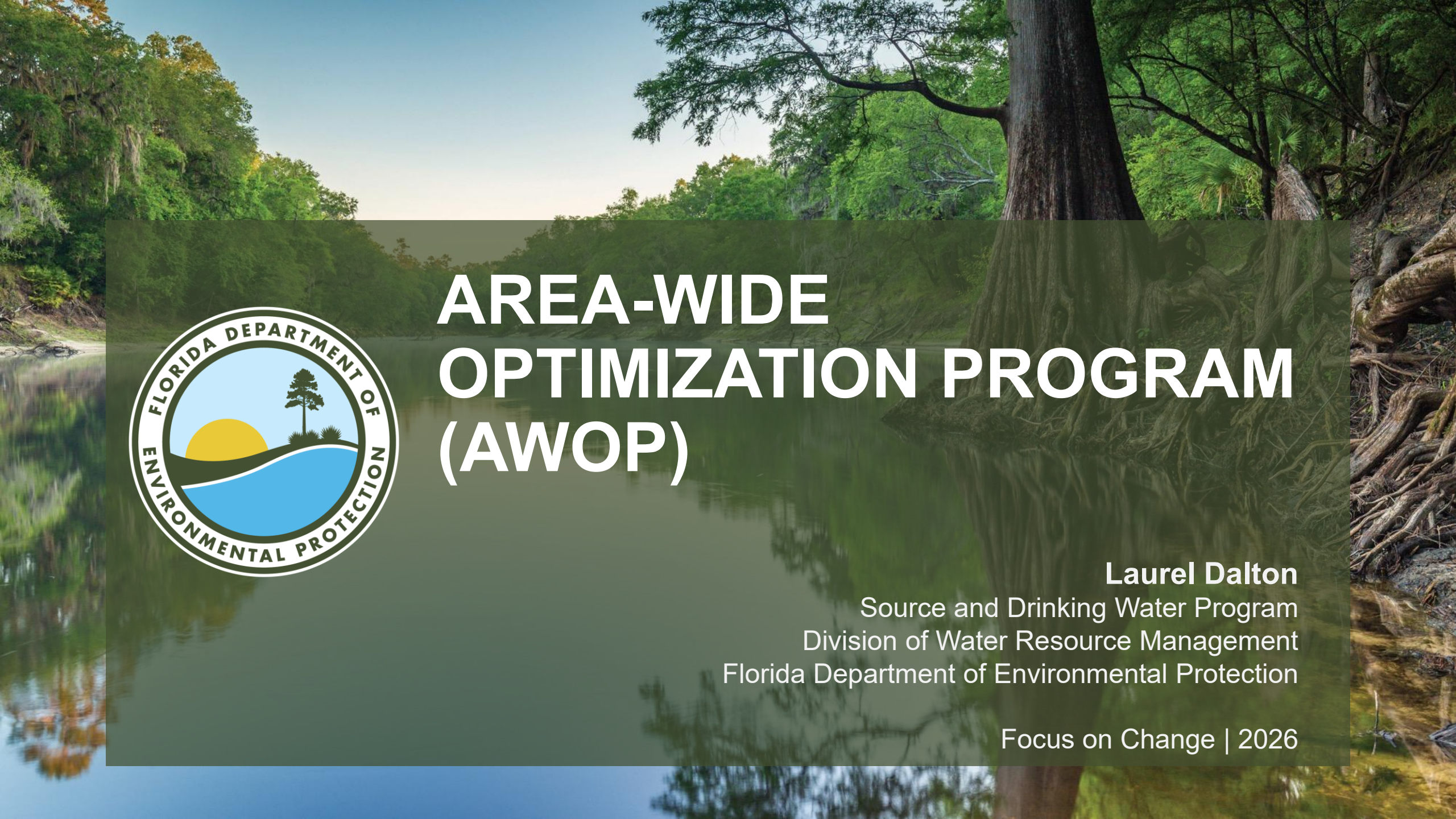

AREA-WIDE OPTIMIZATION PROGRAM (AWOP)

