

CASE STUDY NORDIPIPE™

MONTCLAIR, US
DN510 (20 in), 43 m (141 ft)



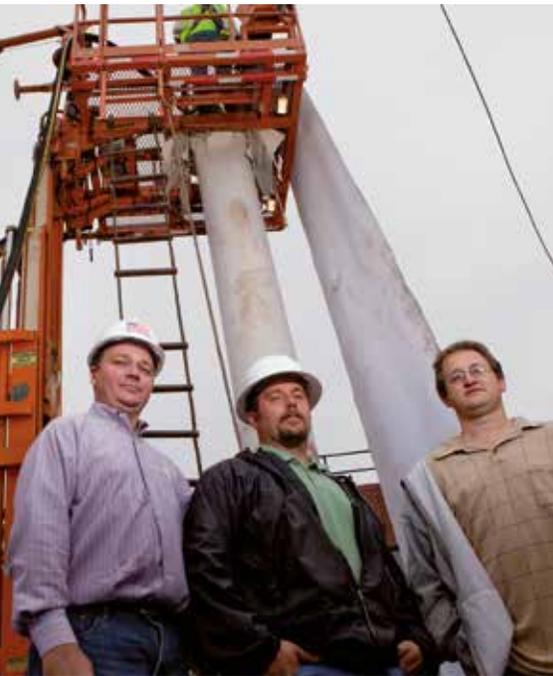
The 20-inch NORDIPIPE™ installed in Township of Montclair is jointless, NSF 61 certified and is designed for E80 loading. The service life is conservatively estimated at 50 years.

FORMING GLOBAL CONNECTIONS





Here, a workman cuts off the end of the NORDIPIPE™. More than 500,000 feet of potable water lines in North America and Europe have been rehabilitated with NORDIPIPE™.



A leaking water main under a very busy commuter rail line could be a nightmare situation for any utility department. That was exactly the problem the Township of Montclair, New Jersey, faced in the Spring of 2009.

Director of Utilities Gary Obszarny considered the possibilities as he pondered the problem. A leaky joint on a 508 mm (20 in) pit-cast iron pipe threatened the stability of a commuter rail line. How long would it be before serious erosion compromised the foundation of the railroad tracks? How long would it take to repair the damage and how would they repair it? How would they handle the thousands of commuters who use the train every day to travel to and from New York City?

“We were facing time restrictions because we didn’t know how long the joint was going to last,” said Obszarny. “Liability was a big issue if the joint had failed and caused a massive water leak.”

Obszarny enlisted the help of Suburban Consulting Engineers of Mt. Arlington, N.J., Spiniello Companies of Livingston, N.J., and

CRJ Contracting of Plainfield, N.J. They considered conventional dig-and-replace methods, slip lining and boring, but each alternative presented significant problems with regard to pipe capacity, cost, inconvenience and time. After much deliberation, they turned to a tested cured-in-place technology, supplied by the SEKISUI SPR Group in America called NORDIPIPE™.

NORDIPIPE™ is a proven method for rehabilitating pressure pipelines. The NORDIPIPE™ product offers a structural liner that not only supports external loading, but resists internal pressure as well. The project was the team’s first installation of cured-in-place NORDIPIPE™ technology on potable water lines in the United States.

“Cured-in-place technology has been around for 30-plus years, but applications for large-diameter potable drinking water lines was something new to us,” explained Andrew Holt, P.E., of Suburban Consulting Engineers. “So we rolled up our sleeves and did some homework on it. We looked at various cured-in-place methods and eventually chose NORDIPIPE™.”

SUPERLATIVE SPECS

The technical specifications for this project were demanding. The water line is vital to the city and is located in place where it is subjected to tremendous load pressure. A durable solution was needed.

The city could not afford to lose capacity in the line, so the replacement pipe needed to be at or very near the damaged pipe's 508 mm (20 in) diameter. The new pipe also needed to be structural to withstand E80 loading and vibration caused by the train. The service life needed to be measured in decades rather than years, and most importantly, the new line had to be NSF 61 approved.

