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R. Christopher Lindsay
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November 7, 2025

Mr. William Richardson
Drinking Water Section (3WD21)
Water Protection Division
USEPA Region 3
1650 Arch Street Philadelphia, PA 19103-2029

Dear Mr. Richardson:

Please find a copy of the Commonwealth of Virginia's Capacity Development Annual Implementation Report for 2025, attached to this correspondence. The Report covers the period October 1, 2024, through September 30, 2025, and has been prepared pursuant to § 1420(a) of the 1996 Amendments to the Safe Drinking Water Act (SDWA) and the United States Environmental Protection Agency instructions.

The Virginia Department of Health - Office of Drinking Water (ODW) practices described in this report continue to promote public health protection for Virginians. Through the Training, Capacity Development and Outreach Division, ODW enhances the technical, managerial, and financial capabilities of Virginia's public waterworks. ODW efforts continue to develop sustainable waterworks and support the mission of safe drinking water for all Virginians.

If you have any questions regarding this report or the Division of Training, Capacity Development, and Outreach, please contact me at (804) 317-0140 or by email at Jarrett.Talley@vdh.virginia.gov.

Sincerely,

Jarrett Talley

box SIGN 17YYP8VY-4W5XPLP6

Jarrett Talley
Director, Division of Training, Capacity Development and Outreach

Enclosure
CC: Alison Flenniken, EPA Capacity Development – National Coordinator

Commonwealth of Virginia
Capacity Development Annual Implementation Report

October 1, 2024 through September 30, 2025

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Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

COMMONWEALTH OF VIRGINIA

Glenn Youngkin, Governor

VIRGINIA DEPARTMENT OF HEALTH

Karen Shelton, MD
State Health Commissioner

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This report is available to the public on the VDH Office of Drinking Water website at:
https://www.vdh.virginia.gov/drinking-water/capacity-development/

Contents

Tables

Figures

Appendices

Introduction

In accordance with § 1420(a) of the *Safe Drinking Water Act* (SDWA) Amendments of 1996 (42 USC § 300g-9(a)), this report serves as evidence of the Commonwealth of Virginia's commitment to and implementation of a Capacity Development Program. This report documents Virginia's assistance to waterworks[1] owners and operators in the Commonwealth and covers federal fiscal year 2025, from October 1, 2024, through September 30, 2025. This program is based on and is compliant with Virginia's Capacity Development Strategy ("Strategy"). The United States Environmental Protection Agency (EPA) approved Virginia's revised Strategy on January 19, 2022. The Office of Drinking Water (ODW) revised the Strategy according to the requirements of the America's Water Infrastructure Act. It includes Virginia's approach for supporting, encouraging, training, and assisting waterworks with Asset Management Planning. Stakeholders in Virginia reviewed the revised Strategy.

PART 1: NEW SYSTEMS PROGRAM

1.1 Legal Authority

The VDH, though the ODW, is the primacy agency for implementation of the SDWA and National Primary Drinking Water Regulations in the Commonwealth of Virginia. Legal authority for Virginia's new systems program is provided in §§ 32.1-169 and 32.1-172 of the *Code of Virginia* (1950, as amended in 1994). Virginia's legal authority has not changed from the previous reporting year.

1.2 Control Points

In Virginia, all proposals to create a new waterworks must meet statutory and regulatory requirements that serve as control points for ensuring the capacity of new waterworks. There have been no modifications to Virginia's control points from the last reporting year.

Section 32.1-172 of the *Code of Virginia* states: "No owner shall establish, construct or operate any waterworks or water supply in the Commonwealth without a written permit from the Commissioner, except for the extension of water distribution piping having a diameter of eight inches or less and serving less than fifteen equivalent residential connections" and "the [permit] application also shall include a comprehensive business plan detailing the technical, managerial, and financial commitments to be made by the owner in order to assure that the system performance requirements for providing the water supply will be met over the long term."

To implement § 32.1-172 of the *Code of Virginia*, ODW requires owners to prepare and submit a comprehensive business plan, called a "Waterworks Business Operation Plan" (WBOP), for the development of new waterworks, or the purchase or transfer of an existing waterworks by a first-time owner of a waterworks in Virginia. In addition, ODW requires a WBOP when an owner has

[1] In Virginia, public water systems are called "waterworks." The definition of a waterworks, "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…" (*Code of Virginia* § 32.1-167) is equivalent to the federal definition of a public water system, which states "a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves at least twenty-five individuals." 42 USC § 300f(4)(A).

a poor compliance history with Virginia's *Waterworks Regulations*. ODW published the WBOP templates on the VDH–ODW webpage:

https://www.vdh.virginia.gov/drinking-water/capacity-development/waterworks-business-operations-plan/

Section 32.1-172 E of the *Code of Virginia* states: "If the proposed waterworks is not in compliance with all regulations of the Board [of Health] but, in the opinion of the Commissioner, the public health will not be jeopardized, the Commissioner may issue a temporary permit for such a period of time and subject to such conditions as the Commissioner may deem appropriate for the owner to achieve compliance with such regulations." ODW staff utilize temporary permits most commonly for waterworks that do not fully comply with the *Waterworks Regulations.* These tend to be previously unpermitted waterworks that ODW identifies, called "newly discovered waterworks," and waterworks with a change in ownership.

In addition, prior to receiving a permit to establish, construct, expand, or modify a waterworks, plans and specifications must comply with the *Waterworks Regulations* "Part III – Manual of Practice for Waterworks Design" (12VAC5-590-640 through 12VAC5-590-1235) to ensure new and modified waterworks are properly designed and physical facilities will be operated in a safe, reliable, and appropriate manner. The design shall provide the engineering basis to meet the drinking water standards under the SDWA.

Effective June 23, 2021, ODW completed the process for amending the Virginia Waterworks Regulations (Regulations). The Regulations establish requirements and procedures for the issuance of permits; minimum standards for water quality (including requirements for waterworks owners to submit regular analytical results of sampling for biological, chemical, radiological, physical, and other tests); requirements for recordkeeping, reporting, public notice, and consumer confidence reports; requirements for inspections; and criteria for the siting, design, and construction of waterworks. The regulatory action was a comprehensive update of the Regulations, including Part I – General Framework for Waterworks Regulations, Part II – Operation Regulations for Waterworks, and Part III - Manual of Practice for Waterworks Design. Part IV – Exceptions for Non-community Waterworks to Specific Sections of the Manual of Practice (Part III) was incorporated into Part III, and the appendices were incorporated into the body of the Regulations or, where they are no longer relevant, deleted. Many of the changes simply refined and provided further clarity to existing regulations.

During the reporting period, ODW worked to update policy documents to reflect changes to the Regulations and the Code of Virginia. These updates included work on the Field Operations Manual, Project Review & Permit Procedures Manual, boil water advisory guidance, 2-hour reporting guidance, the Enforcement Manual, and the Sampling Manual. In addition, ODW developed training materials covering the new regulatory requirements in the Lead and Copper Rule Revisions and the PFAS Rule.

The ODW relies on a holistic approach to capacity development and emphasizes the role of long-established programs to enhance the technical, managerial, and financial (TMF) capabilities of waterworks. In addition to the permitting process already described, additional programs include sanitary surveys, technical assistance contacts by field staff, operator certification requirements, compliance and enforcement, and training courses offered by ODW, contractors, partners, and other technical assistance providers. The capacity building elements of these and other programs

are described in more detail in Part 2 of this report, "Existing System Strategy" which summarizes activities in these areas for both new and existing waterworks. It is important to note that new systems also benefit from these long-standing programs.

1.3 New Systems

Appendix A lists community and non-transient non-community (NTNC) waterworks that have become active during the three-year period from October 1, 2022, through September 30, 2025. Newly constructed facilities, previously unpermitted facilities that meet the definition of a waterworks (newly discovered waterworks), and existing facilities under new ownership are included. ODW may not have issued operation permits for all new waterworks listed in Appendix A. However, staff are working to ensure all new waterworks obtain the required permits.

Newly discovered waterworks are typically businesses or small community water systems (*e.g.*, a restaurant, mobile home park, or group of single-family homes) that have operated for years without being aware of the requirement to comply with the *Regulations*. Once discovered, ODW field staff gather information from the owner to determine whether these systems meet the definition of a waterworks. If systems meet the waterworks definition, ODW notifies the owner and begins the process to issue an operation permit. Owners may challenge the determination under Virginia's Administrative Process Act (APA), *Code of Virginia* §§ 2.2-4000 through 2.2-4031, but most agree to regulatory oversight by ODW. The majority of newly discovered waterworks are non-transient non-community (NTNC) waterworks; however, ODW has identified some community waterworks.

The ODW provides technical assistance, makes site visits, provides templates for the WBOP, and sends reminders of sampling requirements and due dates to both new and existing waterworks. Examples of field office efforts to assist waterworks owners and operators are included in Appendix F. Nevertheless, many newly discovered waterworks and waterworks with ownership changes continue to experience managerial and financial challenges while attempting to comprehend and comply with state and federal requirements. As a result, these waterworks tend to experience more compliance issues than other water systems.

As new waterworks incur violations (see Appendix B), ODW provides timely technical assistance, surveillance, and enforcement until the waterworks either returns to compliance or is issued a formal enforcement action.[2] ODW couples compliance and enforcement activities with corrective action technical assistance; therefore, violations reported for new waterworks are typically of short duration.

During the three-year period from October 1, 2022, through September 30, 2025, ODW identified 29 community and NTNC waterworks as "new." Not all of these waterworks are actually new systems. The list includes waterworks that have transferred ownership or ones that ODW reactivated in the State Drinking Water Information System (SDWIS) according to the "Status Activity Date" in the electronic waterworks record. Of those systems, 14 of them incurred

[2] EPA defines formal enforcement action in Water Supply Guidance 26 "… as one which requires specific actions necessary for the violator to return to compliance, is based on a specific violation, and is independently enforceable without having to prove the original violation." A consent order, issued by the State Health Commissioner, on behalf of the State Board of Health, to a waterworks owner, with the owner's consent, is one example of a formal enforcement action. Consent orders are authorized by §§ 32.1-26 and 32.1-27 of the *Code of Virginia*.

violations. There has been a slight increase in the number of new systems with violations since the last reporting period in which 10 new waterworks had violations. There was a decrease in the number of new systems, down from 34 in the last reporting period. Of the 3 new systems in the preceding year (October 1, 2024, to September 30, 2025), 1 incurred a violation. New waterworks may have initial violations of the Revised Total Coliform Rule (RTCR) due to the inadequate sources; some require rehabilitation. New waterworks also struggle with sampling protocols and techniques. ODW will continue to contact waterworks with violations and provide technical assistance to resolve the violations. None of these new systems are on the EPA's Enforcement Targeting Tool (ETT).

EPA designed the ETT to identify waterworks with violations that rise to significant noncompliance by focusing on those systems with health-based violations and those that show a history of violations across multiple rules (see Appendix C). The ETT formula calculates a score for each waterworks based on open-ended violations and violations that have occurred over the past five years but does not include violations that have returned to compliance or are on the "path to compliance" through a specified enforceable action. In calculating the ETT score, health-based violation criteria are weighted.

According to EPA's Office of Enforcement and Compliance Assurance's July 2025 ETT, 6 waterworks were identified as a "priority system." This represents a decrease from July 2024 and July 2023 when 10 and 11 waterworks were on the ETT, respectively. However, this is still an increase over the 2 systems that were on the July 2022 ETT.

The ODW promotes the use of temporary operation permits with specific requirements for newly discovered waterworks not in compliance with the Regulations. Staff issue temporary permits with an expiration date not to exceed 24 months. To address critical issues promptly, staff include benchmark deadlines. The purpose of an expiration date is to provide a period for the waterworks to achieve compliance and, in doing so, demonstrate adequate TMF capacity prior to the issuance of a standard operation permit. ODW field staff prefer to complete an operation permit when possible; however, the use of temporary operation permits is a viable option.

Temporary operation permits protect public health while providing time for a new waterworks to make the changes required for meeting regulatory requirements. If a newly discovered waterworks does not demonstrate adequate TMF and does not meet requirements of the temporary operation permit prior to the expiration date, the waterworks would then be operating without a permit and would be subject to enforcement action. Enforcement generally begins by providing the owner written notice and may include meetings with ODW enforcement staff, a warning letter, a consent order, or possibly informal administrative proceedings that may result in the issuance of a special order directing actions required to return to compliance. This report provides more information about compliance and enforcement in Section 2.10 below.

PART 2: EXISTING SYSTEM STRATEGY

2.1 Programs, Tools, and Activities

ODW continues its surveillance program to identify waterworks with emerging compliance issues. Capacity Development staff monitor waterworks that appear to be having compliance issues for

violations, and when violations occur, ODW Capacity Development staff consult with field staff to develop an informal plan of action. Staff use this consultation to provide a plan to improve the waterworks' TMF capacity and ultimately prevent additional violations. Effective assistance includes:

- Regular sampling reminders by automated messaging, phone, email, or letter
- Site visits
- Referral to formal or informal training resources
- WBOP development or review
- Notifications and reminders of upcoming funding opportunities
- Direct one-on-one assistance by Sustainability Coordinators
- Referral to other technical assistance providers
- Warnings from the ODW's enforcement staff, and/or
- Issuance of Consent Orders
- Assessment of Civil Penalties and Charges

2.2 System Identification

ODW utilizes three common indicators to assess, identify, and prioritize waterworks in need of capacity development assistance: compliance, infrastructure condition, and managerial and financial capability. Compliance utilizes the data tools of the ETT score, compliance monitoring results, monthly operations reports, SDWA reports, and technical assistance fee payments. Infrastructure condition uses tools such as plan reviews and sanitary surveys to evaluate the waterworks' conformity to design standards and best practices for sources, treatment, storage, and distribution. The concepts of managerial and financial capacity are uniquely associated with each other and include indicators such as:

- The WBOP
- Customer complaints
- Staff licensure qualifications
- Status of programs, e.g. (safety, water accountability, and cross connection control)
- Responsiveness to correcting deficiencies
- Declaration of bankruptcy

The EPA requires ODW to conduct a triennial capacity assessment. Since July 2021, ODW has used an electronic tool to complete a capacity baseline assessment of all community and NTNC waterworks. The scoring system accounts for compliance status, infrastructure condition, managerial and financial indicators, and preparedness to comply with regulations. A higher assessment score means that the system's capacity is more robust. Staff conducts this "triennial capacity assessment" once every three years and ODW uses the results to identify specific waterworks needing assistance as well as programmatic adjustments or efforts to address regional or statewide need. Staff conducted the last assessment in the first quarter of 2023.

The assessment consisted of 18 "yes" or "no" questions, which were related to the three TMF capacities. VDH staff used official records to answer some questions and directly contacted waterworks for additional information as needed. Staff compared results of this assessment to both the 2016 (baseline) and 2020 assessments. Technical questions included asking whether the

waterworks facilities and appurtenances were in good operating condition and whether the waterworks met all established National Drinking Water Standards. Managerial questions explored whether the waterworks had sufficient operator coverage for sick leave and vacation as well as asking whether the facility addressed recommendations from recent sanitary surveys. Financial questions included asking whether the waterworks had at least 45 days cash on-hand to cover expenses and whether the waterworks had adjusted rates in the past three years.

