

Qatar

8000 ProMill Duo™ System Completes Three Back-to-Back Windows on One Well in Qatar

Barrier restoration across 9 $\frac{5}{8}$ inch and 13 $\frac{3}{8}$ inch casings achieved successfully

CHALLENGE

Section mill 13 $\frac{3}{8}$ inch casing to restore three cap rock barriers across 9 $\frac{5}{8}$ inch and 13 $\frac{3}{8}$ inch casings.

SOLUTION

Deploy 8000 series ProMill Duo to drift through 9 $\frac{5}{8}$ inch casing and section mill 13 $\frac{3}{8}$ inch casing.

RESULT

- Successfully drifted 9 $\frac{5}{8}$ inch casing and section milled 13 $\frac{3}{8}$ inch casing to restore three cap rock barriers.
- No BHAs stuck or lost in hole incidents.
- Reduced the AFE cost for the project by eliminating a long inner string milling operation, associated with conventional techniques.
- All operations conducted safely.

Dual Casing Section Milling 9 $\frac{5}{8}$ inch and 13 $\frac{3}{8}$ inch Casing

When cap rock sealing restoration across two casing strings, 9 $\frac{5}{8}$ inch and 13 $\frac{3}{8}$ inch was required for three separate cap rocks, the customer contacted Wellbore Integrity Solutions (WIS). The challenge was to mill the inner 9 $\frac{5}{8}$ inch casing, that is cemented to the surface, without skimming the outer 13 $\frac{3}{8}$ inch casing and then mill the 13 $\frac{3}{8}$ inch casing by drifting through the 9 $\frac{5}{8}$ inch casing with minimum trips when compared to conventional methods. WIS recommended the new ProMill Duo high ratio section milling system that enables a rock to rock seal in a dual casing section milling application.

Challenges Conquered by ProMILL Duo Technology

Operational challenges were decoupled using both the standard section mill and the new ProMill Duo technology. The ProMill Duo is a combination of the newly engineered high-ratio hydraulic section mill, with a 180% expansion ratio and a precisely oriented hydraulic stabilizer below it. This creates a unique 6-point stabilization system that helps to manage the dynamic behavior during milling. The ProMill Duo is deployed once the inner 9 $\frac{5}{8}$ inch casing window has been milled. The expandable stabilizer in the system ensures that the section milling assembly can efficiently mill the 13 $\frac{3}{8}$ inch casing. An underreamer is utilized to achieve a 20 inches diameter window to enable a rock to rock seal.

Section Milling Efficiency Results

8000 ProMill Duo	Depth In (ft)	Depth Out (ft)	Total Interval (ft)	Wear (%)	Rig Time Saving (days)
Plug #1	3750	3860	110	20	3
Plug #2, Run # 1	2850	2885	35	100	1
Plug #2, Run # 2	2890	2955	65	30	1
Plug # 3, Run # 1	1885	1950	65	40	3

