

Merging Coiled Tubing & Swellable Packer Technologies
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Abstract

For a number of years one of the main areas being developed has been multilateral wells to better access the reservoir. One of the greatest challenges in operating an efficient multilateral well is having control of where any water production is coming from. Effectively managing produced water can bring obvious benefits to the economics of a well. One tool that has not been exploited for this type of application is swellable packers. Coiled Tubing and Swellable Packer technologies were recently combined on a land-based operation in Holland to successfully isolate a water-producing leg of a well lateral. The operator asked for a proposed completion solution after a previous attempt to isolate the lateral had proved unsuccessful.

The proposed solution was designed to straddle the lateral entry/exit with a scab liner, isolated and anchored at either end by water-swellable packers. The straddle was required to seal inside the main bore casing and withstand a differential pressure at well operating temperatures. Swellable packers were selected from the various proven openhole isolation devices available to the industry to provide the zonal isolation required in the multi-zone intervals. This was the first swellable straddle completion in Holland in a watered out, commingled gas environment in which isolation would be contained solely by swellable packers.

The water producing lateral was successfully straddled using two water swellable packers run with base pipe between the two packers. In this application the Swellable Straddle was deployed in conjunction with an additional mechanical packer to anchor the straddle whilst the swelling process in the aqueous environment took place. A subsequent intervention with coiled tubing and a resettable Inflatable Test Packer confirmed the straddle had successfully sealed and had isolated the water producing lateral. This paper presents a solution to the challenges of isolating laterals using swellable packers and coiled tubing, and how to verify that the junction has been successfully isolated.

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