PACESETTER
YOUR PARTNERS IN DRILLING PERFORMANCE

PERISCOPE HD

Precise detection of reservoir layers for advanced well placement

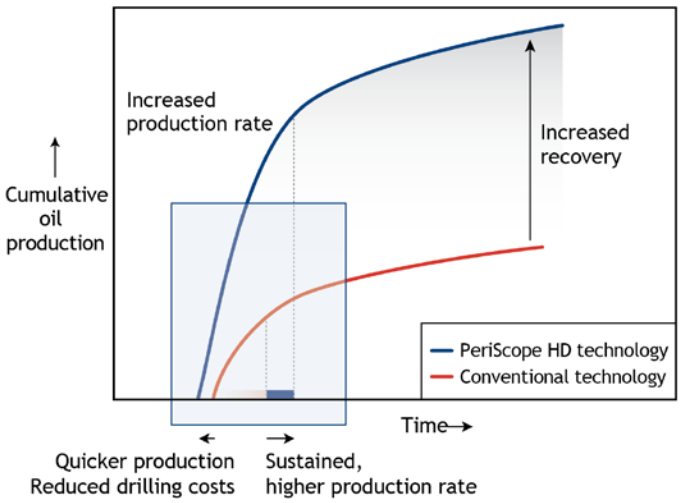
PeriScope HD multilayer bed boundary detection service accurately detects multiple formation layers and fluid boundary positions enabling advanced well placement services of challenging wells in clastic and carbonate fields. The combination of innovative inversion models with additional azimuthal measurements provides precise delineation of reservoir layers and formation evaluation while drilling.

Proficient geosteering in challenging environments

This service provides the best steering direction in various types of reservoirs, including complex thinly bedded and compartmentalized reservoirs. In addition to traditional up-down directional control, PeriScope HD service delivers an estimate of the dip of layers perpendicular to the borehole. This enhances left-right steering in particularly complex settings, helping maintain the wellbore in the sweetest spots of the reservoir.

Accurate delineation of multiple layers

The improvement in signal-to-noise ratio of the PeriScope HD service measurements reduces uncertainty with bed boundary detection and provides a more precise delineation of reservoir boundaries and fluid contacts. A unique stochastic inversion that incorporates antisymmetrized measurements provides an improved estimate of formation dips, even in formations with low-resistivity contrast and anisotropy.



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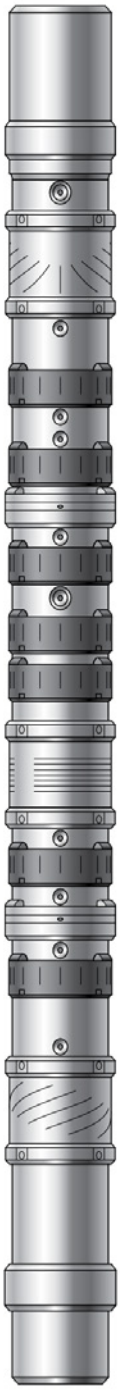


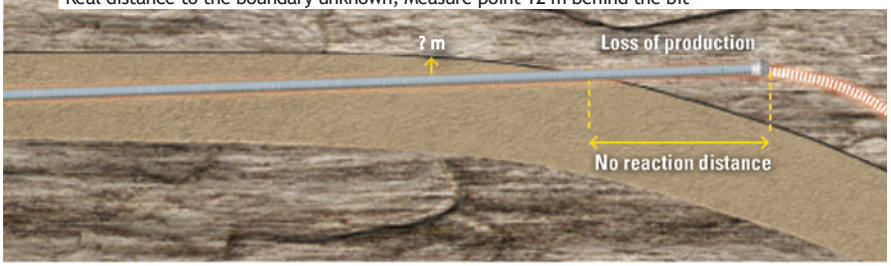
Proactive decision making with new quality control

PeriScope HD service introduces new quality control indicators that validate real-time interpretation, including uncertainties in inversion data. This much-needed confidence results in more accurate reservoir models, superior reserves estimations, and improved planning of future wells.

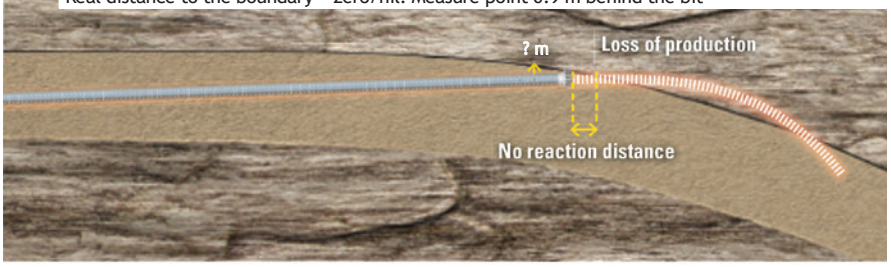
Quantitative formation evaluation

Azimuthal gamma ray, multidepth resistivity, deep azimuthal images, and annular pressure-while-drilling (APWD) measurements provided by PeriScope HD service are critical inputs for quantitative formation evaluation and equivalent circulating density (ECD) analysis that optimize hole cleaning.

Conventional measurements - Reactive steering
Real distance to the boundary unknown, Measure point 12 m behind the bit



At-the-bit measurement - Reactive steering
Real distance to the boundary = zero/nil. Measure point 0.9 m behind the bit



PeriScope HD real-time boundary mapping - Proactive steering
Real distance to the boundary detection = 6.4 m. Measure point 12 m behind the bit