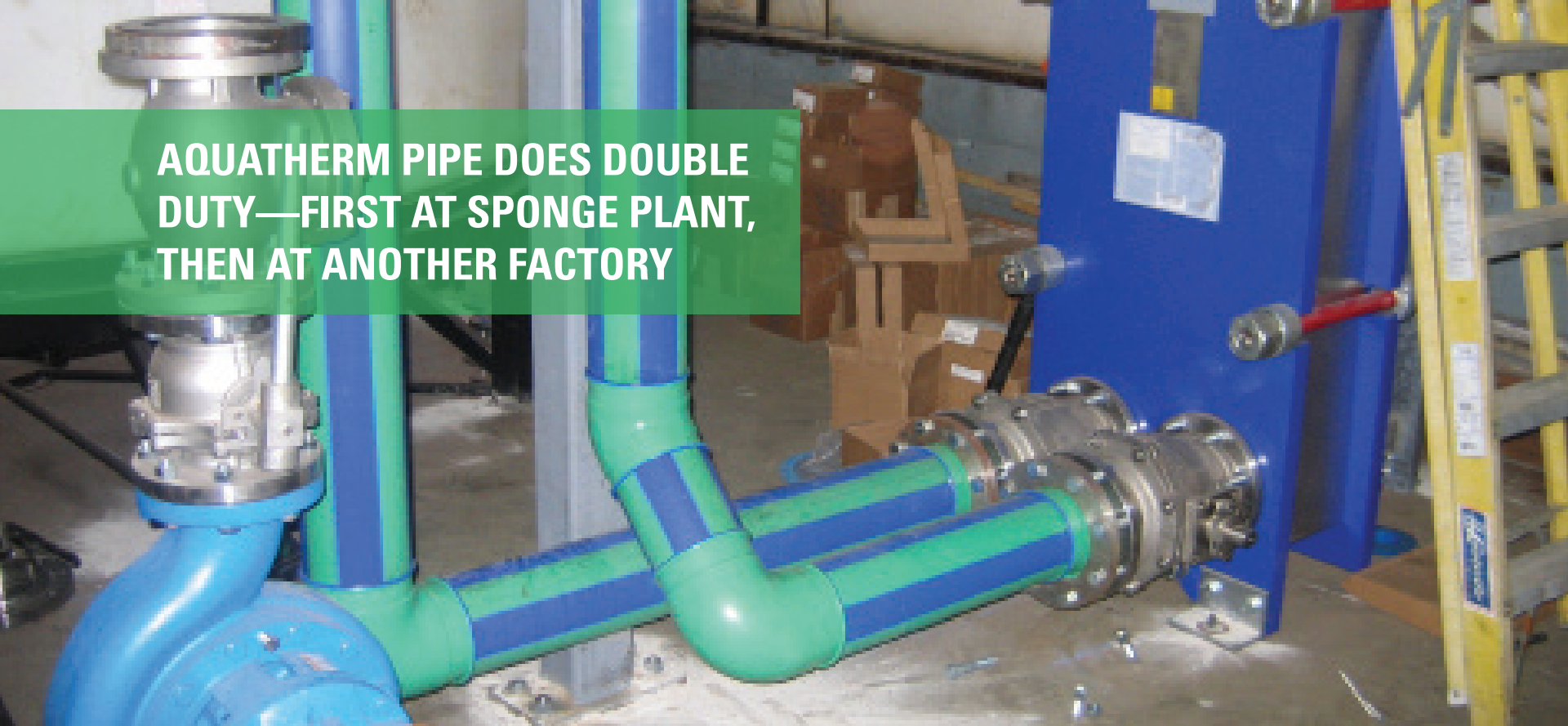


AQUATHERM PIPE DOES DOUBLE DUTY—FIRST AT SPONGE PLANT, THEN AT ANOTHER FACTORY



PROJECT:

Mapa Spontex Inc.
Manufacturing Plant, HVAC

PRODUCTS:

aquatherm blue pipe®

LOCATION/DATE:

Columbia, TN November 2009

AQUATHERM ADVANTAGES:

- Flame-free heat fusion joints are leak-free, reliable, and safe to install
- Lighter weight (75% less than steel) made installation easier
- 10-year warranty covers parts, labor, and incidental damages

In a factory where the simple ring of a cell phone could set off a fatal explosion, the ability to make long-lasting piping connections without an open flame was invaluable.

