

LEAK REPAIR TECHNOLOGY FOR BRIDGE PIPELINES

Starline® Cured-in-place-lining with carbon fiber SRS is an ideal solution to repair gas leaks within bridge pipelines.



Pipeline running underneath a bridge.

As bridges age, so do the pipelines that run alongside or underneath the bridge. Of the 614,387 suspension bridges in the U.S., forty two percent are 50 years or older. In the Northeast, gas pipelines and bridges are typically 75 - 100 years old. Pipelines that run under, alongside, or through the bridge's abutment walls are particularly vulnerable to corrosion and gas leaks.

THE PROBLEM WITH PIPELINES ON BRIDGE CROSSINGS

Most bridge or overpass crossings place the pipeline through the concrete abutment wall of the structure, either with a protective sleeve, or in some cases without a sleeve. The pipeline is often resting on top of the structure completely exposed except for where it re-enters the road or offsets into the abutment walls. Pipelines exposed to wind, salt and extreme temperatures have accelerated corrosion. When the pipeline is weakened at the concrete abutment wall juncture, there frequently is a gas leak.

Repairing excessive corrosion and leaks in the pipeline where it enters the abutment wall of the bridge would normally require the pipe to be removed. Removing pipe in an abutment wall affects the structure of the bridge and requires drilling through the foundation of the abutment wall. Local municipalities and owners of the bridge typically

will not allow drilling in the bridge abutment nor will they permit replacement of the pipeline, especially where it enters and exits the abutment wall of the bridge structure.

SOLUTION: REPAIR THE PIPELINE WITHOUT DISTURBING THE BRIDGE

Installing a Carbon Fiber Structural Reinforcement Sleeve (SRS) into the gas pipeline directly at the bridge abutment wall is proven to prevent the need for removal or excavation. The carbon fiber SRS reinforces the corroded pipe with a carbon fiber sleeve without disturbing the pipe. Its structural integrity is ideal for situations where the integrity of the host pipe potentially has been compromised by corrosion and also when a gap in the pipe needs to be bridged.

Progressive Pipeline Management's (PPM) SRS sleeves are made of a high strength carbon fiber laminate composite material and glass outer coating to prevent corrosion. The carbon fiber material bonds to the interior of the pipeline, essentially becoming the host pipe for a cured-in-place-liner (CIPL) installation. The SRS has been tested at pressures to 250 PSI and approved by the Gas Technology Institute for its strength, durability and compatibility with PPM's Starline® CIPL product. The SRS significantly reduces costs and time by preventing future corrosion and eliminating the need for excavations.

During a 12-inch rehabilitation project in East Orange NJ, the pipeline went directly through the bridge's concrete abutment wall. The crew successfully installed the SRS in the abutment wall, with temporary PVC piping between the 12-inch wrought iron gas main and the abutment wall.

PPM is the exclusive licensee in North America for the Starline® Cured-in-place-lining with over twenty-one years



PPM crew is installing SRS sleeve and PVC pipe between abutment wall and gas main

of specialized expertise associated with gas pipeline rehabilitation, PIPES ACT compliance and trenchless technology.

Mario Carbone, COO Progressive Pipeline Management



Mario Carbone spent thirty-two years in design, maintenance and construction with Brooklyn Union Gas/KeySpan Energy and ten years

as the senior manager for gas R&D with KeySpan Energy before joining PPM. In addition to his expertise in CIPL, engineering and field operations, Mario is versed in current regulations for corrosion and pipeline environmental procedures and holds three gas pipeline industry patents. His inventiveness to overcome challenges led PPM to win the Trenchless Technology Project of the Year multiple times.

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