

Case study: Offshore Canada

UWRS anchored Baker Hughes abandonment approach, saved over 24 hours of rig time, \$1 million USD

A customer in eastern Canada was required by the local government to permanently plug and abandon (P&A) a deepwater exploration well in the Flemish Pass region, off the coast of Newfoundland and Labrador. The order necessitated the customer to cut and retrieve the 9 5/8-in. casing and displace the annulus from synthetic-based mud to seawater. The subsea wellhead was required to be removed at the conclusion of the operations.

The local Baker Hughes Completions and Wellbore Intervention operations team utilized its global reach, cross company synergies, and unmatched carbide technology to provide an integrated solution, saving trips and providing best-in-class performance.

The Baker Hughes solution combined the annular seal assembly (ASA) retrieval operation with the casing retrieval operation. This combination is possible because of the Baker Hughes hydraulic casing spear. Configurable to retrieve casing sizes from 9-5/8 to 13-3/8 in., the spear is run above a mechanical or hydraulic inside casing cutter and allows cutting and pulling the casing string in one trip. In this operation, the spear remains dormant during ASA retrieval and annulus circulation. When the casing annulus has been displaced to seawater, an activation dart is dropped. The dart provides a flow restriction inside of the hydraulic spear, which drives the slips to engage the casing.

Along with the hydraulic casing spear, Baker Hughes engineers deployed the **universal wellhead retrieving system (UWRS)** with a **Hercules™ multistring cutter** to cut multiple strings in tension, which reduces drillpipe wear and increases stabilization. The cutter's blades were dressed with HD Advanced Milling Technology (AMT) Viking knives to provide optimal performance when cutting heavy wall conductor and drive pipe profiles. The tools are simple to operate, and one trip to cut and recover a wellhead reduces rig time.

The solution successfully severed the conductor and drive pipe in 5 hours. On previous campaigns with competitor's technologies, similar wellhead profiles have required 36 to 48 hours to sever with multiple runs required. The time difference resulted in a cost savings of \$1,150,000 USD.



A 20 x 36-in. (0.812 x 2-in. WT) casing stump.

Challenges

- Complete P&A operations
- Cut and retrieve the 9 5/8-in. casing
- Displace the annulus from synthetic-based mud to seawater
- Cut and retrieve wellhead with heavy wall conductor and drive pipe (0.812- x 2-in. WT)

Results

- Retrieved wear bushing
- Cut 9 5/8-in. casing
- Retrieved ASA and 9 5/8-in. casing in combined run
- Cut and retrieved MS700 wellhead system
- Performed all P&A operations 32% more efficiently than conventional technology (95.25 hr vs. 132.75 hr)
- Saved \$1.1 million USD
- Experienced no health, safety and environmental (HSE) issues or nonproductive time (NPT)