Editor's Note: In January 2010, the Mapa Spontex Inc.'s Columbia, Tennessee factory operations ceased due to the sale of the company. However, the pipe was re-used at another manufacturing facility nearby.

For more than the last half-century, a Columbia, Tennessee factory manufactured all varieties of sponges in a 250,000-plus-sq-ft plant. One of the few spots in the U.S. where sponges were still manufactured, the Mapa Spontex Inc. plant employed 150 people. To the uninitiated visitor, the plant could be a bit intimidating: Cars were required to be parked rear-first for quick evacuations; visitors needed to sign in, view a safety video, and don safety apparel; cell phones were not allowed to be on in the facility, as the spark caused by a cell phone ring could cause an explosion.

PROBLEMS INSIDE AND OUT

The sponge-making process was also intimidating to traditional metal piping: The manufacturing process involved tremendously caustic and corrosive chemicals such as sodium sulphate, dyes, and bleach, among others; and the air in the plant was not conditioned (with ambient temperatures reaching 100 °F at times). Thus, plant officials had dealt with process piping problems for years. So when they sought to replace leaking piping in early 2009, Spontex officials were interested in a



corrosion- and rust-resistant piping option that would require no open flames in the installation process.

The plant was crisscrossed with a few thousand linear feet of piping, and roughly 1,350 feet of schedule 40 steel pipe needed to be replaced immediately due to rust on both the inside and out, according to its facilities manager, Bill Maxlow. He had been introduced to Aquatherm's polypropylene-random (PP-R) piping by Danny Lee, a project manager with Evers Construction Company, Inc., when failed steel piping led to a considerable sewage problem.

Lee has 31 years in the industry, including the last seven with Evers (based in Lawrenceburg, Tennessee), and has been a proponent of polypropylene for years. In fact, he had worked on an industrial job that used polypropylene in the 1980s.

"We knew the product was good, especially for the application we used it for, and that piping is still in operation. We never had to go back to that plant," Lee recalled of the 1980s job. He asked a sales representative for the local Aquatherm distributor to visit Spontex and discuss using Aquatherm for the process piping retrofit.



“Bill and the owner were aware of Aquatherm piping from its use in Europe and they wanted to integrate it into the plant. They knew that the product would be resistant to the bacterial and rust problems that had plagued the steel piping in the plant,” Lee said. “The steel piping had been causing considerable problems with corrosion and sweating, and with Aquatherm you have none of that.”

MIXING ACID AND AN UNSURPASSED WARRANTY

Aquatherm, which is manufactured in Germany, is so durable and leak- and corrosion-resistant that it's used on cruise ships, in chemical processes, and in mission critical applications. It has been proven around the globe for 40 years, but is relatively new to North America.

Lee explained that Aquatherm's 10-year warranty played a big role in the product being specified on the job. The warranty on pipe and fittings provides product liability worth tens of millions of dollars for property damage, and personal injury and incidentals when the product is installed by Aquatherm-trained technicians.

“Because of the chemicals they use at the plant the warranty played a big role,” Lee said, adding that the plant was sure to assign an engineer to witness the hydrostatic testing and other commissioning.

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The heat fusion process used to join the 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.

According to Lee, his installers were a bit leery of using plastic and doing the fusion welds. “My guys were hesitant up until they got to running it, but then after a bit, the guys running steel wanted to know why they couldn't go up to Spontex and use Aquatherm,” he said.

