NJDEP OVERSIGHT REPORT
TRENTON WATER WORKS
Period: September 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 September 2023.

Summary of September Findings and Immediate-Term Actions

In September, the Department began shifting from Phase 1 to Phase 2 of the Direct Oversight. While Phase 1 efforts focused on immediate term issues to improve and maintain daily operations to sustain water service, Phase 2 will focus on capacity development analyses and measures to support short-, medium-, and long-term Safe Drinking Water Act compliance. These analyses will serve as the basis to determine future action and capital investment in TWW. The TPO will continue to have routine on-the-ground oversight of TWW's operations and the shift to Phase 2 occurs. In addition, the TPO's expert on water utility maintenance practices returned to the treatment plant to assist the Maintenance Supervisor in creating a preventative and ongoing maintenance plan.

1) Treatment Plant Operation and Maintenance

Upon initial evaluation of TWW's maintenance program, the TPO maintenance expert immediately flagged concerns. These concerns included the general lack of knowledge on how to properly maintain the equipment in the treatment plant, and the failure to properly conduct all required maintenance. For example, the TPO expert discovered that TWW was using the wrong type of clamps on the chemical feed pumps, which contributed to some of the earlier chemical feed incidents. So far, this fix has prevented additional chemical feed interruptions or incidents. Further, it was noted that a treatment plant of this size should have adequately trained staff within the organization to conduct maintenance activities currently conducted by an outside contractor. The TPO expert will be focusing on evaluating the treatment plant's computerized maintenance management system (CMMS), eMaint. TWW's use of the eMaint system is important to sustain an effective maintenance program, but presently lacks the necessary critical information to be fully functional and meet the needs of the treatment plant.

Failing Raw Water Pumps

TWW operates three raw water pumps that pull raw, untreated water from the Delaware River at a rate to meet the demand of the water system. Based on TWW's current daily demand of 28-32 million gallons per day, TWW needs to operate only one raw water pump at a time, leaving an additional two for backup. TWW's licensed operator notified

the Department that the two backup raw water pumps required repairs which left only one pump operational. With only one raw water pump in working condition, the Department's concern is with the lack of redundancy. This is a similar concern to that of the lack of redundancy of the SuperPulsator units in the Spring of 2023. The Department will be monitoring this situation and will obtain weekly updates as TWW and their contractor work to ensure that there are two functioning raw water pumps.

2) Water System Assessments

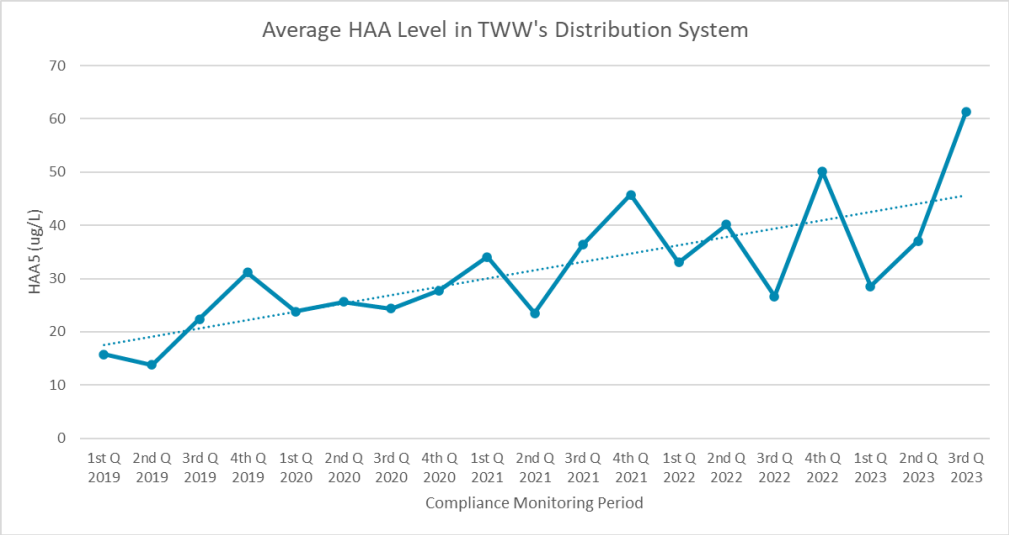
Kick-off meetings and utility tours were conducted with H2M and Black and Veatch, the consultants selected to conduct the Technical, Managerial, and Financial (TMF) assessment and the 360° financial assessment of the entire TWW utility, respectively. As part of the assessments, the consultant will be conducting a deep dive into the utility's infrastructure, staffing and management, capital improvement needs, and finances. The assessments are anticipated to be ongoing through the fall with reports expected in early 2024. Both assessments have the shared goal of ensuring the current and future viability of the water system.

