EarthStar® X Near-bit, Shallow and Ultra-deep Resistivity Service

UNLOCK RESERVOIR POTENTIAL

OVERVIEW

The EarthStar® X service, part of the iStar® intelligent drilling and logging platform, uses its near-bit, ultra-deep reservoir mapping sensors to detect geological changes early and enable quick well trajectory correction to remain in the most productive zones and maximize asset value. Integrated shallow resistivity measurements allow early reserves evaluation and accurate fluid characterization to further improve reservoir insight while lowering operational complexity and risks.

GEOSTEER, GEOSTOP, AND GEOMAP WITH NEAR-BIT RESERVOIR MAPPING

The ultra-deep azimuthal resistivity measurements and unique 3D visualization of the EarthStar X service enable accurate mapping of the geology all around the wellbore to place wells in the reservoir's most productive zone and maximize the sections' net-to-gross value. With its optional integration into the iCruise® rotary steerable system (RSS), the EarthStar X service reduces the sensor-to-bit distance to only 9 feet (3 meters). Using the industry's closest ultra-deep azimuthal resistivity sensor to the bit allows detection of formation changes sooner and proactive well path adjustments to avoid early exits.

EVALUATE AND CHARACTERIZE RESERVES EARLY

The EarthStar X service offers detailed conventional resistivity readings supporting in-depth petrophysical analysis of the reservoir. Shallow antenna arrays provide phase shift and attenuation resistivity along with R_v and R_h in real-time, regardless of the well angle. The combination of digitally compensated resistivity with formation anisotropy measurements near the bit drives early fluid characterization and a more accurate water saturation calculation to improve reserves evaluation.

REDUCE OPERATIONAL COMPLEXITY AND RISKS

The compact design eliminates the need for a separate propagation resistivity tool and minimizes thread connections and BHA length, reducing overall operational complexity. Operators benefit from more distance and time to adjust the well path to remain in the reservoir when integrating the service into the iCruise RSS, which minimizes borehole tortuosity and lowers risk when running the completion.

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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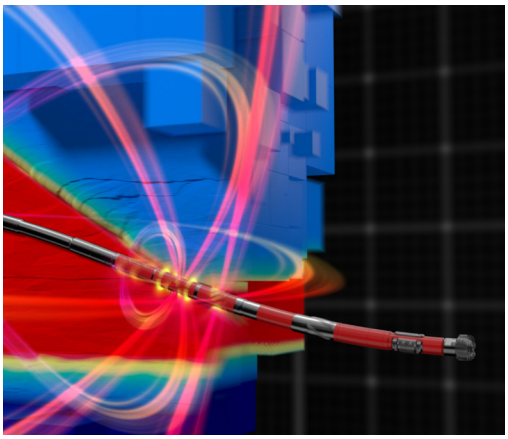

BENEFITS

- Geomap, geosteer, and geostop
- Map formation structures and fluid distributions in 3-dimensions
- React earlier to unforeseen geological changes to stay within the productive zone
- Acquire accurate near-bit formation resistivity for detailed formation and fluid characterization
- Obtain formation anisotropy for improved reserves evaluation
- Eliminate need for a conventional resistivity tool
- Reduce BHA length and handling time

FEATURES

- Industry's shortest distance-to-bit ultra-deep resistivity sensor
- Combined shallow and ultra-deep resistivity measurements
- Adjustable ultra-deep depth of investigation
- Optional integration into the iCruise RSS
- Inversion of ultra-deep readings in 1- and/or 3-dimensions for reservoir visualization
- Phase shift and attenuation resistivity from three spacings at two frequencies
- Azimuthal resistivity image and geosignals
- Real-time R_v, R_h, and relative dip at any hole angle