CLARIFIER COATING MADE EASY

1 The clarifier at the outset of the job

2 The application of the first gray coat

3 Second coat of Sher-Glass

4 Final coat

By Bob Murphy

At a time when homeowners are pinching pennies, a local government entity that stretches its budget as far as it can go without sacrificing quality or service is worth its weight in gold. And gold is just what the Madison, Wis., Metropolitan Sewerage District (MMSD) received last year—the Gold Award, that is, from the National Association of Clean Water Agencies signifying 100% compliance with its Wisconsin Pollutant Discharge Elimination System operating permit.

Sewer district finds cost efficiencies in rugged glass-flake epoxy coating

Madison treats 15.8 billion gal of wastewater annually, and the district's compliance was achieved very cost-efficiently—at 61% of the national average of the typical 2009 residential service charge, according to a survey of 173 large U.S. municipalities.

One of the many employees at MMSD who takes stewardship of the public's dollars seriously is Joe Lynch, senior maintenance supervisor. When Lynch was faced with getting more life out of the rake arm assemblies of the final clarifiers at the Nine Springs Wastewater Treatment Plant in the town of Blooming Grove, Wis., he knew it was time to come up to speed on the state of protective coatings before proceeding.

Beating the Clock

Since 1984, the inner drum and rake arms of the final clarifiers had been protected by a polyamide coal tar coating system, but the clock was running out on spot maintenance as a remedy for these components. Understanding the newer technologies available and selecting the best one to incorporate in a specification for a complete recoating was Lynch's job. Lynch juggled several concerns in the process of making his selection. "We were looking for a product that could give us a 30-year longevity and that we could maintain by ourselves if there was any degradation during that time," he said.

To ensure the broadest possible pool of respondents to the request for quote, he also was determined to specify a product that contractors could apply relatively easily, without specialized plural component equipment.

Lynch learned about a new technology for the wastewater industry—a glass flake-reinforced amine epoxy coating and lining system called Sher-Glass. The product, first introduced in 2005, had been used successfully in petrochemical and marine applications for some time, prized for its low permeability.

In looking at alternatives, Lynch said other products seemed to have the same short-term performance, but Sher-Glass was of particular interest in terms of life-cycle costs. The prewetted glass flake-reinforced formulation produces a more cohesive, durable film with enhanced chemical and abrasion resistance and edge-retentive qualities. The microscopic flakes function like armor but are light in weight.

"For guarding against corrosion, Sher-Glass is a thinner film system with the same performance as a high-build system," said Larry Beese, a Sherwin sales representative. "When applied to a metal surface with a temperature at least 5°F above the dew point, up to 20 mils total DFT can be applied—and dry—in a single coat."

Surface preparation called for SSPC-SP 10/NACE 2 Near White Metal Blast with a minimum anchor profile of 2 mils; removing or grinding down all sharp burrs, edges and weld spatter from the steel to be coated; and corners and edges to be chamfered 1/16

in. at a 45-degree angle minimum or rounded to a 1⁄16-in. radius minimum. The anchor profile was to be restored by abrasive blasting prior to applying two coats of Sher-Glass—the first gray, the second black—at 10 to 20 DFT for 20 to 40 mils total DFT.

Maintenance in Madison

Lynch noted that his personnel can handle ongoing maintenance tasks. "If the job involves spraying, or if the material safety data sheet requires special certifications to apply a coating, we have to bring in outside help," he said. "Spot repairs of Sher-Glass are easy to mix and can be applied with a roller or brushes and a respirator; no hazmat gear or certification is needed. That was very attractive to us."

Sher-Glass is now part of the ongoing spec for the district's continuing effort to refurbish the metal components of its final clarifiers. In Spring 2010, MMSD staff drained and inspected the clarifier.

"While we were confident with the choice of Sher-Glass, rake arm assemblies have numerous angle welds, edges and seams where metal joins together," Lynch said. "We wanted to inspect the coating for adhesion, chipping or degradation. We are very satisfied with the outcome of the Sher-Glass lining system."

MMSD bid out two more rake arm assemblies calling for Sher-Glass in April, for work to be completed in Summer 2010. WWD

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