



A Large Undertaking

By Davies Hood

Aqua Pennsylvania recoats its ground storage tank

When it comes to potable water storage tanks, the Aqua Pennsylvania 10-million-gal Sproul Road ground storage tank in Philadelphia is about as big as they come. At 225 ft across and 40 ft high, this tank is critical to the Aqua Pennsylvania system. During the beginning of budget year 2014, the company determined that the massive tank needed to be recoated inside and out in order to be effectively maintained.

With a project of this magnitude there are bound to be challenges along the way, which is exactly what happened, especially since it had to be completed during a Northeast winter full of rain, wind and snow.

The demand for the water in this tank is huge during the peak water seasons of spring and summer, which also are peak painting seasons, so work had to start in December 2014. The project team—consisting of Joe Thurwanger, project engineer;

Rick Gianguilio, project manager; contractor G.K. Painting; and coatings supplier Induron Coatings—all needed to work together in order to pull off such a daunting task.

Aqua America uses Induron as the tank coating supplier for all its projects nationwide. The team knew that its 100% solids ceramic epoxy, PermaClean 100, would be ideal as the interior lining system for this tank. The ceramic within the coating offers an effective barrier when used with Induron's proprietary epoxy resin. PermaClean 100 can be applied at extremely high film builds compared to conventional epoxies, and it cures down to 35°F.

The epoxy's ability to cure in low temperatures was key for the project. All epoxy paint products need to cure in order to properly perform and avoid any contamination issues. Due to the winter temperatures, external heat sources were used to ensure surface temperatures were conducive to proper curing. In fact, a lot of things went into this job that do not normally factor into the repainting of a water tank.

Solvent Issue

One of the problems often seen with large-diameter ground storage tanks is that the coating system typically contains solvent. The colder the temperature, the harder it is for the solvent to evaporate from the coating system, and extensive ventilation is required to make sure the solvent vapors are extracted from the tank. However, there is no solvent in the 100% solids epoxy, which meant the team was able to finish the tank and immediately put it back into service without worrying about this type of contamination.

Once the coating has been successfully applied, there is a required disinfection process that involves spraying chlorine solution on the side walls and floor to ensure that there is no surface contamination where the painters were working. The tank is only refilled once this disinfection process is successfully completed.

"With a private or public company, you can imagine that if someone turns the faucet on and the water tastes bad, [he or she] will be calling the water company," said Tex Enoch, Induron sales representative for the project. "If you have a couple of thousand people calling at the same time because their water tastes bad, it's a public relations nightmare. This is why using a 100% solids epoxy coating is critical to ensure there would be no such issue."

Despite the challenges of painting a tank during cold weather, the project was completed successfully and early, and the tank was put back into service by May 1, 2015. Knowing that things would go quickly and smoothly was part of the reason Aqua Pennsylvania chose PermaClean 100. It has painted more than 20 tanks with this system with no problems.

G.K. Painting has elected to use PermaClean 100 to line tanks when solvent free tank linings are specified. The inspection company, MBA, also has specified PermaClean 100 on many other projects.

On the Outside

The exterior of the tank also was painted using Induron's Permagloss fluorourethane as the finish coat. With this product, Aqua Pennsylvania cut no costs and paid a premium price for Permagloss's color- and gloss-retention properties.

"We believe that using this product will add at least 15 years to the life of the exterior coating system. This is not only cost-effective in the long run, but by extending the service life of the exterior coating system, it also keeps this critical asset in service with no interruptions for maintenance for a much longer period of time," Enoch said.

When it comes to coating any water storage tank, extending the service life is always a priority. With the Sproul Road tank, this goal was accomplished, along with an assurance of safe, clean and pleasant-tasting drinking water for years to come. **w&wd**

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