Job execution / Case study

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Acid resistance cements

- Latex cement (Portland based cement)
  - Gas migration control
  - Low fluid loss
  - Bottomhole circulation temperatures of 60 to 400 °F

- Calcium aluminate phosphate cement
  - CO2 resistant at high concentrations
  - Thermally stable
  - Right angle set
  - No shrinkage
  - High strength development
Equipment Requirements

- **Latex cement**
  - Batch mixer (For liquids and cement slurry)
  - Online injection pump for liquid retarder

- **Calcium aluminate phosphate cement**
  - Dedicated bulk plant and equipment (Hoses and implements)
  - Bath mixer and pumps (Neutralized)
  - Plastic tanks or with plastic linings or polyurethane
Case Study

Job Objective
- Provide zonal isolation to 13 3/8” casing inside 17 ½” hole at 795’ depth with conventional cementing method.

Calcium Aluminate Phosphate Cement
- 13.0 lb./gal lead cement
- 15.3 lb./gal tail cement
- 70% excess on open hole
Conclusions

Job Execution
- On site consistency testing to ensure appropriate thickening time
- Rig up to ensure slurry density consistency
- Use of organic acid water for spacers and blending
- Slow rates after spacers return to surface
- Over displace to ensure no cement on drill pipe

Results
- Good cement returned to surface at desired density
- Need of top Job after waiting on cement
Lessons Learned

- **Job Execution**
  - Rate could be decreased more according thickening time results
  - Density was controlled as designed

- **Top Job**
  - No organic acid retarded used for top cement Job
  - Rig hands were warned about the fast setting cement
Questions?