



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Johnson City Environmental Field Office
2305 Silverdale Road
Johnson City, Tennessee, 37601
Phone 423-854-5400 Statewide 1-888-891-8332 Fax 423-854-5401

May 26, 2022

Mr. Charlie Pippin, General Manager
Bloomingdale Utility District
3212 Bloomingdale Pike
Kingsport, Tennessee 37660

RE: **Sanitary Survey of Community Water System**
Bloomingdale Utility District
PWSID #0000056
Sullivan County

Dear Mr. Pippin:

During the time frame of April 5, 2022 to May 17, 2022, personnel from the Division of Water Resources (DWR) visited Bloomingdale Utility District 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 April 2019 – March 2022. The Division would like to thank you for your courtesy, willingness to work with the Division, and timely responses to Division requests. In accordance with the Sanitary Survey Manual, Bloomingdale Utility District earned 580 points out of a possible 599 points for a numerical score of ninety-six percent (**96%**). This rating retains Bloomingdale Utility District in the State's "**Approved**" category.

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

1. Section 1: System Management and Operation

• **Subsection C. Submission of Monthly Operation Reports**

Division Rule 0400-45-01-.17(2) requires each community water system to submit a Monthly Operation Report (MOR), together with associated forms/reports, which contain all required information and accurately reveals the operation and

performance of the water system during the reporting period. All MORs must be received in the Johnson City Environmental Field Office by the 10th of the following month.

The Drinking Water Monitoring Program assigned to the system during each Sanitary Survey details analyses required to be reported on the Monthly Operation Report form. The current MOR form submitted by the system does not include all of the required information for turbidity and chlorine. Specifically, the highest reading of combined effluent turbidity is required to be reported for each four-hour period. In addition, the lowest plant effluent reading of free chlorine is required to be reported for each day. The current MOR form only includes the daily highest finished turbidity reading and a distribution chlorine residual. The system shall ensure that all required information is reported on MOR forms submitted to the Division of Water Resources.

- **Subsection E. Public Notification**

Division Rule 0400-45-01-.19 and its subparts establish the requirements for all community and non-community water systems to provide public notice for all violations of National Primary Drinking Water Regulations.

On April 15, 2021, A Compliance Status Letter was issued to the system for failing to provide public notice related to a treatment technique violation incurred for the failure to submit an LT2 Bin Classification report. This public notification was required to be provided to consumers by April 11, 2020 and was not completed by the system.

- **Subsection H. Emergency Operations Plan**

Division Rule 0400-45-01-.17(7) requires all community water systems to prepare and maintain an approved up-to-date Emergency Operations Plan that is to be completely reviewed, updated, and submitted to the Division at least once every three years. Additionally, a Drought Management Plan must be maintained as part of this plan.

The current Emergency Operations Plan for Bloomingdale Utility District does not include the required Drought Management Plan. The system is required to develop this plan and submit a copy to the Johnson City Environmental Field Office by **August 30, 2022**. Guidance for the development of this plan may be found at the following link:

https://www.tn.gov/content/dam/tn/environment/water/documents/droughtmgtp_lan_guidance.pdf

2. Section 4: Treatment

- **Subsection E. Sedimentation**

Division Rule 0400-45-01-.17(17) requires that all equipment used in the treatment process be maintained and be reliable and fit for the purpose for which they are used. Additionally, the Division of Water Resources Sanitary Survey Manual specifies that tube settlers must not be allowed to coat over with sediment and/or algae.

At the time of the Survey, there were a number of tube settlers in the sedimentation basin that were in a state of disrepair. The majority of the tube settlers were coated over with sediment and in need of cleaning and there were portions that were broken and not fully functional. System personnel indicated plans were being made to replace the equipment in the sedimentation basins. A plan detailing the expected timeframe for repairs to this equipment is required to be submitted to the Johnson City Environmental Field Office by **June 30, 2022**.

3. Section 5: Monitoring, Data Verification and Compliance

- **Subsection D. Turbidity Monitoring**

Division Rule 0400-45-01-.31(5)(c)(1) specifies turbidity monitoring requirements for systems using filtration treatment. Turbidity is required to be monitored and recorded continuously, with the highest turbidity value obtained during each four-hour period reported on the system's Monthly Operation Report.

