A customer working offshore Norway was preparing to plug and abandon (P&A) one of its exploration wells. These operations had proven challenging in the past due to uncertain weather, string movement during cutting, and the inherent uncertainties of working offshore. Based on excellent performance in the past—and with only three days until the scheduled P&A—the operator asked Baker Hughes, a GE company (BHGE), to deliver a solution that would sever the wellhead safely, and with reduced rig time compared with the operator’s prior results.

BHGE recommended using the universal wellhead retrieval system (UWRS) and the HERCULES™ multistring cutter to cut and retrieve the 20-in. x 30-in. wellhead. As job preparations got underway, the cutter’s 17-in. knives were dressed with industry leading METAL MUNCHER™ Advanced Milling Technology (AMT) carbide S-3 cutters. The S-3 cutters offer the same durability and performance as other AMT cutters, and feature a failsafe cutting edge which takes effect as the cutter wears down. This enables the S-3 cutter to continue to cut quickly and cleanly even after heavy use. In order to keep the cutter centered and stabilized in the wellhead during the cut, a 17 ⅜-in. stabilizer sleeve was affixed.

The UWRS and HERCULES cutter were rigged up and deployed in the hole to a depth of 407 m (1335 ft). The UWRS engaged the profile of the wellhead, and engagement was confirmed with 12 tons of over-pull that was maintained throughout the cut. The HERCULES cutter was then activated by increasing pump pressure at surface. Torque readings immediately went up, indicating the cutter knives had opened and contacted the casing. After 70 minutes, a pressure drop occurred and high torque was no longer observed, indicating that the wellhead was successfully severed. The UWRS and HERCULES cutter were then pulled out of the hole with the recovered wellhead still engaged.

The HERCULES cutter severed the wellhead three times faster than the operator’s past P&A results. The UWRS kept constant tension on the wellhead during cutting, causing it to sever even before the knives had completed the cut. This combination of greater cutting efficiency and more reliable wellhead retrieval reduced operating time by 12 hours, representing approximately USD $300,000 savings for the operator. The well was plugged and abandoned flawlessly, with no non-productive time (NPT) and zero health, safety and environmental (HSE) incidents despite heave of up to 9.8 ft (3 m).
The wellhead was severed in record time with no NPT or HSE incidents