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TENNESSEE
PUBLIC WORKS
MAGAZINE

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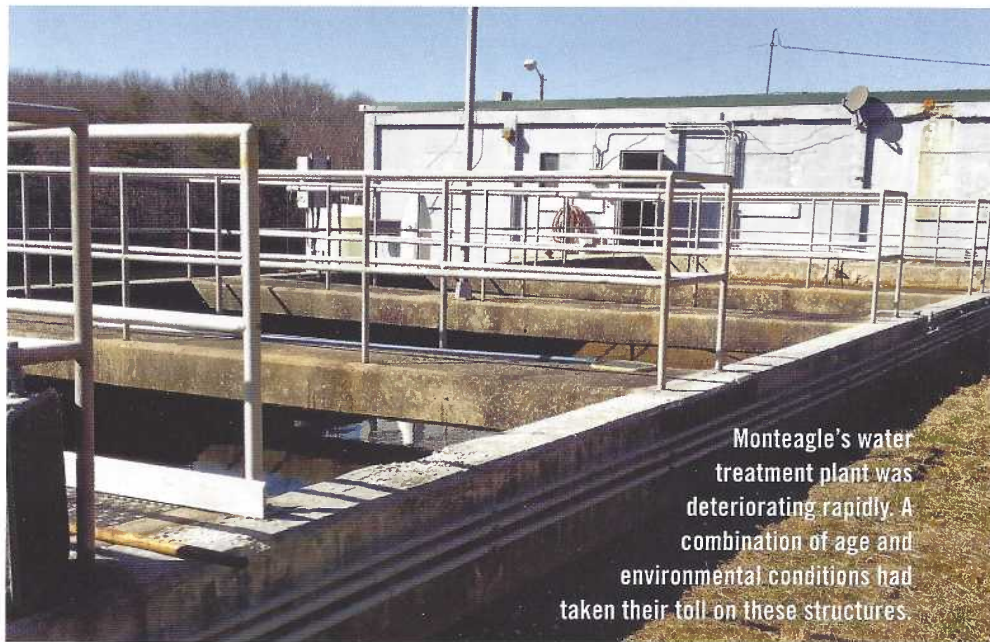
Monteagle WTP Restorative Makeover Saves Time and Money

As in most rural communities, the upkeep of the infrastructure is an ongoing process. None of them are immune to the challenges of daily maintenance, funding, personnel issues and state requirements to simply remain compliant. Even more disturbing is when one of these small towns is faced with the replacement of its antiquated infrastructure and/or treatment facilities. For many it can be financially devastating.

Recently, the town of Monteagle, Tennessee, nestled in the forested region of the Cumberland Plateau, was faced with this precise situation. Its sediment basins at the water treatment plant were deteriorating rapidly. A combination of age and environmental conditions had taken their toll on these structures. Much of the original protective coating had flaked or peeled off and it was estimated that 15 to 20% of the concrete was exposed and eroding.

“Our water treatment plant is pretty old and will need to be replaced in the near future,” stated Lex Orr, Monteagle, Tennessee, Alderman and Vice Mayor. “But, until we have all the funding in place for the new plant, our city’s engineering firm, James C. Hailey & Company, recommended we rehab the basins so they would last until we built the new plant. The firm believed that was the best and most cost-effective solution,” he added.

Specifications and project criteria were drawn up and submitted to T.D.E.C for their review and approval. Once



Monteagle’s water treatment plant was deteriorating rapidly. A combination of age and environmental conditions had taken their toll on these structures.

approved, advertisements for bids were sent out. IPR Southeast was awarded the contract to apply EcoCast® to structurally restore Monteagle’s sediment basins. The contract award was based on the firm’s cost, the assurance of minimal downtime, and the product’s performance on similar projects.

EcoCast is a high strength fiber-reinforced geopolymer that is specially designed for projects like this. When applied, it forms a crystalline structure, which is very durable and highly resistant to acids – both of which are important to structures like the Monteagle water treatment plant. EcoCast bonds to virtually any surface and applies quickly to great thicknesses. Also critical to this project was EcoCast’s quick cure time, which is a matter of hours. The town could ill-afford to keep its treatment plant off-line for too long.

“The first order of business was to make arrangements with a neighboring utility to provide us with water while our plant



Project Snapshot

Monteagle, TN Water Treatment Plant: Sediment Basin Rehabilitation

Sediment Basin:

- Dimensions: 87’ Long x 25’ Wide x 12’ Deep
- Condition: Existing concrete walls were pitted and scaling, the worst of the erosion was occurring at the water line

Town/City Engineer Responsibilities:

