

INTEGRITY CASE STUDY SPECTRAL LEAK DETECTION [SPEC-LD*]

Challenge

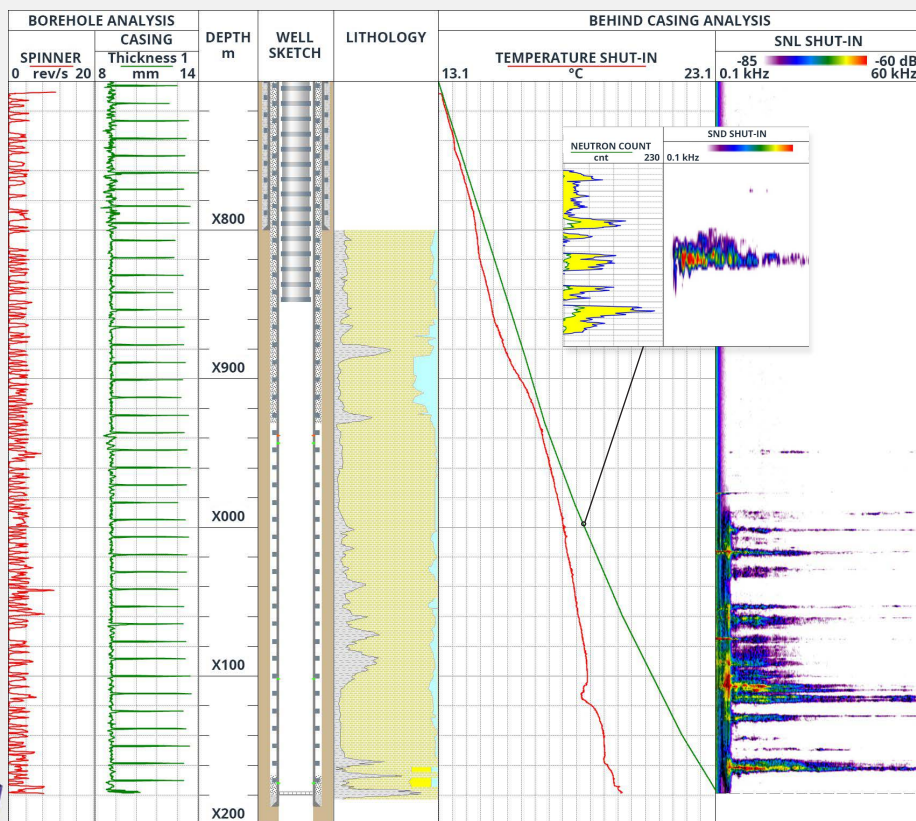
A cement evaluation survey in a newly drilled infill well to assess the isolation of the gas reservoir from the overlying and underlying permeable formations found variable cement quality. This was a concern for the client, as it implied behind-casing cross-flows. The client needed to check for cross-flows before perforating the well to ensure that no gas would escape from the gas reservoir into other formations.

Solution

TGT conducted a spectral leak detection [SPEC-LD] survey with other advanced surveys, including EmPulse® logging for well integrity, Indigo* production logging [PL] and Indigo pulsed neutron-neutron [PNN] sigma saturation logging.

The EmPulse survey indicated good casing condition and the Indigo PL survey detected no wellbore cross-flows. However, the SPEC-LD survey, which included high-definition spectral noise logging [SNL-HD*], detected gas flows in the gas reservoir, the overlying and underlying reservoirs, and the annulus, which confirmed gas losses from the gas reservoir. Indigo PNN data confirmed gas accumulation outside the gas reservoir.

A comprehensive integrity diagnostics in newly completed gas storage well revealed cross-flow behind casing. Operator was able to target remediation and secure the well for operation.



The SPEC-LD survey results show gas flows outside the gas storage interval. The operator performed a cement squeeze to secure annulus integrity and restore the well to normal operation.

Outcome

The operator squeezed cement above the gas storage reservoir to eliminate the cement channel and the gas loss.