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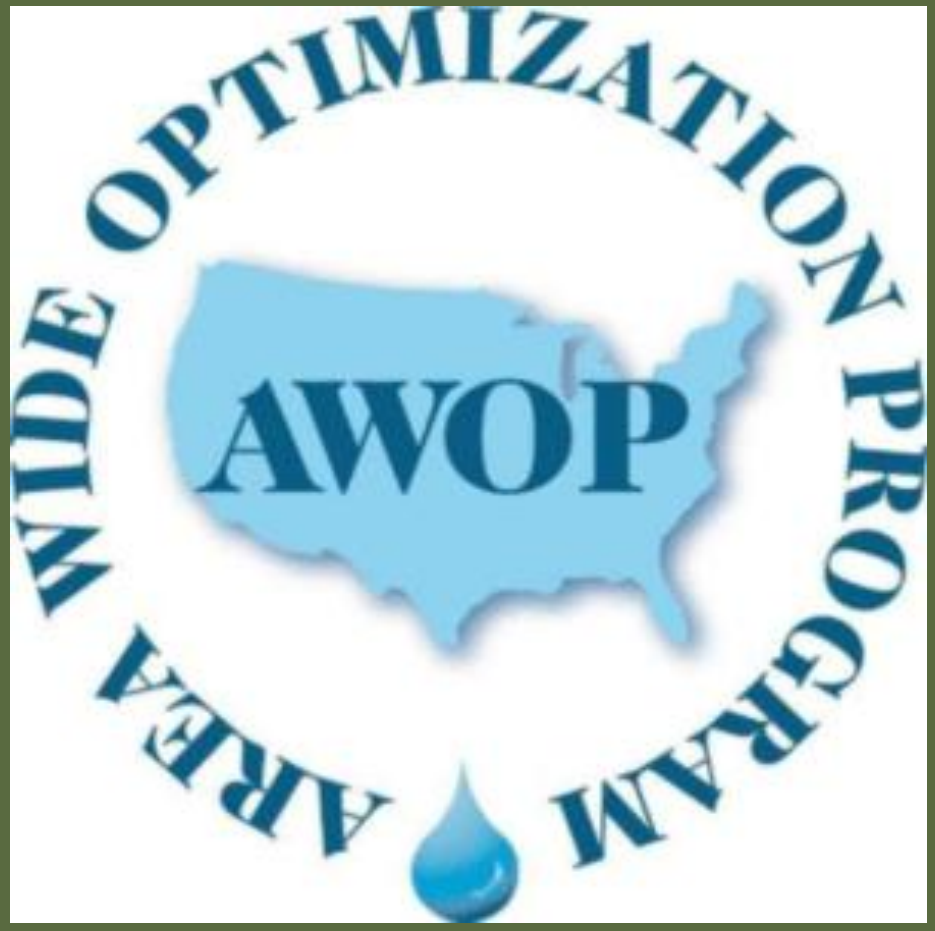
Focus on Change | 2026

WHAT IS AWOP?

- To optimize is to make the *best*, *most effective* use of something.
- AWOP is a voluntary multi-state effort in which states work together to develop and implement individual state programs to support public water systems (PWS) with the optimization of their treatment processes and distribution systems.

