CAPACITY DEVELOPMENT PROGRAM ANNUAL REPORT

Oklahoma Dept. of Environmental Quality

State Fiscal Year 2025

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INTRODUCTION

With the Safe Drinking Water Act (SDWA) Amendments of 1996, Congress put in place a variety of initiatives designed to assist public water supply (PWS) systems in providing safe drinking water and complying with the terms of the Act. One of these was the capacity development (CD) initiative, established with the intent of focusing on those systems most in need of assistance, primarily small systems serving populations of 3,300 or less. CD is the process by which the State of Oklahoma assures that drinking water systems acquire and maintain the *technical, managerial, and financial* (TMF) capabilities to successfully operate.

All states are currently implementing state-specific CD programs tailored to meet water system needs. As required in Section 1420 of the Safe Drinking Water Act Amendments of 1996, the Oklahoma Department of Environmental Quality (DEQ) must submit an annual report of CD activities to the United States Environmental Protection Agency (EPA). This report reflects the efficacy of the State's CD Strategy by detailing improvements in the TMF capabilities of the State's PWS systems. The annual CD progress report is available on DEQ's website, at https://www.deq.ok.gov/water-quality- division/public-water-supply/capacity-development/.

Program Evaluation

DEQ routinely reviews both new and existing systems for compliance through established programs, including Public Water Supply Sanitary Surveys, Compliance Monitoring, and Operator Training and Certification which are further described in this report. The summary of Oklahoma's strategy to Section 1420(a) of the SDWA are accessible at G:\USER\SHARE\CAP-D\TEAMDOCS\Capsumry\Nwsysfin.PDF.

ENFORCEMENT AND COMPLIANCE MECHANISMS

DEQ's CD program relies on the success of its enforcement and compliance programs. These two programs are partially funded through the Drinking Water State Revolving Fund (DWSRF) 10% State Program Management Set-Aside and 15% Local Assistance and Other State Programs Set-Aside. Funding information is detailed in DEQ's *Final Intended Use Plan, Drinking Water State Revolving Fund State Fiscal Year 2025*. Note that Oklahoma's state fiscal year is from July 1 to June 30.

DEQ maintains a strong enforcement program. Systems with violations of SDWA requirements or with state PWS rule violations are referred to DEQ enforcement staff for analysis of the causes behind the violations and for correction. When it is determined that enforcement is needed, there are three main legal tools available to the agency to bring about compliance: Notices of Violation, Consent Orders, and Administrative Compliance Orders. Boil Orders, while not official enforcement actions, also play a role in protecting public health.

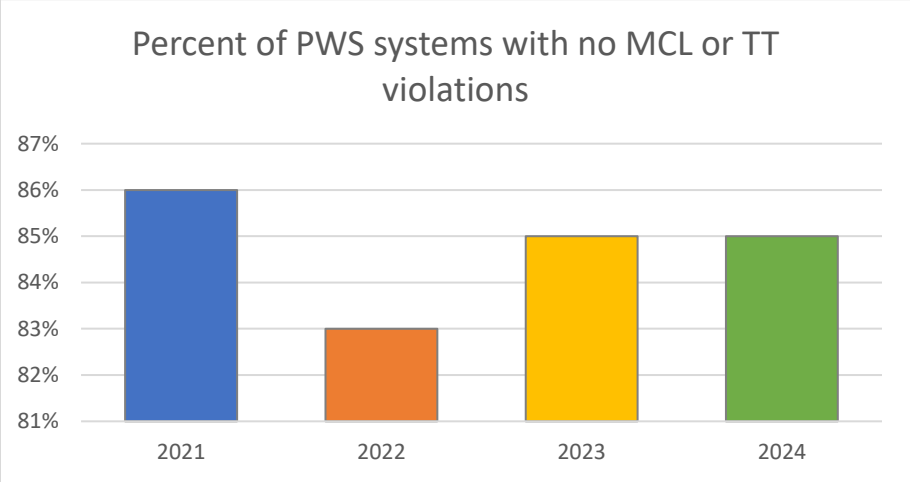
A ***Notice of Violation*** (NOV) is the first formal enforcement document issued to facilities upon failure to comply with SDWA or state PWS rules or regulations. NOVs address matters such as maximum contaminant level (MCL) violations, monitoring failures, improper operating procedures, or construction deficiencies. NOVs have short deadlines for compliance, typically between fourteen (14) and thirty (30) days from the date the PWS system receives the document.

If it is determined that a system is not likely to regain compliance by a NOV's deadline, a DEQ PWS District Engineer (DE) prepares a ***Consent Order*** (CO). A CO is a mutual agreement between DEQ and the affected system that cites the system's responsibilities, establishes a longer deadline for returning to compliance (with milestones and deadlines for major steps towards compliance), and specifies fines that may be levied against the system because of non-compliance.

An ***Administrative Compliance Order*** (ACO) is issued when time is limited and there is a significant health hazard, or when a PWS system refuses to agree to the terms of a CO. In an ACO, DEQ determines what tasks need to be completed and sets deadlines for the completion of these tasks. Both the CO and the ACO include stipulated penalties for failing to meet the required deadlines.

