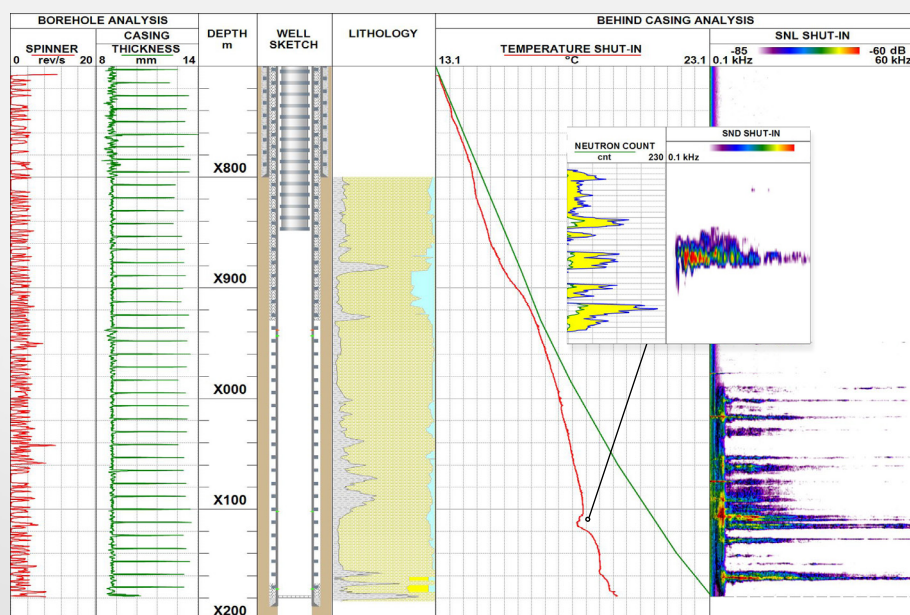


WELL INTEGRITY PLATFORM SPECTRAL LEAK DETECTION SERVICE

tgtoil.com

Case study GAS STORAGE PERFORMANCE EVALUATION

The objective in this study was to check for behind-casing cross-flows prior to perforation, a critical step to ensure that no gas escapes from underground gas storage reservoir into other formations.



Gas flows outside gas storage interval

Problem

A cement evaluation survey was conducted in a newly drilled infill well to check the isolation of a gas storage reservoir from overlying and underlying permeable formations. The cement quality was found to be patchy, which was a concern for the Client as it implied cross-flows behind casing.

Solution

TGT conducted a Spectral Leak Detection (SPEC-LD*) survey along with other advanced surveys, including EmPulse* for well integrity, Indigo PLT* and Indigo PNN* sigma saturation to solve the problem (see Figure). EmPulse* indicated good casing condition and PLT detected no wellbore cross-flows. However, the SPEC-LD* survey that included high-definition spectral noise logging, SNL-HD*, detected gas flows in the gas storage reservoirs, overlying and underlying reservoirs and cement, which confirmed gas losses out of the gas storage reservoir. Gas accumulation outside the storage reservoir was confirmed by Indigo PNN* data.

Client's actions

Based on the Spectral Leak Detection (SPEC-LD*) results, cement was squeezed above the gas storage reservoir to eliminate the cement channel and gas loss.

SPECTRAL LEAK DETECTION SERVICE

Description

The SPEC-LD service is designed to measure fluid flow behind multiple casings by passive High-Definition Spectral Noise Logging (SNL-HD) combined with High-Precision Temperature (HPT) logging to pinpoint leak sources, both in the well and in the reservoir, and quantify them.

Applications

- Sustained annulus pressure source identification
- Leak location (tubing, casing, packer, etc.)
- Channeling detection
- Smart completion monitoring
- Pre plug & abandonment assessment
- Gas storage performance evaluation

*TGT's patented or patent-pending technologies

