



Expanding into New Regions: Successful Execution of the First ProMILL™ Job in Central Asia – Kazakhstan Onshore

Successful deployment of the 5500 ProMILL for high-grade section milling and outer casing ID scraping in one trip.

Cost-Efficient, Single-Trip Solution for a Key Customer in Kazakhstan

A key customer in Kazakhstan required a cost-effective and robust solution to section mill high-grade, H₂S-resistant 7 inch casing while also scraping the inner diameter (ID) of the outer 9 5/8 inch casing. The objective was to achieve a minimum of 16 meters of milled and scraped interval to accommodate a bridge plug, along with sufficient lengths of bismuth and cement plugs.

Wellbore Integrity Solutions (WIS) proposed the ProMILL system, a trip-saving solution integrating the 5500 K-Mill, featuring knives equipped with advanced TruEdge™ insert technology, and the 5500 High-Ratio Underreamer (HRU) with specially designed PDC-inserted scraper blocks.

Comprehensive Pre-Job Preparation

All tools were sourced, inspected, and function/pressure tested to ensure reliability. Knives, cutters' sweeps, and other critical parameters were verified for optimal compatibility with the job requirements. Hydraulic analysis was conducted based on the provided milling fluid data to determine the optimal operating parameters for each stage of the ProMILL execution, including cut-out, milling, and HRU deployment.

Field Execution

During the milling phase, optimal parameters were established, enabling the successful milling of a 20.9m section of high-strength casing at an average rate of penetration (ROP) of 0.31m/hr. Following ball-drop activation of the High-Ratio Underreamer (HRU), the total milled and scraped interval reached 19.8m, exceeding the customer's minimum requirement—all completed in a single trip.

The K-Mill knives exhibited only 16% wear, highlighting the exceptional durability of WIS's proprietary TruEdge insert technology, even after 67.3 hours of continuous milling.



CHALLENGE

- Milling high-grade, H₂S-resistant 7 inch 32 ppf casing (SM-90SSU) inside a 9 5/8 inch casing
- Milling through two couplings
- Using slightly under gauged stabilizers to allow the BHA to pass through the upper 7 inch 35 ppf casing with a smaller ID
- Achieving a minimum of 16m milled and scraped interval in a single trip

SOLUTION

- Utilize the cost-effective ProMILL milling and scraping system to complete P&A objectives in a single trip
- Deploy TruEdge-inserted section mill knives to enhance durability, stabilization, and swarf quality
- Conduct comprehensive hydraulic analysis to determine optimal flow rates for efficient tool operation and improved swarf removal

RESULTS

- Achieved 20.9m of section milled window in a single trip, exceeding initial objectives
- TruEdge inserts performed exceptionally, producing easily removable swarf and exhibiting only 16% knife wear
- Completed the job with zero NPT and no HSE-related incidents



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