NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

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NJDEP OVERSIGHT REPORT
TRENTON WATER WORKS
Period: November 2023

Trenton Water Works is a community water system that provides drinking water to 200,000+ people in the City of Trenton and portions of neighboring Mercer County municipalities (Ewing, Hamilton, Hopewell, Lawrence). Due to state Safe Drinking Water Act (N.J.S.A. 58:12A) compliance concerns, the New Jersey Department of Environmental Protection (Department) issued a Unilateral Administrative Order (UAO) on October 12, 2022, to initiate direct operational oversight of Trenton Water Works (TWW). While under the Department's direct operational oversight, TWW remains responsible for managing the daily operations of the water system. To facilitate on-the-ground oversight of TWW's operations and enhance TWW's technical and managerial capacity, the Department appointed a third-party oversight contractor (TPO) that works routinely with TWW staff and reports directly to the Department.

This report is intended to summarize oversight findings and actions during the month of November 2023.

Summary of November Findings and Immediate-Term Actions

Given the size of TWW's system, under the Department's licensing regulations, an operator holding a W-4 license is required. TWW's W-4 operator of record notified the Department that they will be on extended leave until 2024. In the interim, the Department approved the backup W-3 operator to oversee the distribution system in a letter dated October 30, 2023.

1) Treatment Plant Operation and Maintenance

a) Critical Treatment Units

One of the major reasons that sparked the UAO was TWW's lack of operational and functioning critical treatment units. These units included the SuperPulsator units which are critical for the removal of solids that may contain waterborne pathogens such as *Cryptosporidium*, *Giardia lamblia*, viruses, and *Legionella* and TWW's chlorine contact basins which provide the required disinfection time to ensure the finished water meets Safe Drinking Water regulations. Since the oversight has been in place, TWW has been able to complete the repairs needed on the riverside contact basin, and have a SuperPulsator unit drained, cleaned and ready for operation for redundancy. This is the first time in years that TWW has had critical treatment units in operating condition that are ready to be activated should an emergency arise.

b) Electrical Improvements Report

TWW submitted a revised Electrical Power Reliability Study to the Department regarding the ongoing electrical issues and power outages at the water treatment plant that have been an issue for many years. The report was completed by a consultant of TWW who provided recommendations on how to address these ongoing issues. The proposed recommendations include upgrades to TWW's high service pumps, switchgears, and back-up generator. The Department is reviewing this report and will provide a response to TWW.

2) Disinfection By-Products (DBPs)

Following TWW's Operational Evaluation Exceedance in September 2023 for the disinfection by-product, haloacetic acids (HAAs), the Department reached out to the Environmental Protection Agency (EPA) for technical assistance regarding the increasing trend of HAAs found in the distribution system of TWW and how to address it.

After the data review was completed by EPA, they provided a response to the Department and TWW in November 2023 with their findings and recommendations. In conclusion, the EPA determined that there has been an observable steady increase in the levels of HAAs leaving the uncovered finished water reservoir (Pennington Reservoir) from early 2019 to the present (see figure below). The graph below shows the increasing trend of HAA5s from March 2019 to September 2023 compared to TOC levels leaving the CPS. Despite decreasing TOC, HAA5s have been increasing, which is the opposite trend of what would be expected. The reason for this is not fully understood, so the EPA proposed to conduct a special study of the reservoir come summer 2024 to understand what is causing the increase in HAAs and how to reduce them and prevent future OELs and/or violations. This study will be coordinated in the spring with TWW, the Department, and EPA.

However, the EPA did acknowledge that the available data demonstrates a reduction in the levels of disinfection byproducts leaving the water treatment plant in 2023, which indicates that the improved plant operations in the last year have contributed to the reduction.

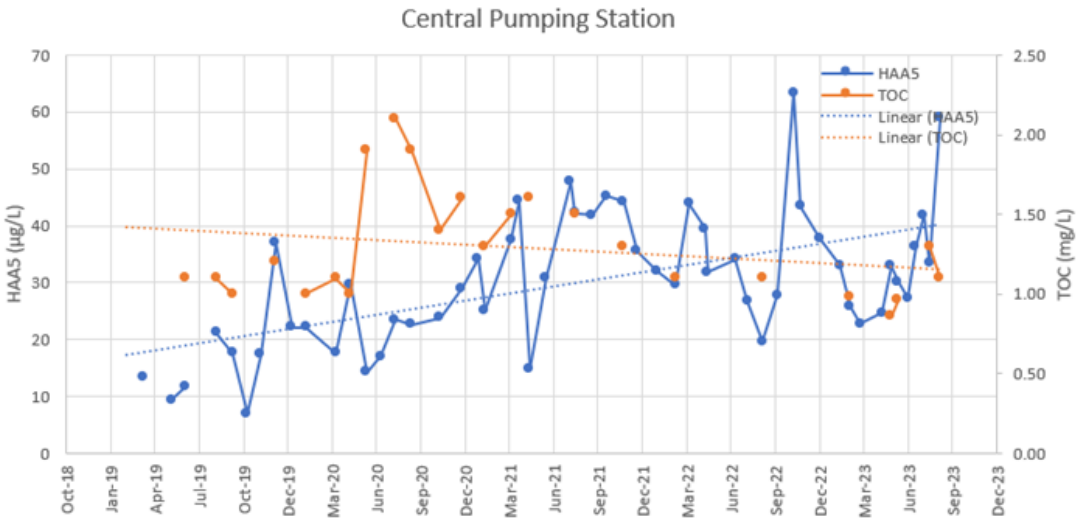

Figure #

3) Distribution System Activities

a) Low-Velocity Flushing Program

TWW implemented a low velocity flushing program during the summer months and into the fall as part of their *Legionella* mitigation efforts. Beginning in November, the program transitioned to a winter phase as cold weather approaches and there is potential for water to freeze on roads. All low velocity flushers were removed on November 1, 2023. However, TWW is continuing to sample chlorine residual and water temperature throughout the system to ensure the target chlorine residual of 1.0 mg/L is met. Based on sampling results, locations will undergo temporary flushing if the chlorine residual is below the 1.0 mg/L target, and if air temperatures are above freezing to avoid ice on the roads. In addition, the Department and TWW, in conjunction with recommendations by EPA, are identifying the components and strategy needed at TWW for a comprehensive uni-directional flushing program (flushing that would remove the sediment from the inside of the water lines and potentially remove any contaminants such as bacteria, viruses, etc.) to commence in the spring.

b) Lawrenceville Tank Permit

TWW submitted a construction permit to the Department for a draw down system at the one million gallon capacity Lawrenceville storage tank. The addition of this draw down system would assist in minimizing water age and improving tank turnover time. This will assist in improving water quality within the distribution system. This permit is currently under review by the Department.

NEXT STEPS

The consultants selected for Phase 2 of the evaluation of TWW continues with the Technical, Managerial, and Financial (TMF) capacity assessments along with the concurrent 360° Financial Assessment of the utility. Both consulting groups have been conducting interviews with key utility staff, and the findings will shape recommendations that will be included in the final TMF report anticipated in early 2024. The Department will also be moving forward in the selection of a consultant to conduct a comprehensive performance evaluation (CPE) of TWW's treatment plant which will highlight critical improvements needed within the treatment process to optimize the system. The Department will continue to monitor laboratory improvements to ensure data integrity, as well as work with TWW to ensure a successful flushing plan is established for the system.