

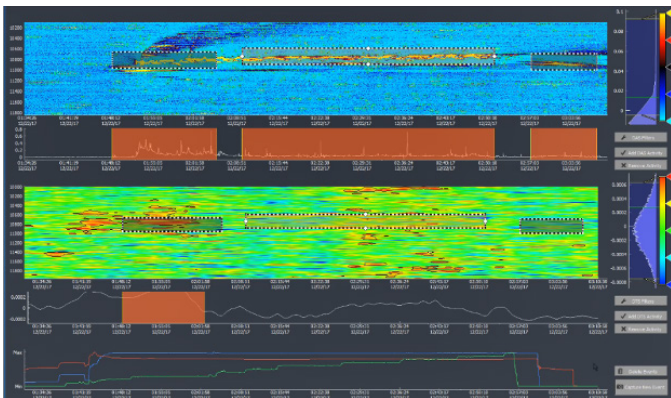
FiberLog™ Service

FIBER-OPTIC DISTRIBUTED SENSING TECHNOLOGY

OVERVIEW

FiberLog™ service is a retrievable wireline service that enables operators to obtain downhole data in wells not instrumented with permanent fiber optics. FiberLog services are coupled with the industry-leading Pinnacle distributed acoustic sensing (DAS) interrogator and dual-laser distributed temperature sensing (DTS) measurements to provide superior data quality. FiberLog technology is also enabled with highly sensitive fiber for the measurement of low-signal cross-well strain/DAS Microseismic (MSM) events. This technology, paired with analytics developed by Halliburton, converts fiber data into actionable insights, ensuring that we deliver a complete solution to our operators. A key example of this is providing qualitative strain analyses, along with further autocharacterization of events, in hydraulic and mechanical communications that are presented to operators in a digital format in order to drive completion design decisions.

FiberLog service employs an electro-optic wireline cable that is built to be deployed in deviated or horizontal wells, and that is capable of being pumped down or tracted. Electrical conductors also provide gives the ability to run additional wireline tools, along with DTS and DAS.



Example of real-time cross-well strain and DTS viewer, with auto-event detection

Equipment Specifications

Cable Diameter	$\frac{3}{8}$ in.
Maximum Voltage	1,500 VDC
Fiber Configuration	2 SM, 1 MM, 1 High SnR

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

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APPLICATIONS

- » Cross-well strain monitoring
- » Detection of cross-well mechanical and hydraulic communications
- » DAS MSM monitoring
- » Leak detection/wellbore integrity monitoring
- » Injection flow profiling
- » Production flow profiling

FEATURES

- » Superior data quality by coupling with industry-leading Halliburton DAS and DTS
- » Actionable insights from fiber data with Halliburton analytics
- » Highly sensitive fiber enabled (up to 20 dB noise floor reduction)
- » Multi-technology surveys, where distributed fiber-optic sensing is combined with conventional point sensors in one run

BENEFITS

- » Industry-standard wireline size, which makes it easy to implement distributed fiber-optic sensing technologies in existing intervention plans
- » Compatible with standard electric line pressure control equipment
- » Compatible with mono-conductor cased-hole logging tools
- » Compatible with wireline tractors