CITY OF RICHMOND
Department of Public Utilities

July 9, 2025

Mr. James Reynolds
Field Director
Virginia Department of Health
Richmond Field Office
109 Governor Street, 6th Floor
Richmond, Virginia 23219

RE: Consent Order, City of Richmond Waterworks, Public Water System Identification (PWSID) #4760100

Dear Mr. Reynolds:

This letter accompanies the signed Consent Order to provide additional context regarding the Filter Optimization Plan referenced in Appendix A and its direct connection to the corrective actions outlined in the Consent Order narrative.

**DPU's Commitment to Compliance and Partnership**

The corrective actions already accomplished by the City of Richmond Department of Public Utilities demonstrate our commitment to compliance and proactive partnership with VDH. DPU maintains its position as a proud partner in protecting the health and safety of Richmond residents by providing clean and safe drinking water. Over the past six months, DPU has taken progressive steps to normalize business operations and will continue on that path.

**Connection Between Corrective Actions and Filter Optimization Plan**

The City's corrective actions outlined in Paragraphs 19-24 of the Consent Order narrative are directly associated with the Filter Optimization Plan, as referenced in Appendix A, that the City has committed to submitting to RFO within 120 days of the effective date of the Consent Order. Specifically, the corrective actions described in the narrative establish the foundation for the comprehensive Filter Optimization Plan:

- **Paragraph 19**: Reclassification of plate settler cleaning as preventative maintenance directly improves filter performance by establishing a routine cleaning schedule.

- **Paragraph 20:** The engineering firm's evaluation and recommendations on operational practices and filter performance optimization will be incorporated into the Filter Optimization Plan report submitted to the RFO.

- **Paragraph 21:** The submitted Standard Operating Procedures (SOPs) for Filter Drop Test, Response to Plant Upsets, Alum Dose Determination, and Alum System Operation and Troubleshooting serve as the operational framework that the Filter Optimization Plan builds upon and enhance this framework.

- **Paragraph 22:** The comprehensive review of preventative maintenance activities with plate settlers and sedimentation/filtration processes provides the baseline assessment to ensure routine maintenance items are addressed, the Filter Optimization Plan builds upon and enhance this baseline.

- **Paragraph 23:** The commitment to annual training following VDH's SOP review ensures staff are trained and knowledgeable on the baseline standards established in the Filter Optimization Plan and that the recommendations will be supported by properly trained personnel.

- **Paragraph 24:** The coagulation expert's report and recommendations for improved WTP performance in coagulation, settling, and filtration practices is integrated into the Filter Optimization Plan and will be evaluated and incorporated into the report submitted to RFO.

The City appreciates the opportunity to clarify this connection and looks forward to submitting the comprehensive Filter Optimization Plan report that will build upon these foundational corrective actions.

Respectfully submitted,

Scott Morris

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

# STATE BOARD OF HEALTH
# ORDER BY CONSENT
# ISSUED TO THE
# City of Richmond
# FOR THE
# City of Richmond Waterworks
# PWSID No. VA4760100

This is a Consent Order, issued under authority granted by Va. Code § 32.1-26, between the State Board of Health and the City of Richmond for the City of Richmond Waterworks to resolve certain violations of the Public Water Supplies Law and the applicable regulations.

## Section A. Definitions

Unless the context clearly indicates otherwise, the following words and terms have the meaning assigned below:

1. "Board" means the State Board of Health, a permanent citizens' board of the Commonwealth of Virginia, as described in Va. Code § 32.1-5.

2. "BWA" means boil water advisory.

3. "City" means the City of Richmond.

4. "Commissioner" means the State Health Commissioner, who supervises and manages the Department, as described in Va. Code §§ 32.1-16 and 17.

5. "Community waterworks" means a waterworks that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

6. "Department" or "VDH" means the Department of Health, an agency of the Commonwealth of Virginia, as described in Va. Code § 32.1-16.

7. "DPU" means the City of Richmond Department of Public Utilities.

8. "Human consumption" means drinking, food preparation, dishwashing, bathing, showering, handwashing, teeth brushing, and maintaining oral hygiene, as defined in Va. Code § 32.1-167 and 12VAC5-590-10 of the Regulations.

9. "Notice of Alleged Violation" or "NOAV" means a type of notice of alleged violation issued under 12VAC5-590-110 of the Regulations.

10. "ODW" means the VDH Office of Drinking Water.

11. "Order" means this document, also known as a "Consent Order" or "Order by Consent," which the Board is authorized to issue to require any person to comply with the provisions of any law administered by it, the Commissioner or the Department or any regulations promulgated by the Board or to comply with any case decision, as defined in § 2.2-4001, of the Board or Commissioner.