The retrofit project began in March 2009 using 6-inch Aquatherm Blue Pipe® SDR-11, which is designed specifically for industrial, HVAC, and compressed air applications. The piping



typically carried 40-50 °F water from the plant's four chillers at 40-60 psi to the different process areas.

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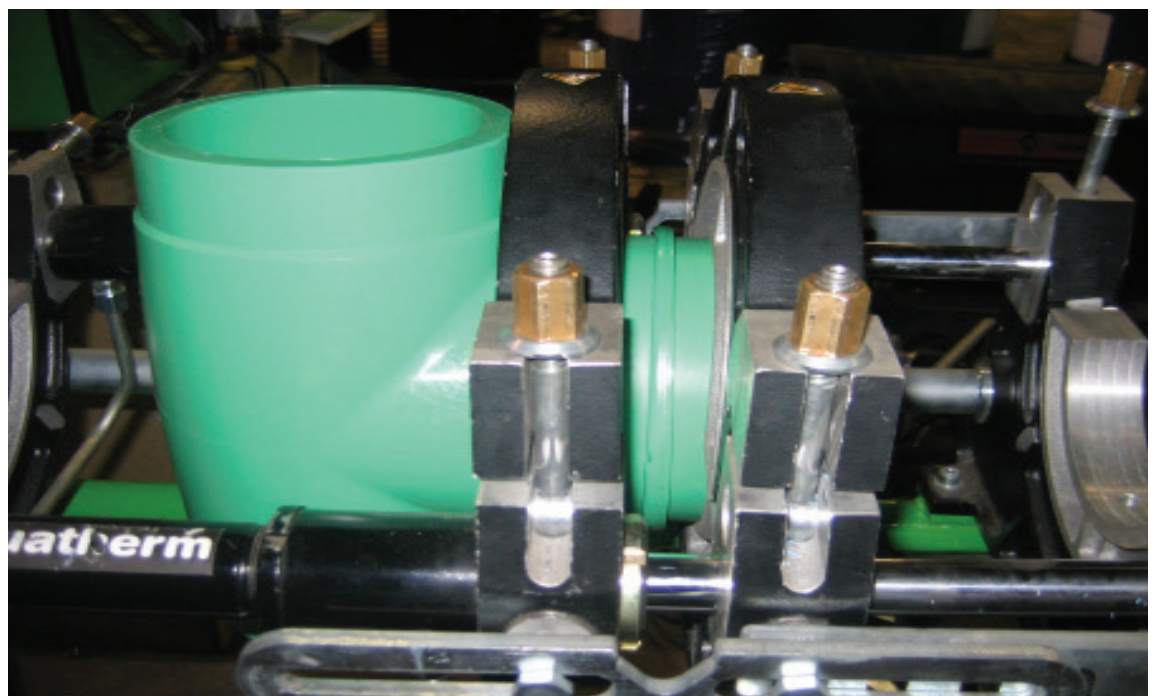
A common sentiment regarding the fusion welding process is that it takes a little bit of hands-on work to get used to it. “There is a learning curve to the Aquatherm fusion welding

technique. But it's not as labor intensive and takes a lot less time than steel,” Lee said.

Part way through the installation in early May 2009, he added, “We would not be this far along in the project if we were using steel instead of Aquatherm. Plus we're minimizing downtime in the plant, which was a really important on this job.”

Indeed, if the retrofit had been done using welded steel and the accompanying open flame, a large portion of the facility would have had to be shut down. However, with Aquatherm there was no need for that, and the plant stayed operational.

