

RESERVOIR CASE STUDY SPECTRAL FRACTURE FLOW [SPEC-FRAC*]

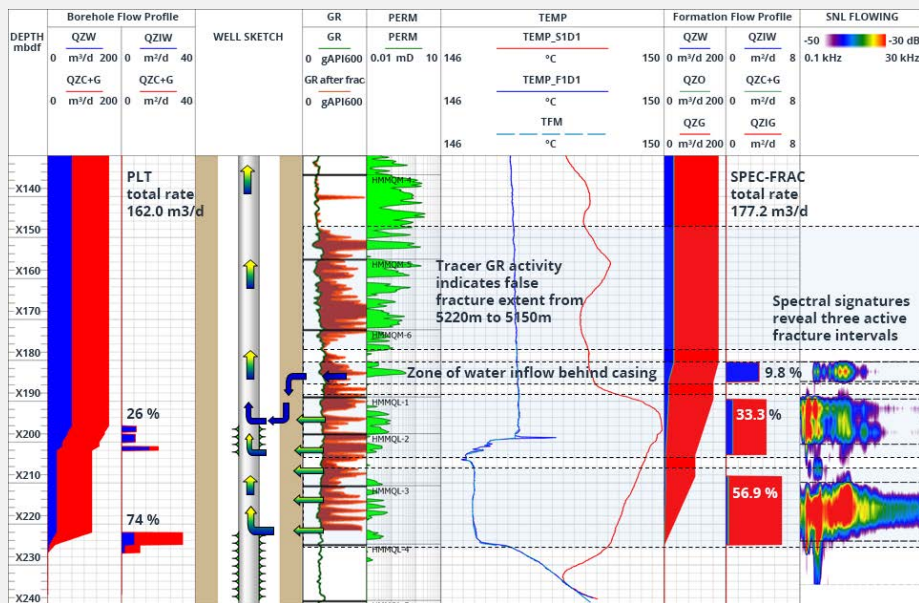
Challenge

Determining the true extent of actively producing fractures following a hydraulic fracture operation is critical, and conventional methods do not always deliver accurate results. One method is to pump radioactive tracers during the fracture operation and survey the interval post-fracture with a gamma ray log. However, the tracer can migrate to zones beyond the fracture's reach, which results in a false indication of the fracture extent.

Solution

In this case study, the SPEC-FRAC service was selected by the operator to accurately determine the true producing fracture intervals. The SPEC-FRAC survey also identified active zones behind the casing and beyond the perforated interval. In addition, TGT's temperature simulation technology revealed water encroachment above the perforations and estimated behind-casing flow rates.

Spectral diagnostics determine the true active fracture length and expose a prime weakness of conventional tracer methods.



Radioactive tracing overestimates the true extent of the producing fracture height. Active fractured intervals beyond the perforation zones are accurately identified by the SPEC-FRAC survey. Notice how the SPEC-FRAC formation flow profile is very different from the production logging tool flow profile.

Outcome

The insights provided by spectral reservoir diagnostics revealed the true extent of active fractures and confirmed well integrity failures. The operator can now re-evaluate the fracture programme and well completion strategy.