Case History

An operator in the Gulf of Mexico (GoM) was drilling a development well consisting of oil-bearing reservoirs varying from volatile to heavy oil. The operator needed to obtain formation pressures and samples while drilling. Formation fluid samples with extremely high purity were also required, but stationary time needed to be minimal.

To meet these challenges, the operator evaluated numerous service providers and quickly decided upon Baker Hughes based on the past performance of the RCX™ Sentinel focused sampling and TesTrak™ pressure testing services, which exceeded their expectations.

The FASTrak™ LWD fluid analysis sampling and testing service, the newest addition to the Baker Hughes fluid characterization and testing portfolio, builds upon the accurate pressure testing functionality of the Baker Hughes TesTrak formation pressure testing service while addressing the growing need to acquire representative fluid samples and provide real-time fluid identification in a LWD environment.

The FASTrak service was combined with the wireline RCX Sentinel service to form a complete sampling package to meet the operator’s requirements. The RCX Sentinel service is a focused fluid sampling tool that uses a formation testing probe with separate perimeter and sample inlets to allow formation fluid to be focused into the sample inlet while contaminants are scavenged by the perimeter inlet. It also uses independent pump control and multiple configurations to overcome wide ranges of well challenges, such as overbalance, bubble point and mobility, while obtaining pristine samples in less than half the time of conventional single probe sampling.

Benefits
- Achieved significant rig time savings
- Obtained low contamination samples
- Reduced fluid to wellbore

Background and challenges
- Deepwater GoM development well
- Operator needed complete LWD and wireline solution for testing and sampling
- Low permeability
- Laminated sand/shale sequences

Baker Hughes solution and results
- FASTrak LWD service obtained three samples with less than 5% contamination
- RCX Sentinel service cleanup was completed in 60 minutes
- RCX Sentinel service obtained samples with contaminations of less than 2%

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Extensive prejob planning, consisting of meetings with the operator and Baker Hughes sales, product management, operations, and geoscience personnel resulted in a complete plan for sampling and testing of the well. Using prejob modeling, Baker Hughes and the operator determined the optimum drill string configuration as well as the optimum RCX Sentinel service setup. Modeling also correctly predicted that RCX Sentinel service cleanup times would be approximately 60 minutes.

According to the operator, the job made “a great showing of the possibilities of FASTrak. I am excited for future possibilities on upcoming wells.” The FASTrak service obtained three single-phase samples with less than 5% contamination. The FASTrak service also identified a disconnect in a reservoir that was thought to be connected by obtaining accurate pressure readings. These accurate pressure readings were verified when the RCX Sentinel service came up with the exact same pressure profile. This proved the disconnect and confirmed there was a fault that was sealing within the reservoir.

The operator said, “RCX Sentinel came in and got samples of minimal contamination while meeting all the objectives with minimized rig time and maximized safety.” The RCX Sentinel service obtained two samples with contaminations of 1.4% and 1.6%.