

Case Study:

SwellStack extends life of surface control sub-surface safety valve

Swellstack sealing system successfully restores production and maintains well integrity for global operator in the North Sea.

Well Data

Location: North Sea, UK

Well Type: Oil Producer

Installation Date: May 2014

Safety Valve: Dual Bore 4.625"/4.562" SCSSV



TAQA was asked to provide a more robust sealing solution for a dual bore 4.625"/4.562" Surface Control Sub-Surface Safety Valve (SCSSV). Damage and corrosion had caused the safety valve to fail, therefore leading to the well having to be shut in. It was essential to find a solution to avoid the need for an expensive workover, which would have involved pulling the completion to replace the entire system.

The Challenge

The operator initially managed to regain production over a 6-month period by installing TAQA's swellable O-ring system. Over this time, the system worked. However, due to the full extent of damage to the seal bore, a more robust sealing solution was required to ensure long-term production of the well.

The challenge was then to design a seal system strong enough to hold 5000psi differential pressure to deal with an estimated 0.060" deep wireline cut in the seal bores and possible corrosion. The system also had to be flexible in order to be retrieved from the safety valve when required.

TAQA Solution

TAQA designed and manufactured a swellable seal system as a direct replacement to the standard chevron seal stack. The resulting SwellStack packer opposite clearly shows deformation in the seal where the compound had adapted to the damaged seal bore profile.

Project Results

Well integrity was regained and put back on production and the SCSSV was successfully retrieved on a 7/32" wireline. The well was flowed briefly to increase the surrounding temperature at setting depth, increasing swell performance and reducing time before the valve held pressure. By installing the SwellStack system, it extended the life of the safety valve and also avoided the alternative of an expensive workover that would have involved pulling the completion to replace the entire system. In conclusion, SwellStack proved to be a simple solution with minimal cost to the operator.