3) Disinfection By-Products

TWW received an Operational Evaluation Level (OEL) exceedance for disinfection by-product (DBP) haloacetic acids (HAAs) during the third quarter monitoring period of 2023. An OEL is not a violation and does not trigger a public health risk; however, it identifies recent increases in DBP levels. The OEL exceedance is used as a trigger to have public water systems evaluate the underlying issue to prevent a maximum contaminant level violation.

TWW has a history of DBP violations and OELs stretching back to 2017. The Department has corresponded with TWW on numerous occasions on steps to address DBP levels and reduce them to protect public health. Since 2019, NJDEP has observed a concerning increasing trend in HAAs in TWW's distribution system. A graph of TWW's compliance data for HAAs from the first quarter of 2019 through the third quarter of 2023 is provided below. The low velocity flushing efforts to address *Legionella* in the distribution system have also created a need for TWW to increase chlorine residual levels which can cause DBP levels to increase.

The Department has reached out to the Environmental Protection Agency (EPA) for technical assistance to assist TWW with reducing DBP levels. EPA has been reviewing compliance and investigative DBP data to understand the trend of increasing HAAs and will be providing technical feedback to TWW.



4) Pennington Reservoir Replacement Plan

On September 7, 2023, the Department approved TWW's Phase 1 permit to construct two (2) 8-million-gallon concrete above ground storage tanks located next to the Pennington Reservoir. This permit is for "construction only," meaning that TWW has received approval to begin construction of the tanks, but once constructed the tanks cannot be brought online until TWW receives a permit to operate from the Department. The Pennington Reservoir Replacement Plan has multiple critical parts including additional storage tanks, central pumping station upgrades, water treatment plant upgrades, resiliency improvements, and distribution system upgrades to prepare TWW for the decommissioning of the 100+ year old reservoir.

5) Distribution System Activities

TWW initiated a cleaning and lining project of water mains in the Liberty Sykes neighborhood in Hamilton Twp. This project is part of the overall plan to improve water quality in the distribution system. The process involves scraping the interior of cast-iron water mains to remove tuberculation and then coating with a thin layer of cement to protect it from further corrosion. No water quality concerns, or service impacts are expected, however, TWW notified residents in the project area.

The low velocity flushing program continued throughout September as part of the *Legionella* mitigation plan. TWW continued sampling at locations throughout the distribution system to trend chlorine residual over time. Water temperature results began to decrease slightly over the month of September. By the end of September temperatures were similar to water temperatures sampled in early to mid-July. Due to decreasing water temperatures, chlorine residual in the system was at the highest levels since beginning the low velocity flushing program. These results will continue to be evaluated to determine when TWW can begin decreasing the chlorine residual leaving their two points of entry, while still maintaining the target chlorine residual of 1.0 mg/L in the distribution system.

Hydrant inspections continued in September. Over the last month TWW has inspected about 750 hydrants and are finishing all inspections in Trenton. TWW also began inspecting hydrants in Ewing Township.

NEXT STEPS

Over the next few months, the focus of TPO experts will be improving TWW maintenance program and working to train staff on all maintenance practices. The Department will continue to monitor progress on the raw water pumps and assist the consultants with the TMF and 360° evaluation on information gathering and other requests. As the temperatures begin to drop in the Fall months, the Department will begin the process of transitioning the low-velocity flushing program to TWW fully, and flushing will be dedicated to areas that are not meeting the desired chlorine residual following investigative sampling by the utility.