A gas producer in the North Sea needed to isolate two permeable zones to complete a safe plug and abandonment operation. It was critical to verify the well’s cement and casing integrity to meet all technical and regulatory abandonment requirements.

Baker Hughes, a GE company (BHGE), deployed a tool string with the Segmented Bond Tool™ (SBT™) well integrity evaluation service and a variable density log (VDL) to acquire the necessary evaluation data. The data was then processed by the SBT Seal advanced cement bond analysis service to quantify the cement bond in the two permeable zones.

The tool string was run in hole through the tubing string to coincide with the tubing that was being used as a sacrificial stinger to set the abandonment barriers. Below the zones of interest, the SBT pads were opened and the tool string was logged in the casing across the zones where a hydraulic seal was required to isolate the two permeable intervals. Below the cut tubing string, the pads were closed and the tool string was pulled back into the tubing string successfully.

The resulting evaluation data was sent to the BHGE geoscience experts for a quick turnaround analysis. Using criteria specified by the operator, analysis by the SBT Seal service was performed. The analysis identified all uninterrupted good cement seal intervals as well as the cumulative total cement seal length across the specified zones. The color coded intervals enabled quick and easy visual interpretation of the log.

The service’s collective summary of the results allowed the operator to quickly conclude there was a sufficient good cement bond in the zones of interest and continue with the well abandonment operation as planned.

**Challenge**
- Isolate two permeable zones in a well abandonment operation

**Results**
- Quantified and verified zonal isolation
- Provided continuous cement seal intervals
- Identified cumulative seal length across zones of interest
- Enabled quick review of results with collective summary

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