



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES

Columbia Environmental Field Office
1421 Hampshire Pike
Columbia, TN 38401
1-888-891-8332

October 25, 2022

The Honorable Chris Bevis
Mayor of Waynesboro
P.O. Box 471
Waynesboro, TN 38485

Certified Mail: 9489 0090 0027 6428 5243 84
Return Receipt Requested

Re: **Sanitary Survey & Notice of Violation Community Water System**
Waynesboro Water System
PWSID #0000736
Wayne County

Dear Mayor Bevis:

On September 13 and 14, 2022, Jamie Ray from the Division of Water Resources (DWR) visited the Waynesboro Water System and performed a Sanitary Survey. The survey consisted of a records review to document the operational performance of the system and an on-site inspection of the water treatment and distribution system. The survey covered the time period from October 2020 – August 2022. The Division would like to thank the Waynesboro Water System personnel for their assistance and timely responses to Division requests during the survey. In accordance with the Sanitary Survey Manual the Waynesboro Water System earned 578 points out of a possible 599 points for a numerical score of ninety-six percent (**96%**). This rating retains the Waynesboro Water System in the State's "**Approved**" category.

The Division's Sanitary Survey Manual requires critical items, significant deficiencies and redundant deficiencies identified in the sanitary survey guidance material to be addressed with the initiation of enforcement action. The issues identified in item number 5, Section 8, Subsection A. Notification, Inspection, Disinfection and Sample Collection of New and Existing Facilities are redundant items.

Due to the recurring issues, a Compliance Review Meeting has been scheduled for 10:00 AM, Tuesday, November 29, 2022. The purpose of the meeting is to discuss the deficiencies noted during the sanitary survey and the corrective action steps needed to return the system to compliance.

The meeting will be held via conference call or virtual platform. An invitation with the virtual meeting link or call-in number will be sent via email. You, in your capacity as Mayor, or your representative with the authority to enter into a binding agreement, should plan to attend this meeting. The certified distribution operator for the system and persons who oversee daily operations and management of the system should also plan to attend the meeting. If for some reason you are unable to attend the scheduled Compliance Review Meeting, please contact this office so a mutually agreeable date/time may be arranged.

The following deficiencies, comments, and/or recommendations, outlined as in the attached Sanitary Survey Rating Form, were identified during the survey and should be addressed as applicable:

1. Section 1: System Management and Operation

• Subsection E. Public Notification

The system received a Compliance Status Letter dated April 15, 2021, for failure to perform three Public Notices during the 2016-2020 period.

- On 8/5/2015, the system was notified of a monitoring violation for THM and HAA samples. Based on the violation's Tier Level (Tier 3), Public Notice was required to be performed before 8/5/2016. The Public Notice was not issued until 5/15/2017.
- On 12/4/2015, the system was notified of a record keeping violation for Individual Filter Recording under the Surface Water Treatment Rule (SWTR). Based on the violation's Tier Level (Tier 3), Public Notice was required to be performed before 12/4/2016. Public Notice was issued 6 months late on 5/15/2017.
- On 11/15/2018, the system was notified of a violation for the Lead Consumer Notice. Based on the violation's Tier Level (Tier 3), Public Notice was not performed before the 11/15/2019 deadline.

On March 31, 2021, the system issued a Boil Water Advisory following a flood event. The Green River overflowed and entered the pipe gallery and clearwell. This caused the turbidity to spike. The high service pumps were shut down, and a valve was closed isolating the distribution system. The clearwell was emptied through a hydrant. The system took appropriate action to notify the effected customers of the hazard and how to protect themselves. The Division was made aware of the issue, and a Public Notice was issued for this event on 3/31/2021.

