

NeoScope Sourceless Neutron-Gamma Density Correlates to Conventional Density Measurement

Correlation validates PNG measurements that eliminate the need for chemical nuclear sources

CHALLENGE

Acquire a full suite of formation evaluation measurements in two offshore wells in a field where requirements for handling chemical nuclear sources are becoming more and more stringent.

SOLUTION

Use NeoScope* sourceless formation-evaluation-while-drilling service that provides multifunction logging data without using a chemical nuclear source.

RESULTS

Validated NeoScope pulsed neutron generator (PNG) measurements through comparison with conventional gamma-gamma-density (GGD) measurements while eliminating requirements associated with transporting, storing, and possibly abandoning a chemical nuclear source. Saved an average of 6 hours of rig time per well by eliminating source loading and unloading and by providing close-to-the-bit measurements.

The SNGD measurements from two wells were compared with conventional GGD nuclear measurements, showing a close correlation over the logged interval.

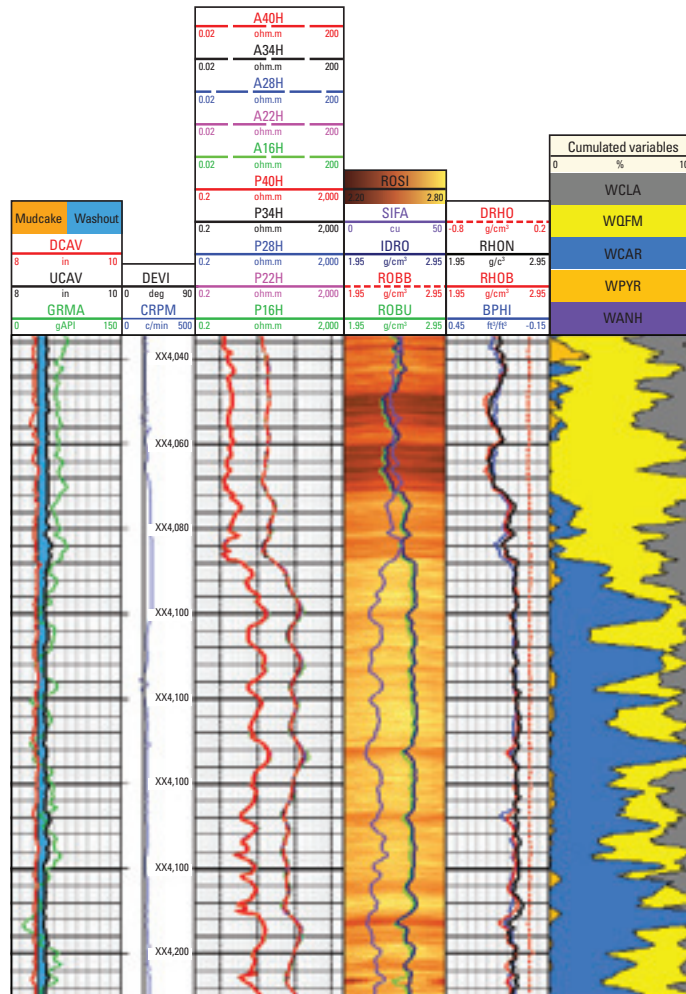


Logging while drilling in complex, multilayered presalt formation

An operator drilling in the complex, multilayered presalt formation offshore Angola needed to get a complete and accurate suite of formation evaluation measurements to fully evaluate the reserves in place. To acquire the measurements the operator needed, Schlumberger introduced the NeoScope PNG-based service that provides sourceless logging-while-drilling services.

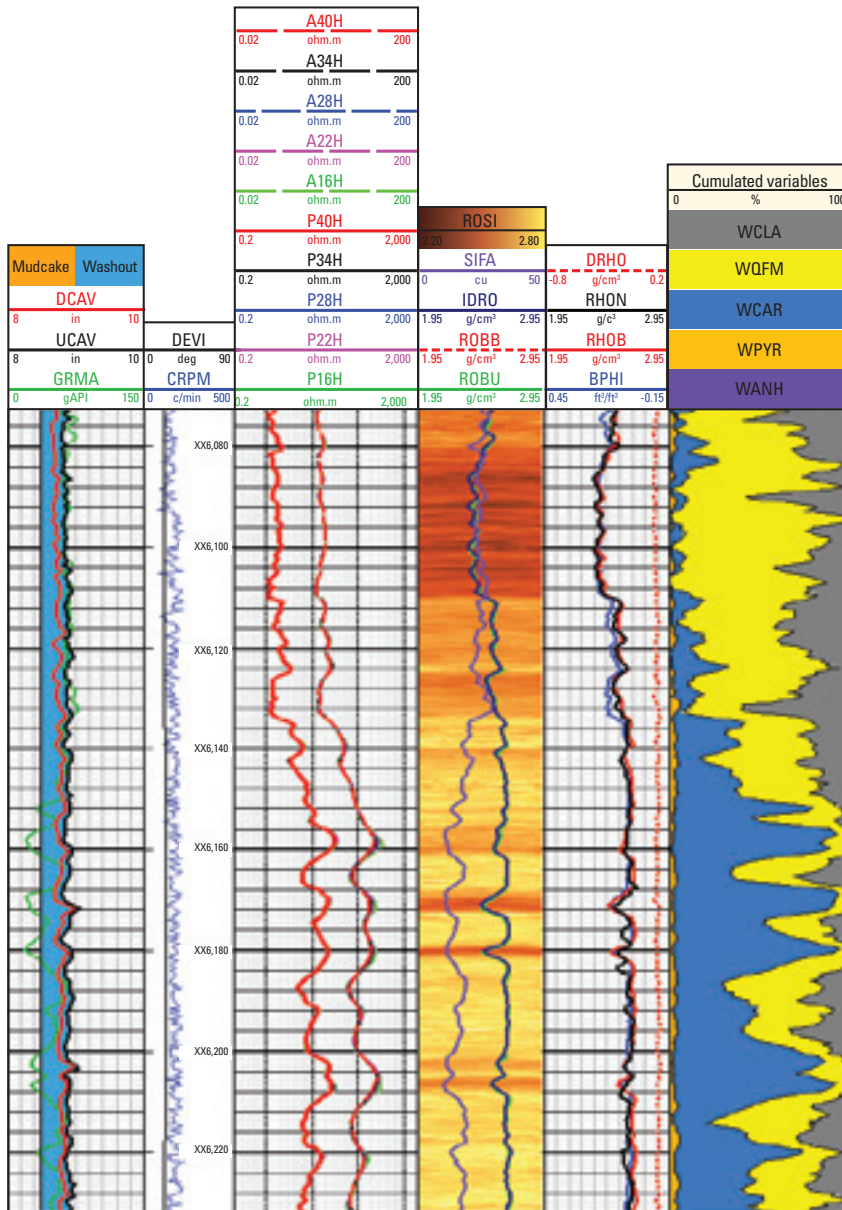
Sourceless neutron-gamma-density measurements for risk avoidance

