

Fixing Leaks with Encapsulation

By: Miller Pipeline

Fixing leaks with encapsulation is a passion of Teddy Vance. Vance is a foreman with Miller Pipeline, a natural gas distribution and water/wastewater pipeline contractor operating in over 20 states. In the 12 years he's worked in natural gas, Vance has been focused primarily on encapsulation jobs in major metropolitan areas in the Mid-Atlantic region of the United States.

Vance's crew has been anything but slow over the past 18 months. "We have six projects in various stages of planning right now. Yesterday we encapsulated a 24-inch main tapping sleeve with a 12-inch valve," he said. His crew is dedicated solely to sealing leaks on aging steel and cast iron natural gas systems that, in some cases, are over 100 years old.

"The Mid-Atlantic region has so much steel and cast iron, and it's slowly being replaced with plastic, but some of the mains go from three inches up to 48 inches in diameter," Vance said. "These larger mains are more difficult to replace."

As experienced by so many companies, repairing a leak can be more cost-effective and practical than cutting out the fitting or replacing an entire section of pipe. And in major, congested cities, shutting down traffic for a complete open cut replacement may not be an option.

Another challenge, Vance said, is that while utilities are working to replace steel or cast iron with plastic, they frequently have to leave the old steel or cast iron lines in the ground because of congestion underground. "Digging in this area is difficult, as there are so many utilities in the ground which sometimes makes it really complicated to get holes big enough to install steel mold encapsulation," he said. "But with cast iron, there's a joint every 12 feet (typically), which means there's a potential for up over 400 leaks for any given mile."

To ensure no interruption of service, all of Miller Pipeline's encapsulation jobs are performed on live gas mains at normal



A steel mold, custom made at the Miller Pipeline fabrication shop in Indianapolis, after the leak has been repaired

operating pressure. On a typical job, the pipe will be cleaned by descaling and sandblasting, then a proprietary primer is applied. The primer displaces moisture and creates a good bond surface for the encapsulation to adhere to the pipe. Once the primer dries, the next step is to install the steel mold. "We install the mold and fill it with encapsulation, then pressurize with nitrogen to overcome main pressure, sealing the leak," Vance said. "We allow it to cure for a minimum of 12 hours, and



A custom-made mold is lowered into the excavation before being installed onto the leaking fitting



The crew preps the Encapsal resin for pouring



After descaling and sandblasting, the fitting is ready for primer

then remove the mold the following day.

“When fully cured, EncapSeal provides a flexible repair,” he said.

Vance added the propriety steel molds are an integral part of the EncapSeal product and process. Molds are manufactured in Miller’s Indianapolis fabrication shop. Occasionally the molds are able to be reused on similar fittings, reducing wait times for future projects and reducing costs for customers. Once the

mold arrives on the job site, it typically takes two to three days to complete the encapsulation.

On a recent large job, Vance’s crew encapsulated a 20-inch valve tapping sleeve on a 20-inch cast iron main supplying gas to hundreds of homes and an entire college campus. That job required 608 liters of EncapSeal to be poured. Once it was completed, they were proud of the final product and had a great sense of satisfaction that they had kept gas flowing without disturbing residents. 🔥

ABOUT MILLER PIPELINE:



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A leader in building and maintaining America’s infrastructure for over sixty-five years, Miller Pipeline is one of the nation’s premier natural gas distribution, transmission pipeline and utility contractors.

To find out more about EncapSeal, visit www.millerpipeline.com/encapSeal/

Problem Sealed!

When it comes to leaks, Miller Pipeline has the problem sealed with ENCAPSEAL® Safe-T-Seal®. Miller brings leak repair technology to a new level of reliability, safety, ease of installation, and cost-effectiveness through our external encapsulant sealing system. ENCAPSEAL® Safe-T-Seal® is designed to externally repair and seal leaking joints on steel and cast iron. ENCAPSEAL® is the brand of our encapsulation products, and Safe-T-Seal® is the two-part polyurethane resin that forms the repair seal. This American-made polyurethane resin formula has been made for Miller Pipeline for over 30 years.

There are many concerns surrounding sealing pipes in the gas industry. ENCAPSEAL® Safe-T-Seal® remedies many of those concerns. The two-part polyurethane resin is formulated to be below any NIOSH/OSHA established hazardous levels of carcinogens, contains no coal tar, methyl ethyl ketone and when used as directed, no fresh air breathing equipment is required under NIOSH/OSHA, providing a safer environment for installers. The safety of our employees, installers, and communities we work in is our number one priority.

Miller Pipeline has designed many ENCAPSEAL® kits to fit various industry standard pipe sized fittings. Safe-T-Seal®, we provide a kit with all the materials you need to get the job done. For a standard low-pressure bell joint kit (less than one psi),

we provide the two-part polyurethane resin formula, a primer, the cloth fitting, installation bands, additional assembly parts, and instructions. Our medium pressure kits provide similar items and designed for mains pressures up to 30 psi, but this varies depending on the size of the main. We also provide custom designed molds to fit bell joints, mechanical joints, valves, tees, sleeves, and more. The ENCAPSEAL® Safe-T-Seal® is rated up to 60 psi.



Example of ENCAPSEAL® kit

The ENCAPSEAL® Safe-T-Seal® kit includes an instructions guide to assist you through the process. You start by grit blasting the area the repair seal is to be installed, then brushing the primer on the area just grit blasted. Once it is primed, the repair kit is installed and the two-part polyurethane resin formula is mixed and poured into the cloth fitting. Gel time of Safe-T-Seal is approximately 15-20 minutes, depending on the outdoor ambient temperature. Although Safe-T-Seal® maximum strength is achieved in five to seven days, depending on the type of repair being made, the excavation can be backfilled in about an hour after being sealed.

“We feel that our expertise in this field has put Miller Pipeline at the top of the encapsulation process,” said Larry Shaw, Manufacturing Manager at Miller Pipeline. “Miller Pipeline has been repairing leaking joints and fittings for at least 40-years. We are also the only joint seal repair contractor to make steel molds in our fabrication department for this type of repair.”

With better performance than its peers, ENCAPSEAL® Safe-T-Seal® is simply better for our customers. We provide a one-of-a-kind product backed by years of performance.



Part of the Indianapolis-based EncapSeal® manufacturing team