

Albany, NY installs Wedeco Duron UV Disinfection at South WWTP

Safe, energy efficient disinfection for 45 MGD combined sewer WWTP improves water quality in the Albany Pool for recreational uses

The Hudson River, in the Capital District of Albany, NY, is a popular recreational area for boating, swimming and fishing. Unfortunately combined sewer overflows following storm events and snow melt from sewer systems dating back to the 1800's were causing increased fecal coliform counts which in turn resulted in health alerts and limited access to the river. The six communities of the area, known as the Albany Pool, as well as the Albany County Sewer District (ACSD) and Rensselaer County Sewer District formed a consortium to address these issues, and together they developed a Long-Term Control Plan (LTCP) for Combined Sewer Overflows. One of the major provisions of the LTCP was to provide seasonal disinfection of the wastewater, including storm flows, discharged from the sewer districts' treatment plants.

Albany County Sewer District's South WWTP is one of the major treatment plants discharging into the Hudson. Originally equipped with chlorine disinfection, the use of chlorine had been discontinued for many decades. It was now time to upgrade to a safer, more effective disinfection method. It was time for UV.

Scope

The ACSD South Plant is a conventional activated sludge plant with an average flow of 19.5 MGD, and a maximum flow of 45 MGD. Constructed in 1974, it receives domestic and commercial wastewater from Albany, and has no industrial wastewater component. ACSD required a state-of-the-art disinfection system that could quickly and efficiently respond to the rapid flow increases during storm events, and then could just as efficiently scale back as the flows subsided.

Reliability, ease of maintenance, small footprint, and cost effectiveness were all key requirements. The disinfection season runs from May 1st to October 31st, so ease of shutting down the system for the winter months had to be considered.

Solution

After considering several alternatives, the Albany County Sewer District selected a Wedeco Duron 60i2-2.5X4, with high power Ecoray 600W lamps, for their disinfection system. UV systems are safe and effective,



The automated lift and modular design makes maintenance quick, easy and safe.



Inclined orientation and high power Ecoray lamps make for a small footprint, reducing construction costs

Customer: Albany County Sewer District

Challenge: Contaminated Overflow

Products: Duron

eliminating 99.99% of pathogens – including bacteria, viruses and parasites. Considered a more environmentally friendly, UV achieves disinfection goals without creating chlorine byproducts or adding harmful chemicals to the water – a definite plus when discharging into recreational waters.

The Duron system is a 45-degree inclined UV system, and is available with variable bank widths, which allowed the units to be installed in the existing chlorine contact channels, greatly reducing construction costs. The South WWTP has 4 chlorine contact channels and the full dosage at the peak 45 MGD can be achieved using only 3 channels, allowing one channel to remain in reserve. The innovative Ecoray technology reduces the required lamp count by 50% compared to conventional amalgam UV lamps. The low lamp count combined with the inclined orientation allows for a much smaller footprint, again enabling the use of the existing chlorine contact channels, and allowing for expansion of the system in the future.

The Duron system is equipped with a chemical-free automatic mechanical wiping system that cleans the lamps, preventing fouling and loss of UV intensity without adding the cost of consumables. The automated lifting system pulls the lamp banks up for easy lamp or ballast maintenance, without the need for a crane. At the end of the disinfection season, the automated lift system lifts the banks out for quick and easy winterization.

Online sensors monitor the UV transmittance of the wastewater in real time, as well as measuring the UV intensity from the lamps and of course the flow. Control protocols adjust the lamp power, number of banks on line and even the number of channels in service to ensure that the correct dosage is delivered for the current conditions, regardless of the flow or changes in water quality.

Results

The Chief Operator, Vince Cordi, noted that the Duron UV system ramps up well during storm events and peak flow periods, ensuring that the effluent discharged even at the highest flow rate is in total compliance with room to spare. The control protocols have fail safe programming to ensure that the dosage is always delivered, even as the system is turning off banks, lowering the lamp power, and taking channels off line as the flows return to normal.

“It has always disinfected well... we have coliform counts going out in the single digits. If we get even in the twenties, it is a high number for us to get regarding colonies per 100 mL. Twenty or thirty would be a high number for us.”, stated Mr. Cordi.

The ACSO is confident that, thanks to the reliability of the Wedeco Duron UV system, the effluent leaving the South WWTP is free of dangerous fecal coliform, making the Hudson River cleaner and safer for everyone.



Stainless steel air conditioned ballast cabinets supply the power to the UV lamps

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