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NOT FOR THE **FAINT OF HEART**

Progressive Pipeline Management has built a reputation renewing aging cast iron natural gas mains that others won't touch

By Ken Wysocky // Photography by Kevin Blackburn



Progressive Pipeline Management

LOCATION: Wenonah, New Jersey

OWNER: David Wickersham

FOUNDED: 2002

EMPLOYEES: 120

SERVICES: Trenchless rehab for natural gas pipelines

SERVICE AREA: Mainly mid-Atlantic and Northeast states

WEBSITE:
www.progressivepipe.com

In a calculated strategy implemented more than a decade ago, Progressive Pipeline Management (PPM) decided to invest in trenchless pipe lining technology commonly associated with sewer lines and waterlines and apply it in a completely different market: natural gas mains.

The gamble proved to be a good move. Today the company earns more than \$25 million a year in gross revenue and has lined approximately 975,000 feet — about 184 miles — of gas pipelines in 18 different states. Furthermore, it employs 120 people and has built an inventory of specialty trucks and equipment with a book value of more than \$8 million, says Dave Wickersham, the owner and CEO of the Wenonah, New Jersey-based company.

The success of PPM hinges on two key factors: Acquiring the exclusive North American licensing rights from Germany-based Karl Weiss Group to sell the starline

cured-in-place lining technology and capitalizing on the need for trenchless rehab of aging cast iron gas mains.

“Similar to the water industry, cast iron gas mains were installed from the late 1800s to the 1960s,” Wickersham explains. “Over the years, the joints loosen, and that’s where they leak.”

“The oldest pipeline we ever renewed with the starline technology was an 1890s vintage, 16-inch-diameter cast iron main that runs along at the base of the Brooklyn Bridge.”

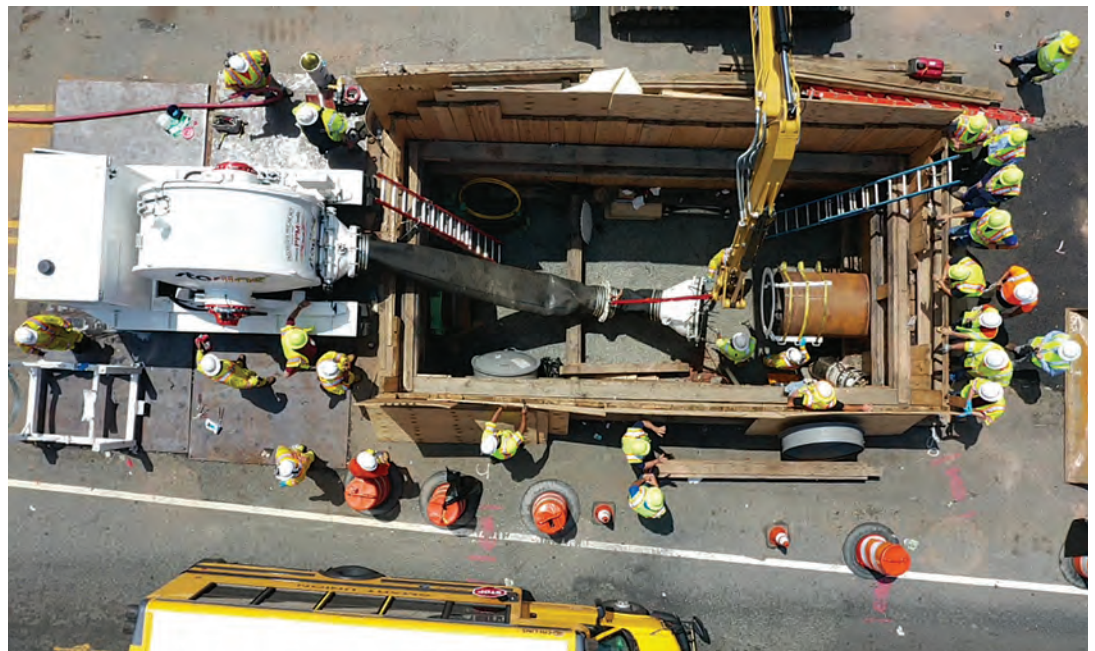
Just like aging sewer lines, gas main infrastructure is extremely expensive to replace, which makes lining them an attractive proposition for natural gas utilities. “It’s almost impossible to replace these large-diameter cast iron mains because they’re the backbone of many distribution networks in older cities,” Wickersham says. “Furthermore, there simply isn’t enough space under our congested roadways to install more pipelines amid the myriad other pipelines and conduits.”

“And last but not least, utilities can’t afford to shut these mains down for extended periods of time in order to replace them.”

As such, PPM officials worked hand in hand with the gas utility industry to rigorously test the starline product and prove to regulators that if installed correctly, it’s as good as a completely new pipe.

« Progressive Pipeline Management technicians Miguel Robles (left), Tom Nestoras and Kacy Wright load a 42-inch liner into the starline inversion drum. This natural gas main in East Orange, New Jersey, was the largest pipe the company has lined to date.