Boil Orders, while not enforcement actions themselves, are an additional tool used by DEQ to protect public health. These orders are issued to systems that have acute health risks or *E. coli* bacteriological violations. Boil Orders require immediate notification be made to all consumers informing them of how to protect themselves.

EPA sets national limits on contaminant levels in drinking water to ensure that the water is safe for human consumption; these limits are known as maximum contaminant levels (MCL). For some regulations, EPA establishes treatment techniques (TT) in lieu of a MCL to control unacceptable levels of contaminants. **The figure below** shows the yearly trend in the percentage of systems in Oklahoma reporting no MCL or TT violations.



In calendar year 2024, DEQ issued 2,747 enforcement actions, which consisted of:

- 2,303 informal enforcement letters;
- 432 NOVs and COs;
- 0 Administrative Compliance Orders; and
- 12 Boil Orders.

A total of 2,528 systems were returned to compliance during calendar year 2024 (some systems returned to compliance more than once).

The State of Oklahoma's Public Water Supply Program currently oversees 1,267 PWS systems that meet the federal definition of a PWS. The total number of violations for the calendar year of 2024 was 12,595 (some PWS systems may be counted more than once if they incurred multiple violations). Of the total number of PWS systems 1,077 (85%) reported no maximum contaminant level (MCL) violations and 576 (45%) incurred a violation at some point during the calendar year of 2024. **Appendix A** shows the count of violations by the number of PWS systems.

ETT IMPLEMENTATION

At the direction of EPA, DEQ implemented an Enforcement Response Policy and Enforcement Targeting Tool (ETT) aimed to identify PWS systems with health-based violations as opposed to the previous approach, where all the significant non-compliance (SNC) systems were treated equally regardless of the severity of the violation.

This approach utilizes the ETT formula as a basis for determining a PWS system's enforcement priority points. It will also be used to help identify and prioritize systems for enforcement response. In the formula, violations that pose a greater risk to public health are given greater importance. The formula calculates a score for each system based on open-ended violations and violations that have occurred over the past five years but does not include violations that have returned to compliance or are on the "path to compliance'' through a specified enforcement action.

Under this policy, violation types are "weighted" with points being assigned for each violation type based on its threat to public health. Points for each "unaddressed" violation are added together to provide total score for each PWS system. PWS systems whose scores exceed "11" are considered priority systems for enforcement unless the violations can be returned to compliance within six months.

The Capacity Development Section and the PWS Compliance Section track new community (C), and Non-transient Non-community (NTNC) systems that appear on the ETT list during their first three years of operation, providing them with technical assistance aimed at getting them back into compliance.

Between July 1, 2022, and June 30, 2025, the following C and NTNC systems became active PWS systems:

PWS ID Number	PWS Name	Activation Date	PWS Type	ETT Enforcement Priority
OK5001437	Freedom Farms	2/2/2023	NTNC	No
OK1021778	Canoe Mountain Water System	3/20/2023	C	Yes
OK2002056	Traverse Wind Energy, LLC	7/25/2023	NTNC	No
OK3000911	Gordon's Hollow HOA	7/6/2024	C	No
OK3004713	McClain County RW & SD #9	5/8/2025	C	No

ETT scores for PWS systems are available at https://echo.epa.gov/.

CAPACITY DEVELOPMENT PROGRAM

The Capacity Development Section (CDS) implements the CD strategy in Oklahoma. The CDS is responsible for fostering the relationship among the various DEQ drinking water programs, between DEQ, and other state agencies and organizations that are involved with supporting and assisting PWS systems. The CDS coordinates with the Oklahoma Water Resources Board (OWRB), Oklahoma Rural Water Association (ORWA), Communities Unlimited (CU), Southwest Environmental Finance Center (SWEFC), Oklahoma Municipal League (OML), and other agencies and organizations that provide TMF training and assistance to PWS systems. This ensures that open lines of communication exist between the entities and promotes cooperative and complementary efforts towards achieving water system sustainability. The overall goal is maintaining coordinated efforts towards increasing PWS TMF capabilities. **The table below** lists the tools currently in use in Oklahoma to assess and enhance TMF capabilities.

Oklahoma's Capacity Development Tools

Tool	*Technical*	*Managerial*	*Financial*
Construction Permitting	X		
PWS Enforcement	X	X	
Operator Certification	X	X	
Source Water Protection Plan	X	X	
Area Wide Optimization Program	X	X	X
Drinking Water State Revolving Fund	X	X	X
CD TMF Assessments	X	X	X
Sanitary Surveys	X		
Asset Management Training	X	X	X
Regionalization	X	X	X
FACT		X	X
Rate Studies			X
Water Loss Auditing	X	X	X

WATER QUALITY EFFORTS AND PARTICIPATION

Regionalization and Consolidation

DEQ continued efforts to identify new and existing PWS systems that may benefit from ***regionalization and/or consolidation*** into larger PWS systems in State FY25. Systems were considered for regionalization/consolidation that:

- Have source water capacity limitations (drought),
- Are undergoing DEQ enforcement proceedings,
- Are considering giving away, selling, or abandoning the system, or
- Have expressed interest in regionalization or consolidation.

Creating combined distribution systems can enhance public health by providing all systems in the combined system with water that is more thoroughly tested and often more plentiful and reliable than they were able to produce on their own. During State FY25, DEQ DWSRF was able to fund one project, Midwest City PWS, for consolidation. The project included connecting 32 houses to the Midwest City Public Water Supply that were served by the Starview Public Water Supply and disconnecting its existing groundwater well.