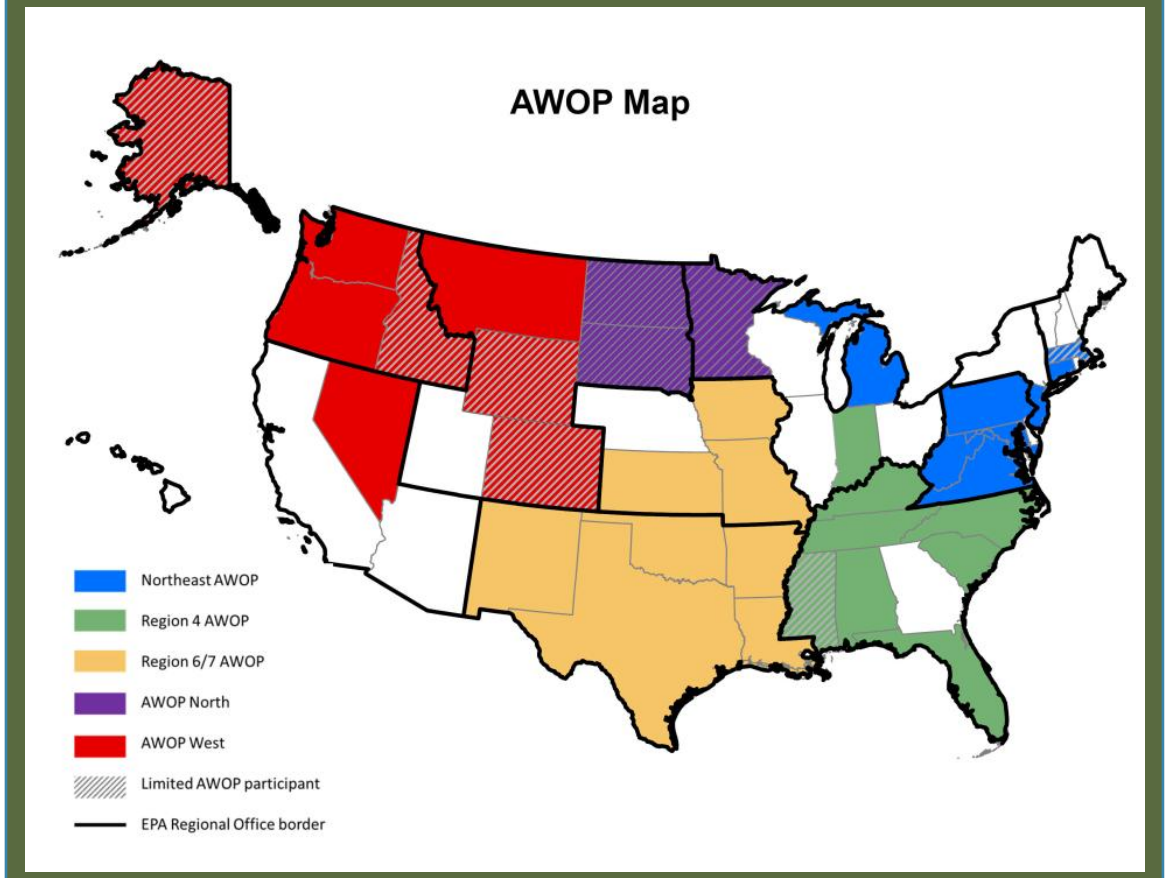


Area-Wide Optimization Program (AWOP) - Association of State Drinking Water Administrators (ASDWA)

WHAT IS AWOP? (2)

- AWOP is designed to assist water systems with their current physical and organizational infrastructures, identifying capital improvements needed to enhance public health protection.
- Through Florida's AWOP, we want to help you with making your system **the best it can be** with its current resources.

MULTI-STATE AWOP ACTIVITIES



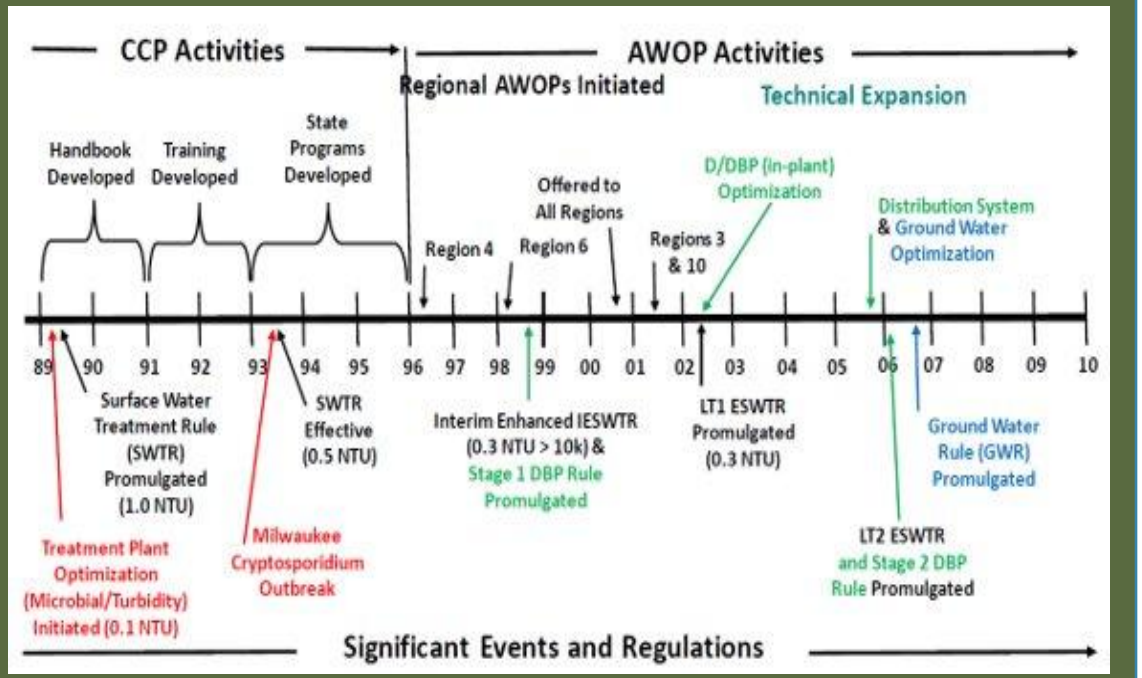
Drinking Water Optimization Program, U.S. EPA

