



IMPLEMENTING AWOPs THROUGH THE CAPACITY DEVELOPMENT AND DWSRF PROGRAMS

The Capacity Development and Drinking Water State Revolving Fund (DWSRF) programs, created by the 1996 Safe Drinking Water Act (SDWA) Amendments, empower states to help water systems improve their abilities to comply with the SDWA and protect public health. State DWSRFs provide low-interest loans and other loan subsidies to eligible water systems for infrastructure improvements. State DWSRFs may also set aside resources to encourage enhanced water system management and performance. This fact sheet highlights how the Capacity Development and DWSRF programs give states the authority, tools, and resources needed to implement Area-Wide Optimization Programs (AWOPs).

WHAT IS AN AWOP?

An AWOP is a strategy for targeting groups of higher risk systems for state assistance to maximize the public health protection that water treatment plants provide. State drinking water programs work with hundreds of water treatment plants that protect the public from a broad range of health risks from waterborne contaminants. Although states have a variety of tools to aid systems, from sanitary surveys to direct technical assistance, their resources are limited. Consequently, states need to prioritize their efforts according to the gravity of the potential public health risks posed by poorly performing water treatment plants. The challenge states face is to match their oversight of, and assistance to, water systems with the estimated risks posed to public health.

Because state drinking water programs have direct contact with treatment plants, state programs play the major role in implementing AWOPs. State staff develop criteria to prioritize systems and evaluate system performance. Then, they use the most appropriate tools and assistance to optimize system performance and address public health risks. However, several other parties can support the implementation of state AWOPs. For instance, Environmental Protection Agency (EPA) Headquarters and Regional staff can facilitate meetings between key parties, arrange training, help integrate new technologies and technical components, and phase in new regulations. Non-governmental organizations may be hired to provide training and other forms of technical assistance.

WHAT ARE THE BENEFITS OF AN AWOP?

The primary benefit of an AWOP is improved performance of drinking water treatment plants, which increases protection against waterborne disease. Other benefits from AWOPs include:

- Systems receive the tools needed to comply with drinking water rules such as the Long Term 1 Enhanced Surface Water Treatment Rule, the Stage 1 Disinfection Byproducts Rule, and the Ground Water Rule (under development).
- Systems better understand their roles in treatment optimization and public health protection.
- A system operator's ability to apply new technical concepts is enhanced, resulting in sustained improvements in plant operation.
- New communication and networking opportunities for state and water system staff are created, which carries benefits over into other programs (such as operator certification, construction standards, and plan review).
- The useful life of existing infrastructure is prolonged by optimizing performance, reducing the need to invest scarce resources in new facilities to achieve compliance.
- States effectively and efficiently use limited resources.

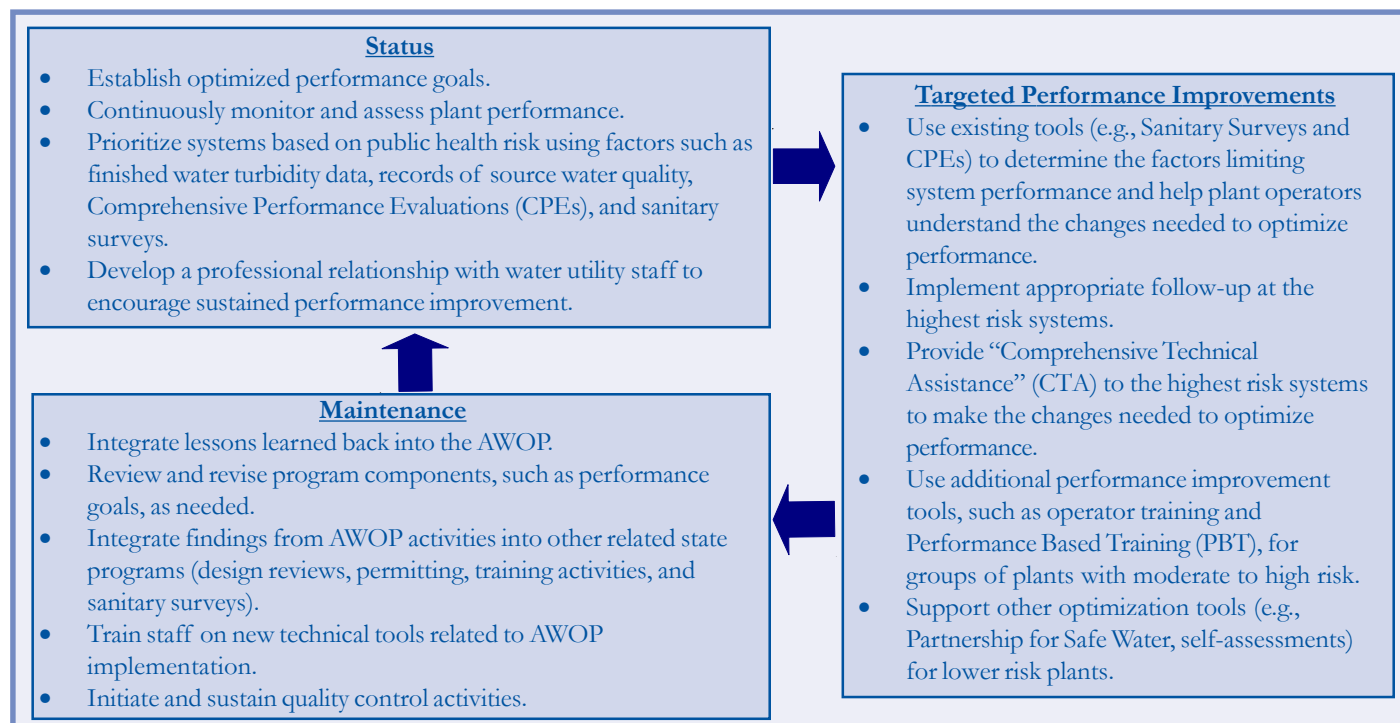
One of the most cost-effective ways a state can improve an existing plant's ability to protect public health is to optimize the performance of treatment technologies already in place.

