COMMONWEALTH of VIRGINIA

Department of Health

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State Health Commissioner

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November 25, 2024

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 2024, attached to this correspondence. The Report covers the period October 1, 2023, through September 30, 2024, 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) 477-5171 or by email barry.matthews@vdh.virginia.gov.

Sincerely,

Barry Matthews

Barry E. Matthews, CPG
Director, Training, Capacity Development and Outreach

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

Commonwealth of Virginia
Capacity Development Annual Implementation Report

October 1, 2023, through September 30, 2024

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Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

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VIRGINIA DEPARTMENT OF HEALTH

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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/

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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 2024, from October 1, 2023, through September 30, 2024. 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 means "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 template 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. These updates included work on the *Field Operations Manual, Project Review & Permit Procedures Manual,* and the *Sampling Manual.* In addition, ODW developed training materials covering the updated regulated requirements for lead service line inventory requirements and templates for use by the regulated community.

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 longstanding 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, 2021, through September 30, 2024. 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 is 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. Many 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, 2021, through September 30, 2024, ODW identified 34 community and NTNC waterworks as "new." Not all 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, 10 of them incurred violations. There has been a slight increase in the number of systems with violations since the last

[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*.

reporting period in which 7 new waterworks had violations. There was a decrease in the number of new systems, down from 37 in the last reporting period. Of the 9 new systems in the preceding year (October 1, 2023, to September 30, 2024), 1 incurred 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 2024 ETT, 10 waterworks were identified as a "priority system." This represents a slight decrease from the prior year in which 11 waterworks were on the ETT. This is still a significant increase over the 2 systems that were on the 2022 July ETT. This increase is likely due to a fully staffed compliance and enforcement team at the ODW. They are actively pursuing compliance for waterworks with a strong enforcement foundation.

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 of this report.

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 2001, 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. The higher the 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 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. Managerial 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. 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 1,065 community, 504 NTNC, and 1,269 TNC waterworks during the reporting period. These systems collectively serve approximately 7.75 million consumers--about 90% of the total population of Virginia (8.64 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 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 waterworks new 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 495 routine sanitary surveys, provided guidance to waterworks in completing 218 Level 1 RTCR Assessments, conducted 64 Level 2 RTCR Assessments, and performed 49 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 17,586 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 listing of the courses is provided in Table 1. Additional details are available in the "Operator Certification Annual Report, 2024" sent to the US EPA on June 30, 2024.

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. Starting in August 2018, Virginia Tech offered an additional level, "Year 4," for supervisors or operators looking to move into management. The Year 4 sessions include asset management, communications, human resources, as well as new technologies. Virginia Tech held the Short School from August 4 - August 9, 2024; approximately 101 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 participants, that were eligible, 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
October 11, 2023	Broadcast: AWWA M36 Water Audits and Loss Control	120
October 16 – 20, 2023	Operations and Maintenance of Distribution Systems	25
November 8, 2023	Broadcast: Improvement Case Studies	244
February 6 - 8 , 2024	Basic Groundwater Course for Small Systems	22
February 21, 2024	Broadcast: Membranes 101	136
March 4 – 18, 2024	Water Operations Math (virtual, synchronous)	21
March 19 – 20, 2024	Hands-On Training at a Full-Scale Water Plant	19

March 31, 2024	Broadcast: Distribution System Disinfection	128
April 10, 2024	Broadcast: Coagulation, Flocculation, and Mixing	129
May 6 – 10, 2024	Operation and Maintenance of Distribution Systems	26
May 15, 2024	Broadcast: Asset Management & Rate Impacts	154
June 3 – 7, 2024	Applied Math and Basic Science for Waterworks Operators	13
June 12, 2024	Broadcast: Plant Operation Front to Back: Intake Design/Permitting, Pump Basics and Discharge Permitting	130
July 17, 2024	Broadcast: VDH/DPOR Regulatory Update	144
July 9 – 11, 2024	Management, Money and Methods: Understanding Concepts in Capacity Development	18
August 27 – 29, 2024	Establishing a Successful and Sustainable Waterworks	19
September 18, 2024	Broadcast: Tank Sites, Security, Inspection, & Compliance	142
September 24 – 26, 2024	Groundwater Math for Small Systems	16

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 221 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 does 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 832.50 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 infractions, improperly licensed staff, recordkeeping failures, reporting failures, or 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 may issue a warning letter to a waterworks owner that is a priority system according to the ETT, is on the verge of becoming a priority system, or otherwise as needed after a waterworks has not timely returned to compliance after receiving an NOAV. Warning letters are generally issued on a quarterly cycle, following the latest ETT report, and summarize violations that the waterworks has not yet resolved. Warning letters requests the owner to 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 (consent and special) 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, 2023, through September 30, 2024, reporting period, ODW issued 1,558 NOAVs (1,410 Federal violations and 148 State violations) and 72 Warning Letters. Additionally, the State Health Commissioner entered into eight consent orders with waterworks owners and issued one special order. Nine waterworks satisfied the requirements in their consent orders and those orders were terminated, including five consent orders for community waterworks (two of which were replaced by superseding consent orders) and four 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 13, 2023, March 13, 2024, June 12, 2024, and September 18, 2024. 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 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 disbursement of 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), to set requirements for waterworks restructuring as part of the funding process (rate increases or completion of annual audits).

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 FCAP requires water systems that receive funding through the DWSRF to either have an active asset management plan or prepare one before completion of the awarded project. Up to $15,000 in principal forgiveness is available to assist with the costs of developing or updating an asset management plan for those who do not have an active or up-to-date plan.

Performance: During the reporting period, ODW received applications for FY2023, FY 2024, and FY2025 Bipartisan Infrastructure Law (BIL) and FY 2025 DWSRF funding. The Intended Use Plan (IUP) and the Project Priority List (PPL) have been drafted for all FY 2024 funding (Base + BIL). For FY 2024 BIL applications, the TMF assessment has been conducted and funding offer letters will be drafted and sent out to the funding applicants soon. As part of the TMF review, ODW staff identify issues regarding low TMF capacity and recommend corrective actions in the funding offers. For FY 2025 funding, FCAP has developed the PPL including three (3) DWSRF Base funded projects, ten (10) BIL Supplemental Projects, three (3) BIL Emerging Contaminants Projects. Additionally, three (3) projects were added to the FY2023 BIL LSL PPL, five (5) projects were added to the FY2024 BIL LSL PPL, and two (2) projects were added to the FY2024 BIL Emerging Contaminants PPL. In total 26 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 increased 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 10 applications totaling $428,000.00 to the Planning and Design Fund to-date during calendar year 2024. ODW receives applications on a rolling basis during the year, so there may be more to come in before end of year. ODW has made an offer to 6 waterworks totaling $210,000.00; two were ineligible, two were put on hold until later in the year. ODW continues to reimburse projects cost for offers from previous years with

approximately $115,000 expended on prior year projects. Two projects from prior years remain active, both from 2023. 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 aided waterworks across the Commonwealth through direct technical assistance, participation in training and tabletop exercises, and support of emergency response agencies as described below:

The Emergency Services Coordinator provided incident management technical assistance for a water utility that had petroleum leak from underground storage tanks into the drinking water supply. This incident resulted in a Do Not Use notice that is ongoing. The incident required significant coordination with the Office of Drinking Water, the locality, various state agencies, and the private sector to ensure the community received the appropriate information regarding a Do Not Use notice that was issued. There were two community meetings and a Board of Supervisors meeting that was held in conjunction with the Emergency Services Coordinator, ODW staff, the locality and other state agencies.

The Emergency Services Coordinator provided incident management technical assistance after a large warehouse fire that sent thousands of gallons of firefighting foam, water, herbicides, pesticides and other chemicals into two Virginia watersheds. The two watersheds had four drinking water intakes that had to be considered in the response. One system enacted its emergency connection with a neighboring locality until sampling data showed the chemical plume had passed. A second system used an alternative water source it already had in place, a third and fourth system sampling showed that the chemical plume modeling was significantly diluted, and no changes needed to be made to their intakes.

The Emergency Services Coordinator worked with ODW Field Directors to contact waterworks due to pending severe weather from Tropical Storm (TS) Debby and Helene. The Emergency Services Coordinator worked with ODW Field Directors to communicate with waterworks during Tropical Storm Debby and Helene and staffed the Virginia Emergency Operations Center (VEOC) with the Virginia Emergency Support Team (VEST) Emergency Support Function (ESF) #3 – Public Works and Engineering to assist across the commonwealth for potential resource requests needed from the impacts of excessive rain, power outages, high winds, and flooding. While water systems fared well during TS Debby, 40 BWA were issued by waterworks and tracked by the Emergency Services Coordinator for Tropical Storm Helene. Additionally, due to TS Helene two systems suffered significant damage (infrastructure damage, and extreme turbidity in their source water), which necessitated technical assistance with the regional office and water utilities by the Emergency Services Coordinator and the VEOC.

The Emergency Services Coordinator participated in several trainings with other ODW team members and water utilities, including the EPA Cybersecurity Overview and Tabletop Exercise for Virginia Drinking Water Utilities.

