Baker Hughes

Rewriting The Energy Equation™

Actionable insights in real time

Kantori real-time fluids monitoring unit

Traditional drilling hydraulics workflows are often too slow and episodic to capture rapidly shifting downhole conditions such as influxes, losses, or transient changes in fluid properties. As a result, operators are forced to react after performance has already degraded—leading to slower decision-making, accumulating invisible lost time (ILT), increased operational and safety risk, and higher nonproductive time (NPT).

The **Kantori™ real-time fluids monitoring (RFM)** unit from Baker Hughes closes this gap by delivering **continuous, decision-ready insights in real time at the rig site or to remotely located engineers**. As part of the Kantori™ optimization services, the RFM unit combines instantaneous monitoring of drilling fluids and operational parameters with real-time autonomous expert analytics—**enabling operators to predict, prevent, and proactively manage fluid related risks**. Ultimately, operators gain more predictable well execution with lower risk and cost.

Full-service fluids management in a fully integrated unit

The Kantori RFM unit is installed at the rig site in a full-bore, Class 1/Division 2, frame-mounted skid. It captures precise, real-time, API equivalent measurements of drilling fluids entering or exiting the wellbore—including rheology, density, and temperature—with optional advanced monitoring of oil water ratio, solids content, and gel strength.

These continuous measurements provide **early, actionable insight into changes in fluid integrity and wellbore conditions,** allowing operators to identify and correct deviations as they develop rather than through subsequent reactive adjustments based on scheduled reporting intervals. The RFM unit transmits data in real time—both locally to the rig's electronic drilling recorder system and remotely to mobile field engineers and operations centers — ensuring that **all stakeholders are working from the same live, trusted data set**.

Application engineers remotely monitor the RFM system health and performance, providing additional operational assurance and ensuring uninterrupted delivery of reliable insights. Integrating real-time sensing, autonomous expert analytics into a single comprehensive package enables more efficient communication and job execution for the mud engineer, rig crew, and company man—while enhancing safety, consistency, and overall drilling performance.

Improve well performance with fewer disruptions

By autonomously monitoring fluid properties and correlating them with operational data, the Kantori RFM unit transforms raw measurements into **predictive insight**. Operators gain immediate visibility into emerging trends that signal potential downhole instability, such as solids loading, hydraulics imbalance, or fluid contamination.

Applications

- Unconventional and conventional drilling
- Remote-enabled operations
- Real-time, remote fluids management to support autonomous drilling activities

Benefits

- Consistent, repeatable performance
  - Optimized drilling fluids for real-time insight
  - Remote and drive-by enabled operations; integrate with automated drilling systems
- Reliable fluid properties
  - Continuous API-equivalent measurements: density, rheology, temperature
  - Optional oil-water ratio and solids content sensor
- Real-time actionable insights
- Instantaneous sensing with autonomous expert analysis
  - Aggregated, contextual data for faster, smarter decisions
- Robust, low-maintenance design
  - Full-bore, Class 1 Division 2, frame-mounted skid for easy access
  - Fast hook-up with plug-and-play connectors
- Secure, universal data protocols
  - OPC UA and WITSML compliant

These real-time insights enable proactive adjustments to drilling conditions—helping maintain well and fluid integrity, optimize drilling conditions, and avoid costly surprises. Consistent, repeatable drilling performance is achieved with fewer interruptions across the well construction cycle.

Boost operational efficiency with smarter decisions

With instantaneous measurements, autonomous expert analytical insights, and 24/7 remote fluids oversight, the Kantori RFM unit enables **faster, higher quality decisions at both the rig and remote operations centers.** Rather than analyzing disconnected data streams, teams receive aggregated, contextual insight that clearly links fluid behavior to drilling performance.

The RFM unit's compliance with WITS™, OPC UA, and WITSML™ enables seamless integration with rig automation systems and real-time engineering simulations. This connectivity **supports early event detection, closed loop optimization, and scalable remote operations**, unlocking further efficiency gains and supporting autonomous drilling strategies.

