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October 27, 2026

MEMORANDUM

TO: The Honorable Abigail D. Spanberger
Governor of Virginia

FROM: Dr. Cameron Webb
State Health Commissioner, Virginia Department of Health

SUBJECT: The Efficacy of Virginia's Capacity Development Strategy Report

Section 1420 of the Safe Drinking Water Act (42 USC § 300g-9) requires states to develop and implement programs that will assist new and existing waterworks to possess sufficient technical, managerial, and financial capacity to ensure and enhance their sustainable operations. To fulfill this requirement, the Virginia Department of Health (VDH), through its Office of Drinking Water (ODW), has devised a Capacity Development Strategy. The U.S. Environmental Protection Agency (EPA) approved the original strategy in 2000 and the revised strategy 2014. In January 2022, the U.S. Environmental Protection Agency (EPA) approved Virginia's updated Capacity Development Strategy to incorporate requirements of the America's Water Infrastructure Act (AWIA).

The attached report has been prepared pursuant to Section 1420(c)(3) and constitutes the eighth report on Virginia's Waterworks Capacity Development Program. Section 1420(c)(3) requires that every three years, VDH submit "to the Governor a report that shall also be available to the public on the efficacy of the strategy and progress made toward improving the technical, managerial and financial capacity of water systems in the State."

The Virginia Drinking Water State Revolving Fund Capitalization Grant, requiring matching State funding, from the EPA largely funds the efforts of ODW's Capacity Development Strategy. This financial support is critical to the continued success of this and many other ODW programs. Please review this report to gain an understanding of the significant work that ODW is doing to protect the health of all people in the Commonwealth of Virginia who receive and use water from a regulated waterworks.

If you, or your staff, have any questions regarding the contents of this report or ODW's Capacity Development Program, please contact Mr. Dwayne Roadcap, ODW Director at (804) 338-0371 or by e-mail at Dwayne.Roadcap@vdh.virginia.gov.

CW/KB
Enclosure

Pc: The Honorable Marvin B. Figueroa, Secretary of Health and Human Resource

EFFICACY OF VIRGINIA'S WATERWORKS CAPACITY DEVELOPMENT STRATEGY

REPORT TO THE GOVERNOR

JULY 1, 2023, TO JUNE 30, 2026

VIRGINIA DEPARTMENT OF HEALTH

PREFACE

Pursuant to Section 1420(c)(3) of the Safe Drinking Water Act (42 U.S.C. § 300g-9 (c)(3)), the Virginia Department of Health (VDH) must submit a report to the Governor on the efficacy of VDH's Capacity Development Strategy (Strategy), including VDH's progress to improve the technical, managerial, and financial (TMF) capacity of waterworks in Virginia. The report is required to be submitted by September 30, 2026. This report was completed in its entirety by the Agency on behalf of the Secretary of Health and Human Resources.

VIRGINIA DEPARTMENT OF HEALTH, OFFICE OF DRINKING WATER

Commonwealth of Virginia
Abigail Spanberger, Governor
Secretary of Health and Human Resources
Marvin B. Figueroa, Secretary
Virginia Department of Health
B. Cameron Webb, MD, JD, State Health Commissioner
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EXECUTIVE SUMMARY

Pursuant to Section 1420(c)(3) of the Safe Drinking Water Act (42 U.S.C. § 300g-9 (c)(3)), the Virginia Department of Health (VDH) must submit a report to the Governor on the efficacy of VDH's Capacity Development Strategy (Strategy), including VDH's progress to improve the technical, managerial, and financial (TMF) capacity of waterworks in Virginia. The report is required to be submitted by September 30, 2026. This report was completed in its entirety by the Agency on behalf of the Secretary of Health and Human Resources. The Strategy describes VDH's work to evaluate and assist waterworks with TMF capacity. The Strategy incorporates programmatic and individualized assistance based on need. TMF capacity drives the success of a waterworks' program to comply with state and federal regulations. What follows is a report of the program for the reporting period covering July 1, 2023, through June 30, 2026.

SUMMARY OF PROGRAM ACTIVITES FOR JULY 1, 2023 – JUNE 30, 2026

The Virginia Department of Health (VDH), Office of Drinking Water (ODW) is the primacy agency for implementation of the Safe Drinking Water Act (SDWA) in the Commonwealth of Virginia. The SDWA defines a public water system, also known as a waterworks in Virginia law and regulations, as "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." There are currently 2,826 waterworks in the Commonwealth of Virginia collectively serving approximately 7.9 million consumers--about 89% of the total population of Virginia (8.9 million people). The SDWA categorizes waterworks into three system types: community, nontransient non-community (NTNC), and transient non-community (TNC). Approximately 7.4 million Virginians receive water from 1,055 community waterworks that serve year-round residents. VDH regulates 496 NTNC waterworks, which provide drinking water to schools, day care centers, industrial centers, factories, and other facilities that serve at least 25 of the same persons 6 months out of the year. Finally, VDH regulates 1,275 TNC waterworks, which serve 25 or more different people for at least 60 days a year. TNCs include hotels, restaurants, campgrounds, and marinas.

In January 2022, the U.S. Environmental Protection Agency (EPA) approved Virginia's updated Capacity Development Strategy to incorporate requirements of the America's Water Infrastructure Act (AWIA). Virginia's approved Strategy has three main objectives:

1. Possess and exercise sufficient authority to prevent nonviable community and NTNC waterworks;
2. Assess, prioritize, and respond to correct TMF capacity limitations; and,
3. Ensure waterworks offered financial assistance have, or will develop, sufficient TMF capacity prior to fund disbursement.

VDH's drinking water program centers on permitting, compliance, TMF assistance, and enforcement. VDH's program identifies waterworks lacking TMF capacity, helps improve capacity, and permits the operation of regulatorily compliant waterworks. VDH requires waterworks lacking TMF capacity to complete Waterworks Business Operations Plans (WBOP) as part of Drinking Water State Revolving Fund (DWSRF) funding. The Strategy also includes advancing the development of Asset Management Plans (AMP) by waterworks across the State. In addition to providing training on AMPs, VDH incorporated AMPs into construction funding agreements.

VDH issued 568 construction permits and 147 operation permits for new waterworks or modifications of existing waterworks. Staff completed 3,951 source water assessments and 91 well site inspections. VDH ensured 1,778 waterworks had a properly licensed operator. In implementing its Strategy during the reporting period (July 1, 2023 – June 30, 2026), the Capacity Development Program accomplished many programmatic goals, including the following:

- Offered a total of $159,313,856 in construction loans to 126 waterworks through the Drinking Water State Revolving Fund.
- Awarded $735,500 in planning and design grant funds to 19 waterworks.
- Provided $217,990 in small project engineering assistance to 21 waterworks.
- Completed 2,136 routine sanitary surveys of waterworks facilities.
- Conducted 183 site investigations in response to complaints or water quality issues.
- Evaluated 2,841 requests for water quality monitoring waivers for man-made chemicals.
- Issued 5,998 notices of alleged violation for noncompliance with the SDWA and Virginia Waterworks Regulations.
- Produced 224 warning letters to waterworks that were persistently in noncompliance with the regulations.
- Issued 19 administrative orders to waterworks substantially and persistently out of compliance with regulations and resolved 17 administrative orders from the previous reporting period.
- Responded to 77,177 requests for technical assistance from waterworks and operators.
- Evaluated 1,554 community and NTNC waterworks for TMF capacity.
- Reviewed 13 source water protection plans.

VDH's Strategy provides training to ensure managerial capacity at waterworks. VDH trains and assists waterworks owners on business operation plans. VDH has contracts with Virginia Tech to provide two classes per year on managerial capacity so that during the reporting period, they held six courses for waterworks decision makers.

Virginia's Strategy helped waterworks reliably produce and deliver safe drinking water to consumers through direct technical assistance and regulatory compliance help. The Strategy incorporates VDH's major program activities, which maximizes capacity development in Virginia. This report documents VDH's assistance to waterworks, especially small waterworks (those serving 10,000 or fewer consumers), which tend to have the greatest need.

INTRODUCTION

CAPACITY DEVELOPMENT STRATEGY MANDATE

Pursuant to Section 1420(c)(3) of the Safe Drinking Water Act (42 U.S.C. § 300g-9 (c)(3)), the Virginia Department of Health (VDH) must submit a report to the Governor on the efficacy of VDH's Capacity Development Strategy (Strategy), including VDH's progress to improve the technical, managerial, and financial (TMF) capacity of waterworks in Virginia. The report is required to be submitted by September 30, 2026. This report was completed in its entirety by the Agency on behalf of the Secretary of Health and Human Resources. The Strategy describes VDH's work to evaluate and assist waterworks with TMF capacity. The Strategy incorporates programmatic and individualized assistance based on need. TMF capacity drives the success of a waterworks' program to comply with state and federal regulations. What follows is a report of the program for the reporting period covering July 1, 2023, through June 30, 2026.

CAPACITY DEVELOPMENT STRATEGY ACTIVITIES

As the primacy agency for enforcing provisions of the Safe Drinking Water Act (SDWA) in Virginia, the Virginia Department of Health, Office of Drinking Water, maintains a robust regulatory program that ensures compliance with the SDWA. VDH's drinking water program centers on permitting, compliance, TMF assistance, and enforcement. In January 2022, the U.S. Environmental Protection Agency (EPA) approved Virginia's updated Capacity Development Strategy to incorporate requirements of the America's Water Infrastructure Act (AWIA). Virginia's approved Strategy has three main objectives:

1) Possess and exercise sufficient authority to prevent nonviable community and NTNC waterworks;
2) Assess, prioritize, and respond to correct TMF capacity limitations; and,
3) Ensure waterworks offered financial assistance have, or will develop, sufficient TMF capacity prior to fund disbursement.

VDH's program identifies waterworks lacking TMF capacity, helps improve capacity, and permits the operation of regulatorily compliant waterworks.