- The U.S. Environmental Protection Agency's (EPA's) Office of Ground Water and Drinking Water (OGWDW) leads the development and implementation of AWOP nation-wide and supports integration of AWOP into other programs and regulatory implementation and compliance strategies.
- Florida participates in the EPA Region 4 AWOP group, which meets 2-3 times per year for training workshops, discussion of the current status of state and regional programs, and planning for the future of these programs.

AWOP HISTORY

THE COMPOSITE CORRECTION PROGRAM

- Drinking water optimization began with the Composite Correction Program (CCP), which was initially developed to address compliance problems at wastewater facilities.
    - Two components of the CCP: Comprehensive Performance Evaluation (CPE) and Comprehensive Technical Assistance (CTA).
- Based on their successful use of the CCP for improving compliance of wastewater treatment facilities, Montana expanded the approach to surface water treatment.



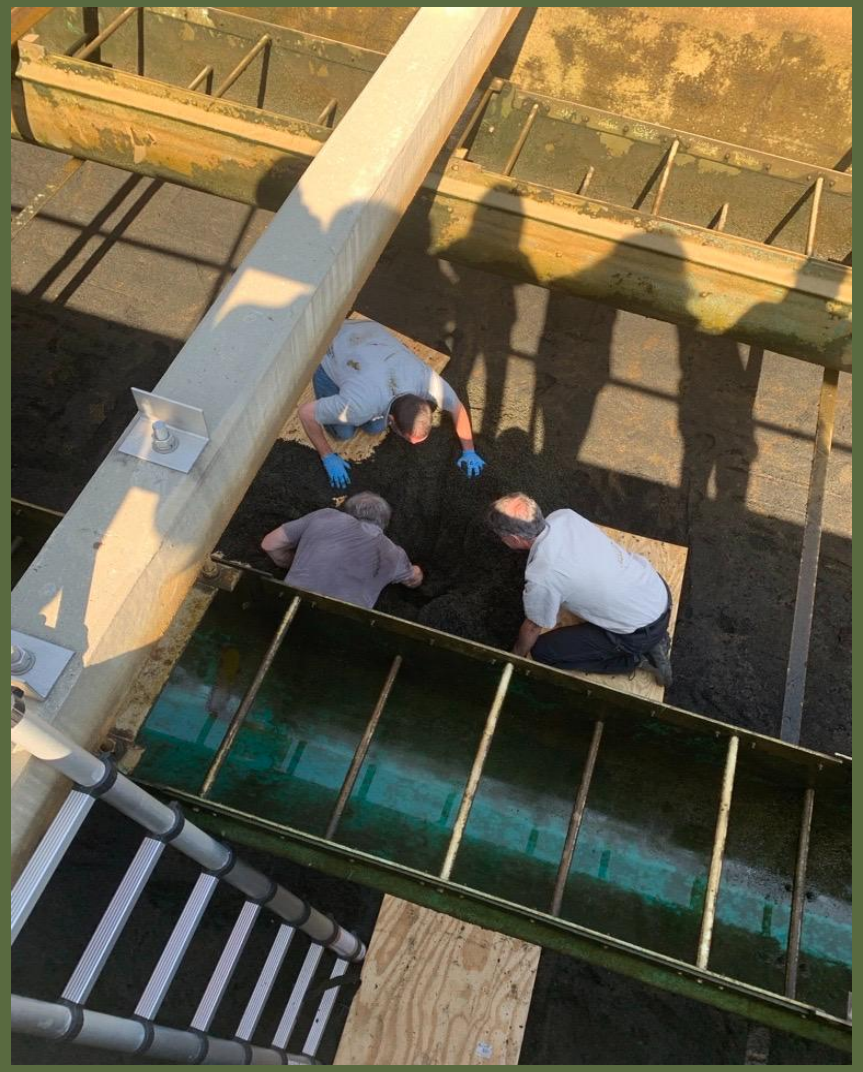
2017 AWOP National Meeting: AWOP Orientation - ASDWA

