

**State of Delaware  
Capacity Development Program  
Report to the Governor**

**September 2023**



# State of Delaware Capacity Development Program Report to the Governor

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## EXECUTIVE SUMMARY

The United States Environmental Protection Agency (EPA) requires states to prepare triennial reports to their Governor, focusing on capacity development authority for new public water systems (PWSs) and capacity development strategy for existing PWSs. If a strategy is not in place, 20% of the federal Drinking Water State Revolving Fund (DWSRF) grant will be withheld from the state's allotment.

The 2023 Capacity Development Program Report to the Governor details the State of Delaware's strategy to meet the public health protection objectives of the federal Safe Drinking Water Act (SDWA). The strategy assists PWSs in acquiring and maintaining technical, managerial, and financial capacity. Over the past three years, the Division of Public Health's Office of Drinking Water (ODW) within the Delaware Department of Health and Social Services has made great progress towards improving the capacity of public water systems in Delaware.

The SDWA requires that a report be made to the Governor on the strategy no later than two years after the date on which a state adopts a Capacity Development Strategy and every three years thereafter. The reporting period for this report is July 1, 2020, to June 30, 2023. A copy of this report is submitted to the EPA.

Ongoing training is essential to keep water operators, owners, and designated personnel up to date with required regulations and technologies. Water operators receive training through onsite visits and classroom training sessions. ODW staff provide technical assistance and education with on-site visits to assist with water system operations and management. During the reporting period, ODW staff made over 500 site visits (sanitary surveys, capacity development inspections, and Level 2 assessments) to PWSs. Additionally, through funding by the DWSRF, the Delaware Rural Water Association conducted approximately 200 site visits per year. Classroom training helps water operators build knowledge on the operation and maintenance of public water systems through various training topics. With the assistance of ODW and Delaware Technical and Community College, 70 operators were trained during the reporting period.

Since Delaware program implementation in 1996, the Capacity Development Program has met population growth demands as new water systems continue to provide safe drinking water to new Delaware residents. ODW regularly evaluates and monitors the technical, managerial, and financial capacities of PWSs. ODW monitors 465 PWSs annually.

The Capacity Development Program Reports to the Governor are available to the public through the ODW website:

<https://www.dhss.delaware.gov/dhss/dph/hsp/capdevrep.html>.

## THE PROGRAM

The Delaware Department of Health and Social Services (DHSS), Division of Public Health's (DPH) Capacity Development Program primarily utilized a non-regulatory proactive strategy. Methods first were considered to identify and prioritize public water systems (PWSs) in need of improving technical, managerial, or financial capacity. To measure improvements in capacity, the Office of Drinking Water (ODW) established a baseline in 2000 by reviewing the technical, managerial, and financial capacity of Delaware's 521 PWSs in existence at the time. Each water system was ranked according to their compliance level:

- **Level 1: Enforcement Targeting Tool Violators**  
The Enforcement Targeting Tool (ETT) calculates a public water system's enforcement priority point. It is used to identify and prioritize systems for enforcement response. Any system with a score of 11 or greater must be addressed within six months. The Capacity Development Program works with these systems to determine if they can be returned to compliance without formal state action.
- **Level 2: Systems with Health-Related Compliance Problems**  
These systems are currently in compliance with health-related regulations but have a history of compliance problems in the last three years. ODW conducts reviews for the following violations: Systems exceeding lead or copper action levels, Revised Total Coliform Rule, and Phase II-V (chemical contaminants). If problems are not addressed, a system's ranking could be moved to Level 1.
- **Level 3: Systems with Non-Health-Related Compliance Problems**  
These systems typically lack a certified water operator, or the system fails to submit a consumer confidence report. Other issues include sanitary defects identified during inspections, many complaints, aging infrastructure, poor maintenance, financial problems, or a recently identified system that did not go through the Capacity Development Program prior to opening.
- **Level 4: Systems Exhibiting Full Capacity**  
These PWSs have no known compliance issues or other problems. They are well-run and address problems before they become potential violations. ODW currently monitors 465 PWSs and offers assistance to those that have difficulty maintaining compliance, such as those systems ranked in Levels 1 to 3.

ODW contracts with Delaware Technical Community College's (DTCC) Environmental Training Center and with the Delaware Rural Water Association (DRWA) to provide compliance/technical assistance and training. The Southeast Rural Community Assistance Project (SERCAP) also provides technical assistance to PWSs in Delaware. To ensure that some PWSs receive assistance tailored to their needs, ODW refers them to other sections within DHSS, the Department of Natural Resources and Environmental Control (DNREC), and the Public Service Commission (PSC). Through feedback from systems and national trends, ODW determines areas in which systems commonly require assistance.