Funding Agency Coordinating Team

The Funding Agency Coordinating Team (FACT), hosted by ORWA, is comprised of the following state and federal agencies and organizations:

- Oklahoma Department of Environmental Quality;
- Oklahoma Department of Commerce;
- Oklahoma Water Resources Board;
- Indian Health Service;
- U.S. Department of Agriculture – Rural Development;
- Oklahoma Association of Regional Councils;
- Communities Unlimited;

- Environmental Protection Agency;
- Bureau of Reclamation;
- Cherokee Nation; and
- Chickasaw Nation.

FACT meets quarterly to discuss the status of Oklahoma community water supplies identified in DEQ's enforcement list and to coordinate water and wastewater project funding. Before each meeting, invitations are extended to a few water and/or wastewater systems from across the state that are contending with severe problems and have the greatest *financial* need. Guests are invited for the purpose of helping them identify the best source of project funding as efficiently and effectively as possible.

With most public financing agencies present at FACT, communication barriers are reduced and application processes are streamlined, resulting in rapid assistance. FACT provides a single uniform method for requesting funding and regulatory approvals, and it offers guides, checklists, and forms that are accepted by all FACT-participating agencies. DEQ has been a member of FACT since its inception in the early 1990s and has been instrumental in crafting an organization that helps to correct some of Oklahoma's most difficult to solve PWS issues. The CDS is an important member of FACT and serves by offering TMF assistance to invited systems.

The assistance provided by FACT has been universally praised by invited PWS systems, which provide feedback by voluntarily completing a brief survey immediately following the FACT meeting and a follow-up survey a few months later. Survey responses are used to fine-tune the assistance provided by FACT and help plan the direction of subsequent FACT meetings.

WATER QUALITY PROGRAMS

Construction Permitting Program

The Construction Permitting Program assures technical adequacy by reviewing PWS system engineering reports as well as construction plans and specifications. This technical review helps determine the sufficiency of the source water and the water system infrastructure.

PWS Enforcement Program

The PWS Enforcement Program helps assure the technical capabilities of PWS systems by providing technical assistance and training to water systems on operations, maintenance, regulations, security, and more. Managerial capabilities are also addressed by providing training to water system managers.

Operator Certification Program

The Operator Certification Program is charged with training and licensing persons working in water and wastewater facilities in the State. Programmatic oversight helps to ensure that operators have adequate *technical* training to properly treat and monitor drinking water supplied to the public. Also, with oversight from DEQ Operator Certification section, ORWA provides study material and training for operators for all classifications of water facilities as well as *managerial* training for system managers and board members.

During State FY25, 1,365 Water Operator and 193 Water Laboratory individual examinations were administered by DEQ Partners. Overall, 1,220 individuals passed the water operator exam while 171 individuals passed the water laboratory exam. Also, during State FY25, 15 NOVs were issued to PWS systems for not having an appropriately licensed operator. If operator license issues arise, DEQ makes these systems aware of training and

testing opportunities that are available to them at little or no charge so that the PWS system is easily able to quickly rectify the issue.

In addition to the training offered by ORWA, training is available in classroom settings (taught by DEQ and other certified instructors/agencies) and via the internet several times during the year. Online classes for operators and other environmental professionals are available at any place with an internet connection.

Area-Wide Optimization Program (AWOP)

The Area-Wide Optimization Program (AWOP) was first piloted in April 1999 in Oklahoma by EPA Region 6. This program started as a multi-state effort to optimize particle removal and disinfection capabilities of filtration at conventional water treatment plants. AWOP is now a voluntary approach to improve drinking water quality beyond compliance levels to enhance public health protection, and it is no longer limited to only conventional water treatment plants. Following the AWOP model is one of the most cost-effective and economical ways a PWS can improve their ability to produce safe drinking water, as it is focused on enhancing process monitoring and control using the existing staff and facilities.

In State FY25, Oklahoma DEQ participated in all quarterly meetings, conducted workshops, and attended multi-state CPEs. One of the workshops conducted by the Oklahoma DEQ AWOP team was a turbidity and data integrity workshop at a small PWS system. More workshops and voluntary CPEs are planned to occur in State FY26.

To date, the Oklahoma DEQ AWOP Team conducted 25 optimization and seven mandatory CPEs of water systems within the state. These serve to assist communities and system personnel in understanding the intricacies of water treatment. Within 60 days following the CPE, the system receives a report from DEQ that outlines the factors that may influence treatment optimizations. In addition, the AWOP team provided technical assistance in the form of workshops on optimization of different treatment factors at multiple PWS systems.

Oklahoma DEQ also has an AWOP Awards Program. In this program, PWS systems sign up to participate and have the chance to earn points by achieving different optimization goals throughout the year. Awards are given based on a tiered ranking list, and PWS systems are recognized with plaques, trophies, signs, flags, and more.

Internally, the Oklahoma DEQ AWOP Team has grown to include six team leads that head each facet of AWOP in Oklahoma, as well as other active members from various sections within the PWS Group.

