

Deploying PressureWave LWD Formation Tester in UHPHT Environments

Weatherford successfully deployed its advanced PressureWave Formation Testing (PWFT) technology to acquire high-quality formation pressure data in a uHTHP subsurface environment characterised by significant pressure uncertainty. The operational context included unknown reservoir pressures and the potential for compartmentalisation, requiring a solution capable of delivering reliable, real-time measurements while maintaining drilling efficiency and mitigating downhole risk in these tough drilling environments.

An integrated formation evaluation workflow was applied, combining real-time pressure measurements with complementary datasets. This multi-disciplinary approach enabled a more comprehensive characterisation of the reservoir, improving confidence in pressure regimes, fluid distribution and reservoir connectivity. The integration of these datasets enhanced interpretation fidelity beyond conventional standalone measurements, contributing to a more robust understanding of the formation pressures.

Operational execution was optimised to ensure a balance between data quality and drilling efficiency. The implementation of on-the-fly pre-tests provided early insight into formation response, enabling rapid assessment of reservoir pressure and identification of potential depletion trends. Testing parameters, including build-up times, were carefully designed to minimise stationary time, thereby reducing exposure to operational risks such as differential sticking, while preserving the quality and integrity of the acquired measurements.

The PWFT programme successfully delivered a consistent and repeatable dataset across the reservoir interval. These results provided critical inputs for defining pressure regimes and identifying indications of compartmentalisation. The reduction in pressure-related uncertainty enabled improved real-time decision-making during drilling operations and increased confidence in subsequent reservoir modelling and evaluation workflows.

Overall, the application of Weatherford's PWFT technology demonstrated its effectiveness in delivering reliable formation pressure data in complex and high-risk uHPHT environments. The integration of advanced measurement capability with optimised operational practices enhanced reservoir understanding, reduced operational exposure, and supported more informed decision-making, ultimately contributing to improved field development planning and production outcomes.