» An aerial view of the starline inversion drum and launch pit shows all hands on deck as the PPM crew prepares to install a liner.



Rising to the challenge

Progressive Pipeline Management (PPM) enjoys tackling difficult jobs, those showcase projects that create a buzz in the industry. A good example is a project the company completed in 2019: lining a challenging 160-foot-long section of a 30-inch-diameter cast iron gas main in Brooklyn, New York.

“We typically don’t line the low-hanging fruit,” says Dave Wickersham, the owner and CEO of the Wenonah, New Jersey-based company. “We get the calls for the toughest jobs.”

At issue were leaks in three lines: two 30-inch-diameter cast iron mains more than 100 years old and one 16-inch cast iron main. The job was complicated by the fact that the mains run through a tunnel under the now-dormant Gowanus Canal, built in the mid-1880s to provide a 1.8-mile-long link to New York Harbor for manufacturers, refineries, tanneries and chemical plants.

PPM lined the 16-inch main about 10 years ago and one of the 30-inch lines in 2018. It tackled the second 30-inch line in 2019, Wickersham says.

Adding to the challenge were six 90-degree offset bends, plus two 40-foot vertical drops that, in essence, created a U-shaped section of pipe. The horizontal run of that “U” was 36 inches in diameter and about 100 feet long. On one end, a “bastard fitting” connected it to one of the vertical runs. On the other end, a conventional 90-degree elbow connected the horizontal run to the second vertical run.

The bastard fitting made things difficult because it prevented the liner from smoothly transitioning between the vertical and horizontal runs. “The bastard fitting is like an elbow fitting, but it’s not,” he says. “And even clean 90-degree elbows are tough enough to line. We had to figure out how to get the liner to make that turn through the fitting.”

To solve this problem, the one 40-foot vertical leg was removed and lined above ground, then reinstalled, he says.

An old 30-inch flanged tee connected to the horizontal run also posed an obstacle because it couldn’t support the liner during installation; because the liner is installed with about 15 psi of air pressure, it likely would bulge into the tee opening and possibly rupture. Normally such a fitting would be removed, but that wasn’t possible in this case because the tee connected to a gas supply line.

As a workaround, crews used a custom-built robotic sled, an inflatable bladder, sheets of carbon fiber material and an adhesive to create and install a tubelike structure within the tee. This effectively formed a pipe within the old tee that sealed off its third opening and provided support for the liner. Later, PPM workers used the same robotic tool to reinstate the old tee.

“It probably was our most challenging job to date because we really had to invent things on the fly to get the job done,” Wickersham says. “Because of the main’s location, there were zero other alternatives available. Excavating the line would’ve cost a small fortune.”



“When it comes to technology, I’d rather be on the front edge of it than on the back edge.”

Dave Wickersham

David Wickersham, founder and CEO of Progressive Pipeline Management.

Wright, Ian Gallagher and Robles work together to hot glue a liner. This step assists in maintaining air pressure during the inversion process.



Along the way, PPM has earned a reputation for tackling tougher lining jobs, such as lines carried alongside bridges and under highways, rivers, railroad lines and environmentally sensitive areas. “We work a lot in areas where it’s expensive or hard to access (to replace pipes) or in places that can’t withstand disruption,” Wickersham says. “That’s where we can hit a home run for our clients.”

FINDING A NICHE

Wickersham started his career working for a company that specialized in handling oil spills, many of which were pipeline



⚡ Miguel Robles (left) and Kacy Wright mix buckets of two-part resin in preparation for lining a 42-inch cast iron host pipe.

related. The issue of pipeline safety and integrity led him to a job at a civil and environmental engineering company, where he helped clients comply with pipeline regulations. Next came a stint at a firm that decontaminated natural gas pipelines.

During that time, he saw the starline system in action and became intrigued by the technology. “I asked some customers if they thought there was a future in this lining process, and they overwhelmingly said yes,” he says.

So in 2002, Wickersham started negotiating with another company that had brought the starline technology to the U.S. market in 2000 but wanted out. Then he bought that company’s equipment, started PPM and negotiated a new licensing agreement with Karl Weiss.

“We started at zero and now generate in excess of \$25 million in revenue annually,” he

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Dave Wickersham

says. “Customers love the fact that lining saves them money: Sometimes it’s 50% cheaper than conventional open-cut line replacement. So it allows them to recapitalize their existing infrastructure with proven technology. They like the technology play.”

PPM doesn’t have any direct competitors, largely because it has established solid, long-standing relationships with large, regional gas utilities and a reputation for quality work. Moreover, starting from scratch would be very expensive, which provides a strong barrier to market entry, he says.

“It’s definitely not for the faint of heart, financially speaking. Furthermore, many contractors are wary about doing natural gas

pipeline work. It’s one thing to have a leaking sewer main, but a whole other issue with a leaking gas main.”

INNOVATIVE TECHNOLOGY

The starline lining system has been critical to the company’s success. It employs a cured-in-place liner that cures ambiently (no heat required) in 12 to 18 hours in warm temperatures and up to several days in cooler temperatures. “We’ve done some emergency jobs in below-freezing temperatures, but it takes longer to cure,” Wickersham says.

