

THERMO-WRAP™CF VIPER-SKIN™ & SYNTHO-GLASS®UV MONOBLOCK REHABILITATION



Problem

A 20" monoblock in an oil refinery was leaking at an insulated joint. The geometry of the monoblock was a limitation for the application of most standard repair methods.

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 repair was to be designed for the full 218 psi (15 bar) pressure rating.

Solution

After shutting down, the area was sandblasted and the joints were coated using Syntho-Poxy™HC, a high compression strength liquid epoxy which protects and effectively halts future corrosion while also providing a load transfer medium. Thermo-Wrap™CF, a carbon fiber composite repair system which was developed for high temperature applications was used since its epoxy based system allowed excellent adhesions to the odd geometry when circumferential wrapping was not an option. Thirty mils of Syntho-Subsea™LV epoxy was then applied over the entire repair area to provide corrosion protection to the bare steel, locking out any atmospheric conditions from the environment. The Viper-Skin™ carbon fiber composite wrap was then applied at the calculated number of layers over the required length, fully restoring the integrity of the pipe. Syntho-Glass®UV was applied to provide UV stabilization for the composite repair system.

Result

In only a few hours, NRI was able to fix the leaking pipe and restore it to higher than its original design pressure. By utilizing a variety of NRI's composite solutions, the pipe could remain in full working operation without the need to reduce pressure, thereby fully repairing and reinforcing the section while maintaining the current production schedules.



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