The system received a Compliance Status Letter dated June 7, 2021, for chlorine residual monitoring. Additional information regarding this issue is discussed in

item 3, Section 5, Subsection F. of this letter. The required Public Notice was issued on June 11, 2021

- **Subsection G. Enforcement**

On October 5, 2021, the system was issued a Director's Order for failure to provide public notice following disinfection byproducts violation, failure to submit lead and copper results to Division and distribute to customers, failure to maintain chlorine level at Geissler Spring Well plant, failure to maintain continuous turbidity monitoring and failure to timely submit CCR. The system is reminded that failure to comply with the requirements of the Order could result in additional enforcement action.

- **Subsection H. Emergency Operations Plan**

Division Rule 0400-45-01-.17(7) requires all community water systems to prepare and maintain an Emergency Operations Plan (EOP). Systems shall include a Drought Management Plan (DMP) as a part of the EOP. The EOP, including the drought management portion, is required to be reviewed and updated every three (3) years. The DMP may be submitted as a section within the EOP, an appendix to the EOP, or as a standalone document with a reference in the EOP. Copies of the most recent version of the plans should be available at the water plant, distribution office, and any other location where personnel have reason to access the plan. The system should submit an updated Drought Management Plan to the Columbia Field Office by November 15, 2022.

2. Section 4: Treatment

- **Subsection C. Mixing**

At present the chemical mixing process relies on the turbulence of the water to provide the mixing energy needed for the coagulants to work properly. This design may be ineffective during unusual raw water conditions or when operating under low flow conditions. It is recommended that a mechanical rapid mix be added at the head of the large basin which could provide the additional mixing energy needed in order to effectively treat the water.

- **Subsection D. Flocculation**

Division Rule 0400-45-01-.17(17) requires all buildings and equipment used in and for the production and distribution of water to be well maintained and be reliable and fit for the purpose for which they are used. During the survey, it was observed that one of the flocculator motors was not working. While on site, the operator stated he had contacted someone to complete the repair.

- **Subsection E. Sedimentation**

Division Rule 0400-45-01-.17(17) requires all buildings and equipment used in and for the production and distribution of water to be well maintained and be reliable and fit for the purpose for which they are used. Excess sludge has accumulated along the entire length of the big basin. The sludge buildup greatly reduces the basin's effective volume and settling capacity. Staff stated the basin has not been cleaned out in approximately eight months but is planned to be cleaned out starting September 26, 2022.

- **Subsection F. Filtration/Alternative Technology**

The filters appear to have some media loss. This observation was made during the 2020 sanitary survey. Division Rule 0400-45-01-.17(12) requires all public water systems to utilize a filtration system that meets specific design criteria. Due to the redundant nature of this observation, the Division is requesting that a filter profile study of the media be performed, and the results submitted for review by January 1, 2023.

- **Subsection H. Turbidimeters/Calibration**

Division Rule 0400-45-01-.17(40) requires turbidimeters to be calibrated at least every three months with primary standards. The benchtop turbidimeters at both plants were calibrated during 10/2020 and not calibrated again until 9/2021. They were then calibrated during 12/2021. The Green River Plant turbidimeter was not calibrated again until 6/2022.

The primary standard used for turbidimeter calibration/verification at the Geissler Spring Plant expired during August 2022. The system stated a new set of standards was ordered.

- **Subsection O. Sludge Handling/Backwash Handling**

As mentioned previously in the 2018 and 2020 sanitary surveys, the sludge handling capabilities of the plant are inadequate. The water is drained from the lagoon to a sewer manhole where it is pumped through a force main to the city sewer. The pump and force main have limited capacity to move the volume of water produced. Plant operators do not have the ability to take a basin out of service for maintenance when needed because the lagoon must first be drained to have capacity for the wastewater and sludge. The corrective action plan submitted by the city on September 19, 2019, stated the basins (lagoons) will be dredged every three (3) years by a third party. The lagoon should be scheduled for dredging by a third party this year. The system needs to investigate ways to manage the water and sludge in the lagoon so that operators may perform maintenance of the basins

as needed. It is recommended that the lagoon be drained immediately after the basins are cleaned.