If staff were unable to get a response to a particular question, then staff answered that question "No" per the process instructions. Appendix E has the complete list of questions asked during the triennial assessment. VDH incorporated the Triennial Assessment questions into the electronic sanitary survey in 2022, but the data was not complete enough to use as the sole source of data for the evaluation. This is an area that VDH will continue to work on.

In prior years, the area of Virginia generally identified as "Southside" received the lowest scores. In the 2023 evaluation, the distribution of low scores was more spread out and encompassed the middle section of the state from the western state line around Highland County, down through Southside, and into the Virginia Beach area. Southwest Virginia had the best performing systems because that area has received substantial infrastructure funding over the past 20 years. Additionally, waterworks training opportunities are generally focused in Blacksburg and Roanoke. VDH recognizes the "success" formula and is making plans to expand upon the success learned working with Southwest Virginia to other parts of the Commonwealth.

The ODW has prioritized deploying training, funding workshops, technical assistance, and financial resources across the commonwealth of Virginia to address this trend. Specific efforts are included in the ODW success stories in Section 3.6.

Capacity Development continues to provide management training that includes an emphasis on asset management and rate adjustments. Customer service at waterworks remains an opportunity area. Waterworks with clear customer service policies and practices enhance customer experience and trust, which help the waterworks support needed improvements with rate and policy adjustments. Small waterworks can benefit from improved customer service. A written customer service plan codifies actions that ensure a similar response to each customer. ODW continues to provide system-by-system help to address specific challenges, no matter the size of the regulated waterworks, its location, or its financial condition.

2.3 Approach to Assistance

Staff direct programs, tools, and activities that support Virginia's existing system strategy efforts to 1,063 community, 497 NTNC, and 1,268 TNC waterworks during the reporting period. These systems collectively serve approximately 7.93 million consumers – almost 90% of the total population of Virginia (8.89 million people).

2.4 On-site Inspection: Sanitary Surveys and Site Visits

Relationship to TMF Capacity: On-site inspections of waterworks are a significant component of the sanitary survey program and provide opportunities for ODW staff to assess TMF capacity. During the course of a sanitary survey, staff conduct thorough evaluations of waterworks'

infrastructure and treatment processes, in part by reviewing water quality monitoring records, examining operational practices and controls, and assessing operators' qualifications.

Staff utilize the sanitary survey process to identify waterworks' capacity needs and prioritize targeted guidance and assistance. The culmination of the sanitary survey is a written report that serves as a roadmap for waterworks owners to follow for correcting a waterworks' deficiencies or improving a waterworks' operation. ODW has implemented GEC SWIFT Surveys software to utilize electronic sanitary surveys to improve the efficiency of sanitary surveys, to improve the consistency of our evaluations of waterworks, and to follow up on issues identified.

Staff conduct special site visits to evaluate new waterworks construction, investigate consumer complaints, provide guidance to waterworks required to conduct Level 1 Revised Total Coliform Rule (RTCR) assessments, conduct Level 2 RTCR Assessments, and respond to specific requests for assistance. Staff make site visits between sanitary surveys to confirm waterworks' progress in addressing sanitary survey comments and correcting significant deficiencies. Staff also make site visits to perform source water assessments and evaluate locations of proposed new wells for approval. These visits provide an opportunity for face-to-face interaction with waterworks owners and operators, allowing immediate technical assistance to improve TMF capacity.

Performance: During the reporting period, ODW staff performed 599 routine sanitary surveys, provided guidance to waterworks in completing 135 Level 1 RTCR Assessments, conducted 51 Level 2 RTCR Assessments, and performed 38 well site assessments**.**

2.5 Technical Assistance Contacts by Field Staff

Relationship to TMF Capacity: In addition to site visits, ODW staff interact with waterworks owners and operators and provide assistance through a variety of informal contacts including meetings, telephone calls, letters, and emails. Assistance covers a full range of TMF concerns. For instance, staff may assist with water quality sampling or follow up on corrective measures from a sanitary survey report. Staff notify waterworks operators of upcoming training opportunities or assist with water treatment dosage calculations. ODW notifies owners of pending regulatory impacts or requirements for consumer education.

Performance: During the reporting period, VDH–ODW staff received and responded to 27,641 assistance requests from waterworks owners and operators. They communicated with waterworks using a variety of methods as described in the previous paragraph. Technical assistance success stories are included in Appendix F.

2.6 Operator Certification

Relationship to TMF Capacity: In Virginia, the Department of Professional and Occupational Regulation (DPOR) regulates licensed waterworks operators through the Code of Virginia §§ 54.1-2300 through 54.1-2302. DPOR bases licensure on operators having applicable experience and education as well as demonstrating minimum required knowledge, skills and abilities through an examination; 18VAC160-30-10 et seq. Experience is limited to operation and maintenance of waterworks, laboratory work, and treatment plant maintenance. Experience level varies depending on the waterworks' classification. The minimum education requirement for an operator's license is a high school diploma or General Educational Development certificate. However, there are

licensure regulation provisions for candidates without high school diplomas to substitute more operator-in-training experience for education.

ODW facilitates the development of TMF competencies for waterworks owners and operators by offering and sponsoring on-going training opportunities. The curricula for these programs include technical topics such as equipment operation and maintenance, drinking water chemistry and microbiology, water treatment technologies, and operational math. The program addresses managerial aspects of waterworks operation through course offerings on the *Regulations*, financial planning, asset management, waterworks administration, source water protection, emergency planning, and waterworks security.

Performance: VDH-ODW and Virginia Tech hold courses in person across the Commonwealth. These courses have been well attended, and participants are providing positive feedback. A list of the courses is provided in Table 1. Additional details are available in the "Operator Certification Annual Report, 2025" sent to the US EPA on June 23, 2025.

Water Operators Short School: Virginia Tech held short school classes in person this year. ODW actively participates in the Short School by volunteering as course instructors at this weeklong course held annually since the 1930s. Historically, there have been three levels to the course: introductory, intermediate, and advanced. Each level provides approximately 15 sessions and focuses on a variety of waterworks operations topics. The curricula for the intermediate and advanced courses build on the preceding year's course. Virginia Tech held the Short School from July 7 – July 11, 2025; approximately 72 people attended.

Last year's water short school launched a pilot program with the Virginia Department of Professional and Occupational Regulation (DPOR). This pilot offered eligible participants the opportunity to take their licensure exam at the conclusion of short school. The exams had to be hand-scored, so final numbers from this year's exam are pending.

Table 1: Classes offered by ODW and Virginia Tech

Program Date	Program Name	Participants
10/7/24 - 10/10/24, 10/15/24	Contaminants of Concern - Virtual	25
10/16/24	Broadcast: Ethics & Standards of Practice and Conduct	143
10/28/24 - 11/1/24	Operation and Maintenance of Distribution Systems	10
11/13/24 - 11/14/24	Hands-On Training at a Full-Scale Water Treatment Plant	17
11/20/24	Broadcast: Cross Connection Control: Regulation and Best Management Practices	141
2/12/25	Broadcast: Non-Community Waterworks	119
3/3/25 - 3/17/25	Water Operation Math	28
3/12/25	Broadcast: Water System Hydraulics	187
3/19/25 - 3/20/25	Hands On	14
4/1/25 - 4/3/25	Basic Groundwater Math	16
4/9/25	Broadcast: Monitoring, Reporting, Routine Sampling	224
5/14/25	Broadcast: Ozonation, Chloramines, and UV	245

5/19/25 - 5/23/25	Operation and Maintenance of Distribution Systems	14
6/18/25	Broadcast: Nanoparticles, Polymers, AUVs	225
7/7/25 – 7/11/25	Water Operators Short School	72
7/21/25 - 7/24/25	Management, Methods, and Money: Understanding Concepts in Capacity Development	18
7/29/25 - 7/30/25	Physical/Cyber Security	18
8/3/25 - 8/8/25	Wastewater Short School	106
8/13/25	Broadcast: VDH Regulatory Update	314
8/19/25 - 8/21/25	Establishing a Successful and Sustainable Waterworks: Revenues, Rates and Funding	16
9/17/25	Broadcast: Developing the Water and Wastewater Professional	289
9/23/25	Groundwater Math for Small Systems	9

2.7 Construction Plans and Permit Review

Relationship to TMF Capacity: ODW uses authority in §§ 32.1-169 & 32.1-172 of the Code of Virginia and 12VAC5-590-190 of the Waterworks Regulations to prohibit the construction or change in the manner of transmission, storage, purification, treatment, or distribution of water (including the extension of water pipes for the distribution of water) at any waterworks or water supply without a written construction permit. Construction and operation permitting authority is a control point to prevent the creation of waterworks lacking sufficient TMF capacity to sustain operations. After construction, the waterworks owner must submit a statement by a licensed professional engineer. The engineer's statement confirms completion of the construction work in accordance with the approved plans and specifications, based on inspections of the waterworks during and after the construction, and for complicated projects, ODW confirms this with a final inspection. Upon receipt of the statement, and satisfactory completion of a final inspection if required, ODW issues a new or updated operation permit. The permit also establishes the classification of the waterworks for the purpose of licensure requirements for personnel.

Performance: During the reporting period, ODW issued 224 construction permits through the review of plans and specifications for new construction, expansion, or changes in the manner of transmission, storage, purification, treatment, or distribution of water (system improvements). Following a successful 1-year pilot project, ODW transitioned in April 2023 from a regionalized plan review program to a centralized plan review program with a goal of improving consistency, efficiency, and permitting turn-around time over the regionalized program. The centralized program has reduced permitting turn-around time from an average of 76 days to an average of 24 days. ODW has hired 3 positions to support this program, including a supervisor and two plan review engineers.

2.8 Water Loss and Evaluation Assistance

Relationship to TMF Capacity: Distribution system water loss is a TMF capacity concern. Water loss may include impacts to hydraulic source capacity, reduction in pressure, negative pressure resulting in contamination from cross connections and leaks, increased treatment, and risk to public health. Financial impacts include loss of potential revenue and increased operation costs (e.g. electricity, chemicals, unbilled water, and staff time). These factors affect management decisions and capital outlay necessary to correct significant water loss in the distribution system.

Performance: ODW staff do not conduct leak detection, as leak detection requires extensive training and expensive equipment. Instead, ODW continues to support our technical assistance partners by funding applications for leak detection equipment under the Drinking Water State Revolving Fund (DWSRF) set-asides. The Virginia Rural Water Association (VRWA) received grant funds for leak detection equipment. They provide the services through ODW referral and direct contact from waterworks. VRWA reported delivery of 764 hours of leak detection technical assistance service to several waterworks in Virginia during the reporting period. Information about leak detection services is included in Appendix D of this report.

2.9 Compliance and Enforcement Program

Relationship to TMF Capacity: ODW routinely reviews water quality data submitted by waterworks and issues Notices of Alleged Violation (NOAVs) for sample results that do not meet the standards in the Regulations. Additionally, ODW issues NOAVs for monitoring and reporting infractions, lacking a properly licensed operator, recordkeeping failures, and other conditions that deviate from standards established by the SDWA and the Regulations. These notifications describe recommendations for a course of action for waterworks to follow to return to compliance and include any applicable public notice requirements.

ODW issues warning letters to waterworks owners in light of the number of violation points the waterworks has on the ETT (Enforcement Targeting Tool), the ETTA (Enforcement Targeting Tool Assistant), and ODW's newly implemented state-only violation scoring system. ODW issues warning letters to a waterworks owner whose system, based on the violation points accumulated, is a priority system for enforcement, is on the verge of becoming a priority system, or otherwise as needed after a waterworks has not timely returned to compliance after receiving a NOAV. Warning letters are generally issued on a quarterly cycle and summarize violations that the waterworks has not yet resolved. Warning letters request the owner take corrective action within a specified timeframe, and state ODW may take formal enforcement action if the owner does not resolve the violations in a timely manner.

The State Health Commissioner, acting on behalf of the Board of Health, has the authority to issue administrative orders, either a binding bilateral consent order (Code of Virginia §§ 32.1-26 and 32.1-27) or a unilateral special order (Code of Virginia § 32.1-175.01), to waterworks owners who have violated the Regulations. ODW uses administrative orders to address situations where a waterworks has not returned to compliance in a timely fashion following issuance of an NOAV and/or a warning letter. As required by the Virginia Administrative Process Act, prior to a special order potentially being issued, ODW convenes an informal fact-finding conference and/or formal administrative hearing to provide the waterworks owner with due process. Both consent orders and special orders establish timelines and direct corrective measures that will lead to compliance.

ODW compliance and enforcement efforts to return a waterworks to compliance include identifying solutions to the causes of a waterworks' noncompliance with federal and state drinking water regulations. Among the obstacles that a waterworks may face in trying to return to compliance are inadequate TMF capabilities. ODW utilizes various tools to direct attention and provide guidance to waterworks owners on ways to correct deficits in their TMF capabilities. For instance, during an administrative hearing it may be determined that inadequate waterworks revenues are the ultimate cause of chronic monitoring failures. In that situation, an administrative

order may require a waterworks owner to submit a WBOP as a budgeting tool. Additionally, ODW may provide a waterworks owner with rate-setting assistance to address an underlying lack of financial capacity that is resulting in regulatory violations.

Performance: During the October 1, 2024, through September 30, 2025, reporting period, ODW issued 1,411 NOAVs (1,241 Federal violations and 170 State violations) and 59 warning letters. Additionally, the State Health Commissioner entered into five consent orders with waterworks owners, including one waterworks receiving two consent orders during this period and one pre-existing consent order being replaced with a superseding consent order due to additional regulatory violations. All five of these consent orders involved community waterworks. Three waterworks satisfied the requirements of consent orders entered into in prior years and those orders were terminated. This included termination of one consent order for a community waterworks and two consent orders for transient non-community waterworks.

2.10 Waterworks Advisory Committee

Relationship to TMF Capacity: ODW collaborates with the Waterworks Advisory Committee (WAC), which is comprised of a diverse group of waterworks stakeholders throughout the state. The WAC provides input into the ongoing development of ODW policies and procedures. ODW consults the WAC frequently regarding the implementation of specific programs, including those related to capacity development. *Virginia Waterworks Regulations* 12VAC5-590-45 provides requirements related to the WAC.

Performance: The WAC and ODW staff met four times during the reporting period: December 10, 2024, March 24, 2025, June 11, 2025, and September 16, 2025. Meeting minutes are available on the Virginia Town Hall website.

2.11 Drinking Water State Revolving Fund – Construction Funding

Relationship to Technical, Managerial, and Financial Capacity: The ODW Financial and Construction Assistance Program (FCAP) administers the Virginia Drinking Water State Revolving Fund (DWSRF) and provides financial assistance to waterworks owners in the form of low-interest loans and principal forgiveness. FCAP can use financial assistance to resolve health-related issues, for infrastructure improvement, and to refinance debt. Training, Capacity Development and Outreach (TCDO) staff assess all qualified waterworks applying to receive DWSRF construction fund assistance to determine if the waterworks has sufficient TMF capacity before awarding funds. Waterworks that do not appear to have adequate TMF capacity are required to submit a WBOP or take advantage of technical assistance provided by Capacity Development staff. ODW also coordinates through its financial partner, Virginia Resource Authority (VRA). VRA completes credit reviews for all DWSRF projects consisting of a loan. In order to pass the credit review, waterworks are required to have completed, up-to-date financial audits as well as water user rates that pay for operating costs as well as debt service coverage.

