



## COMMONWEALTH of VIRGINIA

Karen Shelton, MD  
State Health Commissioner

Department of Health  
P O BOX 2448  
RICHMOND, VA 23218

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

March 11, 2025

### **Via Electronic Mail**

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

Scott.Morris@rva.gov  
Scott Morris, DBA, PE, Director of Public Utilities (DPU)

Re: January 23, 2025, Notice of Alleged Violation to Richmond DPU Response  
City of Richmond Waterworks, Public Water System Identification (PWSID) #4760100

Dear Mayor Avula and Dr. Morris:

Thank you for providing a timely response to the January 23, 2025, Notice of Alleged Violation (NOAV). The Office of Drinking Water (ODW) has observed noticeable improvement and progress of operations and emergency preparedness since the water crisis. ODW recognizes more work is necessary and will take time. The Virginia Department of Health (VDH) is committed to helping the City of Richmond (City) update and revise its operations, communications, capital improvement plan, asset management, and emergency preparedness culture. While VDH's investigation is ongoing and a more comprehensive analysis will follow the conclusion of that investigation, please find herein ODW's feedback and observations regarding the City's efforts on training, standard operating procedures (SOPs), and emergency preparedness as outlined in the City's NOAV response.

### Training

ODW observed that shift lead staff likely presented training to each shift lead's respective direct reports or shift team. The multiple training events could create different understandings depending on how each shift lead emphasized, answered questions, or communicated different aspects of the SOPs. ODW understands the difficulty in providing training to shift teams who operate 24/7. Every member of each shift must receive consistent training, information, and understanding when responding to a power outage. Multiple trainers with multiple discreet training events might require "train-the-trainer" planning as part of future training rollouts. ODW suggests that the City consider a formal "train-the-trainer" process as part of its routine training, in addition to its strategy for on-boarding and teaching new hires throughout the year. This advice is offered because ODW staff observed that certain trainers identified in the acknowledgement sheets were previously unaware of SOPs on how to respond to a power outage. As part of a train-the-trainer implementation strategy, new trainers should be tested or evaluated on being able to effectively communicate training materials to other DPU staff.

ODW also recommends that appropriate training on emergency response include both a classroom (lecture with questions and answers) and a field demonstration or “hands on” experience. Training must ensure that DPU staff on every shift has proficiency and knowledge to quickly act in an emergency. DPU staff must maintain an emergency preparedness and response mindset, with a culture of always being prepared. Training should include discussion on required communication and coordination, especially with power suppliers, wholesale partners, and local/state agencies.

### Standard Operating Procedures

ODW appreciates the hard work and commitment to develop many new SOPs for all aspects of plant operations and emergency response. DPU staff must adequately understand the new SOPs and proficiently implement them, which will take time. ODW offers the following ideas for the City’s consideration:

- SOPs should include safety procedures, potential hazards, staff responsibilities, expected time to complete actions, and required equipment to execute the activities outlined in the SOPs. A good resource for developing SOPs can be found at <https://www.epa.gov/sites/default/files/2015-06/documents/g6-final.pdf>.
- Copies of completed SOPs should be placed in areas where DPU staff can quickly and easily access them, perhaps near the equipment or processes to which the SOPs are related. DPU staff should have access to hard and electronic copies.
- Including or providing photos and job aids with SOPs would likely reduce confusion and improve implementation of SOPs, especially when DPU staff must respond to an emergency under increased stress.
- Having easily visible labels on equipment such as valves, switches, and buttons would likely help DPU staff implement the SOPs.
- Revisiting SOPs on a routine frequency with appropriate updated training and checks for proficiency would create the kind of emergency preparedness culture that is needed. A summary of SOP version history would likely help DPU staff understand changes in procedures over time.
- DPU staff who use SOPs should be routinely evaluated on their understanding and proficiency to implement them. New and less experienced staff might be a good resource to determine the adequacy of an SOP, job aid, or the recommended visible labels on equipment. DPU staff who implement SOPs should be given an opportunity to help revise them.

