NORTHFIELD MOUNTAIN HYDROELECTRIC FACILITY

FEATURED PRODUCTS

Series 971 Aerolon Acrylic Series 1028T Enduratone Series 1224 Epoxoline WB

The underground powerhouse at the Northfield Mountain hydroelectric facility operates large reversible turbines that can pump about 20,000 gallons of water per second, generating 270,000 kilowatts of electricity. Large ball valves that control flow of the pumped water were having issues with condensation year-round and were in need of an innovative solution. Engineers consulted Tnemec representatives at Righter Group, Inc. and, based on their experience in the industry, decided on an effective resolution; both parties agreed that Tnemec's thermal insulating coating, Aerolon, would offer the most viable solution.

"The team at Copia Contracting brought us in to recommend something for the year-round sweating," said coating consultant Greg Pope. "We examined the surface and ambient conditions of the project and recommended the Aerolon coating system, which is known to control condensation because of its thermal properties."

After identifying the project's water temperature and operating relative humidity, the statistics were placed into a program, alongside Aerolon's thermal properties, to determine the necessary insulating thickness needed to limit condensate. The program determined that 90 mils dry film thickness (DFT) of Series 971 Aerolon Acrylic – an insulating coating containing aerogel particles for added thermal efficiency – would greatly reduce the sweating.

The ball valves were prepared and primed with Series 1224 Epoxoline WB, a high-solids, water-based epoxy. As determined, Series 971 was spray-applied to surfaces at 90-100 mils DFT. Approximately two coats of Series 971 were required to reach this thickness, far fewer coats than required by other insulating coatings.

A water-based topcoat, Series 1028T Enduratone, was spray-applied to finish the system. Series 1028T is known for its steadfast color and gloss retention and mildew-resistance. Because the whole system is water-based, each coating used is low VOC and low odor, making application less hazardous to the applicator and the environment.

"The characteristics of a low VOC system were huge in making this a successful operation," remembered Pope. "The client was delighted with the execution and performance of Aerolon and intends to complete additional valves next year."

The Northfield Mountain Facility is operated by FirstLight Power Resources, a subsidiary of GDF Suez and operators of several other power generation plants in Massachusetts and Connecticut. The plant is built 5.5 miles up the Connecticut River from the Turner Falls Dam and its underground powerhouse lies 700 ft. below the surface. In 1972, the plant became operational as the largest of its type in the world.

PROJECT INFORMATION

Project Location
Northfield, Massachusetts

Project Completion Date
May 2014

Owner
FirstLight Power Resources
Northfield, Massachusetts

Engineer
FirstLight Power Resources
Northfield, Massachusetts

Applicator
Copia Specialty Contractors
Brewer, Maine

Large ball valves at the underground Northfield Mountain hydropower facility utilized a thermal insulating coating system from Tnemec, featuring Series 971 Aerolon Acrylic, to control year-round condensation.