The ODW implements outreach efforts to increase awareness of the opportunities available through the DWSRF program. ODW staff post information on the ODW website and on Town Hall. The DWSRF solicitation package includes eligibility information, application information and deadlines, program workshop dates, contact information, as well as other useful information. ODW utilizes the ETT to identify non-compliant waterworks that would most benefit from the

DWSRF funding. FCAP can then notify these waterworks by letter of the DWSRF opportunities available through the year, rather than a couple months before the application deadline. FCAP continues to solicit eligible applicants for each DWSRF Construction funding cycle.

To promote sustainable programs, water systems that receive funding through the DWSRF may be required as part of the Technical, Managerial, and Financial Capacity (TMF) review completed by TCDO to have an active asset management plan (AMP) and/or a WBOP or prepare one or both plans before completion of the awarded project. In many cases the cost of completing the AMP and/or WBOP can be included in the overall project cost.

Performance: During the reporting period, ODW received applications for the FY2025 Bipartisan Infrastructure Law (BIL), FY 2025 DWSRF funding, and SA-HMW "Hurricane Helene, Milton, and Hawaii Wildfires Special Appropriation" funding. The Intended Use Plan (IUP) and the Project Priority List (PPL) have been drafted for all FY 2025 funding (Base + BIL). For FY2025 BIL applications, the TMF assessment has been conducted, and funding offer letters and awards have been sent out. As part of the TMF review, ODW staff identify issues regarding low TMF capacity and recommend corrective actions in the funding offers. For FY2025 funding, FCAP has developed the PPL including 4 DWSRF Base funded projects, 7 BIL Supplemental Projects, and 3 BIL Emerging Contaminants Projects. Additionally, 8 projects were included from the SA-HMW "Hurricane Helene, Milton, and Hawaii Wildfires Special Appropriation". In total, 22 new projects were funded from the FY2025 funding solicitation.

2.12 Planning and Design Funded Projects

Relationship to TMF Capacity: ODW awards planning and design funds annually to small, financially challenged community waterworks. The program provides up to $45,000 per project. The beneficiaries of this program are primarily waterworks that would not have the TMF capacity to evaluate drinking water problems, identify solution alternatives, and make recommendations for correction. Eligible projects may include preliminary engineering planning, design of plans and specifications, performance of source water quality and quantity studies, or other similar technical assistance projects. The submission of a preliminary engineering report (PER) is a requirement for both ODW's DWSRF construction program and the US Department of Agriculture's Rural Economic Development Loan & Grant Program. However, FCAP will accept applications without a PER, and can fund engineering services as part of a construction project.

Waterworks can submit Planning and Design Grant applications year-round. Staff reviews the applications upon receipt and makes funding offers for complete applications with acute or chronic health points. ODW will hold applications without acute or chronic health points until around September 1st of each year. If funds are still available, staff will review and score the remaining applications.

Outreach efforts by ODW increase awareness of the opportunities available through the Planning and Design Grants. Staff post information on the VDH–ODW website during January of each calendar year. The information includes eligibility information, application information and deadlines, program workshop dates, contact information, as well as other useful information.

Performance: Waterworks owners submitted 12 applications totaling $534,925.00 to the Planning and Design Fund to date during calendar year 2025. ODW receives applications on a rolling basis

during the year, so there may be more to come in before the end of the year. ODW has made an offer to 6 waterworks totaling $345,000.00. ODW continues to reimburse projects cost for offers from previous years with approximately $255,000 expended on prior year projects. Three projects from prior years remain active, one from 2023 and two from 2024. TCDO staff continue to follow-up on these projects to ensure completion.

2.13 Emergency Preparedness

Relationship to TMF Capacity: Preparedness, response, and recovery for/from natural, manmade and technological disasters are a capacity gap for Virginia waterworks. Waterworks preparedness to respond to various emergencies leads to resilient waterworks capable of continuing operations, meeting state and federal requirements, and ensuring public health protection during these incidents. ODW provides a variety of training, exercises, and planning tools to assist waterworks' preparedness.

Performance: The ODW Emergency Services Coordinator and Emergency Services Planner aided waterworks across the Commonwealth through providing technical assistance to waterworks through training initiatives, emergency response guidance, and proactive communication as described below:

Staff continue to lead Emergency Support Function #3 – Public Works and Engineering (ESF #3) functions for the Commonwealth of Virginia Emergency Operations Center (EOC), which includes coordination with the Virginia Department of Emergency Management (VDEM), Virginia Department of Environmental Quality (DEQ), the Virginia Department of Conservation and Recreation (DCR), and the Virginia Department of General Services (DGS). ESF #3 responds to wastewater, drinking water, dam, and building events throughout the Commonwealth, including dam failures, wastewater and stormwater overflows, natural disasters, and weather events. The Emergency Services Coordinator and Planner addressed boil water advisories, participated in the Commonwealth's Drought Monitoring Task Force, and attended weekly Virginia Emergency Support Team (VEST) check-in meetings with VDEM. The Emergency Service Planner has been a part of the VA Rapid Response Team (VARRT) weekly coordination calls.

The Emergency Services Coordinator participated in the Virginia Emergency Support Team (VEST) activation in January for a winter weather event with cascading impacts causing the City of Richmond to go under a Boil Water Advisory (BWA) that cascaded to affect eastern Henrico County and parts of Hanover County. The Emergency Services Coordinator participated in the VEST activation in February for winter weather and flooding. Winter weather and flooding in January and February created many disruptions to water utilities in Virginia. While severe weather impacted many regions in Virginia, planning for critical infrastructure cyber threats continued with the private sector, Virginia Department of Emergency Management (VDEM), and various state agencies including ODW. In August, the Emergency Services Planner held a coordination meeting with stakeholders for the City of Staunton water emergency that caused a BWA.

The new Emergency Services Planner was hired at the end of May to assist throughout the Commonwealth on power resiliency, emergency management plans, and emergency coordination. The Emergency Services Coordinator gave a presentation on "What is Drinking Water" at Virginia Emergency Management Symposium (VEMS) to external stakeholders in March. The Emergency Services Coordinator presented at the Community Based Emergency Response Series for

Chemical Incident Tabletop Exercise for VDH. The Emergency Services Coordinator and Planner attended the NVERS Water & Wastewater Emergency Preparedness Working Group. The Emergency Services Planner presented on 2 hour-reporting and BWA at the VDH Food Summit and VT Broadcast Regulatory Update. The Emergency Services Coordinator, Planner and ODW staff have been working on the new 2-hour reporting law policies and guidance that went into effect July 1. ODW staff have assisted with over 150 2-hour reporting calls from waterworks.

2.14 Source Water Assessments

Relationship to TMF Capacity: Source water assessments serve as a tool for water supply resource planning and, specifically, to support waterworks' managerial capabilities. ODW performs assessments on new waterworks and updates existing assessments resulting from routine sanitary surveys and other technical assistance opportunities offered by the agency.

Performance: During the 2025 reporting period, the contractors and ODW field staff conducted source water assessments for 488 eligible systems, refining the process for determining whether these systems maintain a Strategy In Place (SIP) and meet the definitions of Substantial Implementation (SI) under both the 2014 and 2021 criteria. Of the 488 systems contacted, 185 provided responses, with 80 systems confirming they have a SIP, including 49 "yes, coastal plain construction" (YCPC) systems that automatically meet SIP requirements due to construction classifications.

ODW continues to enhance source water assessment procedures, leveraging improvements in its Geospatial Information System (GIS) database and toolset. These advancements allow for more accurate and comprehensive reporting on source water protection measures to waterworks throughout the state.

2.15 Source Water Protection Program

Relationship to TMF Capacity: The Source Water Protection Program (SWPP) utilizes contract services, Source Water Protection Implementation Projects Grants, and technical assistance from ODW staff to assist small community waterworks and localities (serving fewer than 50,000 people) in developing and implementing source water protection plans. These plans empower waterworks to safeguard their drinking water sources by managing and mitigating activities that could affect water quality or quantity.

ODW actively participates in key regional initiatives, such as the Drinking Water Source Protection Partnership (DWSPP), the Interstate Commission on the Potomac River Basin (ICPRB), and Virginia's forest and water collaborations. These partnerships enhance our capacity to protect water resources through collaborative, multi-agency efforts.

In addition, ODW hosts an annual webinar to promote the Source Water Protection funding program and educate community water systems and other eligible waterworks on the significance of source water protection measures and funding opportunities.

This comprehensive approach is part of Virginia's multi-barrier strategy for ensuring safe drinking water, bolstered by interagency environmental reviews that minimize the environmental impact of proposed projects while protecting Virginia's water resources and public health.

Performance: Due to delays in renewing the Source Water Protection contractor agreements, the Office of Drinking Water (ODW) adjusted its approach to maintain program momentum. In the absence of active contractor support, ODW staff adapted outreach and coordination efforts to continue engaging with water systems and partners. Contractor renewals are anticipated to be completed by December 2025, allowing full program activities to resume thereafter. During the 2025 reporting period, using a Microsoft Form survey, the Office of Drinking Water evaluated waterworks across Virginia to determine if they have a Strategy in Place (SIP) and meet the definitions of Substantial Implementation (SI) from both 2014 and 2021.

Out of 488 eligible systems, 185 responded, with 38% actively participating in the survey. The survey identified that:

- 80 systems reported having a SIP, including 49 YCPC systems, which meet SIP requirements by default due to construction classifications.
- 40 systems met the 2014 definition of SI, including 17 systems with a SIP and 49 YCPC systems.
- 9 systems met the 2021 definition of SI.

Additionally, 10 systems requested further assistance with SWPP development or implementation, of which most had not previously collaborated with the contractors on this task. The contractors plan to reach out to these systems to assess their needs and facilitate SWPP development.

The following charts summarize Virginia's FY24 results pertaining to EPA's Strategic Targets SDW-SP4a (Community Water Systems covered by Substantial Implementation) and SDW-SP4b (Population covered by Substantial Implementation).

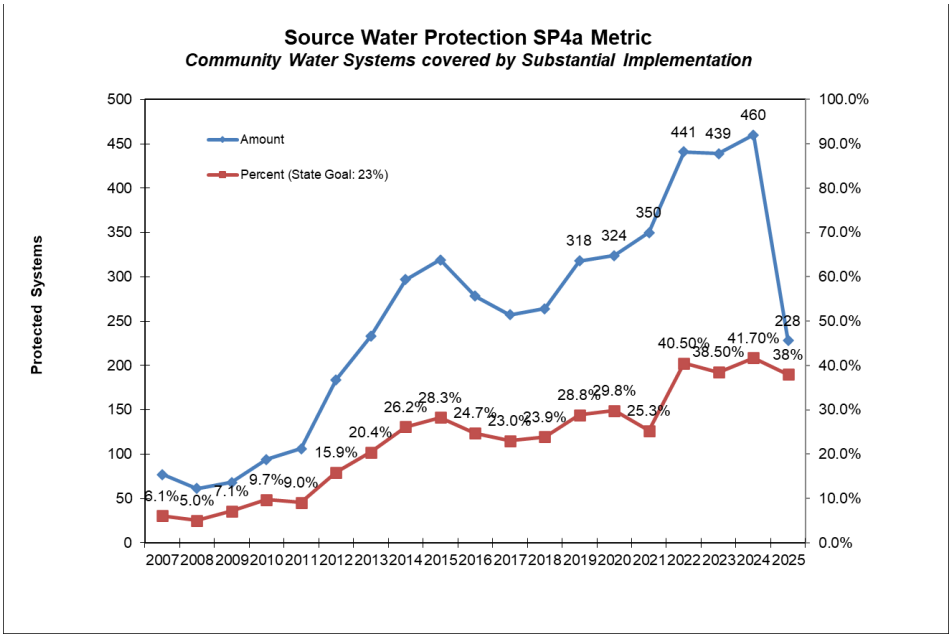

Figure 1: Source Water Protection SP4a Metric: CWSs covered by substantial implementation.

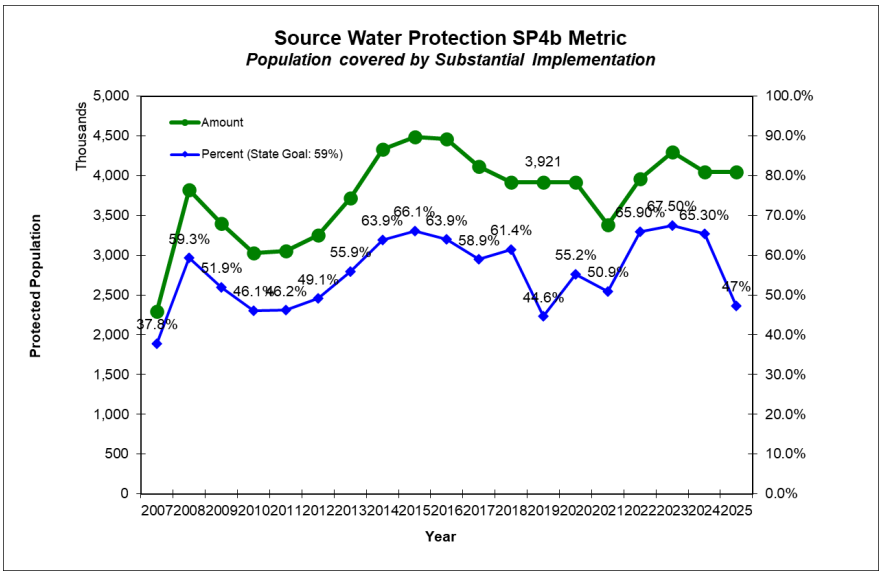

Figure 2: Source Water Protection SP4b Metric: Population covered by Substantial Implementation

The VDH issued the 2025 Source Water Protection Implementation Projects Request for Applications on May 19, 2025. The grant panel has a budget of $120,000 to fund source water protection grant projects. There was 1 applicant this year. After evaluating the applicant, the panel decided to fully fund the Town of Middleburg through the 2025 Annual Source Water Protection Grant. The funding supports multiple activities including Well 2 Rehabilitation & Restoration, Chemical Storage Relocation, System Infrastructure Repairs, and Structural Improvements.

- **The Town of Middleburg** – Fully funded for $50,000

The performance cycle for these awards ends on June 13, 2026.

Performance information about the Wellhead Protection Implementation Projects Request for Applications is available here.

2.16 Small Projects Engineering Program

Relationship to TMF Capacity: The Small Projects Engineering Program utilizes the services of two engineering consulting firms for small projects at financially stressed waterworks serving typically fewer than 3,300 consumers. These projects include design and specifications for small construction at a waterworks that may not qualify for a DWSRF planning and design funded project. The program is now in its eleventh year.

Performance: During this reporting period, seven new projects were initiated which included emergency response planning in Pittsylvania County, a hydraulic model and master meter plans and specs in Isle of Wight County, UV design in Page County, a PER for waterline extension and a WBOP in Russell corrosion control designs in Madison and Rappahannock Counties, system mapping in Page County, and treatment plans and specs in Culpeper County. The Small Projects

Engineering Program supports small waterworks in complying with the engineering requirements of the Regulations and facilitates the resolution of public health issues in drinking water systems.

