

# CLEANING TO LINING: ENVIROLOGICS TAKES TOMAHAWK TO NEXT STEP

BY CHAD FRASER, CUI

If everything goes Envirologics Engineering's way, the company will be commercially lining water mains by the end of this year.

The move builds on the eight-year-old Bracebridge, Ontario, firm's Tomahawk System, which removes tuberculation (or the build-up of mounds of rust), as well as old bitumen and tar lining materials, from cast-iron pipes.

## A corrosive problem

Tuberculation is a growing issue for municipalities, says Envirologics general manager Brian Thorogood.

"Any metallic pipe that's been in the ground for several years has some tuberculation growth. It affects water quality and flow rates, and that's a problem for drinking-water systems because it takes more energy to pump the water through. It can also be a big problem for firefighting."

What sets Tomahawk apart from other pipe-cleaning methods, such as drag scraping (which, as the name implies, involves pulling scraper blades through the pipe), is that it uses no water, instead relying on a negative-pressure air stream

supplied by a vacuum truck to pull stone through the pipe.

Tomahawk can clean pipes up to 450 feet long and four inches to 12 inches in diameter. These diameters cover the majority of distribution water mains, according to Thorogood, but Envirologics still plans to expand the system to larger pipe over time.

"We have different-sized stone," he says. "When cleaning a pipe, we start with larger stone, then gravitate toward the smaller to finish up, just like sandpaper, in a way. By the end of it, you get a clean, dry, prepared surface."

Envirologics started out using a positive pressure blower of its own but soon found that swapping it out for a vac truck improved the system's performance. It also solves the problem of disposal, because all the waste ends up in the truck's tank. "And vac trucks are everywhere," says Thorogood. "It's a growing market."

So far, the company with eight employees has built three Tomahawk pipe-cleaning units, and it plans to make more as it adds licensed users. Interest in becoming a licensee has come from as far afield as China, the United Kingdom and Europe.

## From cleaning to lining

About two years ago, Envirologics decided to take its pipe-cleaning process one step further by adding the ability to line a pipe after cleaning. The changeover would be quick, as it involves bringing just one more small trailer to the job site, in addition to the Tomahawk trailer with aggregates delivery system, and vac truck.

"We pull the liquid [liner] material down the pipe in the air stream, then deploy aerodynamically engineered distributive bodies," says Thorogood. "These are patent-pending devices that get pulled down the pipe in the air stream and create a lot of air currents that deliver the material to the pipe wall."

Thorogood estimates the system will be able to line 300 feet in about 20 minutes. It's also important to keep in mind that this is a barrier coat, not a structural fix, so it's not a suitable solution for damaged pipes. Those situations call for a different approach, such as replacing the pipe using an open cut or rehabbing it using cured-in-place pipe (CIPP).

Envirologics continues to develop the lining system at its plant in Bracebridge, and it demonstrated the process in an underground pipe in Waterloo, Ontario, last summer. A recent demo in Indianapo-

lis, which coincided with the WETT show, attracted about 100 people according to Thorogood.

So far, the response has been positive. "There's certainly interest in a lot of municipalities," says Thorogood. "The demonstration in Indianapolis will probably generate many opportunities as well."

## Forging new alliances

Meanwhile, Envirologics worked with Canadian Induracoat, a certified applicator for 3M in Canada, to clean pipes in preparation for lining application.

In November 2014, the pair cleaned and lined 1,000 feet of eight-inch cast-iron pipe and 614 feet of six-inch cast-iron pipe in Victoria, B.C. And in April 2015, they worked on 1,463 feet of eight-inch cast-iron pipe and 869 feet of six-inch pipe in Vancouver.

After Tomahawk cleaned and prepped the pipes, Canadian Induracoat followed up with its Scotchkote 2400 spray-in-place liner.

The arrangement sprang from a referral from 3M: "We've worked with 3M in the past, and they like how we clean pipe," says Thorogood. "So when Canadian Induracoat became an applicator, they wanted Tomahawk to be a part of their first several projects."

## A "green" solution

For Canadian Induracoat president Douglas Ritch, the environmentally friendly aspects of the Tomahawk process were a key selling feature – one that nicely dovetailed with Scotchkote 2400, which contains no volatile organic compounds (VOCs). The liner is also BPA-free, pH neutral and can be fully cured in 60 minutes.

"What really drove us to work with Envirologics on these two projects was the fact that neither the City of Victoria nor Vancouver was going to permit the discharge of tuberculated wastewater that would normally occur during the cleaning process into a local storm drain," says Ritch.

Ritch also likes the fact that the system ensures service connections are free of debris, reducing the risk of plugging them during the lining process.

So are there any drawbacks? Ritch sees two, the first of which is that the

system can sometimes be slow to clean heavily tuberculated pipe. "That's been a challenge, but on just a few sections," he says. "Typically, it has gone very well, and [Envirologics has] the line cleaned, and they're ready to get out of our way."

The other is that the system can be used only on pipes that are 12 inches in diameter or less. "We're working on pipe

sections up to 36 inches in diameter, so beyond 12 inches, we have to use a different technology," says Ritch.

But overall, Tomahawk has been a good fit with Induracoat's own process: "The system does a fantastic job cleaning the pipe," Ritch adds. "It doesn't use copious amounts of water, and the pipe is in pristine condition when we start lining." CUI

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Before and after relining, using the Tomahawk pipe cleaning system in combination with a spray-in-place liner from 3M.