AWOP HISTORY (2)

AWOP BEGINS

- After Montana's surface water systems showed drastic improvement in finished water turbidity, EPA decided to further develop the optimization approach for drinking water with eight pilot state programs.
- This initial approach was successful but revealed some institutional barriers.
- State by state implementation was time consuming and sometimes unsuccessful, so a multi-state effort (AWOP) was born.
- EPA Region 4 began a multi-state pilot program in 1997.

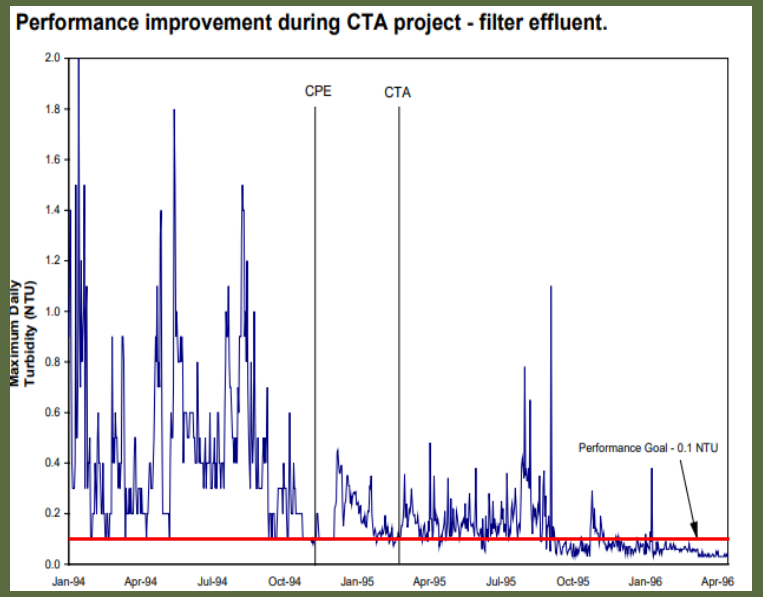
WHY OPTIMIZE?

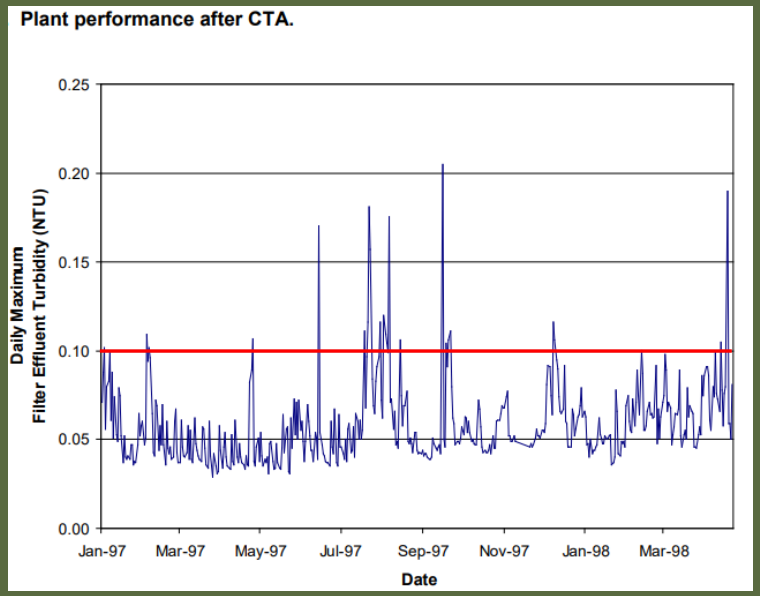


- Enhanced staff capability and confidence.
  - Training is provided to participants (state staff and water system staff) on optimization tools and approaches.
  - Participants gain increased technical understanding, as well as prioritization and problem-solving skills.
  - Relationships among participants are developed and enhanced.

WHY OPTIMIZE? (2)

- Increased public health protection and improved compliance.
  - Optimized water systems have a buffer against regulatory limits.
  - The goals established by EPA have been shown through research and implementation to improve systems' performance and public health protection.