The liner is considered semistructural, which means it relies on the host pipe for structural strength. Made from woven



▲ The Progressive Pipeline Management crew includes (from left) Jeremy Diehl, Anthony Flores, Fabian Becerra, Lawrence Howard, Shane Lapresti, David Wickersham, Thomas Nestoras, Angel Ledyc, Dino Gonzalez, David Coates and Jeff Chamberlain.

polyester, the liner is seamless and features a fused-on polyurethane and polyethylene coating on one side. “It’s not sewn together like a felt liner (for sewer pipes), which allows it to withstand higher pressures without tracking natural gas between the liner and the pipeline,” he says.

After it cures, the liner is about 3 mm thick. “After the cleaning process removes years of scale and buildup, it’s like putting a second skin on an existing pipe without reducing its capacity.”

The installation process primarily involves five main steps: a camera inspection to spot any unknown problems or anomalies, sandblasting the pipe clean, a post-cleaning camera inspection, installing the liner and a post-lining camera inspection. The technology is suitable for pipelines up to 48 inches in diameter.

After the liner cures, PPM also performs a pressure test to ensure the liner’s strength and integrity.

The largest pipe PPM has lined was 42 inches in diameter. The project occurred in East Orange in July 2019 and involved lining a 600-foot-long run that descended an 80-foot-deep embankment, went under the Garden State Parkway and traveled back up another embankment, Wickersham says.

“We expect to line a 48-inch line within the next year or two. But 16- to 36-inch-diameter cast iron gas mains are our sweet spot.”

Spot repairs on gas lines are rare because most gas companies figure if they’re going to go through the hassle of bypassing a line to take it out of service for lining, it makes more sense to line the entire section from end to end. Furthermore, lining from end to end allows customers to apply the cost of the project to their rate case because regulators consider it as equivalent to new pipe versus absorbing the cost as an expense on their balance sheets.

MORE CUSTOMERS, MORE EQUIPMENT

To best serve customers, PPM has invested heavily in developing

“After the cleaning process removes years of scale and buildup, it’s like putting a second skin on an existing pipe without reducing its capacity.”

Dave Wickersham

a fleet of equipment that enables it to maximize productivity and profitability. “When it comes to technology, I’d rather be on the front edge of it than on the back edge,” Wickersham says.

The company’s investments include three vacuum trucks built by Guzzler; three trailer-mounted dust-collection machines from Rapid Prep used to capture dust from sandblasting; three Hino 268 trucks that carry sandblasting equipment built by Clemco Industries; and six Hino refrigerated box trucks that transport equipment for wetting-out liners.

In addition, the company relies on 12 Hino camera trucks that carry Aries inspection camera systems housed in 24- and 26-foot box bodies made by Morgan; six RIDGID SeeSnake standard cameras and three SeeSnake Mini cameras; a Spartan Tool Warrior trailer jetter (4,000 psi at 18 gpm); and an ET-180 trailer jetter (4,000 at 18 gpm) made by Harben.

For pipe lining, PPM owns six starline inversion drums, carried on trailers made by Bri-Mar. The company also relies on a PRD-Blast rotary sandblasting head made by Pacific Roller Die, as well as several pipeline winches made by TT Technologies. The company also owns three custom-designed and custom-built abrasive-blasting trucks, built on Hino chassis and rigged with Pirate Brand air-drying tanks, blasting pots built by Clemco Industries, and custom-designed reels built by Hannay Reels.



» A bird's-eye view of the PPM crew, starline system and pit during the lining of a 42-inch natural gas main in East Orange, New Jersey.

» The liner is moved into place to rehabilitate the cast iron gas main along Central Avenue in East Orange.

The company also does some sewer lining, using SAERTEX multiCom UV-cured fiberglass liners; a UV-C tech ultraviolet light train from Vioguard, carried in an International truck outfitted with an 18-foot Morgan box body; air compressors made by Airman USA (475 to 950 cfm); and a Power Cutter 200 line-reinstatement system made by Innovative Sewer Technologies GmbH.

“We prefer fiberglass because we felt it was a better all-around product,” Wickersham says. “It offers a cleaner and easier installation process. Plus, it’s a stronger product.”

ACCELERATED GROWTH

As PPM gained traction in the industry, growth came slowly but steadily. But now Wickersham says the company is ready to put pedal to metal. “We were able to survive those early years,” he says. “But now we’re in grow, grow, grow mode as spending on infrastructure increases and our success with big customers further establishes our brand.

“We just bought a new facility on Long Island (New York) to better service National Grid (a giant supplier of natural gas and electricity to customers in Massachusetts, New York, Rhode Island and the United Kingdom) because we’ve been doing so much work for them. We’re also eyeing facilities in Boston, and then Chicago is on the radar, too.

“The infrastructure industry is constantly evolving and changing every day. So we continue to see a lot of opportunities and look forward to continuing to grow our PPM-starline brand and our business as big as we can.” **c**

