

Shallow Angle QuickCut™ Casing-Exit System

Provides Single-Trip Casing Exit in Total-Loss Environment, Saves an Average \$350,000

Objectives

- Orient and set whipstock in 90° inclination with a total well-fluid loss from open pilot hole below sidetrack depth.
- Provide an optimal window junction to allow stiff and long directional assemblies to pass through without interference.
- Create a minimal dogleg to allow lower completions to pass through without complication.
- Retrieve whipstock assembly to allow production from both laterals in extended-reach wells.

Our Approach

- After a pre-job planning assessment, the shallow angle QuickCut method was selected to minimize the dogleg severity (DLS) that was already in the well due to a previous window. The well geometry had a high DLS followed by a 3,000 ft (914 m) length of horizontal section (90° inclination).
- During the wellbore-preparation run, dynamic fluid losses were observed, ultimately leading to complete fluid loss from the main bore. To mitigate risks associated with total well-fluid loss environments, the casing-exit system, equipped with the patented AccuSet™ 2.0 hydraulic-activation system, was deployed.
- The whipstock was set at a depth of 11,876 (3,620 m) after measurement-while-drilling (MWD) orientation. Once anchor was set and mill released, a flow check was conducted and losses from the well ceased. After a successful pressure test on the packer anchor, milling commenced immediately.
- The window and rathole were milled within five hours and minimal wear was observed at surface, eliminating the need for a remedial milling trip. Drilling operations for the new lateral were initiated and no restrictions or challenges were encountered while drilling through the window.

Value to Customer

- The AccuSet 2.0 hydraulic-activation system saved rigtime and an average of \$350,000 over five days by avoiding the need to pump lost circulation material (LCM), which could potentially harm or block the lower completion, or destabilize the formation in the open hole.
- The shallow angle QuickCut casing-exit system provided a smooth transition to the main bore and minimized the DLS of the well geometry, allowing stiff assemblies to pass through without additional reaming trips.
- The minimal gauge wear on the mills eliminated the need for additional tripping in and out of the hole in an extended-reach well.



Shallow Angle QuickCut lead mill with patented AccuSet 2.0 sleeve being installed prior to deployment.

LOCATION

Saudi Arabia

WELL TYPE

Onshore deviated well

FORMATION

Arab D - Carbonates

HOLE SIZE AND ANGLE

6-1/8 in., 90° inclination

CASING SIZE AND TYPE

7-in. 26#

TEMPERATURE

180°F (82°C)

PRESSURE

Hydrostatic pressure
3,950 psi (27,234 kPa)

DEPTH

Total depth 16,070 ft (4,898 m),
7 in. (25 mm) shoe 12,050 ft (3,673 m)
top of whipstock 11,852 ft (3,612 m)

PRODUCTS/SERVICES

- QuickCut Casing-Exit System
- Retrievable Hydraulic Sealing (RHS)
- AccuSet 2.0

