

## PROBLEMSOLVER



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Coating with optically active pigment technology

### Optically active pigment shines light of longevity on water tower

By Tony Ippoliti

**A**qua Pennsylvania Inc. (Aqua PA), part of the larger water company Aqua America, provides potable water to more than 1 million residents in 30 counties across southeastern Pennsylvania. When the exterior and interior of an elevated wash water tank at its Neshaminy Water Treatment Plant (WTP) needed to be recoated, David Hughes, the company's manager of mechanical, electrical and construction, looked for protective coatings that would have a long service life and present a long-lasting attractive appearance to the high-visibility tank.

Sherwin-Williams Dura-Plate ultra-high solids (UHS) primer with Opti-Check optically active pigment (OAP) technology and Dura-Plate UHS topcoat were specified for the interior by coating inspection and consulting company Mumford-Bjorkman Associates (MBA). Hi-Solids Polyurethane mildew resistant (MR) also was selected to provide long-lasting protection and good looks to the exterior.

#### OAP Offerings

In water storage tanks, the use of the OAP technology can aid in eliminating small defects or bare spots known as holidays, identifying pinholes and reducing premature failures caused by poor film thickness on difficult-to-inspect areas. According to MBA Vice President Andy Mumford, the project provided an opportunity to try new OAP technology.

"We hoped that better inspections enabled by the Sherwin-Williams product would provide longer-lasting performance," Mumford said.

Using the UHS primer in conjunction with OAP yielded several immediate benefits as well. Typically, an inspector at the job site has to wait several days for the paint to dry. If holidays are found in the inspection, the coating has to be touched up and allowed to dry before it can be inspected again. In this case, however, OAP technology in the paint allowed the inspection for holidays to take place while the coating was still wet.

In addition, non-OAP coatings must be dry and cured before an inspector can use the standard electronic holiday detector in accordance with NACE (National Association of Corrosion Engineers) Intl. Standard SP0188, for example. With OAP, an ultraviolet (UV) flashlight is used to make the paint glow (fluoresce). Because of the high solids content and optical characteristics of the product used at the Neshaminy WTP wash water tank, the inspection process was faster and easier.

OAP also makes inspections more accurate: Twenty-five percent more defects are identified during coating application than with non-OAP paint. Furthermore, because it is not necessary to use a holiday-testing wetting agent with OAP, no surface contaminant needs to be removed before the tank is

ready to be disinfected and placed in service.

"Holiday testing is usually done on weld seams, but not typically in the middle of the steel plates. But the OAP primer proved very effective for inspecting the middle of the tank plate and the floors or riser," Mumford said. "When we shined the UV flashlight inside the tank, we could see right away where the painting contractor missed. We could also check 100% of the surfaces pretty quickly."

Being able to spot defects across the entire tank interior more easily improves the chances of completely coating the tank surface.

"Knowing there is 100% coverage, Aqua PA has the assurance of longer service life for the coating system," Hughes said. "That will extend the time period between tank paintings and minimize plant disruptions, which is what we were looking for when we selected the Sherwin-Williams OAP coating."

In most cases, the OAP primer can be applied alone in one coat, but Aqua PA and MBA wanted a non-OAP topcoat to be applied for extra protection and durability.

"Our Sherwin-Williams representative was on site the first couple of days, which was helpful because we had no prior experience with this new coating," Mumford said. "The representative also provided us with all the information we needed to include the product in the specification." This included its conformance to the newly revised AWWA D102 Standard ICS No. 3.

#### Finishing Touch: Polyurethane

On the tank exterior, Aqua PA used a specially formulated MR polyurethane, Sherwin-Williams Hi-Solids Polyurethane MR. The polyurethane was an ideal solution for this tank, which is 50 ft tall, surrounded by trees and adjacent to heavily traveled railways. Condensation on the outside of the tank, combined with airborne dust, dirt and mold spores, caused unsightly mildew that was costly to remove and damaging to the tank's existing urethane coating.

The coating's ease-of-application and fast-drying characteristics are identical to regular polyurethane, but the owner gets the added benefit of much-needed MR and the resulting savings in maintenance dollars. The color and gloss retention of the MR polyurethane also will keep the Neshaminy WTP wash water tank looking good for many years to come. [www.sherwin.com](http://www.sherwin.com)

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Workers applying primer with optically active pigment