NORDIPIPE™ met or exceeded the job specifications in every way. It is NSF 61 certified (safe for drinking water) and is rated a Class 4 structural liner. Glass fiber reinforced NORDIPIPE™ is structural on its own, but would be further reinforced within the cast iron of the host pipe. It also would easily withstand the internal forces of pressurized water distribution network. NORDIPIPE™ liners are jointless and when installed, expand to the diameter of the host pipe. They also have a smooth interior so there is virtually no loss of capacity or flow efficiency. The service life of a NORDIPIPE™ is conservatively estimated at 50 years.



The installation of 140 feet of NORDIPIPE™ liner beneath an important commuter rail line in the Township of Montclair took only three hours to complete.

EFFICIENT INSTALLATION

Just as important as the structural specifications are NORDIPIPE™'s installation efficiencies. Like other cured-in-place technologies, NORDIPIPE™ is minimally invasive and typically much faster to install than most other pipe rehab methods. In the case of Montclair, CRJ Contracting came in and dug access pits and installed valves at both ends of the 42,7 m (140 ft) of affected line. Spiniello Companies then came in for the installation procedure.

"Historically, most water companies, both public and private, have relied on open-cut relay methods to repair damaged water mains," said Scott Connor of Spiniello Companies, a licensed installer of NORDIPIPE™ technology. "I could never understand why. Open-cut methods are expensive and disruptive. That's why Spiniello has been focused on trenchless pipe repair for the past several years. We are confident in recommending NORDIPIPE™ because the technology has a proven history of more than 152,400 m (500,000 feet) of potable water line installations in North America and Europe. It's a proven product."

The NORDIPIPE™ liner was custom designed and manufactured by SEKISUI NordiTube a subsidiary of the SEKISUI SPR Group in America to meet the structural loading and pressure requirements of the project. The liner arrived at the Montclair jobsite where it was impregnated with epoxy resin and inverted through the damaged pipe. The actual inversion took only three hours. The installation team then cured the resin within the liner by circulating hot water into the line. When the liner was fully cured, the water was drained and the ends were cut and sealed.

There was some concern by Obszarny about the safety of the lined pipe for potable water use. To provide maximum assurance of safety for the citizens of Montclair, Obszarny requested the installers use new hoses for the installation and flush the heat exchanger thoroughly before using it on the Montclair pipe. As an added measure of protection, he had the new liner chlorinated and tested before water line was put back into use.

IMPRESSIVE RESULTS

The entire NORDIPIPE™ installation, from digging the access pits to putting the repaired line back into service, took about one week, which was less than half the time needed for a dig-and-replace job. Meanwhile, the commuter rail line was never out of service. Best of all, the cost was about one-quarter of a dig-and-replace project.

“Both SEKISUI SPR and Spiniello did an excellent job. I was very impressed,” said Obszarny. “We saved a substantial amount of money and eliminated a very significant problem. I have another pipe, a 610 mm (24 in) line going up the side of a mountain, that is in need of rehabilitation. I want to talk with SEKISUI SPR about that project as soon as possible.”

“I would say the success of the Montclair project has led us to include another useful

tool to our toolbox with regard to the repair of drinking water lines,” said Andrew Holt of Suburban Consulting Engineers. “We’re eager to use NORDIPIPE™ again. All indications are that the NORDIPIPE™ product will be a very useful technology for us in the future.”

Spiniello’s Connor concurred. “This project was a huge success for Spiniello, SEKISUI SPR and the City of Montclair,” said Connor. “The seamless execution of this project between owner, engineer and contractor has led to additional NORDIPIPE™ installations across the country. Spiniello considers this technology as an important tool to solving future potable water infrastructure issues and would like to commend the city of Montclair for their vision in implementing an innovative solution to a critical problem.”

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