

CENTRAL WATER RECLAMATION FACILITY

Replacing the 73-year-old Main Street Wastewater Treatment Plant in Pensacola, Florida, with a new 20-million-gallon per day water reclamation facility required multiple engineering firms, more than 103 suppliers and contractors, and a high-performance coating system from Tnemec. "The engineers specified a thick-film, fiber-reinforced epoxy lining that could handle the minor substrate movement in the 10-million-gallon concrete reject tanks, which is what Series 436 Perma-Shield FR offered," Tnemec coating consultant Robert Crumbaugh explained. "The same coating is abrasion- and chemical-resistant, so it was also specified for the facility's chlorine contact chambers and several sludge tanks and lift stations."

The Central Water Reclamation Facility (CWRF) is the largest public works project in the history of Florida's Escambia County. Located 25 miles from Pensacola's outdated water treatment plant, the new facility is well above the Category 5 hurricane flood elevation and is buffered from its nearest residential neighbors. "The old plant was located in downtown Pensacola, which would flood every time there was a hurricane," Crumbaugh noted. "The old plant is located in downtown Pensacola and is landlocked preventing further expansion. In addition, the plant's proximity to the bay makes it susceptible to flooding from storm surge during major weather events."

Prior to coating, the new concrete tanks were prepared in accordance with SSPC-SP13/NACE No. 6, ICRI-CSP5 Surface Preparation of Concrete. Next, the interior concrete was resurfaced with Series 218 MortarClad, an epoxy-modified cementitious mortar, which was spray-transferred and back troweled to 1/16-inch thickness. A topcoat of Series 436 Perma-Shield FR, a fiber-reinforced, 100 percent solids, modified polyamine epoxy, was spray-applied as a topcoat for abrasion and chemical resistance. Perma-Shield® FR was applied at 100 to 125 mils DFT in the reject tanks, and 50 to 70 mils DFT for the chlorine contact chambers.

"In order to avoid the summer heat and limit the concrete from outgassing, most of the coatings were applied at night," Crumbaugh added. "They usually started about 5 p.m. in the evening and continued until the humidity and dew point levels forced them to stop." Nearly 23,000 gallons of protective coatings from Tnemec were used on the reject storage tanks, dual chlorine contact chambers, sludge tanks, and lift stations.

The CWRF offers the opportunity for reuse of advanced wastewater treated discharge from the plant by the James F. Crist generating plant in its cooling towers and for other industrial uses.

FEATURED PRODUCTS

Series 218 MortarClad
Series 436 Perma-Shield FR



PROJECT INFORMATION

Project Location
Pensacola, Florida

Project Completion Date
October 2009

Owner
Emerald Coast Utilities Authority
Pensacola, Florida

Engineer
Baskerville-Donovan
Pensacola, Florida

Coating Applicator (Reject Tanks)
Crom Corporation
Gainesville, Florida
Universal Painting
Lakeland, Florida

Coating Applicator
(Chlorine Contact Chambers)
Mansfield Industrial
Pensacola, Florida

Various concrete structures at the Central Water Reclamation Facility in Pensacola, FL were topcoated with Series 436 Perma-Shield FR to provide protection against abrasion and chemical contact.