Drinking Water State Revolving Fund (DWSRF) Loan Program

The Drinking Water State Revolving Fund (DWSRF) Loan Program in the state of Oklahoma is co-managed by DEQ and OWRB and is dedicated to providing low-interest loans to upgrade PWS infrastructure. The program is designed to help those in greatest need based on a priority system that places a primary emphasis on drinking water quality compliance. DWSRF applicants are assisted throughout the planning, design, bidding, contracting, and construction phases of the project by DEQ engineers and environmental specialists. Borrowers also receive TMF capacity assistance from the CDS. This assistance includes a capacity development assessment to determine the needs of the system and further technical assistance to develop any capacities that are deemed necessary for receiving DWSRF funding. Applications for the DWSRF program are accepted anytime throughout the year.

Currently, 124 water systems are on the DWSRF PPL for a total of over $836,209,079.00 in projects to be funded within the next few years. From 1998 to the present, the program has entered into binding commitments totaling over $2,417,185,242.00 to fund a total of 306 PWS upgrades. In addition to funding infrastructure improvements,

the program funds CDS technical assistance, lab equipment in the State Environmental Lab, the Source Water Protection program, water loss auditing and leak detection programs, and the PWS Supervision Program.

Under the Base grant, DWSRF provided subsidies in the form of principal forgiveness to public water supplies that serve disadvantaged communities or that have health-based violations. The total amount of subsidies given was determined by the FY24 Capitalization Grant and the FY22 Capitalization Grant. For State FY25, DWSRF committed $812,880.00 in disadvantaged subsidy to six systems under the FY24 Capitalization Grant, and $219,000.00 in health-based subsidy to one system under the FY22 Capitalization Grant.

DWSRF also provided subsidies in the form of principal forgiveness to public water supplies under the FY24 Infrastructure and Investment Jobs Act (IIJA) grants for disadvantaged communities. The total amount of subsidies committed for IIJA General Supplemental projects was $9,084,860.00 to 12 water systems.

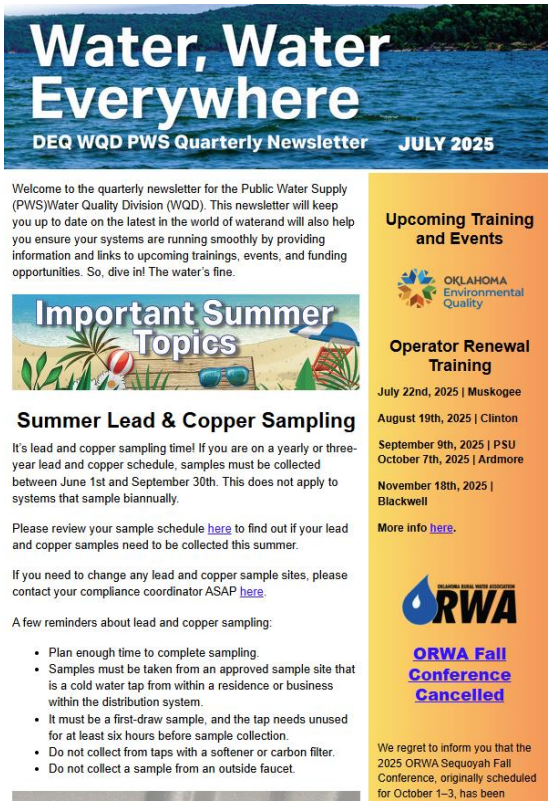
During State FY25, under the IIJA Lead Service Line Inventory (LSLI) Grant, one water system received $1,250,000.00. Zero subsidy was committed during State FY25 from the Emerging Contaminants (EC) funding.

PWS Sanitary Survey Program

The PWS Sanitary Survey Program is implemented by DEQ, in cooperation with EPA Region 6. In the course of conducting inspections, field staff from the Environmental Complaints and Local Services (ECLS) Division of DEQ and the WQD provide technical assistance to PWS system personnel in resolving compliance issues. Across the state, ECLS staff members inspect all water systems annually. In State FY25, 441 sanitary surveys were conducted by ECLS and WQD staff. Also, in State FY25, 1,172 primacy and non-primacy site inspections were completed by ECLS.

PWS Quarterly Newsletter

The PWS Quarterly Newsletter started in January 2024. Four installations are sent out each year, one at the start of each quarter. Creation of the newsletter is headed by the Capacity Development Section (CDS) with input from other sections within the PWS Group. The newsletter is sent to all PWS systems in the state and consists of topics that keep systems up to date on new and updated rules and regulations. It also provides links to resources that can assist systems with maintaining drinking water quality and highlights upcoming training and events conducted by various state and federal agencies within Oklahoma. Anyone can sign up for the newsletter by visiting the PWS website. The image to the **right** is a snapshot of the first page of the most recent newsletter, issued July 1, 2025.



Water, Water Everywhere

DEQ WQD PWS Quarterly Newsletter JULY 2025

Welcome to the quarterly newsletter for the Public Water Supply (PWS)Water Quality Division (WQD). This newsletter will keep you up to date on the latest in the world of waterand will also help you ensure your systems are running smoothly by providing information and links to upcoming trainings, events, and funding opportunities. So, dive in! The water's fine.

Important Summer Topics

Summer Lead & Copper Sampling

It's lead and copper sampling time! If you are on a yearly or three-year lead and copper schedule, samples must be collected between June 1st and September 30th. This does not apply to systems that sample biannually.

