

## STRUCTURAL REPAIR

## STAIR TOWER I-BEAM &amp; TUBULAR SUPPORTS

**CLIENT**

MAJOR OPERATOR

**DATE**

NOVEMBER 2019

**LOCATION**

UKCS

**SCOPE**

The underside of a deck stair tower onboard a North Sea platform had developed severe corrosion and wall thinning on the stanchion tubular supports, with large, localised perforations on the beam web and flanges. The operator contacted ICR to provide a cost-effective repair solution to reinstate the integrity of the corroded sections. Replacement of the I-Beam and supports on a 'like for like' basis would have been very costly and would involve hot work, which was not acceptable to the client.

**SOLUTION**

The engineered design consisted of 5 layers of Technowrap™ carbon fibre SRS (Structural Rehabilitation System) and LT (Low Temperature) resin. In this application, prefabricated plates were required for all perforated areas consisting of 2 layers of SRS which were bonded using titanium putty and encapsulated with the 5 layers. Further tubular sections were repaired using Technowrap™ 2K. The composite repair has been designed to reinstate corroded sections of universal beams of varying dimensions to their required loading capacity. The main challenge for the application was the complexity of the geometries as well as achieving compression on the corroded beams. Surface preparation was carried out by the ICR technicians and the repair was completed using an ICR rope access team.

**RESULTS**

- The composite was endorsed for its simplicity and ease of installation as it required no fabrication, no hot work, and no heavy lifting.
- A long term solutions designed for the remaining life of the asset (10 years).
- A cost-effective solution compared with full replacement
- The use of rope access technicians resulted in substantial scaffolding cost savings
- Technically Approved by independent third party
- A quick repair solution ensuring safe future operation of the stair tower.