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 2024 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, 230 provided responses, with 84 systems confirming they have a SIP in place, including 49 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:

During the 2024 reporting period, the contractors continued their efforts to assist water systems with maintaining and implementing Source Water Protection Plans (SWPPs). Using a Microsoft Form survey, the contractors 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, 230 responded, with 71 (15%) actively participating in the survey. The survey identified that:

- 84 systems reported having a SIP, including 49 YCPC systems, which meet SIP requirements by default due to construction classifications.
- 66 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, 30 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 FY23 results pertaining to EPA's Strategic Targets SDW-SP4a (Community Water Systems covered by Substantial Implementation) and SDW-SP4b (Population covered by Substantial Implementation).

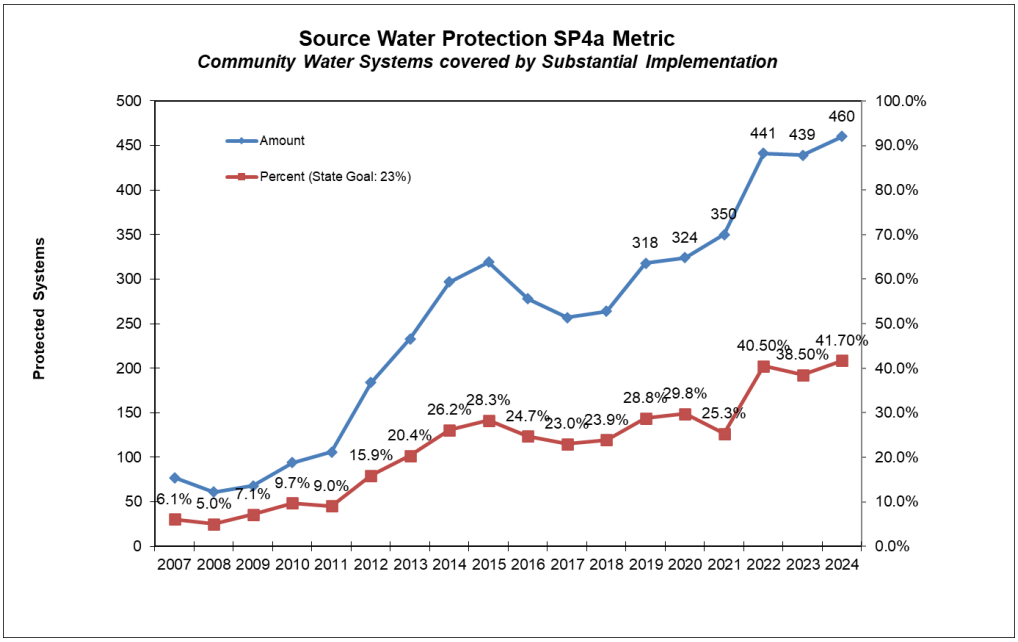

Figure 1: Source Water Protection SP4a Metric: CWSs covered by substantial implementation.

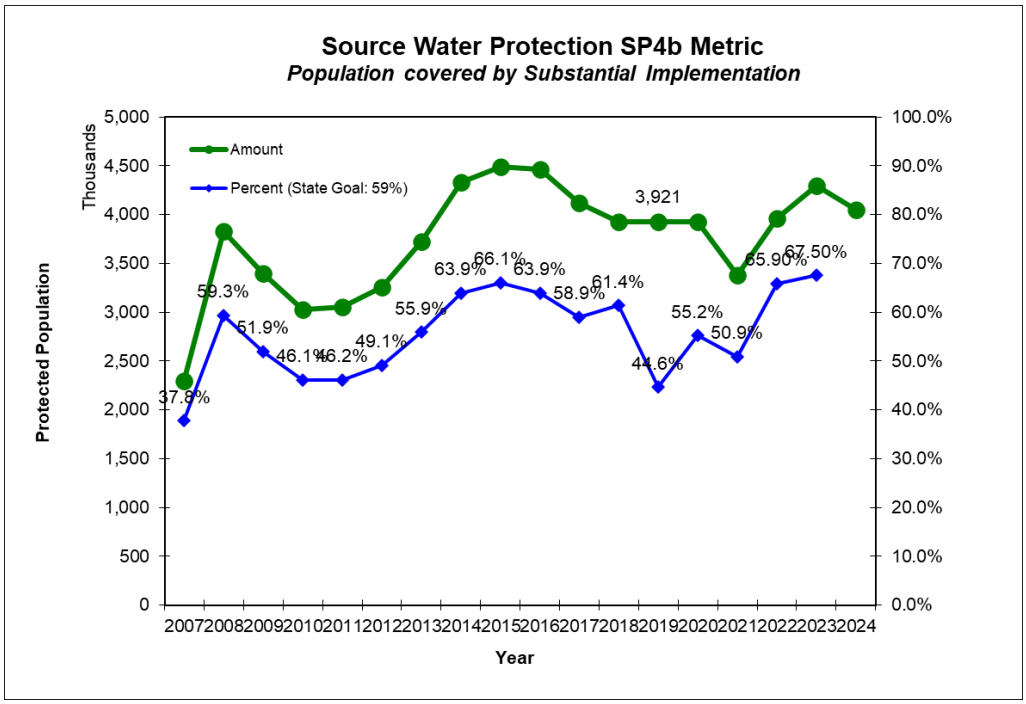

Figure 2: Source Water Protection SP4b Metric: Population covered by Substantial Implementation

The VDH issued the 2024 Source Water Protection Implementation Projects Request for Applications on May 17, 2024. The grant panel has a budget of $120,000 to fund source water protection grant projects. There were 4 applicants this year. After evaluating each application, the panel decided to fully fund the Town of Middleburg and the Town of Onancock's projects. The town of Onancock will install reinforced fences and bollards around all fencing. The Town of Middleburg will visually inspect the most at-risk sewer mains in the town to identify possible breaks, blockages, and other failures that could lead to raw sewage being spilled into the ground. Middleburg also wishes to conduct video inspections of the aging pipes in town to identify possible failure points and areas where proactive repairs need to occur.

- **The Town of Middleburg** – Fully funded for $50,000
- **The Town of Onancock** – Partially funded for $11,250

In total, staff distributed $61,250 between these two awardees. The performance cycle for these awards ends on June 30, 2025.

Performance information about the Wellhead Protection Implementation Projects Request for Applications is available at:
https://www.vdh.virginia.gov/drinking-water/source-water-programs/source-water-protection-assistance-funding-opportunities/

2.16 Small Engineering Projects Program

The Small Engineering Projects 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 tenth year.

Performance:

During this reporting period, six new projects were initiated which involved corrosion control designs in Madison and Rappahannock Counties, system mapping in Page County, WBOP construction in Patrick County, a mini preliminary engineering report in Charlotte County, and an AMP in Rockbridge County. The Small Project 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 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.

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 assesses waterworks staff qualifications. ODW performs sanitary surveys more frequently than required by EPA, from once every six months to once every three years; staff base the frequency on the population served by the waterworks and its facilities. 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 2023 ETT report is included in Appendix C. 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 July 2023 ETT includes six community waterworks and five 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. As shown in Figure 3, below, the number of waterworks with a July ETT score greater than 10 have showed a general downward trend to 2020. 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 contribute to discussions to reduce waterworks noncompliance.

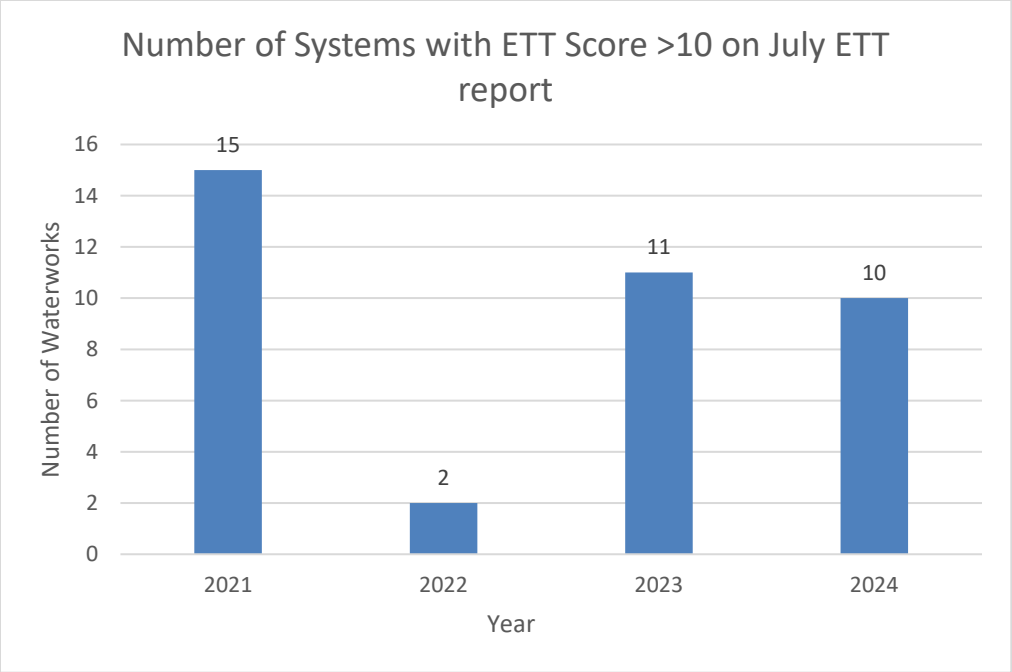

Figure 3: Number of Community and Non-transient Non-community Systems with Enforcement Targeting Tool (ETT) Score >10 on July ETT report

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 eight years.

