Baker Hughes

XACT bi-directional acoustic telemetry service

Boost operational efficiency and predictable performance regardless of flow, formation, or depth

The more costly or complex the well, the more critical efficiency and predictable performance becomes for your operation's success. In wells with a low margin for error and high uncertainty about the downhole environment, many operators have developed a cautious approach based on years of relying on surface measurements and indicators to visualize what is going on downhole.

This risk-averse approach can include building redundancies into the well plan, deliberately slowing down well construction activities, or even skipping over areas with known reserves. This approach typically adds nonproductive time (NPT) and invisible lost time (ILT) into the well construction program, can limit recovery, and, in many instances, is not even the most effective means for preventing catastrophic failures.

Eliminate guesswork from your operations

Today, with the **XACT™ bi-directional acoustic telemetry service** it's possible to eliminate the guesswork to get a clear, real-time understanding of the downhole environment—driving efficiencies safely and predictably in a variety of well activities from spud to well abandonment.

Unlike mud pulse telemetry systems which are limited by wellbore flow conditions, the XACT service transmits digital data along the drill pipe via encoded sound waves. This means it can be used effectively during tripping, completion installation, liner running, and cementing.

Make objective decisions

The XACT service delivers real-time downhole data throughout the well construction process, not just while drilling. By using applied acoustics, you can get real-time downhole data from previously unavailable environments regardless of fluid, flow, formation, or depth. The system captures key measurements including pressure, temperature, and torque at multiple locations along the wellbore. The system can be supplemented with additional subs to capture more-detailed data or new measurements.

No matter the source, the XACT service can transmit real-time data in a variety of environments and applications including:

- through closed blowout preventers (BOP)
- across packers and valves
- while tripping

Applications

- Deepwater and complex wells
- Depleted reservoirs, tight-margin wells and managed pressure drilling operations
- Frac pack and gravel pack installation including TCP and displacement operations
- Screen running and displacement operations
- Liner running and cementing
- Fishing, milling and casing exits

Benefits

- Increases operational efficiency
  - Reduces trips, NPT and ILT
  - Eliminates guesswork
  - Accelerates recovery after unplanned events
- Lowers risk and improves safety
- Enables full pressure management throughout well construction
- Permits efficient, reliable activation and control of downhole devices through acoustic downlinking
- Supports remote operations and automated processes
- Facilitates analytics-driven process improvement

- in drilling, completions, cementing and perforating applications
- when conducting well- and formation-testing
- in fishing, milling, and casing-exit operations.

The system is also bi-directional. This means the acoustic signal from the surface can be used to activate and control downhole tools in a variety of wellbore construction operations.

Improve operating efficiency across the well lifecycle

The service has a minimal rigsite footprint and most rig-up activities are conducted simultaneously with other operations. Because the XACT telemetry service enables efficient, bi-directional transmissions regardless of mudflow, depth, or downhole conditions, it can drive efficiency across a variety of applications.

Drilling and tripping: Continuous monitoring of downhole pressures allows hydrostatic barrier verification in situ, complying with all safety standards even while tripping in or out of the hole and enabling downhole pressure transmission even below closed BOPs. Because the system is "always on" and can provide data from along the drill string, it's possible to boost rates of penetration (ROP), optimize drilling dynamics, manage pressures, and push hole cleaning under low flow (or even no-flow) conditions.

Completions: Real-time data from the XACT service can help ensure proper service tool positioning and provide key insights into downhole weights, torque, pressures and temperatures during a variety of applications ranging from gravel packs and frac packs to displacements and liner deployment/expansion. And, in every application, these real-time downhole weights, torques, and pressures can be used to rapidly diagnose unexpected situations and resolve them efficiently.

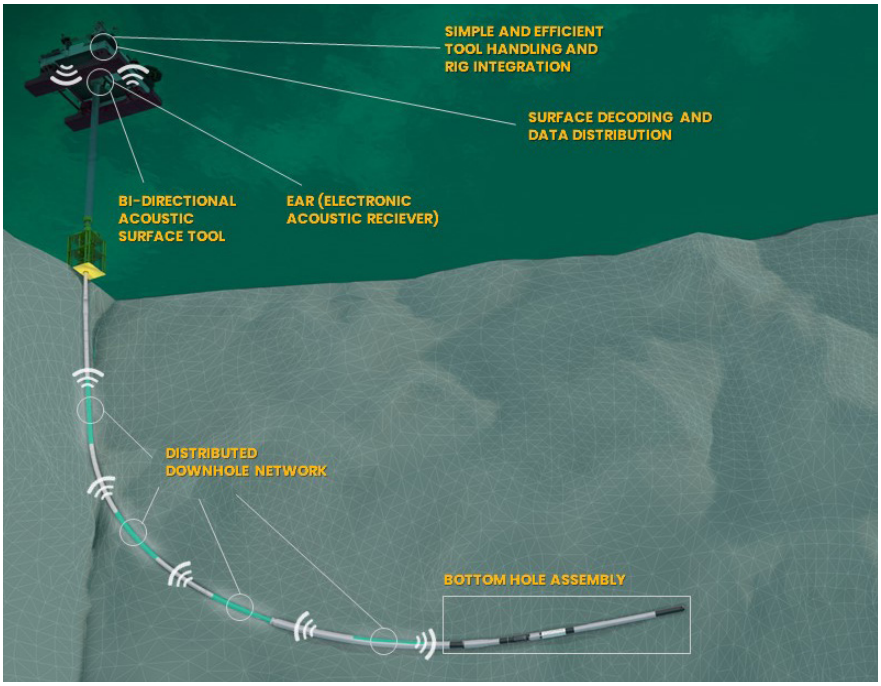
Cementing: Access to real-time downhole data such as torque and weight provides the answers you need to safely, efficiently and effectively rotate and install casing liners for improved well integrity and predictable zonal isolation. Real-time transmissions of differential internal and external pressures can help you monitor and mitigate rising pressures to avoid formation breakdown in tight-margin wells. The result: better cement coverage for superior well integrity and reliable formation isolation.

Tubing-conveyed perforating: Real-time data is key to controlling and monitoring fluid losses during tubing conveyed perforation operations—minimizing reservoir damage while keeping the well under control and providing an optimum perforation performance. The service can also be used to confirm gun firing and perforating valve position. Additionally, real-time data from below a multi cycle valve can provide accurate reservoir pressures to optimize the pressure balance and monitor for kicks or losses.

Formation integrity and drill-stem testing: Downhole measurements during formation integrity and negative testing eliminates fluid rheology and friction uncertainty, improving decision making capability in narrow margin wells. And reliable, real-time downhole pressure and temperature readings can be delivered via the XACT service to minimize test times and eliminate redundant data.

Well interventions: In fishing operations, the telemetry data can confirm fish engagement and monitor milling progress with downhole weight and torque to improve wellbore clean-up efficiency. In casing exits, these same data can be used to ensure that the operational plan is properly executed in a single run.

Ask your Baker Hughes representative how the XACT bi-directional acoustic telemetry service can improve efficiency and ensure predictable performance on your next project.



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