During the Survey, it was determined that the turbidity monitoring data reported on the system's MOR was collected from grab sampling results. In accordance with the assigned Drinking Water Monitoring Program, the system is required to review daily continuous monitoring records to obtain turbidity results for compliance reporting purposes. The substitution of grab sample results is only allowed with Division approval.

- **Subsection F. Chlorine Residual Monitoring**

Division Rule 0400-45-01-.31(5)(c)(2) establishes the residual disinfectant monitoring requirements for systems using filtration treatment. The residual disinfectant concentration of the water entering the distribution system must be monitored continuously with the lowest value recorded each day.

During the Survey, it was determined that the chlorine residual monitoring data reported on the system's MOR was collected from grab sampling results. Systems serving over 3,300 are required to report data from continuous monitoring. Review of the daily continuous monitoring records is required to obtain data for compliance reporting purposes.

- **Subsection G. Primary Chemicals Monitoring**

Division Rule 0400-45-01-.09 details the inorganic chemical monitoring requirements for public water systems.

The system was required to monitor for inorganics during the 2021 monitoring period. The system failed to complete this monitoring, resulting in a violation. Public notification for this violation is included in the system's 2021 Consumer Confidence Report.

- **Subsection M. Secondary Chemicals**

Division Rule 0400-45-01-.12 details the secondary chemical monitoring requirements for public water systems.

The system was required to monitor for secondaries during the 2021 monitoring period. The system failed to complete this monitoring, resulting in a violation. Public notification for this violation is included in the system's 2021 Consumer Confidence Report.

4. Section 6: Finished Water Storage

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

Division Rule 0400-45-01-.17(33) requires that community water systems properly maintain their distribution system finished water storage tanks.

The screens on the overflow pipes of the system's distribution storage tanks are oversized. A 24-mesh screen is required on overflow and vent pipes to provide protection from insects. The system is required to replace these screens with the required screen size by **June 30, 2022**.

5. Section 7: Pumps, Pump Facilities and Controls

- **Subsection A. Pump Facilities**

Division Rule 0400-45-01-.17 and its subparts establish maintenance requirements for pumping equipment and distribution pump stations. Pump stations are required to be maintained and secured.

During the inspection, it was noted that there is security issue with the entry door at the Rainbow pump station. The metal door is not able to be fully closed or locked and requires replacement to prevent unauthorized access to the pump station. A plan detailing the expected timeframe for the replacement of this door is required to be submitted to the Johnson City Environmental Field Office by **June 30, 2022**.

6. Section 8: Distribution System and Cross Connection Controls

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

Division Rule 0400-45-01-.17(8)(b) states in part that the effectiveness of disinfection can be demonstrated by collecting two sets of microbiological samples 24 hours apart or collection of one set of bacteriological samples 48 hours or longer after flushing the highly chlorinated water from the newly installed water lines.

As part of the Sanitary Survey, records were reviewed for new line construction activities conducted by the system. Records indicated that new line bacteriological monitoring procedures were not properly completed for two projects. System personnel shall ensure that disinfection and monitoring procedures are followed for all newly constructed water lines.

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

Division Rule 0400-45-01-.17(23) requires that all dead-end water mains and all low points in water mains be equipped with a blow-off or other suitable flushing mechanism capable of producing velocities adequate to flush the main.

Currently, there are dead end water mains in the distribution system that are not equipped with proper flushing mechanisms. The system shall continue working toward compliance with this requirement.

- **Subsection C. Fire Hydrants**

Division Rule 0400-45-01-.17(18) states that the water system must provide notification by certified mail at least once every five years beginning January 1, 2008, to each fire department that may have reason to utilize the hydrants, that fire hydrants with tops painted red (Class C hydrants) cannot be connected directly to a pumper fire truck.

At the time of the Survey, system personnel were unable to provide documentation indicating that certified notification to the local fire departments had been completed within the past five years. The system is required to provide this notification by **June 30, 2022**.

