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# **Federal Safe Drinking Water Act Capacity Development Strategy State Fiscal Years 2018–2020 Report to the Governor**

**Oregon Health Authority  
Public Health Division  
Center for Health Protection  
Drinking Water Services**



**September 30, 2020**

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## **Executive Summary**

This report is presented by the Oregon Health Authority, Center for Health Protection, Drinking Water Services in fulfillment of the requirements of the Safe Drinking Water Act. The report is published triennially and is intended to provide an overview of program activities in support of building technical, managerial and financial capacity among drinking water systems in Oregon.

Water system capacity development is integrated into day to day operations of the Drinking Water Program. Since its inception, Oregon Drinking Water Services (DWS) has successfully made progress in further developing and implementing capacity development initiatives. The following points summarize progress made during the reporting period July 1, 2017, through June 30, 2020:

- **Drinking Water State Revolving Fund (DWSRF) Capacity Assessments:** DWS conducted 34 capacity assessments for water systems applying for DWSRF monies during the reporting period.
- **Capacity Assessments for New Water Systems:** DWS added 25 new federally regulated public water systems to Oregon's public water system inventory during the reporting period. Capacity assessments for new water systems were conducted during the initial plan review and approval process.
- **Water System Operators Training Courses:** DWS contracts with Oregon Association of Water Utilities (OAWU) to provide the *Basics for Small Water Systems* training course. This is a free one-day classroom training. The course is offered 20 times per year at numerous locations throughout the state. More than 500 people are trained each year. In addition, DWS staff conduct training classes each year specifically designed for surface water treatment plant operators. DWS conducted eight of these classes and trained 119 people during the reporting period.
- **Technical Services Providers:** DWS contracts with a circuit rider that provides technical assistance to groundwater and surface water systems. The circuit rider troubleshoots and resolves short-term operational problems and made 335 contacts during the reporting period.
- **Area-Wide Optimization Program (AWOP):** DWS is an active participant in EPA's AWOP. The objective is to educate surface water treatment plant operators in optimization principles with the goal of improving public health protection. DWS staff progressed toward meeting the AWOP objective by

providing training and direct technical assistance to treatment operators and by presenting on optimization concepts at conferences.

- **Surface Water Treatment Plant Inspections:** DWS conducted 137 surface water treatment plant visits during the reporting period.
- **Drinking Water Source Protection Implementation:** Both the Oregon Department of Environmental Quality (DEQ) and DWS continue to provide timely technical assistance to Community water systems that will ultimately result in voluntary implementation of source water protection strategies in response to local source water characteristics and vulnerabilities. This capacity development effort uses source water assessment information to communicate source vulnerability risks to water system operators and decision makers with the goal of increasing overall capacity. This effort primarily assists water systems with managing risks and technical resources as they plan to obtain funds for developing or maintaining protection of their drinking water source(s).

## **I. Introduction**

Water system capacity is the overall ability to plan for, achieve and maintain compliance with applicable drinking water standards. Based upon the research and technical assistance efforts of water works professionals, capacity is known to have three components: technical, managerial, and financial (TMF). Adequate capability in all three areas is necessary for a successful public water system.

The Safe Drinking Water Act Amendments of 1996 include requirements for states to establish authority to ensure that new systems are viable, develop a strategy to address the capacity of existing systems, and ensure that potential DWSRF recipients have sufficient TMF capacity prior to receiving loan funds (or that the loan funds will allow them to achieve the capacity they require). The Oregon Drinking Water Advisory Committee developed the Water System Capacity Development Strategy for Oregon in conjunction with the federal Safe Drinking Water Act Amendments of 1996.

The driving concept for the Capacity Development Program is that water systems with fully developed capacity will incur fewer violations of the drinking water standards and be better able to cope with future regulations and provide safe drinking water.

