Gauges Deployed in Hostile Downhole Environment Successfully Capture Accurate Bottomhole Data

Measurements from Signature Xtreme high-temperature quartz gauges enable MOL to design optimal stimulation operation in a tight gas reservoir

**CHALLENGE**
Obtain accurate and reliable bottomhole pressure and temperature data in a hostile, high-temperature gas reservoir.

**SOLUTION**
Deploy Signature Xtreme* high-temperature quartz gauges on CT to record bottomhole pressure data in the Beru-6 well for use in the design of an optimal stimulation operation.

**RESULTS**
Recorded bottomhole pressure at temperatures exceeding 210 degC [410 degF] during 20 h of operations to enable a successful stimulation operation.

**High-quality bottomhole data under extreme conditions**
MOL required highly accurate bottomhole pressure measurements for the Beru-6 well in the Derecske basin, which contains one of the largest and most significant hydrocarbon deposits in Hungary. The collection of pressure and temperature data in this deep (4,000 m), overpressured (70%), high-temperature unconventional tight gas reservoir required technologies designed to withstand a hostile downhole environment.

**Continuous measurements in high-temperature well**
Schlumberger deployed two next-generation HPHT Signature Xtreme gauges on CT to accurately record pressure and temperature data. Both Signature Xtreme gauges recorded at a fast sampling rate of 1 s during the 1.5-day operation, during which bottomhole pressures exceeded 12,500 psi [61.7 MPa] and temperatures were measured up to 210 degC [410 degF].

**Fracture design optimized with accurate and repeatable data**
The accuracy and repeatability across the HPHT gauges, which successfully operated in high downhole temperatures, resulted in pressure readings matching within a 0.5-psi error band. The comprehensive dataset provided by the Signature Xtreme gauges enabled MOL to design and execute effective stimulation operations in the well.

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**Signature Xtreme gauges accurately recorded breakdown test data despite 20 h of exposure to high temperatures in a tight gas well in Hungary’s Derecske basin.**

[Graph showing pressure and temperature data over time]