

# JPT



## MULTILATERAL EXTENDED-REACH WELLS

**DEEPWATER PROJECTS**  
**INTELLIGENT FIELDS TECHNOLOGY**  
**CEMENTING/ZONAL ISOLATION**

### **FEATURES**

Block Chain's Role in Oil and Gas  
SPE President and Board Nominations  
Better Data for Drilling  
Adjustments in Pressure Pumping

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## Bit-Wear-Monitoring Service

GEOLOG's BitLife bit-wear-monitoring service identifies the optimal time to pull a drilling bit on the basis of wear by monitoring the increase in friction from the bit and comparing other important parameters such as rate of penetration and the computed mechanical specific energy. The frictional increases are identified through the measurement of artificially generated alkene gases. Recently, the service was deployed in an unconventional shale gas well onshore UK. The client's goal was to achieve optimal bit trip timing, reduce the need for reaming caused by bit wear, and drill with the minimum number of bit runs. The 12¼-in. section had to be drilled through problematic shale formations that caused excessive bit wear and premature bit damage. After deployment, GEOLOG was able to monitor the bit wear in real time, giving the client a better understanding of the condition of the bit, independent of the formation changes and optimizing the time to trip for a bit change. Through the service, the client was able to pull the bit once wear was seen, but before it became excessive (Fig. 1), and return to bottom without the excessive reaming previously required, thus improving the footage drilled with the new bit and reducing the number of bits and bit trips required to drill the section.

► For more information, visit [www.geolog.com](http://www.geolog.com).

## Wireless Monitoring System

Since the first permanent downhole gauges (PDGs) were deployed in the late 1980s, real-time, continuous downhole monitoring has become an established



Fig. 1—GEOLOG's BitLife wear-monitoring service identifies the optimal time to pull a drilling bit on the basis of wear (left, a bit before wear; right, a bit pulled before excessive wear).

approach to optimize the economic and operational performance of a reservoir. Cabled gauge solutions are hard-wired and deployed during well completion, addressing two of the limiting factors associated with traditional memory gauge surveys: repeat well interventions and the delay in accessing downhole data for analysis. Wireless downhole data transfer offers a safe, simple, and reliable alternative to both cabled PDGs and sporadic memory gauge surveys. Acoustic Data's SonicGauge wireless monitoring system uses acoustic telemetry to transmit real-time downhole pressure and temperature data from downhole to surface over days, months, or years (Fig. 2). The wireless downhole gauges can be tubing-deployed in a new well completion/workover or permanently retrofit through tubing in an existing well through high-expansion gauge hanger. The technology can be used to cost-effectively gather wellbore data in a wide range of applications, such

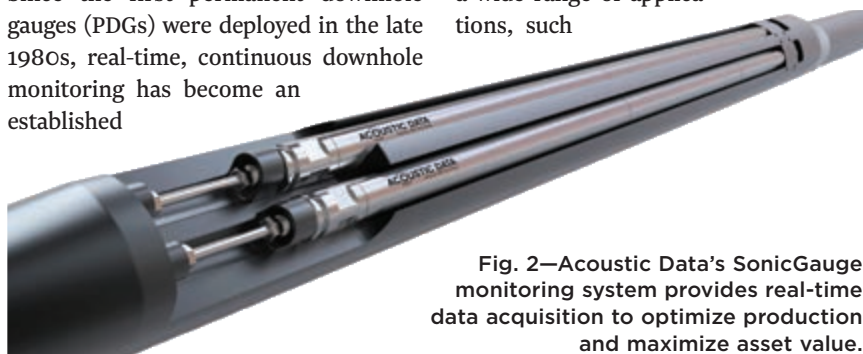


Fig. 2—Acoustic Data's SonicGauge monitoring system provides real-time data acquisition to optimize production and maximize asset value.

as drillstem testing, reservoir monitoring, production-well testing, and well-integrity monitoring. SonicGauge provides operators with a real-time data-acquisition solution to optimize production and maximize the economic value of their assets.

► For more information, visit [www.acousticdata.com](http://www.acousticdata.com).

## Reserves-Monitoring System

Accurate and up-to-date information regarding oil storage levels can be very difficult to obtain for some regions and, when available, often only at an aggregated level. Geospatial Insight introduced the TankWatch monitoring service. It uses image recognition and spectral profiling combined with rapid data processing to report on critical global oil-storage-terminal locations and provide time-sensitive insight into oil inventories and storage levels. It combines cloud-penetrating radar imagery with other high-resolution satellite-gathered information to ensure that the required data are captured, regardless of weather and visibility conditions. TankWatch enables a more granular and reliable level of insight into current oil inventory levels, thereby providing an understanding of the trade balances of the physical oil market and advantage for corporate strategy and planning, fundamental analysis, trading, and invest-