

Case study Collars Tube Integrity

Detecting casing collar breaks through tubing enables operator to minimise remediation costs



Location: Canada
Well type: Cyclic Steam stimulation well
Reference: SPE-195956-MS

Case benefits

- Enabled operator to identify casing collar breaks
- Through-tubing deployment enabled operator to minimise disruption to well operations and costs
- Enhanced focus of remediation decisions and improved planning

Challenge

In cyclic steam stimulation and steam-assisted gravity drainage, the reservoir fluids are heated through steam flooding to increase the mobility of heavy oils. The steam is transported to the reservoir through the producing well. Consequently, the well's casing metals and cement sheath are exposed to temperatures up to 300°C.

A common problem in cyclic steam injection operations is the failure of casing connections due to induced coaxial stress, which requires quick and reliable verification. To optimise cost operators need to identify issues downhole, such as casing collar breaks, without retrieving/pulling the tubing. In this case, an operator in northeastern Alberta, Canada, wanted to

check the integrity of a producing well with 73 mm tubing inside a 168.3 mm slotted liner.

Solution

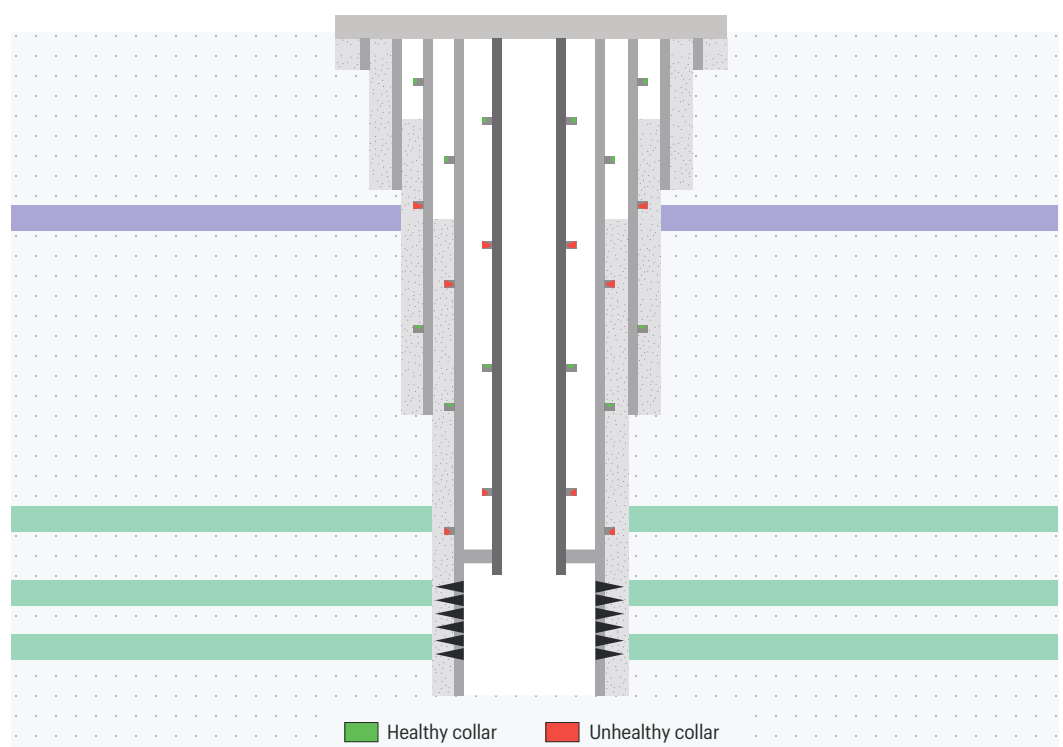
The operator selected TGT's Collars Tube Integrity product to provide an accurate assessment of the casing connections in the well through tubing. Powered by TGT's True Integrity diagnostic system using the Pulse (electromagnetic) platform, Collars Tube Integrity reveals collar condition from a single through-tubing deployment.



Collars Tube Integrity can be used to investigate a specific integrity breach or routinely to support ongoing integrity management programs. Its ability to

 Collars Tube Integrity example well sketch.

Collars Tube Integrity gives you the clarity and insight needed to manage well system performance more effectively.

Powered by our True Integrity system and Pulse technology, Collars Tube Integrity is the industry's most accurate multi barrier diagnostic product.



 Healthy collar  Unhealthy collar

assess up to four concentric tubulars simultaneously means that most of the collars can be evaluated in a single deployment.

TGT's diagnostic systems combine several proprietary technology platforms that share a common structure and four-stage workflow: programs and methods; tools and measurements; processing and modeling; and analysis and interpretation.

Result

In the subject well, Collars Tube Integrity located a casing break (see Line A) that coincided with the depths of collars (Figure 1).

The Operator confirmed this when forced to pull the tubing to run a Multi-Finger Caliper (MFC) in casing.

The Collar Tube Integrity data acquisition and processing approach enabled time and resource optimisation by indicating the location and severity of casing collar breaks while the completion was still in the hole. This resulted in more focused well intervention planning and resource allocation. Over the past five years, the technique has been successfully applied in more than 100 wells across the province of Alberta and identified multiple casing collar breaks in single runs.

The collar break at depth depicted by Line A was detected by using the Pulse platform and was verified by MFC data.