EPA Handbook: Optimizing Water Treatment Plant Performance Using the Composite Correction Program (1998)

WHY OPTIMIZE? (3)

- Effective, targeted use of resources.
  - AWOP is focused on getting the most out of existing resources, reducing unnecessary capital expenses.

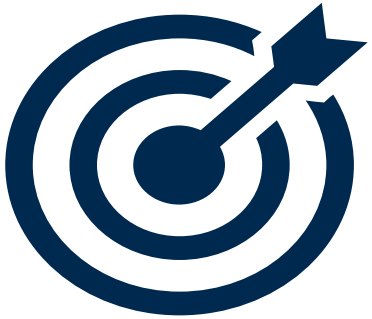
HOW TO OPTIMIZE

AWOP COMPONENTS

- The ideal AWOP uses a three-pronged approach of the following components.
  - **Status** – Enhanced tracking of PWS performance.
  - **Targeted Performance Improvement** – Determining and implementing strategic activities and tools to improve performance.
  - **Maintenance** – Ongoing improvement to sustain and enhance the program.

Status

Targeted Performance Improvement

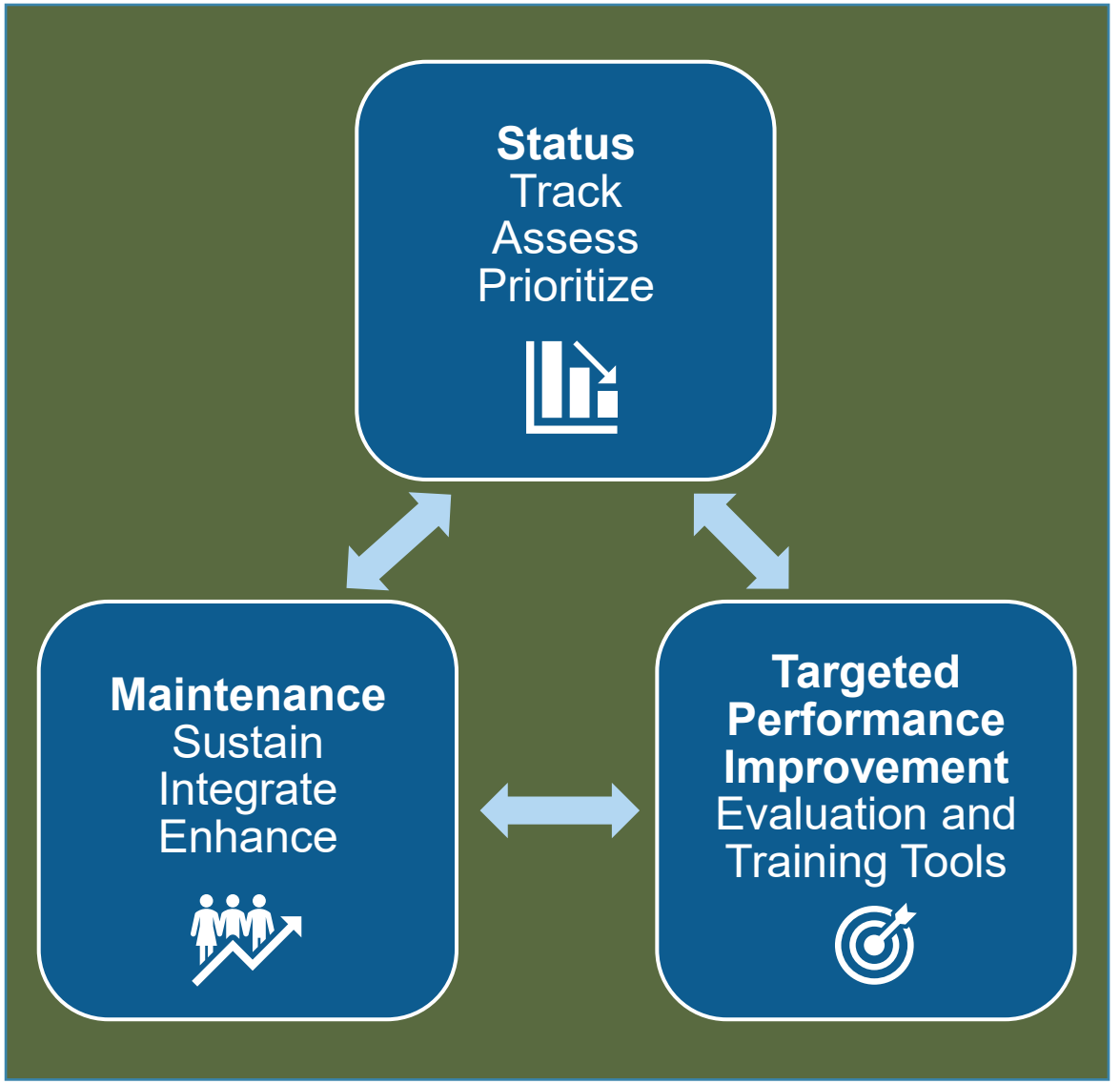


Maintenance

HOW TO OPTIMIZE (2)

PATHWAYS TO OPTIMIZATION

- How can your system optimize?
  - Track performance.
  - Prioritize activities.
  - Sustain awareness of optimization.
- Step 1: Identify any performance or data integrity issues that have caused violations or could lead to violations down the road.
- Step 2: Review EPA's AWOP goals.
- Step 3: Adopt goals that will improve system performance most effectively.
  - For example, if your system has had issues with maintaining residuals in your distribution system, consider adopting the EPA distribution system optimization goals.



HOW TO OPTIMIZE (3)

