

WELL INTEGRITY: CEMENT EVALUATION

Segmented Bond Tool (SBT) service

Avoid unnecessary squeeze jobs

Applications

- Quantitatively analyze cement bond to the casing around the borehole
- Evaluate multiple-size casing strings in one logging pass
- Perform accurate, high-velocity (fast) formation cement evaluations

Features and Benefits

- Generates accurate time-lapsed analyses regardless of borehole conditions, mitigating risk by detecting channeling and poor cement bonds
- Tolerates moderate eccentricity with 360°, easy-to-interpret cement map, reducing analysis time
- Evaluates multiple casing sizes in one run without loss of quality, saving rig and nonproductive time (NPT) costs
- Orients cement voids or channeling relative to the low side of the hole in deviated wells, avoiding unnecessary squeeze jobs
- Provides accurate measurements under unfavorable conditions such as fast formations, heavy mud, and thick casing walls, improving operational efficiency
- Deploys on wireline or **TeleCoil™ intelligent coiled tubing services**, providing flexibility for reaching optimal performance

The **Segmented Bond Tool™ (SBT™) well integrity evaluation service** delivers the information required to confirm hydraulic isolation and determine whether remedial work is required before any completions are attempted, alleviating concerns of reduced productivity and well lifespan.

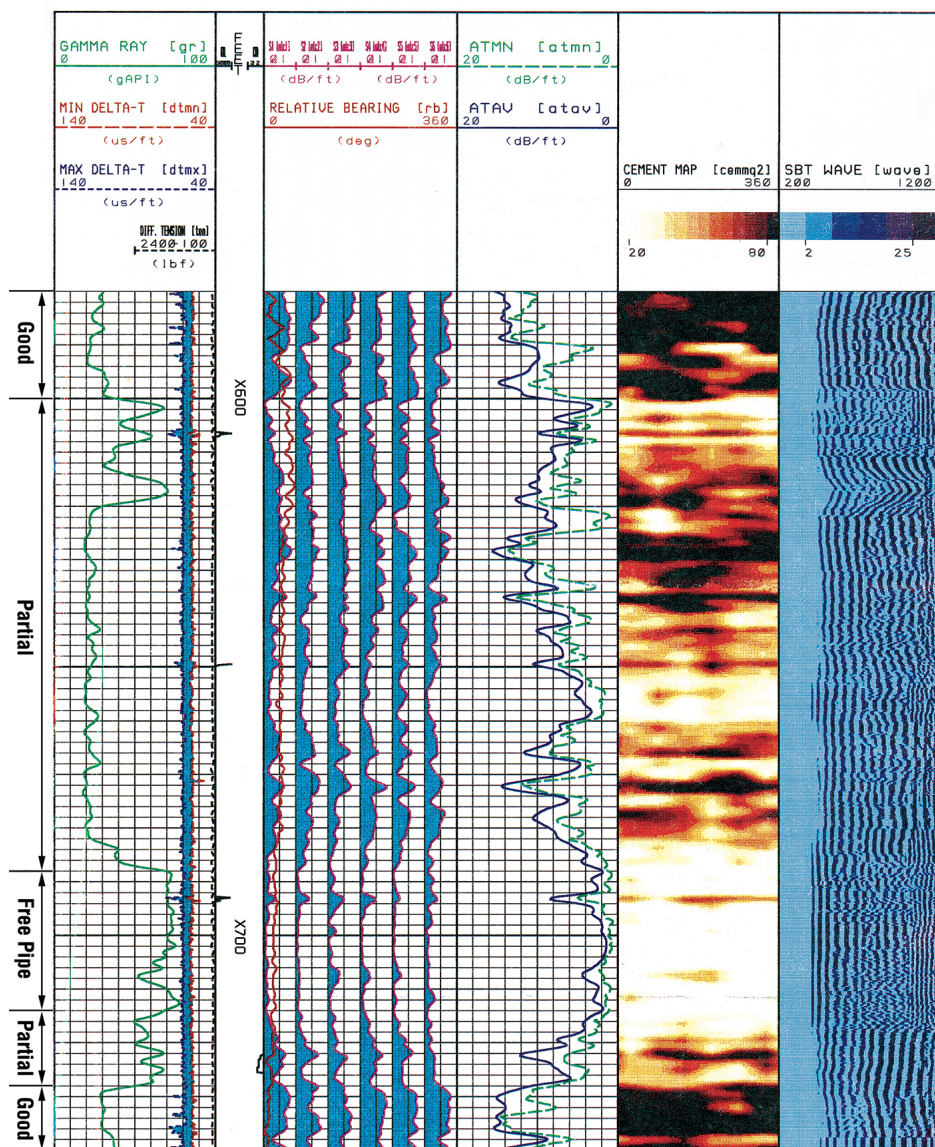
The SBT service quantitatively evaluates cement bond integrity in six angular segments around the casing. The SBT service can find and define channels in the cement annulus, avoiding the results of a poor hydraulic seal. Conversely, the SBT service can reliably find zones of uniform bonding within a 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, fast formations, temperature and pressure variations, and moderate tool eccentricity.

For ease of interpretation, the SBT measurements are displayed in two log presentations. Both presentations are available in the logging mode as the SBT data is acquired, processed, and plotted in real time. The secondary presentation consists of six segmented arrays, a variable-attenuation cement map, and a tool orientation trace overlay.

Specifications

Diameter	3.38 in. (85.7 mm)
Pressure rating	20,000 psi (137.9 MPa)
Temperature rating	350°F (177°C)
Minimum pipe size	4.5 in. (114 mm)



- The SBT log identifies a wide range of cement bond conditions as indicated for the interval X580 to X740. Partial bonding is identified from X600–88 and X714–28, but sufficient cement is present to provide hydraulic isolation.
- Attempts to improve the cement condition between X688 and 714 will most likely be unsuccessful because adequate hydraulic isolation exists above and below this interval, limiting the amount of cement that can be squeezed into this zone.
- The two quality curves, DTMN and DTMX, indicate good pad contact with the casing wall and that the tool is properly centralized.