REPORT OUTLINE

The content of this report is for the period from July 1, 2023, through June 30, 2026. The report includes background of the program and Strategy and detailed programmatic information for activities relating to technical, managerial, and financial capacities of regulated waterworks. It also includes success stories that demonstrate the way that the program is able to effectively improve capacity at waterworks and ends with a summary of the efficacy of the Strategy.

1.0 BACKGROUND

The Safe Drinking Water Act (SDWA) defines a waterworks as "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." The capacity to operate, maintain, and sustain a waterworks successfully over a long period is comprised of Technical, Managerial, and Financial (TMF) components. TMF components demonstrate a waterworks' ability to reliably produce and deliver safe, affordable drinking water that meets federal and state quality standards to Virginians. TMF assessments measure a waterworks' ability to plan, achieve, and maintain compliance with the SDWA, Virginia's Public Water Supplies law, and associated federal and state regulations.

VDH evaluates TMF of a waterworks through on-site inspections and other evaluations:

- *Technical Capacity* represents the physical infrastructure of the waterworks, including its water source, and the knowledge and skill required to operate the facility in accordance with regulations and best management practices;
- *Managerial Capacity* means the waterworks' ability to plan, organize, and regularly achieve compliance with applicable laws and regulations that protect drinking water; and,
- *Financial Capacity* reflects the waterworks' ability to balance revenues and expenditures, have acceptable loan ratios, and to maintain overall healthy financial data.

The TMF elements are interdependent – all three are essential for ensuring the sustainability of a waterworks. Weakness in one area of capacity will impair other components. For example, a waterworks that lacks financial capacity might have inadequate service rates, which affects the waterworks' ability to hire qualified and licensed staff, to plan and implement necessary repairs and maintenance, and to manage the waterworks effectively.

There are currently 2,826 waterworks in the Commonwealth of Virginia collectively serving approximately 7.9 million consumers (roughly 89% of the Commonwealth's total population of 8.9 million people). Most Virginians receive water from community waterworks, which have at least 15 service connections with year-round residents, or that regularly serve at least 25 year-round residents. Community waterworks include systems serving hundreds of thousands of consumers, small towns, and individual neighborhoods. Nontransient non-community (NTNC) waterworks serve at least 25 of the same persons over six months out of a year. Examples of NTNCs include schools, hospitals, or manufacturing plants. Transient non-community (TNC) waterworks serve at least 25 persons daily for at least 60 days out of the year. Examples include restaurants, campgrounds, and hotels. Figure 1 shows the composition and population served by each classification.

VDH has well-established procedures to address TMF through routine interactions, inspections, and the new Sampling Verification Program. VDH's sanitary survey program evaluates the condition of a waterworks' infrastructure, operational practices, and drinking water quality indicators. VDH can identify TMF strength and weakness at the waterworks through its routine business process. Staff provides waterworks with ongoing, daily help with TMF.

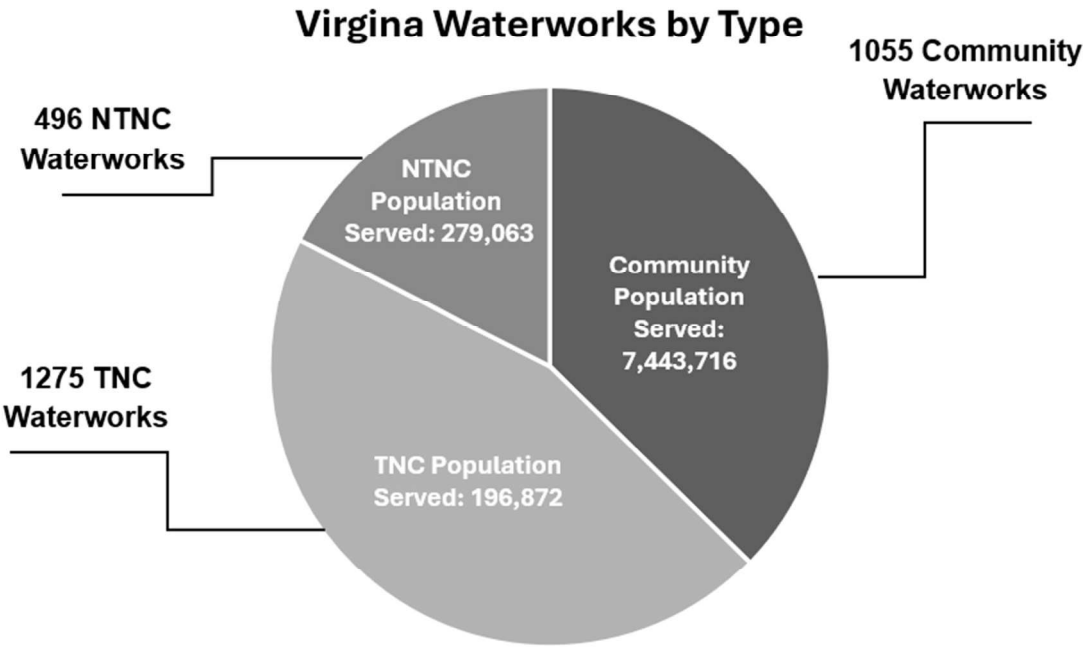


Figure 1: Virginia Waterworks by Type

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2.0 TECHNICAL CAPACITY

Technical capacity encompasses the physical infrastructure of a waterworks, including water source, treatment facility, and distribution system. Equally important are the knowledge, skills, best management practices, and training required to operate the facility in accordance with regulations. Technical capacity includes the permits and regulations that establish operational requirements. Described below are VDH-specific operational areas that provide support to waterworks.

2.1 CONSTRUCTION PLANS AND PERMIT REVIEW

VDH issued 568 Construction Permits and 147 new and amended Waterworks Operation Permits from July 1, 2023, to June 30, 2026. Applicants document TMF in the process of securing a permit from VDH. Virginia Code §§ 32.1-172, and the Virginia Waterworks Regulations, at 12VAC5-590-190, prohibit the establishment, construction, or operation of a waterworks without a written permit. Hence, TMF is a part of every application. The construction and operation permit requirements ensure that waterworks have TMF sustainability before operating the waterworks. A waterworks owner must complete a five-step application process before receiving a permit. The application process includes:

- Notification of Intent (Permit Application),
- Preliminary Engineering Conference,
- Submission of a Waterworks Business Operations Plan,
- Submission of a Preliminary Engineering Report, and
- Submission of Final Plans and Specifications.

After installation and construction of the plans, a professional engineer must certify that the final construction complied with approved plans and specifications. Upon receipt of the engineer's completion statement, VDH will issue an Operation Permit, which also establishes operator licensure and other operating requirements. The above procedures ensure that a new waterworks is properly designed, constructed, and inspected, and has sufficient TMF with licensed operators on staff. VDH procedures compel prospective waterworks owners to plan for long-term financial sustainability.

Beginning in 2023, VDH implemented a centralized program to review final plans and specifications and issue construction permits. This allowed VDH to improve customer service by providing more consistent project reviews and decreasing permitting time from an average of 72 days in 2022 to 15 days in 2026 under the centralized program.

2.2 SANITARY SURVEY PROGRAM / ON-SITE INSPECTIONS

VDH staff perform on-site inspections of waterworks through the sanitary survey program. Inspections include evaluations of the waterworks' infrastructure and water treatment processes, a review of drinking water quality monitoring records, and an examination of the operational practices and controls. VDH also reviews waterworks' staff qualifications.

During a sanitary survey, if VDH staff identify "Significant Deficiencies," they develop a "Corrective Action Plan" for these deficiencies. Significant Deficiencies are defects that cause or have the potential to cause an unacceptable risk to health or that could affect the reliable delivery of safe drinking water. Corrective Action Plans are designed to resolve Significant Deficiencies by a specific date. During the reporting period, 84 waterworks received Significant Deficiencies in the context of sanitary surveys.

VDH staff also conduct special inspections of waterworks to evaluate new construction, investigate consumer complaints, and respond to specific requests for assistance. Staff also make site visits to perform

source water assessments and to evaluate locations of proposed new wells. These visits provide VDH with opportunities for direct, face-to-face interaction with waterworks owners and operators and allow guidance for TMF capacity improvement.

Through the sanitary survey program, staff identify waterworks' capacity needs, and prioritize and target waterworks for additional guidance and assistance. VDH staff document sanitary surveys through a written report that also serves as an action plan for waterworks owners to correct deficiencies and improve operations.

Staff transitioned to using an electronic sanitary survey platform to reduce survey reporting time, increase consistency, and allow for analysis of statewide sanitary survey data to reveal trends.

Figure 2 summarizes VDH field activities in the current and previous reporting periods, offering trends over time for the number of sanitary surveys and groundwater assessments.

