

Endura[®] Dual-String Section Mill Provided A Rock-to-Rock Cement Barrier in Offshore Well, Saved 3 Days of Rig Time, \$250,000 USD

Objectives

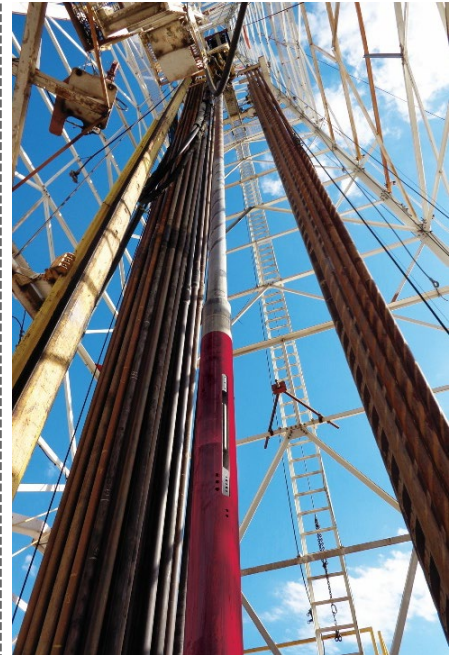
- Mill a 150-ft (45.7-m) window between 9-5/8 and 13-3/8 in. to establish a rock-to-rock barrier.
- Minimize milling trips, operational time, and expense.
- Create a clean window to deploy cut-out assembly.
- Adhere to industry plug and abandonment (P&A) regulations.

Our Approach

- Weatherford experts recommended the Endura dual-string section mill with a novel and modified design of milling blades specifically developed for this operation to optimize performance.
- Designed to mill inner and outer casing strings with diameters from 9-5/8 to 13-5/8 in. (244 to 346 mm), the Endura mill includes a hydraulic, expandable stabilizer and an integral stabilizer for optimal milling performance.
- To gain access to the 13 3/8-in. casing, a 170-ft (51.8-m) window was milled in the 9 5/8-in. casing using conventional section milling technology.
- Field personnel deployed the Endura mill dressed with cut-out blades to the target depth, performing the cut-out successfully in the 13 3/8-in. casing, and creating a 50-ft (15-m) window.
- The cut-out blades were replaced with milling blades and the remainder of the window was milled, removing 100 ft (30 m) of 13 3/8-in. casing through the 9 5/8-in. casing in a single trip, enabling ADNOC Offshore to install a rock-to-rock cement barrier within P&A regulations.

Value to Customer

- The milling of the window allowed ADNOC Offshore to position a rock-to-rock cement barrier and provide certainty regarding the prevention of fluid migration between hydrocarbon and non-hydrocarbon bearing zones. This approach increases the interval access and, thus, reduces the risk to as low as reasonably practicable the possibility of poor annular conditioning, which results in cement contamination and defects such as channeling and micro-annuli formation.
- Weatherford RD&E were able to use learnings from previous wells to quickly modify and customize the mill-ahead knives, resulting in improved ROP and overall life of the milling blade.
- The use of the Endura section mill and its higher milling ROP eliminated 2 additional milling runs, equating to 3 days of rig time saved, approximately \$250,000 USD as compared to ADNOC Offshore's historic operations and associated costs.



The Endura dual-string section mill creates a stable, permanent, and verifiable rock-to-rock barrier, cutting the P&A rig time in half. The barrier seals across the borehole by milling both inner and outer strings and mimics natural bedding.

CUSTOMER

ADNOC Offshore

LOCATION

Offshore, United Arab Emirates,
Abu Dhabi

WELL TYPE

Development, slot recovery

HOLE SIZE

8-1/2 to 14-3/4 in.

DEPTH

2,250 to 2,400 ft (685 to 731 m)

PRODUCTS/SERVICES

- Fishing and re-entry services
- Endura dual-string section mill

