

# COMPOSITE REPAIR SPECIALIST



- **TYPE OF DEFECT :** Axial Slot External Corrosion in Subsea Environment
- **PIPE DETAILS :** 10" OD - max 50°C pipe temp. - 20 bar design pressure
- **LOCATION :** INDIA
- **3X PRODUCT :** REINFORCEKIT 4D SUBSEA (R4D-S)

## OVERVIEW

The objective of the repair performed in December 2014 by 3X ENGINEERING and its local distributor 3X INDIA was to **reinforce 11 leaking defects over 1.7 meter length of a subsea pipe section due to severe corrosion.**

## SCOPE OF WORK

- After calculations and Finite Elements Analysis (FEA), 26 layers have been determined to perform the repair.

- Underwater, after removal of metal clamps and concrete over the pipe, a surface preparation was performed to get a good surface roughness (60-micron surface profile).

- The wrapping repair has been performed following several stages :

1/ Special subsea filler (F3XSS) application to fill the leaks and provide a solid and smooth curvature.

2/ Sandblasted thin steel plates (with filler), fixed with straps during curing time, installed over the defected area.

3/ Second filler application performed to ensure removal of sharp edges and stress concentration areas.

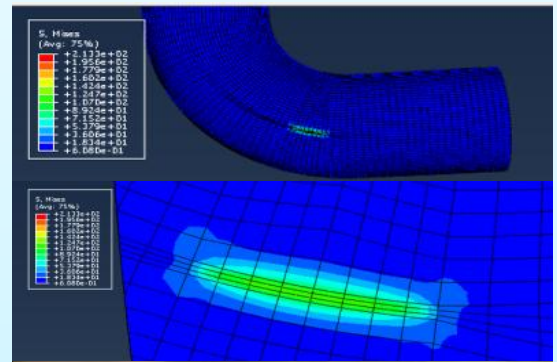
4/ Primer application on the entire repair using a gun with bi-component cartridge.

5/ Wrapping using Kevlar and R3X1050-S resin on the whole repair surface (steel plates and pipe) to avoid differences of level and to increase quality of the 1<sup>st</sup> layer wrapping.

- A protective cover has been applied to protect the recently installed layers and a 72-hour curing time has been allowed before pressuring the pipe.

## RESULTS

Based on its experience acquired during two recent subsea projects on 32" pipe at 62-meter depth, 3X Engineering has been able to conduct with success this complicated job. Applying our products in deep water is very sensitive and needs to be performed with high-qualified staff and high-performance equipments. This pipe repair was successfully completed and after service, no leak was observed.



For more information concerning our operations and range of products, please contact us at :

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