ODW and its contractors provide the following types of assistance to PWSs:

- Emergency response plans including water system security.
- Information about Delaware Drinking Water Regulations.
- In-depth water system evaluations with recommendations.
- Operation and maintenance manuals.
- Water treatment technique evaluations.
- How to comply with the requirements of the Lead and Copper Rule (LCR).
- Operational policies, job descriptions, and organizational charts.
- Calculate and control water loss.
- Water conservation practices.
- Asset management plans.
- Rates setting, record keeping, and cost recovery.
- Long-term Capital Improvement Plans.
- Completing a Drinking Water State Revolving Fund (DWSRF) loan application.
- Source Water Assessment or Wellhead Protection Plans.
- Obtaining or maintaining a Drinking Water Operators License.
- Operator certification requirements.
- Promote consensus between municipal water system operators and customers.

One third of all the PWSs in Delaware are ranked annually to alert the Capacity Development Program of their assistance needs. This ranking is also used to evaluate the Program's effectiveness and to identify areas of focus in terms of compliance trends.

Since 1998, all PWSs have had the opportunity to participate in the Capacity Development Program. The program measurements show a considerable reduction in the number of sanitary survey defects, and more systems developed written emergency and maintenance plans. Much of this is due to regularly offered water operator training by contractors DTCC, SERCAP, and DRWA, which greatly enhances their knowledge.

DPH requires all Delaware-licensed drinking water operators to obtain 20 hours of continuing education every two years. ODW offers training on regulatory topics such as Consumer Confidence Rule (CCR), LCR, sampling and testing for physical, biological, chemical, and radiological contaminants; cross connection control, emerging contaminants, asset management, Revised Total Coliform Rule, regulations that pertain to childcare facilities, Ground Water Rule, Drinking Water Watch education for water operators and administrative personnel, and the Approved Sampler/Tester (AST) training.

## TYPICAL CAPACITY BUILDING ACTIVITIES

The Capacity Development Program promotes safe drinking water in Delaware by serving as a liaison between the customer, the water system, and ODW's enforcement section, and the Public Water System Supervision Program.

### Technical Assistance – ODW

Delaware has a low rate (1% of regulated PWSs) of health-based non-compliance for the LCR. The Lead and Copper Rule Revisions (LCRR) were effective December 16, 2021. Starting October 16, 2024, all community water systems (CWS) and non-transient non-community water systems (NTNCWS) are required to comply with the LCRR and submit to ODW their service line inventories (SLIs). On August 4, 2022, the EPA released *Guidance for Developing and Maintaining a Service Line Inventory* and an Inventory template to support water systems with their efforts to develop inventories as part of the LCRR requirements. ODW will continue to develop appropriate training programs for PWS owners and operators to assist them with compliance requirements.

During this reporting period, ODW provided technical assistance to over 300 PWSs regarding LCR, assigned accelerated reduced monitoring schedules, and sent more than 425 emails/letters to remind PWSs of their monitoring requirements. These efforts have resulted in an overall high compliance with the LCR. ODW has also partnered with 120Water, a private company, to decrease non-compliance and assist with sending reminder letters when lead and copper samples are to be collected.

Additionally, ODW offered training on other regulatory topics such as CCR, sampling and testing for physical, biological, chemical, and radiological contaminants; cross connection control, emerging contaminants, asset management, Revised Total Coliform Rule, regulations that pertain to childcare facilities, Ground Water Rule, Drinking Water Watch education for water operators and administrative personnel, and AST training.

### Technical Assistance – External Agencies

In conjunction with DRWA, the Capacity Development Program provided technical assistance to municipal and other community water systems that have ongoing compliance related issues. Through funding provided by the DWSRF, DRWA assists systems by offering the services of an interim water operator (i.e., a “contract operator”) for systems that need a temporary water operator due to unexpected circumstances. DRWA conducts approximately 200 technical assistance site visits per year. This service continues to be provided via funding from the DWSRF program. System personnel can register online for DRWA training at <https://drwa.org/training/drwa-training-sessions/>.



The Capacity Development Program currently encourages PWSs to develop, implement, and maintain asset management plans for their water systems. DRWA provides technical assistance to develop and implement these asset managing plans. ODW staff continues to encourage PWSs via sanitary survey letters and during site visits. ODW periodically offers Asset Management training to all PWS staff. Training may also be provided by SERCAP: <https://sercap.org/about/who-we-serve/community-government-groups>.