12. "Permit" means Waterworks Operation Permit VA4760100.

13. "Public Water Supplies Law" or "PWSL" means Article 2, Chapter 6 of Title 32.1 of the Va. Code.

14. "Pure water" means water fit for human consumption that is (i) sanitary and normally free of minerals, organic substances, and toxic agents in excess of reasonable amounts and (ii) adequate in quantity and quality for the minimum health requirements of the persons served.

15. "PWSID" means Public Water System Identification.

16. "Regulations" means the Waterworks Regulations, 12VAC5-590-10, *et seq.*

17. "RFO" means the ODW Richmond Field Office located in Richmond, Virginia.

18. "Richmond Waterworks" means the City of Richmond Waterworks.

19. "Va. Code" means the Code of Virginia (1950), as amended.

20. "VAC" means the Virginia Administrative Code.

21. "Waterworks" means a system that serves piped water for human consumption to at least 15 service connections or 25 or more individuals for at least 60 days out of the year. Waterworks includes all structures, equipment, and appurtenances used in storage,

collection, purification, treatment, and distribution of pure water except the piping and fixtures inside the building where such water is delivered.

22. "WTP" means the water treatment plant that is part of the Richmond Waterworks.

## Section B. Findings of Fact and Conclusions of Law

1. The City owns, and holds a permit to operate, the Richmond Waterworks (PWSID #4760100), a community waterworks located in Richmond, Virginia. The City is the "owner" of the Richmond Waterworks as defined by Va. Code § 32.1-167 and 12VAC5-590-10 of the Regulations. The City holds a waterworks operation permit pursuant to 12VAC5-590-260 of the Regulations.

2. The Richmond Waterworks serves piped water to over 250,000 consumers and provides wholesale water to neighboring jurisdictions: Chesterfield, Hanover, and Henrico counties. The Richmond Waterworks obtains raw water from the James River. The Richmond Waterworks utilizes conventional surface water treatment involving presedimentation, coagulation, flocculation, sedimentation, filtration, and chloramination. The WTP is comprised of two processing trains (Plant 1 and Plant 2), each capable of independent operation. The Richmond Waterworks is equipped with a SCADA system which allows treatment process control as well as distribution system monitoring/control.

### Boil Water Advisory Event

3. 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 WTP. There was also a drop in raw water pH at the Waterworks from May 14 through May 21, 2025. Increased turbidity results in the production of increased sludge during the coagulation process.

4. At about midnight on May 27, 2025, ODW was contacted by DPU staff about the potential for reduced water pressure from decreased water production at the WTP. DPU staff reported filter performance at the WTP was likely impacted from plate settler clogging.

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

6. 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 within a few hours.

7. 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 cleaning filters, 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 only clean filters and avoid standard backwashing of filters until late May 27, 2025, through early May 28, 2025. This decision was made to reduce recovery time and conserve finished water for customer use.

8. The Richmond 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.

9. The City represents that DPU provided water demand data from May 25, 2025, through May 29, 2025, for the Shurm point of entry. In review of this data, DPU reported that flows were not reduced immediately as requested by the City, the flow was not reduced until after 9:00 a.m. and approximately 2.07 million gallons of finished water were pulled from this point of entry. The Ginter Park storage tank has a storage volume of one million gallons (Zone 2N). Zone 1S is primarily fed from Zone 2N through Pressure Reducing Valves (PRVs).

10. The City restored pressure above 20 psi at about 6:00 p.m. on May 27, 2025, to Zones 2N and 1S, no other pressure zones were impacted. 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.

11. 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. Dr. Morris stated that alum sludge built up on plate settlers and had not been cleaned since March 2025. Dr. 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.

12. ODW investigated the BWA event, including reviewing operating records for the Richmond Waterworks as well as for two nearby water treatment plants that also use the James River as their water source. ODW's analysis revealed that while the Richmond Waterworks and the two other water treatment plants all experienced lower water quality due to their raw water source, only the WTP experienced clogged filters and only the City had to issue a BWA due to loss of water production.

13. DPU staff delaying preventative maintenance, including sedimentation basin and plate settler cleaning, at the WTP, along with potentially inefficient coagulation chemical feed processes by DPU staff, contributed to the low-pressure incident at the Richmond Waterworks and the resulting BWA.

14. 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 chemical feed adjustments. Had chemical feed adjustments by Richmond Waterworks personnel been better, then proper flocculation and coagulation may have occurred. These events contributed to the low-pressure incident at the Richmond Waterworks and the resulting BWA.

15. On June 16, 2025, VDH issued an NOAV to the City due to the BWA event.

Regulatory Violations

16. 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 Richmond Waterworks in a manner to assure a high degree of capability and reliability as evidenced by the unplanned BWA. The BWA demonstrated a lack of sufficient institutional oversight of operations and maintenance projects at the Richmond Waterworks, which increases risk to public health.

