CASE STUDY
NORDIPIPE™

PASCO, US
DN300 (11.8 in), 175 m (574.1 ft)

Installation of NORDIPIPE™ with pressure vessel.

In 2011, the City of Pasco, Washington was in need of a long-term solution for two deteriorated sections of 304 mm (12 in), lead joint, ductile iron pipe that ran 2,4 m (8 ft) under six sets of Burlington-Northern railroad tracks. Approximately five years ago, the City of Pasco chose to temporarily reroute the water supply because open cut construction to repair the water lines was out of the question. Shutting down the railways to repair the leaking pipe was not possible due to the continual traffic and the importance of the Switching yard on the southeast side of Pasco. Equally as important, three of the rails immediately cross the Columbia River on one of the few bridges providing access to the south. There was no tolerance for any disruption of operations with Burlington-Northern as this particular rail yard is a major intersection of railways on the west coast of the United States.

Because of the reasons above, Michels Pipe Services, a licensee of the SEKISUI SPR Group in America, was instructed to rehabilitate the 66 year old pipe utilizing Cured In Place Pipe (CIPP) technology. Michels chose NORDIPIPE™, the fully

Installation of NORDIPIPE™ liner under six sets of Burlington-Northern railroad tracks.

structural, NSF-61 approved liner to tackle the situation. NORDIPIPE™ utilizes an NSF-61 approved epoxy resin that is impregnated into the material and then inverted with a specially designed reversion drum into the existing host pipe. The NORDIPIPE™ is then cured and the final product is a self-supporting pipe within a pipe meeting AWWA Class IV standards. With individual lengths over 304,8 m (1000 ft) and diameter ranges from 132,4 to 1219,2 mm (6 to 48 in), the NORIDIPIPE™ CIPP liner was a perfect fit for Michels to rehabilitate these particular water lines.

12-inch water pipe repaired in only two days

The team from Michels Pipe Services started the installation of the NORDIPIPE™ liner in October 2011. The liner was prepared in Michels' Salem, Oregon facility and transported in a refrigerated truck to the site overnight. This overnight delivery reduced the time between the activation of the epoxy resin and the actual start of the pipe rehabilitation. This process was different that most epoxy methods that require on-site resin preparation. The City of Pasco benefitted as costs were reduced by preparing the liner in Salem as opposed to assembling an on-site wet-out area. What took years of rerouting to accommodate the water main supply for the City of Pasco, Michels repaired in two days. Michels tackled the project in two separate 83,8 m (275 ft) sections. Using a pressure vessel to invert the tube and curing it with air/steam, each installation took 12 hours from start to finish. End seals were used to join the NORDIPIPE™ liner to the existing ductile iron pipe and after a 150 psi pressure test, the pipe was returned to service. Chris Tavernier, Michels' onsite supervisor stated, "The project went as planned in spite of some changing conditions. Michels, the City of Pasco and the SEKISUI SPR Group made adjustments on the project to compensate and complete the job".

Both the City of Pasco and Burlington-Northern Railroad were pleased with the outcome. Robert Blain, Associate Engineer II of the City of Pasco, stated "The City now has an operational line that increases the functionality of its system and the only excavation was to provide access to the pipe on each side of the rail crossings. No rail traffic was affected by the tailor-made pipe lining and the economic and time savings are substantial."

Length of two sections:	each 83,8 m (275 ft)
Diameter of the pipe:	304 mm (12 in)
Test pressure of the pipe:	150 psi

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