3. Section 5. Monitoring, Data Verification and Compliance

- **Subsection L. Disinfection/Disinfection By-Products and Precursors Compliance**

Division Rule 0400-45-01-.31(3)(a) states the disinfectant residual entering the distribution system cannot be less than 0.2 mg/L for more than 4 hours. During April 2021, the system reported the chlorine residual was below 0.2 mg/L for more than four hours at the Geissler Spring Plant. The system received a Compliance Status Letter dated June 7, 2021, from the Nashville Central Office for this occurrence. The required Public Notice was issued on June 11, 2021.

The C117 located at the Geissler Spring Plant loses prime while the plant is shut down. This causes false low chlorine residual readings at times. The system can still monitor the correct chlorine residual through its Mission program. The system has a new C117 analyzer ordered.

4. Section 6: Finished Water Storage

- **Subsection A. Adequate Storage**

Division Rule 0400-45-01-.17(14) states all community water systems serving 50 connections or more are required to have 24 hours of distribution storage based on average daily demand for the past twelve months. Distribution storage must be located so that the instantaneous demand can be met in all areas at any time. The system's storage tank capacity has reached approximately 93% of the daily demand. The system has developed plans and applied for a grant for additional storage capacity.

- **Subsection B. Inspection and Maintenance of Reservoirs, Tanks and Clearwell**

Division Rule 0400-45-01-.17(33) requires all public water systems to properly maintain their distribution system finished water storage tanks. During the survey, each water tank was inspected from ground level and the most recent professional inspection reports were reviewed. The Hospital Hill Tank exterior paint is beginning to chalk. The system should monitor the condition of the paint and plan to have maintenance performed to prevent further deterioration of the tank.

The Green River Plant clearwell overflow screen needs to be replaced. Please submit pictures of the completed repair to the Columbia Environmental Field Office by November 15, 2022.

5. Section 8: Distribution System and Cross Connection Controls

- **Subsection A. Notification, Inspection, Disinfection, and Sample Collecting of New and Existing Facilities**

Division Rule 0400-45-01-.17(8)(b) requires two sets of bacteriological samples to be collected 24 hours apart or that a single set of samples be collected 48 hours or longer after flushing the highly chlorinated water from new lines. In either case, samples are to be collected at 2,500-foot intervals with samples near the beginning point and at the ending point. The 2019 CDBG Project (Hwy 64 East) only had one set of bacteriological samples collected the same day as final flushing was completed. The project was flushed on 2/3 and 2/4/2022, and bacteriological samples were collected 2/4/2022. Improper sample collection on new lines is a redundant item also identified in the 2020 sanitary survey.

Division Rule 0400-45-01-.17(8)(c) requires finished water storage facilities, water treatment facilities, and wells that have been compromised and potential contamination is introduced during inspection or repair shall be disinfected, flushed, and sampled as specified by AWWA methods. Bacteriological samples shall be collected from a location representing the water contained in the compromised facility. The repaired facility may be returned to service prior to obtaining bacteriological results. The Green River Plant and Geissler Spring Plant clearwells were professionally inspected using a ROV on 5/25/2022. The bacteriological samples were not taken until the following day. Improper sample collection on inspected tanks/reservoirs after entry is a redundant item also identified in the 2020 sanitary survey.

- **Subsection B. Flushing Program/Blow offs**

Division Rule 0400-45-01-.17(10) states flushing records must include date, time, location, persons responsible and the length of flushing. The free chlorine residual must be measured and recorded on the end of dead-end mains after being flushed. Flushing is used to ensure drinking water standards are met, sediment and air removal, and the free chlorine residual is maintained. In several instances, the beginning and ending chlorine residual was documented to be the same value. The lines need to be flushed until the ending chlorine residual is higher than the beginning chlorine residual and is no less than 0.2 mg/L. Documentation of the beginning and ending chlorine residuals can be used as a means to monitor water quality and effectiveness of flushing.