EPA AWOP GOALS

Category	System/Treatment Type	Parameter	Performance Goal	Monitoring Goal
Microbial	Subpart H	Turbidity	No specific performance goal (source water turbidity is largely beyond the control of the PWS); rather, results of this monitoring inform settled water turbidity goals	Record maximum daily raw water turbidity (as a microbial surrogate)
			Rapid Rate Filtration Sedimentation Basin Effluent: - 95th percentile settled water turbidity = 2.0 NTU when the annual average raw turbidity is > 10 NTU - 95th percentile settled water turbidity = 1.0 NTU when the annual average raw turbidity is = 10 NTU	Rapid Rate Filtration Sedimentation Basin Effluent: Record individual sedimentation basin effluent turbidity readings at intervals of 4-hours or less if taking grab samples, or 15-minutes or less for continuous monitoring. Performance is assessed based on the daily maximum values from all recorded readings.
			Rapid Rate Filtration IFE and CFE turbidity: - 95th percentile CFE turbidity = 0.10 NTU. - 95th percentile IFE turbidity = 0.10 NTU (excluding 15-minute period following filter backwash) - Post backwash IFE turbidity for filters without filter-to-waste capability: Maximum IFE turbidity following backwash = 0.30 NTU and achieve = 0.10 NTU within 15 minutes - Post backwash IFE turbidity for filters with filter-to-waste capability: Minimize IFE turbidity during filter-to-waste period and record maximum value. Return the filter to service at = 0.10 NTU	Rapid Rate Filtration: Record IFE and CFE turbidity readings at intervals of 1-minute or less for continuous monitoring. Performance is assessed based on the daily maximum values recorded from all readings.
			Slow Sand Filtration IFE and CFE turbidity: 95th percentile IFE & CFE turbidity = 1.0 NTU AND Maximum daily IFE and CFE turbidity = 5.0 NTU	Slow Sand Filtration: Measure IFE and CFE turbidity at intervals of 1-minute or less for continuous monitoring
		Total Coliforms	Results of source water monitoring inform SSF treatment goals	Measure TC by Most-Probable Number or Colony-Forming Units methods at least once per month during normal operation. Increase raw water TC monitoring frequency to weekly with significant changes in raw water quality (e.g., after storms, wildfires, changes to the source/watershed, seasonal changes, etc.).
			- When raw water TC most probable number or colony-forming units= 100 / 100 mL, then IFE TC Most Probable Number or colony-forming units = 10 / 100 mL - When raw water TC Most Probable Number or colony-forming units < 100 / 100 mL, then IFE TC = 5 / 100 mL	Measure IFE and CFE TC by either Most Probable Number or colony-forming unit methods at least once per month during normal operation. Increase frequency to weekly with significant changes in raw water quality (e.g., after storms, wildfires, changes to the source/watershed, seasonal changes, etc.)
			TC absent, whenever IFE or CFE turbidity > 1.0 NTU	Measure TC (presence/ absence) weekly when IFE or CFE turbidity > 1.0 NTU
	Groundwater	Total Coliforms	No TC present (or, alternatively, no indicator organisms) at any wells	Conduct microbial monitoring at each well. TC method generally used, or a reliable method for coliphage or other virus indicators can be used as a surrogate Initially monitor all wells monthly and then reduce monitoring (e.g., quarterly) at wells where there is no indication of microbial contamination
	Chloramine Systems	Free Ammonia	Maintain a detectable free ammonia residual in the plant effluent = 0.10 mg/L as NH3-N	Monitor free ammonia in the plant effluent on a routine basis (daily, at a minimum; more frequently if needed)
	Low pressure membrane filtration (MF/UF)	Indirect Integrity	95th percentile IFE turbidity = 0.05 NTU OR Particle counts (1.0 – 3.0 µm) = 10 particles/mL	Measured continuously (= 1-minute intervals)