Table 2, below, shows the breakdown of operators by system type as of September 25, 2024, 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 25, 2024

Percent of Waterworks with Licensed Designated Operators As of September 25, 2024			
System Type	**# of Systems**	**# of Systems with Assigned Designated Operator**	**% of Systems with Active Designated Operator**
C	1065	1059	99.44 %
NTNC	504	503	99.80 %
Total	***1569***	***1562***	***99.55%***

Further information regarding licensure of operators in Virginia is in the "Annual Report on Operator Certification in Virginia" for the reporting period of July 1, 2023, to June 30, 2024. 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 2,255 as of September 25, 2024. This reporting period revealed a gain of 157 operators in total. Staff attributes this increase in operators to Virginia's newly implement reciprocity of licensure from other states. VDH-ODW will continue offering low-cost education solutions, which are now more important than ever. Data obtained from DPOR on Sept 25, 2024.

Table 3: Number of Operators by Class as of September 25, 2024

Number of Operators by Class as of September 25, 2024			
Class License	Number of 2023 Licensees	Number of 2024 Licensees	Net Gain (Loss)
6	199	210	11
5	237	267	30
4	302	321	19
3	331	356	25
2	323	334	11
1	706	767	61
Total	***2098***	***2255***	***157***

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, 2023, through September 30, 2024. 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 at:
https://www.vdh.virginia.gov/content/uploads/sites/14/2023/10/2023-Governors-Report_Final.pdf

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, tax records, analyzes rate structures, 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.
  - Section 32.1-172 B of the *Code of Virginia* requires a person to apply to the ODW field office for a permit prior to the establishment, construction, or operation of a waterworks.
  - A Preliminary Engineering Conference 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.
    - A permit is required prior to the construction or operation of any waterworks in accordance with 12 VAC 5-590-190 of the *Waterworks Regulations*.

Managerial

- ODW completes a general managerial review of all potential DWSRF recipients. Staff conducts 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,
    - Parts 7 an owner's certification statement,
    - The WBOP handbook is available to the public at: https://www.vdh.virginia.gov/drinking-water/capacity-development/waterworks-business-operations-plan/ ,
    - 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 31, 2024. The Virginia Department of Health Office of Drinking Water highlights the Bristol Virginia Utilities Authority's District Meter and Pressure-Reducing Valve Improvements project (an FY2021 DWSRF Project), and the Western Virginia Water Authority's Roanoke Area Water Distribution System Improvements – Phase 1 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 is part of the Training, Capacity Development, and Outreach Division of ODW. Five full-time staff actively support the Capacity Development Strategy for the reporting period. Four of the full-time positions are "Sustainability Coordinators." 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 works 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 2,838 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 affect 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, 2021 – September 30, 2024

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
POWHATAN COUNTY	VA4145950	WINTERFIELD (IVY BROOK ACADEMY)	NTNC	2024/09/12
ACCOMACK COUNTY	VA3001798	SHORE CHRISTIAN ACADEMY	NTNC	2024/09/10
GOOCHLAND COUNTY	VA4075003	ACTON ACADEMY WEST END	NTNC	2024/09/10
BOTETOURT COUNTY	VA2023298	FINCASTLE MENNONITE CHURCH	NTNC	2024/08/28
VIRGINIA BEACH, CITY OF	VA3550022	COASTAL CHURCH	NTNC	2024/05/21
LOUDOUN COUNTY	VA6107525	ORION PROJECT (HITT)	NTNC	2024/05/14
ESSEX COUNTY	VA4057675	BLOSSOMS CHILDCARE CENTER	NTNC	2024/05/01
PATRICK COUNTY	VA5141551	PATRICK COUNTY PSA	C	2024/03/04
FLUVANNA COUNTY	VA2065040	ANTIOCH CHRISTIAN ACADEMY DAYCARE CENTER	NTNC	2024/01/24
CAROLINE COUNTY	VA6033049	WARRIORS HEART VIRGINIA	NTNC	2023/08/14
WESTMORELAND COUNTY	VA4193990	NORTHERN NECK CHRISTIAN SCHOOL	NTNC	2023/08/01
BUCHANAN COUNTY	VA1027500	BCPSA - KENNEL GAP	C	2023/07/07
NORTHAMPTON COUNTY	VA3131302	KIPTOPEKE INN	C	2023/06/28
PRINCE GEORGE COUNTY	VA3149870	SIMPSONS COUNTRY CENTER	NTNC	2023/05/17
WASHINGTON COUNTY	VA1191275	GREEN SPRING ROAD	C	2023/05/02
HANOVER COUNTY	VA4085345	HANOVER COMMUNITY CENTER,	NTNC	2023/03/31
POWHATAN COUNTY	VA4145025	HI-5 EARLY LEARNING CENTER	NTNC	2023/03/01
LOUDOUN COUNTY	VA6107700	STONELEIGH	C	2023/03/01
ACCOMACK COUNTY	VA3001670	CAF HOUSING WATERWORKS	NTNC	2023/02/23
SALEM, CITY OF	VA2775485	SALEM VETERANS' AFFAIRS MEDICAL CENTER	NTNC	2023/02/13
HALIFAX COUNTY	VA5083546	GRAND SPRINGS DISTRIBUTION	NTNC	2023/01/23
ACCOMACK COUNTY	VA3001690	MARSHALLS DEPT STORE	NTNC	2023/01/18
BOTETOURT COUNTY	VA2023870	WVWA NORTH BOTETOURT	C	2022/11/05
ROANOKE COUNTY	VA2161046	BLACKWOOD	C	2022/11/05
CHARLES CITY COUNTY	VA4036860	TREVORS BEND	C	2022/10/11
ROCKINGHAM COUNTY	VA2165425	LINDALE MENNONITE CHURCH	NTNC	2022/08/22

NORTHUMBERLAND COUNTY	VA4133030	BAY HARBOR	C	2022/05/11
RUSSELL COUNTY	VA1167240	GLADE HOLLOW - RCPSA	C	2022/04/18
MIDDLESEX COUNTY	VA4119587	MIDDLESEX WATER AUTHORITY	C	2022/04/05
ACCOMACK COUNTY	VA3001880	20250 FAIRGROUNDS ROAD	NTNC	2022/03/21
ROCKINGHAM COUNTY	VA2165620	NEW BEGINNINGS MONTESSORI SCHOOL	NTNC	2022/01/31
PATRICK COUNTY	VA5141546	NANCY'S CANDY COMPANY	NTNC	2022/01/12
WARREN COUNTY	VA2187232	BRINKLOW MHP JAMES STREET	C	2021/12/13
PRINCE WILLIAM COUNTY	VA6153082	PWCSA - CARTERS GROVE	C	2021/12/01

Appendix B

List of New Water Systems Violations

As of the July 2024 published ETT list, no waterworks that became active during the reporting period (10/1/23-9/30/24) are priority systems according to EPA's Office of Enforcement and Compliance Assurance's Enforcement Targeting Tool (ETT).

PWSID	Waterworks Name	Violation Number	Violation Type	Violation Description	Analyte Name	Determination Date	Begin Date
VA1167240	GLADE HOLLOW - RCPSA	1	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	06/03/2022	04/01/2022
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
VA2165425	LINDALE MENNONITE CHURCH	109	C2	STATE MONITORING VIOLATION	COLIFORM (PRE-TCR)	12/13/2023	07/01/2023
VA2187232	BRINKLOW MHP JAMES STREET	2521093	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	05/25/2022	04/01/2022
VA2187232	BRINKLOW MHP JAMES STREET	2521092	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	03/03/2022	02/01/2022
VA2187232	BRINKLOW MHP JAMES STREET	2521091	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	03/03/2022	01/01/2022
VA2187232	BRINKLOW MHP JAMES STREET	2521090	12	QUALIFIED OPERATOR FAILURE	DBP STAGE 1	02/25/2022	01/01/2022
VA2187232	BRINKLOW MHP JAMES STREET	2521095	03	MONITORING, ROUTINE MAJOR	NITRATE-NITRITE	01/30/2023	01/01/2022
VA4036860	TREVORS BEND	8	03	MONITORING, ROUTINE MAJOR	GROSS ALPHA, EXCL. RADON & U	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	10	03	MONITORING, ROUTINE MAJOR	COMBINED RADIUM (-226 & -228)	10/18/2022	07/01/2022
VA4036860	TREVORS BEND	33	75	PUBLIC NOTICE RULE LINKED TO VIOLATION	PUBLIC NOTICE	09/25/2023	07/01/2022
VA4036860	TREVORS BEND	6	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	09/19/2022	08/01/2022
VA4036860	TREVORS BEND	5	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	08/16/2022	07/01/2022
VA4036860	TREVORS BEND	3	12	QUALIFIED OPERATOR FAILURE	DBP STAGE 1	08/01/2022	08/01/2022

