Mechanical Solutions

Location: Europe & Africa (North Sea)

Case study: Flexible riser J-tube removal and recovery

Benefits and value
In all, the project scope saw the riser and J-tube cut into three sections and removed, allowing damage-free recovery to the vessel deck for future analysis of its failure condition to be carried out.

The tool performed as expected, with an excellent average cutting time of only 46 minutes.

Overview
With a failed flexible riser affecting production, an international subsea contractor approached Ashtead Technology to assist in the recovery and damage analysis of this critical component.

Solution
Subsea infrastructure must be resilient enough to withstand harsh marine conditions, while also versatile enough to be easily replaced should any components fail or become damaged.

Ashtead Technology's Mechanical Solutions team are highly experienced in the removal and recovery of marine assets, using tailor-made solutions and proven methodologies to act safely and quickly.

Due to impact damage on the J-tube affecting production, the riser end fitting could not be lowered down the structure, requiring cutting operations to be performed on both the riser and J-tube simultaneously.

As this cutting requirement had never before been executed offshore, it was agreed that a trial test would be carried out onshore along with testing of the recovery clamps.

The trials showed that the 22" Diamond Wire Saw was more than capable of performing this task offshore and a cutting time of 45 minutes was achieved.

When mobilised to the work site, the riser and J-tube were cut at three locations, using both air and saturation divers. A recovery saddle was used to lift the sections. Prior to cutting, the damaged flexible riser was secured by drilling and pinning to limit any movement while cutting was taking place.

"Four cuts were performed in various locations on the riser and J-tube. With the DWS set up to be diver-operated, divers only had to operate clamping, motor and feed functions thanks to the patented auto-feed system.

"This system speeds up cutting times and substantially reduces the risk of diamond wire blades breaking, as divers do not have to perform any further adjustments to the hydraulics during the cutting operation."

"The expertise of our technicians in devising an appropriate solution was instrumental in ensuring that the scope was completed to the client's satisfaction."

Richard Lind, Operations Manager