INTEGRITY CASE STUDY
MULTISTRING CORROSION ASSESSMENT

Challenge

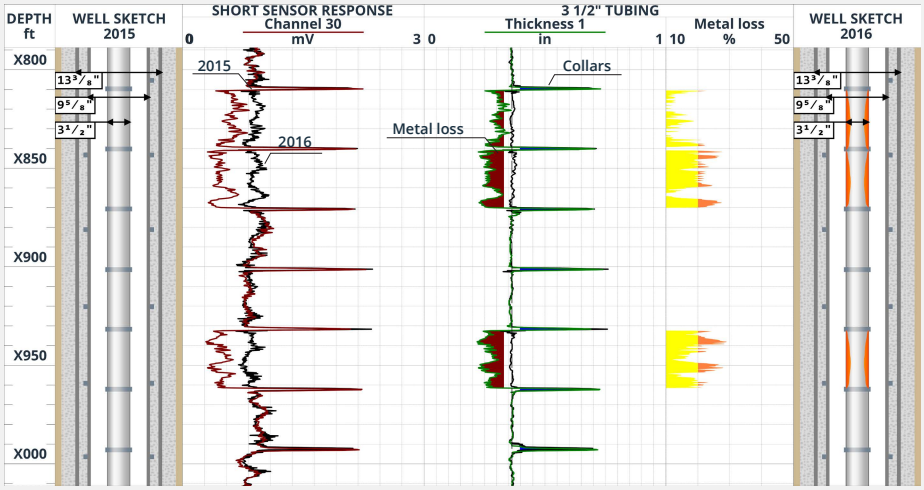
The high flow rate and >10% hydrogen sulphide content of a production well give it a high corrosion potential. Over time, corrosion could affect well performance and operating safety.

Solution

Time-lapse corrosion monitoring can help to minimise workovers and extend the life of completion strings to improve overall well and field economics. The operator decided to conduct metal loss surveys using TGT's EmPulse well integrity platform in three-string completions containing 3½-, 9⅝- and 13⅜-in. casings. The first survey was in 2015 and the second a year later.

The first survey results were used as the baseline, as the well had just started producing. The second survey showed no metal loss in the 9⅝- and 13⅜-in. casings. The 3½-in. tubing also showed good data repeatability in most of the surveyed intervals, but three joints had lost more than 20% metal, which indicated problems with the tubing material.

EmPulse® technology enables proactive integrity surveillance, better completion design and improved inhibitor programme.



EmPulse technology is designed and built completely in-house by TGT to evaluate pipe wall thickness and metal loss in up to four concentric casing strings. In this example, EmPulse technology has quantified ~20% metal loss in three tubing joints.

Outcome

Since the time-lapse corrosion analysis based on EmPulse surveys, the operator has changed the inhibitor type in this well and optimised the completion design of newly drilled wells to mitigate or delay the harmful effect of the aggressive hydrogen sulphide environment.