

SEGMENTED BOND TOOL (SBT)

WELL INTEGRITY EVALUATION SERVICE

Confirm hydraulic isolation and avoid remedial work by evaluating cement bond integrity.

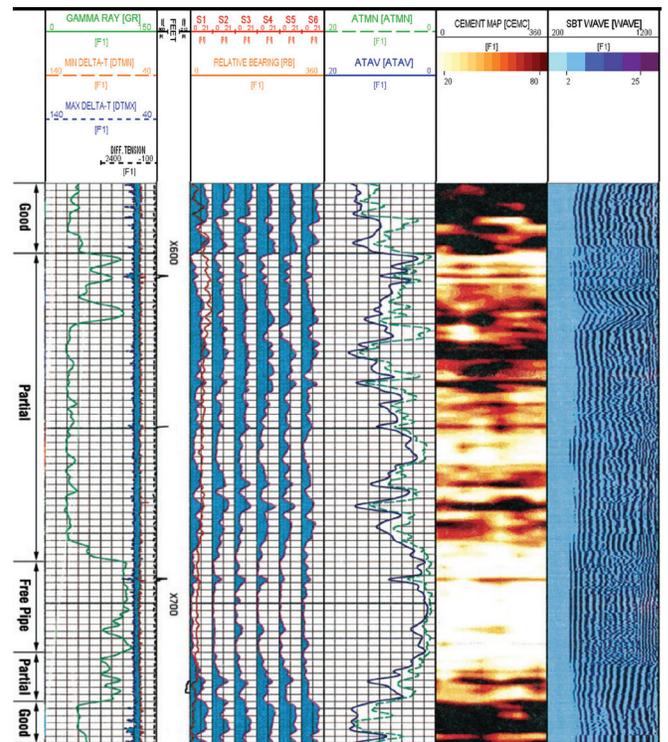


The Baker Hughes Segmented Bond Tool (SBT™) well integrity evaluation service quantitatively measures the cement bond integrity in six angular segments around the casing, delivering the information needed to confirm hydraulic isolation and determining whether remedial work is required before any completions are attempted. The SBT service operates at the ultrasonic frequency range, and quantitatively measures the cement bond integrity in six angular segments around the casing to ensure a strong hydraulic seal in these locations, thus improving productivity and well life span. The service can find and define channels in the cement annulus, enabling the operator to determine next steps. Conversely, the SBT service can reliably find zones of uniform bonding within a few feet of casing. Under conditions where a short-bonded interval produces an adequate hydraulic seal, squeeze jobs can be avoided.

The SBT service offers significant operating advantages over conventional and pulse-echo tools due to its insensitivity to heavy or gas-cut borehole fluids, dense muds, emulsions, fast formations, temperature and pressure variations, and moderate tool eccentricity. The service can evaluate cement in heavyweight casings up to 1-in. thick.

For ease of interpretation, SBT measurements are displayed in two log presentations. Both presentations are available in the logging mode, as the SBT data are acquired, processed, and plotted in real time. The secondary presentation consists of six continuous segmented arrays, a variable-attenuation cement map, and a tool-orientation trace overlay—a field deliverable that does not require engineer interaction. It also provides a 5-ft-spaced variable-density log measurement, used to qualitatively understand the bonding between cement and the formation.

The SBT™ Beyond service enables the SBT service to extend the maximum casing size from 16 in. to 24 in., thus offering a tool covering the widest casing size range in the cement evaluation segment. The SBT Beyond service is capable of evaluating cement



The field deliverable is a real-time, non-processed log that is not dependent on the logging engineer's input.

behind casing sizes larger than 133/8 in., which is unique in the industry. Combined with the benefit of this wide casing thickness range of the SBT service (up to 1-in. thickness), the SBT Beyond service addresses challenges in segments where pulse-echo devices cannot perform.

For more information on how the SBT service can help you determine if remedial work is required before completions are attempted, contact your Baker Hughes representative today or visit bakerhughes.com/SBT.