Reduce well-delivery costs with targeted fluid adjustments

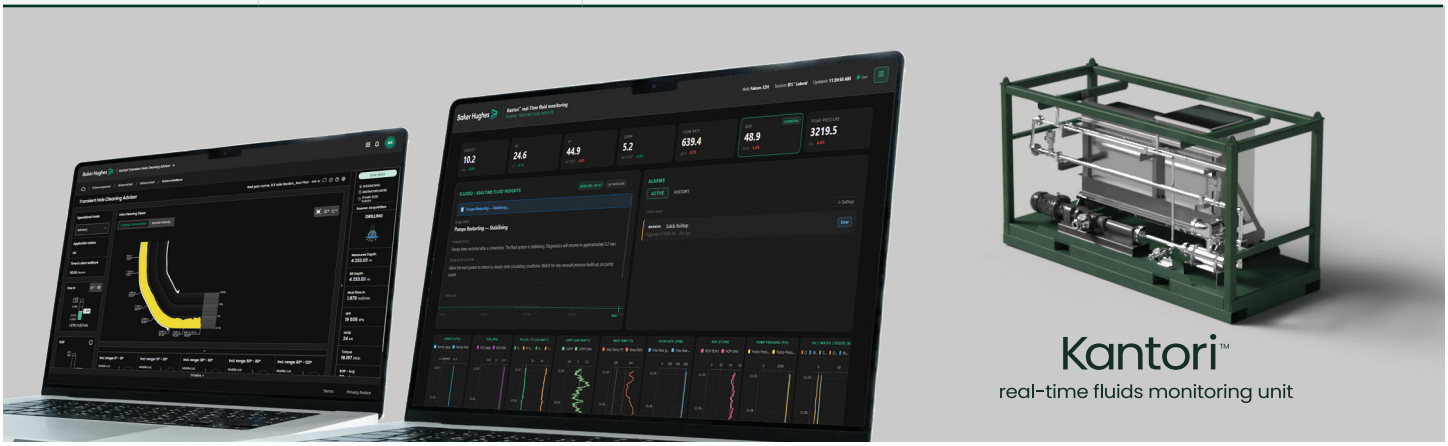
By leveraging Kantori optimization services and continuous, real-time monitoring, fluid management becomes more effective, driving higher operational efficiency and better functional results. Live insight into fluid properties confirms when systems are within specification—preventing unnecessary or excessive treatment.

Early detection of performance deviations allows crews to coordinate rapid, targeted adjustments to fluid properties, pump rates, revolutions per minute, and weight-on-bit—before these deviations escalate into NPT. The RFM unit's full-bore, low-maintenance design tolerates higher solids loading and lost circulation materials, keeping insight delivery uninterrupted even in challenging environments.

The result—optimized fluid performance that maximizes penetration rates, minimizes NPT and ILT, and lowers overall well delivery costs.

TECHNICAL SPECIFICATIONS

Fluid properties	Dual DP rheology	Real-time rheology with in-situ LCM and particles
		Uptime without plugging or flushing
		Minimum moving parts
		Low maintenance
	Density sensor	Early density fluctuation tracking
		Fluid density monitoring to ensure hydrostatic pressure in the well
		Potential sagging tracking
	OWR and solids sensor (optional design feature)	Solids build-up monitoring to optimize dilution
		Solids control efficiency
		Fluid composition monitoring and maintenance before issues arise
		Displacement monitoring for slop reduction
Design	Durable Design	Minimum maintenance and downtime
		Zone 2 rated (ATEX/IECEx)
Logistics	Transportation	Frame-mounted skid unit for simple access
Installation	Simple fluid connections	Plug-and-play connectors for shorter rig-up time
		Fluid feed line aligned with rigs capabilities
Connectivity	Communication	Data Security
		Universal data communication protocols



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