17. 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 WTP failed to timely perform necessary maintenance which may have prevented the BWA. Turbidity levels as experienced at the WTP were within the range of what Richmond Waterworks staff should overcome without necessitating a BWA. Had the DPU staff at the WTP timely performed appropriate maintenance, then the BWA could have been avoided. DPU staff at the WTP failed to properly perform timely maintenance with respect to the sedimentation processes.

18. Section 12VAC5-590-510.C of the Regulations states, "All waterworks shall provide a minimum working pressure of 20 psigauge (psig) at all service connections."

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

The City's Corrective Actions to Date in Response to the Boil Water Advisory Event

19. Since the BWA event, DPU has reclassified plate settlers cleaning as preventative maintenance, establishing a specific schedule for when plate settler maintenance is performed. The City states it has acted in good faith throughout the event.

20. DPU has hired an engineering firm to evaluate and make recommendations on best operational practices to address changes in water quality and to maximize finished filter performance. This report has been provided to VDH.

21. DPU submitted the following Standard Operating Procedures (SOPs) to VDH for review:

    a. Filter Drop Test
    b. Response to Plant Upsets
    c. Alum Dose Determination
    d. Alum System Operation and Troubleshooting

22. DPU reviewed all preventative maintenance activities with plate settlers and the sedimentation and finished filter process.

23. DPU committed to conducting annual training, once VDH completes their review of SOPs.

24. DPU has engaged a coagulation expert and a report has been created that evaluates and makes recommendations on how to improve the WTP's performance with respect to coagulation, settling process and filtration practices. This report has been submitted to VDH for review and comments.

## Section C. Agreement and Order

Accordingly, by virtue of the authority granted in Va. Code §§ 32.1-26 and 32.1-27, the Board orders the City, and the City agrees, to:

1. Perform the actions described in Appendix A of this Order.

2. Pay a civil charge of **$1,482.60** within 30 days of the effective date of this Order in settlement of the violations cited in this Order.

   Payment shall be made by check, certified check, money order or cashier's check payable to the "Treasurer of Virginia," and shall be delivered to:

   Virginia Department of Health
   Office of Drinking Water
   109 Governor Street, 6th Floor
   Richmond, Virginia 23219

   The City shall indicate that the payment is being made in accordance with the requirements of this Order for deposit into the Virginia Water Supply Assistance Grant Fund. If VDH must refer collection of monies due under this Order to the Department of Law, the City shall be liable for attorneys' fees of 30% of the amount outstanding.

## Section D. Administrative Provisions

1. This Order addresses and resolves only those violations specifically identified in Section B of this Order. This Order shall not preclude VDH from taking any action authorized by law, including but not limited to taking any action authorized by law regarding additional, subsequent, or subsequently discovered violations or taking subsequent action to enforce this Order.

2. This Order does not suspend, minimize, or otherwise alter the City's obligation to comply with federal, state, and local laws and regulations. The Board does not waive any lawful means of enforcing the laws it administrates, the regulations it has adopted, or this Order. For the purpose of this Order and subsequent actions with respect to this Order only, the

City admits the jurisdictional allegations, and agrees not to contest, but neither admits nor denies, findings of fact and conclusion of law contained herein.

3. The City agrees that it has received fair and due process under the Administrative Process Act (Va. Code § 2.2-4000, et seq.) and waives its right to further hearings or challenges, whether civil or administrative, regarding the terms, conditions, or issuance of this Order and specifically waives its rights to a hearing under Va. Code §§ 2.2-4019 or 2.2-4020 as a predicate for issuance of this Order. The City consents to the issuance of this Order freely, voluntarily, and after an opportunity to consult counsel of its choice.

4. Any plans, reports, schedules, or specifications submitted by the City and approved by the Department pursuant to this Order are incorporated into this Order. Any non-compliance with such approved documents shall be considered a violation of this Order.

5. To the fullest extent allowed by law, this Order is binding on the City, its agents and legal representatives, heirs, devisees, executors, administrators, and successors in interest, jointly and severally as applicable.

6. The Board may modify, rewrite, or amend this Order with the consent of the City. Additionally, the Board may modify, rewrite, or amend this Order on the Board's own motion pursuant to the Administrative Process Act, Va. Code §§ 2.2-4000, *et seq.*, after the City has received notice and an opportunity to be heard. Any request by the City for modification of this Order shall be submitted to VDH in writing to be considered for approval by the Board or its designee.