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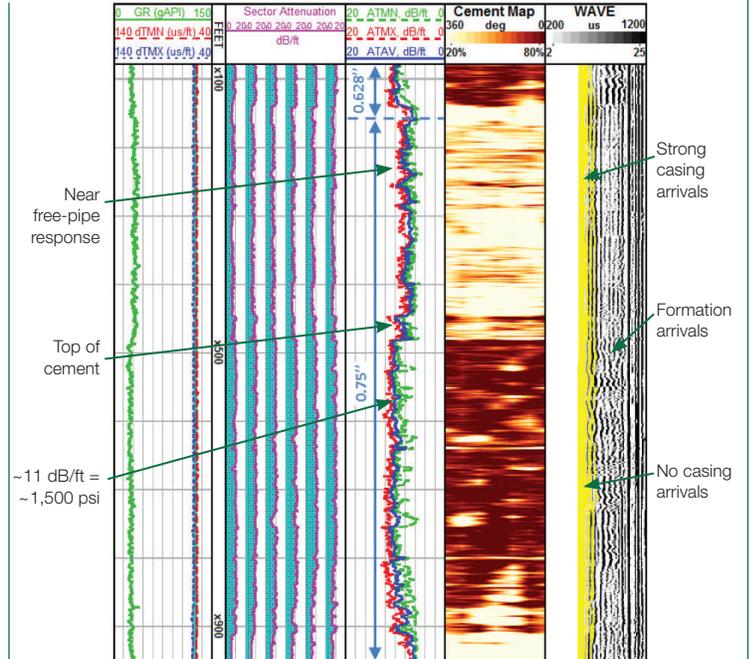
FEATURES & BENEFITS

- ⇒ Pad-mounted
 - Identifies intervals of uniform bonding and detects cement channels or voids
 - Identifies channeling and poor cement bond sections to reduce risk
 - Reduces analysis time, using a 360° easy-to-interpret cement map
 - Provides accurate measurement in any type of formation condition, up to 1-in.-thick casing
 - Provides accurate measurement, even in fast formations, heavy mud, and thick wall casing
 - Evaluates multiple-size casing strings in one logging pass
- ⇒ Insensitive to moderate eccentricity
 - Enables deployment in the most challenging scenarios
- ⇒ Fully compensated measurement
 - Unaffected by varying wellbore fluid conditions, pressure, and temperature
- ⇒ Casing range from 4.5 to 24 in.
 - Provides the widest casing range coverage in the industry

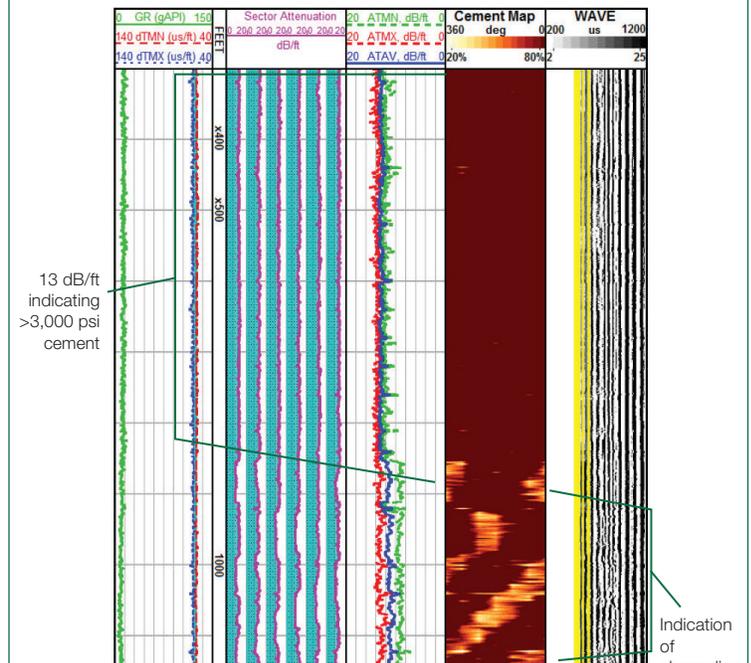
APPLICATIONS

- ⇒ Provides quantitative analysis of cement bond to the casing around the borehole
- ⇒ Provides qualitative analysis of cement bond with the formation

Length	32.1 ft.	
Diameter	3.38 in.	
Pressure rating	20,000 psi	
Temperature	350°F	177°C
Weight	481 lb.	
Min. casing size	4.5 in.	
Max. casing size	24 in.	
Measurement range	0–25 dB/ft	
Radial resolution	360° coverage	
Vertical resolution	3 in.	76.2 mm



SBT Beyond service log of casing with 20-in. outside diameter (OD) and 0.984-in. wall thickness



SBT Beyond service log of casing with 24-in. outside diameter (OD) and 0.75-in. wall thickness