General Observations, Comments, and Other Recommendations

1. The water system reported a total of 5,619 connections during the Sanitary Survey. Based on the county census factor of 2.37 for Sullivan County, the estimated population served by the system is 13,317. The current number of bacteriological samples required to be collected by the system remains at 15 per month.

2. Lead and copper monitoring was conducted during the June to September 2020 monitoring period. Thirty (30) sites were monitored, with results below the action levels for lead and copper.
3. The Enforcement Targeting Tool (ETT) tracks violations incurred by public water systems and assigns a score for each system based on the number and types of violations. Violations remain on the ETT list for a period of five years and the system's total score determines enforcement potential. Currently, the score assigned to Bloomingdale Utility District is 10.
4. As part of the Sanitary Survey, system personnel were observed performing analyses required in the Drinking Water Monitoring Program. The system is recertified for the analysis of temperature, turbidity, chlorine, pH, alkalinity, and fluoride until the next Sanitary Survey. An updated Drinking Water Monitoring Program in accordance with Rule 0400-45-01-.17(3) is enclosed.

Again, I would like to thank Bloomingdale Utility District personnel for their assistance and courtesy during the Sanitary Survey. If you have any questions or need additional information, please contact me at (423) 616-4341.

Sincerely,



Dawn Taylor, Environmental Consultant
Division of Water Resources
Johnson City Environmental Field Office
(423) 616-4341
Dawnl.taylor@tn.gov

cc: Ms. Sophia DeMarse, DWR/NCO (via email)
Mr. Joshua Boggan, DWR/NCO (via email)
Mr. Jason Benton, DWR/JCEFO (via email)
DWR WaterLog Database

Sanitary Survey Rating

PWSID: _____

Water System Name: _____

Survey Date: _____

System Category (Points): -

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	
B.	Construction Projects 0400-45-01-.05, 0400-45-01-.17	(1-5)		
C.	Submission of Monthly Operations Reports 0400-45-01-.17	(0)	Narrative	
D.	Reporting Requirements 0400-45-01-18	(4-30)		
E.	Public Notification 0400-45-01-.19	(3-10)		
F.	Facility Maintenance Fee	(0)	Narrative	
G.	Enforcement - TCA §68-221-701 et seq	(4-10)		
H.	Emergency Operations Plan 0400-45-01-.17	(3)		
Deficiency Subtotal				

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)		
Deficiency Subtotal				

3. Source (25)

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

4. Treatment (153)

	Requirement	Points Range	Deduction	Comments
A.	Aerator 0400-45-01-.05, .17	(2)		
B.	Chemicals / Chemical Feeders 0400-45-01- .05 (8) and .17,36	(2)		
C.	Mixing 0400-45-01-.02, .05, .17	(2)		
D.	Flocculation 0400-45-01-.02, .05, .17	(2)		
E.	Sedimentation 0400-45-01-.02, .05, .17	(2)		
F.	Filtration / Alternative Technology 0400-45- 01-.17(12) and (27)	(2-30)		
G.	Re-Wash / Filter-to-Waste 0400-45-01- .17(35)	(2)		
H.	Turbidimeters / Calibration 0400-45-01- .05(11), .17, .31, .39	(2-4)		
I.	Disinfection/Calibration 0400-45-01-.02, .17, .31, .36	(2-30)		
J.	Disinfection Contact Time 0400-45-01-.02, .17,31	(2-4)		
K.	Master Meter 0400-45-01.17(2) and (3)	(1-2)		
L.	Maintenance of Equipment, Buildings and Grounds 0400-45-01-.02, .17(3), (17) and (19)	(1)		
M.	Laboratory Facilities 0400-45-01-.02, .14, .17(3)	(1-3)		
N.	Safety 0400-45-01-.02	(2)		
O.	Sludge Handling/Backwash Handling 0400- 45-01-.05	(2)		
P.	Sanitary Conditions 0400-45-01-.17(17)	(2)		
Q.	Fluoridation Techniques 0400-45-01-.06, .12, .17	(2)		
R.	Design Capacity 0400-45-01-.05(10)	(2-4)		
S.	Filter Backwash Recycling 0400-45-01-.31(9)	(1)		
Deficiency Subtotal				

