COMMONWEALTH of VIRGINIA
Department of Health

Karen Shelton, MD
State Health Commissioner

P O BOX 2448
RICHMOND, VA 23218

TTY 7-1-1 OR
1-800-828-1120

June 16, 2025

NOTICE OF ALLEGED VIOLATION

Via Electronic Mail

RVAMayor@rva.gov
The Honorable Danny Avula, Mayor, City of Richmond

Scott.Morris@rva.gov
Scott Morris, Director

Richmond Department of Public Utilities
900 E. Broad Street
Room 115
Richmond, Virginia 23219

Re: City of Richmond Boil Water Advisory (BWA), May 27, 2025 – May 28, 2025
City of Richmond Waterworks, Public Water System Identification (PWSID) #4760100

Dear Mayor Avula and Director Morris:

This notice is to advise the City of Richmond (City) that it appears to have operated the City of Richmond Waterworks (Waterworks) in violation of the Public Water Supplies Law, Title 32.1, Chapter 6, Article 2 of the Code of Virginia, and 12VAC5-590-360.A, 12VAC5-590-450, and 12VAC5-590-510.C of the Virginia *Waterworks Regulations* (Regulations).

This is the third event at the Waterworks in the last six months that has required VDH to issue a Notice of Alleged Violation (NOAV) to the City. The NOAVs represent unprecedented and very concerning situations for a waterworks this size and service area. These events erode public trust in the City's ability to comply with applicable regulations that protect public health. While the Virginia Department of Health (VDH), Office of Drinking Water (ODW) has observed improvement in the Waterworks' operation and communication over the past few months, more work is clearly needed. From this most recent incident, ODW continues to observe repeat alleged regulatory violations.

You held a press conference on May 29, 2025, to explain why the incident for this specific NOAV happened and the corrective actions that the City plans from its investigation of the incident. Mr. Morris reported that delayed maintenance and poor raw water quality were the contributing factors for the temporary boil water advisory (BWA).[1]

Effective response to high turbidity is routinely handled with appropriate, proactive monitoring and properly adjusting chemical feeds. Timely maintenance is a controllable condition. As such, ODW's investigation, as outlined herein, determined that the May 2025 BWA incident was completely avoidable, just like the water crisis in January 2025, and the fluoride overfeed incident in April 2025. If the City had more proactive maintenance, better oversight and active operation, then the event would not have happened.

Alleged Facts

1. The James River is the source water for the Waterworks. Significant amounts of rain in the Richmond area from May 1 through May 25, 2025, impacted the James River, with water levels nearly reaching the moderate flood stage level of 15 feet on May 15, 2025. The high water levels in the James River caused an increase in raw water turbidity and a drop in raw water alkalinity in the source water for the Waterworks' water treatment plant (WTP). There was also a drop in raw water pH at the Waterworks from May 14 through May 21, 2025.

2. At about midnight on May 27, 2025, ODW was contacted by City Department of Public Utilities (DPU) staff about the potential for reduced water pressure from decreased water production at the Waterworks' WTP. DPU staff reported filter performance at the WTP was likely impacted from plate settler clogging.

3. The decrease in water production at the Waterworks' WTP affected the Waterworks' ability to fill its distribution storage tanks.

4. DPU staff had shut down the WTP to clean the plate settlers and empty and clean the sedimentation basins to ensure proper finished filter performance. DPU staff expected the WTP would return to normal operations in a few hours.

5. DPU staff restarted the WTP and slowly increased production on individual finished filters as head loss and filter effluent turbidities allowed. This process was a delicate balance between mitigating turbidity breakthrough in the filters, increasing filter flow rates incrementally, maintaining water levels in the clearwells and finished water basins, and filling distribution system tanks. To fill the distribution system storage tanks, DPU staff decided to avoid backwashing of filters until late May 27, 2025, through early May 28, 2025. This decision was made to conserve finished water for customer use.

[1] "Watch: Richmond leaders explain what caused boil water advisory;" WRIC ABC 8 News, May 29, 2025 - https://www.wric.com/news/local-news/richmond/boil-water-advisory-lifted-leaders-speak/

6. The Waterworks' Ginter Park tank experienced a drop in water level, which reduced pressure in one zone of the distribution system below 20 pounds per square inch (psi). The reduced pressure specifically impacted the Zone 2N pressure zone and the City appropriately issued a BWA around 1:00 p.m. on May 27, 2025. Later in that day, the City added the Zone 1S pressure zone to the BWA because of a temporary drop in water pressure below 20 psi. The City's actions responding to the low-pressure event were appropriate and necessary.

