

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

**September 2017**



*DELAWARE HEALTH AND SOCIAL SERVICES*

**Division of Public Health**

**Office of Drinking Water**

---

## **Acknowledgements**

This report is made possible with funding from the U.S. Environmental Protection Agency through the Drinking Water State Revolving Fund and the Public Water System Supervision grants.

This report was prepared by the Delaware Department of Health and Social Services, Division of Public Health, Office of Drinking Water.

For more information, please contact:

Office of Drinking Water  
Division of Public Health  
43 South DuPont Highway  
Dover, DE 19901  
302-741-8630

<http://www.dhss.delaware.gov/dhss/dph/hsp/odw.html>

## Table of Contents

Executive Summary .....	4
The Program .....	5
Typical Capacity Building Activities .....	8
Group Training Sessions.....	9
Office of Drinking Water Capacity Building Tools.....	10
Factors that Impair the Capability of Public Water Systems.....	12
Future Projects.....	13
Conclusion .....	14

## **Executive Summary**

The 2017 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 public water systems in acquiring and maintaining technical, managerial, and financial capacity. If a strategy is not in place, 20 percent of the federal Drinking Water State Revolving Fund (DWSRF) grant will be withheld from the state's allotment.

Since Delaware began implementing the 1996 Amendments to the SDWA, Delaware's Capacity Development Program has consistently improved and evolved into the program it is today. Due to population growth and an increase in the number of residential communities in Delaware, new systems are continually being reviewed and added to the list of public water systems that are provided with regulatory oversight. Technical, managerial and financial capacities of public water systems are regularly evaluated and monitored. Currently, the Office of Drinking Water monitors 487 public water systems.

Since 2002, the Delaware Department of Health and Social Services (DHSS), Division of Public Health (DPH) prepared five reports for the Governor's Office prior to this report. The 2017 Capacity Development Program report is the first presented to Governor John Carney. The SDWA requires that a report be made to the Governor on the efficacy of the strategy and the progress made toward improving the technical, managerial, and financial capacity of public water systems in the state no later than two years after the date on which a state adopts a Capacity Development Strategy and every three years thereafter.

The reports are available to the public through the DPH, Office of Drinking Water (ODW) website: <http://www.dhss.delaware.gov/dhss/dph/hsp/annrepdw.html>.

## **The Program**

The Capacity Development Program primarily utilizes a non-regulatory proactive strategy. In developing the strategy, methods first were considered to identify and prioritize water systems in need of improving technical, managerial, or financial capacity. ODW established a baseline in 2000 to measure improvements in capacity. To establish a baseline, ODW reviewed the technical, managerial, and financial capacity of Delaware's 487 public water systems 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) is a calculative method used to determine a public water system's enforcement priority points. 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 will work with these systems to determine if they can be returned to compliance without formal state action.
- **Level 2: Systems with Health Related Compliance Problems**  
Level 2 consists of systems currently in compliance with health-related regulations but which 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 are typically lacking a certified water operator or the system failed to submit a consumer confidence report. Other issues include sanitary defects identified during inspections, a large number of 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 water systems have no known compliance issues or other problems. They are well run and address problems before they become a potential violation.

ODW offers assistance to water systems that have difficulty maintaining compliance. ODW also contracts with the Delaware Technical Community College's (DTCC) Environmental Training Center and with the Delaware Rural Water Association (DRWA) to provide assistance and training. In addition, ODW refers some water systems to other sections within DHSS, the Department of Natural Resources and Environmental Control (DNREC), and the Public Service Commission. This is to ensure that the system receives assistance tailored to the individual needs of each water

system. Through feedback from systems and national trends, ODW determined areas in which systems commonly need assistance.

The following table contains the types of assistance ODW and its contractors can provide to water systems.

<b>AREAS OF POTENTIAL ASSISTANCE</b>
1. Develop emergency plans including water system security.
2. Provide information about Delaware Drinking Water Regulations.
3. Provide in-depth water system evaluations with recommendations.
4. Assist in creating operation and maintenance manuals.
5. Provide Water Treatment Technique evaluations.
6. Explain how to comply with the requirements of the Lead and Copper Rule.
7. Evaluate operational policies, job descriptions, and organizational charts.
8. Calculate and control water loss.
9. Encourage customers to practice water conservation.
10. Asset management.
11. Utility rates setting and cost recovery.
12. Instruct how to develop a long term Capital Improvement Plan.
13. Assist in completing a Drinking Water State Revolving Fund loan application.
14. Develop a Source Water Assessment or Wellhead Protection Plan.
15. Assist operators in obtaining or maintaining a Drinking Water Operators License.
16. Assist with compliance of operator certification requirements.
17. Promote and encourage consensus between Operators, Elected Officials, and Customers of municipal water systems.