2.17 Staffing

Capacity Development staff are part of the TCDO Division of the Office of Drinking Water. The Capacity Development team reports to the TCDO Director and consists of four full-time regional sustainability coordinators with one serving as supervisor, one non-community sustainability coordinator who works with systems across the state, primarily with TNCs, and a part-time assistant. TCDO additionally includes an Operator Training Coordinator in the Operator Certification Program. The Division considers field office staff time technical assistance; however, the time tracked for staff did not identify specific tasks that the field offices conduct which should be included in the technical assistance category. This report highlights some efforts that the field office staff conducted during the reporting year in Appendix F. This is not a comprehensive list of activities but shows the types of assistance provided by field office staff.

2.18 Financial Capacity Building

The ODW utilizes the WBOP as a tool to assist waterworks with building their financial capacity. Additionally, the Virginia Resources Authority (VRA) provides direct technical assistance to waterworks on financial capacity on behalf of ODW. VRA charges their time and effort to the Drinking Water State Revolving Fund Program. They provide financial analysis and guidance to waterworks that are potential DWSRF construction loan candidates. ODW also partners with the University of Maryland Environmental Finance Center to assist waterworks with improving their financial capacity, either through direct technical assistance or through referral to other technical assistance providers including the Environmental Policy Innovation Center and Moonshot Missions. Appendix F contains more information on these services.

2.19 Receivership Program

Section 32.1-174.3 of the *Code of Virginia* authorizes the State Health Commissioner to petition the circuit court of the jurisdiction for the appointment of a receiver. Although the Code authorizes the process, there are currently no existing state funds for this program. ODW intends to utilize DWSRF 15% set-aside funds to meet the needs of this "program." ODW will request funds be paid to third-party service providers to manage the receivership as ordered by the court system. This management will constitute direct technical assistance under the 15% set-aside provisions of the DWSRF. ODW limits this assistance to a specified period not to exceed 24 months. Technical assistance will address technical, managerial, and financial factors throughout the waterworks organization. ODW cannot utilize these funds for the renovation, expansion, or operations and maintenance of the waterworks. ODW anticipates conducting emergency procurements for technical assistance to specific waterworks as described in the 2022 revision of the EPA approved Capacity Development Strategy. This year, ODW has not initiated receivership proceedings.

2.20 Implementation Review

ODW utilizes the sanitary survey program as a means to assess waterworks' TMF capacity. During sanitary surveys, ODW field staff conduct thorough evaluations of waterworks infrastructure and water treatment processes. Staff reviews water quality-monitoring records,

operational practices and controls, and waterworks staff qualifications. ODW inspects larger waterworks more frequently. The sanitary survey process identifies, prioritizes, and targets waterworks' capacity needs. If a waterworks demonstrates little or no capacity, ODW addresses the issues very similarly to the methods utilized for new systems by providing the following:

- Follow-up sanitary surveys and increased frequency of future sanitary surveys,
- Regular reminders of compliance requirements (*i.e.*, monitoring, reporting, etc.),
- Development or update of a WBOP,
- Referral to upcoming formal and informal training,
- Direct one-on-one assistance by Capacity Development staff,
- Referral to other technical assistance providers,
- Notifications and reminders of upcoming funding opportunities,
- Warnings from ODW's enforcement staff, and/or,
- Initiation of enforcement action.

2.21 Update on Waterworks with an ETT ≥ 10

The July 2024 ETT report is included in Appendix C. The July 2025 ETT includes four community waterworks and two transient non-community waterworks with a score of more than 10. The July 2024 ETT includes four community waterworks, one non-transient non-community waterworks, and six transient non-community waterworks with a score of more than 10.

The use of the EPA's ETT will continue to serve as a tool to measure the improvement in a waterworks' TMF capabilities. Figure 3 below shows the number of waterworks with a July ETT score greater than 10 over the course of the reporting period. Field Office staff have worked closely with waterworks owners and operators to bring waterworks back into compliance. Compliance and Enforcement staff support the Field Office staff to improve the focus on out-of-compliance systems and enforcement efforts across the state. Capacity Development staff provide funding assistance and work with out-of-compliance waterworks with Waterworks Business Operation and Asset Management Plans. Capacity Development engages in Field Office staff and Compliance and Enforcement staff monthly meetings and contributes to discussions to reduce waterworks noncompliance.

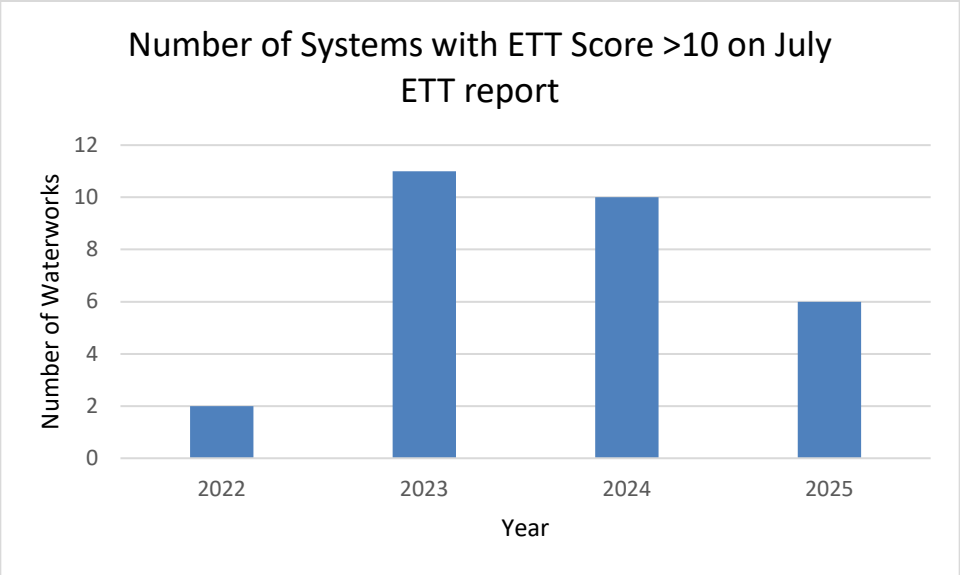

Figure 3: Number of Community and Non-transient Non-community Systems with Enforcement Targeting Tool (ETT) Score >10 on July ETT report

2.22 Program Progress and Performance Measures

Community and non-transient non-community waterworks are required to have licensed operators. Since 2008, there has been a gradual increase in waterworks fulfilling this requirement, with compliance exceeding 99% for the last nine years.

Table 2 below shows the breakdown of operators by system type as of September 30, 2025, based on information gathered from SDWIS. Since DPOR does not track by type of system served but only tracks operators by class, these numbers may differ slightly from other reported percentages of operators. In addition, this data does not count more than one operator per system, only if the system had an active designated operator during the reporting period.

Table 2: Percent of Waterworks with Licensed Designated Operators as of September 30, 2025

Percent of Waterworks with Licensed Designated Operators as of September 30, 2025			
System Type	**# of Systems**	**# of Systems with Assigned Designated Operator**	**% of Systems with Active Designated Operator**
C	1063	1054	99.15 %
NTNC	497	494	99.39 %
Total	***1560***	***1548***	***99.23 %***

Further information regarding licensure of operators in Virginia is located in the "Annual Report on Operator Certification in Virginia" for the reporting period of July 1, 2024, to June 30, 2025. Table 3 below depicts the number of licenses in Virginia by class, and the net gain or loss. The total number of licensed waterworks operators in Virginia is 2,180 as of September 30, 2025. This reporting period revealed a loss of 75 operators in total. This still represents an increase of 82 operators since September 2023. The decrease in this current reporting period is likely due to operators not renewing their licenses by the expiration date of February 28, 2025. VDH-ODW will continue offering low-cost education solutions, which are now more important than ever. Data obtained from DPOR on October 29, 2025.

Table 3: Number of Operators by Class as of September 30, 2025

Number of Operators by Class as of September 25, 2024			
Class License	Number of 2024 Licensees	Number of 2025 Licensees	Net Gain (Loss)
6	210	191	(19)
5	267	266	(1)
4	321	302	(19)

3	356	343	(13)
2	334	318	(16)
1	767	760	(7)
Total	***2255***	***2180***	***(75)***

2.23 Projected Activities

As described in previous sections of this report, ODW has increased partnership efforts with technical assistance providers and other organizations. These efforts increase waterworks' TMF capacity by providing training, outreach materials, and field services. Capacity Development partnerships have included organizations such as Virginia Tech, VRWA, SERCAP, Environmental Finance Center Network (EFCN) – University of Maryland EFC, EPIC, and Moonshot Missions, planning district commissions, and USDA-RD. ODW will look to expand and improve partnerships with other organizations. The expected benefit will be to reduce noncompliance and extend Capacity Development Program initiatives. ODW collaborated with partners at SERCAP and VRWA, connecting them with waterworks that needed leak detection. ODW connected waterworks with EFCN for assistance with rate studies, annual comprehensive financial reports, WBOP construction, and TMF snapshot assessments. ODW continues to contract Virginia Tech for training seminars and workshops for waterworks staff including operators.

2.24 Modifications to Strategy

Virginia has an approved, revised Capacity Development Strategy to EPA. No revisions to Virginia's Capacity Development Strategy were made during this reporting period. The latest approved strategy can be found here.

PART 3: ADDITIONAL REPORTING REQUIREMENTS AND OTHER CONCERNS

3.1 Documentation of Ongoing Implementation

ODW submits this report to EPA as evidence of the Commonwealth of Virginia's commitment and implementation of the Capacity Development Strategy for waterworks owners and operators in the Commonwealth. This report covers the federal fiscal year 2024, from October 1, 2024, through September 30, 2025. Appendix D contains information regarding technical assistance providers contracted through EPA. ODW provides this information as supplemental documentation to any required reporting from SERCAP, VRWA, Virginia Section of the American Water Works Association (AWWA), and EFC.

3.2 Report to the Governor

The Commonwealth of Virginia, Department of Health submitted the report "Efficacy of Virginia's Waterworks Capacity Development Strategy" on October 6, 2023, to the Governor of Virginia, with an approved extension of time from EPA. Additionally, ODW submitted the report to EPA and published the report on the VDH–ODW website here.

The next Triennial Report is due by September 30, 2026.

3.3 DWSRF Assistance to Non-Complying Waterworks

The Commonwealth of Virginia's Financial and Construction Assistance Program requires that applicants meet eligibility requirements. Program eligibility includes the following criteria:

- An owner of a community waterworks or nonprofit non-community waterworks is eligible, except the state and federal government. 42 USC § 300j-12(a)(2).
- Section 1452 of the SDWA (42 USC § 300j-12(a)(3)) states "…no assistance… shall be provided to a public water system that– (i) does not have the technical, managerial, and financial capability to ensure compliance with the requirements of this subchapter; or (ii) is in significant noncompliance with any requirement of the national primary drinking water regulations or variance." However, a waterworks may receive assistance if use of funds will ensure compliance and the owner agrees to undertake appropriate changes in operations (including ownership, management, accounting, rates, maintenance, consolidation, alternative water supply, etc.) to assure compliance over the long term.
- Section 32.1-172 of the *Code of Virginia* requires that a waterworks owner obtain a permit from the State Health Commissioner before establishing, constructing, or operating a waterworks. ODW's permitting process includes a WBOP, which addresses the waterworks owner's ability to supply safe drinking water over the long term by identifying sufficient technical, managerial, financial, and operational abilities.

3.4 Evaluation of TMF Capacity for Waterworks Seeking DWSRF Assistance

ODW requires documented criteria be submitted with construction, and planning and design fund applications to ensure that applicants have TMF capacity prior to obtaining assistance through the DWSRF. Specific program criteria follow:

Financial

- ODW collaborates with VRA to ensure that all potential recipients of DWSRF assistance have adequate financial capacity. VRA reviews annual audits and tax records, analyzes rate structures and cash flow, and completes a comprehensive credit review.
- Financial requirements of the program include:
  - Compliance with the *Virginia Public Procurement Act*,
  - Compliance with *Office of Management and Budget Circular A – 102,*
  - Compliance with the *Uniform Financial Report Manual* and the *Single Audit Act.*

Technical

- ODW completes a comprehensive technical evaluation of all potential recipients of DWSRF funds. Individual evaluations include review of compliance with the Regulations, ETT review, routine sanitary survey review, and an evaluation completed by the ODW Field Office staff. This review ensures that ODW provides no assistance to waterworks that do not have TMF capacity to ensure compliance with the SDWA, unless the assistance resolves the noncompliance.

- Technical requirements of the program include:
  - An environmental review to include environmental impacts as well as measures (alternatives, prevention, or mitigation) which could minimize adverse impacts from the construction of the project.
  - A permit is required prior to the construction or operation of any waterworks in accordance with Section 32.1-172 B of the *Code of Virginia and* 12 VAC 5-590-190 of the *Waterworks Regulations*.
  - A Field Office Scope Review Meeting is required. This provides for an exchange of information between all parties and ensures adherence to health protection and compliance objectives.
  - A Preliminary Engineering Report (PER) is required and must be prepared under the supervision of a Virginia licensed professional engineer. Information required for the PER, as referenced in 12VAC5-590-200 A of the *Waterworks Regulations*, will be determined during the Preliminary Engineering Conference. The DWSRF reserves the right to fund only the lowest cost alternative or the feasible options.
  - Plans, specifications, and construction documentation are required. Plans and specifications must comply with 12VAC5-590-200 of the Regulations. Construction documents must include:
    - Compliance with *Equal Employment Opportunity Act of 1972*
    - Certification on *Prohibition of Segregated Facilities* (1998, as amended in 2015)
    - Compliance with minority and women's business enterprise goals
    - Compliance with the *Civil Rights Act of 1964*
    - Compliance with *Age Discrimination Act of 1975, Rehabilitation Act of 1973*, and the prohibition against sex discrimination; and,
    - Utilization of small businesses in rural areas.

Managerial

- ODW completes a general managerial review of all potential DWSRF recipients. Staff conduct this review using compliance information, review of sanitary surveys, review of budget and rate information, and other information provided with each DWSRF application.
- Managerial requirements of the program can include a WBOP when additional information is required. Recipients are required to submit the WBOP and receive approval prior to DWSRF assistance.

  The WBOP includes seven parts, as follows:
  - Parts 1 through 4 consist of written statements, charts, or tables that describe the waterworks and its history, staffing arrangements, management and operations policies and procedures, and facility planning,
  - Part 5 consists of financial worksheets that summarize the waterworks' budget and financial resources,
  - Part 6 summarizes any sustainability improvements identified in the previous sections that would improve TMF capacity,
  - Part 7 is an owner's certification statement,
  - The WBOP handbook is available to the public here.
  - The WBOP web resources consist of the following:

- Instructions for completing the WBOP for community and non-transient non-community waterworks
- Companion financial worksheets in Excel format
- A simplified worksheet for transient non-community WBOPs.

3.5 DWSRF Success Stories

The DWSRF Annual Report was submitted on October 9, 2025. The Virginia Department of Health Office of Drinking Water highlights the Town of Altavista's Sedimentation and Solids Handling Improvements project (an FY 2022 BIL Project), and the City of Norfolk's Lead Service Line Inventory and Replacement project (an FY 2022 BIL Project), both of which closed during the reporting period. Detailed descriptions of the two success stories can be found in Appendix F of this report.

