

Malaysia

Successfully Completed Deep Water Casing Window Exit In a Single Trip Inside a 9⁵/₈ in OD Liner

TrackMaster™ CH Whipstock System provided an exit at 13,340 ft, 83° inclination, 532 m inside 9⁵/₈ in. OD liner for a customer in Malaysia

Single Trip 9-5/8 in Liner Casing Exit with Detailed Job Planning

The customer in Malaysia required a sidetrack well to be executed inside a 9⁵/₈ in liner at a nearly horizontal section. This complex operation was successfully planned and carried out on short notice. To address challenges such as the liner at the exit point and the 83° inclination, the Wellbore Integrity Solutions' (WIS) team led the effort, working closely with the customer to develop detailed procedures, select the optimal system configuration, and complete the exit at 13,340 ft with a maximum dogleg severity (DLS) of 3.92°/100 ft.

TrackMaster CH System

- An 8¹/₂ in OD Fast Track tri-mill was utilized to mill the casing window in a single trip, with the TrackMaster CH whipstock system facilitating the window creation in a near-horizontal section.
- A simplified design incorporating the reliable 9⁵/₈ in TrackMaster Select System, along with a DPS hydraulic and tri-mill assembly, was selected for this deep-water application.
- The extensive operational experience of WIS personnel played a crucial role in successfully setting the whipstock along a challenging trajectory.
- As a result, the TrackMaster system milled a 9⁵/₈ in liner exit in deep water with a 45° left-hand side (LHS) tool face orientation and drilled a rat hole in a single trip, enabling continued drilling of the 8¹/₂ in x 9⁷/₈ in well section.

CHALLENGE

- Run the whipstock through the 9⁵/₈ in OD liner
- Mill a window inside the 9⁵/₈ in OD liner (53.5 PPF L80) at an 82.7° inclination, with a maximum dogleg severity (DLS) of 3.92°/100 ft
- Overcome challenges in swarf recovery and hole cleaning within the 9⁵/₈ in OD liner, 13³/₈ in OD casing, and a long section of riser for a deep-water well

SOLUTION

- Performed torque and buckling simulations using Runner software
- Conducted wellbore departure simulations with WhipSim™ to predict window geometry, rat hole trajectory, and the dogleg severity (DLS) of the bottom hole assembly (BHA) passing through the window; analyzed forces and stresses acting on the BHA and casing at the window
- Enhanced the milling BHA design by integrating a string magnet for optimized performance

RESULT

- Milled a clean window in 4.5 hours and drilled a 15 ft rat hole in 45 minutes in one trip
- Established a benchmark performance for a 9⁵/₈ in liner exit at 10,383 ft window with 83° inclination in the region and operations

