Berkeley Heights Wastewater Treatment Plant Saves Taxpayer Money with SaniDate® 15.0

First bulk delivery day at Berkeley Heights Wastewater Treatment Plant, New Jersey

In 2015, the New Jersey Department of Environmental Protection implemented restrictions to wastewater discharge regarding chlorine residuals and disinfection by-products, which are toxic substances formed when chlorine interacts with organic matter in water. These restrictions have made it impossible for some treatment facilities to stay under permitted levels, including Berkeley Heights Wastewater Treatment Plant. With a 3.1 million gallon per day capacity, Berkeley Heights had to look for an alternate disinfection system to their use of sodium hypochlorite/sodium bisulfate. The facility partnered with Chris Jepson of Van Cleef Engineering to explore various disinfection systems. The two options that they decided to explore in depth were an ultraviolet system and a peroxyacetic acid (peracetic acid) dosing system.

SOLUTION

After extensive research, the decision was made to go forward with the peroxyacetic acid (PAA) approach and utilize SaniDate 15.0. The main contributing factors to this decision included a quick start up timeline and significantly lower cost to the system. Other benefits to using SaniDate 15.0 for this application include no disinfection by-product creation, no quenching necessary, stronger oxidizing potential compared to chlorine-based products, shorter effective contact time, and environmentally sensitive degradation of chemical. For these reasons, coupled with the financial aspect, Jepson and Berkeley Heights were comfortable moving forward to the trial stage. They would be the first municipality in New Jersey to obtain permitting for a trial of PAA for sole disinfection of effluent water.

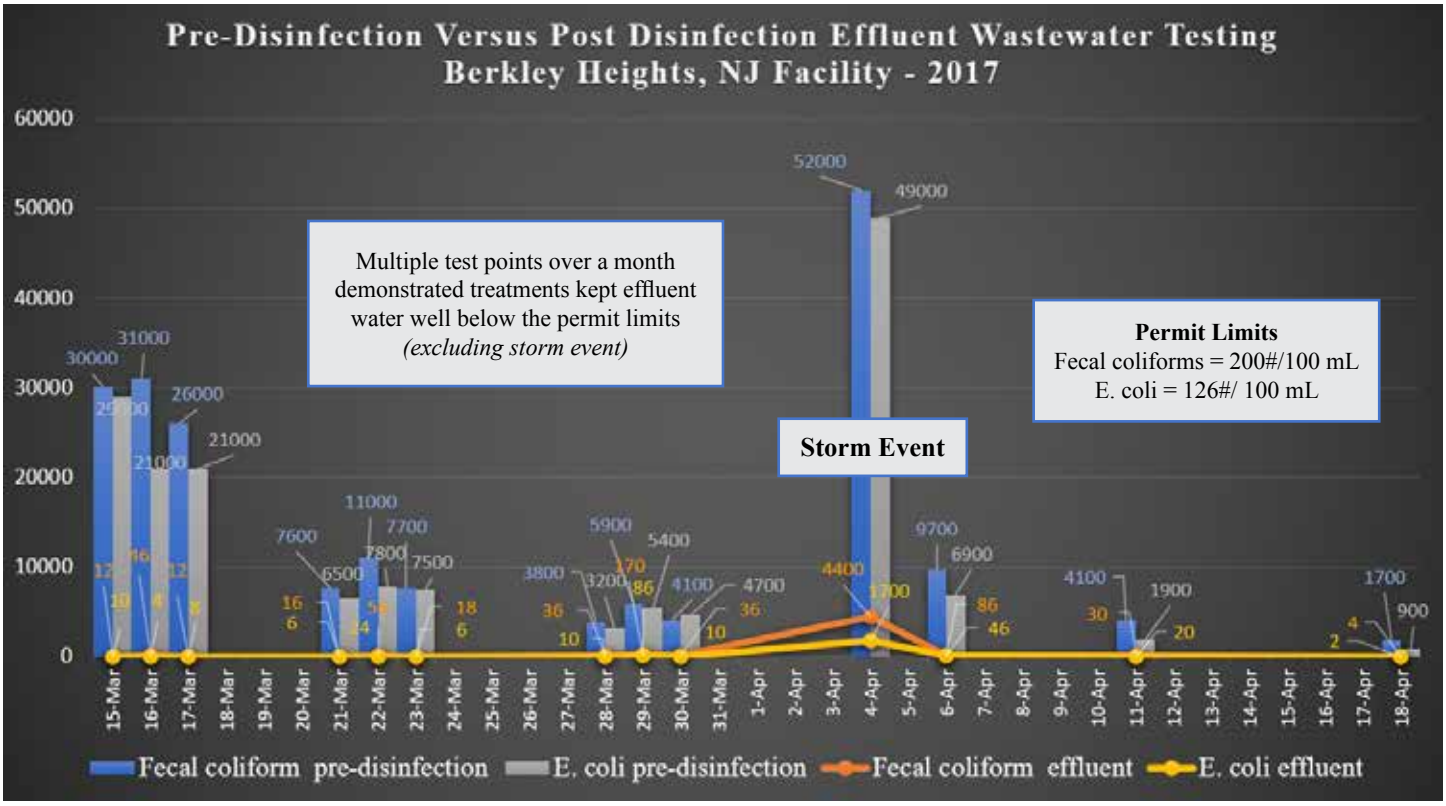
SaniDate 15.0 is an aqueous solution containing 15% PAA and 10% H_2O_2 (hydrogen peroxide), which is very effective on target pathogens at relatively low dosage rates, generally between 1-2 ppm of PAA.