## Drinking Water State Revolving Fund applicants

The DWSRF is a loan fund established by the 1996 Amendments to the Federal Safe Drinking Water Act. The fund is administered in Delaware by DPH's Health Systems Protection Section. Its purpose is to assist PWSs and replace aging infrastructure, add needed treatment, or complete improvement projects.

All DWSRF applicants must have a Capacity Development Assessment. PWSs that do not comply with the National Primary Drinking Water Regulations are ineligible for DWSRF funds unless:

1. The system's owner or operator agrees to undertake feasible and appropriate operational changes, or
2. Financial assistance from the DWSRF will ensure long-term system compliance.

The Capacity Development Assessment includes compliance history, wellhead protection, emergency plans, maintenance plans, rates, capital improvement plans, and organizational management. If the system lacks capacity, PWSs are assisted by Capacity Development staff, DRWA, or DTCC to help with any of the above issues.

All municipalities applying for DWSRF loans are required to attend financial and managerial training provided by DTCC on asset management, capital improvement planning, or rate setting. During this reporting period (July 1, 2020, to June 30, 2023), 27 loans were closed under the DWSRF program, with a total loan amount of \$62,271,046.00.

## GROUP TRAINING SESSIONS

In addition to assisting individual PWSs, the Capacity Development Program contractors held several group training sessions for PWSs staff.

### Limited License Water Operator Training

Delaware's community water systems and non-transient non-community water systems are required to have a licensed drinking water operator. This requirement includes daycare centers, senior centers, businesses, and schools that provide drinking water for 25 or more people daily. While these populations are generally considered the most vulnerable to contaminants, daycare providers are least likely to take daytime classes in water operations or have the funds to contract with a licensed water operator.

To address this concern, ODW's Capacity Development Program, in conjunction with the DTCC's Environmental Training Center in Georgetown, provides customized operator training to these facilities. This training is available to all operators of daycares, schools, and senior centers. During this reporting period, 70 operators were trained. Without this specialized training, many of these non-transient non-community water systems would have either been out of compliance or would have been financially burdened if they had to hire a licensed water operator.

## SUCCESS STORIES

The Kitts Hummock Improvement Association (KHIA) is a PWS that is classified as a community water system (CWS) serving a small beach community located in the Delaware Bay area. KHIA staff approached the Capacity Development Program in May 2022 to discuss water operator related concerns. This led to a site visit where staff performed a risk and resiliency audit. Several recommendations were made to help this small community improve its overall resiliency to remain viable in the future, including raising wellhead heights of all their wells to ensure they were above 24 inches, thus protecting their primary sources of water.

To assist KHIA with other recommendations that were made by the Capacity Development Program, KHIA staff were introduced to the DWSRF program and DRWA, which assisted KHIA in obtaining grant funding from the Delaware Bond Bill. This funding is being used to install two generators and transfer switches at both water treatment plants, as well as to renew associated electrical circuits. Additionally, KHIA will install more water meters to monitor their distribution system for water loss and leaks, and new sump pumps to minimize flooding within the plant. These projects are expected to be completed in FFY 2023. They are also considering implementing a security system, upgrading their distribution system, and adding storage to further improve their operations. KHIA is also considering the addition of a security system for their plants.

**Lighthouse Point and Community Center** is a non-transient non-community water system (NTNCWS) located in Millsboro that had ongoing issues with exceeding the Nitrate Maximum Contaminant Level. Starting in October 2019, the PWS received technical assistance from SERCAP and the Capacity Development Program. This resulted in the installation of a nitrate removal treatment in September 2021 with the PWS returning to compliance as of October 11, 2021.

## KEY ELEMENTS OF THE CAPACITY DEVELOPMENT PROGRAM

### Operator Training

Since 1998, Delaware has required PWS operators to be trained and licensed to operate and maintain a PWS in compliance with state and federal drinking water regulations. DPH began issuing PWS operator licenses in 2000. Delaware currently has 472 licensed water operators, including 43 limited license operators (an operator who works for a non-transient non-community water system)

DTCC conducts the Base Level Water Operator (exam preparation) training for water operators. This entry/base level course prepares students for the state certification exam. Students learn basic water system operator responsibilities, water sources and treatment, math, pumps, disinfection, lab procedures, treatment plant operations, and safety. During this reporting period, 110 candidates enrolled in this training program and 104 candidates successfully completed the course. For more information about operator training, visit: [Workforce Development and Community Education Continuing Education Catalog July - December 2023 \(dtcc.edu\)](#).

