



INSPECTION REPORT
OF THE
**TOWN OF SOUTHERN PINES
DRINKING WATER TREATMENT PLANT
PINEBLUFF, NORTH CAROLINA**

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

October 19, 2021

Introduction

A Drinking Water inspection focusing on compliance with the Lead and Copper Rule (LCR) was performed at the Water Treatment Plant (WTP) of the Town of Southern Pines, Public Water System (PWS) ID Number: NC0363010 in Pinebluff, North Carolina on October 19, 2021. The inspection was conducted under the authority of Section 1445(b)(1) of the Safe Drinking Water Act (SDWA).

An entrance briefing was held where U.S. Environmental Protection Agency (EPA) inspectors presented their credentials and discussed the purpose of the onsite inspection. Additionally, the inspection included a visit to the intake area, a walk-through of the facility and on-site laboratory, and a visit to various sections of the distribution system. Prior to departing, an exit briefing was conducted to discuss observations, findings and recommendations.

Prior to the on-site visit, EPA inspectors performed a document review of the system's response to an information request regarding LCR sampling plans and results.

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 this 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 FY 2022.

As part of the NCI, our Region has worked with each State Primacy Agency to identify, prioritize, and address a subset of community water systems with known, ongoing noncompliance with the federal SDWA.

The Town of Southern Pines was targeted for a drinking water inspection as it had a 90th percentile lead action level exceedance (ALE) in the June-September 2018 monitoring period. As a result of this ALE the system performed a CCT Evaluation and investigated the probable cause for the ALE. It is likely that the ALE was due to improper customer collection methods, and to assist customers the system provided educational sessions on proper sampling technique.

Participants

Town of Southern Pines:

Ron Istre – Utilities Superintendent

David McKew – Plant Manager/ORC, Suez

NCDEQ:

Heidi Cox – Regional Engineering Supervisor

Tommy Overby – Environmental Specialist II

EPA:

Charlotte Bunch – Enforcement Officer

Rebecca Quiñones – Senior Enforcement Officer

Facility Description

Southern Pines WTP is located at 261 Thunder Road, Pinebluff, North Carolina, 28373. The surface water system draws source water from Drowning Creek via a T-shaped screened intake to fill two reservoirs. The system serves a population of 23,070 with 9,083 service connections. The WTP is permitted to distribute eight million gallons (8MGD) of water a day with a design capacity of 11MGD. However, current average demand is 3.5MGD. Water treatment runs twenty-four hours a day seven days a week and is operated by Suez, a contractor. Oversight of the operations is performed by the Town of Southern Pines.

At the intake, there is a T-shape screen that water passes through to feed a wet well. An air scour system is in place in the creek to clean off the screens. Two raw water pumps transfer water to the reservoirs via ten-inch pipes.

Original system design fed water directly to the on-site reservoir. After a drought in the early 2000s, the system built an additional larger reservoir to increase available water supply in the event of future droughts. Currently, there are two reservoirs that combine to hold a 3-4 month supply of raw water. From intake the water flows to the larger 140 million gallon (140MG) reservoir, then to a smaller 20MG reservoir. Each reservoir is lined with a poly-liner, as the sand underneath is too porous to hold the water. The raw water color can range from 50-100 color units and the turbidity typically measures three or less NTU. The WTP adds turbidity to remove color.

The flow of water at Southern Pines WTP is as follows:

Intake → Reservoir (140MG) → Reservoir (20MG) → Mixing → Super Pulsator Clarifiers → Filtration → Storage → Distribution system

Southern Pines WTP uses chemical addition, flocculation, sedimentation, and filtration to treat the water.

Treatment includes the addition of sodium bicarbonate, alum, lime, and a polymer before the super pulsators. Alum is added at a range of 24-25mg/L to adjust pH before coagulation. The flow is split between two super pulsators. Blowers in the pulsator create a vacuum that results in mixing at the bottom of the basin when water is released.

The pulsators feed two basins: East and West basin and New basin. The East and West basin is built so that each train can be isolated within the basin. Flocculation occurs along settling plates and water gathers to exit the basin through a tube-shaped trough. The basins are drained for cleaning twice a year and the center trough of the East and West basin is cleaned monthly. The tube-shaped trough is cleaned weekly with a scrubbing brush. Removal of solids is on a timed drain. Solids are sent to two round clarifiers that send waste to drying beds located on-site.

From the flocculation process, chlorine is added, and water is gravity fed to a circular trough that pushes it into the green leaf filters. The dual media filters are comprised of sand and anthracite. Filter media has been regenerated within the year. Backwash occurs automatically and is

determined by water height in the filters, but at a maximum of every 96 hours. Typically, backwash occurs every 70 hours.

