



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

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Water Resource Management
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NJDEP OVERSIGHT REPORT
TRENTON WATER WORKS
Period: October 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 October 2023.

Summary of October Findings and Immediate-Term Actions

October 2023 marks one-year since the execution of the UAO. As noted in the September 2023 Monthly Report, the Department has begun shifting from Phase 1 to Phase 2 of the Direct Oversight. The Department continues to have a weekly presence at TWW to observe treatment plant conditions and operations. The TPO also continues to have routine on-the-ground oversight of TWW's operations, while the Technical, Managerial, and Financial assessment and 360° financial evaluation are being conducted. In October the areas of focus included laboratory improvements, an evaluation of TWW's existing maintenance practices, and steps to develop a comprehensive flushing program for TWW.

1) Laboratory Improvements

Under the UAO, the TPO's experts are embedded in the system for the purposes of monitoring and assessing system operations and maintenance and making recommendations to bring TWW into full compliance with applicable laws. This included an assessment of laboratory processes and data integrity concerns that the Department had flagged in the September 2022 inspection report. The TPO water quality expert evaluated and made recommendations to the Department regarding TWW's certified laboratory (Figure 1) that included:

- Sampling plan updates
- Improvements in collection, recordkeeping, and analytical processes
- Evaluation of maintenance and calibration of in-plant monitors; and
- New or revised standard operating procedure (SOP)



Figure 1: TWW's certified laboratory located within the treatment plant.



Following this evaluation, the Department sent correspondence to TWW in October 2023 summarizing necessary actions required by the TWW laboratory to ensure data integrity, improve laboratory efficiency and productivity, and maintain compliance with all rules and regulations. This evaluation is ongoing as improvements are implemented.

2) Treatment Plant Operation and Maintenance

The TPO expert on maintenance continued to assess TWW's current practices and worked with the Maintenance Supervisor to identify critical components of a maintenance plan that are needed at the treatment plant. TWW's licensed operator proactively scheduled a training session for all maintenance staff at the facility on pumps. The pump manufacturer walked the staff through pump operation and maintenance. More hands-on training, such as this one, will be necessary to improve maintenance practices.

a) Failing Raw Water Pumps

In September, the Department had expressed concerns that TWW had only one operational raw water pump at the treatment plant without a backup in place for an emergency. TWW has three raw water pumps that pull raw, untreated water from the Delaware River 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. To ensure that at least one of the backup pumps was available on standby for an emergency, TWW had an outside contractor identify necessary repairs to the offline pumps.

b) Corroded Piping

During weekly site visits the TPO and the Department flagged the condition of a 6-inch utility water line, seen in Figure 2. The pipe is highly corroded on the exterior and located in proximity to the electrical room. Based on these observations, the Department required TWW to conduct testing on the pipe's thickness to ensure it is not at risk of failing. Aging infrastructure, especially piping, needs to be addressed and remediated. Following the evaluation by a certified contractor, TWW will be required to take the necessary actions to address the condition of the pipe based on the manufacturer's specifications.



Figure 2: Severely corroded 6-inch utility water line located within the treatment plant.



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3) Water System Assessments

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 are working with the Department to obtain documents needed for the evaluations. In addition, one component of the TMF evaluation is to assess if all TWW personnel involved with the operation and maintenance of the system are qualified to perform the level of assigned work, and possess the necessary technical knowledge, skill, training, and familiarity with the system. As a result, interviews have been scheduled with key utility staff. All findings and recommendations will be included in the final TMF report anticipated in early 2024.

4) Distribution System Activities

The low-velocity flushing program was implemented during the summer months as part of TWW's *Legionella* mitigation efforts. As cooler weather approaches and temperatures begin to drop, continuous low velocity flushing will pause at the end of October so that water is not freezing on roads. Sampling for chlorine residual will still occur throughout the system to identify areas of low chlorine residuals. Based on sampling results, specific locations will undergo temporary flushing if air temperatures are above freezing, and chlorine residual is below the 1.0 mg/L target.

While the low velocity flushing program will continue in this modified capacity through the fall and winter months, the Department and TWW will also be moving forward on establishing a comprehensive flushing plan that includes steps to address sediment and biofilm in the distribution system. Since TWW has maintained high chlorine levels within the distribution system, the Department is in support of TWW implementing a unidirectional flushing (UDF) program in 2024. During a UDF program, water mains are flushed sequentially from areas closest to the source water to the outer edges of the water system. Specific valves are closed during UDF operations to isolate certain mains and direct the movement of water within the piping. The Department is consulting with the TPO experts and federal counterparts on the development of TWW's plan.

NEXT STEPS

As noted above, October 2023 marks one year since the initiation of the UAO. The Department will be evaluating the next steps for TWW in anticipation of the completion of the TMF Evaluation and 360° Financial Assessment that are due in early 2024. The TPO will continue to be engaged in as the Department outlines additional areas of focus for the next few months. These areas of focus are likely to include continued evaluation of laboratory practices, expanded training programs, a comprehensive distribution system flushing program, and improvements to the maintenance practices for TWW.