### ODW Email Blast

To improve ODW's communication with PWSs, the Capacity Development Program started an email newsletter in 2018, *The Blast*. *The Blast* informs PWSs about training opportunities, free webinars/education sessions, and important regulatory and compliance issues. Some training includes *EPA Guidance for Developing and Maintaining a Service Line Inventory*. Currently, the monthly *Blast* is distributed to certified water operators and administrative contacts. *The Blast* is also circulated internally to ODW staff. ODW has received positive feedback from water operators on this email publication. The Capacity Development team is expanding the target audience to include additional drinking water stakeholders. *The Blast* is also used to share important or urgent information regarding Delaware Public Health Laboratory closures or changes in receiving schedules.

### New System Authority

DHSS has the authority to prevent the construction of new PWSs that do not have the ability to ensure safe drinking water now and into the future. This provision assures that every new water system has technical, managerial, and financial capacity. No one was denied construction for this reporting period.

This authority falls under [16 Delaware Code § 122\(3\)\(c\)](#).

## DRINKING WATER STATE REVOLVING FUND

The [DWSRF](#) provides low interest loans to PWSs to replace aging infrastructure, add needed treatment, or to complete other improvement or expansion projects.

### Existing Programs

Several other programs within the ODW build the capacity of PWSs. The Capacity Development Program works closely with and complements these activities:

- **Sanitary Surveys:** A Sanitary Survey is an on-site review of a public water system's water source(s), treatment, distribution system, finish water storage, pumps, pump facilities and controls, monitoring, reporting and data verification, water system management and operation and operator compliance with state requirements. Sanitary surveys are designed to identify conditions that may present a sanitary or public health risk. They discover defects that could compromise the water quality and safety of its consumers and helps ensure compliance with all regulations. They also help to identify PWSs that require technical or managerial capacity development assistance.
- **Technical Assistance:** ODW staff investigate various water system components to determine the cause of problems and suggest solutions. ODW staff provide advice about operating and maintaining equipment.
- **Plan Review:** An environmental engineer reviews plans for new PWSs or proposed changes to existing systems. Plan review assures owners and users of PWSs that systems are technically sound and can efficiently and safely deliver water to consumers.
- **Monitoring:** Sampling and testing helps protect the water quality of PWSs by identifying potential contaminants. DPH performs most of the monitoring for small and medium-sized PWSs. Compliance data is available at the Delaware Drinking Water Watch website (<https://drinkingwater.dhss.delaware.gov/>) and is summarized annually in the Annual Compliance Report (ACR) produced by the Public Water System Supervision Program at ODW. The ACR is available at <https://www.dhss.delaware.gov/dhss/dph/hsp/annrepdw.html>.
- **Approved Sampler/Tester (AST):** This class was created to assist PWSs that need to conduct regular monitoring. It teaches an individual how to take daily chemical readings like chlorine or nitrate. By having certified individuals take daily readings, it is not required to have an operator on site every day. The class also certifies individuals to take bacteriological and chemical samples that are used for compliance and lets the owner of the water system have a better understanding of what is happening with their water system.

This class is divided into two types: AST Basic and AST Refresher. During this reporting period, ODW delivered the AST Basic class to 77 participants and the AST Refresher class to 25 participants. At the beginning of the reporting period, in-class training was curtailed due to the COVID-19 pandemic. However, ODW was able to accommodate two AST training sessions utilizing the prescribed precautionary measures under the COVID-19 pandemic guidelines. Delaware currently has 108 Approved Sampler/Testers.

- **Outreach and Education:** ODW's goal with outreach and education is to increase awareness and understanding of the programs and services available to the community through DHSS, DPH, and ODW. During this reporting period ODW participated in annual local events, such as, the Delaware State Fair in Harrington, the Delaware Rural Water Association's Expo in Milford, the National Guard Health Expo in New Castle, the Delaware Rural Water Association's Annual Technical Conference & Exhibition in Harrington, and the Communicable Disease Summit in Christiana.

# FACTORS THAT IMPAIR THE CAPACITY OF PUBLIC WATER SYSTEMS

## Drinking Water as Ancillary Business

Producing drinking water is not the principal business of many public drinking water providers. The owners and managers of such facilities, especially non-community water systems, may have little understanding of drinking water, regulations, and water system operations. Therefore, inadequate financial support to produce safe drinking water can be problematic for such businesses. One instance of this is the daycare situated in the Lighthouse Point Community Center, as highlighted in the “Success Stories” section. The Capacity Development Program helped the owner obtain a limited water operator license, which helped her avoid spending a significant amount of money to hire a water operator.