7. This Order shall not preclude the Board, the Commissioner, or the Department from taking any action authorized by law, including but not limited to: (1) taking any action authorized by law regarding any additional, subsequent, or subsequently discovered violations; (2) seeking subsequent remediation of the facility; or (3) taking subsequent action to enforce this Order.

8. Failure by the City to comply with any terms of this Order shall constitute a violation of an order of the Board. Nothing herein shall waive the initiation of appropriate enforcement actions or the issuance of additional orders as appropriate by the Board or Department as a result of such violations. Nothing herein shall affect appropriate enforcement actions by any other federal, state, or local regulatory authority.

9. If any provision of this Order is found to be unenforceable for any reason, the remainder of the Order shall remain in full force and effect.

10. The City shall be responsible for failure to comply with any of the terms and conditions of this Order unless compliance is made impossible by earthquake, flood, other acts of God, war, strike, or such other unforeseeable circumstances beyond its control and not due to a lack of good faith or diligence on its part. The City shall demonstrate that such

circumstances were beyond its control and not due to a lack of good faith or diligence on its part. The City shall notify the Department in writing within three business days when circumstances are anticipated to occur, are occurring, or have occurred that may delay compliance or cause noncompliance with any requirement of this Order. Such notice shall set forth:

a. The reasons for the delay or noncompliance;
b. The projected duration of any such delay or noncompliance;
c. The measures taken and to be taken by the City to prevent or minimize such delay or noncompliance; and
d. The timetable by which the City will implement such measures and the date full compliance will be achieved.

Failure by the City to notify the Department verbally within 24 hours and in writing within three business days of learning of any condition above, which the City intends to assert will result in the impossibility of compliance, shall constitute a waiver by the City of any claim to inability to comply with a requirement of this Order.

11. This Order shall become effective on the 15th day after a copy of it is mailed to the City by certified mail. Va. Code § 32.1-26.

12. This Order shall continue in effect until:

a. The Commissioner or the Commissioner's designee terminates the Order after the City has completed all of the requirements of this Order;
b. The Commissioner or the Commissioner's designee terminates the Order after finding that the circumstances that led to the Order's issuance no longer exist, and that the Order is no longer needed to enforce the PWSL and Regulations to protect the public health;
c. The City petitions the Commissioner or the Commissioner's designee to terminate the Order after the City has completed all of the requirements of the Order and the Commissioner or the Commissioner's designee approves the termination of the Order; or
d. The Commissioner or the Commissioner's designee, or the Board, in their sole discretion, terminates the Order upon 30 days' written notice to the City. Termination of the Order pursuant to this authority without the City having satisfied all terms of the Order may result in VDH pursuing further enforcement related to the violations identified in the Order.

13. Termination of this Order, or any obligation imposed in this Order, shall not operate to relieve the City from its obligation to comply with any statute, regulation, permit condition, other order, certificate, standard, or requirement otherwise applicable.

14. The undersigned representative of the City certifies that they are a responsible official authorized to enter into the terms and conditions of this Order and to execute and legally bind the City to this document. Any documents to be submitted pursuant to this Order shall also be submitted by a responsible official of the City.

15. By its signature below, the City voluntarily agrees to the issuance of this Order.

It is SO ORDERED this day, 7/9/2025.

STATE BOARD OF HEALTH
Commonwealth of Virginia

Karen Shelton, MD
State Health Commissioner

07/09/2025

## SIGNATURE AND NOTARY PAGE

The City of Richmond voluntarily agrees to the issuance of this Order.

Sharon L. Ebert
Print Name

Interim Chief Administrative Officer
Title

July 8, 2025
Date

Sharon L. Ebert
Signature

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Notary Public:

Commonwealth of Virginia

City/County of Richmond

The foregoing document was signed and acknowledged before me this 8th day of July, 2025, by Sharon L. Ebert who is signing on behalf of the City of Richmond.

Caitlin Rae Sedano
Notary Public

7953080
Registration No.

My commission expires: 9/30/25

Notary seal:

## Appendix A
## Corrective Action Plan and Schedule for Compliance

The City shall:

a. Within 120 days of the effective date of this Order, submit to RFO a report outlining which recommendation contained within the Filter Optimization Plan will be incorporated into the operations of the WTP. The report shall set forth actions that the City has taken or plans to take, and a schedule that the City plans to incorporate them.

b. Upon completion of the any recommendation, submit to RFO an update confirming that the recommendations have been completed.

c. Mail, email and/or personally deliver all submittals and reports required by this Order to:

VDH - Office of Drinking Water - Richmond Field Office
c/o Compliance Specialist
109 Governor Street, 6th Floor
Richmond, Virginia 23219
Office phone number: (804) 864-7409
Email address: ODWFieldOffice4@vdh.virginia.gov