7. The City restored pressure above 20 psi at about 6:00 p.m. on May 27, 2025. The City collected two sets of bacteriological samples in the impacted pressure zones 16 hours apart. Both sets of bacteriological samples were negative for total coliform and E. coli. The City lifted the BWA with ODW's concurrence on May 29, 2025, around 2:30 p.m.

8. In a May 29, 2025, press conference regarding why the low pressure incident and BWA occurred and the corrective actions the City plans to take, Scott Morris, DPU Director, stated that delayed maintenance and poor raw water quality were contributing factors for the BWA. Mr. Morris stated that alum sludge built up on plate settlers and had not been cleaned since March 2025. Mr. Morris stated that a maintenance order to clean the plate settlers was deferred. The plate settlers cleaning was considered corrective maintenance at the time, so the maintenance was performed on-demand. Mr. Morris reported that DPU has since reclassified it as preventative maintenance, establishing a specific schedule for when plate settler maintenance is performed.

9. ODW has completed its investigation and issues this NOAV. ODW reviewed operating records from the Waterworks and two upstream WTPs that also use the James River as their water source. These two upstream WTPs are referenced in this document as Plant A and Plant B. In addition, ODW reviewed United States Geological Survey (USGS) data and weather data in May 2025. The Waterworks' WTP, Plant A, and Plant B all required coagulation and floc formation to settle solids from the James River prior to filtration.

10. Based on ODW's review of data, all three WTPs experienced an increase in raw water turbidity and a drop in raw water alkalinity from May 14 through May 19, 2025. This change in raw water quality is associated with the James River reaching flood stage levels due to heavy rain events. While all three WTPs experienced lower water quality from their water source, only the City's WTP experienced clogged filters and only the City had to issue a BWA due to loss of water production at its WTP.

11. DPU staff delayed necessary maintenance and cleaning of the plate settlers. Given the reduced raw water quality (higher turbidity), the delayed maintenance allowed turbidity to increase in the sedimentation process, which prompted the need for more active and better chemical feed adjustments. Had chemical feed adjustments been better, then proper flocculation and coagulation would have followed through the sedimentation

process to the finished filters. These events were causes of the low-pressure incident at the Waterworks and the resulting BWA.

12. Additional details about the findings of ODW's investigation can be found in the enclosed memorandum, which is incorporated into this NOAV.

Alleged Violations

Based on the alleged facts in this NOAV, VDH has reason to believe that the City may be in violation of, or may have violated, the Regulations as follows:

1. Section 12VAC5-590-360.A of the Regulations states, "The owner [of a waterworks] shall provide and maintain conditions throughout the entirety of the waterworks in a manner that will assure a high degree of capability and reliability to comply with Part II (12VAC5-590-340 et seq.) of this chapter [of the Regulations]. This requirement shall pertain to the source water, transmission, treatment, storage, and distribution system facilities and the operation thereof. The owner shall identify and evaluate factors with the potential for impairing the quality of the water delivered to the consumers. Preventative control measures identified in Part II of this chapter shall be promptly implemented to protect public health."

   The City failed to provide and maintain conditions throughout the Waterworks in a manner to assure a high degree of capability and reliability as evidenced by the unplanned boil water advisory. The boil water advisory demonstrated a lack of sufficient institutional oversight of operations and maintenance projects at the Waterworks, which increases risk to public health.

2. Section 12VAC5-590-450 of the Regulations states, "Waterworks operation comprises the constant oversight and management of the facilities and personnel. Consideration shall be given to such factors as the competency of personnel; water quality, including drinking water standards; water treatment plant maintenance and cleanliness; analytical laboratory control; and the operation and maintenance of the facilities, including water treatment plant equipment, distribution system equipment, and piping. As the complexity of the waterworks increases, so does the expertise and skill required of the operating staff."

   DPU staff at the City's WTP failed to timely perform preventative and necessary maintenance to prevent the BWA. Turbidity levels as experienced at the City's WTP were within the range of what Waterworks staff should overcome without necessitating a BWA. Had the DPU staff at the WTP timely performed appropriate maintenance, and more actively monitored the sedimentation, flocculation, and coagulation processes with its chemical feeds, then the BWA would have been avoided. DPU staff at the WTP failed to properly perform appropriate and timely maintenance and control of the sedimentation processes.

