

SYNTHO-GLASS® XT

PIPELINE REINFORCEMENT AND REPAIR



Problem

This 1,050 psi (72.4 bar) 10.75" OD natural gas pipeline was gouged by a third party excavator.

Conditions

The composite calculations were based on a MAOP of 1,050 psi (72.4 bar) for the API 5LX-42 ERW pipeline with an original wall thickness of 0.203" (5.2mm) which was inspected to have a gouge measuring 6" (15 cm) in length and its depth 30% of the original wall thickness.

Solution

In order to promote adhesion, the pipe was prepared using a mechanical grinder to remove loose rust and paint from the surface of the pipe. Additional surface preparation was completed using an MBX Bristle Blaster over the entire repair area to ensure the appropriate anchor profile was achieved and finally the pipe was cleaned using a solvent wipe to remove any oil from the surface of the pipe. The 6" (15cm) gouge was filled using Syntho-Poxy™ HC to profile the defect area to match the circular shape of the pipe to allow even load transfer of the high compression strength epoxy throughout the composite repair system. Once the defect was filled and profiled using the Syntho-Poxy™ HC the entire repair area was coated with 30mils of Syntho-SubSea™ LV, a high compression strength, two-part, Kevlar® reinforced epoxy coating. The two-part SubseaLV epoxy coating will prevent and arrest any future corrosion from occurring while providing a load transfer median engineered to cycle with carbon steel pipe as the pipeline is in operation. The pipe was then wrapped with 12 layers of Syntho-Glass® XT, a 54,000 psi (3,723 bar) tensile strength fiberglass composite sleeve designed to increase the hoop strength of the damaged pipe restoring the structural integrity of the pipeline.

Result

A repair that could have otherwise have taken weeks, was completed inexpensively in less than one hour. The Syntho-Glass XT composite system fully restored the pipe's hoop and axial strength to enable operations at full MAOP of 1,050 psi (72.4 bar).



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