INNOVATIVE REPAIR SOLUTIONS FOR YOUR INSTALLATIONS

DEFECT TYPE	**External corrosion at weld connection**
PIPE DETAILS	**12" gas line – Operating temperature: ambient (20°C) - Pressure 64 bars**
LOCATION	**AUSTRIA – Aerial pipeline**
3X SOLUTION	**REINFORCEKIT® 4D – EC**

Fig. 1: Surface Preparation using Bristle Blaster®

Fig. 2: F3X8 filler application

Fig. 3: Composite wrapping on progress

Fig. 4: Repair overview with ID plate

OVERVIEW

The objective of the job, carried out in June 2019 in Austria, was to **restore the pipe integrity of a 12" gas line suffering from external corrosion at weld connection**. The access to the defect was complicated due to the height of the line. The aerial line is situated on a bridge crossing the Danube river.

SCOPE OF WORK

Each repair is designed specifically according to the characteristics of the pipe, the operating conditions and the size of the defect. According to ISO 24.817 standard and 3X ENGINEERING (3X) repair calculations, 4 layers of **REINFORCEKIT® 4D-EC** were determined to reinforce the straight line.

The complicated pipe location (aerial) required Rope Access Work.

Before starting the reinforcement, the coating was removed each side of the weld to have enough length for composite application. Surface preparation was then completed using Bristle Blaster® machine to get a good surface state and surface profile. Finally, the whole prepared surface was cleaned with acetone and roughness test and hygrometric measures were performed to ensure that all the conditions were satisfying before composite application.

The composite repair was then performed following several steps:

1/ F3X8 filler application on weld and defect to reshape the pipe.

2/ R3X1060 resin application on the whole surface to protect it from corrosion.

3/ Wrapping process using **Kevlar® tape impregnated with R3X1060 resin ➔** 4 layers completed for a total repair length of 400mm.

4/ Finalization of the repair. **R3X1060 resin** application over the repair to ensure good wetting of the fibers and good visual aspect and identification plate application for traceability purpose.

Hardness measurements on resin and filler samples were performed 10 days after job completion to check the good curing and validate the repair.

RESULTS

The project was effectively planned and executed by 3X specialists. This job demonstrated the capacity and adaptability of 3X technicians to work on specific conditions such as aerial work with rope access. This composite repair will extend the lifetime of the pipe while awaiting its replacement (design lifetime: 1 year, as per client requirement).