3.6 Capacity Development Success Stories

Capacity development staff are part of the Training, Capacity Development, and Outreach Division of ODW. During the reporting period, there were six full-time staff and one part-time staff actively supporting the Capacity Development Strategy. Three of the full-time positions are "Sustainability Coordinators," one full-time position is the Capacity Development Supervisor, one full-time position is the Training and Operator Certification Manager, and the part-time position is the Executive Administrative Assistant. The Sustainability Coordinators come from backgrounds as ODW Environmental Health Specialists (Inspectors). They provide direct technical assistance to both waterworks and other ODW staff. During the reporting period, staff:

- initiated, coordinated, and provided instruction at training events for waterworks
- made marketing efforts to increase the number of waterworks personnel attending training events
- assisted in the construction and implementation of asset management plans
- aided consolidation efforts between waterworks
- collaborated with the ODW Financial Construction and Assistance Program to host funding workshops for waterworks in Virginia.
- worked with utility boards and staff to provide regulatory insight, discuss technical issues, and offer suggestions for funding options
- reviewed 26 applications in the first round DWSRF and BIL Construction Applications for TMF capacity. The process involves making recommendations for improvements to TMF as requirements for funding offers.

Capacity Development staff work with waterworks across the state on complex issues that often take a long time to resolve. In its work to enforce state and federal drinking water laws and regulations, VDH uses a range of regulatory, compliance, and both technical and financial assistance tools to improve the capacity of the 2,828 waterworks in the state. VDH has found that while statewide programs and initiatives are able to ensure that most waterworks comply with the regulations, often VDH must take a case-by-case approach to effect lasting change at specific waterworks. Despite many challenges facing the regulated waterworks community, VDH remains committed to its goal of protecting the health and promoting the well-being of all people in Virginia. Detailed descriptions of the success stories can be found in Appendix F of this report.

Appendix A

New Community and NTNC Waterworks
October 1, 2022 – September 30, 2025

Newly constructed facilities and existing facilities under new ownership are included. Please note that not all new waterworks listed have received operation permits.

County/City	PWSID	Waterworks Name	System Type	Activity Date
Buchanan County	VA1027500	BCPSA - Kennel Gap	C	07/07/2023
Washington County	VA1191275	Green Spring Road	C	05/02/2023
Botetourt County	VA2023298	Fincastle Mennonite Church	NTNC	08/28/2024
Botetourt County	VA2023870	WVWA North Botetourt	C	11/05/2022
Roanoke County	VA2161046	Blackwood	C	11/05/2022
Fluvanna County	VA2065040	Antioch Christian Academy Daycare Center	NTNC	01/24/2024
Fluvanna County	VA2065265	Fluvanna County Zion Crossroads	C	02/28/2023
Prince George County	VA3149870	Simpsons Country Center	NTNC	05/17/2023
Northampton County	VA3131302	Kiptopeke Inn	C	06/28/2023
Chesapeake City	VA3550022	Coastal Church	NTNC	05/21/2024
Accomack County	VA3001670	Caf Housing Waterworks	NTNC	02/23/2023
Accomack County	VA3001690	Marshalls Dept Store	NTNC	01/18/2023
Accomack County	VA3001798	Shore Christian Academy	NTNC	09/10/2024
Hanover County	VA4085345	Hanover Community Center	NTNC	03/31/2023
Caroline County	VA6033049	Warriors Heart Virginia	NTNC	08/14/2023
Charles City County	VA4036175	Mid-Atlantic Tribal Health Center	NTNC	02/24/2025
Charles City County	VA4036860	Trevors Bend	C	10/11/2022
Goochland County	VA4075003	Acton Academy West End	NTNC	09/10/2024
Powhatan County	VA4145025	Hi-5 Early Learning Center	NTNC	03/01/2023
Powhatan County	VA4145950	Winterfield (Ivy Brook Academy)	NTNC	09/12/2024
Essex County	VA4057675	Blossoms Childcare Center	NTNC	05/01/2024
Northumberland County	VA4133020	Boys & Girls Club Northumberland Co Unit	NTNC	06/04/2023
Halifax County	VA5083546	Grand Springs Distribution	NTNC	01/23/2023
Bedford County	VA5019485	Chamblissburg MHC	C	10/17/2024
Patrick County	VA5141551	Patrick County PSA	C	03/04/2024

Appendix A

New Community and NTNC Waterworks
October 1, 2022 – September 30, 2025

Warren County	VA2187229	John Paul The Great Montessori	NTNC	09/11/2024
Loudoun County	VA6107525	Orion Project (HITT)	NTNC	05/14/2024
Loudoun County	VA6107700	Stoneleigh	C	03/01/2023
Rappahannock County	VA6157280	Hearthstone School	NTNC	04/01/2025

Appendix B

List of New Water System Violations

As of the July 2025 published ETT list, no waterworks that became active during the reporting period (10/1/24-9/30/25) are priority systems according to EPA's Office of Enforcement and Compliance Assurance's Enforcement Targeting Tool (ETT).

PWSID	Waterworks Name	FED_REP_ID	Violation Type	Violation Description	Analyte Name	Determination Date	Begin Date
VA1191275	GREEN SPRING ROAD	1	51	INITIAL TAP SAMPLING (LCR) LEAD & COPPER RULE	LEAD & COPPER RULE	09/04/2025	01/01/2025
VA2023298	FINCASTLE MENNONITE CHURCH	1	34	MONITOR GWR TRIGGERED/ADDITONAL, MAJOR	E. COLI	11/21/2024	09/25/2024
VA2023298	FINCASTLE MENNONITE CHURCH	23	51	INITIAL TAP SAMPLING (LCR)	LEAD & COPPER RULE	09/11/2025	01/01/2025
VA2023298	FINCASTLE MENNONITE CHURCH	22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2	03	MONITORING, ROUTINE MAJOR	VOC	01/27/2025	07/01/2024
VA2065265	FLUVANNA COUNTY ZION CROSSROADS	6	27	MONITORING, ROUTINE (DBP), MAJOR	TTHM	12/20/2024	07/01/2024
VA2065265	FLUVANNA COUNTY ZION CROSSROADS	5	27	MONITORING, ROUTINE (DBP), MAJOR	TOTAL HALOACETIC ACIDS (HAA5)	12/20/2024	07/01/2024
VA2065265	FLUVANNA COUNTY ZION CROSSROADS	4	27	MONITORING, ROUTINE (DBP), MAJOR	TOTAL HALOACETIC ACIDS (HAA5)	08/19/2024	04/01/2024
VA2065265	FLUVANNA COUNTY ZION CROSSROADS	3	27	MONITORING, ROUTINE (DBP), MAJOR	TTHM	08/19/2024	04/01/2024
VA2065265	FLUVANNA COUNTY ZION CROSSROADS	12	27	MONITORING, ROUTINE (DBP), MAJOR	TTHM	04/30/2025	01/01/2025
VA2065265	FLUVANNA COUNTY ZION CROSSROADS	11	27	MONITORING, ROUTINE (DBP), MAJOR	TOTAL HALOACETIC ACIDS (HAA5)	04/30/2025	01/01/2025
VA2065265	FLUVANNA COUNTY ZION CROSSROADS	10	3A	MONITORING, ROUTINE (DBP), MAJOR	E. COLI	03/04/2025	01/01/2025

Appendix B

List of New Water System Violations

VA2065265	FLUVANNA COUNTY ZION CROSSROADS	2	27	MONITORING, ROUTINE (DBP), MAJOR	TOTAL HALOACETIC ACIDS (HAA5)	02/06/2024	10/01/2023
VA2065265	FLUVANNA COUNTY ZION CROSSROADS	1	27	MONITORING, ROUTINE (DBP), MAJOR	TTHM	02/06/2024	10/01/2023
VA2065265	FLUVANNA COUNTY ZION CROSSROADS	9	27	MONITORING, ROUTINE (DBP), MAJOR	TTHM	01/30/2025	10/01/2024
VA2065265	FLUVANNA COUNTY ZION CROSSROADS	8	27	MONITORING, ROUTINE (DBP), MAJOR	TOTAL HALOACETIC ACIDS (HAA5)	01/30/2025	10/01/2024
VA2065265	FLUVANNA COUNTY ZION CROSSROADS	7	51	INITIAL TAP SAMPLING (LCR)	LEAD & COPPER RULE	01/27/2025	07/01/2024
VA2161046	BLACKWOOD	2	27	MONITORING, ROUTINE (DBP), MAJOR	CHLORINE	08/01/2023	06/01/2023
VA2161046	BLACKWOOD	1	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	08/01/2023	06/01/2023
VA2187229	JOHN PAUL THE GREAT MONTESSORI	619	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	12/19/2024	11/01/2024
VA2187229	JOHN PAUL THE GREAT MONTESSORI	616	34	MONITOR GWR TRIGGERED/ADDITONAL, MAJOR	E. COLI	10/21/2022	09/28/2022
VA2187229	JOHN PAUL THE GREAT MONTESSORI	618	3B	MONITORING, ADD. ROUTINE, MAJOR (RTCR)	E. COLI	01/03/2023	11/01/2022
VA2187229	JOHN PAUL THE GREAT MONTESSORI	617	4A	REPORTING, ASSESSMENT FORMS (RTCR)	REVISED TOTAL COLIFORM RULE (RTCR)	01/03/2023	11/22/2022
VA3550022	COASTAL CHURCH	17	1A	MCL, E. COLI, POS E COLI (RTCR)	E. COLI	08/18/2025	08/01/2025
VA4036175	MID-ATLANTIC TRIBAL HEALTH CENTER	21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1	03	MONITORING, ROUTINE MAJOR	VOC	07/21/2025	04/01/2025
VA4036860	TREVORS BEND	10	03	MONITORING, ROUTINE MAJOR	COMBINED RADIUM (-226 & -228)	10/18/2022	07/01/2022
VA4036860	TREVORS BEND	9	03	MONITORING, ROUTINE MAJOR	COMBINED URANIUM	10/18/2022	07/01/2022
VA4036860	TREVORS BEND	8	03	MONITORING, ROUTINE MAJOR	GROSS ALPHA, EXCL. RADON & U	10/18/2022	07/01/2022

Appendix B

List of New Water System Violations

VA4036860	TREVORS BEND	33	75	PUBLIC NOTICE RULE LINKED TO VIOLATION	PUBLIC NOTICE	09/25/2023	07/01/2022
VA4036860	TREVORS BEND	36	71	CCR REPORT	CONSUMER CONFIDENCE RULE	07/22/2025	07/01/2025
VA4036860	TREVORS BEND	35	66	LEAD CONSUMER NOTICE (LCR)	LEAD & COPPER RULE	04/01/2024	04/01/2024
VA4036860	TREVORS BEND	32	52	FOLLOW-UP OR ROUTINE TAP M/R (LCR)	LEAD & COPPER RULE	02/16/2023	07/01/2022
VA4036860	TREVORS BEND	31, 30, 29, 28, 27, 26, 25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11	03	MONITORING, ROUTINE MAJOR	VOC	01/12/2023	07/01/2022
VA4057675	BLOSSOMS CHILDCARE CENTER	1	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	06/12/2024	05/1/2024
VA4057675	BLOSSOMS CHILDCARE CENTER	23	66	LEAD CONSUMER NOTICE (LCR)	LEAD & COPPER RULE	04/02/2025	04/01/2025
VA4057675	BLOSSOMS CHILDCARE CENTER	22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2	03	MONITORING, ROUTINE MAJOR	VOC	01/27/2025	10/01/2024
VA4075003	ACTON ACADEMY WEST END	23	52	FOLLOW-UP OR ROUTINE TAP M/R (LCR)	LEAD & COPPER RULE	01/21/2025	07/01/2024
VA4075003	ACTON ACADEMY WEST END	22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2	03	MONITORING, ROUTINE MAJOR	VOC	01/17/2025	10/01/2024
VA4075003	ACTON ACADEMY WEST END	1	03	MONITORING, ROUTINE MAJOR	NITRATE-NITRITE	01/17/2025	01/01/2024
VA4085345	HANOVER COMMUNITY CENTER	424	27	MONITORING, ROUTINE (DBP), MAJOR	TOTAL HALOACETIC ACIDS (HAA5)	10/25/2023	01/01/2023
VA4085345	HANOVER COMMUNITY CENTER	423	27	MONITORING, ROUTINE (DBP), MAJOR	TTHM	10/25/2023	01/01/2023
VA4085345	HANOVER COMMUNITY CENTER	426	27	MONITORING, ROUTINE (DBP), MAJOR	TOTAL HALOACETIC ACIDS (HAA5)	09/13/2024	01/01/2024

Appendix B

List of New Water System Violations

VA4085345	HANOVER COMMUNITY CENTER	425	27	MONITORING, ROUTINE (DBP), MAJOR	TTHM	09/13/2024	01/01/2024
VA4085345	HANOVER COMMUNITY CENTER	427	53	WATER QUALITY PARAMETER M/R (LCR)	LEAD & COPPER RULE	08/07/2025	01/01/2025
VA4133020	BOYS & GIRLS CLUB NORTHUMBERLAND CO UNIT	437	3B		E. COLI	11/21/2022	10/01/2022
VA4133020	BOYS & GIRLS CLUB NORTHUMBERLAND CO UNIT	440	3A	MONITORING, ADD. ROUTINE, MAJOR (RTCR)	E. COLI	10/17/2023	09/01/2023
VA4133020	BOYS & GIRLS CLUB NORTHUMBERLAND CO UNIT	439	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	09/07/2023	07/01/2023
VA4133020	BOYS & GIRLS CLUB NORTHUMBERLAND CO UNIT	438	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	08/14/2023	04/01/2023
VA4133020	BOYS & GIRLS CLUB NORTHUMBERLAND CO UNIT	445	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	03/12/2025	02/01/2025
VA4145950	WINTERFIELD (IVY BROOK ACADEMY)	2	27	MONITORING, ROUTINE (DBP), MAJOR	TOTAL HALOACETIC ACIDS (HAA5)	10/16/2024	07/01/2024
VA4145950	WINTERFIELD (IVY BROOK ACADEMY)	1	27	MONITORING, ROUTINE (DBP), MAJOR	TTHM	10/16/2024	07/01/2024
VA4145950	WINTERFIELD (IVY BROOK ACADEMY)	27	4B	REPORT SAMPLE RESULT/FAIL MONITOR RTCR	REVISED TOTAL COLIFORM RULE (RTCR)	04/16/2025	04/11/2025
VA4145950	WINTERFIELD (IVY BROOK ACADEMY)	26	52	FOLLOW-UP OR ROUTINE TAP M/R (LCR)	LEAD & COPPER RULE	01/21/2025	07/01/2024
VA4145950	WINTERFIELD (IVY BROOK ACADEMY)	25, 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5	03	MONITORING, ROUTINE MAJOR	VOC	01/17/2025	10/1/2024
VA4145950	WINTERFIELD (IVY BROOK ACADEMY)	4	03	MONITORING, ROUTINE MAJOR	NITRATE-NITRITE	01/17/2025	01/01/2024
VA4145950	WINTERFIELD (IVY BROOK ACADEMY)	3	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	01/17/2025	12/01/2024
VA6033049	WARRIORS HEART VIRGINIA	431	A0	NO WATERWORKS OPERATION PERMIT		09/03/2024	09/01/2024
VA6033049	WARRIORS HEART VIRGINIA	430	65	PUBLIC EDUCATION (LCR)	LEAD & COPPER RULE	09/03/2024	09/01/2024