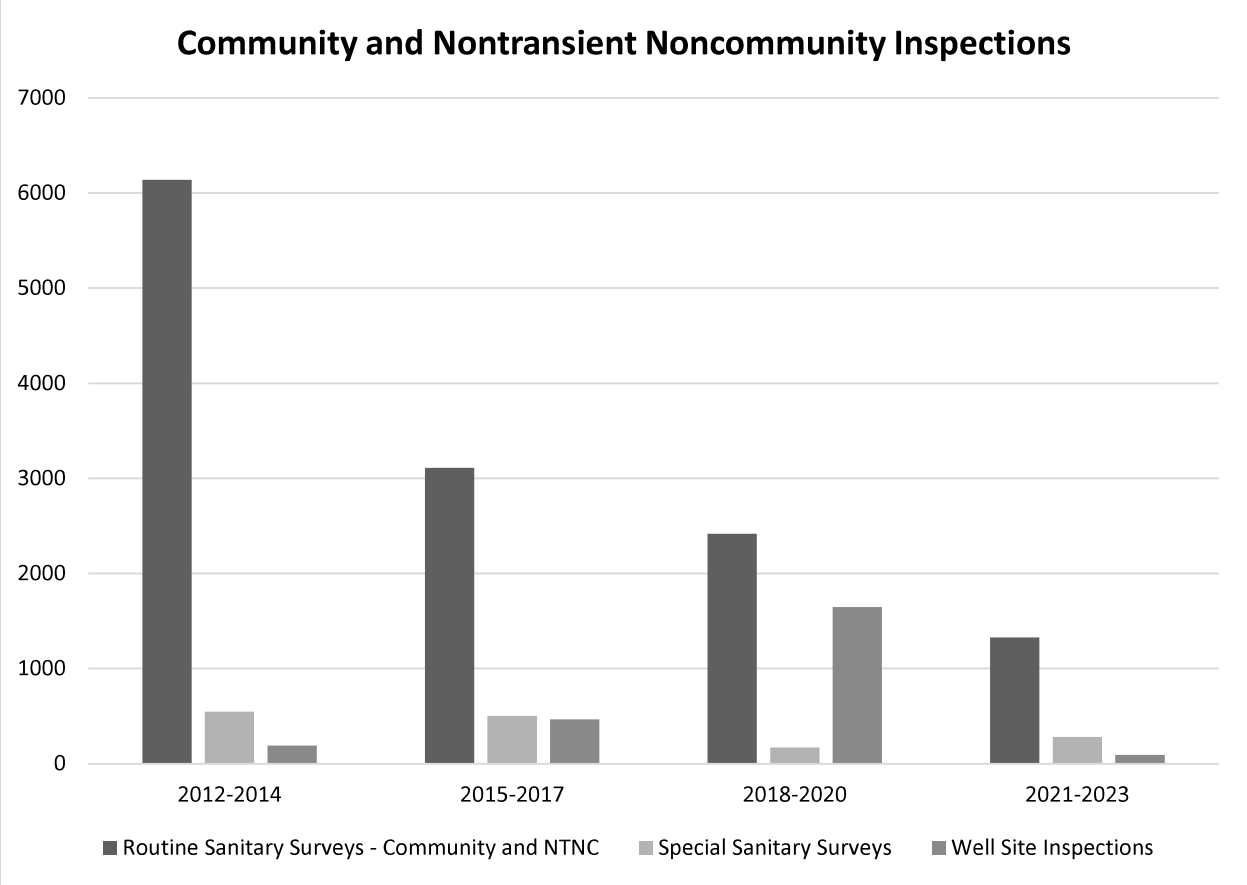


Figure 2: Community and Nontransient Noncommunity Inspections

During this reporting period, VDH staff performed 1,325 routine sanitary surveys at community and NTNC waterworks, 280 special sanitary surveys (including inspection of new construction, complaint investigations requiring field visits, and delivery of on-site assistance), and 91 well site inspections.

Source water assessments use GIS tools and other database records to identify sources of contamination and provide insights on protecting the water supply. Staff occasionally require field verification of contamination sources with the permitting or sanitary survey processes.

The SDWA requires inspection of community waterworks a minimum of once every three years and noncommunity waterworks a minimum of once every five years. In prior reporting periods, VDH conducted more frequent routine and special sanitary inspections. Beginning in 2022, VDH modified its inspection frequency to align with the minimum inspection frequency established by the SDWA and the Waterworks Regulations due to a lack of manpower. The adjustment allowed staff to onboard new, previously unregulated TNC waterworks and to spend more time at each inspection. In other words, VDH now inspects more systems, in more detail, less frequently. This trend is likely to continue as laws and regulations expand to cover more contaminants and facilities and ODW's funding remains flat.

Due to workload issues and budget considerations, EPA conducted a Workload Analysis of the Office of Drinking Water in 2022 and issued its findings in 2023. The final report indicates that even with a reduction in frequency of sanitary surveys, the independent EPA consulting firm, Cadmus, identified that ODW requires an additional $9.4 million in funding and an additional 42 Full Time Employees (FTEs) to keep pace with the Safe Drinking Water Act and all the new rules that have been promulgated and will be issued soon. These rules include but are not limited to: Lead and Copper Rule Revisions, Lead and Copper Rule Improvements, PFAS Rule, Consumer Confidence Rule (CCR) revisions, and revisions to the microbial and disinfection byproducts rules (MDBPRs).

Also, VDH now regulates hundreds more TNCs than prior to 2015. VDH also increased attention to source water assessments. The next section provides details on work with TNCs.

2.3 TRANSIENT NONCOMMUNITY INSPECTIONS

The Commonwealth of Virginia has 35 health districts and a local health department (LHD) in 95 counties and 38 independent cities. The LHD issues permits for restaurants, food service facilities, campgrounds, hotels, migrant labor camps, and other businesses. The LHD forwards copies of permits for commercial establishments to the regional Office of Drinking Water. If a business meets the definition of a waterworks, then ODW will help the applicant with permitting and TMF. Hence, a business could have multiple permits from VDH, one for the food establishment, one for the hotel/motel/campground/marina, one for the sewage system, and another permit for the drinking water supply.

ODW works with the LHD to ensure all businesses have proper permits for drinking water. Many times, the water quality and production are ancillary to the business. The business owner may treat the water supply as a lower priority as compared to the primary business operation (e.g., serving food, manufacturing, etc.). TNCs often lack TMF capacity. Compliance with the Virginia Waterworks Regulations can be challenging, which is why VDH created and hired a specific position in 2019 to focus on these waterworks. The Noncommunity Sustainability Coordinator works directly with TNC owners and operators to enhance understanding of TMF responsibilities and requirements. Staff develop training and outreach materials, provide technical assistance on compliance with regulations, including sampling frequency, and evaluate policy and procedures to improve compliance and sustainability. The Noncommunity Coordinator updated a "Welcome Packet" for TNCs to orient them to their responsibilities as a regulated waterworks and provided resources, including training on cross connection control. VDH performed 811 sanitary surveys at TNC facilities during the reporting period.

2.4 SOURCE WATER ASSESSMENT AND SOURCE WATER PROTECTION

Beginning in April 2003, VDH started an EPA-required effort to perform source water assessment susceptibility rankings for all active public water supplies. EPA and VDH designed the assessments to reveal potential vulnerabilities from manmade sources of contamination. The assessments help with water supply planning, source water protection, and managerial capabilities. VDH performs assessments on new water supplies and records conditions found from field observations and sanitary surveys. During the reporting

period, VDH generated updated Source Water Assessment Program (SWAP) reports for 3,951 sources and made them available to staff. VDH delivered SWAP reports for 81 active sources. VDH generated 524 Preliminary SWAP reports for new or proposed sources. Performance metrics track assessments completed and waterworks that need an assessment.

In July 2003, VDH created a Wellhead Protection Plan program for small community groundwater systems, which VDH continues to implement. In 2021 the program title changed to "Source Water Protection Grant program" which now includes projects that involve surface water. VDH requires a qualified consultant to assist in plan development. The program helps waterworks with a high contamination susceptibility to develop a wellhead protection plan. Waterworks serving less than 50,000 persons receive technical support from a qualified contractor. The resulting protection plans ensure the participating waterworks safeguard drinking water sources by managing and controlling activities near the source, which could compromise water quality and quantity. Staff expanded the program from groundwater systems with 10,000 or less persons to waterworks that use surface water and serve less than 50,000 persons. Approximately five small waterworks prepared site-specific Source Water Protection Plans (SWPPs) each year. In this reporting period, contractors made five program presentations at local advisory committee meetings.

During this reporting period, waterworks and their consultants completed 9 final SWPPs, facilitated 14 local advisory committee meetings, drafted 4 additional SWPPs (waiting on approval by the waterworks' management), and offered assistance to an average of 587 waterworks per year.

2.5 ON-SITE ASSISTANCE AND OUTREACH TO OPERATORS AND OWNERS

Owners and operators of small waterworks have difficulty finding the time and financial resources to attend formal classroom-style training events. VDH encourages staff to provide in-field training during inspections and other in-person visits. Staff answer questions and provide guidance on regulations, technical topics, and best management practices. Staff handle technical assistance informally during sanitary surveys, through telephone conversations, or by emails. Technical assistance represents a cornerstone of the ODW program and includes sharing information and expertise, answering questions, providing instruction or training, conveying working knowledge, and transferring technical data. Staff also assists waterworks with the development of WBOPs and Asset Management Plans. Effective relationships developed over time ensure community partners, customers, and the regulated community receive the most up-to-date information available.

In 2026, the permitting ombudsman at the Virginia Department of Environmental Quality conducted an external review of Virginia's Water Operator Certification Program. This review, which is required every five years, covered the period from 2021 through 2026. The review found that the number of licensed operators increased from 1,951 in 2021 to 2,280 in May 2026 – an increase of 17 percent. This growth reflects several factors, including intentional outreach efforts, expanded training opportunities, and updates to licensure regulations. The Virginia Department of Professional and Occupational Regulation (DPOR) oversees the licensing process, while the Office of Drinking Water (ODW) manages training and enforces requirements related to the Virginia Waterworks Regulations.

As part of the review, feedback was solicited from licensed operators regarding the training offered by ODW. ODW's operator training program centers on its support of a specialized associate degree at Mountain Empire Community College and a series of in-person and virtual classes provided through Virginia Tech and the Virginia Section of the American Water Works Association. Most survey responses were positive, noting that course content, length, instructors, and locations were generally rated as good or very good. Respondents also offered suggestions for improvement, including developing more training tailored to smaller waterworks and continuing support for in-person instruction. ODW staff are developing an implementation plan to address these recommendations and anticipate incorporating asynchronous coursework to provide continuing

education contact hours for operators who cannot attend live sessions. ODW remains committed to offering in-person training through its established contracts.

Financial support for these training contracts is provided through set-aside funds from the EPA's Drinking Water State Revolving Fund (DWSRF) and the Bipartisan Infrastructure Law (BIL). With BIL funding ending in 2027 and significant cuts expected to DWSRF, ODW anticipates a direct negative impact on its ability to maintain high-quality, in-person, statewide operator training. Without stable or increased funding, Virginia will likely see a decline in the number of licensed operators. Because most waterworks are required to have a licensed operator, a shrinking operator pool could lead to increased violations and affect the performance of waterworks of all sizes.

