

RICHMOND WWTP EFFLUENT FILTER TANKS

As biogenic sulfide corrosion in wastewater plants becomes more and more aggressive, utility departments nationwide are discovering that their structures are deteriorating at an accelerated rate. Like many of these facilities, the City of Richmond has seven effluent filter tanks in its wastewater treatment plant that have been in service for more than 25 years without any additional protection. The concrete surfaces were severely corroded and required complete resurfacing.

Tnemec coating consultants in the area were able to offer the City a high-performance epoxy lining system that would help resurface the corroded concrete and provide increased chemical and abrasion resistance.

"We saw the situation and knew Perma-Shield would be needed. We presented the project team with the coatings system," recalled Mike Enoch, coating consultant with TSE, Inc. "We provided samples, and a mock up on the concrete, to showcase the system's applicability and durability."

Long-time Tnemec applicator, Commonwealth Epoxy Coatings, Inc., applied the system on all seven filter tanks. Deteriorated concrete was resurfaced using Series 218 MortarClad, a high-performance epoxy-modified cementitious mortar. This product was spray-transferred and trowel-applied to provide a more even surface for the topcoats.

An intermediate coat of Series 434 Perma-Shield H₂S was then spray-transferred and troweled onto the surface. This 100 percent solids, hybrid epoxy mortar is specially formulated for severe wastewater environments and built to withstand high levels of hydrogen sulfide (H₂S) and other sewer gases. The finish coat, Series 435 Perma-Glaze, was roller-applied to the surface to provide further protection in the aggressive conditions. The innovative coating products in the Perma-Shield line have been subjected to the most damaging gases, acids, and bacteria, and extensively tested to ensure lasting performance in the harshest conditions.

"We've applied this Perma-Shield system in other wastewater plants with great success," stated Enoch. "The City of Richmond plans to complete all work in 2015."

The Richmond Wastewater Treatment Plant is the largest of its kind in Virginia, serving close to 60,000 people in the area and treating up to 70 million gallons a day of sanitary sewage and stormwater. Overall, Richmond's Department of Public Utilities operates several other utilities and 500,000 residential and commercial customers count on them for water and energy services.

FEATURED PRODUCTS

- Series 218 MortarClad
- Series 434 Perma-Shield H₂S
- Series 435 Perma-Glaze



PROJECT INFORMATION

Project Location
Richmond, Virginia

Project Completion Date
June 2015

Owner
Richmond Department of Utilities
Richmond, Virginia

Engineer
Greeley & Hansen
Richmond, Virginia

Contractor/Applicator
Commonwealth Epoxy Coatings
Newport News, Virginia

Seven effluent filter tanks at the Richmond WWTP were resurfaced and protected by a high-performance, time-tested wastewater coatings system from Tnemec.

