CTN™ Compensated Thermal Neutron Sensors

EVALUATE HYDROCARBON RESERVES IN COMPLEX LITHOLOGIES AND MIXED-FLUID RESERVOIRS

OVERVIEW

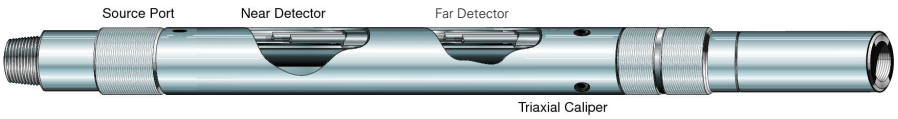
As a part of the Sperry Drilling measurement-while-drilling/logging-while-drilling (M/LWD) suite, the compensated thermal neutron (CTN™) family of second-generation LWD sensors provides accurate measurements of formation porosity while helping to distinguish between fluid types. This information helps operators improve their real-time decision making and gain a clearer understanding of the petrophysical characteristics of the reservoir.

The CTN sensor responds primarily to the hydrogen content in the formation, yielding accurate porosity measurements in liquid-filled reservoir formations. When combined with density measurements from the ALD™ azimuthal lithodensity sensor, or acoustic measurements from the QBAT™ or XBAT™ sensors, the CTN sensor helps to detect and evaluate gas-bearing formations, and to delineate complex lithologies.

REDUCE WELL TIME WITH ACCURATE HOLE-SIZE MEASUREMENTS

CTN sensors employ the latest electronics and processors, including redundant He^3 neutron detectors, for added reliability and superior measurement quality. Porosity is computed from the He^3 detector count rate ratio between the near and far detector arrays, with robust environmental corrections for hole size, standoff, mud weight, mud salinity, formation salinity, temperature, and pressure.

The 6¾-inch and 8-inch CTN-C™ sensors incorporate a triaxial AcoustiCaliper™ sensor, which can log boreholes between 8⅜ and 16 inches in diameter. The CTN-C sensor can provide valuable real-time hole size information for monitoring borehole stability, evaluating the performance of bi-center bits, hole openers, and under-reamers, and facilitating accurate borehole corrections and quality control for other M/LWD measurements.



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For more information, contact us at sperry@halliburton.com or visit us on the web at www.halliburton.com

BENEFITS

Drill to Produce

- Improve reserves estimates by distinguishing between fluid types
- Evaluate gas-bearing zones by combining with ALD azimuthal lithodensity sensors, or with QBAT or XBAT sonic sensors

Enhance Reservoir Understanding

- Delineate complex lithologies and identify target zones in real time
- Confidently identify pay zones for optimal completion design

Reduce Well Time

- Improve wellbore control by using real-time caliper and hole-shape measurements
- Eliminate potentially costly wireline runs

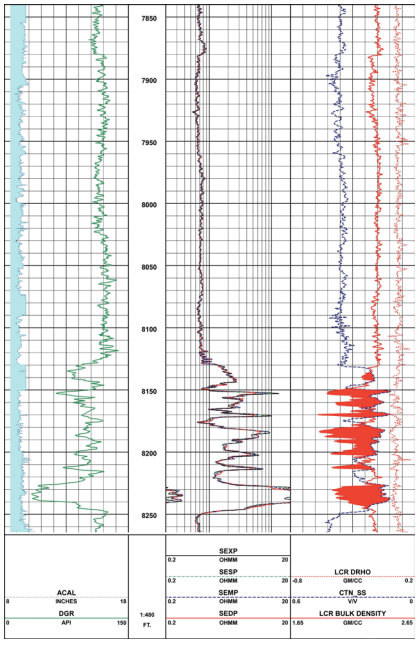

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Image of gas identification is shown with the CTN™ and ALD™ sensors