Appendix B

List of New Water Systems Violations

VA4036860	TREVORS BEND	2	A0	NO WATERWORKS OPERATION PERMIT		08/01/2022	08/01/2022
VA4036860	TREVORS BEND	4	C1	FAILURE TO REPORT BY 10TH DAY OF MONTH		08/01/2022	08/01/2022
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	11	03	MONITORING, ROUTINE MAJOR	1,2,4-TRICHLOROBENZENE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	12	03	MONITORING, ROUTINE MAJOR	CIS-1,2-DICHLOROETHYLENE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	13	03	MONITORING, ROUTINE MAJOR	XYLENES, TOTAL	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	14	03	MONITORING, ROUTINE MAJOR	DICHLOROMETHANE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	15	03	MONITORING, ROUTINE MAJOR	O-DICHLOROBENZENE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	16	03	MONITORING, ROUTINE MAJOR	P-DICHLOROBENZENE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	17	03	MONITORING, ROUTINE MAJOR	VINYL CHLORIDE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	18	03	MONITORING, ROUTINE MAJOR	1,1-DICHLOROETHYLENE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	19	03	MONITORING, ROUTINE MAJOR	TRANS-1,2-DICHLOROETHYLENE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	20	03	MONITORING, ROUTINE MAJOR	1,2-DICHLOROETHANE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	21	03	MONITORING, ROUTINE MAJOR	1,1,1-TRICHLOROETHANE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	22	03	MONITORING, ROUTINE MAJOR	CARBON TETRACHLORIDE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	23	03	MONITORING, ROUTINE MAJOR	1,2-DICHLOROPROPANE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	24	03	MONITORING, ROUTINE MAJOR	TRICHLOROETHYLENE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	25	03	MONITORING, ROUTINE MAJOR	1,1,2-TRICHLOROETHANE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	26	03	MONITORING, ROUTINE MAJOR	TETRACHLOROETHYLENE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	27	03	MONITORING, ROUTINE MAJOR	CHLOROBENZENE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	28	03	MONITORING, ROUTINE MAJOR	BENZENE	01/12/2023	07/01/2022

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List of New Water Systems Violations

VA4036860	TREVORS BEND	29	03	MONITORING, ROUTINE MAJOR	TOLUENE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	30	03	MONITORING, ROUTINE MAJOR	ETHYLBENZENE	01/12/2023	07/01/2022
VA4036860	TREVORS BEND	31	03	MONITORING, ROUTINE MAJOR	STYRENE	01/12/2023	07/01/2022
VA4057675	BLOSSOMS CHILDCARE CENTER	1	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	06/12/2024	05/01/2024
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
VA4085345	HANOVER COMMUNITY CENTER,	425	27	MONITORING, ROUTINE (DBP), MAJOR	TTHM	09/13/2024	01/01/2024
VA4119587	MIDDLESEX WATER AUTHORITY	14	52	FOLLOW-UP OR ROUTINE TAP M/R (LCR)	LEAD & COPPER RULE	02/09/2024	07/01/2023
VA5141546	NANCY'S CANDY COMPANY	3	52	FOLLOW-UP OR ROUTINE TAP M/R (LCR)	LEAD & COPPER RULE	11/06/2023	01/01/2023
VA5141546	NANCY'S CANDY COMPANY	2	3A	MONITORING, ROUTINE, MAJOR (RTCR)	E. COLI	05/23/2022	04/01/2022
VA6033049	WARRIORS HEART VIRGINIA	430	65	PUBLIC EDUCATION (LCR)	LEAD & COPPER RULE	09/03/2024	09/01/2024
VA6033049	WARRIORS HEART VIRGINIA	431	A0	NO WATERWORKS OPERATION PERMIT		09/03/2024	09/01/2024
VA6033049	WARRIORS HEART VIRGINIA	428	A3	OPERATING FACILITY BEYOND PERMIT CONDITIONS		03/20/2024	02/29/2024

Appendix C

Enforcement Targeting Tool – July 2024

All ETT scores at or above 11 are highlighted in yellow								July 2024 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**
VA2043125	BERRYVILLE, TOWN OF	21	Y	C	4,185	3/31/2024	20	Previously >= 11 Not on Path	N
VA4073250	FLAT IRON CROSSROADS	18	N	TNC	150	3/31/2024	17	Previously >= 11 Not on Path	N
VA2171760	STRASBURG MOOSE LODGE	17	N	TNC	25	12/31/2023	14	Previously >= 11 Not on Path	N
VA5029085	BUCKINGHAM CO WATER SYSTEM	15	Y	C	5,759	6/30/2024	15	New >= 11	N
VA5143210	GRETNA, TOWN OF	15	Y	C	2,500	6/30/2024	15	New >= 11	N
VA2171510	BUDGET INN-STRASBURG	15	N	TNC	30	12/31/2023	11	Previously >= 11 Not on Path	N
VA5019809	TUCK AWAY CAMPGROUND	14	Y	TNC	30	3/31/2024	13	Previously >= 11 Not on Path	N
VA4119840	WALDEN`S MARINA, INC.	13	Y	TNC	65	3/31/2024	12	Previously >= 11 Not on Path	N
VA2003522	MORVEN FARM	11	Y	NTNC	225	6/30/2024	11	New >= 11	N
VA5117382	HOLLY GROVE MARINA	11	Y	TNC	50	6/30/2024	10	New >= 11	N
VA4119277	BUSH PARK MOBILE HOME PARK	11	Y	C	400	12/31/2023	10	Previously >= 11 Not on Path	N

Appendix D

EPA Grant Projects

SOUTHEAST RCAP EPA PROJECTS: OCTOBER 2023 – SEPTEMBER 2024

Southeast RCAP EPA Projects: Oct 2023 - Sep 2024			
***ERP** - Emergency Response Plan; **SVA** - Security Vulnerability Assessment; **CCR**- Consumer Confidence Report*			
Location	County	Summary	Population
Belspring Estates	Pulaski	Assist with grant application	2,367
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	LSL Inventory	75
Charlotte Court House Town	Charlotte	Assist in completing ERP	543
Charlotte Court House Town	Charlotte	Assist in completing SVA	543
Colonial Beach	Westmoreland	Assist in completing ERP	3,542
Craigsville Town	Augusta	Assist in completing ERP	923
Craigsville Town	Augusta	Assist in completing SVA	923
Farmville		LSL Inventory	8,216
Fries	Grayson	Assist in completing Asset Management DW	484
Fries	Grayson	DW Tech GIS	484
Glen Lyn	Giles	WW System Repair	92
Hardy Road Trailer Park	Bedford	LSL Inventory	200
Hardy Road Trailer Park	Bedford	Assist in performing Corrective Action Plan updates	200
Hardy Road Trailer Park	Bedford	Assisting in construction management of WIIN project	200
Hardy Road Trailer Park	Bedford	Completed CCR	200
Kilmarnock, VA	Lancaster	Assist in completing ERP & SVA	1,487
Luray	Page	EPA NPA 2 Wastewater	4,895
Montvale	Bedford	Assist in completing ERP	698
Montvale	Bedford	Assist in completing SVA	698
Port Royal	Caroline	Assisted in completing AMP	126
Pulaski, Town		Inspection & Smoke Testing Grant	9,086
Shenandoah, Town	Shenandoah	Income survey	2,373
Smyth County	Smyth	USDOT Thriving Communities grant	17,177
Stoney Battery	Smyth	Waterline Replacement	783
Suffolk - Hobson,	Suffolk City	EFC W/WW, Storm, evaluation	169,170
Suffolk - Oakland-Chauckatuck	Suffolk City	EFC W/WW, Storm, evaluation	169,170
Suffolk - Pughsville	Suffolk City	EFC W/WW, Storm, evaluation	169,170
Victoria Town	Lunenburg	Assist in completing SVA	1,752
Victoria Town	Lunenburg	Assist in completing ERP	1,752
Virgilina	Halifax	Well Repair Grant	154
Willing Workers Club	Isle of Wight	Procured funding and contractor to address significant deficiencies and dissolve community water system	31
Wytheville, Town	Wythe	WWTP Comprehensive Evaluation Grant	8,211
Honaker	Russell	Completed CCR	2250
LCPSA - Big Hill	Lee	Completed CCR	188
LCPSA - Blackwater	Lee	Completed CCR	240
LCPSA - Blue Springs	Lee	Completed CCR	1968
LCPSA - Eastern Lee	Lee	Completed CCR	1297
LCPSA - Ely-Pucket Creek	Lee	Completed CCR	155

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EPA Grant Projects

LCPSA - Fleenortown	Lee	Completed CCR	160
LCPSA - Jasper	Lee	Completed CCR	600
LCPSA - Keokee	Lee	Completed CCR	445
LCPSA - KVS	Lee	Completed CCR	2130
LCPSA - Miller Chapel	Lee	Completed CCR	662
LCPSA - St. Charles	Lee	Completed CCR	1,959
LCPSA - Stickleyville	Lee	Completed CCR	457
Bluefield Valley	Tazewell	Completed CCR	428
Bluefield	Tazewell	Completed CCR	5811
Cedar Bluff	Tazewell	Completed CCR	1400
TCPSA - Baptist Valley	Tazewell	Completed CCR	3857
TCPSA - Big Creek-Coaldan	Tazewell	Completed CCR	300
TCPSA - Claypool Hill	Tazewell	Completed CCR	25
TCPSA - Daw Road	Tazewell	Completed CCR	43
TCPSA - Eastern Tazewell	Tazewell	Completed CCR	4470
TCPSA - Fall Mills	Tazewell	Completed CCR	870
TCPSA - Fort Witten	Tazewell	Completed CCR	173
TCPSA - Gratton	Tazewell	Completed CCR	707
TCPSA - Greater Tazewell Area	Tazewell	Completed CCR	0
TCPSA - Jewell Ridge	Tazewell	Completed CCR	605
TCPSA - Middle Creek	Tazewell	Completed CCR	50
TCPSA - Raven Doran	Tazewell	Completed CCR	2644
Coeburn	Wise	Completed CCR	4630
WCPSA - Bold Camp	Wise	Completed CCR	943
WCPSA - Pound	Wise	Completed CCR	2501
Wise County Reginal PSA	Wise	Completed CCR	11500
Windsor	Isle of Wight	Completed CCR	2400

