Wellbore Integrity SOLUTIONS

ProMILL Duo* Dual Casing Section Mill Application Breaking Records In Northern Germany

A plug and abandonment (P&A) operation using the 9⅝ in. x 13⅜ in. ProMILL Duo system achieves a new record, 328ft long, 13⅜ in. casing window inside 18⅝ inch casing.

CHALLENGE

In a complex well abandonment operation, a client required an extended length window in both 9⅝ inch and 13⅜ inch casing strings. To maximize efficiency, the plan also required the elimination of the need to mill the inner 9⅝ inch casing from surface. Maintaining the integrity of the outer 18⅝ inch casing string was essential. With 13⅜ inch casing eccentricity inside the 18⅝ inch casing, the risk of damaging the 18⅝ inch casing was considered to be a significant risk.

SOLUTION

The ProMILL Duo* system was utilized to drift through 9⅝ inch casing and mill 13⅜ inch casing inside 18⅝ inch casing. This eliminated the rig time and operational cost to mill 3,040 ft of 9⅝ inch casing from surface. The use of WavEdge* insert technology resulted in increased cutting structure durability, rate of penetration (ROP) and generated an ideal swarf shape to enhance overall performance. The custom designed knives for milling 13⅜ inch casing inside 18⅝ also successfully eliminated any damage to the outer casing string, thereby maintaining the overall wellbore integrity during the abandonment process.

RESULTS

- Successfully deployed the ProMILL Duo through 9⅝ inch casing and created a 328ft (100m) long window in 13⅜ inch casing.
- Eliminated the need to mill over 3000 feet of 9⅝ inch casing from surface.
- Successfully scraped the ID of the 18⅝ inch casing using Expandable Scraper Technology deployed through 9⅝ inch casing.
- Preserved the overall integrity of the abandonment process by ensuring that there was no damage to the 18⅝ inch outer casing string.
- A successful, complex abandonment operation that was recognized by the client.

A well abandonment challenge in Northern Germany.

An International Oil & Gas Operator in Germany planned a challenging P&A operation on a well in Northern Germany. This required an extended length section milling interval for both the 9⅝ inch and 13⅜ inch casings prior to setting the cement plug. It was essential that this operation was carried out efficiently, and without compromising the integrity of the outer 18⅝ inch casing string. Wellbore Integrity Solutions recommended using the ProMILL Duo* system.

WavEdge cutting technology and a customized knife configuration deployed successfully.

The ProMILL Duo* system with WavEdge Inserts, and custom designed Mill Ahead Knives were identified as the optimum solution, enabling maximum milling efficiency and resulting in reduced rig time and operational cost.

Detailed pre-job engineering/planning between Wellbore Integrity Solutions and Operator representatives, combined with dedicated team work at the rig site, resulted in the successful delivery of a 328 ft/100m long 13⅜ inch casing window. As required, this was achieved with no damage to the outer 18⅝ inch casing string.