Weatherford®

REAL RESULTS

Success in Norway: World's First TTRD Casing Exit Campaign Completed from a Semi-Submersible Rig Using Shallow-Angle QuickCut™ Technology

Objectives

- Design, test, and build a low-dogleg producing whipstock system for a thru-tubing rotary drilling (TTRD) application.
- Create a casing exit in the 7-in., 32-lb/ft casing without causing damage to the subsurface safety valve (SSSV).
- Pass the minimum restriction in the well (5.87 in./149 mm), and set the shallow-angle *QuickCut* casing exit system in the 7-in. casing (6.094 in./154.8 mm ID).
- Mill a full-gauge, smooth window with a 5.84-in. (148.3-mm) *QuickCut* milling bottomhole assembly without rotating faster than 40 rpm at the surface.

Results

- Three 7-in. SAQC casing exit systems were successfully deployed and installed from a semi-submersible rig, working to TTRD/monobore restrictions.
- Weatherford's MultiCatch™ anchor was used on two of the exits; a permanent packer anchor was used on the third.
- Three smooth windows were achieved through the use of a downhole motor, allowing problem-free transition of the 46.2-ft (14.1-m) rotary-steerable MWD/LWD system through the junction.

Value to Client

- This campaign verified to the operator that Weatherford's SAQC casing exit system can be used on future TTRD casing exits in conjunction with a motor-driven milling assembly.
- Personnel worked well together to establish a team atmosphere, resulting in clear and decisive decision-making.
- Use of several key technologies facilitated close-tolerance deployment and world-class performance.

Client
Norsk Hydro

Location
North Sea, Norwegian sector

Mainbore
7-in., 32-lb/ft L80

Depths
- 14,665 ft (4,470 m)
- 10,223 ft (3,116 m)
- 9,728 ft (2,965 m) MDSS

Laterals
4 3/4-in. open hole

Products/Services
- Shallow-angle *QuickCut* casing exit system
- *MultiCatch* anchor

"Weatherford resolved significant technical challenges professionally, thereby allowing the Njord TTRD project to proceed from planning to execution stage; window exits were successfully milled in all cases under a narrow operating envelope, constrained by rig dynamics and tight completion tolerances."

—Joy Oyovwevotu, Norsk Hydro

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