RAS™ Reservoir Analysis Sonde – Sigma

Measures reservoir saturation using Sigma techniques

Applications

- Reservoir monitoring
- Formation evaluation
- Wellbore performance and integrity
- Primary reservoir description where openhole logging is constrained

Features and Benefits

- Short 3-detector PNG tool
- Improved wellsite safety
- Surface read out (SRO) and memory compatible
- Combinable with all high-speed digital (HD) products
- Sigma and water flow available in SRO and memory modes (mixed modes supported in memory)

Tool Description

The Weatherford RAS Reservoir Analysis Sonde – Sigma is a multidetector pulsed-neutron tool for measuring reservoir saturation using source and detector technologies more suitable for specific markets.

The sonde features an array of three sodium-iodide (NaI) detectors. The Sigma measurement is based on the near and far spacings, the long spacing is sensitive to porosity and gas saturation.

The tool also operates in oxygen activation mode to determine water phase velocity (water-flow mode) and can be combined with up to four gamma ray-CCL (-GCL) tools for this application.

The RAS003 is an HD platform tool and combinable with other HD tools such as spectral gamma, RADii®, ProMAC™, and production logging tools.

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Specifications

Ratings and Dimensions

Outside diameter	1.69 in. (43 mm)
Length	140.7 in. (3,573 mm)
Weight	51 lb (23 kg)
Maximum temperature	320°F (160°C)
Maximum pressure	15,000 psi (103.4 MPa)
Measure points	Near: 80 in. (2,032 mm) Far: 87 in. (2,210 mm) Long: 95 in. (2,413 mm)
Materials	Corrosion-resistant materials used throughout

Hardware Characteristics

Source type	3-detector array includes time and energy spectra
Sensor type	Sodium-Iodide detectors
Acquisition mode	Real time with ICU Memory with MLT

Measurements

Type	Sigma, oxygen activation, inelastic gas