Technowrap™ Engineered Composite Repairs

Sealing Success: Innovative Subsea Repair of Crude Oil Pipeline in Saudi Arabia

Date: July 2018

Client: Middle East operator

Location: Arabian Gulf

Client challenge

A 48" subsea pipe, located in Saudi Arabia and responsible for transporting crude oil, had developed a significant defect. Our team was commissioned to carry out a repair using our composite system, Technowrap™.

What we did

The project required a solution that would maintain pressure in the pipeline, allowing for future purging and eventual replacement. We recommended an innovative approach which included wrapping the clamped pipe by trained air divers and was managed topside by our experienced technicians. To ensure a smooth transition from the clamp to the pipework, a custom metal shim was fabricated to butt up against the clamp.

The complex geometry of the clamp required the fabrication of two custom steel collars by IPS in Aberdeen. These collars, along with composite materials, were shipped to the Middle East to maintain quality control in the UK. Third-party composite repair trained divers installed the collars on either side of the clamp. Once in place, composite repair materials were prepared topside and sent down to the divers for application. All activities were closely supervised and directed through a live video feed on-board. Pressure testing was conducted over six hours, ultimately concluding the intricate subsea composite repair within a remarkable 10-day timeframe, from initial application to the pressure test's conclusion.

Our customised Technowrap™ 2K Splashzone composite repair design, effectively encapsulated both ends of the clamp to ensure fluid and pressure retention, to help avoid future oil spills.

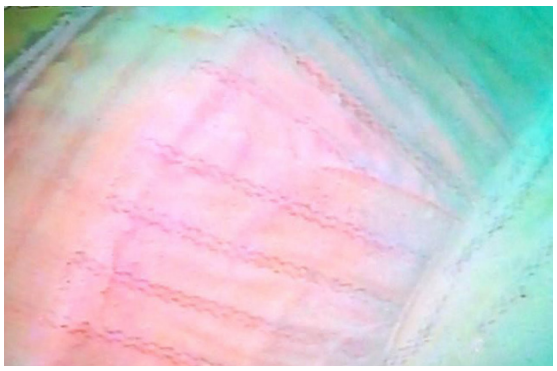
Results

This innovative repair method was not only a perfect fit for our client's long-term strategic goals but also a guarantee of the pipeline's integrity. This approach translated into substantial cost savings as we effectively bypassed the need for costly environmental mitigation measures and provided a remarkably cost-effective alternative to replacing the pipeline.

In terms of efficiency, we harnessed the expertise of our multi-skilled divers and technicians, enabling us to execute the project swiftly and effectively, minimising any disruptions to production and eliminating the looming threat of an emergency shutdown.

This case study underscores our remarkable ability to think creatively, engineer tailored solutions, and successfully overcome complex challenges in the demanding subsea environment, all while ensuring the continuous reliability of critical infrastructure.

Design Conditions	
Depth	33m
Design Temperature	140°F
Operating Temperature	75-140°F
Design Pressure	590 PSI
Max. Operating Pressure	200 PSI



Completed subsea repair in situ

Time & cost savings

Bespoke, innovative engineering

Extended service life

Multi-skilled technicians

For more information www.icr-world.com sales@icr-world.com +44 (0)1224 822822