Case study: Thailand

Perseus pump-through cutter reduced P&A rig time, saved $75,000 USD

A customer in Thailand sought a more efficient, cost-effective means to perform a plug and abandonment (P&A) operation. Using conventional technology, two trips are required: one to mechanically set a plug without the ability to set cement above the plug/retainer, and a second trip to cut and retrieve the casing. With an estimated 3,000 wells to P&A, the customer would incur significant rig time, costs, and health, safety and environmental (HSE) handling risks.

Baker Hughes proposed the **Perseus™ pump-through cutter**. Hydraulically operated and designed to cut a single string of casing on command, the Perseus cutter is ideal for P&A or slot recovery jobs. The knives are dressed with **METAL MUNCHER™ Advanced Milling Technology (AMT) carbide** that provide the industry's most durable, effective cutting and swarf control tungsten-carbide knives to cut or mill even the toughest steels.

The Perseus cutter is designed to remain dormant and maintain pressure integrity while a plug is set either mechanically or hydraulically, after which the cutting sequence is initiated. Alternatively, the cutter can be run above a mill or bit to dress a cement plug, confirm well isolation, and then activated to cut the casing. A positive pressure indication at surface signals a successful cutout, providing assurance a cut has been completed and eliminating the guesswork associated with conventional technology.

The Baker Hughes team deployed a $5^{1}/_{2}$-in. Perseus cutter with a 7-in. cement retainer and snap latch setting tool into four separate wells from a single platform. The combined bottomhole assembly (BHA) set the cement retainer, pumped cement through the cutter, and then cut the 7-in. casing section, all in one trip.

By using the Perseus cutter on this platform, the customer saved a total of 12 hours over four wells, incurring zero HSE issues. The cost of one hour of rig time was $6,250 USD, corresponding to a total cost savings of $75,000 USD.

Challenges

- Reduce overall costs associated with plug and abandonment applications
- Complete plug setting and casing cut in one run

Results

- Saved customer one trip per well during P&A operations by combining cement retrainer setting with the casing cutting run
- Saved $75,000 USD over 4 wells
- Decreased HSE handling exposure by reducing the need for an additional trip per well