Appendix B

List of New Water System Violations

VA6033049	WARRIORS HEART VIRGINIA	428	A3	OPERATING FACILITY BEYOND PERMIT CONDITI		03/20/2024	02/29/2024
VA6033049	WARRIORS HEART VIRGINIA	432	56	INITIAL/FOLLOW-UP/ROUTINE SOWT M/R (LCR)	LEAD & COPPER RULE	02/03/2025	01/01/2025
VA6107525	ORION PROJECT (HITT)	1	52	FOLLOW-UP OR ROUTINE TAP M/R (LCR)	LEAD & COPPER RULE	09/02/2025	01/01/2025

VOC = Styrene, Ethylbenzene, Toluene, Benzene, Chlorobenzene, Tetrachloroethylene, 1,1,2-Trichloroethane, Trichloroethylene, 1,2-Dichloropropane, Carbon Tetrachloride, 1,1,1-Trichloroethane, 1,2-Dichloroethane, Trans-1,2-Dichloroethylene, 1,1-Dichloroethylene, Vinyl Chloride, P-Dichlorobenzene, O-Dichlorobenzene, Dichloromethane, Xylenes, Total, Cis-1,2-Dichloroethylene, 1,2,4-Trichlorobenzene

Appendix C

Enforcement Targeting Tool – July 2025

All ETT scores at or above 11 are highlighted in yellow								July 2025 SDWIS/FED Freeze	
PWSID	PWS Name	ETT Score	Sys has HB viols?	PWS Type	Population Served	Priority Since	Total Unresolved Points	On Path to Compliance?	School or Childcare
VA2171850	WOODSTOCK, TOWN OF	26	Y	C	5,955	12/31/2024	25	Previously >= 11 Not on Path	N
VA1155152	DULANEY TRAILER PARK	17	Y	C	31	6/30/2025	17	New >= 11	N
VA3093400	RESCUE WATERWORKS	15	Y	C	203	6/30/2025	95	New >= 11	N
VA4119810	URBANNA SEAFOOD	13	N	TNC	75	6/30/2025	12	New >= 11	N
VA5117382	HOLLY GROVE MARINA	12	Y	TNC	50	3/31/2025	11	Previously >= 11 Not on Path	N
VA1173742	RYE VALLEY WATER AUTHORITY	11	N	C	1,276	6/30/2025	11	New >= 11	N

Appendix D

EPA Grant Projects

Southeast RCAP EPA Projects
October 1, 2024, through September 30, 2025

***ERP** - Emergency Response Plan; **SVA** - Security Vulnerability Assessment; **RRA**- Risk and Resiliency Assessment*
***CCR**- Consumer Confidence Report; **LSL**- Lead Service Line*

Location	County	Summary	Population
Bassett, Smith Farm DW 25	Henry	TA for small system, DNQ for funding	
Belspring Estates	Pulaski	Assist with grant application	2,367
Bluefield Valley	Tazewell	Completed CCR	428
Bluefield, Town of	Tazewell	Completed CCR	5811
Bold Camp, WCPSA	Wise	Completed CCR	943
Brown Grove Community	Hanover	Repair to Filtration Systems	7,225
Brown's Mobile Home Village	Franklin	Completed CCR	75
Brown's Mobile Home Village	Franklin	Assist with LSL Inventory	75
Brown's Mobile Home Village	Franklin	Performing GIS Mapping	75
Buffalo Creek Estates	Mecklenburg	Construction Project funding	200
Central High School	Lunenburg	WIIN Grant	1,725
Charlotte Court House Town	Charlotte	Assist in completing SVA	543
Clintwood, Town	Dickenson	Completed CCR	4,836
Clintwood, Town	Dickenson	Tank Maintenance funding	4,836
Coeburn, Town	Wise	Completed CCR	4,630
Craig-New Castle PSA	Craig	Income Survey	1,238
Craigsville Town	Augusta	Assist in completing ERP	923
Craigsville Town	Augusta	Assist in completing SVA	923
Giles County	Giles	SCADA/Internet Funding	2,786
Giles County PSA and Glen Lyn	Giles	Systems consolidation funding	7,200
Fries	Grayson	Assist in completing Asset Management DW	484
Fries	Grayson	DW Tech GIS	484
Glen Lyn	Giles	HHS/OCS WW System Repair funding	92
Greentown-Gaskins Community System	Lancaster	HHS/OCS WW System Repair funding	120
Hardy Road Trailer Park	Bedford	LSL Inventory	200
Hardy Road Trailer Park	Bedford	Assisting in construction management of WIIN project	200
Hardy Road Trailer Park	Bedford	Completed CCR	200
Henry County PSA	Henry	HHS/OCS SERCAP for Sewer Line Extension	2,227
Hillsboro	Loudon	Rate Study - EPA WW Treatment Works	130
Honaker	Russell	Completed CCR	2,250
Luray	Page	EPA NPA 2 Wastewater EFC Reg 3	4,895
Montvale	Bedford	Assist in completing ERP	698
Montvale	Bedford	Assist in completing SVA	698
Page County, Luray	Page	EFC Cat 3 National, Stormwater, WW	
Pulaski, Town	Pulaski	Inspection & Smoke Testing Grant	9,086
Pamplin City, Town	Appomattox	Assist in completing RRA	219
Pound, WCPSA	Wise	Completed CCR	2,501
Ridge Water Company	Bedford	Tank Inspection funding request, denied	

Appendix D

EPA Grant Projects

Schuyler Waterworks	Nelson	HHS/OCS, Non-Compliance Remediation	405
Smyth County	Smyth	USDOT Thriving Communities grant	17,177
Suffolk - Hobson,	Suffolk City	EFC Cat 1 R-3 W/WW, Storm, evaluation	169,170
Suffolk - Oakland-Chauckatuck	Suffolk City	EFC Cat 1 R-3 W/WW, Storm, evaluation	169,170
Suffolk - Pughsville	Suffolk City	EFC Cat 1 R-3 W/WW, Storm, evaluation	169,170
Sussex Service Authority	Sussex	EPA WW TW 1, Income Survey	256
Tazewell, Town	Tazewell	Completed CCR	4,627
Union Hall	Franklin	HHS/OCS PER Grant	1,138
Victoria Town	Lunenburg	Assist in completing SVA	1,752
Victoria Town	Lunenburg	Assist in completing ERP	1,752
Victoria Town	Lunenburg	SCADA upgrade funding	
Virgilina	Halifax	HHS/OCS Emergency Backup Systems	154
Virginia Household Water Quality Program	Montgomery	HHS/OCS Blacksburg	660
Wachapreague	Accomack	HHS/OCS Septic to Sewer Project	232
Willing Workers Club	Isle of Wight	Procured funding and contractor to address significant deficiencies and dissolve community water system	31
Windsor	Isle of Wight	Completed CCR	2,626
Wise County Regional PSA	Wise	Completed CCR	11,500
Wytheville, Town	Wythe	WWTP Comprehensive Evaluation Grant	8,211

Appendix D

EPA Grant Projects

Virginia Rural Water Association Training
October 1, 2024, through September 30, 2025

Date	Title	Location	Attendees
10/10/2024	The Empowered Team Treatment Train	Virtual	2
10/17/2024	Ignite Your Leadership Potential	Virtual	2
10/21/2024	VDOT Basic Work Zone Safety / Traffic Control and Flagger Certification	Fishersville	14
10/22/2024	ARC Flash	Fishersville	96
10/22/2024	Emergency Prep - What to do When the Power Goes Out	Fishersville	94
10/22/2024	Operation and Maintenance of Fire Hydrants	Fishersville	97
10/22/2024	Selecting and Maintaining W & WW Instrumentation	Fishersville	56
10/23/2024	Navigating Manhole Rehabilitation Tech	Fishersville	72
10/23/2024	Permit-Required Confined Space	Fishersville	83
10/23/2024	Health Hazards in the Workplace	Fishersville	90
10/31/2024	The Empowered Communicator	Virtual	2
11/7/2024	Guardians of Water: Reigniting Passion	Virtual	2
11/12/2024	Operation & Safety Aspects: Water & Wastewater Disinfection	St. Paul	13
11/12/2024	Utility Executive Training	Emporia	8
11/12/2024	Effective Asset Management Practices for Water Storage	Emporia	8
11/13/2024	Reducing Your Water Loss	Emporia	7
11/13/2024	Emerging Contaminants	Emporia	10
11/14/2024	Math for Water Operators Exam Candidates	Emporia	5
11/19/2024-11/20/2024	Intermediate VDOT Training	Lebanon	12
11/20/2024	Empowered Team Treatment Train	Petersburg	10
1/9/2025	The Well-Informed Sustainable Community	Drakes Branch	4
1/10/2025	The Flow of Information	Drakes Branch	6
1/15/2025	The Well-Informed Sustainable Community	St. Paul	4
1/16/2025	The Flow of Information	St. Paul	9
1/21/2025	Disaster Recovery	Farmville	27
1/22/2025	Everything Sampling	Farmville	19
1/23/2025	Math for Water Operators Exam Candidates	Farmville	10
1/23/2025	Basic Work Zone	Wytheville	35
2/6/2025, 2/7/2025	VDOT Intermediate Work Zone Safety / Traffic Control	Wytheville	17
3/14/2025	Navigating Contracts	online	7

Appendix D

EPA Grant Projects

4/14/2025	Knowing How to Study Before You Go	Roanoke	34
4/14/2025	In's and Out's of Cyber Security	Roanoke	53
4/14/2025	Office Professionals Mini-Conference	Roanoke	41
4/15/2025	Adding Groundwater Sources to Water Systems	Roanoke	70
4/15/2025	PFAS Sample: Cross-Contamination Caused by Sampling?	Roanoke	77
4/15/2025	Ways to Improve Your Waterworks Sustainability: Top Ten List	Roanoke	48
4/15/2025	Successful Crisis Communications: How to Integrate the National Incident Management System into Your Emergency Response	Roanoke	14
4/15/2025	Cost Comparison Between Conventional Treatment and Membrane Treatment	Roanoke	47
4/15/2025	Cross-Connection Control Basics and State Regulations	Roanoke	62
4/15/2025	Reasonable Suspicion Training	Roanoke	60
4/15/2025	Chlorine Feed & Monitoring in Drinking Water Systems	Roanoke	45
4/15/2025	Reducing Water Loss with Modern Technology	Roanoke	83
4/15/2025	Redundancy to Resilience: How Redundant Power Enhances a Utility's Resilience	Roanoke	23
4/15/2025	USDA Water and Environmental Programs	Roanoke	49
4/15/2025	Beyond Budgeting: Integrated Asset and Financial Performance	Roanoke	34
4/15/2025	Hydrants & Valves: Critical to Infrastructure	Roanoke	59
4/15/2025	Operator Licensure & Exam Updates	Roanoke	47
4/15/2025	Leading Your Former Peers or Those Older Than You: Navigating the Challenge	Roanoke	35
4/15/2025	AI – Working for You	Roanoke	52
4/16/2025	Adapting Business Intelligence Software for Water Supply and Water Quality Analysis	Roanoke	33
4/16/2025	Selecting and Implementing a Successful SCADA System	Roanoke	40
4/16/2025	Developing an Asset Management Plan for Your Future Organization	Roanoke	54
4/16/2025	Improving Revenue Collections for Utilities	Roanoke	40
4/16/2025	How Can AMI Read for You? The Paths to Improving Your Water Meter Reading	Roanoke	36

Appendix D

EPA Grant Projects

4/16/2025	Pre-Purchasing Equipment to Effectively Shorten Lead Times and Provide Cost Savings – A Practical Guide	Roanoke	31
4/16/2025	Preparing for All Potential Outcomes: How HRSD Used Innovative Scenario Planning to Future-Proof its Organizational Strategic Plan	Roanoke	52
4/16/2025	PFAS Regulatory Updates and Analytical Methods	Roanoke	46
4/16/2025	Lead and Copper Rule Improvements (LCRI) – What Water Systems Need to Know	Roanoke	65
4/16/2025	Overview of HDPE Pipe for Water & Wastewater Systems	Roanoke	36
4/16/2025	Using Your Standard Operating Procedures (SOP) for Training	Roanoke	69
4/16/2025	Mitigating the Impact of Non-Dispersible Materials on Pump Stations: The Role of Automatic Vertical Bar Screens	Roanoke	32
6/24/2025	Disaster Recovery Training	Front Royal	9
6/24/2025	Reducing Your Water Loss	Front Royal	9
6/25/2025	Math for Water Operators	Front Royal	10
6/26/2025	Backflow Basics	Front Royal	8
7/16/2025	Disaster Recovery Training	Covington	7
8/19/2025	Basic VDOT WorkZone & Flagger Certification	Remington	5
8/21/2025	Temperament Based Leadership: Understanding Yourself & Others	Williamsburg	57
8/21/2025	Team Building: Importance and Implementation	Williamsburg	58
8/21/2025	Voices of Experience & Non-Violent Communication	Williamsburg	51
8/21/2025	Identifying Core Challenges for Today	Williamsburg	60
8/21/2025	Building the Talent Pipeline: Apprenticeships & the Future	Williamsburg	57
8/22/2025	Integrated Asset and Financial Performance	Williamsburg	51
8/22/2025	Where Do We Go From Here: Shaping the Path Forward	Williamsburg	44
8/22/2025	LLWI Practitioners: Sustaining Growth & Impact	Williamsburg	49
9/9/2025	Disaster Recovery Training	St. Paul	6
9/10/2025	Operator Math	St. Paul	6
9/16/2025, 9/18/2025	Disaster Recovery Training	Palmyra	21

Appendix D

EPA Grant Projects

VRWA Leak Detection
October 1, 2024, through September 30, 2025

Town of Pulaski
The Town of Pulaski Water System is a Class 2 permitted public water system that supplies drinking water to the citizens and businesses of the Town.

On the morning of Wednesday September 24, 2025, at 0900 am, VRWA staff member Water Circuit Rider #3 Tony Roark received a telephone call from the Town of Pulaski Public Works Maintenance Supervisor Curtis Smythers. The Town was losing an estimated one million (1,000,000) gallons a week and they could not find the source or sources. Mr. Roark was about to begin a scheduled meeting, and when it would be concluded, Mr. Roark would come to Pulaski as he was only an hour and a half away.

Upon arrival, Mr. Roark found Mr. Smythers and staff at a leak site 201 Washington St. that was going into a storm drain. Mr. Roark preceded to take his FCP acoustic listening device to pinpoint the leak location. It was found to be 6 feet from the storm drain under the street curbing. It was a 1.25-inch galvanized pipe with 125 psi on it, and it was completely broken in half. It was estimated to be losing 75 gallons per minute. This would have lost about 3.25 million gallons a month.

Mr. Roark was advised of three other locations that needed to be investigated. The next location was at 228 N.W. 4th St. Mr. Roark preceded to use the FPC device to locate the precise leak location of the water standing in the ditch. This was found to be the service line leaking between the main and the meter box. This was a 0.75-inch line that was leaking an estimated 2.5 gallons per minute. This would have equaled an estimated 100,000 gallons per month of lost water.

