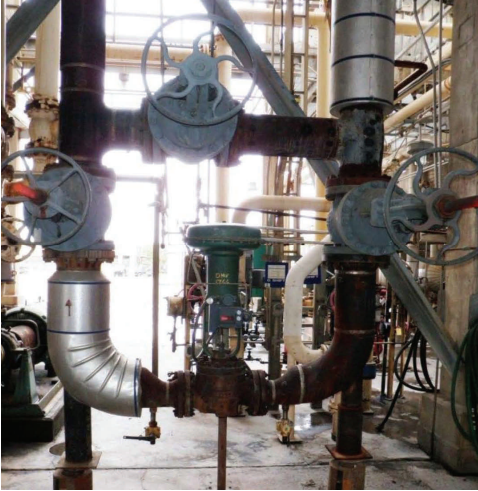


THERMO-WRAP™

PROCESS PIPING REHABILITATION



Problem

A section of 10" pipe, transporting Kerosene, in a US Gulf Coast refining facility was experiencing accelerated internal wall thinning due to internal corrosion of the pipe. The skin temperature of the pipe of approximately 255° F (124° C) was a limitation for the application of most standard repair methods. In addition, the pipe was not able to be shut down for the repair as the function of a major unit depended on its continued operation.

Conditions

With the presence of internal wall loss, a repair was required in order to sufficiently reinforce the thinned area to prevent failure and keep the system in working order. The live skin temperature of the pipe was elevated to a point that most repair systems do not work as expected and are difficult to apply. The repair was to be designed for the full 435 psi (30 bar) pressure rating at a constant operating temperature of 255° F (124° C) with expected spikes of up to 300° F (149° C).

Solution

Thermo-Wrap™ is an E-glass high temperature epoxy based composite repair system that has been developed specifically for high temperature applications and environments. In order to promote adhesion, the pipe was cleaned by removing rust, paint, and other foreign matter using power tools. The two part epoxy was then applied to the prepared surface to promote bond and prevent corrosion. The section of pipe was then wrapped with Thermo-Wrap system, a 100,000 psi (6,895 bar) tensile strength fiberglass wrap system, which provides structural integrity to the thinned pipe, now and into the future.

Result

In only a couple hours, NRI was able to fix the thinned pipe and restore it to higher than its original design pressure. By utilizing the Thermo-Wrap composite repair system, the pipe could remain in full working operation without the need to reduce the temperature or pressure, thereby fully repairing and reinforcing the section, while maintaining the current production schedules.



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NRI
Innovative Composite Solutions