

DELTA-DRILL

Efficiently and reliably reduce downhole losses and hydraulic impact in land wells

In challenging onshore wells, pore pressure, fracture gradient, and long horizontal sections can create a narrow operating window. This can cause excessive surge pressures, pressure spikes due to pump initiation pressures, complicated circulation management, and the inability to control drilling parameters—which can result in catastrophic events.

The typical solution to drilling in narrow windows has been utilizing a low equivalent circulating density (ECD) drilling fluid. These fluids can mitigate some risks, but not enough risks to meet drilling objectives.

The **DELTA-DRILL™ low-pressure-impact drilling fluid** is the only solution designed to extend the critical drilling window. DELTA-DRILL systems are a non-aqueous fluid that optimizes hole cleaning using proprietary technology to control viscosity at different depths. It also avoids sag by keeping solids suspended even when pumps are off. In addition, the DELTA-DRILL fluid prevents pressure spikes at startup and surge pressure during casing runs to avoid fractures and mud losses.

As part of its innovative technology, the DELTA-DRILL fluid uses a mixture of

specialized clay and polymers to create a non-progressive gel structure that reduces hydraulic impact. These “rapid-set/easy-break” gels set quickly when circulation stops to enable suspension of cuttings. When circulation resumes—or during casing runs—the gels break easily at lower pressure, protecting formations and reducing mud loss risk.

Furthermore, the DELTA-DRILL fluid provides flexibility, allowing drillers to stay in the operating window longer by optimizing low-shear-rate viscosity (LSRV) while limiting the impact to high-shear-rate viscosity (HSRV).

Optimizing LSRV improves hole cleaning without generating excessive pressures in the circulating system. This allows for optimal rates of penetration (ROP). Minimizing the HSRV maximizes flow rates in the annulus to carry cuttings and improve ECD. This “viscosity clutch” allows drillers to engage viscosity at low shear rates and disengage viscosity at high shear rates.

Shift to a low-ECD fluid that reliably performs in the clutch. For more information contact, your Baker Hughes representative.

Applications

- Land-based drilling applications
- Narrow operating windows
- Extended reach wells with known risk of barite sag and poor hole cleaning

Benefits

- Provides effective and reliable navigation through narrow pressure windows
- Reduces well construction risks and costs
- Manages hydraulic impact by maintaining the right viscosity in the right areas of the well
- Efficiently optimizes hole cleaning, flow rate, and ROP
- Consistently protects the formation against pressure spikes and surge pressure
- Effectively remains sag-resistant and suspends cuttings during operational pauses