Compact™ Formation Tester
First in the World to Collect PVT Samples Through 3.5-in. Tubulars

Objectives

- Define the reservoir characteristics and collect three pressure, volume, and temperature (PVT) samples in each of four 4 7/8-in. (123.8-mm) sidetrack wells for a total of 12 samples. Because of the slim borehole and deviations of up to 52°, conventional sampling tools are not an option.

- Minimize the risk of stuck tools or wellbore stability issues.

Our Approach

- Weatherford proposed the unique 2.4-in. (61-mm) outside diameter Compact formation tester (MFT-D). The tool collects up to three PVT samples per run while using the inline fluid measurement module to provide saturation characteristics and optimize sample quality.

- During the planning stage, the Weatherford wireline team indicated that some sampling intervals had low mobility and that the inline pump-out module would run for up to 8 hours without tool movement. Considering that, the size of the borehole, and the 52° deviations, the team determined that through-the-pipe deployment presented the lowest risk for tool sticking. They modified standard thru-tubing logging procedure so that only the bottom part of the PVT tool string protruded from the tubular, which would allow the tool to seal on the formation.

- The team ran the MFT-D through the tubular in each of the four sidetrack wells. The tool collected three quality PVT reservoir samples for each run while defining the saturation characteristics in real time.

- The operation was completed without the tools or cable becoming stuck. The average per-job operational time was 27 hours in which the team secured three quality samples and extensive pressure data.

Value to Client

- Deployed through 3.5-in. tubulars in four 4 7/8-in. boreholes, the Weatherford MFT-D collected quality PVT samples that revealed reservoir characteristics. This industry-first application provides operators with a sampling solution that reduces rig costs and operational risk.

- The real-time data and samples provided residual oil saturation measurements that helped the operator to optimize production efficiency.