WHAT ARE THE COMPONENTS OF AN AWOP?

An AWOP has three components: Status, Targeted Performance Improvements, and Maintenance. In general, Status activities center around establishing the performance goals that the state will pursue and measuring the performance of plants against these goals. The focus of Targeted Performance Improvements is to decide which of the various assistance tools is appropriate for each treatment plant. More advanced tools may be needed for plants that pose higher risks to public health. For example, Performance Based Training (PBT), where groups of plant operators are taken through a series of facilitated training sessions that address key skills to meet AWOP performance goals, may be needed. Maintenance activities include using lessons learned from AWOP efforts to improve the AWOP.

The three components of an AWOP create a coordinated, dynamic process that can be applied to a wide range of treatment plant performance problems and drinking water requirements. Figure 1 illustrates the specific activities that constitute each component.

FIGURE 1: COMPONENTS OF AN AWOP



HOW IS AN AWOP IMPLEMENTED?

In implementing an AWOP, a state’s first step is to develop an objective way to evaluate the public health risks posed by water treatment plants. The state then identifies treatment plants that may be underperforming and determines the factors causing their poor performance. Based on these risks and challenges, the state can provide the water systems with resources, such as performance-based assessments, training, and assistance, to maximize public health protection. The state reviews its efforts and integrates the lessons learned back into the AWOP and other state programs.

WHAT IS THE LINK BETWEEN AWOPs AND CAPACITY DEVELOPMENT?

State Capacity Development programs offer an excellent opportunity for implementing AWOPs. Because assistance resources are often scarce, some Capacity Development programs focus primarily on significant noncompliers and small systems. States can complement these important efforts by implementing an AWOP to maximize the public health benefits of existing water treatment facilities. Most states can quickly expand or adapt their Capacity Development

efforts to implement AWOPs, which would improve the technical and managerial capacity of more complex water systems (i.e., those with sophisticated treatment) without significantly depleting the resources available to help smaller systems.

Under the SDWA, a state must develop and implement a strategy to improve the technical, managerial, and financial capacity of existing public water systems. This strategy should include five elements. These elements, and how an AWOP can fulfill each one, are detailed in Figure 2.

FIGURE 2: CAPACITY DEVELOPMENT PROGRAM ELEMENTS

SDWA Cite	Element	AWOP
§1420(c)(2)(A)	Prioritize systems most in need of improving capacity	States can prioritize systems based on threats to public health using historical source water quality, performance data, and other factors.
§1420(c)(2)(B)	Identify the factors that encourage or impair the capacity of water systems	Systems and states can work together to identify factors limiting performance.
§1420(c)(2)(C)	Use the authority and resources of the SDWA to enhance technical, managerial, and financial capacity	States can use DWSRF set-asides and other forms of assistance to fund sanitary surveys, CPEs, training, and other tools to improve technical and managerial capacity.
§1420(c)(2)(D)	Establish a baseline and measure the capacity improvements of systems in the state	States can compare post-AWOP data with pre-AWOP data to gauge capacity improvement.
§1420(c)(2)(E)	Involve stakeholders in state efforts to improve water system capacity	States can work directly with systems and other drinking water organizations to provide technical assistance.

HOW CAN DWSRF SUPPORT AWOP ACTIVITIES?