Location #3 was at the corner of Pico Drive and Franklin Ave., and water was beginning to seep up through the pavement. Using the FCP Acoustic listening device, Mr. Roark traced the leak back to a valve up the hill from seeping water. This water was, based on evidence of leaking after valve, leaking at valve mega lug bolts. It is estimated that this leak was leaking about 15 gallons per minute, which would have equated to approximately 648,000 gallons of lost water per month.

Location #4 was at 404 Elkins Ave. This was a 4-inch line leaking into a wooded area. The roadside was swampy and wet. Using the FCP equipment, the leak was found to be where the service line to 404 Elkins Ave meets the corporate stop location on the main. This leak was estimated to be leaking 3.5 gallons per minute that would have equated to an estimated 150,000 gallons a month.

These four leak locations would have been estimated to be close to the 4 million gallons of water being lost per month. At the Town of Pulaski residential base rate of $14.89 plus the usage rate of $ 7.01 per 1000 gallons, these leaks would have a lost revenue of an estimated $28,060 per month. Adding in the cost of finding and fixing these leaks, the cost could be $40,000.

The Town of Pulaski has a leak detection device that is broken. Mr. Roark advised Mr. Smythers of where to have it serviced so they could use the device. The Town of Pulaski, Mr. Smythers and the staff were very thankful for VRWA and its staff's assistance in locating these leaks.

Town of Pulaski

VRWA Circuit Rider Tony Roark received a request for assistance from the Town of Pulaski Operations Specialist Curtis Smithers. The town was making 450,000 gallons of water a day more than normal for at least two weeks. The Circuit Rider arranged to meet Operations Specialist Randall Allison at the maintenance shop.

Upon the Circuit Rider's arrival, Mr. Allison contacted manager David Payton, who suggested that the area of concern was the Draper Mountain Tank as that tank was not filling up as normal. It was also suggested by the circuit rider that it would be beneficial to check the town's other tank locations.

Mr. Allison and the Circuit Rider proceeded to check the area of the Draper Mountain tank with the acoustic listening device, listening to valves and fire hydrants on the main lines. After listening the rest of the day with no luck, it was decided to come back the next morning to check the other tank areas.

The following morning, the circuit rider met with Mr. Smithers and listened to the water storage tank areas. It was at the fifth tank that a loud roaring noise was heard. Mr. Smithers explained that his staff had just put in a service line and fixed a leak in that area the week before. The circuit rider listened to all the hydrants in the area. A hydrant close to the area of the repaired leak was indicating a leak was close. The location of the leak was the 12-inch main in front of the hydrant, below the previously fixed service line. The town sits upon an area strewn with caves and many leaks usually do not surface, as the water enters these caverns.

The leak was losing an estimated 450,000 gallons a day, which would have resulted in lost revenue of over $500,000 annually.

Pulaski County Public Service Authority

The Pulaski County Public Service Authority Board of Directors is comprised of five citizens appointed by the Pulaski County Board of Supervisors. The Authority is a consortium of seven different public water systems and has a very extensive water system with drinking water provided by purchased water from the City of Radford. The Authority serves a population of 9,500. Pulaski County PSA Public Works Director Richard Fasnacht contacted VRWA Circuit Rider Tony Roark. The system had a major leak and needed help. The leak was losing approximately 500,000 gallons a day when in operation.

The Circuit Rider met with Mr. Fasnacht and his staff to formulate a plan for finding the leak. The listening area was narrowed down to a 500-yard section of 24-inch cast iron main that ran between the New River and the roadway. This section of main ran along the roadway for approximately 300 yards before crossing the river on a rock shelf at a 45-degree angle. This area

was part of the recent Hurricane Helene flooding zone that saw a flood stage of 31 feet. The Circuit Rider implemented the use of the listening device along the main at the edge of the pavement and tried to distinguish the exact location of the leak. After several hours, he concluded that the leak was at the crossroads of Hazel Wood Drive and Hazel Wood Hollow Road. He used the line locator to determine the depth was seven feet.

The PSA staff digging began and at 7.5 feet the 24-inch main was located, and the leak was found to be in a joint. The pipe seemed to have moved, and the joint was no longer straight with the next joint. This caused the flange gasket ring to break and with the 185 psi in this line, the gasket was blown out and the pipe was leaking water profusely. This leak was estimated to have been ongoing for a month since Hurricane Helene passed through, and due to the hurricane damage in the community, it was very difficult for the staff to distinguish between many leaks or one major leak.

This leak is estimated to have cost at least $94,860 to $105,000 per month in water alone. If the labor and equipment cost and leak detection services are added, the estimated savings would be well over $150,000 per month

Town of Saltville

The Town of Saltville is a small municipality of 1824 citizens in the Southwest portion of Virginia. It is in Smyth County bordering Washington County. The Town supplies drinking water to a population of approximately 2200 people in the town and surrounding 2 counties. The town is a conventional class 3 groundwater system with 1104 connections. The Town operates two (2) wells that draw water from the Honaker Formation Aquifer and the Tonoloway Formation Aquifer.

On 8/6/2025, Mr. Brandon Frye, Public Works Director for the Town of Saltville contacted VRWA staff member Mr. Tony Roark. Mr. Frye had an emergency. He was losing 10 million gallons a month with most being lost from a 6-inch line that went by the Superfund site. Mr. Roark set a date for being in Saltville on the morning of 8/8/25 with some help to track down these leaks. The team of VRWA staff members of Mr. Tony Roark and Mr. Robbie Jones preceded to track down the leaks. First up was the vault on a 6-inch main. This main went approximately 2 miles before the last customer and main end.

The team used the VRWA equipment the FCP L Mike acoustic listening device on the valve after the vault. A leak was heard at this area. Both VRWA team members moved up the street with one individual on one side of the street and one on the other side listening as they went along to water meters, valves and fire hydrants. As Mr. Roark moved up the street, a hydrant was found to be leaking through the weephole. It was last flushed approximately 3 months earlier and evidently was not closed properly. Mr. Roark moved farther up the main to find an underground leak that was eroding the roadway and was causing a dip in the road surface. A broken hydrant was found 500 yards farther up this street and several meters were found to be leaking in the meter boxes.

At the end of the day, Mr. Brandon Frye explained that the leaks found could very well be what they were losing in water. Mr. Frye thanked the VRWA for answering the call for help as fast as they did. Mr. Roark and the VRWA team covered 2.25 miles and found some significant leaks. It is estimated that 2.5 million gallons per month may have been leaking from just those leaks mentioned above. The leak at the vault has to be investigated further to find its exact spot as a waterway with a creek runs alongside the vault.

The Town of Saltville currently charges its customers $34.57 per 3,000 gallons. In a month's time these leaks were causing the town to lose an estimated $29,000 in revenue. Add in the cost spent trying to find the leaks and the cost of hydrant replacement and replacing the broken mains, these leaks could very well have cost the Town $50,000 just this month alone.

The Town of Saltville staff thanked Mr. Roark and asked that the VRWA staff return (after giving some time to repair what was found) and search for other leaks.

Town of Jonesville

The Town of Jonesville water system is fed by two high-flow underground springs that are influenced by the stream they flow into. VRWA Circuit Rider Tony Roark has been conducting leak detection to resolve an 80% water loss. Numerous visits have resulted in leak repairs that decreased the loss to less than 30%. It was decided to let the system assimilate to the change in pressure, and the Circuit Rider would return to continue leak detection efforts. The Circuit Rider was informed by Water Superintendent Gabriel Dillon that the water plant was having to operate longer hours to maintain the water level in its storage tanks. It was decided to give the staff time to narrow down the area, and the Circuit Rider would arrive on July 1st to look for the leak.

Upon arrival, the Circuit Rider reviewed the blueprints for the area. The readings showed that the pressure pumps after this meter were running three times more than normal. This started at about the same time as the plant operations increased. The Circuit Rider listened on the distribution lines, hydrants, and valves after the meter. As he used the acoustic listening device, he also had to use locating devices to find the mains across approximately 100 acres of fields and wooded areas to be able to listen with the ground mic above the main, as it had no valves or hydrants. A leak was found at the juncture of two mains, and another leak was found on a service line. After spending 11.5 hours over two days searching, the Circuit Rider agreed to return after the leaks were repaired.

On July 14th, the Circuit Rider returned and listened to another section of the system and found that the master meter feeding from the county back into the town was also reading above normal flows. This indicated that the massive leak was not in any of the areas that were being looked at. The Circuit Rider instructed the Operations Specialist to focus on the section past the town's master meter. On July 19th, the Operations Specialist contacted the Circuit Rider and stated that the leak was in the indicated section and had been repaired, and the system was back to normal running times.

The cost savings for the water loss were $150,000 and did not include the Circuit Rider's leak detection services, nor the extra cost of water treatment.

Appendix D

EPA Grant Projects

Town of Chilhowie

The Town of Chilhowie, PWSID #1173090, is a significant residential, commercial and industrial center located at the crossroads of Southwest Virginia, the Commonwealth and the mid-Atlantic/Southeast region of the nation. The Town Water Department operates out of the Mill Creek Regional Water Treatment Plant in conjunction with the Washington County Service Authority (WCSA). The plant was substantially upgraded in 2019 with a $3.4 million project and can produce up to 3.1 million gallons a day (MGD), of which the Town has 1.4 MGD and the WCSA 1.7 MGD of the plant capacity. The Town serves a population of approximately 7,000 customers in the Town of Chilhowie, in Smyth County outside of the corporate limits, and in Washington County.

On 6/23/25, VRWA Circuit Ruder # 3 Tony Roark received a request for leak detection from Town of Chilhowie Chief Water Operator Don Cole and Director of Public Works Tyler Keen for assistance. The Town was losing 600,000 gallons of water a day in its hundreds of miles of water mains. Most of these were in its out-of-town lines and with the out-of-town rates, they were losing an estimated $6800 per day. The town wanted to try to find and recover this lost revenue.

Tony Roark scheduled to meet with Mr. Cole and Mr. Keen on the morning of 6/25/25. Upon arrival that morning, Mr. Roark, Mr. Cole, and Mr. Keen decided the best course of action would be to check all the 2-inch or larger meters, then check the hydrants in the suspected problem areas.

While investigating these areas, a 2-inch main leading to a private service area was found to be inoperative; water was flowing through the meter at a high rate, but the meter was barely registering the flow. As a 2-inch meter at full capacity would flow an estimated 170 gallons per minute, this meter itself would account for approximately 245,000 gallons a day of full flow for 24 hours.

Mr. Roark used the MetroTech SEBA KMT acoustic listening device to listen to hydrants throughout the problem areas during this process. Mr. Roark found a 3/4-in service line at 1244 Wesley Drive that was broken, and the system was losing an estimated 33,000 gallons per day from this leak. Mr. Roark also found another 2-inch meter that was questionable in its measurement of flow. This leak would have a revenue of approximately $745 at the full flow for 24 hours.

These leaks could have the potential estimated cost of $7000 per day. When factoring in the cost of finding them, it would easily be $10000 a day of lost revenue. The Town of Chilhowie and its staff were very pleased with the outcome of this leak detection visit and asked for another scheduled visit after repairs from these findings.

City of Lexington

Appendix D

EPA Grant Projects

On June 9th, Circuit Rider Ken Talley received a call from the City of Lexington, Virginia, who needed emergency help to locate a leak. The town had discovered a large amount of water running into a storm drain.

The circuit rider responded and was on site in an hour and a half. He could hear the leak using the magnetic microphone, then listening to the hydrants, valves and meters in the vicinity. The local city's water specialist helped the circuit rider to narrow down the location which in turn helped the circuit rider locate the leak quickly. The leak was found. The circuit rider was present when the 6" ductile iron pipe was excavated, and the leak was found to be a broken hub. The leak was estimated to be more than 1.7 million gallons per month or over 10 million gallons in a six-month period. It was thought to have been leaking over the course of several months since the leak was tunneling under a building and showing up on the other side in the ground.

With the repair made, the circuit rider saved the city of Lexington more than $40,000 in water loss alone, not to mention the lost revenue.

Town of Shenandoah
The Town of Shenandoah's General Manager, Charles Jenkins, contacted VRWA Circuit Rider Ken Talley for assistance with leak detection. The town was experiencing a high water loss and had to produce a million and a half more gallons per month than normal.

The Circuit Rider visited the system and proceeded to listen to one of the wells and then the distribution system. The Circuit Rider worked from meter to meter, then valve and hydrant to hydrant, systematically listening with the ground microphone. Two leaks were found on the first day. The larger of the two leaks was in a vault on an eight-inch fire bypass valve and was estimated at over 15 gallons per minute or 22,000 gallons per day. There was another major leak on Quincy Street and 2nd Avenue that was found on a subsequent visit. There were also a couple of meters that were determined not to be registering any waterflow. It was suggested that the Circuit Rider return to search another section after those leaks were repaired and recalculate the water loss.

The Circuit Rider estimated the one-time cost savings to Shenandoah for leak detection and water loss to be $15,000 that month alone for a leak thought to have been active for over a month.

City of Buena Vista
The City of Buena Vista Water Superintendent Richard Atkins contacted VRWA Circuit Rider Ken Talley to assist with leak detection.

The Circuit Rider arrived on site and assisted with conducting leak detection. Over the course of three visits, the leak was narrowed down. The leak was isolated to a 650-foot stretch after closing certain valves. The Circuit Rider then used the correlator to ascertain the exact location of the leak. The first reading indicated the leak was outside of the parameters. It was determined that the run was too long for the correlator to get a good fix on the location. A shorter distance from the meter through the main and to each meter was tried. After leapfrogging to the third set of

meters, the location of the leak was identified. The Circuit Rider then used a ground mic with a tripod end and verified the location of the leak.

The Circuit Rider saved the City of Buena Vista approximately $12,000 in leak detection services and water loss costs such as chemicals, electricity, and production costs for the six months the leak was active.

Amherst County Service Authority

The Amherst County Service Authority (ACSA) is a conventional Class 2 surface water facility and distribution system that serves Amherst County. The water system sources are Graham Creek and Harris Creek.

On February 10th, VRWA Circuit Rider Tony Roark visited ACSA for a requested leak detection. The system was losing 60 gallons per minute on a main going through an area on the James River. This leak was on Rocky Hill Road, and the system could not find it as this road was directly above the James River and along a rock outcropping. The leak was not showing itself or coming to the surface.

The Circuit Rider met with Executive Director and General Manager Tim Castillo, Assistant Director Richard Hall, Operations Specialist Chris Cunningham, and other ACSA staff. He proceeded to use the ground mic to confirm the location of the leak, starting at a valve at the beginning of the street. The Circuit Rider listened at every valve and meter along the main, also listening with the ground mic adaptor above the main's path. As he was listening for the leak, he provided instruction and training to the ACSA staff in the proper technique and methodology of leak detection. As the detection moved past a curve around a rock outcropping, the circuit rider located the leak. It was under the concrete, paved curbing, and roadway guard rail.

The leak was losing an estimated 60 gallons per minute, or 86,400 gallons per day. The ACSA estimated the leak had been ongoing for approximately three weeks or more. This leak would have lost 1,814,400 gallons in the 21 days. The lost revenue, water loss, and leak detection expense would have cost the ACSA an estimated $27,000. During this leak detection, the circuit rider also provided hands-on training and loaned the listening device to the utility for use and consideration of purchasing for their own use.