NeoScope service is the industry's only fully sourceless multifunction formation evaluation service that eliminates all the risks associated with a chemical source while providing a comprehensive suite of measurements in the first 16 ft of a single 25-ft collar. The NeoScope PNG-based service determines the formation density from gamma rays induced by the interaction of high-energy neutrons with the formation. Sourceless neutron-gamma density (SNGD), together with the other NeoScope measurements, allows comprehensive formation evaluation while drilling.

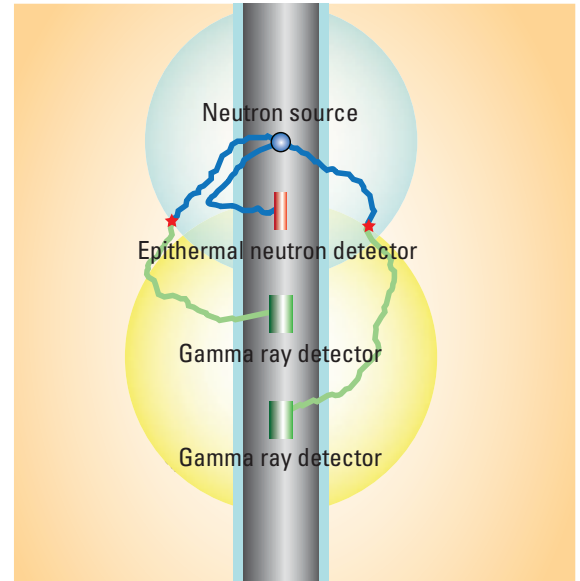


The log shows a comparison of compensated SNGD (RHON) with conventional GGD (RHOB) measurements in Well No. 1.

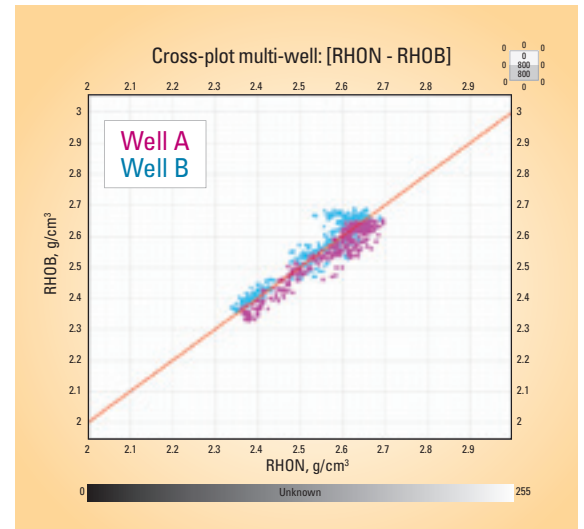
CASE STUDY: NeoScope PNG measurements eliminate risks associated with nuclear logging



The log shows a comparison of compensated SNGD (RHON) compared with conventional GGD (RHOB) measurements in Well No. 2.



Using the PNG and a suite of detectors, the NeoScope tool determines SNGD from the induced gamma rays.



A comparison of SNGD with conventional GGD measurements shows a close correlation over the logged interval.

Complete formation evaluation data without nuclear risk

The SNGD measurements from two wells were compared with conventional GGD nuclear measurements, showing a close correlation over the logged interval. Because of this correlation, the operator will use the NeoScope service in future wells to eliminate transportation, storage, and possibly abandonment issues associated with chemical nuclear sources. On average, the operator saved 6 hours of rig time per well by eliminating source loading and unloading and by having all measurements close to the bit.

Contact your local Schlumberger representative to learn more.

*Mark of Schlumberger

Note: Japan Oil, Gas and Metals National Corporation (JOGMEC), formerly Japan National Oil Corporation (JNOC), and Schlumberger collaborated on a research project to develop LWD technology that reduces the need for traditional chemical sources. Designed around the pulsed neutron generator (PNG), NeoScope service uses technology that resulted from this collaboration. The PNG and the comprehensive suite of measurements in a single collar are key components of the NeoScope service that deliver game-changing LWD technology.