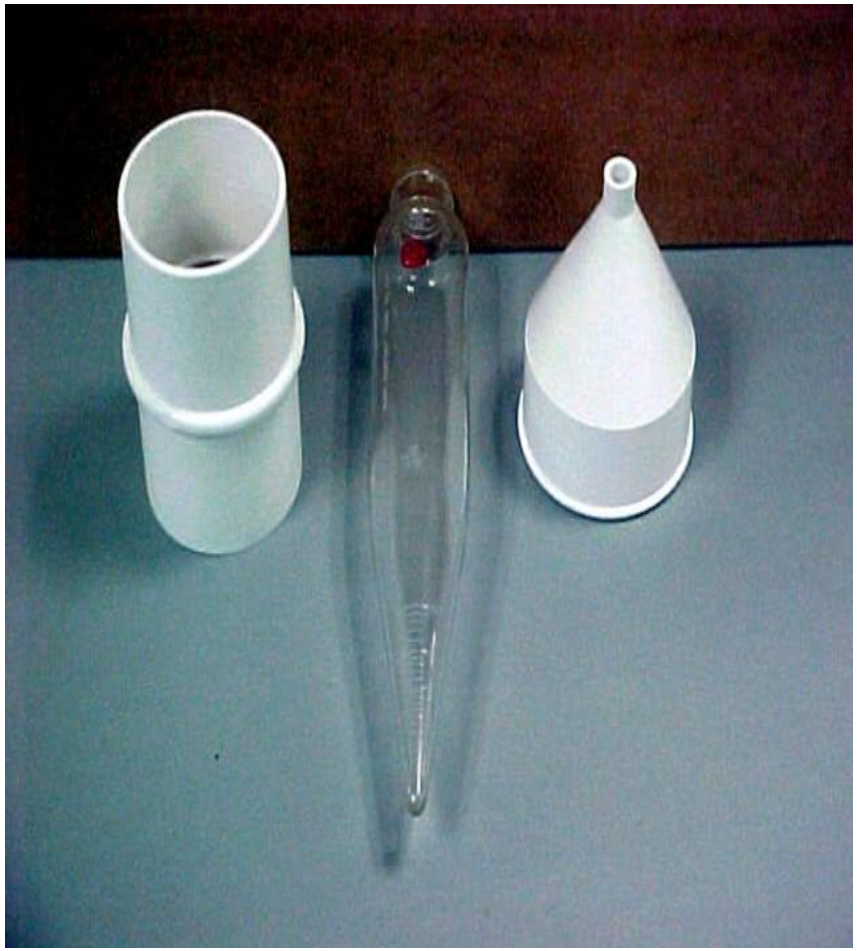
Fluid Control

- Soda Ash- ¼- ¾ lb per 100 gallons of mud
- Bentonite mixed for estimated borehole volumes
- Polymers for filtrate control ¼- ¾ lbs per 100 gallons of mud
- Viscosity maintained below 40 second mud.



Fluid Properties

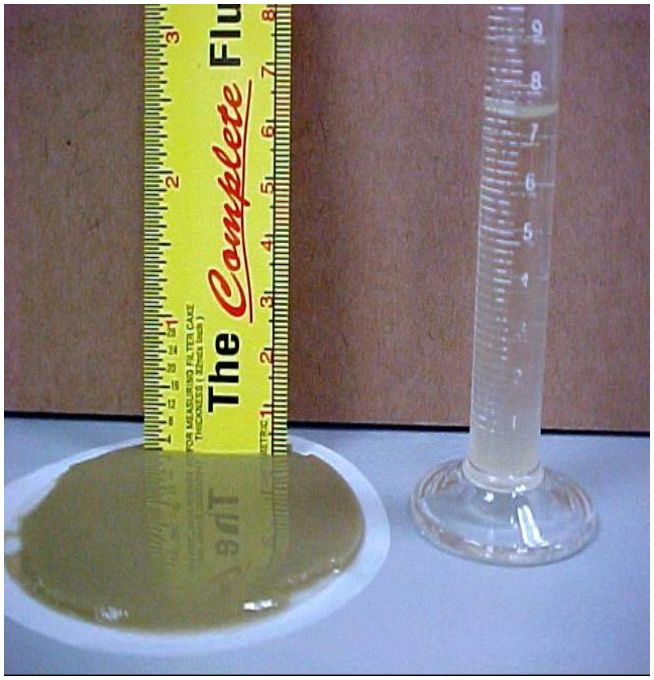
- Keep entrained sand content kept below 2.5-3%
- Higher sand content raised Density (weight)
- Increase fluid loss to formation(Filtrate)
- Compromises wall cake