## **II. Capacity Development Program Funding**

Oregon's Capacity Development Program is funded by the Local Assistance and Other State Programs Set-Aside of the annual Drinking Water State Revolving Loan Fund (DWSRF) capacity grant. This capacity grant is provided to states to provide loans to public water systems to assist them with maintaining compliance with the Safe Drinking Water Act (SDWA). Further, The SDWA authorizes states to use a maximum of 31% of its annual allotment for Set-Aside activities. Set-Aside activities are available to administer the Loan Fund and to assist water systems in meeting the requirements of the SDWA. The Capacity Development Program is one of three categories within the Local Assistance and Other State Programs Set-Aside of the DWSRF. The maximum percentage of the Local Assistance and Other State Programs Set-Aside is 15% of the annual federal capacity grant allotment. Below are the approximate funding percentages and functions of the three categories that compose the 15%:

1. Implementation of Protection: 10%
  - Interagency agreement with Oregon DEQ
  - Technical assistance for drinking water source protection
  - GIS
  - Training and support
2. Capacity Development: 4%
  - Capacity assessments and TMF skill-building assistance for water systems and their operators
3. Drinking Water Source Protection: 1%
  - Funds in the form of grants for systems with source protection issues needing assistance to mitigate the problem(s)

Also important is the Small System Technical Assistance Set-Aside. The maximum percentage of the Small System Technical Assistance Set-Aside is 2% of the total federal capacity grant allotment annually. This set-aside is used specifically for the circuit rider contract and the small system training course provider contract.

Please note that the above stated percentages vary annually based on programmatic needs.

## **III. Overview of Capacity Development Strategy**

Oregon's Capacity Development Strategy focuses on four areas: (1) Capacity Assessment, (2) Information and Communication Services, (3) Training, and (4)

Outreach. One of the major keys to success has been the integration of capacity-building elements into current DWS activities.

### **Capacity Assessment**

The capacity assessment is an evaluation of the water system for TMF capability. DWS staff work with water systems to identify deficiencies and provide direct technical assistance to help water systems resolve identified issues.

### **Information and Communication Services**

DWS continually strives to better communicate with water system operators and managers and provide the essential information water systems need to maintain compliance. This is achieved primarily through The Pipeline newsletter and the maintenance of a robust website where information on all aspects of water system operation can be found and accessed by systems and the public.

### **Training**

Training opportunities are available on all levels for water system operators. DWS contracts with a local training provider to offer free training courses on a monthly basis across the state. These classes are specifically targeted at small groundwater system operators. In addition, DWS staff conduct training classes each year specifically designed for surface water treatment plant operators. Staff also conduct special training sessions as needed and regularly speak at industry sponsored (American Water Works Association, OAWU, etc.) forums. All training is targeted, convenient and cost-effective.

### **Outreach**

Outreach to public water systems occurs via many different activities. Water system surveys, water treatment plant visits, capacity assessments, industry conferences and topic-specific workshops all provide venues for dissemination of information regarding many aspects of capacity. Integration of capacity-building outreach into day-to-day DWS activities is key to the successful resolution of identified capacity-related deficiencies. Field staff are familiar with available technical-assistance resources and provide direct assistance to water systems during sanitary survey activities, water treatment plant visits, water quality investigations and associated technical consultation and outreach. Staff use a wide variety of tools and resources to help systems address identified capacity deficiencies, including direct technical assistance in person or over the phone; providing handouts, factsheets and training guides; referral to resources on the DWS website; and referral to funding partners and outside technical assistance and training providers. Water systems in violation or with water quality test results indicating a potential public health concern are contacted directly by staff and technical assistance is provided. Water systems needing help to build capacity for

emergency response are provided resources and technical assistance to better prepare for continued operation. Additionally, the program contracts with a technical service contractor (circuit rider) who provides technical and some managerial assistance to systems serving fewer than 10,000 people.

#### **IV. Efficacy and Progress**

Oregon has been successful in continuing to implement its Capacity Development Strategy. One of the major keys to success has been the integration of capacity-building elements into our current program activities. Optimization of resources and personnel is essential to long-term capacity development. The sections below delineate some of the progress Oregon has made.

