Five new techniques improve production/drilling operations

Including a U.S. DOE-supported program zoning in on the efficiency of sucker rod pumping wells, three downhole systems for fluid lifting problems, well/reservoir testing, and maintenance/repair, plus a better way to handle drilling mud, the following review of five field-tested technologies gives valuable options for several persistent operating problems. These new techniques summarize concepts and case histories of: 1) How Oxy USA improved five field wells for a pumping unit “Motor Challenge” project; 2) Using capillary tubing to inject chemicals to alleviate unwanted downhole fluid/solid buildup; 3) A pressure-activated sealant for downhole leaks; 4) Application of a new, programmable downhole valve for well/reservoir testing; and 5) Mud tank mixers that can be adapted to the shape of any vessel...

Pressure-activated sealant cures downhole leaks

Pressure leaks in a wellhead, downhole tubulars, or other equipment can lead to ineptitude, subsurface safety valves, casing pressure, environmental pollution, loss of production and, in extreme cases, blowouts. It is policy of most operating companies and governmental regulators that pressure leaks in surface-controlled, subsurface safety valves (SCSSVs), tubulars or other downhole equipment must be cured or alleviated. Regulations generally prescribe that operational capabilities of SCSSVs be tested, sustained casing pressure reported and Wells subject to pressure leaks be shut in until the leak is cured or alleviated.

A major component of the repair cost of such leaks is mobilizing expensive equipment and numerous personnel to the well location. There are separate, intangible costs associated with the risks of wellhead and downhole operations. These risks include personnel injury, environmental/wellbore damage, the risk of not being able to re-establish production...

Concept of liquid sealant reaction sequence in response to pressure differential at the leak site.