Please review your sample schedule here to find out if your lead and copper samples need to be collected this summer.

If you need to change any lead and copper sample sites, please contact your compliance coordinator ASAP here.

A few reminders about lead and copper sampling:

- Plan enough time to complete sampling.
- Samples must be taken from an approved sample site that is a cold water tap from within a residence or business within the distribution system.
- It must be a first-draw sample, and the tap needs unused for at least six hours before sample collection.
- Do not collect from taps with a softener or carbon filter.
- Do not collect a sample from an outside faucet.

Upcoming Training and Events

OKLAHOMA Environmental Quality

Operator Renewal Training

July 22nd, 2025 | Muskogee

August 19th, 2025 | Clinton

September 9th, 2025 | PSU
October 7th, 2025 | Ardmore

November 18th, 2025 | Blackwell

More info here.

ORWA

ORWA Fall Conference Cancelled

We regret to inform you that the 2025 ORWA Sequoyah Fall Conference, originally scheduled for October 1–3, has been

CHALLENGES TO OKLAHOMA'S CAPACITY DEVELOPMENT STRATEGY

Mile for mile, Oklahoma offers the nation's most diverse terrain. It is one of only four states with more than ten ecoregions and has by far the most changes in ecoregions per mile in America. Oklahoma's ecoregions, terrains, and sub-climates include everything from Rocky Mountain foothills to cypress swamps, from tallgrass prairies to hardwood forests, and pine-covered mountains. Each is graced with wide blue lakes, tumbling freshwater rivers, and peaceful country streams. Additionally, there is one man-made type of terrain: urban turf. This variety of ecoregions creates source waters with a correspondingly wide range of quality and conditions. This variability in source water quality creates a corresponding variety of treatment challenges for PWS systems.

CAPACITY DEVELOPMENT SECTION PROGRAMS

Water Loss Auditing and Control

Since 2015, DEQ has worked to standardize and promote water loss auditing across the state by the use of the M36 Water Loss Audit Method developed by the American Water Works Association (AWWA). The program has had continuous success tracking and identifying sources of loss and non-revenue water across the state using this scientifically sound, repeatable, and comparable method.

The **figure below** summarizes the volumes of water use and loss identified from the 366 water loss audits completed across the state since 2015.

Summary Water Balance

<table>
<tr><td rowspan="4">Volume from Own Sources
106.62 BG/Yr</td><td rowspan="2">Water Sold as Exports
14.41 BG/Yr</td><td rowspan="3">Authorized Consumption
85.94 BG/Yr</td><td rowspan="2">Billed Authorized Consumption
81.80 BG/Yr</td><td>Billed Metered Consumption
81.75 BG/Yr</td><td rowspan="2">Revenue Water
$81.80 Billion/Yr</td></tr>
<tr><td>Billed Unmetered Consumption
49.72 MG/Yr</td></tr>
<tr><td rowspan="6">Water Supplied
109.03 BG/Yr</td><td rowspan="2">Unbilled Authorized
4.14 BG/Yr</td><td>Unbilled Metered Consumption
2.35 BG/Yr</td><td rowspan="6">Non-Revenue Water
$27.60 Billion/Yr</td></tr>
<tr><td>Unbilled Unmetered Consumption
1.79 BG/Yr</td></tr>
<tr><td rowspan="4">Water Losses
23.45 BG/Yr</td><td rowspan="2">Apparent Losses
2.38 BG/Yr</td><td>Unauthorized Consumption
290.61 MG/Yr</td></tr>
<tr><td>Customer Metering Inaccuracies
1.92 BG/Yr</td></tr>
<tr><td rowspan="2">Real Losses
21.07 BG/Yr</td><td>Systematic Data Handling Errors
222.53 MG/Yr</td></tr>
<tr><td>Water Main Leaks, etc.
21.07 BG/Yr</td></tr>
<tr><td>Water purchased as Imports
14.89 BG/Yr</td><td colspan="4"></td></tr>
</table>

Apparent Losses

Apparent loss is water lost due to customer meter inaccuracies, billing system data errors, and/or unauthorized consumption. It is water that could have been sold and contributes to revenue loss, distorted production data, and misleading consumption statistics. The average amount of apparent loss per audited system is 3%.

Annually, apparent losses account for a smaller percentage of total water loss than real losses; however, apparent losses still represent a significant loss of revenue to most systems participating in the audit, costing on average $42,420.05 per year per audited system and $1,311,564.00 per year in all systems audited in State FY25. Apparent loss figures are summarized in the table**, below:**

Apparent Loss	Average	Total FY2025
Annual Apparent Loss identified:	6.53 MG/Yr.	270.56 MG/Yr.
Annual Cost of Apparent Loss:	$42,420/Yr.	$1,311,564/Yr.
Unauthorized Consumption:	0.80 MG/Yr.	23.92 MG/Yr.
Customer Metering Inaccuracies:	5.91 MG/Yr.	220.94 MG/Yr.
Systematic Data Handling Errors:	0.63 MG/Yr.	32.54 MG/Yr.

