VORTEX

CASE STUDY

PROJECT SNAPSHOT

PROJECT
South Valley Water Reclamation Facility

CONTRACTOR
Cardinal Coatings

PROBLEM
Critical main pipe servicing the region's water treatment plant exhibited active infiltration and severe corrosion due to high H_2S environment

DIMENSIONS
- 200 LF of 94" diameter Reinforced Concrete Pipe (RCP)
- Two 54" diameter pipes and two 60" diameter pipes with large structures on each end

OVERVIEW
Applied an extreme corrosion resistant coating to protect the RCP influent pipeline from further H_2S-induced deterioration, resolved perpetual infiltration problem, while adding structural enhancement.

Structure Guard® Fully Restores Critical Water Reclamation Facility Pipe in 19 Days, Without Operational Interruption.

PROVEN EPOXY MATERIAL DELIVERS LONG-LASTING DURABILITY IN HIGH H_2S ENVIRONMENTS

VORTEX PRODUCTS USED

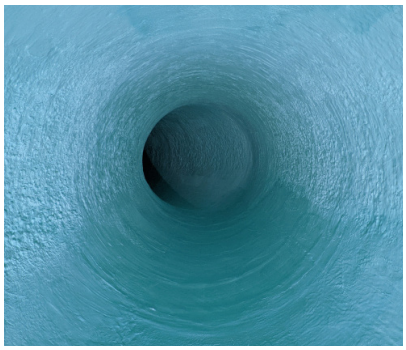
1. Structure Guard®
2. I & I Guard-PRF®

THE CHALLENGE

The South Valley Water Reclamation Facility (SVWRF) treats approximately 20 MGD (million gallons/day), 365 days a year. The water discharged from this facility flows into the Jordan River and must adhere to stringent quality standards.

The main pipe feeding SVWRF's facilty, which is 200 LF and 94" in diameter, was constructed of RCP (reinforced concrete pipe) and installed when the facility was built in 1985. It's the most critical pipeline in the facility, with two 54" and two 60" diameter pipes feeding into it, along with 52 manholes.

Upon inspection, the main pipe exhibited active infiltration and severe corrosion due to high H_2S exposure. As the main pipe serves a vital function for the facility, a shut down was not feasible. Additionally, pipe replacement was impractical, as it would require demolishing part of the facility that's built above the pipe.



CASE STUDY

IMPACT

1 Provided a comprehensive, consultative assessment to determine the correct solution using I & I Guard®-PRF and Structure Guard®.

2 Quick action made 200 LF of large diameter pipe impervious to H_2S induced corrosion and stopped infiltration. Completed in 19 days without interrupting operations.

3 Enabled quick return to service after solving pipe rehabilitation problem in 19 days.

THE SOLUTION

Vortex Companies' product experts worked closely with the contractor and certified applicator, Cardinal Coatings, to provide a comprehensive, consultative assessment of the pipe. After lengthy site inspection, they determined the infiltration could be stopped using I & I Guard®-PRF, a high-flow polyurethane injectable grout, and Structure Guard®, a 100% solids hydrophobic epoxy coating, to deliver the required H_2S impermeability for a tight bond, long-term corrosion protection and structural enhancement.

Prior to application, a bypass was installed to isolate the pipe and remove standing water. Cardinal Coatings then injected I & I Guard-PRF into pre-drilled holes at all points of infiltration. This fast-acting grout can stop leaks in a matter of seconds. This was followed by a 5,000 psi pressure wash to remove loose sediment and achieve a CSP profile of 4-6.

Additionally, pH testing was conducted to confirm the surface's neutrality to maximize adhesion.

THE RESULTS

The project was completed in just 19 days, without interrupting the facility's operations. Structure Guard® was applied at 250 mils to protect the RCP pipe from H_2S attack for many years to come.

THE INNOVATION

Structure Guard is a 100% solids, high-build epoxy coating formulated to provide long-term corrosion protection and structural enhancement for manholes, pump stations, treatment plants or any wastewater infrastructure subject to high levels of corrosion or abrasion. It sets fast for a quick return to service, even in the most aggressive and turbulent environments, minimizing community disruptions and costs for pump bypass installations.

Vortex's deep knowledge and consultative approach enables it to provide the correct solution, tailored for each project's unique needs, faster than competitors' custom options.

I & I Guard-PRF was used to stop several high-flow points of infiltration throughout the pipe.

Structure Guard is spray applied using a dual component spray application system to achieve a consistent thickness of 250 mils throughout the pipe.

The Versatility of Quadex® Products

- Quadex Repair Materials are specifically developed to work together for the best result.
- All products recommended are designed to address specific conditions of the structure.
- I & I Guard-PRF, a polyurethane grout, was used to eliminated extremely high flow infiltration points.
- Structure Guard 100% solids epoxy, used to protect the structure, is impervious to H_2S and offers 50-year design life.
- Quadex Products are fast-acting, with exceptional cure rates allowing this project to be completed in 19 days.