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Pre-Chlorination with Pipe Bursting
A Simple Technique to Save Time and Money
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A Simple Technique Can Save Money and Time for Contractors and Public Authorities

By April Goodwin and B.C. Macauley

It's a shame that more water companies and contractors are not familiar with the pre-chlorinated pipe-bursting method," says Andy Mayer, president of Murphy Pipeline Contractors, Inc. (MPC), based in Jacksonville, Florida. "It's a real bonanza for the contractor, and it saves the water company money, too." Mayer moved to the US from England, where the pre-chlorination method used with pipe bursting has been common practice for more than a decade.

UK water companies underwent a major privatization in the mid-1990s, when there were only 14 major water companies serving nearly 58 million people. At the time, many of the cast-iron water mains were leaking up to 30% of the water going into them, creating huge repair costs and revenue losses for water companies. (We have the same problem in the US, with a loss figure as high as 40% in some communities. That's water on which much money for purifying has already been spent.) The water companies made a large-scale investment to install new mains, to recover water loss and reduce costly leaks.

Today, nearly 90% of all water mains in the U.K. are replaced using the pre-chlorinated pipe-bursting method. Mayer says a single contractor typically bursts up to 80 miles of water main annually.

Mayer moved to Florida in May 2000, recognizing that the U.S. market was literally untapped. By November of that year, the Florida Department of the Environmental Protection Agency had approved the method of pre-chlorination and pipe bursting for water mains. Since then, MPC has installed more than 50,000 feet of water mains using the pre-chlorinated pipe-bursting method. In addition, Mayer has served as a consultant on major projects throughout the United States. By working with the American Water Works Association (AWWA) in Florida to spread the word about the benefits of employing the pre-chlorinated pipe-bursting method, Mayer has been able to help Florida water companies accept the method as an acceptable means of water main rehabilitation. "I believe, in the next five years, that pipe bursting with pre-chlorination will be the preferred method for water main replacement in North America," observes Mayer.

The Pipe Bursting Technique

The chief advantage of the pipe bursting method is that contractors can replace pipeline without having to dig up the old main. It is ideal for urban applications where an existing pipeline has exceeded its useful life; it can be used beneath buildings, roads, rivers, or bridges. It avoids traffic delays and minimizes inconvenience to residents and businesses. Pipe bursting is one of the most cost-effective methods of replacing pipes or upgrading them to meet increased demand in the community. The pipe is shattered into small pieces and pushed laterally into the surrounding trench. The original pipe diameter is replaced or upgraded by using an exchanger, and the replacement pipe is then installed into the new borehole.

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was a history of complaints related to wa-
ter pressure and clarity associated with the
water main," explains engineer David
McBett. "We realized this project would
require special attention beyond the indus-
try standards because the area had lim-
ited working space, high-end homes with
expensive driveways, and heavy traffic.
Because of easement issues, open cutting
at the road was not an option. We evalu-
ated different options to find the method
most compatible with our needs."

When McBett talked to Mayer about em-
ploying the pre-chlorinated pipe-bursting
method, he saw it as viable, cost-cutting
alternative. In addition, the system Mayer
described would cause less disruption to the
prominent neighborhood residents. "After
evaluating various alternatives, we selected
the pre-chlorinated system of MPC because
the price, technology and method most
closely meshed with our requirements,"
comments McBett. "Using the pipe-burst-
ing method saved Fort Pierce about 30% in
overhead costs, and they were better in
excavation and road restoration, as well as in
pump approval and project time. And our cus-
tomers' satisfaction is priceless." MPC pro-
vided a HAMMERJAW® Hydroburst® HB308 Static Pipe-Bursting
System for the Fort Pierce project be-
cause Mayer and his team had explored and
used one successfully on a previous job.
The HB308 is a compact unit with 30 tons
of pulling force ideal for bursting cast-
iron, clay, or other fracture-prone pipe up
to 6" in diameter.
Mayer's crew burst an average of 400' of
pipe in about two hours each day. The
rest of the day the crew handled restoration
work, pre-chlorinating and pre-pressure
testing pipes.
Pre-Chlorination with Pipe Bursting

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"The main was cut and capped, on average, by 8:30 a.m. each day. Only the section scheduled to be burst was without water during that time," Mayer explained. "The rods were inserted into the de-commissioned main from the launch pit and pushed to the receive pit. The rods were then connected to the bursting blade, bursting expander and the pre-chlorinated pipe. The pullback started. By 10:30 a.m., the pipe was back in the launch pit and the bursting equipment was removed before lunch."

The new HDPE service lines to homes were installed with the aid of a 2" Ham- merhead Mole. The mains were constructed using stop tee or sideaddle using an elec- tro-fusion fitting. Next, the new service was connected to the main and flushed. After flushing the connection to the mee- ter, a faucet was opened to expel any ex- cess air, and then the water main was pressure tested a second time before putting it back in service.

"Our two weeks of planning the pre- chlorination process and excavation work around the residents' schedules, fire hy- drants, and valve positioning always pays off," asserts Mayer. "Residents usually like that we're generally only outside their house for one day instead of three or four weeks, as you'd see with a traditional open-cut method," he says. Fort Pierce Utilities Authorities also took measures to mitigate the disruptions to residents. "One of the things we did was to notify residents about the project and the minor disruptions it would cause," says engineer Melfert. "We also set up a hotline for residents to call in with their questions or concerns. Then, when we knew residents would be directly affected by the project, we sent an employee to their home to notify them that it would affect them personally. We wanted the residents to feel they were part of the solution, not part of the problem — and we even encouraged them to come watch the work in progress."

"Playing area residents were our first priority," says Mayer. And it showed. After the two-weeks on the project, home- owners were bringing the WPC new cook- ies and drinks. One even invited them for a St. Patrick's Day party. "We had the best food: corn beef and cabbage — and Guin- ness beer," he said. "It was almost like back home." Melfert says it's nice residents were happy with Mayer and his team. "They thought we was the greatest thing since sliced bread," he adds. [Image]