In June of 2021, the Office of the State Inspector General (OSIG) presented ODW with the results of an extensive audit of the Drinking Water Regulation Program. The audit highlighted specific challenges ODW faced in accurately and effectively gauging sampling protocol, procedures, and technical and analytical compliance at waterworks. This issue was attributed to the lack of supervision in the sampling process. The audit discovered the existing regulatory framework for compliance and enforcement measures was not optimally utilized or uniformly carried out across all field offices to address concerns at the waterworks. Consequently, the implementation of the Sampling Verification Program (SVP) was initiated to address the audit's findings and enhance the supervision of the waterworks. Since beginning in January 2024 and continuing through May 2026, the program has conducted 162 SVP inspections and more than 38 follow-up inspections, marking an important milestone. These inspections revealed that 58.41% of assessed systems were non-compliant with applicable regulations and standards, underscoring the need for targeted improvements and corrective actions. The primary issues identified within non-compliant systems include:

- Insufficient record retention practices. Many systems lacked proper documentation or failed to maintain records for the required duration.
- Inadequate training and education for waterworks personnel, resulting in a noticeable gap in the skills needed for effective system operation.
- Non-compliance with repeat sampling requirements, with some systems failing to follow mandated procedures essential for maintaining consistent water quality and safety.
- Deficiencies in sampling, monitoring, and overall compliance, including failures to conduct required tests or to address issues identified during prior inspections.
- Outdated or disregarded sample monitoring plans. Some facilities continued operating under outdated plans that no longer aligned with current regulatory standards, while others did not adhere to existing plans, reducing monitoring effectiveness.

In response to these findings, the SVP remains committed to strengthening oversight and monitoring across all Virginia public water systems. Planned initiatives include enhanced training for waterworks personnel, improved documentation and record-keeping practices, and ensuring all systems adopt and follow updated sampling protocols. By addressing these challenges directly, the program aims to foster a stronger culture of compliance and accountability, ultimately contributing to higher water quality and safer drinking water for the communities served. To further support these goals, the program has also initiated centralization efforts designed to improve program oversight and enhance overall performance statewide

2.6 ASSISTANCE CONTACTS BY VDH STAFF

VDH staff interact with waterworks owners and operators through a variety of informal contacts including meetings, telephone calls, and emails. Staff give assistance that covers a full range of TMF capacity concerns. For instance, staff may help to address drinking water quality sampling needs, follow up on corrective measures described in a sanitary survey report, or review and assist with the preparation of an annual Consumer Confidence Report. Staff inform waterworks operators of upcoming training opportunities or offer help with water treatment dosage calculations. Staff can advise owners of potential impacts from, or requirements of,

pending state or federal regulations. During the reporting period, VDH staff received and responded to 77,177 technical assistance requests from waterworks owners and operators.

2.7 VULNERABILITY ASSESSMENTS AND MONITORING FOR PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Waterworks owners must collect water samples to test for regulated contaminants. For some man-made chemical contaminants, waterworks may forgo routine water quality monitoring when the drinking water source is located and constructed to eliminate susceptibility to the contaminants. The source water is determined as not vulnerable to contamination because there is no use of the chemicals near the source. A waterworks owner may request a waiver from regulation of certain contaminants in these situations. The waiver application process requires the waterworks owner to conduct a self-assessment of the source water's susceptibility and vulnerability to contamination. VDH screens the waterworks for conditions that may impair source water quality. The waiver process encourages TMF capacity by highlighting beneficial planning efforts that the owner can implement through programs, such as wellhead and surface water protection plans. VDH staff reviewed and assessed over 2,800 applications for monitoring waivers from eligible waterworks during the reporting period.

As follow-up to the PFAS monitoring and occurrence study undertaken in 2021, VDH ODW completed a Phase 2 PFAS Sampling Program with samples collected beginning in July 2022 through December 2023, with some follow-up samples collected in early 2024. The purpose of this sampling program was to collect additional data on the occurrence of PFAS in Virginia public drinking water supplies, to assess impact on Virginia waterworks, and to help Virginia waterworks prepare to address PFAS. Phase 2 sampled at entry points selected with these guidelines:

- Surface water sources at community waterworks
- GUDI sources at community waterworks
- Groundwater sources at potential risk from PFAS contamination
- Groundwater sources at selected small community waterworks (prioritizing those serving less than 500 persons)
- Spread sampling across the counties in the state, to the extent possible

Following up on the Phase 2 PFAS monitoring and occurrence studies, VDH completed a Phase 3 PFAS Sampling Program with samples collected in September 2024 through April 2025. The purpose of this sampling program was to collect additional data on the occurrence of PFAS in Virginia public drinking water supplies, to assess impact on Virginia waterworks, and to help Virginia waterworks prepare to address PFAS.

Phase 3 sampled at entry points selected with these guidelines:

- Groundwater sources at selected small community waterworks (prioritizing those serving less than 500 persons)
- NTNC and community waterworks with groundwater sources at potential risk from PFAS contamination
- Not already sampled by VDH
- Not covered by Unregulated Contaminant Monitoring Rule 5 (UCMR5) sampling
- Spread across the counties in the state, to the extent possible

In 2026, VDH initiated a Phase 4 monitoring program aimed to help meet the upcoming PFAS National Primary Drinking Water Regulations (NPDWR) initial monitoring requirements. The Phase 4 monitoring program was conducted at no cost to community and non-transient noncommunity (NTNC) waterworks, targeting public water systems that rely on groundwater and serve populations of 10,000 or fewer.

Through a partnership with TruePani Inc., participating systems received free sample collection by trained field staff, laboratory analysis through a certified lab, and electronic results reporting to VDH's Safe Drinking Water Information System database.

Phase 4 enrolled 763 waterworks for PFAS sampling and as of June 30, 2026, completed sampling at 375 waterworks. A total of 35 entry points showed PFAS above the federal PFAS Maximum Contaminant Levels (MCLs).

2.8 WATER LOSS AND EVALUATION ASSISTANCE

VDH continues to support assistance to waterworks experiencing water loss and leakage in distribution systems. Staff continue to request water loss information from DWSRF applicants and planning grant applicants. Staff discuss water loss and unbilled water during sanitary surveys and when issuing operation reports. This effort has improved understanding about the number of waterworks experiencing significant water loss and the potential need for assistance to small waterworks. VDH has partnered with both the Virginia Rural Water Association (VRWA) and the Southeast Rural Community Assistance Project (SERCAP) through funding of set-aside suggestions for the purchase of leak detection equipment. Both organizations continue to actively use the equipment to assist waterworks in leak detection and line location. VDH can refer waterworks to these organizations that provide services at no charge to the referred waterworks. Effective August 13, 2025, the Virginia Department of Environmental Quality (VDEQ) regulations require that all groundwater and surface water withdrawal permits include a water auditing plan and sometimes a leak detection plan as well. These regulations apply to many waterworks regulated by VDH, so technical assistance for these plans will continue to increase in importance.

2.9 ASSET MANAGEMENT PLANNING

Asset management planning is an important part of long-term prioritization of the maintenance, repair, improvement, and sustainability of waterworks. This is reflected in America's Water Infrastructure Act of 2018 (AWIA) Section 2012, which amended the SDWA to require Virginia to amend its Capacity Development Strategy (Strategy). The revised Strategy describes how Virginia encourages the development and use of Asset Management Plans (AMPs). VDH staff revised the Strategy and submitted it to EPA, and EPA approved the revised strategy in January 2022.

VDH annually provides training to waterworks through a variety of courses. This core component of the two management-focused courses is integrated into the annual Short School for Drinking Water Utilities. VDH also provides funding mechanisms for waterworks to develop AMPs that include five core components: (1) Asset Inventory, (2) Life Cycle Costs, (3) Level of Service, (4) Criticality, and (5) Long-term Funding. VDH can fund AMPs through the Planning and Design Fund Program, the Small Project Engineering Program, and as an additional engineering cost associated with a DWSRF-funded construction project. VDH requires an AMP as part of a DWSRF project when a waterworks does not already have a current plan or has not updated it within the last 5 years. To encourage asset management planning, VDH will make available the lesser of the actual cost of an AMP or $15,000 as principal forgiveness when requested as part of a construction funding offer. With the use of electronic sanitary surveys, VDH can document whether a waterworks self-reports having an AMP.

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3.0 MANAGERIAL CAPACITY

Managerial capacity is a waterworks' ability to plan and organize essential business activities in order to achieve compliance with applicable laws and regulations. This is where a waterworks owner must make decisions that affect overall technical and financial capacities. A strong managerial capacity will achieve results even when the other capacities may be less robust.

3.1 DATA COLLECTION AND ANALYSIS

VDH maintains and uses the Safe Drinking Water Information System (SDWIS), which is an extensive electronic inventory of waterworks facilities, personnel, sampling data, and compliance status. SDWIS is the primary vehicle for VDH to report required information to EPA. VDH has transitioned away from older relational Access databases to a new suite of tools, developed by a private vendor, to access waterworks records, inspection schedules, sample results, and compliance issues. This proprietary suite of software accesses the data stored in SDWIS and provides it to staff in a more user-friendly way. Data is also provided to the public through an outward-facing website to allow the public access to information about regulated waterworks. Staff use associated electronic tracking tools for application and plan review activities. Use of these electronic tools facilitates interaction with waterworks and provides a quick way to assess many elements related to waterworks TMF capabilities.

In early 2026, VDH conducted a required triennial assessment of all community and nontransient noncommunity waterworks in Virginia. The assessment consisted of 18 "yes" or "no" questions, which were related to the three TMF capacities. VDH staff used official records to answer questions and directly contacted waterworks for additional information as needed. Staff compared results of this assessment to the 2017 (baseline), 2020, and 2023 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 1 has the complete list of questions asked during the triennial assessment. VDH incorporated the Triennial Assessment questions into the electronic sanitary survey in 2022 and was able to rely on this source of data for almost all waterworks evaluated in 2026.

