



Provide lasting pipe performance

aquatherm

AQUATHERM HELPS DRY UP INDUSTRIAL LAUNDRY FACILITY'S LEAK WOES

PROJECT INFORMATION

PROJECT	PRODUCTS USED	LOCATION / DATE
Tri-State Health Care Laundry, Supply and Process Water Retrofit	Aquatherm Greenpipe® Climatherm®	Covington, KY Summer 2008

AQUATHERM ADVANTAGES

- PP-R's lighter weight made installation from a scissor lift easier
- 4-inch joint connections took only 3-4 minutes vs. 15 with steel
- Ownership liked the corrosion resistance and 10-year warranty



THE CHALLENGE

Aggressive process water had consistently rusted through the existing Schedule 80 steel

THE SOLUTION

Corrosion- and rust-proof, Aquatherm held up so well over a 3-year period the facility is using it on their main line

Located in the Cincinnati suburb of Covington, KY, Tri-State Health Care Laundry provides its services to several facilities in Ohio, Kentucky and Indiana. Featuring 52-foot-long washing machines and 12-foot-tall dryers with 8-foot tumblers, the facility manages to churn out crisply washed linens, uniforms, and other laundered items on a massive basis.

In keeping with the largesse of the process, the facility also has a tremendous amount of piping – well over 1,500 linear feet. Coursing through all that piping is an enormous amount of process water – almost 1 million gallons a month. Of course the water, detergents, and other chemicals are extremely corrosive.

In fact, the existing Schedule 80 galvanized steel piping was rusting from the inside out. The problems were so severe that for an hour once a week the facility had to flush the pipe by letting a ¾-inch line run full bore to flush the system in an effort to reduce the corrosion. In the summer of 2008, Tri-State decided to repair some pipe sections that had lost the battle with the caustic process water.

CORRECTING THE CORROSION CONUNDRUM

The two sections of leaking 4-inch pipe ran along Tri-State's ceiling about 30 feet off the facility floor. At the street, the water enters the piping at roughly 110 psi and in the building it runs at ambient temperature and about 80 psi.

Located in nearby Elsmere, KY, MarkCo, Inc. Plumbing and Building Services, has been providing Tri-State with backflow testing for roughly the last decade and ongoing plumbing

maintenance and support for the last six years. MarkCo's foreman, Gary Kentley presented an innovative solution to the corrosion conundrum.

While a traditional solution such as roll grooved pipe was briefly considered, installing that type of pipe from a scissor lift was going to be exceedingly difficult. Kentley had been introduced to Aquatherm's polypropylene-random (PP-R) piping by Zak Schultz with the local Aquatherm representative, StreamKey Engineered Plumbing and Waste Water Solutions (Cincinnati). Kentley immediately identified the Tri-State repair as a perfect application for Aquatherm.

"The first reason that Aquatherm made sense for this job was that it is so much lighter than steel. Three joints were necessary to put the run of pipe in, and it would have been six joints if we had used galvanized steel because of its weight," Kentley said. However, since the galvanized steel had already experienced serious corrosion problems, Aquatherm was selected.

Aquatherm, which is manufactured in Germany, is extremely durable and leak- and corrosion-resistant and has been proven globally for nearly 40 years, but is relatively new to North America.

The heat fusion process used to join Aquatherm pipe bonds both sides of a joint into a single, homogenous material without the use of flames, chemicals, or mechanical connections. Once fused, pipes and fittings have the same physical properties, thus eliminating systematic weaknesses that can be caused by introducing different materials into the joint in other types of piping systems.

Additionally, Aquatherm provides a 10-year warranty on pipe

and fittings with a product liability valued at 9 million Euros for personal injury and 4.5 million Euros for property damage per event, to Aquatherm-trained and certified installers.

NO MORE FLUSHING

Tri-State's facility manager Steve Johnson wasn't concerned about what piping material would be used for the repair; he simply wanted the line repaired so that they didn't have to keep flushing it and so that it didn't leak. "The facility manager basically told me, if it's faster and cheaper – do it," Kentley recalled.



After seeing PP-R perform so well for three years, Tri-State installed it for its six-inch main line.



The soft water main runs from the three water softeners in the boiler room to the tunnel washers at the back of the facility. It is a run of approximately 400 feet.

scissor lift. Tri-State installers cut out the existing sections and replaced them with Climatherm using Aquatherm flanges, couplings, transitions, and also some steel flanges.

MarkCo did as much prefabrication of the joints on the ground as possible, fusing the flanges and the first piece of pipe and its coupling, then welding it into place via the scissor lift. The second repair was a 30-foot section in a corner of the facility and was done via ladders and an access through a cinder block wall.

There was one joint involving a 90-degree fitting that was buried in the wall, which made the repair a bit challenging. Getting the Aquatherm 4-inch welding jig into proper position was difficult. "We used flanges on both ends, and it was a bit short, so we had to move all the hangers, and then there was still a small gap between them so we had to massage it by hand to get it close enough to fuse," Kentley said. "However, the installation went smoothly considering it was a new product and a retrofit," he added.

NO LEAKS, NO DRIPS, NO WORRIES

Throughout the repairs, there were no leaks at all, and Kentley explained that the 4-inch joints were typically completed in only 3-4 minutes, whereas it would have been 15 minutes per joint for steel. This considerable labor savings added up, Kentley said. "Price-wise Aquatherm was comparable to steel, or maybe a bit cheaper, but labor-wise, it was a whole lot cheaper. We look to use it wherever we can now."

More than a year later, the repairs are holding up perfectly, and Tri-State now has a go-to piping option. In fact, Aquatherm was also used on the facility's six inch main line in summer 2011. ^a

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-GARY KENTLEY, FOREMAN OF MARKCO INC.

StreamKey's Schultz trained the MarkCo employees on the fusion welding technique. However, since they had used polypropylene for acid waste piping the Tri-State installers were already familiar with fusion welding and the training went quickly.

4-inch Aquatherm Climatherm SDR-11, which is designed specifically for industrial, HVAC, and compressed air applications, replaced the steel. Made from over 98.5% PP-R, Climatherm, is particularly well suited for these applications because of the material's natural insulation properties: an R-value of 1 or more, depending on pipe size and SDR.

The first repair was a 21-foot section that was accessed via a

The German-manufactured pipe has been one of the world's most durable and greenest piping systems for nearly four decades and proven successful in 70-plus countries. Aquatherm piping systems offer many performance and environmental benefits, such as:

- Eliminating toxic materials, glues and resins, and open flames from the piping installation equation
- An R-value of 1 or greater depending on pipe size and SDR
- The fusion welding process which creates seamless connections that last a lifetime without leaking or failing
- An optional fiber-composite layer in the pipe reduces linear expansion of the pipe by up to 75% compared to plastic piping

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