General Observations, Comments, and other Recommendations

1. In accordance with Rule 0400-45-01-.14(1)(a), State approval for the analysis of turbidity, chlorine, pH, alkalinity, and temperature is granted to Mr. Timothy Wallace. This approval is effective until the next sanitary survey and is contingent upon the use of approved methodologies and proper operation of the analysis equipment.
2. The Waynesboro Water System has 1,798 connections serving an estimated population of 4,468. The number of required bacteriological samples taken from the distribution system remains five (5) per month.
3. The updated Monitoring Program for the system in accordance with Rule 0400-45-01-.17(3) is enclosed.

Again, I would like to thank the personnel of the Waynesboro Water System for their assistance during the survey. If you have questions or need additional assistance, please contact Jamie Ray at (931) 250-1352 or by email at jamie.ray@tn.gov or me at (931) 444-9187 or sherry.glass@tn.gov.

Sincerely,



Sherry R. Glass, Environmental Manager
Division of Water Resources
Columbia Environmental Field Office

cc: John Hickman, City Manager
Timothy Wallace, Water Plant Operator
Jeff Staggs, Distribution Operator
Nashville Central Office
Jessica Murphy, Manger DWR Compliance and Enforcement

Sanitary Survey Rating

PWSID: 0000736

Water System Name: Waynesboro Water System

Survey Date: 14-Sep-22

System Category (Points): 421
488
599

421 - Consecutive Systems/Distribution Only
488 - Treatment Systems/Wholesalers
599 - Both Treatment and Distribution

1. System Management and Operation (94)

	Requirement	Points Range	Deduction	Comments
A.	Record Keeping 0400-45-01-.20	(0)	Narrative	OK
B.	Construction Projects 0400-45-01-.05, 0400-45-01-.17	(1-5)	0	OK
C.	Submission of Monthly Operations Reports 0400-45-01-.17	(0)	Narrative	OK
D.	Reporting Requirements 0400-45-01-18	(4-30)	0	OK
E.	Public Notification 0400-45-01-.19	(3-10)	1	See Additional Comments Section
F.	Facility Maintenance Fee	(0)	Narrative	OK
G.	Enforcement - TCA §68-221-701 et seq	(4-10)	0	Received Director's Order dated 10/5/2021
H.	Emergency Operations Plan 0400-45-01-.17	(3)	1	Need to update Drought Mgt. Plan
Deficiency Subtotal			2	

2. Operator Compliance (23)

	Requirement	Points Range	Deduction	Comments
A.	Certified Operator – Plant and Distribution System 0400-45-01-.17(1) and 0400-49-01-04	(3-15)	0	Jeff Staggs DS-2 Timothy Wallace WT-3
Deficiency Subtotal			0	

3. Source (25)

	Requirement	Points Range	Deduction	Comments
A.	Source Adequacy 0400-45-01-.02, .05, .16, .17(13) and .34(3)	(3-5)	0	OK
B.	Intake 0400-45-01-.05, .17	(2)	0	OK
C.	Wellhead/Springbox Construction 0400-45-01-.05(12), 16 and 17(3) and (16)	(2)	0	OK
D.	Source Protection Plans 0400-45-01-.34	(1-2)	0	Updated 12/2020
Deficiency Subtotal			0	