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EPA Grant Projects

VIRGINIA RURAL WATER ASSOCIATION TRAINING

October 1, 2023, through September 30, 2024

Date	Title	Location	Attendees
10/16/2023	Basic VDOT Work zone & Flagger Certification	Fishersville	13
10/17/2023	Trenching & Excavations : Don't Get Trapped	Fishersville	95
10/17/2023	AASHTO M-306 Identifying and Understanding Regulations	Fishersville	79
10/17/2023	VA811 - One Quick Call	Fishersville	96
10/17/2023	Notes from the Field	Fishersville	57
10/18/2023	Pipeline Location & Leak Detection for W & WW	Fishersville	78
10/18/2023	Water Distribution Intervention w/o Service Disruption	Fishersville	78
10/18/2023	Selection & Implementation of a Successful SCADA System	Fishersville	71
10/24/2023	Basic Pump Class	Eastville	6
11/3/2023	Basic Pump Class	Bridgewater	10
11/8/2023	Automatic Control Valves and Pressure Management	Dillwyn	3
11/9/2023	Automatic Control Valves and Pressure Management	Emporia	11
11/16/2023	Building a Collaborative Work Team	Webinar	17
11/28/2023	Practical Approach to Anaerobic Digesters	Abingdon	16
12/12/2023	Conflict Resolution	Webinar	20
1/12/2024	Introduction to Applied Leadership	Verona	0
1/17/2024	Wastewater Microlife, Microscopy	Verona	17
1/23/2024	Safety & Security for W/WW Facilities	Radford	7
1/23/2024	Introduction to Applied Leadership	New Market	5
1/23/2024	Introduction to VRWA Apprenticeship Program	New Market	5
1/24/2024	Management of W/WW Facilities in the Real World	Tappahannock	13
1/24/2024	Emerging Contaminants	New Market	0

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1/25/2024	Valves	New Market	0
1/26/2024	Utility Billing	New Market	4
2/7/2024	Pump Operations & Maintenance	Big Stone Gap	20
2/8/2024	A Successful I&I Abatement Program for Small Utilities	Kilmarnock	0
2/20/2024	Emerging Contaminants	St. Paul	17
2/20/2024	Introduction to Applied Leadership	St. Paul	13
2/20/2024	Introduction to VRWA Apprenticeship Program	St. Paul	3
2/21/2024	Disaster Management for W/WW Utilities - Day 1	St. Paul	31
2/22/2024	Disaster Management for W/WW Utilities - Day 2	St. Paul	31
2/23/2024	Utility Billing	St. Paul	8
4/15/2024	Cross-Connections: Undetected is Unsafe	Roanoke	57
4/15/2024	Skills to Help you Advance as an Operator	Roanoke	49
4/16/2024	Beyond Your CCR: Communications Strategies You Can Use	Roanoke	31
4/16/2024	Right Sizing Your Sewer Rehab Program	Roanoke	35
4/16/2024	Raccoon Creek WTP PFAS Removal Pilot Project	Roanoke	71
4/16/2024	Emergency Preparedness for Water / WW Utilities	Roanoke	106
4/16/2024	EPA Regulatory Updates: PFAS and LCR	Roanoke	103
4/16/2024	Small Town- Mega Project: Financial & Technical Challenges	Roanoke	43
4/16/2024	Utility Resilience is Built on Reliable Power: More than Just Generators	Roanoke	41
4/16/2024	Proactive Approach to Cyber Defense of Critical Infrastructure	Roanoke	74
4/16/2024	The Benefit of Developing a CIP and Financial Model	Roanoke	47

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4/16/2024	PFAS Regulations & Methods Update for Environmental Professionals	Roanoke	65
4/16/204	Understanding PVC Pipe: Design, Use, Specifications for W & WW	Roanoke	80
4/16/2024	Virginia Commonwealth's Cyber Security Plan	Roanoke	46
4/16/2024	How Geologists Locate Groundwater Resources in Fractured Bedrock	Roanoke	44
4/16/2024	Water Meter Technology & Proper Selection	Roanoke	33
4/16/2024	Small Town Serves Big Tech	Roanoke	48
4/16/2024	How to Have That Difficult Conversation	Roanoke	76
4/17/2024	A New Light in Turbidity Measurement	Roanoke	32
4/17/2024	Upgrading Lagoon Treatment Systems for More Stringent Limits for BOD	Roanoke	35
4/17/2024	Best Practices & Innovations in Pressure in Municipal W/WW Facilities	Roanoke	75
4/17/2024	Successful PFAS Crisis Communications	Roanoke	57
4/17/2024	To Inventory & Beyond! LCRR, Now LCRI	Roanoke	60
4/17/2024	Southwest Virginia Comprehensive Regional WW Study	Roanoke	64
4/17/2024	The Importance of a Complete Locate System	Roanoke	64
4/17/2024	Financing Alternatives for Virginia	Roanoke	34
4/17/2024	Phosphorus - A Holistic Approach to Corrosion Control and Water Quality	Roanoke	42
4/17/2024	Quantifying Quality - A Lesson in Life Cycle Cost	Roanoke	40
4/17/2024	Chlorine, Chemical Metering Pumps, and Complimentary Control Equip	Roanoke	47

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4/17/2024	USDA -RD Funding Opportunities	Roanoke	35
5/7/2024	Water Storage & Distribution System Maintenance	St. Paul	14
5/9/2024	Basic Pump Training Class	Petersburg	16
5/14/2024	VRWA Service Overview and Apprenticeship	South Hill	9
5/14/2024	The Empowered Team Project Intro	South Hill	10
5/15/2024	Emerging Contaminants	South Hill	9
5/15/2024	Cybersecurity	South Hill	11
5/16/2024	Wastewater Chemistry & Microbiology	South Hill	8
5/16/2024	Effective Asset Management Practices for Your Water Storage System	South Hill	12
5/17/2024	Developing Your Public Service Awareness Plan	South Hill	14
6/25/2024	VRWA Service Overview and Apprenticeship	Warsaw	3
6/25/2024	Introduction to Applied Leadership	Warsaw	7
6/26/2024	Emerging Contaminants	Warsaw	5
6/26/2024	Reducing Your Water Loss: Why & How	Warsaw	2
6/27/2024	Cybersecurity for Water Sectors	Warsaw	2
6/28/2024	Effective Asset Management Practices for Your Water Storage System	South Hill	18
8/22/2024	Cultivating an Integrity-Based Leadership Culture	Harrisonburg	72
8/22/2024	Recognizing Trauma Responses: Self-Regulation Tools for the Workplace	Harrisonburg	72
8/22/2024	Workforce Development: Solutions for the Water Industry	Harrisonburg	75
8/22/2024	Thriving with Neurodiversity	Harrisonburg	61
8/22/2024	Living and Leading with Integrity: Stories from the Leader's Journey Program	Harrisonburg	57
8/22/2024	Where do we go From Here?	Harrisonburg	58

9/17/2024	The Empowered Team Treatment Train:	Abingdon	15
9/17/2024	VDOT Basic Work Zone Safety / Traffic Control and Flagger Certification	Wytheville	0
9/19/2024	Water Storage & Distribution System Maintenance	Bridgewater	10
9/25/2024	Water & Wastewater Operator Forum: Building Relationships Between Operators and VADEQ Regulators	St. Paul	0
9/26/2024	Water & Wastewater Operator Forum: Building Relationships Between Operators and VDH-ODW Regulators	St. Paul	14

VRWA Leak Detection
October 1, 2023, through September 30, 2024

Town of Burkeville
On October 13, 2023, Virginia Rural Water Association Circuit Rider Robbie Jones was contacted by Mike Gentry, Utilities Superintendent for the Town of Burkeville. Mr. Gentry advised the Circuit Rider that he suspected the system had a water leak that he had been unable to locate. He requested immediate assistance if possible.

The Circuit Rider arrived on-site and used an acoustic leak detector with acoustic magnetic element to attach to a series of valves and a fire hydrant in the suspected area. The region being examined was adjacent to Interstate 460. After several hours of listening systematically, using both the magnetic attachment and the elephant foot attachment, two leaks were detected. One of the leaks was in a pump house which had galvanized fittings leaking from two different pipe nipples. Another leak was discovered directly adjacent to the pump station in a dirt road above a six-inch ductile iron section of main. The piping in the pump house was replaced and a five-foot section of the six-inch ductile iron main was also replaced. Mr. Gentry was very appreciative of the quick response and successful locating of the leaks. The services of the Circuit Rider provided approximately $4,200 in savings to the system.

