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# CASE HISTORY

## Sewer Repair Undaunted By Winter

<b>Market Segments:</b>	Sewer Rehabilitation
<b>Composite Application:</b>	CIPP for concrete pipe
<b>Resin:</b>	Vipel® Isophthalic Polyester
<b>Manufacturing Process:</b>	Cured-in-place pipe
<b>Diameter:</b>	36 inches (91.4 centimeters)
<b>Length:</b>	6,465 feet (1,970.5 meters)
<b>Installed:</b>	2008
<b>Location:</b>	Norway House, Manitoba

For a sewer project near Green Bay, Wisconsin, a rugged crew from Visu-Sewer, Inc., proved that postal carriers are not the only ones who are undaunted by nasty winter weather.

From project start in September until completion in mid-January, the weather for the Visu-Sewer team turned progressively more cold, snowy, sleety and icy. But they stayed true to their task to rehabilitate 6,465 feet (1,970.5 meters) of 36-inch (91.4 centimeter) diameter concrete sewer pipe with minimal disruption to traffic and commerce.

The pipe in De Pere, Wisconsin, was repaired using cured-in-place pipe (CIPP) technology that relied on the consistency and performance of Vipel® isophthalic polyester resin from AOC. Visu-Sewer uses National Liner® CIPP technology licensed from National Liner, LLC, Houston, Texas, and purchases resin catalyst and felt through distributor CIPP CON, Inc., Ponte Vedra Beach, Florida.

By using existing manholes to access the pipe in need of repair, Visu-Sewer eliminated the need for digging. The trenchless solution saved time and money, left a recent road upgrade intact, and ensured that a vital fire station would stay ready and responsive.

“Part of the sewer line ran under a major roadway that had just been upgraded with a new surface and widened with



*The project started in autumn before installation crews were challenged by the onslaught of a Green Bay winter.*



*By-passes were smooth enough to allow 25 mph traffic.*

## Sewer Repair Undaunted By Winter, continued

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new turn lanes,” said Project Manager Alex Rossebo. “Our technology prevented excavation that would have had the City of De Pere doing much of that work all over again. We also eliminated the need for digging in residential backyards and a large forested easement.”

“The original pipe was installed in 1980,” said Tom Holtan, P.E., Senior Program Director, Midwest, for AECOM, the consulting engineering firm who designed the project. “The interior surface was being eaten away by highly corrosive hydrogen sulfide gas,” he continued. “In some places, up to two inches of the surface were missing. Cured-in-place pipe was the quickest and most cost-effective way to solve this problem. The new liner effectively went over all the problems, even where the pipe’s rebar cage was exposed. Visu-Sewer did a very good job. It is a good company to work with.”

Rossebo pointed out that the condition of the inside surface called for careful cleaning of the host pipe to prepare it for the new liner. “If too much pressure was applied during cleaning, the wall surface would start to peel away,” he said. “And as we prepared the interior, we had to continuously move clean air through the system to protect workers from the potentially toxic effects of hydrogen gas.”

The host pipe was repaired by installing a special, resin-impregnated felt tube through existing manholes. Water pressure introduced into the tube inverted the felt in an inside-out manner against the walls of the host pipe. Repair was accomplished in a series of installations, with the longest individual “shot” for this project being 950 feet.

When an installation was completed, the water for the process was heated to 180 degrees Fahrenheit in order to activate a chemical reaction that turned the liquid Vipel resin into a permanent, crosslinked solid. The end-result was a seamless new liner that offers improved flow, greater surface integrity, and the proven resistance of Vipel resin technology against corrosive sewer gases. A television-monitored robotic cutter was used to reinstate active lateral connections that come into the main pipe.

### Vital by-passes

As temperatures steadily dropped over the course of the job, on-site workers adjusted to the need to extend the resin cure cycle. Falling temperatures also had Visu-Sewer crews heating the exterior of the temporary by-pass pipe that Visu-Sewer’s bypass subcontractor Ronet Construction Corp., Green Bay, Wisconsin, installed to prevent

shutdowns in sewage conveyance.

“Where the by-pass system crossed roadways, traffic could move at speeds up to 25 miles per hour because the ramp grade on each side of the pipe was minimal and a temporary asphalt surface was applied,” Rossebo said. “The project involved three different by-passes and locations for road ramp crossings. In addition, there was no conflict with a fire station whose vehicles could cross the by-pass while the repair work continued and the weather turned relentless. This was the kind of job where a process-friendly resin and a very experienced crew were essential.”

### About National Liner

Headquartered in Houston, TX, National Liner, LLC, provides National Liner® cured-in-place pipe (CIPP) technology, an effective, trenchless pipe rehabilitation system selected by municipal engineers and water/wastewater construction managers through the United States. National Liner CIPP technology is provided by Certified Installers and Service Providers who are recognized for their commitment to quality. For more information, contact Ray Pavlic at (281) 874-0111 or [rpavlic@nationalliner.com](mailto:rpavlic@nationalliner.com), or go to [www.nationalliner.com](http://www.nationalliner.com).

### About Visu-Sewer

With headquarters in Pewaukee, Wisconsin, Visu-Sewer, Inc., has more than 25 years experience in repairing sewage collection systems. The company has a wide array of sophisticated diagnostic tools for analyzing problems and the industry’s best equipment and people for providing trenchless solutions. For more information, phone (800) 876-8478, e-mail [visu-info@visu-sewer.com](mailto:visu-info@visu-sewer.com) or go to [www.visu-sewer.com](http://www.visu-sewer.com).

### About AOC

AOC is a leading global supplier of resins, gelcoats, colorants, additives and synergistic systems for composites and cast polymers. AOC knows technology, lives quality and delivers service better than any other supplier. For more information, e-mail [CIPP@aoc-resins.com](mailto:CIPP@aoc-resins.com), phone (901) 854-2800 or go to [AOC-RESINS.com](http://AOC-RESINS.com).

