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

Summary of June 2023 Findings and Immediate-Term Actions

While TWW anticipated the completion of the SuperPulsator rehabilitation to conclude in June, unforeseen issues with a key component of the unit pushed back this timeline. In June, both the Department and the Third-Party Oversight contractor primarily focused on addressing the causes of multiple pump failures that occurred along with electrical outages. These outages forced TWW to manually restart pumps, and thus the production of water ceased during that time. In addition, the Department continues to monitor all *Legionella* mitigation efforts in the distribution system, along with other scheduled distribution system maintenance activities. In June, the focus at TWW was on the following areas: 1) Treatment Plant Operation and Maintenance and 2) Distribution System Activities. A summary of findings and steps in each of these areas follows below.

1) Treatment Plant Operation and Maintenance

The Department has continued to document concerns with staffing at the treatment plant which include:

- Inadequate training and/or lack of experienced operators to promptly recognize a problem and take immediate action to correct it (e.g., a chemical pump that is not feeding, spikes in parameters and their cause, etc.)
- Lack of an incident reporting system and protocol to determine the root cause of issues, followed by actionable steps (e.g., training) to avoid similar incidents in the future;
- Chronic repeat of similar issues and events, e.g. chemical feed pump failures;
- Lack of redundancy of equipment to effect timely switchover from a nonfunctioning unit/equipment; and
- Insufficient storage and inventory control of chemicals or spare parts.

During the month of June 2023, TWW had chemical pump failures that subsequently caused treatment issues. It should be noted that not all the incidents resulted in an exceedance of regulatory thresholds; however, they illustrate that immediate actions need to be taken at the

filtration plant to address ongoing operational failures and ensure treatment is maintained effectively.

Each chemical added during the water treatment process serves a specific purpose. An impact to the chemical feeds can lead to a cascading impact on water treatment and quality. The Department has observed multiple incidents where the staff at TWW do not identify problems immediately. This occurs for multiple reasons including failure to routinely walk around the facility during work shifts, a lack of knowledge or understanding of the treatment processes, or insufficient SCADA alarm settings to alert the operators of a problem. To address these concerns, TWW implemented an hourly inspection of all chemical feed pumps and feed lines. These inspections ensure problems are noticed and addressed immediately, and that the equipment is functioning properly to provide a consistent and accurate chemical dosage. In addition, TWW is working with their electrical consultant to determine the root cause of alarm failures during these incidents and will be requesting a quote from the pump manufacturer to provide training to staff detailing proper maintenance of equipment.

Another focus for June 2023, was addressing the ongoing electrical issues at the Treatment Plant. For years TWW has experienced electrical "brown outs" that are so brief that they do not trigger the use of the emergency generator but can cause pumps to shut down. These pumps require a manual restart which does not occur immediately and can trigger operational challenges. In April 2023, TWW met with PSE&G to discuss the events and discuss potential solutions. The Department required TWW to evaluate the recommendations of the August 2022 Electrical Power Reliability Study conducted by consultant PS&S and to continue to work with power supplier PSE&G to resolve the issues. Once the final report is provided by PS&S, TWW will be addressing the electrical power issues as a key component of the Pennington Reservoir Replacement Plan.

2) Distribution System Activities

The low-velocity flushing program continued throughout June as part of the overall *Legionella* mitigation plan for the TWW system. During this month, the Department began to transition the responsibilities of the program to TWW staff. Staff were responsible for flushing, monitoring chlorine residuals, choosing flushing locations based on data trends, and maintaining chlorine residuals in designated sectors of the system. The Department continued to meet with TWW twice daily over the month to discuss sampling results and sample site selection within the system. As temperatures increased throughout the month, chlorine residuals decreased at distal ends of the distribution system. Based on these results, DEP requested that TWW increase the chlorine dosage at the points of entry leaving the treatment plant and Central Pump Station to maintain the target chlorine residual of 1.0 mg/L in the distribution system. After the increase of chlorine dosage, the chlorine residual levels throughout the system improved.

TWW also began annual hydrant inspections in June 2023. These required inspections ensure the fire hydrants are fully operable and have the required pressure needed for fire suppression. The Department worked closely with TWW to coordinate the inspections, ensure proper communication to TWW customers, and make sure that there was minimal impact to water quality. The hydrant inspections have the potential to stir up sediment in the distribution system pipes that could enter customers' homes. The communications around these activities was

conducted so customers knew to flush their faucets and take all proper precautions to prevent *Legionella* growth within their premise plumbing. These inspections will continue until the end of 2023.

NEXT STEPS

Training will be a focus in the coming months at TWW as the Department's Third-Party Oversight contractor continues to make recommendations to improve operations and maintenance at the treatment plant. The objective is to work with TWW to break cyclical patterns that have been observed at the utility, and equip staff with new strategies, procedures, and training to promote sustained compliance with the Safe Drinking Water Act.