States use DWSRF capitalization grant funds to provide low-interest loans and other loan subsidies to publicly- and privately-owned public water systems for infrastructure improvements needed to continue to ensure safe drinking water. States can reserve a portion of their grants to finance activities that encourage enhanced water system management and performance. Funds for set-aside activities that are focused on drinking water program management, capacity development, and technical assistance can be used by a state to enhance its own program management activities and to assist systems directly using state staff or third-party contractors.

Figure 3 shows the specific AWOP activities that could be funded by DWSRF set-asides. Since the DWSRF program is managed by states, set-aside funding decisions are made at the state level. Given that each state administers its own program differently, the first step in seeking assistance is to contact the state DWSRF representative, who can be found on the EPA DWSRF website.

FIGURE 3: AWOP ACTIVITIES ELIGIBLE FOR DWSRF SET-ASIDE FUNDING

AWOP Activity	DWSRF Set-Aside Category			
	Administration & Technical Assistance to Systems	Small System Technical Assistance	State Program Management	Local Assistance & Other State Programs
Program Management (data entry, reporting, travel)			✓	
Conducting CPEs*	✓	✓	✓	✓
PBT Facilitation*	✓	✓	✓	✓
Equipment for CPEs & PBTs			✓	

* by state staff or third-party contractors

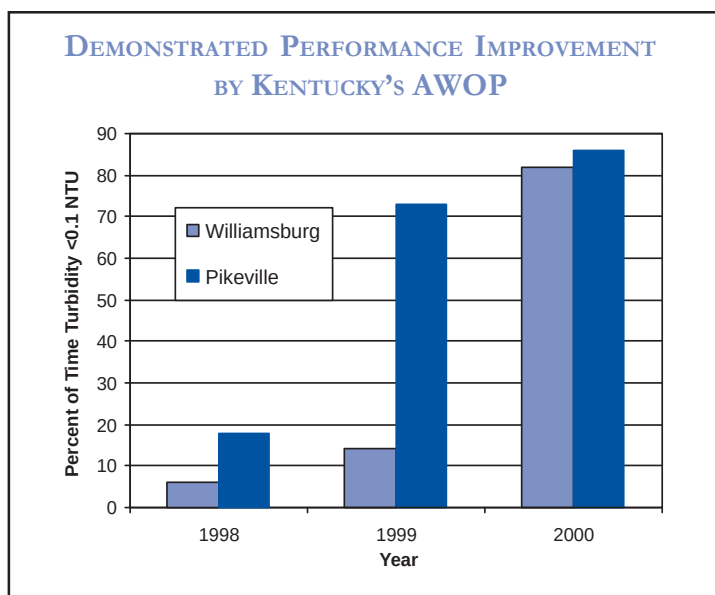
WHAT ARE STATE EXPERIENCES WITH AWOPs?

AWOPs are being piloted in EPA Regions 3, 4, 6, and 10. EPA Region 4 has a multi-state pilot project that involves South Carolina, Alabama, Georgia, Kentucky, North Carolina, and Florida. Kentucky's experience is profiled below (see Figure 4). Early results indicate that full implementation of AWOPs is resulting in improved public health protection for optimized systems and enhanced staff expertise at the state level.

FIGURE 4: KENTUCKY CASE STUDY

Kentucky's AWOP has allowed technical assistance staff to identify and target poor performance, which has led to dramatic improvements in the state's drinking water quality. Since 1998, one of Kentucky's worst performing treatment plants experienced a dramatic turnaround after the state adopted optimized performance goals and communicated the public health implications to utilities through implementation of its AWOP. Plant staff subsequently improved the facility's performance by washing filters at lower turbidity triggers, filtering to waste, and optimizing coagulation. The facility's performance relative to the optimized filtered water turbidity goal of less than 0.1 nephelometric unit (NTU) went from 17 percent in 1998 to 73 percent in 1999 and 84 percent in 2000.

(Source: State of Kentucky. Department of Environmental Protection, Area-Wide Optimization Annual Report for 2000)



FOR MORE INFORMATION...

AWOP, Capacity Development, and DWSRF Information	General Information
<u>Area-Wide Optimization Program</u> U.S. EPA Technical Support Center 26 West Martin Luther King Drive Cincinnati, Ohio 45268 Phone: 513-569-7874 Fax: 513-569-7191	<u>SDWA Hotline</u> 1-800-426-4791 <u>EPA's Ground Water and Drinking Water Website</u> http://www.epa.gov/safewater/
<u>Capacity Development</u> http://www.epa.gov/safewater/smallsys.html <u>DWSRF Website</u> http://www.epa.gov/safewater/dwsrf.html	Office of Water (4606M) EPA 816-F-03-019 June 2003