##### **Capacity Assessment**

###### **Capacity Assessments for DWSRF Applicants**

All DWSRF applicants receive a comprehensive capacity assessment prior to release of any funds. DWS staff perform technical and managerial assessments of system capacity, with a concurrent financial capacity assessment performed by Business Oregon. During this process, DWS and Business Oregon cooperatively identify capacity deficiencies and work with water systems to develop necessary capacity. DWS completed 34 capacity assessments for water systems applying for DWSRF funding during the reporting period.

###### **Capacity Assessments for New Water Systems During Plan Review**

Assessments of new public water systems are conducted during the initial plan review and approval process. DWS added 25 new federally regulated public water systems to Oregon's public water system inventory during the reporting period. All public water systems must comply with applicable requirements prior to serving drinking water to the public. Areas of evaluation are plan review, construction, master plan/feasibility study, operator certification, managerial processes, ownership, water management and conservation, rate structure, financial planning, and water system survey deficiencies. All deficiencies are documented and corrective action is required. Requirements vary based on public water system type.

##### **Information and Communication Services**

DWS continually strives to better communicate with water system operators and managers and provide the essential information water systems need to maintain compliance. DWS continues to accomplish this in the following ways:

## **DWS Website**

DWS utilizes its website to provide water-system-specific information, including public access to the state Safe Drinking Water Information System database. In addition to information on compliance-related monitoring and reporting, the DWS website provides many educational and resource materials, including technical-assistance handouts, health-effects factsheets, training guides and contacts for outside technical-assistance providers.

The DWS website also includes a capacity-development-specific webpage that provides capacity-related resources for water system managers and operators. The Financial Capacity webpage includes links to two series of financial capacity handouts: budgeting and planning. The webpage also includes comprehensive resources in the areas of budgeting, rate setting, capital improvement planning and asset management.

To support continuing education for water system personnel, the DWS website includes a Training Opportunities webpage. This webpage provides a one-stop-shopping site for water system operators and managers where they can view free upcoming training classes and webinars. Links to other training providers are also posted on this webpage.

## **DWS Newsletter — The Pipeline**

DWS continues to issue The Pipeline newsletter two or three times per year, which provides information regarding upcoming rules and deadlines, as well as operations and maintenance issues. DWS also conducts special mailings to inform drinking water systems about new rules and upcoming regulatory deadlines.

## **Training**

As mentioned previously, training opportunities are available on all levels for water system operators. A contract is in place with OAWU to provide a training course called *Basics for Small Water Systems*. The course is offered approximately 20 times per year. In addition, DWS staff conduct three types of surface water treatment training classes each year specifically designed for plant operators. DWS conducted eight of these classes during the reporting period.

Program staff also routinely make presentations at industry-sponsored conferences and trainings to address issues of interest and concern to operators. Three days of training are provided annually to county health department staff who contract with DWS to work with public water suppliers.



## **Outreach**

### **The Drinking Water State Revolving Fund**

Oregon continues to have great success with the DWSRF and associated outreach activities. The DWSRF provides a funding mechanism for water systems that might not otherwise be able to afford needed modifications, upgrades and replacements of existing drinking water system infrastructure. DWS actively networks with other funding agencies to identify and facilitate access to funding options for water suppliers. The DWSRF Coordinator presented five times during the reporting period at various group meetings, workshops and conferences, including Oregon's Drinking Water Advisory Committee meetings and the OAWU conference.

### **Technical Service Providers**

To further enhance DWS's ability to assist water systems with identified problems and to develop capacity, a technical assistance set-aside is used to contract with a local engineering firm to serve as a technical service provider (circuit rider). The circuit rider assists small groundwater and surface water systems serving fewer than 10,000 people. This technical assistance is provided outside of the regulatory program and helps facilitate water systems' voluntary compliance with the Safe Drinking Water Act. The majority of the assistance is one-on-one, in the field, with individual water system operators.

The objective of the technical assistance strategy is to expand services available to small water systems for identifying and solving specific and immediate water system operational and/or management problems through timely expert help. The scope of the circuit rider's work is limited to short-term operational problems. The circuit rider made 335 contacts during the reporting period.

