GC WRAP

CASE STUDY

Documentation of the repair of the transmission pipeline, made with composite materials
REPAIR OF EXTERNAL CORROSION ON HIGH PRESSURE GAS PIPELINE DN 379

REPAIR TECHNOLOGY DEVELOPED BY AN INTERNATIONAL TEAM OF ENGINEERS

EFFICIENCY

GC Wrap is the highest quality fiberglass and carbon fiber systems used to rehabilitate and restore the original working strength of damaged or corroded transmission pipelines and pressure vessels. With full compliance to ASME PCC-2 and ISO TS 24817 technical standards, service life extensions are possible up to 50 years.

PIPING PROTECTION

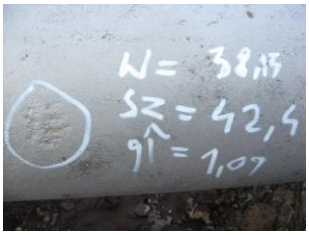
GC WRAP can be applied on tees, elbows, and, of course, straight runs of pipe, in confined spaces and on irregular surfaces – wherever structural reinforcement or leak containment is required. The adhesive properties of the urethane and the use of an epoxy primer allow it to be applied to most substrates.

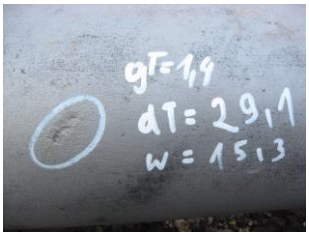
COMPLIANT TECHNOLOGY

GC Wrap is compliant to the ISO TS 24817 technical standard, ASME B31, .8, .4, .G and PCC-2 Art. 4.1, 4.2. as well as API 570. Please refer to: API 570, Section 8.1.4 – Non-welding repairs (on stream). The repair technology with composite materials is approved by the UDT.

PROBLEM

External corrosion is an important issue for pipeline operations. The occurrence of corrosion pits with a depth of more than 20% of the value of the wall thickness forces the pipeline operator to reduce the operating pressure or take the pipeline out of service. It is worth mentioning that according to the technical standard ISO TS 24817, as type A repairs (repairs where composite materials are a permanent solution) qualify those external corrosion defects where the wall thinning is less than 80% of the value of the wall thickness, or the remaining wall thickness is a minimum of 1 mm. Gascontrol Polska sp. z o.o. has extensive experience in repairing this type of damage, occurring in all types of pipelines encountered in Poland.





APPLIED SOLUTION

The process of repair with composite materials in the case of external corrosion pits permanently eliminates the damage in question and restores the original transmission parameters of the pipeline in question for up to 20 years. After determining the location of pitting, the isolation is removed and the pipeline is cleaned (sandblasting is the most common method The pits are then filled with a two-component filler, after which a primer is applied to the section of pipe in question (the length of the repair is determined by engineering calculations made in accordance with ISO TS 24817). Finally, the repaired area is covered with a composite material, which in the case of the repair in question was a bandage with a roll width of 10 cm, made of fiberglass soaked in urethane.

RESULT

Composite materials are the fastest and most effective method of removing external corrosion pits on transmission pipelines. In the case data, 12 pieces of pitting were removed in one day by a team of three trained technicians. After completion of the repair with composite materials, the repaired surface was covered with isolation tape - as recommended by the pipeline operator.

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