

Ocean County, NJ – Pump Station Rehabilitation

A Proactive Approach for Continued Improvement of Capacity and Efficiencies

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For most municipalities in the U.S., wastewater collection system rehabilitation has received the least amount of attention and capital of all public works projects, especially compared to the other infrastructure dollars that are spent on bridges, roads and other utilities. Typically, sewage collection construction and rehabilitation is directed at prolonging the life of hidden assets, increasing capacity and improving overall efficiency.

Located along the Jersey shore, Ocean County, NJ has a population of over 550,000 and has the state's fastest growing population according to the 2010 US Census. It is located just north of Atlantic City, 70 miles south of New York City and only 50 miles east of Philadelphia, making the county a popular destination for residence and tourists, especially during the summer months.

Since this coastal county is predominately flat (at sea level) wastewater within the collection system has to be pumped to the treatment facilities for processing. As the county's population has grown, so too has the number of pump stations required to move the sewage to treatment, and continual exposure to the effects of hydrogen sulfide gas (H₂S) have caused severe degradation to many of the county's pump stations.

Years ago Ocean County began a proactive approach to improving and protecting their wastewater assets with rehabilitation of wastewater structures throughout the county.

The Ocean County Utilities Authority (OCUA) that serves the county's half-million plus residents is charged with maintaining the collection system, including the rehabilitation of pump stations, many of which have been in service for decades. With years of service and exposure, many of these pump stations had deteriorated concrete walls, floors and ceiling surfaces. In some areas corrosion was severe enough that rebar was exposed.

OCUA looked at several options to remedy the county's infrastructure problem and to prevent further damage to the structures. Since 2002 O.C.U.A has been specifying and using Sauereisen materials for both substrate repair and corrosion protection to completely rehabilitate their pump stations. The Sauereisen restoration, water infiltration and epoxy topcoat materials are compatible with each other, providing a single source for all aspects of these rehabilitation projects.



Severe degradation to pump station walls

Surface preparation, typically high pressure water blasting at 7,000 – 10,000 psi, removes any existing coatings, damaged concrete and contaminants. Next, all active water leaks are stopped using Sauereisen's rapid-setting hydraulic water plug material or hydrophobic polyurethane grout. Both products bond tenaciously to the substrate and seal cracks and voids.

Sauereisen F-120 or F-121 underlayments are used to restore the deteriorated concrete surfaces. These high-strength Portland based products are both resurfacers and waterproofing barriers and when tied into the substrate they also add structural integrity.

To protect these pump stations from the microbiologically induced corrosion (MIC) that destroys concrete, Sauereisen SewerGard™ No. 210 polymer epoxy linings and coatings are used. These linings are completely resistant to hydrogen sulfide generated corrosion and provide additional physical strength and low permeability. Several variations of the Sauereisen SewerGard™ No. 210 epoxy are available to accommodate different application methods, contractor preferences or project requirements and all have a proven 30- year history in similar environments.



Troweled applied underlayment at ½ inch

After the installation of Sauereisen materials in a pump station, OCUA inspectors and the installing contractors inspect each structure to identify and repair voids and pin holes in the lining, insuring the long term integrity of the system.

The rehabilitation of pump stations enables this coastal community to operate its collection system more efficiently and cost effectively. Bill Suchodolski, Ocean County Utilities Authority Engineering Manager, and a key member of the team that manages the proactive approach to maintaining OCUA's wastewater infrastructure, stated that "the evolution of the products that the Authority specifies began with a recommendation from the Authority's Corrosion Engineer (Corrosion Probe Engineering, Centerbrook, CT). Through the recommendation, a set of products from various manufacturers were identified for use in the rehabilitation of concrete for Authority assets."

"The Sauereisen line of products, F-120/F-121 underlayment's and the 210 SewerGard series was the preferred system; though in New Jersey public contracting sole sourcing or proprietary specification preparation is illegal. Therefore, specifications were developed for use on wastewater concrete rehabilitation projects with three named manufacturers' systems, as recommended by the corrosion engineer. In almost every instance since the development of these specifications the Sauereisen line of products was selected by the contractor and/or their coatings subcontractor." "The Authority has seen numerous coatings subcontractors become qualified to apply the Sauereisen products. It is felt that, based on the Authority's very tight specification requirements with regard to technical assistance from the Coating System Manufacturer, Sauereisen's ability to provide technical assistance at a moment's notice, the method for applying the products, the consistency in specification preparation and Authority

inspection of the work, all leads to a few subcontractors experienced in applying the products and very competitive pricing during bidding.



**Sauereisen's SewerGard No. 210 protects concrete from abrasion & corrosion
at the O.C.U.A – CPS-11 Lacy-Middle Branch Lift Station 490 U.S. Route 9**

After performing over the last ten (10) years approximately 250,000 square feet of concrete and manhole rehabilitation, the Authority has received excellent and consistent concrete rehabilitation results at very competitive and stable unit pricing. The Sauereisen systems installed at the beginning of this effort, after washing the surface, appear in the same condition as when installed.”