

Case study: Offshore Australia

AMT section mill saved customer \$400,000 USD, exceeded historical competitor performance benchmark

A customer needed to plug and abandon (P&A) a section of a deepwater well to achieve zonal isolation and conduct a sidetrack operation. Having a prior relationship with a competitor, the customer asked for an estimate, but the competitor was unable to perform the required section mill operation for a 197-ft (60-m) window at 50° inclination in less than five runs.

As an alternative, Baker Hughes suggested the **AMT™ section mill**—consisting of an inside cutter and a section mill capable of milling selective casing for P&A—to mill the window in the 11¼-in., 60 ppf, casing at a depth of 11,765 ft (3586 m) and at an inclination greater than 50°.

The knives of the AMT section mill were dressed with **METAL MUNCHER™ Advanced Milling Technology (AMT) cutters** which achieve greater efficiency and longer runs than conventional cutters. The durable technology increases milling penetration rates, extends effective time on the bottom in high-volume milling applications, improves swarf removal by swarf size generation, and optimizes the milling process at all stages.

Baker Hughes collaborated with the customer to plan the operation and mobilized a crew to the rig. Field personnel deployed the AMT section mill and milled the 197-ft (60-m) window in only 46 hours with a total rate of penetration (ROP) of 3.9 ft/hr (1.2 m/hr).

Baker Hughes fluids experts efficiently kept the hole free of debris. With a clean hole, the customer placed cement plugs across the 11¼-in. casing window and successfully abandoned the lower section of the well.

After zone abandonment, the 13⅜-in. casing was cut and pulled, allowing the customer to drill for new pay zone.

The one-trip Baker Hughes solution was executed flawlessly, with the 46-hour operation completed four days earlier than planned by the customer, and six days faster than the competitor's performance benchmark on a previous well. By section milling the casing in one trip, Baker Hughes saved a minimum of \$400,000 USD for the customer.

The combination of the predictable performance of the AMT section mill and the experience and expertise of the engineers proved so effective in outperforming the existing performance benchmark that the customer awarded all future intervention work to Baker Hughes.

Challenges

- Mill window in deepwater well for zonal isolation
- Plug and abandon a section to enable new drilling
- Drive operational efficiency to surpass competitor's benchmark
- Remove roughly 5 tons of steel in an inclined well of 50°

Results

- Milled 197-ft (60-m) window in a single 46-hr run
- Delivered a clean wellbore for new drilling into a pay zone
- Saved 4 days and \$400,000 USD over customer estimation
- Experienced no health, safety and environmental (HSE) issues or nonproductive time (NPT)