		Several parameters affect LRV determination	LRV ambient = 4.0-log AND LRV ambient = Log Removal Credit awarded by regulating agency	LRV is determined after each daily direct integrity test.
	All	Disinfection/CT	Meet primacy agency's CT requirements plus a system-specific factor of safety (e.g., > 10%) for Giardia and virus inactivation	Record minimum disinfectant residual, minimum temperature, maximum pH, and maximum flow daily
Disinfection Byproduct (DBP) Control	All	TOC Removal	Meet Stage 1 Disinfection/ Disinfection Byproducts (D/DBP) Rule TOC removal requirements for enhanced coagulation, which are based on source water alkalinity and TOC levels, or an alternative compliance criterion, as a running annual average (RAA) of the performance ratio (PR, actual/required removal) plus a factor of safety of 10% (or PR = 1.1).	Collect monthly raw and treated water TOC samples and collect source water alkalinity.
		DBPs	Adopt system specific goals for DBPs which are either a discrete value or range, based on an RAA. Suggested goals may be 30% to 50% of long-term locational running annual average (LRAA) goals (e.g., 20-30 ppb for total trihalomethanes (TTHM), 15-20 ppb for haloacetic acids (HAA5)).	Collect quarterly TTHM and HAA5 samples at the plant effluent on the same day as distribution system (DS) compliance sites.
Distribution System	All	Disinfectant Residual	At all monitoring sites in the DS, always: - Maintain 95th percentile = 0.20 mg/L free chlorine residual in systems that use free chlorine as a secondary disinfectant - Maintain 95th percentile = 1.50 mg/L monochloramine residual in systems that use chloramines as a secondary disinfectant	- Monitor disinfectant residual at bacteriological and DBP compliance sites, all active EPTDS, all storage tanks (preferably while draining), and at a minimum of four critical sites (one in each quadrant of the system) identified by investigative sampling. - Conduct monitoring at least monthly and more frequently during elevated water temperature.
		DBPs	- Individual Site Goal: Quarterly maximum LRAA TTHM/HAA5 values not to exceed 70/50 ppb - Long-Term System Goal: Average of maximum LRAA TTHM/HAA5 values not to exceed 60/40 ppb (the average of the last 8 quarters cannot exceed 60/40 ppb)	- Collect quarterly DBP samples at all compliance locations at systems in compliance with the Stage 2 D/DBP Rule - Collect monthly DBP samples at all compliance locations at system not in compliance with the Stage 2 D/DBP Rule

HOW TO OPTIMIZE (4)

RESOURCES

- EPA Drinking Water Optimization Program – EPA's AWOP webpage with further information and resources, including the AWOP goals.
- Partnership for Safe Water – A program that provides the framework for drinking water utilities to optimize their water plant and distribution system operations, through a self-assessment process, to meet specific water quality and operational goals.
- Florida AWOP – The Florida Department of Environmental Protection's (DEP's) AWOP webpage.
- Know where you can get technical assistance when needed.

FLORIDA AWOP

- DEP is maintaining involvement in multi-state AWOP meetings and workshops.
- In 2025, Source and Drinking Water Program staff participated in two Region 4 AWOP meetings and workshops, as well as the National AWOP Meeting hosted by ASDWA and EPA's OGWDW.

FLORIDA AWOP (2)

- Future plans for Florida's AWOP include.
  - Region 4 multi-state CPE in August 2026.
  - Chloramine optimization workshops for DEP and water system staff.
  - Disinfection byproduct optimization workshop for DEP staff.
  - Sanitary survey inspector training for DEP staff.


QUESTIONS?
AWOP

THANK YOU

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