## Asset Management

Unlike most large municipalities, small municipalities and other community water systems rarely have asset management plans. Since increasing water rates is unpopular, planning and budgeting for PWS improvements is low priority. This results in many small municipal water systems not having the financial capacity to effectively maintain their PWS over the long term, and they end up following a “fix when broken” strategy.

Asset management specifies and prioritizes periodic infrastructure additions, improvements, cost estimates, and periodic equipment update timelines. When these elements are actively managed, it results in the protection of public health via the provision of safe drinking water.

## Financial Assistance Programs

Access to financial assistance programs is daunting for small communities (including small municipalities) and the administrative process/requirements can be intimidating to these systems. Delaware’s PWSs can apply for new loan opportunities through DWSRF. The requirements can be found in the DWSRF Eligibility Handbook at this link:

<https://efcnetwork.org/how-to-apply-for-delawares-drinking-water-state-revolving-fund/>

## Benefits to Interconnect Public Water Systems

To ensure that their customers receive uninterrupted water service during emergencies such as fire protection or mechanical failures, municipalities can connect to other PWSs. Delaware currently has 49 interconnected water systems. Some of these are for emergency use, such as fire protection; and some are permanent interconnected systems. Over the past three years, ODW had 10 new interconnections.

## FUTURE PROJECTS

The Capacity Development Program will identify PWSs needing assistance through the following control points:

1. Rank systems based on their compliance at least every three years. Ranking systems identifies those that require assistance and identifies compliance trends. This allow ODW to assist systems in need.
2. Track LCR, LCRR (Lead Copper Rule Revisions) LCR Inventories, Lead Service Line Inventories and Replacement compliance; and continue to individually assist systems that either fail to monitor for lead and copper or exceed the lead action level.
3. Work actively with significant non-compliant PWSs, those with multiple violations within a three-year period, and with those systems that have an ETT score of 11 or greater.
4. Review the compliance history of PWSs that submit engineering plans to alter or expand their existing systems. PWSs not in compliance are counseled about necessary steps needed to achieve compliance before an approval to construct is issued.
5. Develop a technical cybersecurity assessment tool to educate PWSs personnel on cybersecurity. Help PWSs identify cybersecurity vulnerabilities and gaps and provide a recommended course of action to mitigate them.
6. Assist PWSs with managerial and financial issues related to operating a water system. ODW staff and DRWA specialists are critical to helping water systems understand the current regulations and how to properly operate and maintain their public water system.
7. Work with PWSs to identify and sample for emerging contaminants such as PFAS (Per- and Polyfluoroalkyl) substances, a group of thousands of substances known as “forever chemicals.” Because of their low biodegradability, PFAS can circulate through drinking and wastewater systems, causing mass contamination and potential PWS remediation.
8. Actively educate PWSs owners/administrators, operators, and municipal leaders on the importance of creating, implementing, and maintaining an effective asset management plan. The ODW Trainer/ Educator will provide asset management training to all PWS owners, operators, and board members. Additionally, as part of the capacity development review of DWSRF loan applications, asset management will be encouraged for all loan applicants.



## CONCLUSION

To ensure the delivery of safe drinking water in Delaware, the Capacity Development Program continues to assist public water systems with improving their technical, managerial, and financial capacity by providing education and enforcing drinking water regulations. The DWSRF loan program has proved successful to public water systems during the last three years and will continue for as long as State and federal funding sources are available.

The Capacity Development program works in partnership with ODW's Public Water System Supervision Program, DPH's Office of Engineering, DNREC, and other entities to form a network of support.

The Program assists PWSs in achieving compliance by educating water system purveyors about the importance of providing safe drinking water and advising them about equipment, trainings, and processes needed to remain in compliance.

DPH attributes most of the Capacity Development Program's success to the cooperative nature of its staff, the willingness of water operators to improve operations, and to partnerships with DTCC, SERCAP, DRWA, and DNREC.

Over the past three years, progress to improve public water system capacity and increased public health protection resulted in public water systems providing safe drinking water. Safe, affordable, and reliable drinking water is essential to the well-being and the financial success of communities across Delaware. Water system owners, operators, and public health decision makers work in partnership to help keep safe drinking water flowing to homes and businesses, extending lives and protecting communities.