All in all, almost 1,400 linear feet of six-inch Aquatherm Blue Pipe® was installed at the plant. “It would have taken much longer if they had been doing steel welds and you consider the labor and supports (fewer supports were



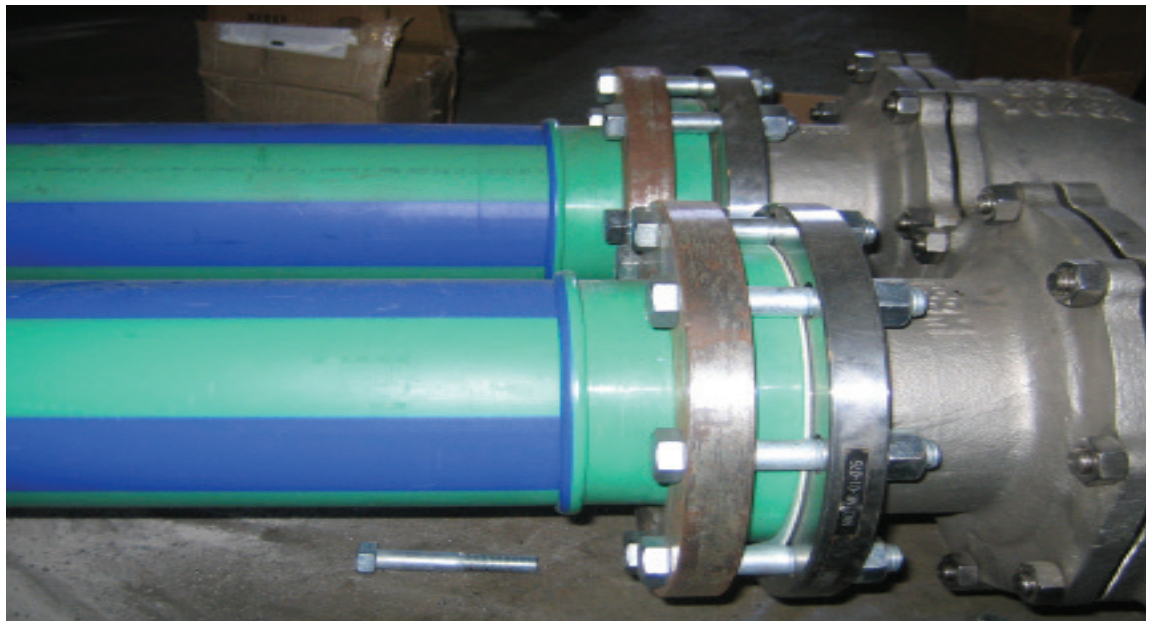
necessary since the pipe is considerably lighter than steel),” Lee said. “One man can pick up the six-inch pipe, where with steel you’d need two to three men.”

With roughly 200 fusion connections made, there was not a single leak. Lee explained that on a job like this done using steel, there would typically have at least been a few leaks, and potentially many more.

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Additionally, since Aquatherm is rust-proof, it eliminated the need for water treatment chemicals in the system that would have been mandatory for steel. “We went with Aquatherm because of its corrosion resistance and additional strength over other plastics. Additionally, since it is rigid and doesn’t require as many hangers, it was a perfect fit,” Maxlow concluded.




Once this first repair was completed, the Spontex staff was so pleased, they hired Evers to install 8-inch Aquatherm Blue Pipe® to run from a water storage tank to new processing pumps, and from the processing pumps to the chiller.

This second retrofit, which totaled about 140 more linear feet, was needed because the flow rate had been drastically reduced due to corrosion in the existing schedule 80 steel pipes.

This job took about a week to complete, and wrapped up in November 2009. While some of the work had to be done under a temporary tent to provide shelter from consistent rain, the job went off without a hitch and the flow rate increased from 750 gpm to 950 gpm (Aquatherm’s flow rates are also superior to steel).

THE ULTIMATE RE-USE OF A PIPE SYSTEM

So while the new owners of the plant elected to shut it down, amazingly, in early 2011, a Lawrenceburg, TN manufacturing company bought the Aquatherm from the former Spontex facility and used it in their own plant for both pure water and compressed air systems.

The factory manufactures carbon sleeves used in furnaces, and while the company wasn’t willing to share their experiences with the directly recycled pipe, the local Aquatherm distributor said the installation went smoothly and the pipe has been performing as expected. “There is no other pipe would you do this with,” he noted. 



The German-manufactured pipe has been one of the world’s most durable and greenest piping systems for 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 more per inch 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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