

First North Sea One-Trip, Dual-String Exit for Thru-Tubing Sidetrack

Full-gauge, window and 9½ ft rathole completed in eight hours

Sidetrack Planned Through Production Tubing and Liner

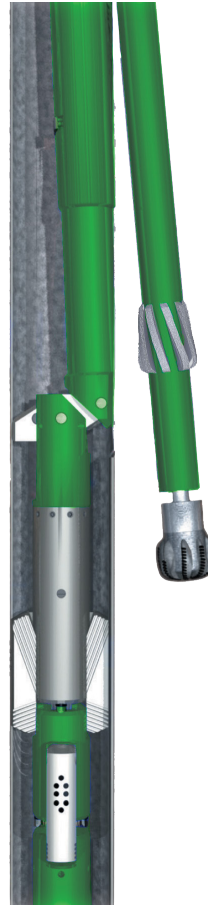
An operator decided to sidetrack a mature well in the North Sea to access additional reserves. Thru-tubing rotary drilling (TTRD) technology was selected as a cost-effective alternative to pulling the completion tubing. A Thru-tubing whipstock system was required to create the exit through 4½-inch, 12.6-lbm/ft tubing cemented inside 7-inch, 29 lbm/ft liner. The window had to enable a 3.7 inch × 4⅞ inch bicenter bit to be run on a 3⅞-inch OD directional assembly with a positive displacement motor (PDM) set at 1.8° bend angle.

TrackMaster™ TT Whipstock System and Bi-Mill Used to Create Exit

4½ inch TrackMaster thru-tubing (TT) whipstock system, with an OD of 3.62 inch, is designed to pass through the tubing ID. Running in with the whipstock, orienting and setting it, shearing the milling assembly from the whipstock, milling the window, and drilling the rathole can all be accomplished in a single trip. A 3.8-inch OD bi-mill was used to create the window. The TrackMaster TT whipstock system enables a longer casing window to facilitate subsequent entry of drilling assemblies.

First North Sea Dual-String Exit Accomplished in Single Trip

After milling a full-gauge in 1½ hr, a 9½-ft rathole was drilled in 6½ hr. This enabled the sidetracking BHA to enter the rathole and drill a 9,200 ft sidetrack with an inclination of 20.67°. This operation marked North Sea's first successful one-trip, dual-string exit through production tubing.



TrackMaster Thru-Tubing whipstock system completed North Sea's first one-trip, dual-string exit through production casing in a single trip.

CHALLENGE

Mill a full-gauge window through 4½-inch tubing and 7-inch liner, and drill a rathole to allow entry of a directional sidetracking assembly.

SOLUTION

Run the 4½-inch TrackMaster thru-tubing whipstock system and 3⅞-inch OD bi-mill.

RESULT

Completed the window and 9½-ft rathole in 8 hr marked – North Sea's first successful one-trip dual-string exit through production tubing.