

Shallow-Angle QuickCut™ System with MultiCatch™ Anchor Enables Sidetracking Expandable Liner to Save 14 Days in Ultradeep Water

Objectives

- Sidetrack from a 13 3/8-in. expandable liner and allow a 13 1/2-in. drilling bottomhole assembly (BHA) and 12 1/4-in. casing to pass the whipstock without issue.
- Avoid collapsing the expandable liner during the sidetrack operation by limiting flow rates and pressures well below the norm, yet still finishing the milling operation and recovering cuttings.
- Maintain a low dogleg and smoothly transition from the main bore to the sidetrack while minimizing the risks associated with thin-wall liners and channeled cement.

Our Approach

- When other vendors could not provide a timely solution to exit the expandable liner, Shell contacted Weatherford for off-the-shelf options.
- Together, Shell and Weatherford determined the solution—including the shallow-angle QuickCut system with MultiCatch anchor and 12 1/4-in. OD milling BHA—to install a window in the 13.77-in. solid expandable ID. The companies also identified the need for two additional milling BHAs to open the window to a full 13 1/2-in. OD for drilling and completing the well as planned.
- Weatherford mobilized supervisors and the first-run modified BHA to the deepwater rig within 3 days. Additional BHAs and a contingency mill arrived within the following 2 days. A total of 16 mills, nine of which had custom ODs, were dressed, inspected, and dispatched in this timeframe.
- On the initial run, the BHA with hydraulic-set system enabled cutting a 27 1/2-ft (8.4-m) window and reaming a 45-ft (13.8-m) rathole in 22 hours. The system achieved success despite the limited flow to avoid liner collapse and the thin-wall liner with channeled cement on the backside.
- The second BHA consisted of three mills, from a 12 1/2-in. OD, to a 12 3/4-in. OD, and a 13-in. OD. Keeping the torque and weight low during this run helped to avoid twisting off and losing the lower hole section. Milling and reaming on this run lasted 6 hours.
- The final BHA included two full-drift 13 1/2-in. OD mills with a 13 1/4-in. OD mill on bottom to fully open the window for future drilling and completion BHAs. This run lasted a total of 29 hours to complete the operation and polish the window.
- After the sidetracking operation, a 13 1/2-in. motor, 13 1/2-in. rotary steerable assembly, and 12 1/4-in. were run through the window to finish this contingency hole section.

Value to Customer

- The Weatherford solution saved Shell 14 days, valued at US \$14 million dollars, compared to the other option of sidetracking the 16-in. casing and predrilling an entire hole section.



A unique solution, including the shallow-angle QuickCut casing exit system, helped Shell to sidetrack in a deep expandable liner.

CUSTOMER
Shell

LOCATION
Gulf of Mexico

WELL TYPE
Ultradeepwater, exploration

HOLE SIZE
13-1/2 in.

LINER SIZE AND TYPE

- 13 3/8-in., 54.4-lb/ft expandable liner
- 12 1/4-in. liner run through window

PRESSURE
Limited to below 600 psi (4.1 MPa) while milling

KICKOFF POINT DEPTH
19,609 ft (5,977 m)

PRODUCTS/SERVICES

- Shallow-angle QuickCut system
- MultiCatch anchor