TESTING

The first step to getting full scale pilot testing was obtaining approval to do so from NJDEP based on results from bench scale efficacy testing with PAA. This process entailed Berkeley Heights collecting raw effluent samples in successive days and testing them with PAA at various time and concentration exposures to show efficacy on the target bacteria. Once this series of testing was complete, a QAPP outlining full scale testing procedure was submitted to NJDEP for approval. The results were favorable and in 2017 Berkeley Heights began an 11-week full scale trial period with SaniDate 15.0 in which they installed a dosing system and collected data on fecal coliform and E. coli levels at their discharge point. Over the 11 weeks, this data would determine chemical efficacy in reducing pathogen levels below NJDEP permitted CFUs (colony forming units).

RESULTS

Dosing 1.5 mg/L (ppm) of SaniDate 15.0, after the sand filters, proved to be extremely effective at reducing the levels of fecal coliforms and E. coli. With the exception of one storm event without a flow-paced dosing



system to accurately compensate for increased flow, the average fecal coliform levels were reduced from 229 to 41 and average E. coli levels were reduced from 150 to 18, well under the limits set by NJDEP.

CONCLUSION

As a result of the full-scale trial, NJDEP permitted Berkeley Heights the sole use of PAA for effluent disinfection going forward. After implementation and ongoing SaniDate 15.0 dosing, the facility has been able to reduce operating costs by 12% compared to their previous hypochlorite/bisulfate disinfection method. Additionally, they were able to avoid a million-dollar UV system installation and a $50,000/year maintenance price tag. These savings equated to less reliance on taxpayer funds, a big win for any municipality. Berkeley Heights Wastewater Plant has been successfully utilizing SaniDate 15.0 for their effluent disinfection since 2017 and has continued to show elevated and efficient control of pathogens. “I’m so proud of the innovation of our staff,” said Mayor Angie Devanney. “With the pioneering leadership of our waste water director, Tom McAndrew, the out-of-the-box thinking of his department and the willingness and determination of our workers to make this project a success, Berkeley Heights is finding new ways to innovate our sewer operations that not only make our processes cleaner, but that save our Township money.” (Desmond Lam, 2020, Berkeley Heights to be First Town in NJ to Use Pioneering Disinfecting System, para. 8)

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