ROBINSON STREET LIFT STATION

FEATURED PRODUCTS

Series 218 MortarClad Series 434 Perma-Shield H_2S Series 435 Perma-Glaze

When biogenic sulfide corrosion required Springdale Water & Sewer Commission engineers to decommission their Robinson Street lift station, they chose the latest coatings technology from Tnemec as part of their asset management program to extend the life expectancy of the new replacement unit. "They did not want to have the same destructive corrosion problem with the new lift station that they had with the old one," recalled Tnemec coating consultant Arthur Valentine. "This was the first time for the Perma-Shield coating system to be used by the engineer, the city and for everyone else involved with that project. However, they recognized the value of the Perma-Shield system and the ability to minimize the asset life-cycle cost."

The cast-in-place concrete was prepared by dry abrasive blast to remove laitance and other contaminates and to provide a surface profile in accordance with SSPC-SP13/NACE No. 6, ICRI-CSP 5-7 *Surface Preparation of Concrete*. That standard includes a requirement for filling voids, bugholes and other cavities in the concrete before a coating is applied. Otherwise, air entrapped within these cavities can be released into the protective coating, creating a discontinuous film for reduced barrier protection to the underlying substrate. For the Robinson Street lift station, an epoxy-modified cementitious resurfacer, Series 218 MortarClad, was used to fill voids in the concrete and to create a contiguous concrete substrate for coating.

The coating application consisted of Series 434 Perma-Shield H_2S, a polyamine epoxy mortar, which was trowel-applied at 1/8" thickness and backrolled to tighten the surface. Next, a topcoat of Series 435 Perma-Glaze, a 100% solids polyamine epoxy glaze coat, was roller-applied at 15-20 mils DFT to provide additional barrier protection. This thick-film coating system consists of epoxy resins specially formulated for high permeability resistance to H2S and other wastewater gasses that contribute to biogenic sulfide corrosion, which causes the concrete to deteriorate. "The applicator was pleased with the user-friendliness of Perma-Shield and the way it troweled on," Valentine reported, "especially since they weren't that experienced with a trowel type product."

Valentine adds, "based upon the success of this Perma-Shield application, the engineer has listed Tnemec as an approved manufacturer in their master specifications, affording other municipalities the advanced epoxy coatings technology for the protection against biogenic sulfide corrosion."

PROJECT INFORMATION

Project Location
Springdale, Arkansas

Project Completion Date
October 2002

Owner
Springdale Water & Sewer Comm.
Springdale, Arkansas

Engineer
McGoodwin Williams Yates
Fayetteville, Arkansas

Applicator
Wright Corporation
Hot Springs, Arkansas

Tnemec's Perma-Shield System, including the trowel application of Series 434 Perma-Shield H_2S at 1/8" to the concrete substrate (bottom photo), protects the Robinson Street Lift Station from biogenic sulfide corrosion.