



# Cement Pulsation

## Improve Zonal Isolation with Surface Pressure Pulses

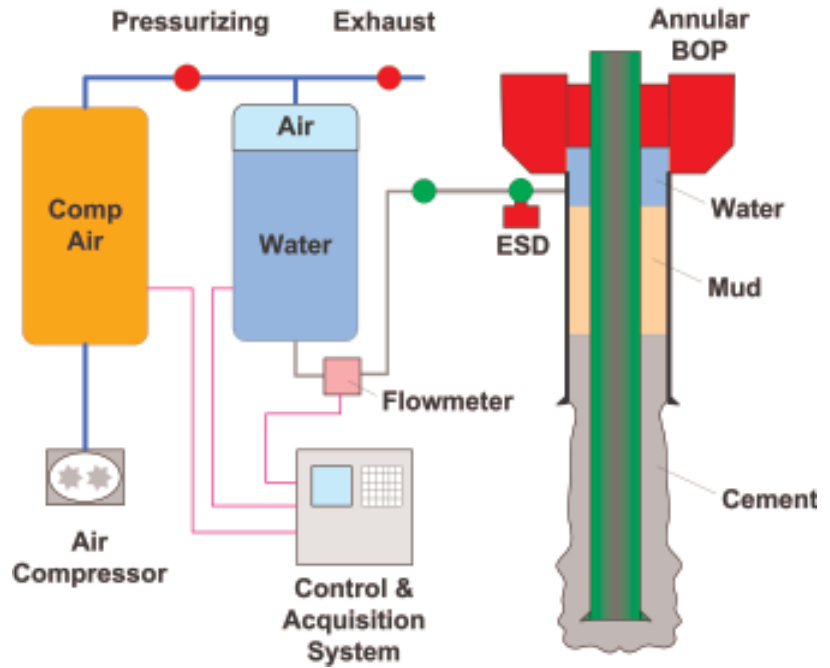


Cement pulsation is the application of low-intensity pressure pulses to the annulus after a primary cement job to break the gel strength development in the cement slurry. Gel strength of the cement causes a lowering of the hydrostatic pressure transmitted through the annulus. By breaking the gel strength, the hydrostatic pressure on the formation is maintained until the cement has built sufficient strength to prevent the influx of reservoir fluids through the cement matrix.

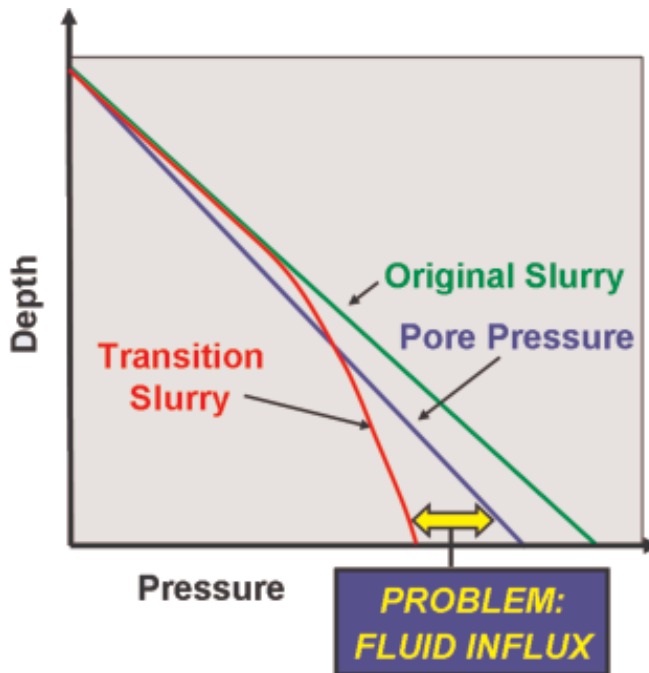
- *Simple, cost effective solution to control fluid migration*
- *Eliminate remedial squeeze jobs*
- *Prevent annular casing pressure*
- *Provides real-time indication of the cement curing process*
- *Improved cement logs*
- *No adverse affects on the cement properties*

## FIELD OPERATION

The patented cement pulsation process starts immediately after cement pumping stops and the annular BOP is closed. Low-pressure pulses, typically in the range of 80 to 200 PSI, are applied to the casing annulus at a time interval of 30 to 60 seconds. Pulsing continues until the compressible volume levels-off or the laboratory thickening time indicates the cement has reached 70 Bc, usually in 4 to 6 hours.



Cement Pulsation Schematic



## Equipment Specifications

- 9' L x 6' W x 8' H
- Weight: 5,300 lbs
- Process Control
- 2 Tanks (ASME)
  - 200 gallon
  - 200 psi working pressure
- Sensors
  - water level
  - annulus pressure
  - air tanks pressure
  - discharge flow

## Hydrostatic Head Reduction During Cement Setting Process

This cement pulsation technology was developed with the assistance of Gas Research Institute.