Staff evaluated 1,553 systems; 1,059 were community waterworks and 494 were NTNC waterworks. The maximum score possible was 18. Waterworks scoring 10 or lower tend to demonstrate substantial lack of TMF capacity and operational challenges. Overall, the average score of all waterworks surveyed was 15. The average score of all community waterworks was slightly higher at 16 and the average score of all non-transient noncommunity waterworks was lower at 14. This represents an improvement of one point for each of these categories since the previous assessment.

Composite data for 2026 is shown in Figure 3. Data from 2020 and 2023 are in Figure 4. Each of these curves is skewed left, with very few waterworks scoring under nine points. However, the 2020 and 2023 assessments show a curve that steadily trends upward to the right, while the 2026 assessment's score distribution is flatter, with a pronounced jump between 17 and 18 points. Data from these triennial assessments shows a consistent decrease in the percentage of waterworks scoring 0-9 and 10-15 points and an increase in waterworks scoring 16-18 points. This indicates an increase in overall TMF capacity at waterworks and a positive impact from capacity-building measures VDH has implemented through the Strategy.

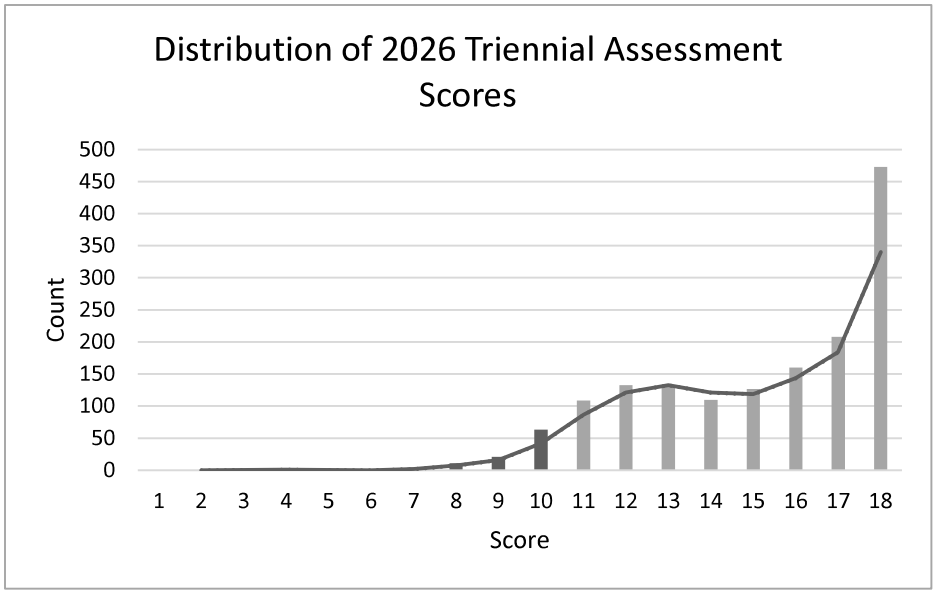
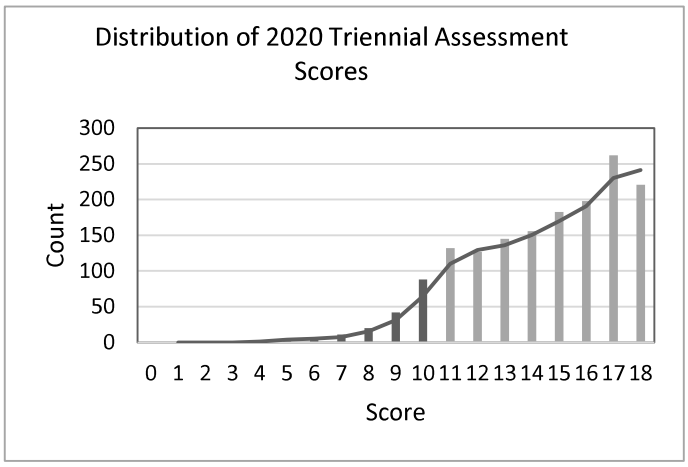


Figure 3: Distribution of 2026 Triennial Assessment Scores (Community and NTNC)



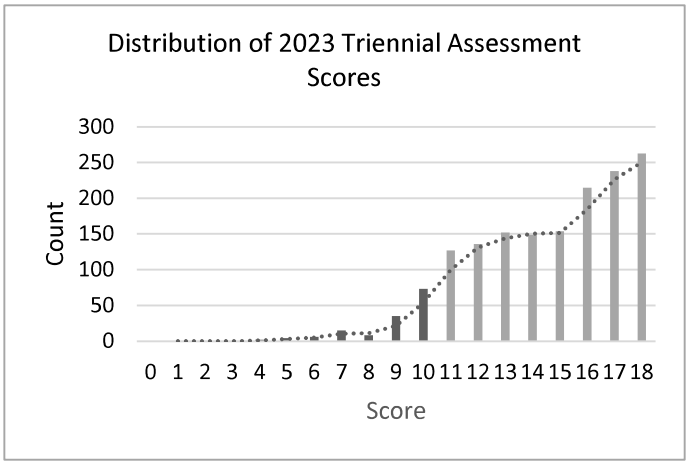


Figure 4: Distribution of 2020 and 2023 Triennial Assessment Scores (Community and NTNC)

The lowest score reported in 2026 was 3 points, which applied to only one waterworks. The waterworks received direct technical assistance from VDH staff.

The geographic regions where lower scores are concentrated have varied with each assessment. In the 2017 and 2020 assessments, the area 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. In the 2026 assessments, the region of the state encompassing the Shenandoah valley showed the lowest scores. In both 2020 and 2026, 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 has been expanding these opportunities to other parts of the Commonwealth.

Since 2023, VDH has prioritized training, funding workshops, technical assistance, and financial resources in the middle portion of Virginia to address shifting trends. During the reporting period, staff collaborated with PDCs to hold funding workshops with multiple drinking water funding partners. In light of the 2026 assessment, staff will be directing additional resources toward the northwest portion of the state.

A review of statewide responses for the triennial assessment provides other insights. The following questions generated the lowest scores:

- Question 5: Does the waterworks have a written policy for responding to customer complaints? (67%, up from 49% in 2023)
- Question 16: Does the waterworks have a written Capital Improvement plan? (60%, up from 54% in 2023)
- Question 17: Has the waterworks adjusted rates in the past three years? (60%, up from 50% in 2023)
- Question 18: Does the waterworks have an Asset Management Plan? (58%, up from 52% in 2023)

VDH has addressed these areas following the previous triennial assessments in 2020 and 2023. While these same four questions have remained the relatively lowest scoring in each assessment, the absolute scores have improved for all four, as noted above. Of note, complaint response, asset management planning, capital improvement planning, and water rates are not regulated by VDH, but serve as best practices for long term viability of waterworks. VDH continues to train and assist waterworks with completing asset management plans and a current asset management plan is a requirement for waterworks receiving funds under the Drinking Water State Revolving Fund (see section 2.9 above).

3.2 COMPLIANCE AND ENFORCEMENT PROGRAM

VDH routinely reviews water quality data submitted by waterworks, and issues Notices of Alleged Violation (NOAVs) for sample results that do not appear to meet the Virginia Waterworks Regulations. VDH also issues NOAVs for the failure to monitor and report water quality results, the failure to employ licensed operators, recordkeeping violations, and other conditions that deviate from the regulatory requirements. The SDWA, the National Primary Drinking Water Regulations (NPDWR), and the Virginia Waterworks Regulations establish standards. During the reporting period, VDH issued approximately 5,998 NOAVs to waterworks; approximately 4,349 or 72.5% of those were for monitoring violations, typically associated with a waterworks' failure to collect and analyze required water quality samples. Staff enter violations into the SDWIS database where the system tracks and can generate reports.

VDH uses EPA's Enforcement Response Policy and its associated Enforcement Targeting Tool (ETT) to identify waterworks with violations of significant noncompliance. VDH focuses on waterworks with health-based violations and those that show a history of violations across multiple rules, but accumulation of non-health-based violations can also result in formal enforcement. EPA compiles data for the ETT quarterly report from the NOAVs that VDH issues and records in SDWIS.

The ETT identifies and scores waterworks with noncompliance across all federal regulations and rules. The ETT formula places a higher weight on health-based violations, including treatment technique and maximum contaminant level violations. The formula calculates a score for each waterworks based on unresolved violations that have occurred within the past five years. Scores do not include violations that have returned to compliance or are on a "path to compliance" through a specified enforceable action. VDH uses the quarterly ETT report to prioritize staff assistance to waterworks with numerous or serious compliance issues. The ETT can also help identify waterworks that are in danger of becoming a priority system.

EPA generates the ETT quarterly report based on SDWIS data. EPA considers waterworks with ETT scores greater than 10 a "serious violator" and waterworks with ETT scores of 5-10 a "potential serious violator"; the approach to waterworks with an ETT score less than five is discretionary. Figure 5 shows the

number of systems with an ETT score greater than 10 for each quarter of the reporting period, which represents less than 0.5% of all waterworks in the Commonwealth.

