



INSPECTION REPORT

OF THE

**ORANGEBURG DEPARTMENT OF PUBLIC UTILITIES
DRINKING WATER TREATMENT PLANT
ORANGEBURG, SOUTH CAROLINA**

By

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ENFORCEMENT AND COMPLIANCE ASSURANCE DIVISION
WATER ENFORCEMENT BRANCH
DRINKING WATER ENFORCEMENT SECTION**

March 14-15, 2022

Introduction

A Drinking Water inspection to evaluate compliance with the Safe Drinking Water Act (SDWA) was performed at the Orangeburg Department of Public Utilities (DPU) Public Water System (PWS), PWS ID: SC381001 in Orangeburg, South Carolina on March 14 and 15, 2022. The inspection was conducted under the authority of Section 1445(b)(1) of the Safe Drinking Water Act (SDWA).

An entrance briefing was held on March 14, 2022, where U.S. Environmental Protection Agency (EPA) inspectors presented their credentials and discussed the purpose of the onsite inspection with system staff. Personnel from South Carolina Department of Health and Environmental Control (DHEC) were also present at the time of the inspection. Following the briefing; EPA, DHEC, and Orangeburg PWS staff visited the intake locations, conducted a walkthrough of the treatment facilities and onsite laboratory, and performed a portion of the records review. On March 15, 2022, the group visited finished water storage tanks within the distribution system and completed the records review. Prior to departing, an exit briefing was conducted, and preliminary observations were presented to the system staff.

Purpose

In FY20, the EPA began a National Compliance Initiative (NCI) with the goal of reducing noncompliance with drinking water standards at community water systems. One of the goals of the NCI is to support the Agency's Strategic Plan, which calls for a 25 percent reduction in the number of community water systems that are out of compliance with health-based standards by the end of FY22.

EPA has also been directed to take immediate and affirmative steps to incorporate environmental justice considerations into their work. As such, EPA has taken steps to recognize and prioritize systems that serve previously underserved populations. Orangeburg DPU was identified as a candidate for inspection based on this directive.

Participants

Orangeburg Public Water System:

Eric Odom- Director of Water Division
Hank Rutland- Plant Superintendent
Gene Ulmer- Superintendent of Water Distribution
Lisa Etheridge- Assistant Plant Superintendent of Water Treatment

South Carolina Department of Health and Environmental Control:

Duncan Wright- Environmental Engineering Associate

EPA:

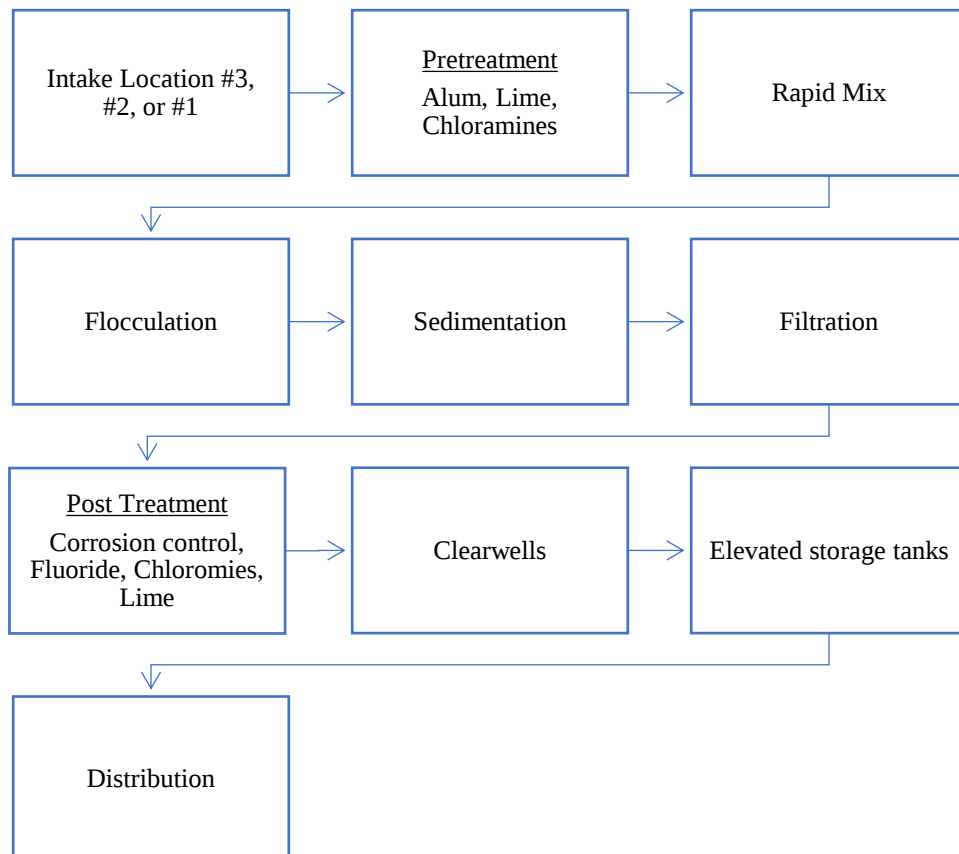
Charlotte Bunch – Enforcement Officer
Whitney Lehrer - Enforcement Officer
Brianna LaPapa – Inspector in Training

Facility Description

The Orangeburg PWS (System) has a surface water treatment plant named John F. Pearson. The water treatment plant (WTP) is located at 395 Seaboard Street, Orangeburg, South Carolina, 29115. The WTP has a permitted design capacity of 30 million gallons per day (MGD), but currently averages about 8 MGD. The system serves water to approximately 18,237 residential service taps and 2,300 commercial and industrial taps. Orangeburg PWS is staffed 24 hours a day year-round and operators are required to have a C license or above to operate the plant independently. Most components of the System can be monitored and controlled via SCADA.