Grayson County Water
On January 27th, Keith Anderson PSA Technician for Grayson County Water called Robbie Jones Virginia Rural Water Association Circuit Rider requesting leak detection assistance. Mr. Anderson explained that he was having trouble filling his ground storage tank and he suspected that he may have some leaks in his system.

Circuit Rider Robbie Jones responded to Grayson County on the morning of January 30th. After consultation with Mr. Anderson, it was decided that the proper course of action would be to start listening with the CEBA MKT Acoustic leak detection device on fire hydrants. After several hours Circuit rider Jones was able to detect what sounded like a leak on a hydrant adjacent to a residence who had just had the water cut off for nonpayment. After further investigation Mr., Anderson discovered the water had been cut back on but was unauthorized. It was also found that approximately 54000 Gallons of water had been used since the cutoff date and the dwelling had a significant water leak. After the residence was again shut off the water leak was no longer present. Subsequently a notice was given to the homeowner and a lock was put on the shut off valve. PSA Technician Anderson was extremely grateful for the assistance rendered by Circuit Rider Jones and Virginia Rural Water Association to find the leak. Further leak detection efforts will be on going if necessary.

Stoney Creek Sanitary District

On August 21st, Robbie Jones Water Circuit Rider for Virginia Rural Water Association was contacted by Stadd Hirsch, Water Superintendent for the Stoney Creek Sanitary District. Mr. Hirsch advised that he and his staff had been trying to find a large leak for almost a month. The leak was surfacing but no water mains were adjacent to where the water was coming up. The water was coming out of the base of a hill below a large housing subdivision. His staff had used different strategies including visual surveillance, Acoustic leak detection and auditing the subdivisions water meters for excessive usage to no avail.

Circuit Riders Jones and Talley responded on the morning of August 22nd and met with Superintendent Hirsch to discuss the best course of action to follow. After determining the type of pipe used in the subdivision and studying sectional drawings it was determined that fire hydrants blow offs and certain valve boxes would be listened on using the Acoustic listening device Seba MKT with both the magnetic attachment and the elephant foot attachment.

After several hours listening a large acoustic signature was found on a fire hydrant adjacent to a large home about a quarter of a mile above where the leaked water was surfacing. Using the elephant foot attachment the leak was narrowed down to a section of pipe between the fire hydrant and the houses meter box. It was estimated that approximately 80,000 gallons of water a day was being lost. Estimated savings to the system was approximately $8,000 Dollars. Superintendent Hirsch and his staff were very grateful to Virginia Rural Water for finding the leak so quickly.

Town of Round Hill

Harriet West, Clerk for the Town of Round Hill, contacted Virginia Rural Water Association Circuit Rider Ken Talley requesting leak detection assistance. The town was under mandatory emergency water restrictions due to drought and well levels were critically low.

The Circuit Rider arrived on-site and evaluated the situation. Developing a plan to help the town exercise due diligence, he proceeded to listen to fire hydrants, valves, and meter to meter. Multiple visits were made resulting in a large leak being found, as well as two hydrants that needed to be exercised. The hydrants had debris in the weep hole, causing a drip to occur. The Circuit Rider

saved the Town of Round Hill an estimated $3,000, and reduced water loss, especially important during the drought.

Town of Mineral
The Town of Mineral's General Manager, Nichole Washington, contacted Virginia Rural Water Association Circuit Rider Ken Talley requesting assistance with water loss and leak detection. The water loss was estimated to be more than 50%. The system purchases groundwater from the county, making this a costly and stressful situation. Mineral is located in Louisa County and serves 200 metered connections.

The Circuit Rider traveled to the town and began leak detection efforts, focusing on the southeast area of town. After more than three successful leak detection visits in June, the Circuit Rider met with the town manager, the maintenance personnel, and the mayor on-site to discuss the importance of repairing those leaks as well as getting backflow prevention. A large meter was not accurately registering all the water that was passing through it and several leaks were causing the town to pay more than its revenues. After the meeting, the town manager and mayor resolved to complete necessary repairs and system updates. The experience and expertise of the Circuit Rider with leak detection and the reduced water loss saved the Town of Mineral approximately $4,200.

King George County
In the month of September, Virginia rural water association's circuit rider Talley, received a call to help King George County discover why the water production increased around one million gallons in just a month.

Circuit Rider Talley set an appointment and proceeded to assess all the factors involved. The circuit rider began checking for leaks around the well that was suspect. A leak was found near the well. Other surrounding areas were checked using ground mics going from hydrant to hydrant, valve to valve and then meter to meter. The circuit rider continued to check the system enlarging the area to adjacent neighborhoods. The other areas of interest were the new meter installation and the multiplier being used on the reading. Continued monitoring for other leaks will be ongoing by the circuit rider. Adjoining distribution lines will be part of the ongoing search.

The leak by the well house will be repaired by maintenance. The meter reading is being compared to the billing and other areas are being checked for leaks. Savings to King George County is approximately $3000, not to mention savings in water loss.

The Town of Dungannon
The Town of Dungannon is a conventional filtration, groundwater system serving a population of approximately 400 with 255 connections. Virginia Rural Water Association Circuit Rider Tony Roark has been there on numerous occasions to help with compliance, leak detection, and regulatory issues. Previous leak detection assistance lowered the town's water loss from more than 70% to under 30%, which prevented the system from being absorbed by the local water authority.

On December 12, 2023, the Circuit Rider assisted with leak detection and found a break in a line from a nonoperational well, that was not feasible to replace due to cost. The town was discussing

rebuilding and refurbishing the entire line and well. The finding of this break allowed the town to repair a small section of the line, put the well back in operation, and maximize its treatment ability. The town purchases water from the local service authority. This lowered the purchase amount significantly and allowed the town's facilities to keep up with its population's daily usage. The amount of savings to the Town of Dungannon for the services provided by the Circuit Rider are estimated to be $10,000.

Rye Valley

The Rye Valley Water Authority is a community owned water system serving Sugar Grove, Virginia. The system has two licensed Operations Specialists. The system serves a population of 1,400 with 450 residential connections. The system's consumption in total gallons is 1,120,000 per month and the plant produces 4,495,000 gallons per month. The system is losing an estimated 3,295,000 gallons per month in its distribution lines. The Rye Valley Water Authority has a 24.9 % accountability of the water produced each month; this gives them a 75.1 % water loss.

Virginia Rural Water Association Circuit Rider Tony Roark received a request for assistance from Public Works Director Mr. Cornett with leak detection. On June 25th, the Circuit Rider arrived and met with Mr. Cornett and then proceeded to a several suspected areas of concern. A concrete storm drain with a wetland ditch line was investigated and had a significant amount of water coming into the drain. The water was entering through a hole that had cracked open in the sidewall of the structure. The leak was estimated to be in the range of about 10,000 gallons per day.

A second location was the six-inch main across the roadway. The road was at an incline and the storm drain was on the low side. Using his acoustic listening device and mic, the Circuit Rider was able to narrow down the leak's location to the service line on the main line. The next three leaks found were service line meter yokes leaking another 10,000 gallons a day. A customer had complained about a ditch near their home that seemed to always need mowing. After investigating the ditch line and following it along the customers' property, it was discovered that the water came from a four-inch main buried along the roadway. This leak was estimated to be leaking 10,000 gallons a day.

In two days of leak detecting, the Circuit Rider found five significant leaks that combined for 1,000,000 gallons of lost water per month. The revenue lost would have been approximately $7,000 to $9,000 per month with a yearly total of $84,000. The Rye Valley Water Authority was appreciative of the Circuit Rider's assistance.

Town of Black Stone

The Town of Blackstone is a town in the county of Nottoway. They supply water and wastewater service to the Town, parts of the County, and to the Virginia National Guard training facility Fort Barfoot (formally Fort Pickett). The Town owns and maintains the collection and distribution systems on the base as well as the Wastewater Plant and the Water plant. The system serves a fluctuating population (due to the base training schedule) of 5575 with1618 connection PWSID # 5135100. The Towns' water treatment plant is a conventional filter surface water facility. Its distribution system is mainly made up of cast iron pipes, but it does contain some asbestos, and plastic lines of various sizes.

Appendix D

EPA Grant Projects

On August 7 ,2024 Virginia Rural Water Association staff member Circuit Rider # 3 Tony Roark received a inquire about an emergency leak detection from the Town of Blackstone staff member Edward Harris WTP Chief Operator. The Town of Blackstone personnel had been looking for a leak for 4 days. The town was losing approximately 1 million gallons a day, and the leak was growing daily. The Town was requesting help and wanted Virginia Rural Water Associations expertise in locating the leak. They could not find nor isolate the region of their system it was in. Mr. Harris requested if we could help isolate where the leak was as soon as possible due to the hurricane Debbie that was due in 24 to 48 hours. The Town was hoping to find it and have it fixed before the Hurricane arrived and caused its own problems.

VRWA Mr. Roark scheduled the Emergency Leak Detection visit next morning at 0800. Mr. Roark also contacted Virginia Rural Water Association Staff Member Circuit Rider #1 Robbie Jones about helping find this leak as The Hurricane track was showing it would move thru this region making this detection a priority to find and help minimize the combined effect the leak and hurricane would have on the operation of the Town of Blackstone facility and distribution system.