One third of all the public water systems are ranked annually to gauge the state of public water systems in Delaware. The ranking provides the Capacity Development Program with a good general indicator of each individual system's assistance needs. This ranking is also used as an evaluation tool to assess the effectiveness of the Capacity Development Program and to identify areas the program should focus on in terms of compliance trends and assistance.

Since 1998, all water systems have had the opportunity to participate in the Capacity Development Program. Most accept ODW's offers for assistance and show improvement in compliance and consequently, in protecting public health. The number of sanitary survey defects were considerably reduced and many more systems developed written emergency and maintenance plans. Much of this is due to contractors DTCC and DRWA offering regular trainings for water operators, which

greatly enhances their knowledge. Another factor encouraging participation in training is that DPH requires licensed drinking water operators to take 20 hours of continuing education every two years.

Short term revisions in the Lead and Copper Rule (LCR) regulations were published in 2007, where the rule was revised to enhance implementation in the areas of monitoring, treatment, customer awareness, and lead service line replacement. This combined with the upcoming long-term revisions to the rule, has caused some compliance difficulties and potential confusion for many water systems. While lead in Delaware water is not a major health issue, both due to a lack of naturally occurring lead in the soil and the processes that treatment providers follow, ODW must continue to ensure there is not a decline in compliance regarding this rule. That, in turn, led to an overall decline in compliance regarding this rule. Although many of these systems appeared to possess sufficient technical capacities and have no history of noncompliance, many struggle to comply with regulatory changes due to the complexity of the rule. To address the problem with LCR compliance, ODW staff has diligently provided assistance and sent reminder letters. From 2015 to 2017, ODW provided technical assistance to over 300 water systems regarding this rule, assigned accelerated reduced monitoring schedules, and sent more than 450 reminder letters.

## **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, the Public Water System Supervision Program.

### **Technical Assistance**

In conjunction with DRWA, the Capacity Development Program provides technical assistance to municipal and other community water systems that have ongoing compliance related issues. Through funding provided by the Drinking Water State Revolving Fund (DWSRF), DRWA assists systems by offering the services of an interim water operator (i.e., a "circuit rider") for systems that need a temporary water operator due to unexpected circumstances. DRWA conducts approximately 215 technical assistance site visits per year. This service continues to be provided via funding from the DWSRF program.

### **Security Projects**

Since the events of September 11, 2001, public water system security is an issue at the forefront of the drinking water industry. ODW has addressed water system security through several initiatives.

DPH encourages public water systems to have a governance structure to protect them from cyber-attacks. DPH contracted a private consultant via the DWSRF program to provide cybersecurity technical assistance to public water systems. The objectives are to raise awareness of cybersecurity issues related to public water systems, and to provide water systems with an understanding of risk management and controls that need to be in place to effectively manage risk. Currently, the consultant has conducted 11 town manager workshops.

### **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 public water systems replace aging infrastructure, add needed treatment, or complete improvement projects. All DWSRF applicants must have a Capacity Development Assessment. Water systems 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, operators are assisted by Capacity Development staff, DRWA, or DTCC.

All municipalities applying for DWSRF are required to attend financial and managerial training provided by DTCC on asset management, capital improvement planning, or rate setting. Between 2015 and 2017, 12 loans were closed under the DWSRF program, with a total loan amount of \$18,420,846.

## **Group Training Sessions**

In addition to assisting individual water systems, the Capacity Development Program contractors held several group training sessions for system operators, supervisors, and elected and appointed officials.

### **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 all of 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, provide training and testing to these facilities. Over the last three years, this training was available to all operators of daycares, schools, and senior centers, and 20 operators were trained. Without this specialized training, many of these water systems would have either been out of compliance or would have been financially burdened if they had to hire a water operator.

## Office of Drinking Water Capacity Building Tools

### Operator Training

Since 1998, Delaware has required public water system operators to be trained and licensed about the operation and maintenance of a public water system and state and federal drinking water regulations. DPH began issuing those licenses in 2000. Currently, Delaware has 416 licensed water operators, including 11 limited license operators.

### Newsletter

The Office of Drinking Water's biannual newsletter "Tap Talk" covers new and existing regulations, training opportunities, and other developments in the water industry. The newsletter, sent to all public water systems in the state, is another way ODW communicates with small systems that previously had limited means to obtain current information. The newsletter also includes information for water operators to help them with their job of keeping Delaware's public water systems maintained.

### New System Authority

DHSS has the authority to prevent the construction of new public water systems 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. This authority falls under [16 Delaware Code § 122\(3\)\(c\)](#).

