



Provide lasting pipe performance

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BURLEY MILK FACILITY BENEFITS FROM BURLY PIPING ALTERNATIVE

PROJECT INFORMATION

PROJECT	PRODUCTS USED	LOCATION / DATE
High Desert Milk Inc., Process and Compressed Air Piping	Climatherm® Aquatherm Greenpipe®	Burley, ID September 2008

AQUATHERM ADVANTAGES

- The lighter weight of Aquatherm saved extensive hours on labor
- The plant's maintenance staff services the pipe system on their own without requiring a service call from a contractor
- Aquatherm provided thorough training and support and is NSF-approved



THE CHALLENGE

Ownership demanded a cost effective and long lasting pipe option

THE SOLUTION

Aquatherm offered cost savings over copper and a 10-year warranty

High Desert Milk Inc.'s name pretty much spells out what the business is about and where it's located. High Desert Milk (HDM) was formed in Burley, Idaho in 2001 by a progressive group of dairy men seeking to increase their return per hundredweight (a unit of weight equal to 100 lbs) of milk and provide a stable market for their product.

These co-operative owners milk 26,000 cows, farm 30,000 acres, and HDM's 2007 sales exceeded \$75 million. Due to continued growth, the company needed to build a processing plant in Burley to process over 2 million lbs of milk per day into 65 million lbs of powdered milk per year.

HDM set out to build a new 100,000-sq-ft facility with durability and functionality at its core. Obviously, the facility, which is 85-ft-high in spots, would have a tremendous amount of piping running through it.

PIPE FIRST

Scott Palmer, president of A.H. Palmer & Sons, the plumbing and mechanical contractor on the project, explains that with over a mile of piping running through the facility, selecting the right piping options for the job was critical. Yet copper, which would have been the traditional option for many portions of the job, was selling at all time high rates when the job was being specified in spring 2007.

A.H. Palmer had used Aquatherm polypropylene-random (PP-R) piping for a cooling water loop at the Utah State University



While stainless steel was used some areas of the plant due to aesthetics, over 4,000 lineal feet of Aquatherm was used for compressed air, cow water, and door and foot foamers.

computer room in Logan, UT, and Palmer suggested using the product on the HDM project. At first, the plant owners were a bit leery of using such a new-to-them piping product, but after some in-depth research they warmed to the idea.

Hansen followed up with USU officials about the product and also talked extensively with Aquatherm officials to learn as much as possible about the product. Aquatherm and A.H. Palmer gave HDM a thorough presentation and training session covering the ins and out of PP-R.



PP-R is so durable and leak- and corrosion-resistant that it's used extensively in acid waste and chemical process applications. It has been proven around the globe for 35 years, but is relatively new to North America. "Other metals were considered, but after checking on some Aquatherm installations and considering the cost of metals at the time of construction, it was decided to use the Aquatherm product," says Ralph Hansen, HDM's maintenance manager for the Burley facility.

Aquatherm's warranty also factored in the piping selection, according to Palmer. Aquatherm, which is manufactured in Germany, 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.

INSTALLATION SPEED AND MAINTENANCE WERE THE CLINCHERS...

"The material labor costs, ease-of-maintenance, and guarantee were all important, but the installation speed was the biggest thing," says Palmer. "We can put this in quicker than we can put anything else in, and we don't have to have a welder. One guy can do a three-inch Aquatherm installation when you would need three installers to put in a similar steel pipe. It was a 'push job' and we were doing everything we could to save an hour."

Since the A.H. Palmer staff of roughly 20 installers working on this project was new to Aquatherm, the company held a three-hour training covering the basics and more. While Palmer says his welders were also initially skeptical of the fusion welding process, they accepted it pretty quickly.

"It's like any new product – a guy in the field or a guy in office selling it is a big factor. The guys didn't complain about it, and the plumbers loved it. They found it to be very simple, and if you follow the procedures it's an easy product to work with," Palmer says.

An additional benefit that helped convince HDM to select Aquatherm was its ease of maintenance. Palmer explains that on a 4-inch compressed air line, a maintenance person can "drill a hole, slap his iron in there, and then he can put a branch line in instead of torching a hole in and welding into the three-

inch line like you would with copper or steel." "Additionally if you want to add a line and valve it off, you can do it a lot quicker and get the system back online," he adds.

Palmer says that HDM was thrilled to be able to keep some maintenance in-house. "They don't have to have a welder. The plant is up and running a lot quicker. It cuts us out of maintenance but on something that simple, it is no big deal and it saves them a lot of money. They'd pay \$100 instead of \$300," he says.

Hansen adds that the fact that Aquatherm was approved by the state building inspector for use on non-potable water and compressed air made his acceptance of the product much easier.

PERFECT FOR POTABLE AND...COW WATER

While Palmer recommended Aquatherm for many plant systems, the owners opted for stainless steel in some spots due to aesthetics – its metallic appearance. However, Aquatherm Greenpipe® was used for compressed air, cow water, and door and foot foamers, with over 4,000 lineal feet installed throughout the plant.

