TECH TIPS FROM NASSCO

USING THE CURED-IN-PLACE PIPE PROCESS TO RENOVATE DETERIORATED UNDERGROUND PIPE WITH A BITUMIOUS COATING

By NASSCO Technical Advisory Council Member Kaleel Rahaim

The cure-in-place pipe (CIPP) process is the most popular trenchless renovation method in the world. Pipes of various compositions and pipes in various locations with different loading may be able to be renovated using this process. Engineers, contractors, and municipalities must be aware of considerations in pipe renovation projects that require extra care in processing CIPP liners. One of those considerations is renovating pipes that have an internal bituminous coating.

What is a bituminous coating on a pipe? A bituminous coating is a coating with material composed of asphalt and coal tar mixed with additives. Bituminous coatings are a complex mixture of hydrocarbons, both aromatic and aliphatic. It is applied to pipes to minimize corrosion and waterproof the surface of the pipe (Figure 1).

Because these coatings vary in formulation, some of the components of the coating may affect the cure of a CIPP liner. The effect may cause a poor cure, either in spots or throughout the length of the liner. The result is a liner subject to failure in time.

Figure 1. Pipe with a bituminous inner coating

Owners should inform engineers and contractors that the project pipe to be relined contains a bituminous coating. Based upon this knowledge, the contractor can adjust the curing process on the CIPP liner toavoid cure issues.

The most common method of lining a pipe that has an internal bituminous coating is to install a preliner before installing the CIPP liner. The preliner is generally composed of a thermoplastic film that acts as a barrier between the host pipe and the CIPP liner. The contractor should ensure that the preliner will not be affected by the bituminous coating. The preliner is generally pulled-in-place prior to inverting the CIPP liner. The CIPP liner is then inverted into the preliner. This barrier minimizes the risk of having a poor cure on the CIPP liner.

Another option, though not commonly used, is a liner that has a thermoplastic coating on both sides of the liner. If the coating on the liner is impermeable to the bituminous coating, it too can provide an acceptable barrier.

For projects that have other factors that may affect cure such as significant heat sinks, cold weather conditions, or thin liners, providing these barriers is even more important. If the project is large and crucial, the contractor may want to use a temperature monitoring strip along the length of the liner to ensure that the liner has a sufficient exotherm.

CIPP continues to save owners and taxpayers money and continues to lessen the social impact of renovating a deteriorated pipe. Knowing what factors affect liner curing performance will allow trenchless renovation to be a successful option. For a full library of free technical resources, please visit NASSCO.org