

# LAGUNA BEACH WET WELL REHABILITATION

After more than 30 years in operation, the Bluebird Sewer Pump Station in the city of Laguna Beach, California, required substantial improvements that included restoring deteriorated concrete in the structure's wet well and providing a new corrosion-resistant lining from Tnemec. "The existing epoxy material was failing and was causing the concrete substrate to deteriorate because of the hydrogen sulfide (H<sub>2</sub>S) environment," Tnemec coating consultant Denis Amyot explained. "The specification called for complete removal of the existing coating and rehabilitating the wet well walls, ceiling and electrical chases affixed to the ceiling. The engineering consultant for the project was familiar with Tnemec's Perma-Shield lining system which ended up being used for the project."

Prior to coating, the concrete was prepared in accordance with SSPC-SP13/NACE No. 6 Surface Preparation of Concrete, which requires the surface to be free of contamination, laitance, loosely adhering concrete and dust, and a minimum profile of ICRI CSP5 or greater. The interior of the wet well was resurfaced with Series 218 MortarClad, an epoxy-modified cementitious mortar, which was trowel-applied to 1/16-inch thickness to fill voids in the lift station's concrete and create a smooth substrate for coating. "The epoxy-polymer modification allows MortarClad to be applied as a resurfacer for areas requiring less than 1/2-inch of repair," Amyot noted. "Areas requiring more than 1/2-inch of repair were filled with a heavy-duty repair mortar."

Series 436 Perma-Shield FR, a fiber-reinforced, 100 percent solids modified polyamine epoxy, was spray-applied at 100 to 125 mils dry film thickness (DFT) to act as a barrier separating the corrosive service environment of the wet well from the substrate. "Series 436 provides excellent resistance to H<sub>2</sub>S gas permeation and protects against microbiologically influenced corrosion (MIC) in severe wastewater environments," Amyot shared. "The fiber reinforcement offers superior physical strength and higher film build." The project required more than 25 kits of Series 218 and 300 gallons of Series 436.

One year after the restoration project was completed, the coating system was inspected by the City of Laguna Beach for signs of blistering, cracking or other coating issues that can lead to corrosion of the substrate when exposed to severe wastewater environments. "All parties were very impressed with the performance of the Series 436 Perma-Shield FR system," Amyot added. "The Series 436 was in perfect shape."

The City of Laguna Beach Wastewater Division is responsible for maintaining 95 miles of collection pipelines, 28 lift stations, the four-mile North Coast Interceptor that transmits sewage to the regional treatment plant and 17 urban runoff diversion units.

## FEATURED PRODUCTS

**Series 218 MortarClad**  
**Series 436 Perma-Shield FR**



## PROJECT INFORMATION

### Project Location

Laguna Beach, California

### Project Completion Date

October 2009

### Owner

City of Laguna Beach

### Architect / Engineer

Dudek & Associates - Laguna Beach, California

### Field Applicator

National Coating and Lining Company - Lake Elsinore, California

The severely deteriorated concrete of the Bluebird Sewer Pump Station in Laguna Beach, California, required a fiber reinforced coating from Tnemec to act as a barrier between the concrete and the corrosive sewer gases. A one-year inspection showed the Tnemec system to be performing well in the corrosive environment.