ODW acknowledges receipt of the *Standby Generators and Switchgear #6 SOP* in Attachment A of your response dated February 21, 2025. ODW requested the City of Richmond’s standard operating procedures at the water treatment plant (WTP) for responding to the power outage, including roles and responsibilities of employees. This SOP appears to address the actions taken by electrical maintenance personnel and do not include instructions for the plant operators. An additional SOP is likely necessary to describe the actions that plant operators must take to prevent flooding and respond to an unexpected and/or extended loss of commercial power. A second SOP is likely necessary to describe the actions that plant operators must take to restart the plant and bring it online, either on commercial or emergency power, including instructions to address the 50 million gallons per day (MGD) limit while on emergency generator power. A third SOP is likely necessary to describe emergency pumping operations that are necessary to prevent another damaging flood in the WTP. **Please provide the additional SOPs**

**described herein as soon as possible, but no later than July 1, 2025, or explain why those SOPs are not necessary or issues raised can be addressed in a different way.**

#### Emergency Preparedness

The Vacuum Circuit Breaker Test results conducted by EPS are dated June 2, 2022 (Switchgear, or SG #6/Side 1) and May 24, 2022 (Switchgear or SG #6/Side 2). On January 13, 2025, EPS indicates that a spare tie breaker was installed at SG6. **Please provide the vacuum circuit breaker test results for the January 13, 2025, visit by EPS, if conducted.** Alarms related to SG6 or indicator lights should be remotely monitored at the plant via SCADA, if possible. Once the filter effluent valves have been replaced and the uninterruptable power supplies (UPS) are upgraded, **please provide ODW with a copy of the results of the testing of the effluent valve operations and SCADA operations, no later than April 30, 2025.**

ODW acknowledges that preventative maintenance was performed on the backup diesel generators by CAT Carter on October 16, 2024, and that DPU maintenance staff completed a work order on them on January 4, 2025. DPU staff checked the 2 Mega Watt generators, including the fluids, engine status, and battery chargers for both units. Both generators were started briefly to ensure they both cranked up and synced and shut back down. While the generators were evaluated for functionality in preparation of a pending storm, DPU staff still need advanced instruction and training on using them in a timely manner.

The City has improved resiliency with its recent DPU staff training, creation of new SOPs, increased emergency preparedness work with Dominion Power, and using both main power feeds rather than operating in “Winter Mode.” Until the City upgrades its UPS systems and tests and verifies the functionality of SCADA and effluent valve operations - and knowing that the diesel back-up generators are still manually started until at least October 2025 - ODW believes that the City must have adequate staffing to implement the operational procedures necessary to reduce the possibility of another flooding event.

ODW recommends that the City consider increased staffing during potential storm events and during routine operations while the WTP has a more manually focused operational posture while critical infrastructure improvements happen. After the City improves its automation and verifies newly installed critical infrastructure is verified functional, staffing level could be reevaluated.

ODW looks forward to receiving the City’s plans and response after receiving ODW’s investigation report in April 2024, which will likely include additional findings and recommendations, and the City’s independent investigation. Until then, the City should continue to explore other operational and organizational improvements, such as: (1) better coordination/communication with wholesale waterworks before, during, and after a storm event; (2) maximizing water storage levels in the distribution system as part of storm preparation procedures; (3) holding tabletop exercises that practice response using real life scenarios with neighboring jurisdictions and state agencies; and (4) investigating potential ways for the City and its wholesale waterworks to continuously share operational data.

Thank you again for submitting a timely response to the January 23, 2025 NOAV and for the City’s continued efforts to learn from the water crisis. The City is making good progress. The City’s immense recovery efforts, making needed and quick infrastructure repairs and upgrades, updating SOPs, completing DPU staff training, and allowing unfettered access for ODW inspections speaks to

The Honorable Danny Avula  
Dr. Scott Morris, DPU Director  
March 11, 2025  
Page 4 of 4

leadership's commitment to ensure another water crisis never happens again. Thank you for considering the additional thoughts and requests outlined herein.

Should you have additional questions or comments, then please feel free to contact me at [James.Reynolds@vdh.virginia.gov](mailto:James.Reynolds@vdh.virginia.gov). You can also reach Dwayne Roadcap, Director, Office of Drinking Water, at [Dwayne.Roadcap@vdh.virginia.gov](mailto:Dwayne.Roadcap@vdh.virginia.gov) or (804) 338-0371.

Sincerely,



James Reynolds, PE  
Field Director, Richmond Field Office  
Office of Drinking Water

ec: Dr. Elaine Perry, Health Director, Richmond Henrico Health District  
Dr. Thomas Franck, Health Director, Chickahominy Health District  
Mr. Dwayne Roadcap, Director, Office of Drinking Water