On the morning of August 8,2024 at 0800 VRWA Circuit Rider Roark and VRWA Circuit Rider Jones and the Town of Blackstone Staff members Edward Harris and staff member Maintenance superintendent Andre' Hicks met to start the process of eliminating sections of the system from where the leak was or was not. During the night before, the Hurricane had sped up its track and timeline. It was now to be landing in the local vicinity about 6 pm that day. The finding and repair of this leak was not only an emergency it was now critical. Mr. Roark and Mr. Jones went with the staff separately to be able to cover more ground faster. Both Circuit Riders used the Fluid Conservatory System L-Mic acoustic listening device and eliminating large parts of the system by listening at mainline connections. By eliminating large areas at a time, the general location of the leak could be found quickly, making its exact pinpoint easier. In the elimination of areas. Jones and Mr. Roark found two (2) hydrants that were leaking approximately 15 gallons per minute each and 2 valves in system distribution lines connecting to other sections not being used, both were leaking out of packing glands estimated10 gallons per minute. These leaks added up to approximately 5000 gallons per day. These leaks were in addition to the 1 million gallon per day leak.

In Mr. Roark and Mr. Jones Leak detection and investigation, it was found that a Highly Secure, fenced in area had a master meter leading into this area. A very loud leak could be heard at the master meter, and it was coming from inside the secure area.

The Hurricane had picked up its speed and was now at 0100 pm upon us. Hurricane Debbie had made the pinpoint finding of this leak on this day impossible. The wind and rain made locating and fixing it hazardous to VRWA Staff, it's equipment and to the Town of Blackstone Staff. It was decided to stop for the day and get to safety. The VRWA Staff would return as weather permitted. A reading was taken of the meter, another would be taken in the morning. This would verify that the leak was inside the secure fenced area.

Appendix D

EPA Grant Projects

On August 9, 2024, at 0600 am, the master meter was read again, the meter had recorded 1.2 million gallons had flowed thru the meter in 18 hrs. At 1200 pm the meter recorded a 600,000-gallon flow in 6 hours. The leak was getting larger. A Town of Blackstone Saff member entered the secure facility and found the leak not far from the master meter. Mr. Roark and Mr. Jones both had stated the leak was not far from the meter. The leak was shut down at the master meter 12-inch inline valve. The cast iron 12-inch distribution pipe was cracked 1300 feet past the master meter.

This was a 1.20 MGD leak that was leaking approximately 6 days. The Town of Blackstone was very Thankful for the expertise and the swiftness that the VRWA staff came to find this leak. The VVRWA staff had come out in hazardous conditions and finding this leak before the hurricane struck was critical to the operations to handling the hurricane and the problems it would bring.

It was also stated that Virginia Rural Water Association and its staff once again proved what a great asset they are to the communities of this state.

Appendix D

EPA Grant Projects

University of Maryland - Environmental Finance Center (UMD-EFC)
October 1, 2023, through September 30, 2024

- SRF Audit Support – Working with EPIC to develop materials to help communities address the SRF audit requirements.
- Lead Service Line Inventory Support – UMD-EFC developed sample materials for community outreach to help systems collect private service line information for the LSL inventory. In addition to developing materials, provided the following one-on-one assistance to systems:
    - Wythe County – Held intake call on 04/23/24. Reviewed and provided feedback on outreach materials and website language; provided sample social media language; assisted with inventory submission. UMD-EFC has met with Wythe County 5 times during the reporting period.
    - Louisa County – Held intake call on 04/10/24. Assisted with inventory submission.
    - Farmville – Held intake call on 04/16/24. Referred to SERCAP for additional assistance.
- Montross
    - Held intake call on 05/15/24. UMD-EFC is assisting Montross with a rate assessment. The rate assessment is anticipated to be completed in Q1 of the next reporting period.
- Round Hill
    - Provided a list of grant resources that could address the town's need to increase its water supply. UMD-EFC met with Round Hill 2 times during the reporting period.
- Jerdone Island
    - Held intake call on 05/07/24. Referred Jerdone Island to Moonshot Missions to address the technical issues they are facing.
- Bowling Green
    - Held intake call on 04/29/24. Referred Bowling Green to VDH for a planning and development grant to support the development of a drinking water PER.
- Nelson County Service Authority
    - Held intake call on 01/04/24. Nelson County Service Authority did not follow up to request additional assistance.

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, Managerial, and Financial Assistance via workshop in Wise County.

TCDO staff conducted an Asset Management Plan (AMP) and Funding Workshop at Mountain Empire Community College (MECC) in Big Stone Gap (Wise County). In attendance were representatives from John Flannagan Water Authority, Wise County Service Authority, Big Stone Gap, Smyth County, and the Town of St. Paul. AMP training included topics such as ways to develop an AMP team, documents to review, and how completing an AMP can help develop or update a Capital Improvement Plan. Representatives from United States Department of Agriculture-Rural Development, Southeast Rural Community Assistance Project (SERCAP), Financial and Construction Assistance Program (FCAP), the regional Planning District Commissions, and Virginia Coalfields Water Development Fund presented their respective funding opportunities and MECC presented their information on Waterworks and Wastewater Operator training program and were available for any questions.

Technical and Managerial Assistance for and AMP and LSLI for the Town of Exmore.

The Town of Exmore (PWSID 3131210), located in Northampton County, worked with SERCAP and USDA-RD on a wastewater replacement project in early 2023. During the project, they located previously unknown drinking water distribution mains. Upon this discovery, Exmore reached out to ODW for financial assistance with completion and implementation of an AMP. After discussing the status of the town's known inventory and staffing, it was decided that the Town could complete their own AMP for free, with assistance from ODW. A TCDO Sustainability Coordinator worked with the Exmore's Public Utilities Director to schedule 3 days of assistance for completion and implementation of an AMP in late October of 2023. During the 3 days, the town completed a full asset inventory. The town council worked to define their level of service for their AMP in early 2024. Staff also assisted Exmore with beginning a DWSRF application for lead service line inventory funding.

Public Outreach by ODW Staff.

TCDO Staff were invited to participate at the Virginia Health Catalyst 2023 Summit in Richmond, Virginia on Friday October 6, 2023. Staff manned an exhibit table with information regarding our Lead Elimination Assistance Program (LEAP), Lead Service Line Inventory Methods, the importance of Fluoride, the H2Outlook: Virginia Handbook, and Water Quality Communications Toolkit that was published in January 2023 to assist with effectively communicating the information in Consumer Confidence Reports (CCR) to the public. Sustainability Coordinators discussed the programs and informational items to visitors of VDH-ODW's booth and participated in the Summit's breakout session "Telling the Story of The Future of Public Oral Health", that focused on the importance of fluoride in dental care, statistics in identifying areas of concern, and how to effectively communicate the importance of choosing tap water as a beverage of choice.

Appendix F

ODW Success Stories and Technical Assistance

Technical, Managerial and Financial Assistance for consolidation of Knoll Woods/Ivy Acres and Campbell County Utility Service Authority.

In late 2023, TCDO staff met with staff from Knoll Woods/Ivy Acres (PWSID 5031500) in Campbell County, VA, to continue work on their Waterworks Business Operations Plan. At that time, staff also discussed further opportunities for them to apply for a Planning and Design grant or Small Projects Engineering Services. The waterworks had not considered applying in the past but are now seeing the added benefit in helping to identify their water system's needs. A few weeks later, a precautionary Boil Water Advisory (BWA) was issued for Knoll Woods/Ivy Acres waterworks when a 27gpm leak drained the distribution system and proved to be difficult to find. The Virginia Rural Water Association was contacted to conduct leak detection, and after much searching and many holes dug, the leak was finally found. Once found, the leak was quickly repaired. The waterworks then began flushing, disinfection, and sampling. The BWA was lifted once all the required samples showed that the water was safe to drink. Following the line break, the waterworks owners expressed interest in connecting their waterworks to Campbell County Utility Service Authority (CCUSA), therefore getting themselves out of the water business. Capacity Development Staff organized a meeting between CCUSA, Knollwood Ivy Acres, and ODW Field staff to discuss the consolidation. An agreement to consolidate was reached following the meetings. CCUSA utilized Planning and Desing Grant funds for a Preliminary Engineering Repot and Plans and Specifications for the consolidation.

Technical, Managerial, and Financial Assistance for long-term sustainability the Town of Mineral.

The Town of Mineral (PWSID 2109525), located in Louisa County, has long struggled to sustainably run their waterworks. The town has historically operated in a reactionary mode. The Town Council is comprised of relatively new members, and they reached out for assistance to work towards operating in a proactive manner. TCDO staff met with representatives from The Town of Mineral's Utility Board to discuss the status of the town's water system. During the meeting, staff explained ways ODW could assist with reaching their goals. A topic of discussion was the LCRR and its subsequent requirements. The town applied and was awarded a Lead Elimination and Assistance Program (LEAP) grant for funding their lead service line inventory. The town's two biggest issues are an unreliable and largely unknown distribution system, and lack of reliable distribution pressure. The town plans to apply for a planning and design grant for a preliminary engineering report to identify possible solutions to address their pressure issues as well as a distribution system evaluation.

