

SlimWELL – a sign of the future for well construction



Originally a concept proposal, SlimWELL became one of the first joint industry projects to be facilitated by ITF – with investment from four of ITF's member companies it is now set to make its commercial debut.

The Requirement: Slender Well drilling – the slimming down of oil and gas well geometry to reduce the cost of well construction - has been an economic goal of the oil and gas industry for many years.

The Solution:

SlimWELL technology is designed to overcome this challenge. Allowing reduced clearance between successive well linings, SlimWELL enables operators to slim down their well profile and thus achieve potentially significant cost savings, along with a number of other benefits. The technology is based on a bottoms-up design of close-clearance, flush jointed liners. SlimWELL allows operators a way of narrowing the well profile from top down, resulting in a maximum or optimised size of pipe across the zone of interest, whilst maintaining well integrity, without restricting flow or intervention ability. It is suitable for partial or full well construction.

SlimWELL incorporates two innovative technologies:

- The first is a slim-liner anchoring and metal-to-metal sealing system built into the wall of the pipe, allowing full bore access to the next string.
- The second is a new form of flow-by shoe and artificial inner annulus, which eliminates the problems of surge, swab and ECD (Equivalent Circulating Density), enabling close clearances between liners.

The Method:

SlimWELL first came to the attention of ITF in 2000, when it was presented as a concept proposal by XL Technology. In 2000 ITF secured investment from four oil and gas operators for the initial feasibility project for SlimWELL. This became one of the first joint industry

projects to be hosted by ITF.

With the feasibility project successfully completed in January 2002, XL Technology subsequently entered into an IP transfer deal with Caledus; an innovative Aberdeen based Service Company that were keen to take SlimWELL through development and field trialling with a view to commercial deployment.

Implementation:

In 2004 Caledus committed to a full system test of SlimWELL in the horizontal well at the DTL facility in Aberdeen. This led to the realisation that an alternative, commercial size of SlimWELL for infill drilling was required - a size that could later also figure in full well construction.

- In 2005 a successful test of the first size (5.1/2" x 7") of SlimWELL was completed.
- Later in 2005 ITF identified interest in SlimWELL from BP for possible offshore North Sea installations.
- In 2006 successful field trials for the first size of SlimWELL (5.1/2" x 7") were carried out in a 2000m onshore well drilled by Talisman Energy in its Kaybob South Field in Alberta, Canada.
- In the same year BP sponsored the developments of the next size of SlimWELL. Funding from BP and continued support from ITF resulted in the development of the 4" x 4.1/2" SlimWELL – enabling SlimWELL to be used in Through Tubing Drilling (TTD).

The Outcomes:

The successful Talisman sponsored field trial of SlimWELL in Canada and the continuing progress being made on the BP sponsored development of the next size of SlimWELL, (4"x5.1/2") mean the prospects for SlimWELL to become a fully commercialised system is closer than ever. Caledus are also currently working on a collaborative joint industry project with ITF and the DTI to bring SlimWELL to full well construction capacity.



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