There are three main raw water intakes that are fed by the North Fork Edisto River. Location #3 is the primary pumping station with three 8 MGD and one 12 MGD raw water pumps. The water intake is located at one depth in the river. Due to the intake design being located on a peninsula, less debris collects on the intake screens; however, debris removal is done manually as needed. Intake location #2 and #1 are put into service as needed. Location #2 has an 8.5 MGD pump that is currently out of service for repair. Location #1 has an additional three pumps of capacities: 2, 4, and 6 MGD.

The flow of water at Orangeburg PWS is as follows:



Water flows into the WTP through two 30-inch lines and is pretreated with alum as a primary coagulant, lime for pH adjustment, and chlorine gas with ammonia for disinfection. Water flows

through a venturi-flow tube to one of the two rapid-mix chambers where it is mixed for approximately 30 seconds to two minutes. Hourly samples are drawn from the rapid mix basins and pH is monitored continuously. The water flows into one of 13 two-stage flocculators and continues to the sedimentation basins. There are 16 filters consisting of 20 inches of anthracite, 10 inches of sand and 12 inches of gravel. Each filter's run time is estimated between 150-200 hours.

Following filtration, water is treated again with liquid lime, chloramines, ortho-poly 50/50 blend for corrosion control, and fluoride. All chemical storage was equipped with secondary containment, ventilation, and safety equipment. Prior to distribution, finished water is held on site in two 4 MG clearwells. Additionally, Orangeburg PWS has aquifer storage and recovery wells (ASR) currently storing 300 MG finished water with a 100 MG buffer. The ASR water is stored for emergency purposes; however, in the future, the System hopes to blend the treated ASR water with raw water to assist in disinfection byproduct (DBP) control. Orangeburg's distribution system consists of nine elevated storage tanks on three pressure zones. The most recent tank inspections were completed in 2013 and 2017. Inspections that were delayed in 2020 due to the COVID-19 pandemic are being scheduled for this year. The PWS is also including the cost of repainting the tanks within this year's budget. Additionally, EPA inspectors visited two of the three booster stations. All tanks and booster stations were fenced and secured.

EPA inspectors visited the following sections of the distribution system:

- Dantzler storage tank
- Seawright storage tank
- Whaley storage tank
- Industrial Park storage tank
- Cameron storage tank
- Saddle Club storage tank
- St. Matthews storage tank
- Limestone storage tank
- Bolentown Storage tank
- Ellis Ave. booster station
- North Rd. booster station

Orangeburg PWS operates an onsite laboratory. State-certified staff measure pH, alkalinity, hardness turbidity, temperature, color, fluoride, phosphate, bacteriological, free ammonia and monochloramines parameters. Bacteriological samples are run using Colilert. Total Organic Carbon is measured onsite, as well as sent to Rogers and Callcott Laboratory for compliance monitoring.

Personnel

Seven Grade A, two Grade B, two Grade C, and one Grade D Certified Operators operate the PWS. Additionally, there are seven operators in training. Operators are responsible to maintain certification and keep all records of training.

Documentation reviewed:

Prior to the inspection, EPA inspectors reviewed the following documentation:

- Last two sanitary surveys performed by DHEC
- Violation history
- Enforcement Targeting Tool Score history

EPA inspectors reviewed the following documentation on site:

- System's distribution maintenance
 - o System flushing plan
 - o Hydrant maintenance
 - o Work orders
 - o Leak Detection
 - o Cross connection plan
 - o Field map
- Customer complaints
- Water audit
- 450 kW generator maintenance
- Calibration records of benchtop turbidimeter
- MORs
 - o January 2022
 - o March 2021
 - o February 2022
- 2020 Lead and Copper Rule results & customer letter
- Feb 2022 Total Organic Compound results
- DBP monitoring results for all quarters in 2021
- Bacteriological sampling plan
- DBP sampling plan

Comments and Observations

Comments

Facility staff was welcoming and helpful during the inspection. Good communication was observed among all participants. The staff was accommodating and efficient at touring EPA inspectors around the WTPs and the distribution system. System staff has comprehensive plans for future development of the treatment plant and distribution system.

Observations

1. **Observation:** At the time of inspection, EPA inspectors observed outdated maintenance tags left on chemical feed equipment.

Comments: It is recommended to remove the outdated tags to avoid confusion and ensure maintenance is up to date. PWS staff addressed this observation during the inspection and the outdated tags were removed.

2. **Observation:** At the time of inspection, EPA inspectors observed tree limbs crossing over the vertical plane of the fence and approaching the tank structure at the Cameron storage tank location.

Comments: It is recommended that the limbs be trimmed to preserve tank security and integrity of the structure.

Findings:

1. **Finding:** At the time of inspection, EPA inspectors observed elevated storage tanks with inadequate overflow protection: screen larger than 4 mesh or no flapper present at the following locations: St. Matthews, Limestone, and Bolentown.

South Carolina Regulation 61-58.4 C. (2) (f) Overflow - "A flap valve or number four (4) mesh non-corrodible screen shall be provided on the outlet."

Comments: Tank overflows must have appropriately attached screens to prevent contamination of the finished water. Insects are vectors for diseases that can carry protozoal bacterial and viral pathogens. Appropriate mesh screen must be present on overflows at the above mentioned locations to prevent insects and other contamination from reaching the finished water.

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