3. The Waterworks Regulations at 12VAC5-590-510.C state, "All waterworks shall provide a minimum working pressure of 20 psigauge (psig) at all service connections."

   Water pressure in certain locations of the distribution system was below 20 psig beginning on May 27, 2025. These locations were repressurized later in the day on May 27, 2025.

Requested Follow-Up Corrective Actions:

The City has already started taking appropriate actions in response to the BWA incident, but more actions are necessary based on ODW's evaluation of the BWA incident.

ODW will coordinate a conversation with the City regarding entry into a consent order with reasonable and appropriate corrective actions. In addition to what the City has already committed to doing – (1) hiring an engineering firm to evaluate and make recommendations on best operational practices to address changes in water quality and to maximize finished filter performance; and (2) improve its preventative maintenance with plate settlers and the sedimentation and finished filter process – the forthcoming proposed consent order will require that the City submit a corrective action plan to address the alleged violations stated in this NOAV.

The City must consider the following action items as part of its corrective action and reporting plan that will be further described in the forthcoming proposed consent order:

(1) Provide additional training for DPU staff at the WTP and their monitoring and tests with respect to chemical feeds during high turbidity of raw water;

(2) Engage a coagulation expert and appropriate engineering firm to evaluate and improve the WTP's performance with respect to coagulation, settling process and filtration practices, to include:
   a. Ensure Zeta meters and streaming current monitors are designed for use when operating in a charge neutral mode as compared to sweep floc mode;
   b. Ensure that pH and alkalinity, especially at the end of the settling process, gives accurate readings and accurately reflects what is happening during the coagulation and flocculation process;
   c. Ensure that pH and alkalinity readings sensors and gauges are located in appropriate locations throughout the water treatment process;
   d. Ensure that the coagulation chemistry and processes are as effective as possible, especially during high turbidity.
   e. Ensure that chemical feeds are not overdosing during high turbidity events and sweep floc mode of operation.
   f. Ensure raw water alkalinity and pH are optimized during high turbidity;

g. Ensure that the Waterworks operators have appropriate and timely operational readings during high turbidity for turbidity, pH, alkalinity, etc., to avoid chemical overfeed;
h. Ensure that settled water turbidity is considered as a possible advanced indicator to clean plate settlers and adjust maintenance schedules as needed; and
i. Ensure that a comprehensive performance evaluation is completed to optimize WTP performance.

Requesting an Administrative Proceeding: If the City disagrees with the allegations in this notice or wishes to obtain a determination as to whether a violation has occurred, it may request an informal conference within 15 business days of this Notice in accordance with Va. Code § 2.2-4019 and 12VAC5-590-115 of the Regulations. To request an informal conference, please contact the ODW Director of Compliance, Enforcement and Policy by telephone or email at 804-629-0989 or Grant.Kronenberg@vdh.virginia.gov.

Enforcement Authority: Failure to take all the necessary corrective actions in a timely manner to voluntarily return your waterworks to compliance may result in enforcement action. Enforcement actions include permit revocation, administrative orders, and civil or criminal proceedings, and civil charges or penalties of up to $5,000 per day for each violation. Va. Code §§ 32.1-26, 32.1-27, 32.1-175.01 and 32.1-176.

If you have any questions or concerns regarding this matter, please contact me at Tanni.Sarker@vdh.virginia.gov or (804) 912-5708.

Sincerely,

Tanni Sarker

Tanni Sarker, Ph.D.
Deputy Field Director, Richmond Field Office

Enclosure: Memo to File, Filter Clogging Incident

ec: Dr. Elaine Perry, Health Director, Richmond Henrico Health District; Elaine.Perry@vdh.virginia.gov
Dr. Thomas Franck, Health Director, Chickahominy Health District; Tom.Franck@vdh.virginia.gov
Dr. Alexander Samuel, Chesterfield Health District; Alexander.Samuel@vdh.virginia.gov
Mr. Dwayne Roadcap, Director, Office of Drinking Water; Dwayne.Roadcap@vdh.virginia.gov
Mr. Grant Kronenberg, Director of Compliance, Enforcement and Policy, Office of Drinking Water; Grant.Kronenberg@vdh.virginia.gov
Ms. Athena Van Lear, Enforcement Coordinator, Office of Drinking Water; Athena.VanLear@vdh.virginia.gov