Schlumberger technologies provide critical reservoir insight for ambitious deepwater GOM project

The Gulf of Mexico's Stampede deepwater oil and gas field currently being developed by Hess holds significant potential. However, the challenges of reservoir development made the path to initial production especially complex.

Achievement of first oil marked an important milestone demonstrating the value of collaboration in paving the way for production to ramp up. Technologies and expertise provided by the Schlumberger Wireline team were critical for refining the reservoir model, optimal well placement, and project economics to ensure development viability.

The MDT wireline formation tester makes real-time flowline resistivity measurements at the probe module to discriminate between formation fluids and filtrate from water- and oil-based muds. (Courtesy of Schlumberger)

Extending single-trip downhole fluid analysis beyond the well

When reservoir characteristics from the first development well did not conform to the Stampede Field reservoir model, Schlumberger local and global experts responded with industry-leading technologies to deliver real-time answers and facilitate decision-making. These technical experts teamed with Hess engineers and geoscientists to deploy the MDT* modular formation dynamics tester to acquire high-quality downhole reservoir data. The customized toolstring conducted real-time compositional and gradient analysis of the reservoir fluids using the InSitu Fluid Analyzer* real-time downhole fluid analysis system and high-resolution pressure measurement with the Axton* dynamically compensated single quartz gauge. Quicksilver Probe* focused fluid extraction ensured that clean reservoir fluid was accessed for representative analysis. The MDT tester's ability to profile formation pressure and discriminate reservoir oil, formation fluids and filtrates from the oil-based drilling mud was key in determining reservoir producibility.

Extending the MDT tester's analysis beyond discrete data from one well, Schlumberger experts integrated the downhole analysis with information from surrounding wells to improve the reservoir model for predicting reservoir connectivity, fluid complexity, and asphaltene formation. The broadened insight that the fluid analysis brought to the model proved valuable—an injector well had been positioned where the improved model predicted that asphaltene formation would threaten injection integrity. Using this information, Hess made the decision to reposition the well to help mitigate potential problems, because a redrill would not have been possible from the planned wellbore.

The collaborative approach was key to reducing risk and will facilitate continued success for the Stampede oil and gas development going forward.

*Mark of Schlumberger

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