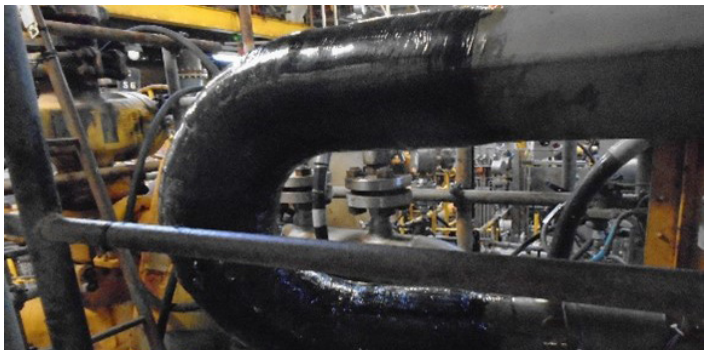
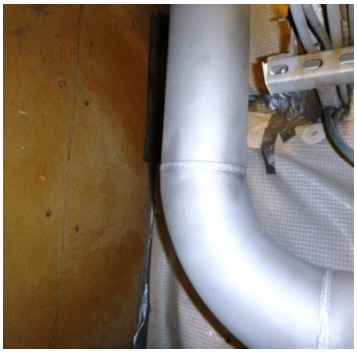
CASE STUDY

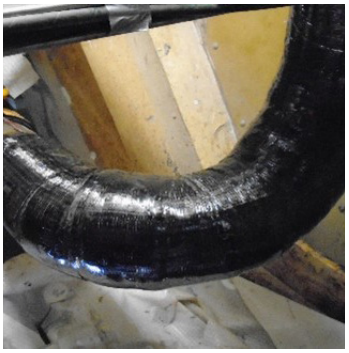
TECHNOWRAP™ ICR.

STRUCTURAL REPAIR
VIBRATION INDUCED FATIGUE FAILURE

CLIENT
MAJOR GLOBAL OPERATOR
DATE
NOVEMBER 2019
LOCATION
UKCS







SCOPE

An investigation on board a north sea platform was carried out on a 6" super duplex line that was suffering from vibration. It was determined that the welds in four separate locations would fail due to fatigue. The client approached ICR looking for a repair solution to stiffen the four areas where there were concern of fatigue failure. In order to achieve direct measurement of the stresses around the welds, strain gauges we utilised before and after installation and as a precautionary measure to verify the carbon fibre repairs installed would sufficiently stiffen the areas.

SOLUTION

ICR completed engineered designs for each repair using design conditions supplied by the client which incorporated internal pressure, axial loads, torsion and bending moments. Varying layers of Technowrap SRS (Structural Rehabilitation System) and HT (high temperature) resin depending on the design considerations.

RESULTS

Measurement using strain gauges following installation concluded that the composite repairs successfully stiffened the fatigued welds mitigating any future concern of failure and providing a design life of 14 years.