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)		
B.	Bacteriological Monitoring	(3-6)		
C.	Bacteriological Compliance 0400-45-01-.06	(4-7)		
D.	Turbidity Monitoring	(2-3)		
E.	Turbidity Compliance	(4-7)		
F.	Chlorine Residual Monitoring 0400-45-01-.17,31,36, 40	(2-3)		
G.	Primary Chemicals Monitoring	(2-3)		
H.	Primary Chemicals Compliance	(4)		
I.	Lead and Copper Monitoring 0400-45-01-.33	(2-3)		
J.	Lead and Copper Action Level 0400-45-01-.33	(3-5)		
K.	Disinfection/Disinfection By-Products and Precursors Monitoring 0400-45-01-.36, .37, .38	(2-3)		
L.	Disinfection/Disinfection By-Products and Precursors Compliance 0400-45-01-.06, .36	(2-30)		
M.	Secondary Chemicals 0400-45-01-.12	(2)		
N.	Secondary Chemicals Compliance 0400-45-01-.12	(3)		
O.	Cryptosporidium Monitoring 0400-45-01-.39	(0)	Narrative	
Deficiency Subtotal				

6. Finished Water Storage (25)

	Requirement	Points Range	Deduction	Comments
A.	Adequate Storage 0400-45-01-.17(14)	(3-15)		
B.	Inspection and Maintenance of Reservoirs, Tanks and Clearwell 0400-45-01-.17(16), (17), (33) and (34)	(1-10)		
Deficiency Subtotal				

7. Pumps, Pump Facilities and Controls (18)

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

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)		
B	Flushing Program / Blow Offs 0400-45-01-.17(10) and (23)	(3-4)		
C.	Fire Hydrants 0400-45-01-.17(18)	(0)	Narrative	
D.	Adequate Pressure 0400-45-01-.17(9)	(5)		
E.	Map of Distribution System 0400-45-01-.17(15)	(3)		
F.	Approved Cross Connection Policy or Ordinance and Plan 0400-45-01-.17(6)	(4)		
G.	Working Cross Connection Program 0400- 45-01-.17(6)	(3-9)		
H.	Percent Estimated Water Loss(real loss/water produced)	(0)	Narrative	
Deficiency Subtotal				

Rating

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

Total Deficiency Points	
Overall Rating	

Inspectors Signature _____

Additional Comments/Explanation:

DRINKING WATER MONITORING PROGRAM

Bloomington Utility District #0000056

Grade III Water Treatment

1.843 MGD

April 5, 2022

I. Raw Water:

- A. Collect Representative Samples
- B. Analyses and Frequency
 - 1. Temperature: One (1) sample daily
 - 2. Turbidity: One (1) sample daily
 - 3. pH: One (1) sample daily
 - 4. Alkalinity: One (1) sample daily
 - 5. Fluoride: One (1) sample daily

II. Settled Water:

- A. Collect Representative Samples before Filtration
- B. Analysis and Frequency
 - 1. Free Chlorine Residual: One (1) sample daily

III. Finished Water:

- A. Collect Representative Samples after Filtration
- B. Analyses and Frequency
 - 1. Turbidity:
 - A. Individual Filter: Continuous monitoring, reported if 2 readings 15 minutes apart are greater than 0.5 (excluding within 4 hours of backwash or start-up)
 - B. Combined Effluent: Continuous monitoring, reported highest value every 4 hours of operation

2. Free Chlorine Residual: Continuous monitoring with the lowest effluent residual recorded daily each day the plant is in operation
3. pH: One (1) sample daily
4. Alkalinity: One (1) sample daily
5. Fluoride: One (1) sample daily
6. Orthophosphate: One (1) sample daily

IV. Distribution System:

A. Collect Samples from the Distribution System

B. Analyses and Frequency

1. Bacteriological (Total Coliform): Fifteen (15) per month
2. Free Chlorine Residual: Five (5) days per week
3. Fluoride: Five (5) days per week
4. Orthophosphate: Five (5) days per week

* **These analyses must be performed at the frequencies prescribed above and reported to the State of Tennessee on the Monthly Operation Report forms (MORs). Values reported on the MOR for turbidity and free 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.**