AQUA-DRILL

Improve shale inhibition and optimize wellbore stability

Applications

- Water-based drilling fluids
- Reactive shales
- Deepwater, highly deviated, and extended-reach wells
- Environmentally sensitive areas

Features and benefits

- Stabilizes troublesome shales and clays
  - Improves wellbore stability
- Flexible formulation
  - Can be optimized for given well parameters
- Low surface dilution rates
  - Reduces drilling fluid costs
- Environmentally friendly
  - Safely discharge cuttings in environmentally sensitive areas
- Superior lubricity characteristics
- Ease of displacement and cleanup

The Baker Hughes **AQUA-DRILL™ low-molecular-weight glycol drilling fluid system** provides improved shale inhibition, delivering excellent cuttings inhibition and optimum wellbore stability. The AQUA-DRILL system is flexible and can be optimized to meet individual well conditions.

The non-toxic, non-sheening AQUA-DRILL system can be used safely in areas where other high-performance drilling fluids are excluded. The AQUA-DRILL system offers formation flexibility to meet various environmental restrictions while delivering optimized drilling performance. The use of low molecular weight polyols, which are considered low in toxicity and readily biodegradable, in the system reduces dilution rates due to their inhibitive nature which, in turn, reduces the overall volume of water-based fluid additives discharged to the environment. AQUA-DRILL system allows for safe, easy discharge of drilling fluid and cuttings, eliminating additional disposal costs.

Superior Performance

AQUA-DRILL system provides a flexible, environmentally friendly solution for drilling reactive shales. Because of the system's flexible design, many existing polymer drilling fluids are easily converted to AQUA-DRILL systems without displacement, saving valuable rig time.

Return permeability figures obtained by several operators on glycol fluids indicate no detrimental effects in using glycols across reservoir sections.

One key to AQUA-DRILL's superior wellbore stability is the ability to engineer the fluid's "cloud point". The glycol/salt combination of each AQUA-DRILL system is engineered so that the cloud point is below the temperature of the freshly drilled cuttings. When the fluid contacts the "hot" shale, the glycol drops out of solution – forming a protective layer in and around the cutting the minimizes its reaction with the water. As cuttings travel up the wellbore, they cool down. Once a cutting's temperature drops below the AQUA-DRILL system's engineered cloud point, the shale's surface glycol dissolves back into the fluid system (helping avoid glycol depletion) while glycol microemulsions just below its surface continue to protect the cuttings against swelling. As bottom hole temperature changes, Baker Hughes field engineers adjust cloud point for optimized drilling performance and shale stability.