Real Losses

Real loss is defined as water that escapes the water distribution system through leakage, breaks, hydrants, and storage overflows. This loss is water that is treated but is never delivered to customers and results in increased operational costs and stress on source water supplies. Overall, the average amount of real water loss per system is 30% and is the largest category of water loss observed from the audited systems, costing on average $83,891.68 per year per audited system. This totals $4,034,727.00 million in identified annual loss of systems audited in FY25. Real loss figures are summarized in **the table below:**

Real Loss	Average	Total FY2025
Current Annual Real Losses:	57.57 MG/Yr.	2.88 BG/Yr.
Annual Cost of Real Loss:	$83,892/Yr.	$4,034,727/Yr.

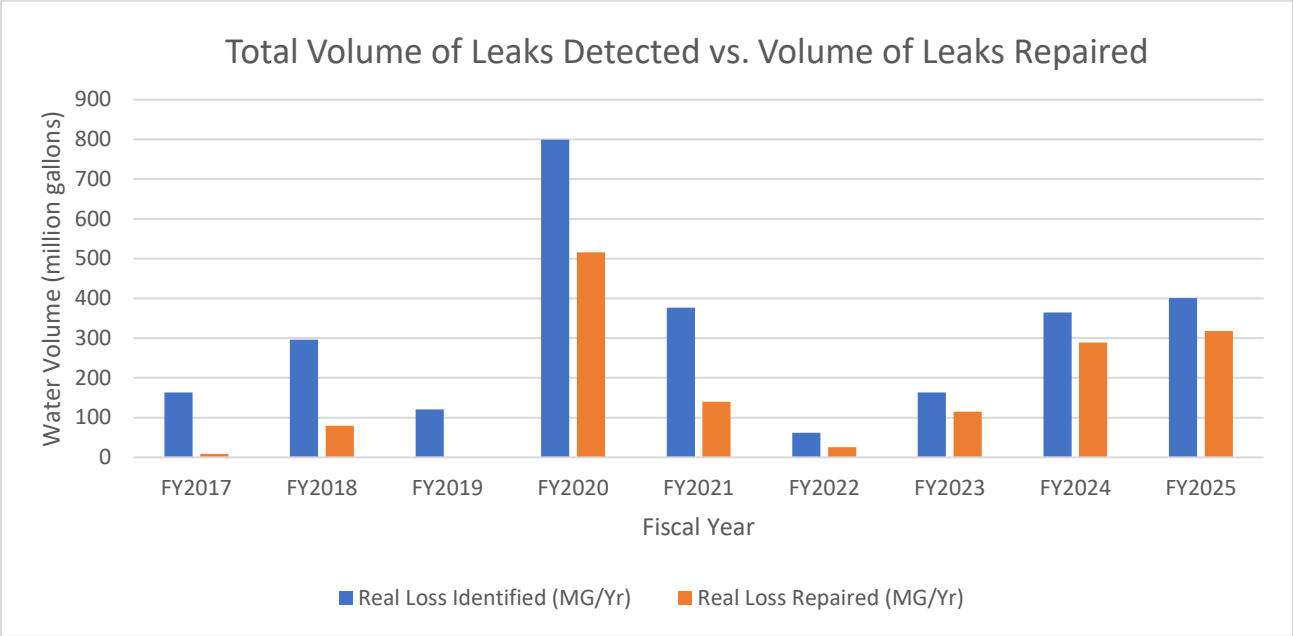
Leak Detection, Meter Analysis, and Loss Correction

Conducting water loss auditing with the AWWA M36 method has improved understanding of real and apparent losses at participating systems; however, this is only the first step towards the ultimate goals of reducing water loss and retaining system revenue.

The next step, intervention, takes the results gained from the water loss audit and uses it to guide efforts to find the specific sources of water loss and to implement solutions. This section summarizes the efforts of the technical assistance program performed by DEQ and ORWA which focused on conducting leak detection and meter analysis at PWS systems where an AWWA M36 water loss audit indicated that significant problems with real and/or apparent loss may exist. **The table below** shows data from State FY25 and the total statistics from the nine-year history of this program.

Leak Detection	Total	FY2025
# of systems who received leak detection help	83	14
Total # leaks detected	481	50
Real Loss Identified (MG/Yr.)	2,747	401.03
Value of Real Loss ($/Yr.)	$29,198,468	$8,106,991
Total # leaks repaired during detection	144	23
Real Loss Repaired (MG/Yr.)	1,491	317.5
Value of Real Loss Repaired ($/Yr.)	$17,710,400	$7,804,311

The **figure below** depicts gallons per year of leaks detected and repaired.



The amount of revenue saved has shown a real, immediate, and positive impact. Program participants have reported increased financial capacity, continued loss reduction, and better operational knowledge gained through their leak detection experiences with ORWA.

Going forward, DEQ will continue to build on the success of the water loss auditing and control program by performing additional water loss audits at PWS systems that request help and by continuing to contract with ORWA to conduct leak detection and meter analysis technical assistance.

Capacity Development Assessment

Introduction

In 2017, DEQ began work on a project to assess the TMF capacity of small municipal PWS systems and rural water districts in Oklahoma. Named the "Capacity Development Baseline Assessment", the project was designed to develop a clear concept of state-wide TMF needs, determine which systems are most in need of help, and delineate the unique set of needs faced by each system.