4. Treatment (153)

	Requirement	Points Range	Deduction	Comments
A.	Aerator 0400-45-01-.05, .17	(2)	0	OK
B.	Chemicals / Chemical Feeders 0400-45-01- .05 (8) and .17,36	(2)	0	OK
C.	Mixing 0400-45-01-.02, .05, .17	(2)	0	Recommend installing a mechanical rapid mix at head of large basin.
D.	Flocculation 0400-45-01-.02, .05, .17	(2)	0	One of the flocculator motors was not working.
E.	Sedimentation 0400-45-01-.02, .05, .17	(2)	0	Basin needs to be cleaned out.
F.	Filtration / Alternative Technology 0400-45- 01-.17(12) and (27)	(2-30)	0	There appears to be some media loss. Filter profile study requested.
G.	Re-Wash / Filter-to-Waste 0400-45-01- .17(35)	(2)	0	OK
H.	Turbidimeters / Calibration 0400-45-01- .05(11), .17, .31, .39	(2-4)	2	Failed to conduct quarterly calibrations. Primary standard at Geissler Spring Plant was expired.
I.	Disinfection/Calibration 0400-45-01-.02, .17, .31, .36	(2-30)	0	OK
J.	Disinfection Contact Time 0400-45-01-.02, .17,31	(2-4)	0	OK
K.	Master Meter 0400-45-01.17(2) and (3)	(1-2)	0	OK
L.	Maintenance of Equipment, Buildings and Grounds 0400-45-01-.02, .17(3), (17) and (19)	(1)	0	OK
M.	Laboratory Facilities 0400-45-01-.02, .14, .17(3)	(1-3)	0	OK
N.	Safety 0400-45-01-.02	(2)	0	OK
O.	Sludge Handling/Backwash Handling 0400- 45-01-.05	(2)	2	Inadequately sized lagoon
P.	Sanitary Conditions 0400-45-01-.17(17)	(2)	0	OK
Q.	Fluoridation Techniques 0400-45-01-.06, .12, .17	(2)	0	OK
R.	Design Capacity 0400-45-01-.05(10)	(2-4)	0	Approx. 48%
S.	Filter Backwash Recycling 0400-45-01-.31(9)	(1)	0	OK
Deficiency Subtotal			4	

5. Monitoring, Data Verification and Compliance (175)

	Requirement	Points Range	Deduction	Comments
A.	Laboratory-Process Monitoring (excluding Turbidity and Chlorine Residual) 0400-45-01-17(3)	(2-4)	0	OK
B.	Bacteriological Monitoring	(3-6)	0	OK
C.	Bacteriological Compliance 0400-45-01-.06	(4-7)	0	OK
D.	Turbidity Monitoring	(2-3)	0	OK
E.	Turbidity Compliance	(4-7)	0	OK
F.	Chlorine Residual Monitoring 0400-45-01-.17,31,36, 40	(2-3)	0	OK
G.	Primary Chemicals Monitoring	(2-3)	0	OK
H.	Primary Chemicals Compliance	(4)	0	OK
I.	Lead and Copper Monitoring 0400-45-01-.33	(2-3)	0	OK
J.	Lead and Copper Action Level 0400-45-01-.33	(3-5)	0	OK
K.	Disinfection/Disinfection By-Products and Precursors Monitoring 0400-45-01-.36, .37, .38	(2-3)	0	OK
L.	Disinfection/Disinfection By-Products and Precursors Compliance 0400-45-01-.06, .36	(2-30)	4	Compliance Status Letter for chlorine residual values. The Cl17 loses prime during shut down.
M.	Secondary Chemicals 0400-45-01-.12	(2)	0	OK
N.	Secondary Chemicals Compliance 0400-45-01-.12	(3)	0	OK
O.	Cryptosporidium Monitoring 0400-45-01-.39	(0)	Narrative	OK
Deficiency Subtotal			4	

6. Finished Water Storage (25)

	Requirement	Points Range	Deduction	Comments
A.	Adequate Storage 0400-45-01-.17(14)	(3-15)	0	Approx. 93%. System has applied for grant for a new tank.
B.	Inspection and Maintenance of Reservoirs, Tanks and Clearwell 0400-45-01-.17(16), (17), (33) and (34)	(1-10)	1	Hospital Hill Tank paint is chalking. Replace clearwell overflow screen at plant.
Deficiency Subtotal			1	

7. Pumps, Pump Facilities and Controls (18)

	Requirement	Points Range	Deduction	Comments
A.	Pump Facilities 0400-45-01-.17(9) and (13)	(1-4)	0	OK
B.	Maintenance of Pumping Equipment 0400-45 - 01-.17(13)	(1-3)	0	OK
Deficiency Subtotal			0	