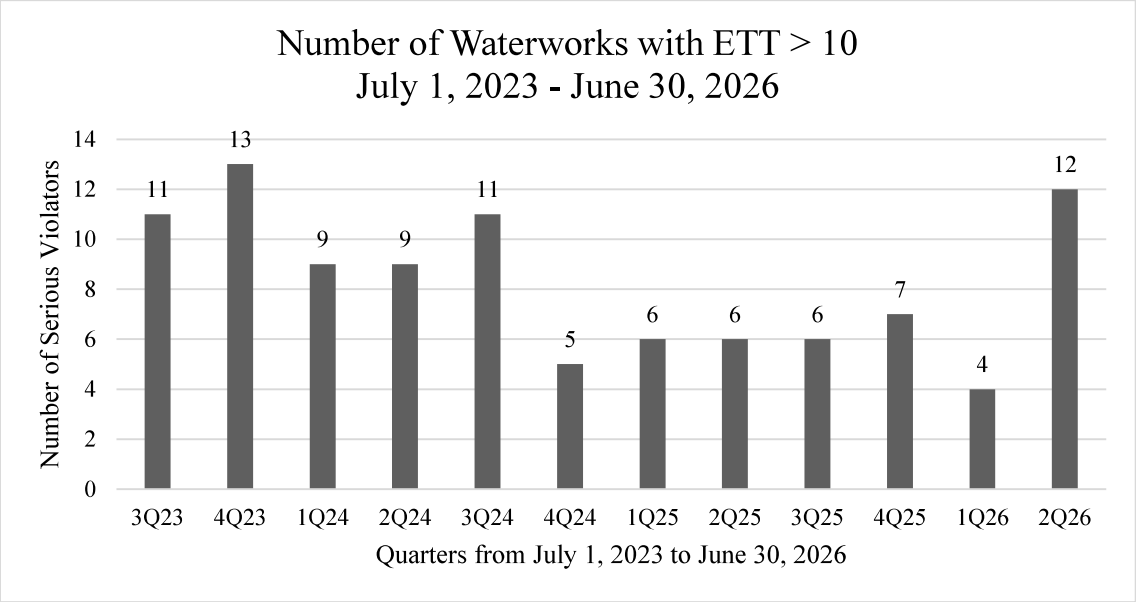


Figure 5: Number of Systems with ETT>10, July 1, 2023 - June 30, 2026

The VDH Office of Drinking Water's (ODW) Division of Compliance, Enforcement and Policy (CEP) sets compliance and enforcement strategy and priorities, ensures a consistent approach to enforcement, provides real-time compliance information to the field offices, and helps facilitate collaboration with other divisions within ODW regarding compliance and enforcement issues. CEP works with the field offices in determining the best tactics to carry out the compliance and enforcement strategy to return waterworks to compliance. CEP meets with each field office regularly to discuss how best to return a waterworks to compliance, including determining when formal enforcement action is necessary. The field offices also work closely with CEP for legal insights, enforcement strategy, fairness, and consistency. ODW adopted a new Enforcement Manual in October 2020 and is currently nearing the end of the process to formally revise the manual to provide further clarity, direction, and uniformity to the compliance and enforcement program.

VDH also uses the ETT as a guide for issuing warning letters to encourage waterworks owners to take actions necessary to return to compliance before formal enforcement is necessary. The warning letters summarize the waterworks' violations, corrective action deadlines, and consequences for failure to act. VDH issued 224 warning letters to noncompliant waterworks during the reporting period. In addition to EPA's ETT report, VDH uses the ETT Assistant (ETTA) to help identify warning letter targets based on "real-time" compliance information. Additionally, VDH has developed a state-only violations report (State Violation Scoring System – SVSS) to help monitor waterworks' non-compliance with regulations that are solely a function of state requirements. This new tool has resulted in a 26% increase in the number of warning letters being generated each quarter.

The ETT, ETTA, and SVSS help direct staff actions to encourage and require compliance with applicable laws and regulations. VDH uses administrative consent orders and special orders to enforce the regulations that protect public health. The State Health Commissioner has authority to issue binding, bilateral consent orders and unilateral special orders to waterworks owners who have violated federal and state drinking water regulations. As required by Virginia law, VDH conducts hearings to provide parties with due process before issuing adverse decisions that could result in a unilateral special order. Both orders set timelines to compel corrective measures. During the reporting period, the State Health Commissioner entered into 19

administrative orders to bring waterworks into compliance, and 17 waterworks resolved the terms of their orders, concluding the enforcement action.

VDH's enforcement approach is highly focused on identifying solutions to the underlying causes of waterworks' noncompliance with state and federal drinking water regulations. VDH uses various tools to direct attention and provide guidance to waterworks owners on ways to correct deficits in TMF capabilities. For instance, during an administrative enforcement hearing, it may become clear that inadequate revenues are a cause of the waterworks' chronic monitoring failure and staff may recommend as part of the resolution of the matter that the waterworks owner submit a WBOP as a budgeting tool or obtain assistance with rate setting to address the lack of financial capacity.

3.3 WATERWORKS CLASSIFICATION AND OPERATOR LICENSURE

The Virginia Waterworks Regulations classify waterworks from Class 6 to Class 1 based on the population served, source, and operational complexity. Regulations require each community and NTNC waterworks to have a licensed operator of equal or higher classification as their waterworks. This person can be a member of staff or otherwise contracted. As of June 2026, a licensed operator is required at 1,577 community and NTNC systems. VDH encourages small waterworks with TMF capacity deficiencies to connect to a larger municipal water distribution system or service authority when possible. ODW amended the *Waterworks Regulations*, effective June 2021, addressing, among other things, classification of waterworks, operator requirements and operator attendance. These requirements, for the most part, implemented requirements in ODW's policy documents, and ensured uniform implementation of operator requirements across Virginia.

As of January 1, 2017, the Virginia Department of Professional and Occupational Regulation (DPOR) adopted the Association of Boards of Certification (ABC) national examination requirements. DPOR regulates licensure of waterworks operators in the Commonwealth. Operators must have applicable experience and education. DPOR requirements include passing an examination of the minimum required knowledge, skills, and abilities to receive a license. Requirements limit experience credits to the operation and maintenance of water distribution systems, laboratory work, and treatment plant maintenance. Minimum experience requirements depend on the operator classification: less experience is required for Class 6 compared to Class 1. The minimum educational requirement for a Virginia operator's license is a high school diploma or General Educational Development certificate. Candidates without a high school diploma may get a license by substituting more operator-in-training experience for education.

During the reporting period, the number of licensed waterworks operators increased from 1,909 in June 2023, to 2,283 in June 2026. This represents an increase of 185 operators. In the prior reporting period, many operators decided to discontinue working in waterworks operations due to increased workload and stress of the pandemic. In spite of the pandemic, Virginia continued providing low-cost education to potential and existing operators to support them in their career development both during and after the pandemic. This seems to have paid off with the uptick in licenses. A few other factors are likely impacting the increase: DPOR began offering Universal Licensure Recognition in 2025; the licensing exams have been updated to better test for essential knowledge, skills, and abilities based on two industry standard resources; and lastly, licensing exams are now able to be taken using remote proctoring provided by the licensing company, ABC. Together, these efforts have resulted in a slightly higher pass rate. Virginia remains committed to providing high-quality training and education for potential and current waterworks operators, believing that an educated workforce is essential to protecting public health.

3.4 EMERGENCY PREPAREDNESS

Virginia is vulnerable to many natural and man-made hazards. Waterworks owners must prepare for, respond to, and recover from tornados, hurricanes, winter storms, earthquakes, floods, terrorism, and vandalism to name a few potential threats. VDH provides a variety of all-hazards training, exercises, and

planning tools to assist with waterworks preparedness. VDH assists waterworks during incidents and emergencies by serving as the lead agency of Emergency Support Function 3 at the Virginia Emergency Operations Center. VDH staff also provides technical assistance during the recovery stages of incidents and emergencies.

VDH staff prepares waterworks owners for hurricanes and winter weather by offering preparedness materials to community waterworks during the Governor's proclamation of Winter Preparedness Week and at the beginning of hurricane season (June 1 – November 30). Preparedness materials are also available on the VDH website and include information for the issuance of boil water advisories, VDH after-hours emergency contact information, pre-incident preparedness planning, incident response planning, well disinfection procedures, information for generators, and backup power needs. VDH provides contact information for other organizations and agencies that assist with incident planning and response, such as the Virginia Water/Wastewater Agency Response Network (VA-WARN).

Extended power outages resulting from hurricanes, severe weather and winter storms can pose technical and financial challenges. The Virginia Waterworks Regulations require that waterworks have an Emergency Management Plan (EMP) for extended power outages. About 31% of community waterworks have emergency power available for the entire waterworks. The drinking water industry and VDH need to improve outreach and training to achieve sustainable and resilient practices.

During the reporting period, VDH ODW Emergency Preparedness and Security personnel provided technical assistance and incident management during several emergencies. These include a petroleum leak from an underground storage tank into a drinking water supply that resulted in a Do Not Use notice; a warehouse fire that sent thousands of gallons of firefighting foam, water, herbicides, pesticides and other chemicals into two Virginia watersheds; a winter weather event that caused the City of Richmond to issue a multi-day Boil Water advisory and impacted parts of Henrico and Hanover County; and an ongoing drought event in July 2026. VDH supports DEQ and Virginia's Drought Monitoring Task Force with drought monitoring, data collection, and collaboration.

On July 1, 2025, a new state law went into effect requiring waterworks to report contaminant releases or certain equipment failures or malfunctions to ODW within two hours. Staff have provided extensive technical assistance to the regulated community regarding this new requirement and have responded to over 289 two-hour reporting calls since the law took effect.

3.5 CONTINUING PROFESSIONAL EDUCATION

VDH facilitates TMF competencies for waterworks staff through on-going training. Curricula include technical topics such as equipment operation and maintenance, drinking water chemistry and microbiology, water treatment technologies, and operator math. Sessions address managerial aspects of waterworks operation through instruction and training on the Virginia *Waterworks Regulations*, capacity development, financial planning, asset management, waterworks administration, and waterworks security.

The Water Operators Short School is the preeminent water and wastewater operator training in Virginia. VDH actively participates in the Short School by volunteering as course instructors. This annual training at Virginia Tech is a weeklong course held annually since the 1940s. There are three levels to the course: introductory, intermediate, and advanced. Each level provides approximately 15 classes and focuses on a variety of waterworks operations topics, and each level includes at least one session on Asset Management Planning. The curricula for the intermediate and advanced courses build on the preceding year's course. There was an effort to create a fourth level targeted at management. Those classes would have included asset management, communications, human resources, as well as new technologies. However, that level was canceled in 2023 due to low enrollment. In 2020, Virginia Tech moved the course online to allow students to participate during the COVID-19 pandemic. In 2021 and 2022, the course was offered online, as a combination of live and recorded

sessions. Virginia Tech held the Short School in-person from July 31 to August 4, 2023, and had 101 students attend. The Short School in 2024 occurred August 4 – 9, 2024, and had 100 attendees. The Short School in 2025 occurred on July 7 – 11, 2025, and had 72 attendees.