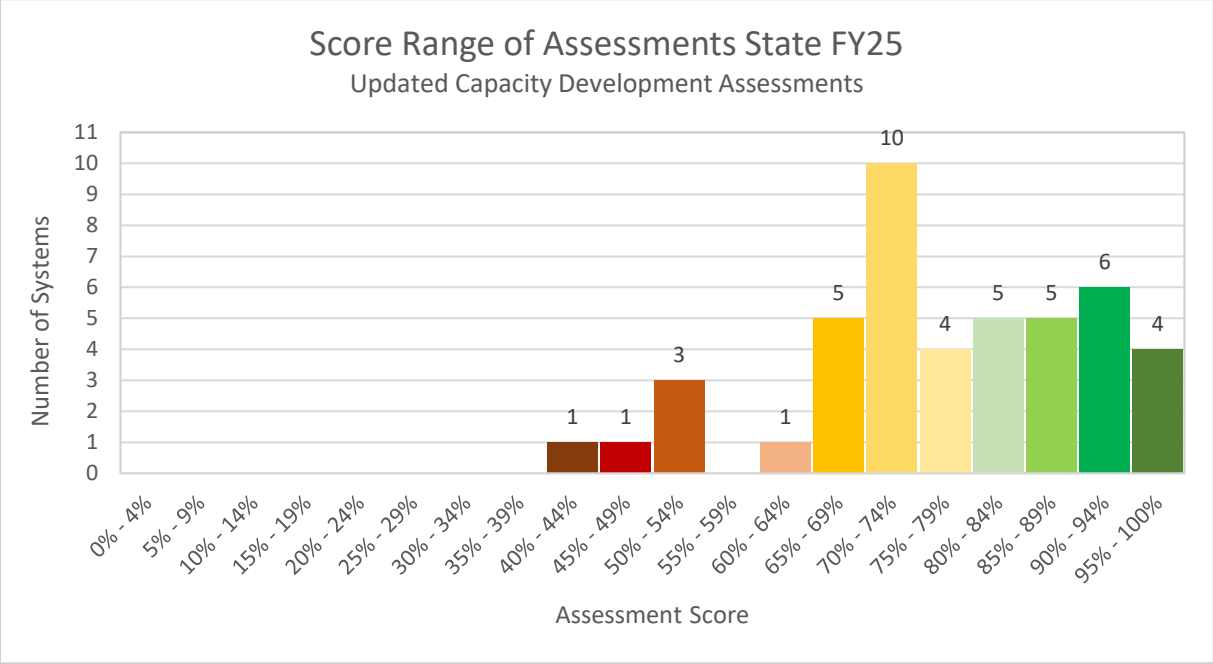
The capacity development baseline assessments were conducted between 2017 to 2020 at all municipal PWS systems and rural water districts in Oklahoma serving 10,000 or fewer individuals. From 2021 through the end of 2023, capacity development assessments continued to be completed in order to establish initial assessment ratings for systems that may have been missed in the baseline assessment. In addition, emphasis was placed on completing follow-up assessments with already completed systems to see if and how their score had changed. During State FY24, the CDS finalized major improvements to the assessment that have made it easier to complete, understand, and synthesize. The updated assessment was implemented in January 2024.

Results

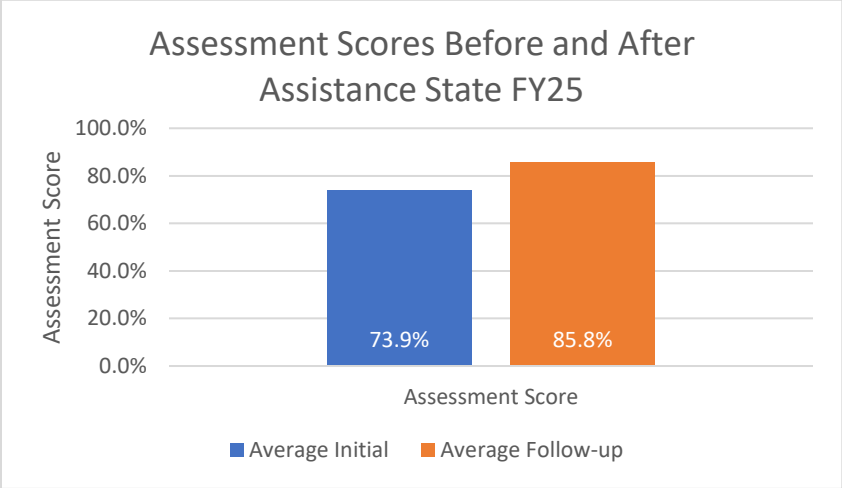
The results of the capacity development assessments have allowed DEQ to identify trends and correlations regarding the status of public PWS systems' TMF capacities. The data provided significant insights such as the

average assessment score of systems across the state as well as what the greatest issues are that affect a significant proportion of Oklahoma PWS systems. A total of 1,229 original assessments were completed from the program's inception up until December of 2023, while 68 new assessments have been completed since January of 2024.

During State FY25, 45 assessments were conducted. The results of these assessments indicate that, on average, PWS systems have 77.60% of the necessary TMF capacity to achieve sustainability. This means assessed systems are missing on average, 22.40% of the items, procedures, policies, and resources needed to become sustainable. The **figure below** represents the distribution in which systems scored on their assessments during this period.