### Drinking Water State Revolving Fund

[DWSRF](#) provides low interest loans to public water systems 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 water systems. The Capacity Development Program works closely with and complements these activities:

1. **Sanitary Surveys:** Sanitary surveys are performed on all public water supplies. The survey evaluates the water system's source, treatment, and storage facilities. Sanitary surveys discover defects that could compromise the water quality and safety of its consumers, as well as help ensure compliance with all regulations.
2. **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.
3. **Plan Review:** An environmental engineer reviews plans for new water systems or proposed changes to existing systems. Plan review assures owners and users of public drinking water systems that systems are technically sound and can efficiently and safely deliver water to consumers.

4. **Monitoring:** Sampling and testing helps protect the water quality of public water systems by identifying potential contaminants. DPH does most of the monitoring for small and medium-sized public water systems.
5. **Approved Sampler/Tester (AST):** This class was created to assist water systems that need to conduct regular monitoring. It teaches an individual how to take daily chemical readings like chlorine or nitrate. By having someone certified to take daily readings, it is not required to have an operator on site every day. The class also certifies people 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. Between 2015 and 2017, ODW delivered the AST Basic class to 181 participants and the AST refresher class to 91 participants. Delaware currently has 340 Approved Samplers/Testers.
6. **Outreach and Education:** ODW has participated in annual local events, including the Delaware State Fair in Harrington, the Rural Water Expo in Milford, the Earth Day Festival in Wilmington, and the National Guard Health Expo in New Castle. In addition, between 2015 and 2017, ODW staff provided 12 on-site training sessions at various Delaware sites. Within that period, the ODW Trainer/Educator taught approximately 3,100 elementary school students about safe drinking water.

## **Factors that Impair the Capability of Public Water Systems**

### **Drinking Water as Ancillary Business**

Producing drinking water is not the principal business of many water suppliers. 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, they might provide inadequate financial support to produce safe drinking water.

### **Asset Management**

Officials of small municipalities are often subject to the political pressure of being re-elected, so they do not raise water rates. This results in many small municipal water systems not having the financial capacity to maintain their system.

### **Drinking Water State Revolving Fund (DWSRF)**

While this is an effective program for large projects, small water systems may be overwhelmed by the administrative process, state wage rates, federal cross-cutting requirements, and closing costs.

### **Political Rivalry**

Political rivalry between municipalities and between municipalities and private utilities may thwart interconnection or consolidation of any part of the operation. Resistance to changing existing drinking water infrastructure also prevents the study or implementation of new ideas. Interconnections could minimize equipment duplication, create an economy of scale, and share personnel. Interconnected municipalities would reduce revenue expenditures by reducing the costs of providing safe drinking water. Moreover, municipalities would assure their customers of greater continuity of water service during emergencies or mechanical failures.

## **Future Projects**

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

1. The Capacity Development Program will continue to rank systems based on their compliance at least every three years. ODW will continue to rank systems to identify those that require assistance, and to identify compliance trends throughout the state.
2. Capacity Development will continue to follow LCR compliance and will provide individual assistance to systems that either fail to monitor for lead and copper or exceed the action level.
3. The program will continue to work vigorously with significant non-compliers, those with multiple violations within a three-year period, and with those systems that have an ETT score of 11 or greater.
4. ODW will continue to review the compliance history of water systems submitting engineering plans to alter or expand their existing systems. Systems not in compliance are counseled about necessary steps they need to take to achieve compliance before an approval to construct is issued.
5. ODW will continue to emphasize managerial and financial issues related to operating a water system. As water operators receive additional training, their expertise will reach a new level. However, even the most knowledgeable water operator can only achieve limited success unless municipal officials or owners/managers understand the importance of a water system's financial and managerial needs and their importance in the long-term provision of safe drinking water.

## **Conclusion**

Capacity development addresses public water systems' technical, managerial, and financial capabilities to comply with the National Primary Drinking Water Regulations currently and in the future.

The program works in partnership with ODW's Public Water System Supervision Program, DPH's Office of Engineering, DNREC, and other non-State of Delaware entities to form a network of support. The Capacity Development Program examines underlying issues that cause water systems to become non-compliant, thus compromising the quality of the public drinking water they provide and, therefore, public health.

The program assists water systems achieve compliance by educating water system operators about the importance of providing safe drinking water and advising them about equipment, trainings, and processes needed to avoid non-compliance.

DPH attributes most of the Capacity Development Program's success to the cooperative nature of its staff, the willingness of most water operators to improve operations, and to partnerships with Delaware Technical Community College, the Southeast Rural Community Assistance Project, the Delaware Rural Water Association, and DNREC.

This document was prepared by:  
The Division of Public Health  
Office of Drinking Water  
43 South DuPont Highway  
Dover, DE 19901  
302-741-8630

<http://www.dhss.delaware.gov/dhss/dph/hsp/odw.html>