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-SCOTT PALMER, PRESIDENT OF A.H. PALMER & SONS

Fully recyclable, Aquatherm Greenpipe is designed specifically for potable water applications. The majority of the PP-R on the project was Greenpipe, but Aquatherm Climatherm, which doesn't have the potable water characteristics and is more suitable for HVAC, compressed air, and industrial applications, was also employed.

When milk is brought into the facility, it is processed through separators. Each gallon of milk is actually about 40% water, so instead of wasting that water (called "cow water") and letting it go down the drain, it is captured and heated for use in wash down systems.

Traditionally, the cow water lines would have been copper or stainless steel, but Palmer says that in addition to cost benefits, Aquatherm was used because it is NSF-approved and doesn't need insulation. The cow water, which is heated to 140-160°F by an AERCO water heater and used for spray downs and cleaning, can also be used in the plant's Superior Boiler Works, Inc. 800-hp steam boilers.

The compressed air system runs at 120 psi and serves the door foamers and foot foamers. The air is used to increase the pressure on the sprayers, which are used like a steam cleaner

for spraying down tanks and floors, cleaning, and in the facility's maintenance shop.

Aquatherm was also used to supply water to the roughly 40 Armstrong International, Inc. hose reel stations which are used for hose downs and washing and three Goulds 7GB WaterGun® High-Pressure Multi-Stage Booster Pumps.

WARMING TO FUSION

The Aquatherm aspect of the HDM project consisted of about 4,000 lineal ft of Greenpipe and Climatherm, with thousands of fittings including sockets, tees, saddles, 90s, 45s, stainless steel adapters, and socket-weld-to-stainless-steel-adapters. 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. The material is also extremely corrosion resistant.

For the HDM job, A.H. Palmer used the heat fusion tools it already owned, but also rented some from Ferguson Enterprises' Logan office. HDM also purchased the tools necessary to maintain all installed sizes of Aquatherm piping.

Out of 500 or so connections, A.H. Palmer had a total of four leaks. Two of the four resulted from a piece of cracked pipe, and the others were simple operator error. "With copper I'd say we'd have had about the same number of leaks. But with the black threaded steel, there probably would have 20-25% more leaks, and with threaded stainless, it would have been roughly the same or maybe a bit higher," Palmer says.


He adds that Aquatherm's operator error failure rate is extremely low but with threaded metals, "there are so many factors, like thread tightness or making sure you have a proper thread on the pipe." Palmer estimated the labor installation savings over copper at about 25%, explaining that a 3-inch copper joint is estimated to take 0.75 hour, and Aquatherm is about 0.50 hour. "Overall we saved about 25% on labor with

Aquatherm compared to copper." Against steel, the savings would have been more substantial. "With 3-inch steel it would have been 1.15 hour and again only half an hour to fuse an Aquatherm joint," he says.

The lighter weight of PP-R also aided in labor savings since it's easier to carry and handle. "Aquatherm is a lot easier to handle than copper or steel – yes you have to hang it a bit more often, but one guy can handle it as opposed to two guys handling it and getting it into lifts and hanging it. One guy can do it all by himself, so there's a lot of savings there," he adds.

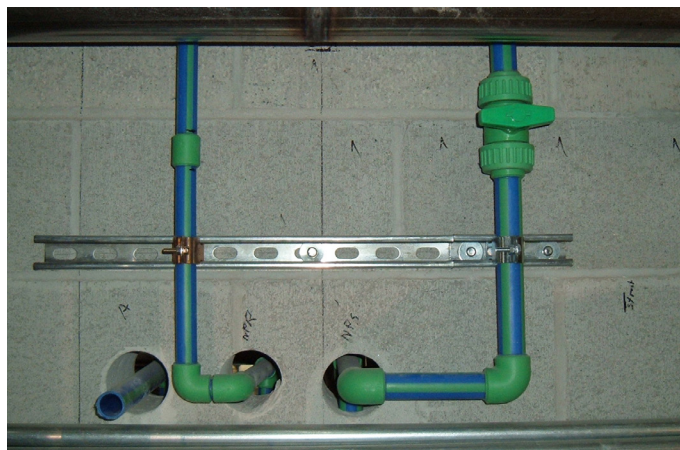
WRAPPING UP

The job, which was started in August 2007, was completed in September 2008. A.H. Palmer had roughly 60 employees working seven days a week in the last 4-5 months of the project and about 15 installers were exclusively working with Aquatherm.

With the facility up and running and everything going smoothly, Hansen says Aquatherm's PP-R piping has, "lived up to its claims." He expects to use the product in future jobs, and A.H. Palmer has done several more jobs using Aquatherm. 

Case study originally published on the Dairy Foods Magazine website in July 2009.

To view the article visit: http://www.dairyfoods.com/Articles/White_Papers/BNP_GUID_9-5-2006_A_1000000000000629115



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 faser-composite layer in the pipe reduces linear expansion of the pipe by up to 75% compared to plastic piping

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