Managerial and Financial Assistance for High Fluoride in the Town of Courtland.

The Town of Courtland (PWSID 3175220), located in Southampton County, has naturally occurring levels of fluoride that exceed the primary maximum contaminant limit. The town is supplied by 2 wells that are drilled into a regional aquifer. The town has experienced issues in the past with fluoride, however the problems subsided when a very large industrial facility that was drawing from the same aquifer shut down. Over the past year, that industrial facility has ramped back up production and water demand, which has subsequently caused the fluoride levels to rise again for Courtland. Capacity Development staff met with the Town of Courtland and their engineering firm to discuss funding options for remedying their fluoride issues. The town was awarded a planning and design (P&D) grant in early 2024 for a preliminary engineering report that will give the town multiple options for reducing fluoride. Later in the 2024, the town plans to apply for a separate P&D grant to fund a rate study. The town is also not charging enough for water at this time and understands that they must raise rates to pay for necessary upgrades to their

system. Lastly, the town plans to apply for Drinking Water State Revolving Fund (DWSRF) construction funding in the spring of 2025.

Technical and Managerial assistance for Russel County Public Service Authority.

ODW staff met with Russell County Public Service Authority (PSA) and its engineering consultants. Over the past four years, the PSA, which consisted of a collection of eight consecutive water systems, expanded when the Castlewood Water and Sewage Authority was dissolved and its two WTPs, eight pump stations, eight storage tanks, and distribution system were merged into the PSA. The PSA is evaluating short-term options to address additional communities of Russell County that lack access to a safe, sustainable water supply. Considerations need to include both technical ODW Weekly Report, Week Ending February 16, 2924, Page 5 of 7 constraints and affordability for the PSA. In addition, the PSA is developing and evaluating long-term alternatives for when the WTPs have exceeded their useful service life; this includes identifying potential sources of water and modifying their long-term capital improvement plans. The PSA's consultant will submit a comprehensive PER to ODW for review and further development.

Technical Assistance with a well pump failure at Childcare & Learning Center.

ODW staff assisted the Childcare & Learning Center (PWSID 6157388), a non-transient non-community waterworks in Rappahannock County, following a well pump failure over the New Year's Eve holiday weekend. The operator discovered the outage on January 1, 2024, during a routine site visit and replaced the pump the next day. The school decided to remain closed through January 3, 2024, while the operator conducted the necessary disinfection procedures and collected samples. ODW staff advised the waterworks with guidance for reopening the school on January 4, 2024, with a Boil Water Advisory (BWA) in place. The waterworks shared the BWA with staff and parents by email in addition to posting at the school. ODW received two total coliform-negative sample results on January 5, 2024, and advised the waterworks that they could lift the BWA.

Technical, Managerial, and Financial Assistance to Six-0-Five Village.

ODW staff received reports of a water outage at Six-0-Five Village (PWSID 2109675) in Louisa County on January 26, 2024. The reports were from social media and the local health department. The Sheriff's department also fielded calls about lack of water at the water system. The waterworks indicated that significant leaks occurred due to freezing pipes on the customer service connections. The mobile homes are typically not weatherized and subject to freezing under the trailer. A Boil Water Advisory was issued on January 26, 2024, and a site visit conducted on January 30, 2024. No leaks were observed at the time of the visit. Pressure recorders were installed in two locations and monitored. Outreach was conducted by ODW to SERCAP, VRWA, Community Housing Partners, and Fluvanna-Louisa Housing Foundation to see what type of assistance could be provided for freeze protection. The park's ownership is working with Community Housing Partners to weatherize the homes. A new well was drilled and completed as part of an American Rescue Plan Act (ARPA) project, which will help with increasing source capacity once connected. The ARPA project also plans to replace the park's aging distribution system.

WSL-012-21 – Bristol Virginia Utilities Authority's District Meter and Pressure-Reducing Valve Improvements Project

Appendix F

ODW Success Stories and Technical Assistance

The Bristol Virginia Utilities Authority (BVUA) provides electricity, water, and wastewater services and is located in Washington County, Virginia. BVUA serves more than 16,300 homes and businesses in the City of Bristol, Virginia; Washington County, Virginia; Scott County, Virginia, and Sullivan County, Tennessee.

The water distribution system in the downtown area of Bristol, Virginia, is comprised of severely aged piping and experiences significant water loss (estimated at 38%) through leaks and breaks. Without having a sufficient network of meters on the distribution system, the BVUA has not been able to accurately determine where leakage is occurring.

In May of 2020, BVUA applied for $711,780 in funding from the Financial & Construction Assistance Programs (FCAP) within the Office of Drinking Water at the Virginia Department of Health (VDH). The requested funding would allow BVUA to install a network of meters that would carve the downtown distribution system into discreet zones and more easily locate where leakage is occurring. The funding will also allow BVUA to install 6 pressure reducing valves (PRVs) at strategic locations within the downtown distribution system. These PRVs will enable BVUA to demolish an aging water storage tank and take its associated booster pump station out of service. Once installed, the new PRVs will increase the pathways for routing water to customers that previously relied on a single feed and improve the working pressures within the system.
In addition to 15 district meters and 6 PRVs, the system improvements include 400 linear feet of 8-inch diameter water line and associated appurtenances.

The VDH and the Virginia Resources Authority (VRA) closed the loan on this project on November 17, 2023, for the requested amount of $711,780 at 3.3% for a term of 20 years. FCAP approved BVUA's request to conduct the construction work by force account on February 6, 2023, and BVUA is only requesting reimbursement for the construction materials. As of September 18, 2024, BVUA has requested a total of $687,187.85 in reimbursement, representing 96.6% of the total funding. The funding also covers preparation of an Asset Management Plan for BVUA's entire water system, which will enhance their ability to effectively serve their customers and maintain their system. Overall, this project is expected to reduce BVUA's operation costs, improve water service to customers, and significantly reduce water losses.

BIL-09S-22A – Western Virginia Water Authority's Phase 1A of Roanoke Area Distribution Improvements Project

The Western Virginia Water Authority (WVWA) provides drinking water for residents and businesses in the City of Roanoke, the Counties of Roanoke, Franklin and Botetourt and the Towns of Boones Mill, Iron Gate, and Vinton. Sanitary wastewater service is provided for the greater Roanoke Valley. Through a contractual agreement, water and wastewater service is provided in the Town of Fincastle.

The WVWA applied to the Financial & Construction Assistance Programs (FCAP) within the Office of Drinking Water at the Virginia Department of Health (VDH) for their Phase 1 of Roanoke Area Distribution Improvements project in April 2022. Their Construction Application stated that much of the water distribution system in the City of Roanoke is undersized galvanized steel or cast-iron piping. The aging and deteriorated piping has caused numerous leaks, breaks and water quality issues. The Melrose

Avenue area is Phase 1 of multiple phases to address the failing infrastructure. The 2-inch and smaller galvanized piping is undersized, limits flow and pressure, and has insufficient looping, all contributing to documented issues with resiliency, reliability and two hundred and twenty-nine breaks, as of April 2022, since 2005.

The project that the WVWA originally applied for consists of replacement of the highest-risk piping including galvanized steel (12,100 linear feet), pre-1930's cast iron (22,500 linear feet), and other cast iron piping with known issues (1,790 linear feet) for a total replacement of approximately 36,400 linear feet. All replacement piping is 8-inch ductile iron pipe, as required per Western Virginia Regional Design and Construction Standards (2014). To improve system reliability, approximately 1,000 linear feet of new 8-inch ductile iron pipe will be installed to provide consistent looping.

As the design and associated engineering cost estimate progressed, it became apparent that the WVWA may not have enough allocated funding to accommodate the entire scope of work that they proposed in the VDH Construction Application. As a result, they decided to break the project up into a base bid plus multiple bid-alternate items. The base bid items were considered a higher priority than the bid alternate items. The WVWA awarded the contractor the base bid which included the installation of 7,124 linear feet of 12-inch diameter water line, 16,057 linear feet of 8-inch diameter water line, 260 linear feet of 6-inch diameter water line, 25 linear feet of 4-inch diameter water line, 10 linear feet of 2-inch diameter water line, and all associated appurtenances. In all, this includes the installation of 23,476 linear feet of water line. The contractor agreed to hold their bid prices on the bid alternate items while the WVWA pursued additional funding for this work. As a side note, VDH was able to fund this additional water line replacement work later as project BIL-09S-22B.

On February 29, 2024, the Virginia Department of Health and the Virginia Resources Authority closed the loan on this project (BIL-09S-22A) for $10,432,961. The funding package consists of $6,447,700 as principal forgiveness and a $3,985,261 loan for a term of 20 years and an interest rate of 2.30%. Since this project area in the City of Roanoke is considered “disadvantaged,” VDH was able to provide principal forgiveness to the WVWA.

The contractor received a Notice to Proceed on March 18, 2024. This project is currently under construction and should be complete by April 2025.

The project is expected to significantly reduce waterline breaks in the area, water outages, water loss, and volume of customer complaints. The new properly sized replacement piping, along with looping improvements will improve system flows and reliability. As a result, this disadvantaged area within the City of Roanoke will benefit from a more reliable water distribution system.