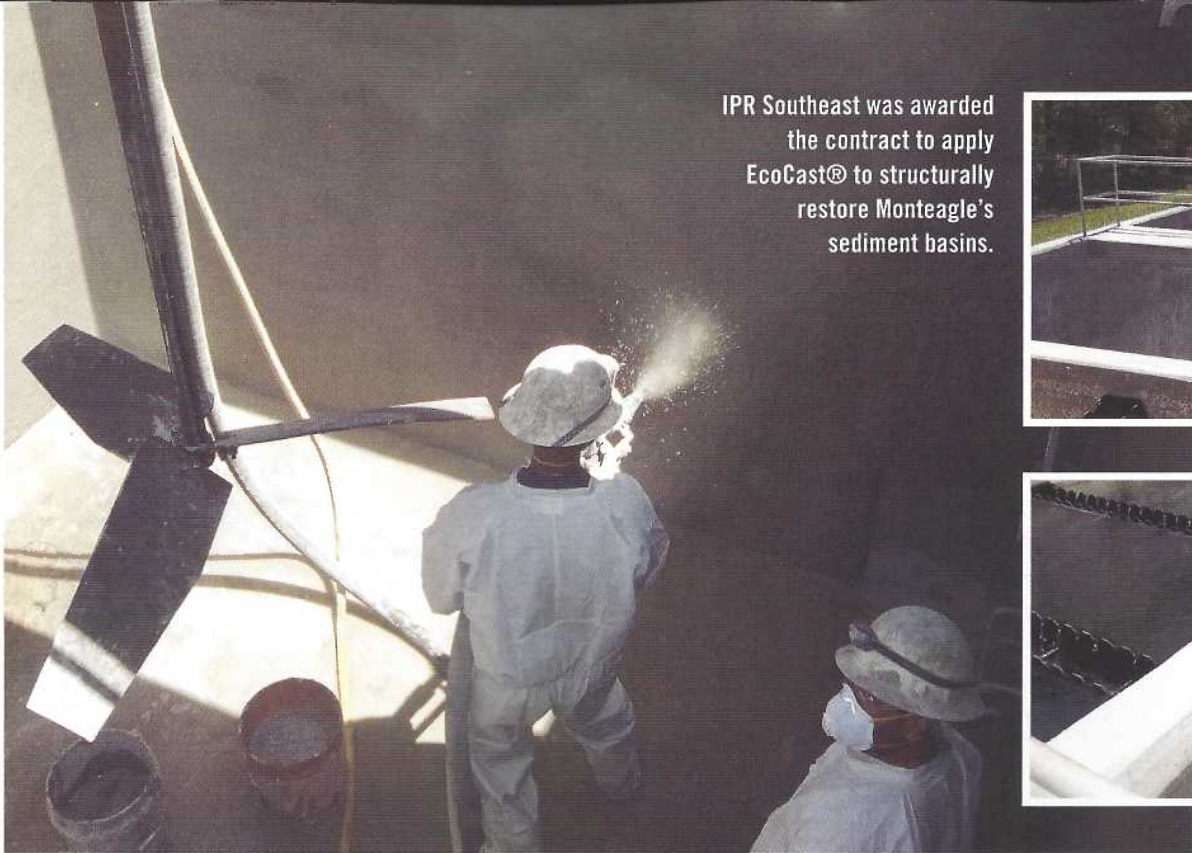
- Developed plan and recommendation to rehab corroded sediment basins
- Arranged for fresh water to be routed from neighboring town during the work
- Took treatment plant offline
- Placed treatment plant back into operation a few hours after completion

Contractor Responsibilities:

- Drained water clarifier and flocculators
- Removed sediment from clarifier and flocculators, and pressure-washed all interior and exterior walls
- Applied approximately 5,000 sq. ft. of EcoCast, 3/4” thick, to reline and restore 25,000 cu ft. of interior, exterior, and top of basin walls
- Completed the project in 6 working days

Budget: \$64,750

IPR Southeast was awarded the contract to apply EcoCast® to structurally restore Monteagle's sediment basins.



was taken off line,” said Orr. Not wanting to burden the neighboring utilities water system too much, it was important the repairs were made as quickly as possible. The contractor estimated it would take only five to seven days to drain the tanks, prep the surface, apply the EcoCast, and then bring the plant back online.

Leak at Neighboring Utility Interrupted Job Progress

Once the date to proceed was established, IPR Southeast scheduled delivery for its equipment and material and began the process. However, two days into the project -- the basins had been drained and EcoCast was already being applied -- the neighboring utility experienced a leak in a water main that connected the two towns. The project was shut down immediately and Monteagle put their plant back into service while the repair was made.

“The EcoCast we had already applied was cured enough that it was not affected by the plant going back into operation,” said Chris Polk, IPR Southeast Business Development Manager. “We wanted to make sure the residents’ water supply remained constant.” As it turned out, it did. According to Orr, most of the residents had no idea the treatment plant was being worked on.

Once the transmission main leak was repaired, the Basin Rehab Project’s completion was rescheduled. IPR quickly remobilized, arrived on site, and finished the job three days later. The town had their water treatment plant up and running within hours after the project was finished with no disruption to service.

“The versatility of the product and the flexibility of the contractor were critical to this project’s success and the project stayed within budget.” stated Anthony Pelham, P.E., Project Engineer, James C. Hailey & Co. [LTCW](#)



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