VDH continues to sponsor waterworks-specific management training targeted at "decision-makers." Virginia Tech, Mountain Empire Community College, and other service providers hold these courses through contracts with VDH. Course offerings vary yearly; however, VDH ensures training courses develop employee and waterworks TMF capacity. Owners and operators find course offerings on the VDH website.

The COVID-19 pandemic created many challenges for in-person training. VDH cancelled all in-person courses on March 13, 2020, because of health risks. VDH and Virginia Tech successfully transitioned some courses to webinar-based courses. Course attendees gave favorable feedback for these webinars. DPOR offered extensions for renewal and testing for licensure. In 2022, VDH began transitioning back to in-person instruction; most courses were in-person in 2023. Overall, waterworks representatives respond favorably to in-person instruction and benefit from not just the presented material, but opportunities to learn from other professionals in the class. VDH also found that students remain receptive to online learning. Hence, VDH continues to support that model of instruction through webinars offered through the Virginia Tech contract.

3.6 WATERWORKS ADVIWORY COMMITTEE

The SDWA requires states to identify persons with interest or involvement in the creation and execution of a capacity development strategy. VDH consults with the Waterworks Advisory Committee (WAC), which represents a diverse group of waterworks stakeholders throughout the Commonwealth. The WAC committee gives stakeholders and the public opportunities to address VDH policies and procedures, including training and capacity development. Staff consults with the WAC at least quarterly. During the reporting period, the WAC and VDH staff met 13 times.

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4.0 FINANCIAL CAPACITY

Financial capacity reflects the waterworks' ability to balance revenues and expenditures, have acceptable loan ratios, and maintain overall healthy financial data. To secure loans and grants through the Drinking Water State Revolving Fund and other lending agencies, waterworks must demonstrate financial capacity.

4.1 DRINKING WATER STATE REVOLVING FUND (DWSRF)

The DWSRF program provides financial aid through loans, principal forgiveness, and grants. This funding helps waterworks in need of infrastructure improvement, which can help with reliability, maintenance, and operational costs. VDH staff assesses qualifying applicants to determine whether the waterworks has TMF capacity before loan closing. If a waterworks does not have sufficient TMF capacity, then VDH, through its financial partner Virginia Resources Authority, sets requirements for waterworks restructuring as part of the funding process. Requirements may include a WBOP, an AMP, waterworks rate increases, the completion of annual audits, or the completion of compliance plans and programs. During the reporting period, the DWSRF entered into binding commitments with 126 waterworks on low-interest or interest-free construction loans totaling $159,313,856. This total includes 96 Lead Elimination Assistance Program projects totaling $70,771,550.84 for lead service line inventory development and replacement of lead service lines.

On November 15, 2021, President Biden signed into law a funding package that provided federal funds to improve the condition of water and wastewater infrastructure, along with transportation, broadband and climate, energy, and the environment improvements. This funding is spread out over five (5) years, with the possibility of an additional two for reallocated funds. The DWSRF received funding in the amount of $279,627,201 across four grants for each of the years 2023 - 2026: The DWSRF, Supplemental, Lead Service Line Replacement and Emerging Contaminants. For the FY26 solicitation period from January 2025 to May of 2025, VDH received 96 applications requesting over $417.7 Million in funding. VDH offered funding from all grant and repayment sources totaling $155,699,386 for FY2026. Funding agreements are still being finalized, and loan closings should begin by the end of this calendar year.

The Biden Administration also established the American Recovery Plan Act, Coronavirus State Fiscal Recovery Fund (ARPA). ODW received $100 million in funding for small/disadvantaged communities across the Commonwealth. The solicitation ran concurrently with the DWSRF Solicitation identified above. A total of 72 applications were received, totaling over $270 million. The funds have been awarded as 100% grant dollars, benefitting 36 localities with 42 projects. The deadline to claim construction costs is December 31, 2026.

The 2021 General Assembly created three new positions within ODW to test and remediate lead in drinking water at schools and childcare centers. The Lead Testing Program is funded by the Water Infrastructure Improvements for the Nation (WIIN) Act. The 2107 grant provides testing kits for the childcare facilities and schools, and the 2105 grant provides remediation assistance. ODW has partnered with 120Water to implement lead sampling. 26,946 samples from 814 schools and childcare facilities have been tested to date. 280 of these samples triggered an action level exceedance and are in or have completed remediation. Lead Testing Program staff continue to work with schools and childcare facilities providing results interpretation and technical assistance.

The 2022 General Assembly allocated $1 million to establish the Equitable Access to Drinking Water (EADW) Program within ODW, and this funding has been renewed each year. This funding supports small community waterworks with operation and maintenance expenses associated with regionalization and consolidation. The Fund helps reduce health violations, improves economies of scale, and addresses resilience and reliability at small and disadvantaged systems. ODW manages and utilizes the Fund for recalcitrant, poorly performing, or small community waterworks that can be consolidated to improve economy of scale. During

the reporting period, ODW accepted five applications to this Fund. Details on each project are provided below to highlight their benefit to the public health.

Hearn's Mobile Home Court is a community waterworks in Isle of Wight County. The waterworks had one well and its fluoride concentrations repeatedly exceeded the PMCL, presenting a health risk to the residents. Because a waterline for the Town of Smithfield already existed near the mobile home court, the owners and the Town agreed that the best way forward was to connect this small waterworks to the Town's water supply. VDH awarded $63,350 in EADW funds to assist with this consolidation, which provided the residents with safe, reliable drinking water that meets all SDWA standards.

Montvale Water Company is a community waterworks in Bedford County, whose previous owners were both of advanced age and wanted to transition themselves out of the water business. Montvale's aging infrastructure was also causing frequent service disruptions and billing issues for their customers. After receiving a referral from VRWA, VDH worked to initiate conversations around transferring the waterworks to the Bedford Regional Water Authority (BRWA). Montvale and BRWA entered into a formal consolidation agreement, and VDH awarded BRWA $200,000 in EADW funds. These funds were utilized to pay for operations, waterline repairs, meter replacements, and other necessary maintenance to ensure reliable water service during the transition.

Darden Mill's Estates is a community waterworks in Southampton County that struggled with aging infrastructure and deferred maintenance. Ownership of the waterworks transferred to Life Essentials, Inc., which is a company that successfully manages several other waterworks. VDH awarded Life Essentials, Inc. EADW funds to assist in the rehabilitation of the water system, leading to more reliable and sustainable water service for this community.

E.L. Goddard, Inc, owned seven public and two private community waterworks in rural Northumberland County. Customer connections ranged from a low of 13 to a high of 30. The co-owners inherited the systems and struggled with day-to-day management and finances, which led to delayed maintenance and repeated violations. These problems were exacerbated when one of the co-owners, who was also the licensed operator for the systems, passed away. Viginia American Water (VAW) had waterworks and staff in the area and entered into an operations contract with E.L. Goddard, and then decided to pursue acquisition. However, the deteriorated condition of the systems was a hurdle, so VDH awarded EADW funds to VAW to make repairs to the waterworks to meet SDWA and Waterworks Regulations requirements. The combination of the operations contract and repairs to the systems resolved open violations. With the systems in good standing and good working order, VAW purchased the E.L. Goddard, Inc. water systems.

Idlewood Shores is a small subdivision in Franklin County whose private owner was not performing necessary maintenance or ensuring that a licensed operator was visiting the waterworks. The subdivision's Board of Directors wished to facilitate a waterworks transfer from the private owner to the Western Virginia Water Authority (WVWA), but several upgrades were required before WVWA was willing to accept the system. VDH awarded EADW funding to WVWA to facilitate the consolidation and help ensure that the residents benefit from a more reliable water system in the future.

4.2 PLANNING AND DESIGN GRANT ASSISTANCE

VDH awards Planning and Design funds to small, financially challenged, community and not for profit NTNC waterworks. This grant helps waterworks that would not have the financial ability to evaluate drinking water problems, identify solution alternatives, and make recommendations for correction. Eligible projects include preliminary engineering planning, design of plans and specifications, source water quality and quantity studies, new well development, or other similar technical assistance projects. Recipients may also use funds to address distribution system leakage and water loss. These types of projects often include surveying and mapping of the distribution system (to include type of pipe material and estimated age), water audits to estimate

loss from leakage, identification of suspected leak locations, training with leak detection equipment, and review of previous detection work.

VDH increases awareness of grant opportunities available through the planning and design fund program by posting information on its website and in the Virginia Register. The Sustainability Coordinators make direct contact to waterworks about these opportunities. Staff remind waterworks owners of the program, answer questions, and provide information and resources for applicants. The program accepts grant applications year-round and reviews them for acute, chronic, and public health points. Staff review applications that do not have acute, chronic, or public health needs in September every year.

During the reporting period, VDH committed $735,500 to fund 19 waterworks planning and design projects. The maximum grant award was $45,000 per project. This activity helps support TMF capacity as waterworks benefit from the new or renovated infrastructure built from the planning activities.

4.3 WATERWORKS BUSINESS OPERATIONS PLAN (WBOP)

A Waterworks Business Operations Plan (WBOP) is the primary document to assess the technical, managerial, and financial (TMF) capacities of a waterworks, as required by § 32.1-172 of the Code of Virginia. A WBOP demonstrates whether a waterworks has sufficient TMF capacity or will need to implement Sustainability Improvements. *Technical Capacity* encompasses the infrastructure and water source of a waterworks (its "physical" assets), as well as intangible assets including the knowledge and skills needed to properly operate a waterworks. *Managerial Capacity* is indicative of the waterworks' planning and organizational expertise. *Financial Capacity* measures a waterworks' ability to generate sufficient revenue, to leverage other funding sources, and to manage these funds to meet operational, maintenance, and expansion costs.

