Halliburton Introduces Technology to Control Fracture Face Damage and Help Improve Production from Unconventional Reservoirs

September 25, 2006

HOUSTON--(BUSINESS WIRE)--Sept. 25, 2006--Halliburton's (NYSE:HAL) Production Optimization Division has added a breakthrough technology to its suite of stimulation products, GasPerm 1000(SM) service. GasPerm 1000 service helps improve production from unconventional reservoirs including tight gas, shales and coalbed methane. Based on a newly developed microemulsion surfactant, the service helps remove water drawn into the formation during the fracturing process. Removing the water can improve permeability to gas at the fracture face and help increase gas production. In addition, GasPerm 1000 service represents a safety and environmental advancement, replacing methanol in many applications.

"Halliburton has focused our top researchers on developing technology to help operators achieve better results from unconventional reservoirs and GasPerm 1000 service is the initial result of this research," said Jim Prestidge, vice president within the Production Optimization Division. "The characteristics of unconventional reservoirs pose unique challenges, particularly in the area of controlling fracture face damage. GasPerm 1000 service technology was developed to help achieve maximum production following a fracturing treatment and with the focus on environmental sustainability, our constant guiding principle as we develop new chemicals."

Meeting the challenges of producing from unconventional reservoirs is critical to our global energy future. For example, the Energy Information Administration expects U.S. production from unconventional gas sources to increase more rapidly than conventional gas production. In its long-term forecast, the U.S. Lower 48 states' unconventional gas production is expected to grow to 44 percent of total gas production by 2025. In Canada, coalbed methane production is growing extremely fast. Production from gas shales, such as the Barnett formation, has shown exponential growth in the past five years. Fracturing will continue to play a major role in coaxing production from these reservoirs.

In the fracturing process, water can be drawn (imbibed) into the formation from the fluid used to create the fracture. The water drawn into the pore spaces is held there by capillary pressure and surface tension and can block gases from flowing into the wellbore. Commonly called "water block," this process is especially pronounced in unconventional gas reservoirs where the lower permeability results in increased capillary pressure.

GasPerm 1000 service has been shown to enable the imbibed liquids to be expelled from the rock matrix and fracture system, thereby enabling improved gas production.

From both an environmental and safety perspective, GasPerm 1000(tm) additive can be used in place of methanol. When run as an additive at field use concentration, the GasPerm 1000 additive reduces flammability risk as compared to methanol at concentrations typically used for water block treatment applications. A comparison test performed in an ultra-low perm tight gas sand formation from the Rockies demonstrated that under comparable conditions, the formulation containing GasPerm 1000 additive outperformed a conventional methanol-based formulation.

GasPerm 1000 additive is compatible with both acidic and basic fluid systems and is used as an acidizing additive or fracturing fluid additive.

Halliburton, founded in 1919, is one of the world's largest providers of products and services to the petroleum and energy industries. The company serves its customers with a broad range of products and services through its Energy Services Group and KBR. Visit the company's Web site at www.halliburton.com.

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SOURCE: Halliburton