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Spirit Energy Optimizes Norwegian Sea Well Test Enabled by Muzic Aeon Wireless Telemetry

Real-time pressure and temperature data from multiple Signature quartz gauges profiles the high-temperature well from the seabed to top of perforations

CHALLENGE

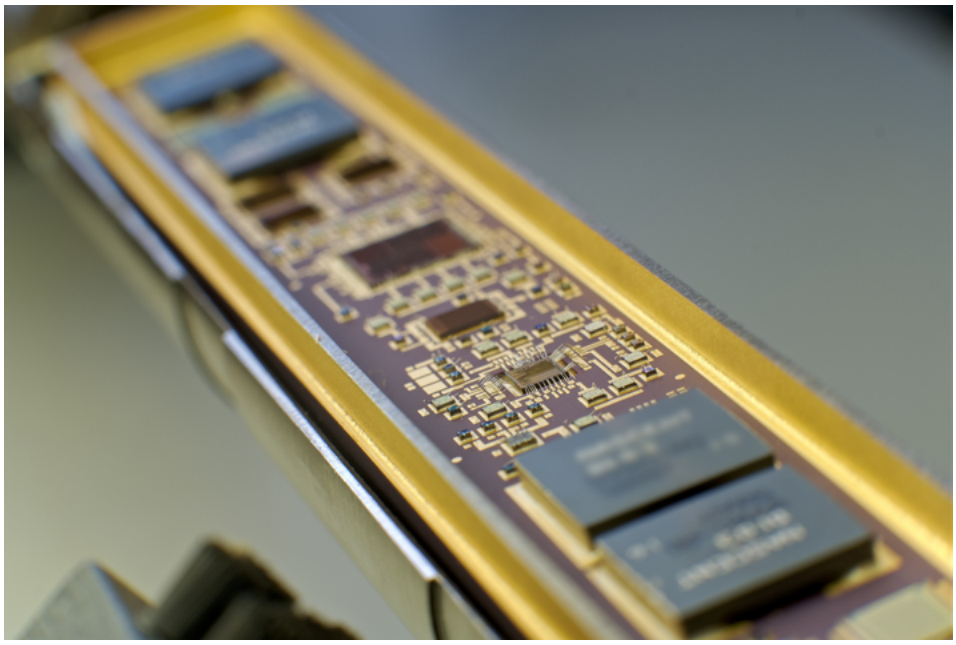
Acquire accurate, timely pressure transient and temperature data from multiple downhole gauges during an offshore high-temperature well test.

SOLUTION

Deploy high-resolution Signature* quartz gauges enabled by Muzic Aeon* premium-performance wireless telemetry to transmit high-frequency pressure and temperature data in real time during test operations with secure distribution to customer offices.

RESULTS

Performed quicklook well test interpretation powered by real-time data access and Schlumberger expert analysts to optimize test operations and duration.



The proprietary 100% ceramic MCM design ensures reliable operation at high temperatures.

High-temperature reservoir testing

Spirit Energy, one of Europe's top independent exploration and production companies, wanted real-time access to gauge data from a downhole reservoir test that would be conducted at high-temperature conditions in a Norwegian Sea well.

Real-time data transmission via wireless telemetry

The key to delivering real-time test data from the challenging well environment would be employing the latest all-ceramic multichip module (MCM) technology integrated in Muzic Aeon premium-performance wireless telemetry. Resistant to both high pressures and temperatures, Muzic Aeon telemetry also provides the additional advantages of low power consumption and higher bandwidth in comparison with previous-generation telemetry systems for reporting multiple gauges.

Signature quartz gauges were installed in the test string to capture accurate and reliable pressure and temperature data at multiple depths:

- seabed pressure and temperature for evaluating the risk of hydrate formation and optimizing the injection rate of hydrate inhibitors through the umbilical line
- tubing pressure above the IRDV* intelligent remote dual valve and in the annulus for confirming the status of the independently operated testing and circulating valves and calculating the pressure gradient and average fluid density in the tubing string and annulus

- tubing pressure below the IRDV dual valve for monitoring bottomhole pressure and calculating the fluid gradient below the packer to ensure that there is no liquid accumulation downhole during the test
- tail pipe bottomhole pressure and temperature from gauges positioned below the packer, only several meters above of the top of the perforations for providing the primary data for the well test interpretation.

Data-enriched well test optimization

Supported by the experts staffing the Schlumberger Remote Operations Center, Spirit Energy received downhole data from the multiple Signature gauges that was collected and transmitted in real time by the Muzic Aeon wireless telemetry. The data was securely relayed to Spirit Energy's offices via InterACT* global connectivity, collaboration, and information service. The high-frequency data reporting during the test operations informed concurrent interpretation that managed uncertainty and optimized the well testing program.

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