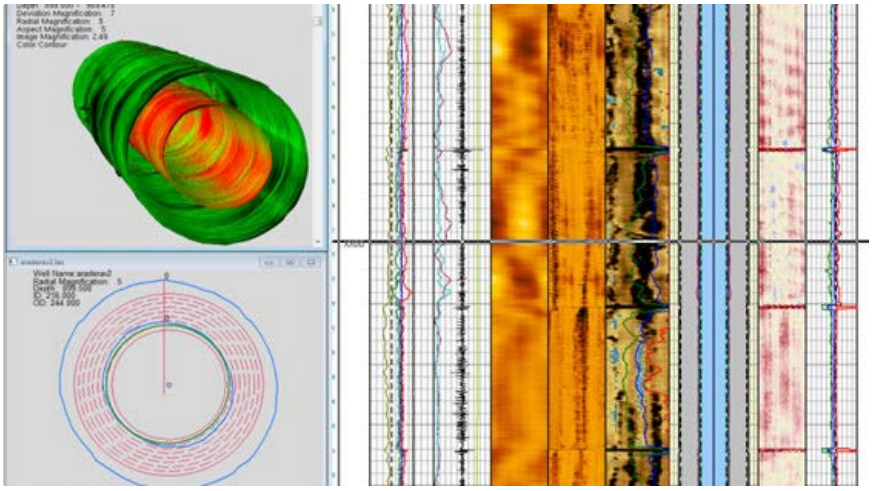
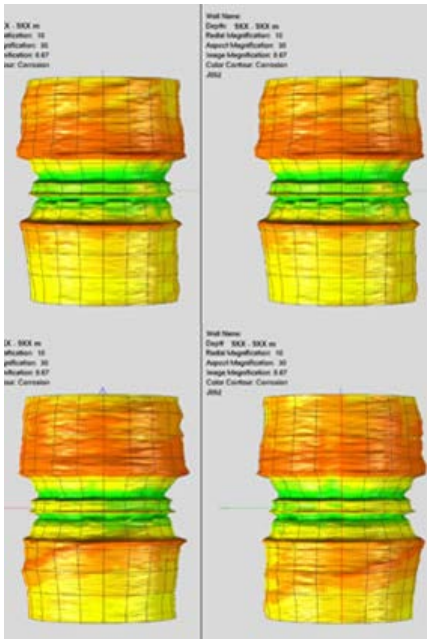
Casing-Inspection Tools Confirm the Integrity of 5-Year-Old Casing in a Deviated Offshore Well



For precise interpretation of CIT data, each collar and hardware is imaged every 90° around the casing. In the resulting images above, the collars show no anomalies.



URS data is presented in 3D format for interactive evaluation and easy visualization. The above imaging shows that the inside and outside of the casing are intact with no evidence of corrosion or pitting.

Objectives

- Evaluate the cement bond and confirm the integrity of the 9 5/8-in. casing. The casing was more than 5 years old, which increased the risk of well-integrity issues.

Our Approach

- Weatherford deployed the ultrasonic radial scanner (URS) and high-resolution borehole compensated (HBC) sonic services to gather data and to evaluate the current condition of the cement job. Additionally, the team selected a magnetic-flux casing-inspection tool (CIT) to examine casing integrity.
- The URS, with its 360° azimuthal coverage of the borehole, provided a detailed map of the cement behind the casing. The resonant-frequency measurement of the casing helped to evaluate potential corrosion on the inside and outside of the casing.
- The state-of-the-art flux-leakage-measurement technique, which was achieved using the CIT, deployed Hall-effect sensors to provide quantitative measurements of the inside and outside of the casing.
- For this particular cased-hole application, the team used HBC services to log the casing in cement-bond-log/variable-density-acquisition mode. The acquired data positively evaluated the cement-bond quality between cement and casing, and between the formation and cement.

LOCATION
North Sea

WELL TYPE
Offshore, deviated, water injection

MAXIMUM HOLE ANGLE
51°

CASING SIZE AND TYPE
9-5/8 in., 53.5-lb/ft (79.7-kg/m) L-80

PRODUCTS/SERVICES
- CIT
- URS
- HBC
- Data interpretation and processing services

Weatherford®

Casing-Inspection Tools
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Our Approach (continued)

- The CIT confirmed that the casing was in good condition, with minimal defects and perturbations. The URS and HBC services confirmed a good bond between the cement and casing, and between the formation and cement.

Value to Client

- Using a combination of casing-inspection tools enabled the operator to successfully evaluate the cement bond and to confirm casing integrity.
- Data interpretation and analysis gave the operator high confidence in the condition of the casing and verified that the current cement job still serves as a reliable hydraulic isolator for the zone of interest.