Array Laterolog (ALAT) Service

FAST, ACCURATE, STATE-OF-THE-ART ARRAY LATEROLOG

OVERVIEW

The Halliburton Array Laterolog (ALAT) service provides accurate formation resistivity Rt and resistivity of the flushed zone Rxo, independent of borehole, shoulders, and invasion.

The tool uses laterolog principles and a proprietary scheme of electrodes and frequencies to obtain five measurements of formation resistivity at different DOIs (depths of investigation). The tool is symmetric, with a main current electrode A0, and six bucking electrodes above and below A0. It also has an array of monitoring electrodes above and below A0.

Unlike traditional laterolog measurements, the focusing is done via software. A borehole correction algorithm removes the effects of the borehole and provides up to five resistivity measurements with different DOI: Ra1 through Ra5 (deepest). The vertical resolution of these curves is the same and better than 1 ft. Simultaneous displaying of these curves allows for a real-time visualization of invasion, and they are used to accurately invert in real time for Rt, Rxo, and diameter of invasion Di.

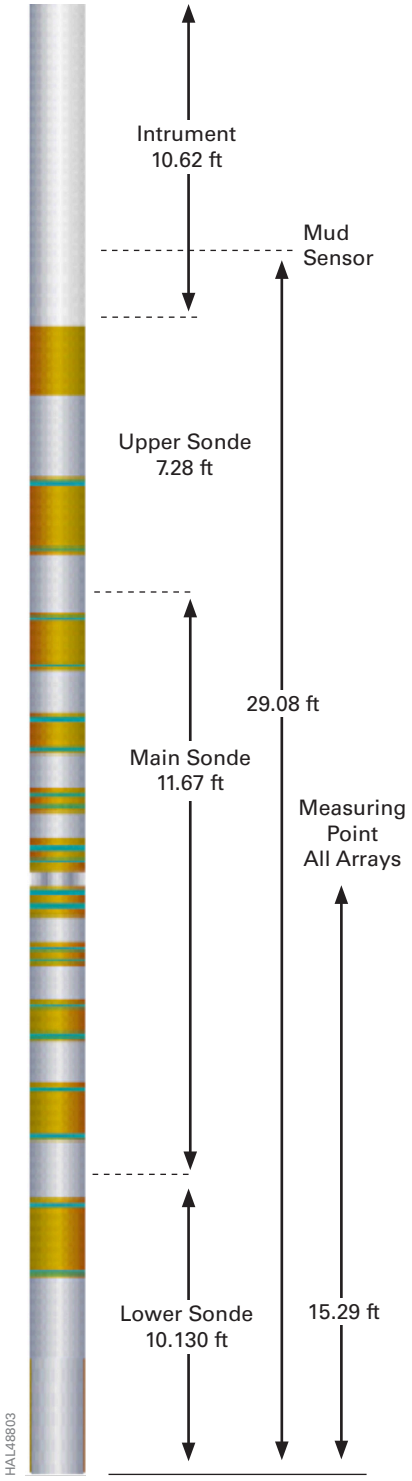
The hardware configuration does not require the use of bridles, and all the current returns within the borehole eliminating the Delaware and Groningen effects. The tool is combinable with all tools of the LOGIQ® family, even the Array Compensated Resistivity Tool (ACRt™) service.

APPLICATIONS

- Accurate evaluation of thin-bed water saturation in deeply invaded formations in boreholes drilled with water-based muds—either fresh or saline
- Real-time visualization of invasion

FEATURES AND BENEFITS

- Real-time Rt-Rxo-Di
- Vertical resolution better than 1 ft
- Integrated mud resistivity cell for real-time borehole-corrected resistivity



Dimensions and Ratings

Tool OD	3.625 in. (9.21 cm)
Tool Length	39.7 ft (12.1 m)
Tool Weight	1,012 lb (459 kg)
Maximum Temperature	350°F (177°C)
Maximum Pressure	20,000 psi (137.9 MPa)

Measurement

Vertical Resolution	Better than 1 ft
Primary Curves	Rt, Rxo, Di
Secondary Curves	Borehole-corrected Ra1(1), Ra2(1), Ra3, Ra4, Ra5
Depth of Investigation	

Borehole Conditions

Borehole Fluid	Water-based mud (salt, fresh)
Minimum Borehole Diameter	4.75 in. (12.07 cm)
Maximum Borehole Diameter	17.5 in. (44.45 cm)
Resisivity Range	0.2 to 20K Ω-m (Rm>0.02 Ω-m); 0.2 to 100K Ω-m (1 Ω-m >Rm>2 Ω-m)
Recommended Maximum Logging Speed	60 fpm
Tool Position	Centralized

(1) Depending on Rt/Rxo, and borehole size may not be available.

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