Post-filtration the finished water is treated with chlorine, ammonia, fluoride, lime, and zinc orthophosphate.

Southern Pines has one clearwell with total storage capacity of 2MG. The clearwell is on a three-year inspection schedule and is cleaned by divers.

The WTP has an on-site laboratory that conducts water quality parameters and daily samples. They are certified for Bacteriological sampling by the Colilert 24 method. All compliance samples go to Environmental Laboratory, a private laboratory.

Southern Pines WTP has a generator that turns on automatically in the event of power loss and will run the entire facility. There is a routine maintenance contract in place for the generators, which includes major maintenance of fluid replacement and load testing, and minor maintenance midway in the year. Biweekly testing of the generator is performed by the operator. There are plans to add a generator at the larger 140MG reservoir.

There is one chemical room that feeds the WTP. Chemicals were stored with secondary containment in the event of a spill. Plant upgrades include new piping and day tanks for the chemical room. The lime feed is located outside. pH is continuously monitored to check the effectiveness of the lime feed.

The plant is not currently connected to a SCADA system.

Three high service pumps (HSPs) send water to the distribution system. The distribution system extends roughly 260 miles. There are four storage tanks: two elevated, one standpipe, and one ground storage. Total distribution storage capacity is 5.5MG, with an additional 2MG of storage in the clearwell. Tanks are on a three-year inspection schedule. Grounds around the tanks are on a 45-day landscaping schedule.

This is a floating system, with all overflows at the same elevation of 681ft. System pressure is 40-50 psi. Tank levels can be monitored at the WTP via radio telemetry.

EPA inspectors visited the following sections of the Distribution System;

- US-1 Tank and booster station
- Henley Tank
- Eastman Tank
- Weymouth Tank and booster station

EPA inspectors observed vegetation growth behind the Weymouth Tank. Since the inspection, the system has provided pictures that the vegetation has been cut back away from the tank.

Southern Pines works with the fire department to coordinate annual flushing of the system. Additionally, the system actively tracks major events and un-metered usage such as main breaks and fire flow testing. Current water loss is six to seven percent.

The cross-connection program was codified in 2015 and has developed over the years. Town owned connections are tracked internally and there are another 2,200 privately owned connections in the program. There is a timeline of events that is followed if any backflow issues arise that constitute a violation. New construction must comply with backflow requirements to receive a certificate of occupancy.

Customer complaints are tracked through the Mobile311 platform. When a complaint is added to the system, it creates a work order where staff can add notes and GIS data. The system allows Southern Pines to track historical data of complaints for repeat issues.

Southern Pines WTP has plans for several capital improvements. The system is planning to upgrade piping and day tanks in the chemical room, switch to aqueous ammonia and chlorine, and add a raw water meter to track total water loss.

Personnel

Four Grade A and two Grade C Certified Water Operators operate the WTP. Operators are all maintaining current certifications.

Documentation reviewed

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

- Last two sanitary surveys performed by NCDEQ
- Violation history
- System response to 2018 ALE
- Corrosion Control Treatment Plan
- Water Quality Parameter Data
- Lead and Copper Sampling
 - o Sampling Site Plan
 - o Lead and Copper Sample Results (2018-2020)
 - o Customer Collection Forms (2018-2020)
- Consumer Confident Reports and Certification
- Consumer Notices
- Complaints logs
- Generator tests
- Operator Certifications

Comments and Observations

Comments

Facility staff was welcoming and helpful during the inspection. Good communication was observed among all participants. Staff is well trained on WTP operations.

Findings:

Storage Tanks

1. **Finding:** EPA inspectors observed overgrown vegetation behind the Weymouth tank.
Comments: Tanks must be kept free of vegetation to avoid creating a pathway for contaminants into the stored finished water. System has addressed this finding.

2. **Finding:** It was observed that some customer collection forms were not filled out completely. Some forms were lacking customer signatures, and some were lacking time of collection of the sample.
Comments: Without sample collection time, it is not possible to determine if the customer collected the sample appropriately. Also, the holding time of a sample cannot be determined. Since the laboratory used by the WTP does not have a sample rejection policy, the WTP staff must ensure that the customer collection forms are fully and accurately completed and that the samples are suitable for analysis. If the information is missing on the collection forms, the WTP staff must communicate with the customer to document the information. If the information cannot be collected, the sample must be rejected. Results from samples missing information cannot be reported.

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