### **Area-Wide Optimization Program**

The objective of Oregon's AWOP is to educate water system operators in optimization principles with the goal of improving public health protection. This is accomplished by imparting an understanding of not only the basics of water treatment and the multiple barrier concepts, but also providing the opportunity and incentive to learn and engage in optimizing treatment beyond regulatory standards and using data to monitor performance and identify areas for improvement. During the reporting period, DWS staff progressed toward meeting the AWOP objective by providing training and direct technical assistance to treatment operators and by presenting on optimization concepts at conferences.

In addition to the above work, DWS staff have been instrumental in developing internal staff guidelines and plan review processes that promote optimization goals

for membrane filtration. Work was also undertaken to assist EPA in getting optimization goals for slow sand filters formally adopted at a national level

### **Surface Water Treatment Plant Inspections**

Surface water treatment plant facilities and operations are evaluated during water treatment plant visits. A consistent rating system is used and a future evaluation frequency of six months, one year or three years is established. Each surface water system is prioritized for receiving targeted performance improvement assistance to better address capacity issues. DWS conducted 137 surface water treatment plant visits during the reporting period.

### **Source Water Protection Implementation Project**

Funded under a separate set-aside of the DWSRF, source water protection efforts target all Oregon water systems. DWS shares implementation responsibilities with the Oregon DEQ. DWS staff have lead responsibility for completing source water assessments of all new water systems and, when needed, updating assessments of older Community and Non-Transient Non-Community groundwater systems.

The capacity assessment effort uses the source water assessment information to communicate source vulnerability risks to water system operators and decision-makers in hopes of increasing overall capacity. This effort primarily assists water systems with managing these risks and their technical resources while planning for funds to develop or maintain protection of their drinking water source(s).

Activities for this reporting period include Cryptosporidium/micro particle analysis (MPA) monitoring. Surface water systems exceeding the E. coli triggers are referred to the circuit rider for assistance in determining the bin class under The Long Term 2 Enhanced Surface Water Treatment Rule ("LT2"). A part of this determination is Cryptosporidium sampling. Similarly, groundwater systems identified as being at risk for Ground Water Under Direct Influence (GWUDI) are targeted for MPA sampling. A referral to the circuit rider for assistance in determining GWUDI can be made by state staff.

## **V. Commonly Identified Problems and Solutions**

Capacity assessments and related site visits have served as valuable tools for identifying capacity-related deficiencies. Some of the more common deficiencies and attempted solutions are presented below.

## **Technical Capacity**

Water system violations generated on a monthly basis by DWS continue to point to water quality monitoring and operations as a statewide capacity issue. Systems in violation are contacted by DWS staff, and technical assistance is provided in an effort to resolve identified compliance issues.

Technical deficiencies commonly identified during surface water treatment plant inspections include inadequate tracer studies, incorrect calculation of disinfectant contact time (CT) values, incorrect calibration of turbidimeters, incorrect sample locations for turbidity and CT parameters, and lack of documentation of compliance with the National Sanitation Foundation certification (NSF-60) for drinking water treatment chemicals. Again, DWS staff provide on-site technical assistance and, in many cases, refer these systems to the technical assistance circuit riders for further aid.

## **Managerial Capacity**

Common managerial deficiencies include lack of required water system documentation. Examples of this documentation include coliform sampling plans, system operations and maintenance manuals, and emergency response plans. To aid in correcting these deficiencies, DWS staff provide on-site technical assistance, distribute fact sheets describing the correct methodology for completing these required documents, and direct water system personnel to the DWS website for additional resources.

## **Financial Capacity**

Common financial deficiencies have included inadequate budgeting and accounting practices and inadequate cash reserves for emergencies.

## **VI. Future Challenges and Plans**

DWS continues to seek ways to improve the capacity of Oregon's public water systems. Water systems continue to struggle with day-to-day problems such as operator turnover, aging infrastructures and inadequate finances. Additionally, many systems face regulatory-driven challenges such as compliance with new standards established by the EPA. DWS continually strives to tailor its capacity effort to ensure that water systems are provided with the tools and resources necessary to meet these challenges. Because of COVID-19 pandemic restrictions, on-site classes and presentations have been postponed.