Preparing a WBOP guides a waterworks owner through the process of identifying responsibilities, assessing current and proposed conditions, identifying improvements, and establishing a plan to operate the waterworks using successful and sustainable methods. Implementation of the WBOP will improve the TMF capacity of the waterworks and enable it to function in a sustainable manner. This plan, customized for the specific waterworks, provides structured guidance for long-term planning, funding reserve accounts, evaluating staffing needs, understanding infrastructure assets, and establishing a budget that will appropriate funds (or other revenue) sufficient to cover all waterworks-related expenses. During the reporting period, VDH accepted 155 WBOPs as complete.

4.4 SMALL PROJECTS ENGINEERING SERVICES PROGRAM

The Small Projects Engineering Services (SPES) program, started in 2014, is an internal-referral program that VDH uses to provide engineering assistance to small community and non-profit NTNC waterworks. Waterworks who seek this help typically do not have the staff to apply for funding programs. VDH previously procured services from three engineering firms to provide this assistance, but after those contracts expired in October 2023, only two of those firms were procured again for the next contract cycle. Typical projects include engineering drawings for small treatment systems, as-built plans and specifications necessary to obtain a Waterworks Operations Permit, and AMPs. The program saw an increase in the number of waterworks assisted during the reporting period, which may be due in part to staff efforts to improve program outreach. The current contracts will expire in December 2027, and VDH will then procure services for the next cycle. During the reporting period, these firms assisted 21 waterworks with engineering services, totaling approximately $217,990.

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5.0 SUCCESS STORIES

During the reporting period, staff accomplished the following:

- Initiated and/or coordinated several training events for waterworks;
- Assisted waterworks with completing funding applications and provided the TMF review;
- Made numerous marketing efforts to increase the number of waterworks personnel attending training events;
- Redeveloped a "Welcome Packet" for TNC waterworks that identifies requirements and provides resources for new owners;
- Continued to provide training on and tracking of Asset Management Plans;
- Collaborated with United States Department of Agriculture-Rural Development (USDA-RD) and planning district commissions on funding workshops for water and wastewater utilities; and,
- Worked with many utility boards to provide regulatory insight, discuss technical issues, and offer suggestions for funding options.

VDH provides the following success stories to highlight projects and the Strategy. Although not comprehensive, the summaries reflect the type of assistance staff provides through the Capacity Development Strategy.

Russell County Public Service Authority (RCPSA) provides water to communities in a rural county in southwestern Virginia. RCPSA has expanded over the past several years and plans to provide service to additional customers that are currently on private wells compromised by coliform bacteria and *E. coli*. However, RCPSA lacks the necessary source capacity for this expansion. In 2025, VDH awarded a Planning & Design grant to RCPSA for a Preliminary Engineering Report that will evaluate each water source in terms of production capacity, treatment needs, operations and maintenance costs, and long-term viability. The results of the PER will inform future capital projects and funding applications.

The Town of Courtland has naturally occurring levels of fluoride that exceed the primary maximum contaminant limit. The fluoride levels dropped when a large industrial facility that drew from the same aquifer shut down. However, when that facility recently resumed operation, the fluoride concentrations rose once again. VDH staff met with the Town to discuss funding options to address this issue, and in 2024, VDH awarded the Town a Planning and Design grant for a PER. The PER will evaluate the Town's existing water system and propose alternatives that would allow the Town to meet the fluoride MCL.

Knollwoods/Ivy Acres is a small community water system that struggled with unreliable water service due to mechanical failures and water line breaks. After a major leak provoked a Boil Water Advisory, the water system's owners became interested in connecting to Campbell County Utilities and Service Authority (CCUSA) and getting out of the water business. VDH organized a meeting with CCUSA and Knollwood/Ivy Acres to discuss the consolidation, and both parties agreed to move forward. VDH awarded Planning and Design funds to CCUSA for a PER to evaluate a waterline extension to Knollwoods/Ivy Acres and any necessary upgrades at the smaller system to ensure sustainable operations. After the PER was complete, CCUSA was awarded DWSRF funds to construct the waterline and to decommission the wells and tanks that will no longer be needed.

In 2024, the designated operator for six waterworks in Clifton, Virginia suddenly passed away, leaving these systems with no licensed operator. VDH staff worked rapidly to assist these waterworks, facilitating meetings with potential new operators and assisting in collecting samples so that they would not incur monitoring violations. As a result of this diligent effort, all six waterworks promptly secured properly licensed operators and remained in compliance throughout the transition period.

The Town of Mineral, located in Louisa County, has long struggled to sustainably run their waterworks. The Town Council is comprised of relatively new members, and they reached out for assistance to work towards operating in a proactive manner. VDH staff met with representatives from Mineral's Utility Board to discuss the status of the water system and ways VDH could assist with reaching their goals. After the meeting, the Town applied for and was awarded grant funding through the Lead Elimination and Assistance Program for their lead service line inventory. Mineral has also faced challenges with insufficient source capacity and received a Notice of Alleged Violation in February 2025 for operating without an approved water source. The waterworks operation permits lists five groundwater wells as approved sources with an additional auxiliary connection to Louisa County Water Authority (LCWA) as a temporary source. However, all these wells were offline, so Mineral was relying solely on their connection to LCWA. To secure a more sustainable long-term water source for the Town, VDH staff awarded two Planning and Design grants to Mineral in March 2025. The first project evaluated the viability of rehabilitating the existing wells and was completed in May 2026, while the second project is a PER to propose long-term solutions for the Town. The PER is expected to be completed by the end of 2026.

VDH staff assisted the Mount Carmel Christian Academy in Page County with securing Small Projects Engineering Services (SPES) funding to install a UV light. Mount Carmel had experienced periodic total coliform positive results in the past and wanted to take further steps to protect the students and staff of the academy. After SPES funded the plans and specifications, VDH staff completed the final inspection of the UV light installation and confirmed that it was in use.

6.0 EFFICACY OF VIRGINIA'S WATERORKS CAPACITY DEVELOPMENT STRATEGY

The Capacity Development Strategy focuses on TMF components to improve a waterworks' ability to reliably produce and deliver safe drinking water to consumers. VDH's focus on TMF capacity maximizes the Strategy's potential. VDH enforces rules and regulations and provides technical assistance to improve performance and sustainability of waterworks.

Small waterworks must develop and improve TMF capacity for long-term viability. The complexity and number of federal drinking water regulations is increasing over time. VDH must implement, monitor, and enforce these changes. Staff must provide technical assistance, track routine sanitary surveys, and evaluate the capability of waterworks to ensure compliance with state and federal drinking water standards. The Strategy helps waterworks who are responsible for providing safe drinking water to people of the Commonwealth of Virginia.

The Commonwealth provides a 20% match to the federal Capitalization Grant, which supports the services described in this report. EPA's Capitalization Grant, through the capacity development and source water set-aside, pays for ODW staff dedicated to capacity development, training, and security. Technical assistance fees from the regulated community pay less than 25% of salary and benefits for staff positions that offer technical assistance. Dedicating more state funding to programmatic initiatives would benefit struggling waterworks.

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7.0 CONTACT INFORMATION

This report has been prepared by the Virginia Department of Health, Office of Drinking Water, for submittal to the Honorable Abigail Spanberger, Governor of Virginia. Submit questions or comments on this report to:

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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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APPENDIX A – ACRONYMS AND ABBREVIATIONS

This is a listing of the acronyms and abbreviations appearing throughout the report and its appendices.

ABC – Association of Boards of Certification

AMP – Asset Management Plan

ARPA – American Recovery Plan Act, Coronavirus State Fiscal Recovery Fund

AWIA – America's Water Infrastructure Act

AWWA – American Water Works Association

BRWA – Bedford Regional Water Authority

BSSP – Bacteriological Sample Siting Plan

CCCP – Cross Connection Control Program

CCR – Consumer Confidence Report

CCUSA – Campbell County Utilities and Service Authority

DPOR – Virginia Department of Professional and Occupational Regulation

DWSRF – Drinking Water State Revolving Fund

EADW – Equitable Access to Drinking Water

EMP – Emergency Management Plan (for Extended Power Outages)

EPA – United States Environmental Protection Agency

ETT – Enforcement Targeting Tool

FTE – Full Time Employee

GIS – Geographic Information System

GUDI – Groundwater Under Direct Influence

LCRR – Lead and Copper Rule Revisions

LCWA – Louisa County Water Authority

LHD – Local Health Department

MDBPR – Microbial and Disinfection Byproducts Rule

NOAV – Notice of Alleged Violation

NTNC – Nontransient non-community waterworks

ODW – Office of Drinking Water

OSIG – Office of the State Inspector General

PDC – Planning District Commission

PFAS – Per- and Polyfluoroalkyl Substances

PQL – Practical Quantification Level

RAP – Regulatory Advisory Panel

RCPSA – Russell County Public Service Authority

SDWA – Safe Drinking Water Act

SDWIS – Safe Drinking Water Information System

SERCAP – Southeast Rural Community Assistance Project

SPES – Small Projects Engineering Services

Strategy – VDH's Capacity Development Strategy

SWAP – Source Water Assessment Program

SWPP – Source Water Protection Plan

TMF – Technical, Managerial, and Financial

TNC – Transient non-community waterworks

USDA – RD – United States Department of Agriculture- Rural Development

VAW – Virginia American Water

VA-WARN – Virginia Water/Wastewater Agency Response Network

VDEQ – Virginia Department of Environmental Quality

VDH – Virginia Department of Health

VRWA – Virginia Rural Water Association

WAC – Waterworks Advisory Committee

WBOP – Waterworks Business Operations Plan

WIIN – Water Infrastructure Improvements for the Nation Act

WVWA – Western Virginia Water Authority

APPENDIX B – 2026 TRIENNIAL CAPACITY ASSESSMENT QUESTIONS

Technical	Is the waterworks score on the Jan 2026 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?