Appendix D

EPA Grant Projects

University Of Maryland - Environmental Finance Center (UMD-EFC)
October 1, 2024, through September 30, 2025

- Lead Service Line Inventory Support – UMD-EFC provided community engagement support to communities to help them address unknowns in their submitted lead service line inventories:
    - Emporia: Provided best practices for community engagement for residential-side service line identification.
    - Bedford Regional Water Authority: Reviewed and provided comments on existing outreach documents. Provided best practices for community engagement for residential-side service line identification.
- Montross
    - Rate Assessment was completed on 03/13/25. Final report was shared and discussed with Montross staff on 04/01/25.
- Bowling Green
    - Performing a rate assessment. Draft report is anticipated to be completed in Q1 of next year.
- Chincoteague
    - Assisted Chincoteague with submitting a FY26 DWSRF application, including seeking emerging contaminants funding.
    - Assisting Chincoteague with submitting VDH planning and design grants. Chincoteague expects to submit grant applications in Q1 or Q2 of next year.
- Parksley
    - Performing a rate assessment. Draft report is anticipated to be completed in Q1 of next year.
- Scott County/Gate City
    - Connected Scott County and Gate City with Moonshot Missions to provide support through their consolidation process. Work is ongoing.
- Carroll County
    - Connected Carroll County with Moonshot Missions to develop an asset management plan. Work is ongoing.

Appendix D

EPA Grant Projects

Moonshot Missions
October 1, 2024, through September 30, 2025

Community	County	Description	Ta Program
Town of Victoria	Lunenburg	Conducted site visits, evaluations, and operational improvements to enhance water quality, efficiency, and system reliability, including chemical optimization, equipment upgrades, and staff training. Provided technical guidance, reporting, and grant support leading to infrastructure repairs, process upgrades, and long-term improvement planning.	EPA National Environmental Finance Center & EPA Training and Technical Assistance Program for Rural, Small, and Tribal Wastewater Systems
Town of Bowling Green	Caroline	Conducted Technical, Managerial, and Financial assistance via onsite visit.	EPA Region 3 Environmental Finance Center
Scott County Public Service Authority	Scott	Developed a comprehensive work plan to assess Gate City's water and sewer systems, evaluating infrastructure, financial, and operational factors to determine the feasibility and benefits of transferring the systems to the Scott County PSA.	EPA Region 3 Environmental Finance Center
Carroll County Public Service Authority	Carroll	Beginning an engagement to develop a comprehensive Asset Management Plan, including asset inventory, condition and risk assessment, project prioritization, a practical management tool, and a funding strategy to guide future improvements.	EPA Region 3 Environmental Finance Center

Appendix E

2023 Triennial Capacity Assessment Questions

Technical	Is the waterworks score on the 2022 ETT ≤ 10?	Does the waterworks have sufficient operator coverage for sick leave and vacation?	Has the waterworks either not received significant deficiencies, or completed timely correction of all significant deficiencies?	Did the waterworks address recommendations from recent sanitary surveys?	Does the waterworks have a written policy for responding to customer complaints?	Are all plans and reports up to date and implemented (e.g. BSSP, LCR Plan, CCCP, CCR, WBOP, Sampling, etc.)?
Managerial	Did the waterworks consistently operate within 80% of its permitted capacity in the last 3 years?	Does the system meet Waterworks Regulations design and construction standards?	Are the waterworks facilities and appurtenances in good operating condition?	Are all service connections metered and is there a water accountability program in place?	Does the waterworks meet all established National Primary Drinking Water Standards?	Have all operators attended a technical training seminar or conference each year covered by this survey?
Financial	Did the waterworks pay the technical assistance fee?	Does the waterworks have at least 45 days cash on-hand to cover expenses?	Is the waterworks budget independent from subsidization by general funds, sewer funds or other funding sources?	Does the waterworks have a written Capital Improvement Plan?	Have the waterworks' rates been adjusted in the past three years?	Does the waterworks have an Asset Management Plan?

Appendix F

ODW Success Stories and Technical Assistance

The following Success Stories are a snapshot of assistance provided by ODW across the state. Staff provide technical assistance on a variety of topics, with an emphasis on facilitating education of waterworks staff and ensuring compliance with the Safe Drinking Water Act and *Virginia Waterworks Regulations* requirements. Their work is important for improving TMF capacity at waterworks in Virginia through identification and resolution of deficits as well as on-site training and assistance.

Technical and Managerial Assistance in the Town of Clifton

In early December 2024, the contract operator Matt Brooks passed away suddenly. He had been the designated operator for six waterworks in Clifton, Virginia, which now had no licensed operator. Culpeper Field Office staff worked rapidly to assist these waterworks, facilitating meetings with potential new operators and assisting in collecting samples so that they would not incur monitoring violations. As a result of this diligent effort, all six waterworks promptly secured properly licensed operators and remained in compliance throughout the transition period.

Technical Assistance for Hurricane Helene Impacts

The Abingdon Field Office technical staff provided extraordinary support and technical assistance over a two-week period to the 45 public water systems in 11 Southwest Virginia counties placed on a precautionary Boil Water Advisory (BWA) due to the impact of Hurricane Helene, which affected 200,000 residents. AFO staff advised water systems on mutual aid, operational interconnections, and procedures to disinfect, flush, and collect samples in order to rescind their BWAs. AFO staff worked around the clock to facilitate communications among the water systems, Virginia Department of Emergency Management, FEMA, US Army Reserves, VDH Medical Reserve Corps, local health departments, the Governor's office, and general public, including many parents of the Virginia Tech students impacted by the BWAs. AFO staff also participated in daily media briefings during this period. As follow-up in 2025, AFO staff provided instruction for two continuing education presentations on unplanned events.

Technical and Financial Assistance in Page County

TCDO staff assisted the Mount Carmel Christian Academy (PWSID VA2139400) in Page County with securing the Small Projects Engineering Services (SPES) to install a UV light. Mount Carmel had experienced periodic Total Coliform positive results in the past and wanted to take further steps to protect the students and staff of the academy. SPES funded the plans and specifications with Hurt and Proffitt. Lexington Field Office staff completed the final inspection of the UV light installation and confirmed that it is in use.

Technical Assistance for Water Outage in the City of Richmond

On January 6, 2025, the City of Richmond (PWSID VA4760100) experienced a winter storm-related power outage that led to catastrophic failure at the water treatment plant and loss of distribution pressure across their entire system and parts of neighboring utilities who rely on Richmond for finished water. ODW staff, including TCDO's Capacity Development Supervisor, were on site 24/7 from the evening of January 6th through January 12th. While on site, ODW staff provided hourly updates of plant production

and rehabilitation of damaged equipment, as well as system-wide distribution pressures and tank levels from information gathered through plant SCADA and operations staff. TDCO staff also helped facilitate communication between the Henrico County and Hanover County water systems to provide updates on impacts to their systems. ODW staff provided technical assistance to Mayor Danny Avula's office on required sampling to lift the multiple-jurisdiction-wide boil water advisory. The situational reports that ODW staff produced were shared with ODW and VDH leadership, Secretary Kelly, and Governor Younkin four times each day.

Technical, Managerial, and Financial Assistance via workshops in the Town of Wytheville and City of Fredericksburg

TCDO staff partnered with SERCAP to conduct a Drinking Water Funding Workshop in the Town of Wytheville and another in the City of Fredericksburg. The workshops featured presentations from ODW staff, technical assistance providers, and funding agencies including SERCAP, VRWA, VRA, AWWA, UMD – EFC, USDA RD, and the Virginia Department of Housing and Community Development. The waterworks in attendance had the opportunity to speak directly with representatives from these organizations, and several began planning projects around the information they learned at these events.

Technical and Financial Assistance for Sustainable Production in the Town of Mineral

The Town of Mineral (PWSID VA2109525) is a community waterworks located in Louisa County. The Town was issued a notice of alleged violation for operating without an approved water source in February 2025. The Town's waterworks operation permits lists 5 groundwater wells as approved sources with an additional auxiliary connection to Louisa County Water Authority (LCWA) as a temporary source. Currently, Mineral is relying solely on their connection to LCWA, as all their wells are offline. TCDO staff worked with the Town of Mineral and VRWA to complete two planning and design grant applications in March 2025. One planning grant will evaluate the viability of rehabilitating the existing wells. The second grant will fund a preliminary engineering report that will make suggestions to the Town for establishing a long-term source. Both grants were awarded to the Town on April 17, 2025. The well study is underway and has shown promising results so far, with one well producing 175 gallons per minute. The Town expects to complete the PER by the end of 2025.

Managerial and Financial Assistance for Source Development in Caroline County

Four Winds Campground (PWSID VA6033249) is a small community waterworks in Caroline County. They were awarded $100,000 of ARPA funding to replace their distribution system; however, after a sudden well failure, the ARPA funding was diverted to drilling a replacement. The complete cost for developing the new well was estimated to be $200,000, so Four Winds decided to apply for two Planning & Design grants to cover a majority of the remaining funding gap. A TCDO Sustainability Coordinator worked closely with Four Winds to develop their two Planning & Design applications. Since all ARPA-funded work must be complete before October 2026, TCDO established a submission deadline of August 8. Four Winds submitted their applications before this deadline, and both were awarded for a total of $90,000 in well development assistance.

Financial Assistance for Elevated Gross Alpha Radiation in Bowling Green

Appendix F

ODW Success Stories and Technical Assistance

The Town of Bowling Green (PWSID VA6033550) is a community waterworks in Caroline County. The Town relies on three wells, one of which has elevated gross alpha contamination that exceeds the PMCL. Before drilling a replacement well, the Town wanted to investigate whether gross alpha levels varied at different screen intervals within the existing well, so that the screens could be strategically placed in the new well to improve water quality. They applied for and were awarded a Planning & Design Grant to fund this study. On August 26, they submitted the resulting Technical Memorandum to the Richmond Field Office and received approval.

Technical, Managerial, and Financial Assistance for consolidation of Montvale Water Company and Bedford Regional Water Authority

Montvale Water Company (PWSID VA5019675) is a community waterworks located in Bedford County. The owners of Montvale Water are both of advanced age and want to transition themselves out of the water business. Montvale's aging infrastructure is causing frequent service disruptions and unreliability for their customers. Virginia Rural Water Association (VRWA) has worked closely with the owners of Montvale in recent years to assist with leak detection and compliance sampling. In June of 2025, VRWA reached out to TCDO to share the owners' interest in transferring their water system to another responsible party. TCDO worked in conjunction with Danville Field Office and Bedford Regional Water Authority (BRWA) to initiate conversations around a transfer. Montvale and BRWA have entered into a formal consolidation agreement, and BRWA was awarded $200,000 through the Equitable Access to Drinking Water Fund to help with the effort. The consolidation is currently underway.

BIL-02S-22 – Town of Altavista's Sedimentation and Solids Handling Improvements Project

The Town of Altavista (PWSID VA5031050) provides essential drinking water services to the residents and businesses within Altavista, Virginia, and they serve two consecutive systems, Grit Road in Pittsylvania County, and the Town of Hurt, Virginia. This publicly owned community waterworks currently serves a total population of 3,850 through 1,541 existing service connections.

This project begins with the public health challenge of eliminating high Disinfection By-Product (DBP) residuals of TTHM and HAA5. The two consecutive systems that the Town of Altavista serves (Town of Hurt and Grit Road) have been under consent order with the VDH-ODW for DBP Maximum Contaminant Level (MCL) exceedances.

These exceedances were identified to be a direct result of the build-up of sludge solids in Altavista's Water Treatment Plant (WTP) sedimentation basins that were originally constructed/installed without a sludge solids removal system. The reaction between the large concentration of solids with sodium hypochlorite disinfection treatment increases the formation of DBP residuals thus resulting in the MCL exceedances for both consecutive systems.

To mitigate these issues, the Town of Altavista applied for DWSRF Construction Funding in April 2022 for an amount of $3,000,000. The proposed scope of work consists of sedimentation basin concrete repair; brick baffle wall repair; replacement of slide gates, handrails and kickplates; and installation of automated

sludge removal systems and upgraded solids holding tank controls for all five (5) existing sedimentation basins.

Benefits expected to emerge from this project include but are not limited to: lowered DBP residuals; continual use without requiring multiple draining of all basins annually; lowered quantity of solids and water pumped to the Wastewater Treatment Plant (WWTP); reduced energy consumption; plant operator safety; and decreased expenditures.

Due to bid prices, the project award was increased to $3,898,390 in June 2024. The VDH and the Virginia Resources Authority (VRA) successfully completed the loan closing for this project on December 19, 2024. The total funding amount is $3,898,390. The funding package consists of $3,225,850 as principal forgiveness and a $672,540 loan for a term of 30 years.

The contractor had a Notice to Proceed dated March 3, 2025. As such, the project is currently under construction, and it should be complete in the 2nd quarter of 2026. After the project is complete, the Town of Altavista and the consecutive systems it serves should have lowered DBP residuals resulting in safer drinking water.

BIL-05L-22 – City of Norfolk's Lead Service Line Inventory and Replacement Project

The City of Norfolk Department of Utilities (PWSID VA3710100) provides essential drinking water services to the residents and businesses within Norfolk, Virginia. This publicly owned community waterworks currently serves a total population of 233,000 through 71,208 existing service connections.

The compelling story behind this project begins with a critical public health challenge: the high probability of existing lead service lines (LSLs) within the residential distribution system. The City's own crews have encountered these LSLs during routine water main replacements and maintenance activities. To address this proactively, the LSL Replacement Plan, dated October 2024, identified 590 known LSLs and an additional 290 Galvanized Requiring Replacement (GRR) lines. The project's core purpose is clear: to secure funding for the full replacement of LSLs on both the public and private sides to protect public health and mitigate the risk of lead exposure.

In pursuit of this vital work, the City of Norfolk submitted its application for $26,000,000 in funding on January 14, 2022, through the Bipartisan Infrastructure Law (BIL). The proposed scope includes establishing the LSL Inventory and launching the replacement program, which is projected to address approximately 3,240 homes in phases over five years. The replacement strategy is highly focused, prioritizing areas with disadvantaged consumers, known LSLs, sensitive populations, and licensed childcare centers. Critically, the City has committed to performing the service line replacement at no cost to the customer. The ultimate goal is ambitious: completing all replacements by or before 2029, with the replacement phase scheduled to begin in 2026.

The efforts culminated in a major financial commitment, with the VDH issuing the award letter on November 27, 2023. The total $26,000,000 funding package was structured to maximize benefit to the community, comprising $10,400,000 as principal forgiveness and a $15,600,000 loan.

Appendix F

ODW Success Stories and Technical Assistance

Bringing the story to its current chapter, the VDH and the Virginia Resources Authority (VRA) successfully completed the loan closing for this project on December 17, 2024. With the financing officially secured, the City of Norfolk has actively moved into the execution phase, having already submitted and processed two reimbursement requests. The project currently continues with the inventory, engineering and testing process; they estimate the replacement process will begin in 2026.

Overall, this project represents a monumental step toward eliminating a significant health risk, promising a healthier and more reliable drinking water system for the residents of Norfolk.