

CASE STUDY

#40

6 inch well flowline



ENGINEERED COMPOSITE SOLUTIONS

Integrity issue

A 6 inch well flowline was suffering from internal corrosion resulting in a small through wall defect close to a flange, which forced the client to shutdown the installation. It was proposed to use a FutureWrap composite repair to reinstate the pipework strength and provide a long term seal.

Design

The design of the FutureWrap repair was according to ISO 24817. The design approach was to strengthen and locally seal the leak. The assumed defect size was circular of diameter 25 mm. The design parameters were: internal pressure 50 bar, temperature 900C, design lifetime 2 years. The repair design resulted in a thickness of 12.2 mm (15 layers) of FutureWrap Glass/LT composite repair with an axial length of 250 mm.

Installation

The installation steps are shown in the photographs from surface preparation through to final curing. Due to the geometry, a limited landing area was required, this was factored into the design. This was successfully executed by ECS technicians, using ECS specialist filler putties, to plug the pin hole and then encapsulate the flange within the FutureWrap repair, which consisted of 15 layers of the FutureWrap Glass/LT repair. Full QA/QC measurements were made to demonstrate that the FutureWrap repair was applied in accordance with ISO 24817.

Summary

Due to the offshore installation being shut down, FutureWrap materials and ECS technicians mobilised within 24 hrs. The 6 inch well flowline was suffering internal corrosion was repaired using a FutureWrap Glass/LT composite repair with a design life of 2 years.



Initial condition of pipework



After surface preparation



After profiling



Final cured repair