8. Distribution System and Cross Connection Controls (86)

	Requirement	Points Range	Deduction	Comments
A.	Notification, Inspection, Disinfection and Sample Collection of New or Existing Facilities 0400-45-01-.17(8), (19)	(3-5)	10	Collected bacteriological samples the next day after ROV inspections of clear wells. Collected bact. samples same day as final flushing on new line
B.	Flushing Program / Blow Offs 0400-45-01-.17(10) and (23)	(3-4)	0	Need to flush longer at dead ends and areas of low use.
C.	Fire Hydrants 0400-45-01-.17(18)	(0)	Narrative	OK
D.	Adequate Pressure 0400-45-01-.17(9)	(5)	0	OK
E.	Map of Distribution System 0400-45-01-.17(15)	(3)	0	Updated 2020
F.	Approved Cross Connection Policy or Ordinance and Plan 0400-45-01-.17(6)	(4)	0	OK
G.	Working Cross Connection Program 0400- 45-01-.17(6)	(3-9)	0	OK
H.	Percent Estimated Water Loss(real loss/water produced)	(0)	Narrative	Approx. 7%
Deficiency Subtotal			10	

Rating

- 95% - 100% Approved
- 90% - 94% Provisionally Approved
- 0% - 89 % Unsatisfactory

Total Deficiency Points	-21
Overall Rating	578
	96.1 %

Inspectors Signature

Jamie Rg

Additional Comments/Explanation:

- Section 1. Subsection E:
1. Received Compliance Status Letter dated 4/15/2021 for not submitting 3 public notices.
 2. Issued BWA on 3/31/2021. PN issued as required.
 3. Received Compliance Status Letter dated 6/07/2021 for CI residual.



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Columbia Environmental Field Office
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Waynesboro Water System
Green River Plant – Entry Point A
PWSID #0000736
Monitoring Program- October 2022

I. Raw Water

- A. Collect a representative sample each day the plant is in operation
- B. Conduct the following analysis:
 - 1. Temperature
 - 2. Turbidity
 - 3. pH
 - 4. Alkalinity (total)
 - 5. Jar tests – as needed to optimize treatment

II. Settled Water

- A. Collect a representative sample before filtration each day the plant is in operation
- B. Conduct the following analysis:
 - 1. Turbidity
 - 2. Chlorine residual (free)

III. Finished Water

- A. Collect a representative sample each day the plant is in operation
- B. Conduct the following analysis:
 - 1. Chlorine residual (free)*
 - 2. Turbidity*
 - 3. pH
 - 4. Alkalinity (total)
 - 5. Orthophosphate

*Values reported on the MOR for turbidity and chlorine residual are to be taken from the continuous chart recorders except where believed to be erroneous. DWS policy is to be followed. Grab sampling should still be conducted.

IV. Distribution System

- A. Collect representative samples from the distribution system
- B. Conduct the following analysis:
 - 1. Chlorine residual (free) – 5 days per week
 - 2. Orthophosphate – 5 days per week
 - 3. Bacteriological – a minimum of 5 samples per month are to be collected and analyzed by a State certified laboratory



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Waynesboro Water System
Geissler Spring Plant – Entry Point B
PWSID #0000736
Monitoring Program –October 2022

I. Raw Water

- A. Collect a representative sample each day the plant is in operation
- B. Conduct the following analysis:
 - 1. Temperature
 - 2. Turbidity
 - 3. pH
 - 4. Alkalinity (total)

II. Finished Water

- A. Collect a representative sample each day the plant is in operation
- B. Conduct the following analysis:
 - 1. Chlorine residual (free)*
 - 2. Turbidity*
 - 3. pH
 - 4. Alkalinity (total)

*Values reported on the MOR for turbidity and chlorine residual are to be taken from the continuous chart recorders except where believed to be erroneous. DWR policy is to be followed. Grab sampling should still be conducted.

III. Distribution System

- A. Collect representative samples from the distribution system
- B. Conduct the following analysis:
 - 1. Chlorine residual (free) – 5 days per week
 - 2. Bacteriological – a minimum of 1 sample per month representing the portion of the distribution system served by this plant is to be collected and analyzed by a State certified laboratory.