

Case study: Panola County, Texas

# AMT technology milled permanent packer, saved well 22 hours sooner than estimated, maintained lease

A customer in East Texas with a twenty-five-year-old gas well faced a particular challenge: return a blocked well to production or risk losing the lease.

A broach and 4,000-ft (1219-m) of braided line became stuck in the wellbore at 8,932 ft (2722 m) after a 2014 fishing attempt. The customer was able to recover all the slickline, working around the installed permanent packer, but the slickline tool assembly parted across packer. A 4-ft (1.2-m) section of the tools, consisting of 2-ft (0.6-m) of spang jars (broken in half) and 2-ft (0.6-m) of the broach assembly, was unable to be retrieved. The only options open to the customer was milling the thru-tubing or milling the packer.

The customer opted to mill the permanent packer and fish, allotting 32 hours for the operation before the possibility of switching a worn-out shoe. After initially leaning to a competitor's mill, the customer opted for the Baker Hughes solution: a wavy bottom rotary shoe dressed with

**Glyphaloy™ advanced milling technology (AMT) cutters and SUPERLOY™ high-strength material.**

Glyphaloy carbide has a highly wear-resistant cutting surface and unique geometry that enhances cutting efficiency and extends mill life. The SUPERLOY material is composed of crushed sintered-tungsten particles that are suspended in a special copper-base, brazing-type alloy with high nickel content, and is used to dress cutters and mills to maximize cutting effectiveness.

The customer's field personnel tripped in the milling bottomhole assembly and milled through the permanent packer, cleaned the wellbore, and reestablished production in only 9.5 hours, saving 22.5 hours in rig time and costs. The older casing was not damaged in the process.

With production reestablished, the customer would not forfeit the lease and incur \$400,000 USD in associated costs. Baker Hughes's success also eliminated the need for the customer to drill a new well to maintain the lease, an estimated \$1 million USD.

## Challenges

- Mill packer and return well to production
- Retain lease on the well

## Results

- Milled, cleaned the wellbore, and reestablished production in only 9.5 hours, 22.5 less than predicted
- Saved the lease and \$400,000 USD in associated costs
- Eliminated the need of drilling a new well to maintain the lease
- Experienced no health, safety and environmental (HSE) issues or nonproductive time (NPT)