

PRECISION MECHANICAL APPLICATIONS

WELLBORE CLEANOUT

Country: Norway
Year: 2017
Technologies: **PrecisionBrush** ● **PowerTrac** ● **Multi-finger Caliper Tool**

MAKING INTERVENTION
SMARTER

PrecisionBrush restores production on subsea well by removing scale from failed downhole safety valve.

- 3.5 hours brushing to repair DHSV

CHALLENGE

To provide a rigless intervention solution to restore functionality to a downhole safety valve (DHSV) on a North Sea subsea well. Scale (most likely Barium Sulphate), rust or debris buildup in the flow-tube travel mechanism was suspected.

SOLUTION

Rigless intervention options evaluated by the operator included using slickline-deployed mechanical brushes/broaches, mechanical retrieval of the flow tubes, or running insert DHSVs. Altus Intervention's **PrecisionBrush** was chosen because of its proven track record in removing thin deposits of rust and scale that could affect mechanical functionality of completion components (e.g. DHSVs). Its precision and control were also evaluated to be superior to slickline deployed options. It's light footprint meant that it could be deployed from a RiserLess Light Well Intervention (RLWI) vessel, assessed by the operator as the most cost-effective and time-saving solution when compared to a modular offshore drilling unit (MODU). A multi-finger caliper tool (MFCT) was selected as the diagnostics tool to validate the scale build-up theory. A bespoke nogo adapter was run with the MFCT and **PrecisionBrush** to ensure that they could not pass through the DHSV and potentially become stuck.

RESULTS

The top of the DHSV flow tube (FT) was located at 672.7 metres, which confirmed that the DHSV was in the open position. A slight decrease in the nominal internal diameter (ID) was found when the MFCT was run from the DHSV up through the tubing hanger, indicating potential scale/deposits. The average ID of the FT travel interval was measured at 0.039 inches (1 mm) less than the nominal ID of 4.949 inches. This was interpreted as a layer of scale preventing the FT from moving upwards, resulting in the DHSV flapper being stuck open. Three runs of the **PrecisionBrush** were made and the DHSV was brushed for a total of 3.5 hours. The DHSV was then function tested, found to be operational and the well was put back on production.

