Mechanical Solutions

Location: Europe & Africa (North Sea)

Case study: Versatile cutting solutions for MacCulloch field decommissioning

Overview

Our Mechanical Solutions specialists successfully assisted our client with the removal of eight risers, two umbilicals and one electrical cable connecting the MacCulloch field's subsea infrastructure to the FPSO.

Solution

As the renewable energy revolution continues to gather pace, Ashtead Technology's Mechanical Solutions team have the experience, knowledge and skills required to assist with asset decommissioning, as well as the installation and maintenance of renewable energy structures.

This large-scale decommissioning scope in the MacCulloch field of the UK North Sea required the careful cutting of risers as close to the FPSO turret as possible. In addition to the risers, mooring chains securing the Mid Water Arch (MWA) were to be cut at both ends.

In consultation with the client, Ashtead Technology devised a tailored package to address the concerns of the scope. Requiring maximum cutting performance, this project made great use of the Mechanical Solutions teams' in-house operated and designed hydraulic shears. Both the MSD-4000 and MSD-4500 models were outfitted with rigging and ancillary equipment for both subsea and topside operations, ensuring a greater degree of versatility and speeding up operations for the client.

Cutting operations directly below the FPSO on site were undertaken with the UCS range of 22" and 42" diamond wire saws, with additional support provided by the dual cut band saw. Both tools were set up to run directly from the ROV and their handling was improved with a bespoke interface frame engineered by our Mechanical Solutions team, who proactively identified this solution before any issues could arise.

The 22" and 42" diamond wire saws successfully completed the MWA chain cuts, with the risers cut subsea and again on deck to ensure they were in manageable sections for disposal.

Benefits and value

A total of 184 cutting operations were successfully completed during this scope, with 162 conducted by the hydraulic shear cutter, 17 via diamond wire saw and five by the dual cut band saw.

During the course of operations, it was discovered that the bend stiffeners were made from vulcanised rubber as opposed to the Polyurethane as originally thought. As the diamond wire saw was unsuited to this type of cut, technicians cut the risers below the bend stiffeners before using the dual cut band saw to successfully cut through the rubber bend stiffeners.

> "Ashtead Technology provided a versatile, high-performance and rapid solution for this decommissioning project.
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> "Our highly experienced team were able to come up with a solution at short notice to the bend stiffeners issue, with no operational downtime or further costs incurred by the client.
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> "The client was delighted with the completed project, and the entire team worked to tight timescales and a complex brief to ensure its successful completion."

Louise Warbrick, Snr Project Mngr