Solids control

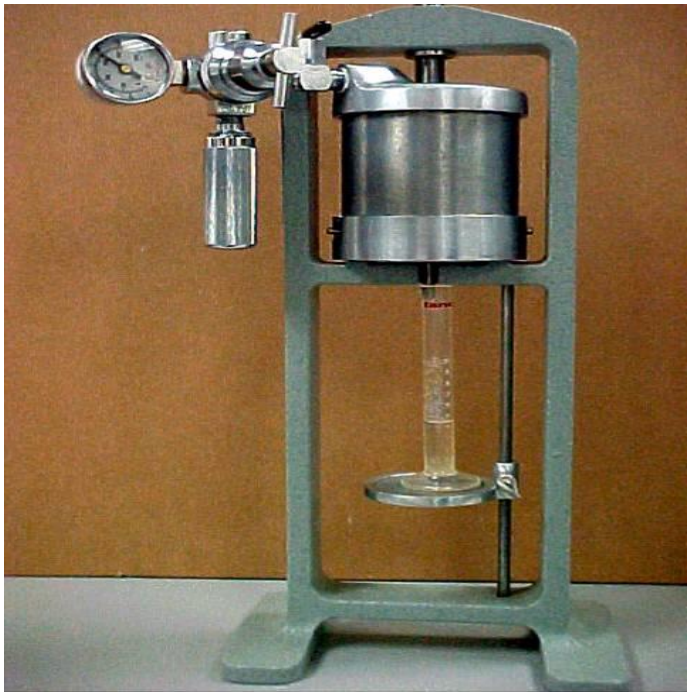
Fluids control

Wall Cake & Filtrate



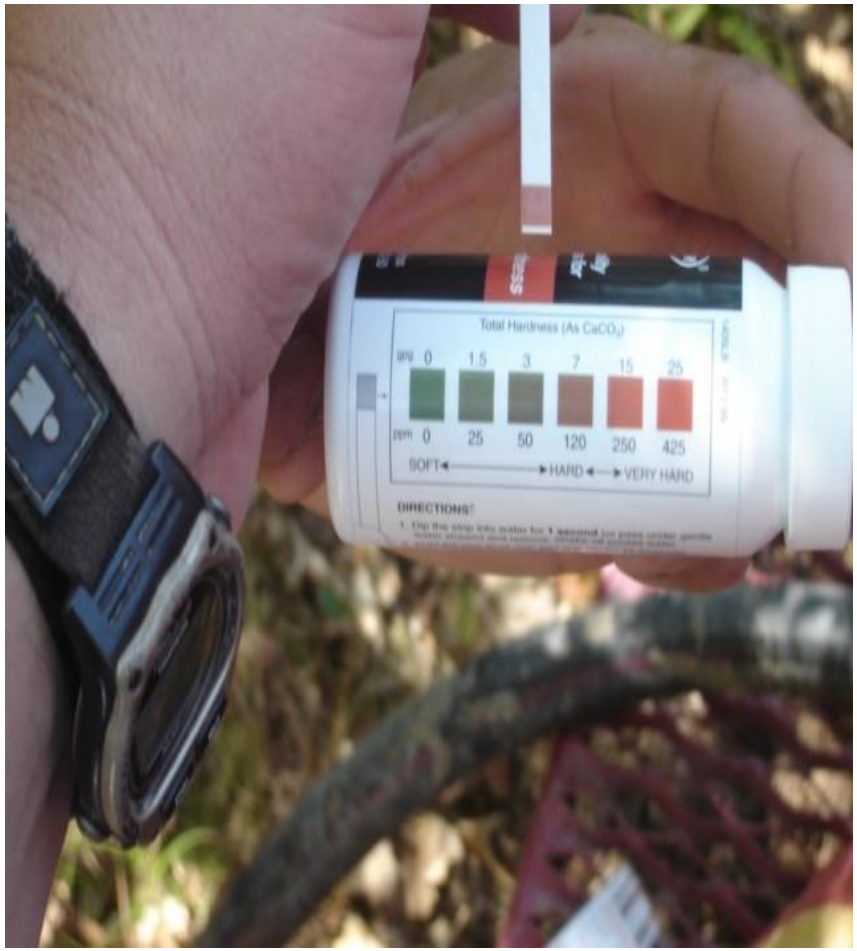
Filter Press

- Rate of fluid loss



Fluids control

- Make up water
- drilling fluid/grout slurries
- pH monitored 8.5-9.5
- Calcium < 100 PPM
- Chlorides < 500 PPM
- Chlorine < 50 PPM



Fluid control

- Supplemental drilling fluid reserve…
- Use when refilling pit- fresh water degrade fluid properties.
- Mud Viscosity- 32-38 sec per quart
- Clear Water Viscosity- 26 sec per quart