In order to evaluate the effectiveness of technical assistance (TA) provided to systems, DEQ conducts an initial assessment with a water system before providing TA and then follows up with another assessment to see how much their score improved as a result of TA. Of the 45 assessments completed in State FY25, 31 were initial assessments while 14 were follow-ups. As represented in the **figure below**, the average score of initial assessments was 73.9% while the average for follow-ups was 85.8%. This reflects positively on the effectiveness of the CDS's TA efforts.



Understanding which capacities most systems lack aids the CDS in identifying where TA efforts need to be focused. **The table below** identifies the top five missing capacities among Oklahoma PWS systems as reported by all of the updated Capacity Development Assessments. According to the data, the most common missing capacity for PWS systems is having a written policy regarding communication. A written communication policy/plan coordinates methods to deliver information to people or entities who are important to an organization. Having a communication plan in place will ensure efficiency when dealing with emergencies specific to the water sector e.g. water outages, boil order advisories, and planned maintenance. DEQ has developed a template for such a policy and shares this template with systems who lack this capacity.

% systems without	TMF Capacity Missing	Type of Capacity
72%	System has a complete written policy regarding communication.	Technical
71%	System has a complete written meter maintenance plan.	Technical
69%	Cybersecurity: System has a written plan to prepare, act, and recover from a cybersecurity incident.	Technical
68%	Operation and Maintenance (O&M) written plan available and regularly updated, detailing all aspects of operating the water system.	Technical
68%	System conducts an energy audit on a regular basis.	Technical

It is common for systems to lack written plans, policies, and procedures. Considering this, DEQ improved and further developed its collection of templates for systems to utilize to address identified TMF deficiencies. The following templates are available for download on the DEQ Capacity Development webpage:

- Operations and Maintenance Plan
- Training and Certification Plan
- Communication Policies
- Strategic Growth Plan
- Emergency Response Plan
- Water Loss Audit Software
- Reporting and Records Policy
- Meter Maintenance Plan
- Backflow Cross-Connection Policy
- Cybersecurity Plan
- Organizational Chart
- Board Tour Memo
- Personnel Policies
- Asset Management Plan
- Meter Connections and Billing Status Policy
- Procurement Policy

Conclusions

A review of the capacity development assessments' answers yielded the following three primary conclusions:

1. **Of all the Technical, Managerial, and Financial (TMF) issues surveyed, the top five limitations of Oklahoma systems are all 'technical.'**

All top five limitations of Oklahoma PWS systems were found to be in the technical section of the TMF assessment. One of the most common technical capacities missing was a written Operation & Maintenance (O&M) plan. A complete and up-to-date O&M plan is crucial for PWS system sustainability. These plans should cover all aspects of system operations to ensure continuous PWS system operation in the event of an emergency or employee turnover. In addition, O&M plans are excellent tools to train new staff and to document and preserve institutional knowledge concerning system operations. PWS governing boards are encouraged to review O&M plans at least annually to become familiar with system operational challenges and to develop a knowledge base for making accurate, strategic, and informed decisions.

2. **Of all the deficiencies surveyed, three out of the top five included a lack of 'written policy or plan'.**

According to the TMF missing capacity table, it is common for systems to lack written plans, policies, and procedures. Most systems tend to say they have a plan, yet after more investigation, it is usually discovered to not be written down. Having every plan, procedure and audit written down is highly recommended. Without these plans written down for all system staff to view, the possibility for chaos and disorganization is inevitable. One of the main objectives for capacity development is to assist these systems with developing and implementing written plans, policies, and procedures.

3. **Water operator turnover has a major impact on the sustainability of a system.**

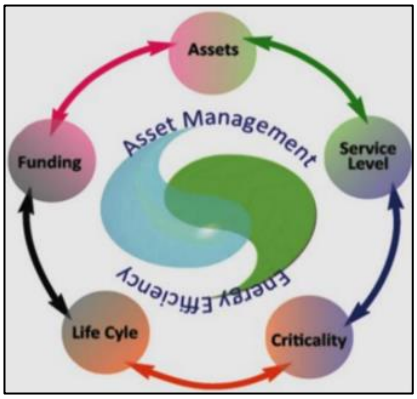
There are multiple factors that contribute to a system's capacity development score decreasing over time. One of the biggest influences is high employee turnover. Many of the small systems assessed by DEQ have one operator who has run the system for many years, often taking on many different responsibilities within their community. As those employees retire or leave their systems, the institutional knowledge carried by that employee is lost, making written plans and policies even more difficult to create.

Asset Management

Asset management (AM) is the practice of operating a PWS system so that the cost of owning and operating infrastructure capital assets is minimized while delivering the service level that satisfies customers. Termed "applied common sense" by the water industry, it is a means of operating a system that maximizes efficiencies and maintains sustainability, allowing a system to provide safe water at an affordable cost - indefinitely.

An AM plan is built around 5 core components:

- Building an asset inventory,
- Determining a target level of service,
- Determining criticality of assets,
- Calculating life cycle costing, and
- Developing a long-term funding plan.



The five core components of an asset management plan

The Capacity Development Asset Management Tool

The CDS developed an AM plan tool that is available to any Oklahoma PWS system, free of charge. The Microsoft Excel-based tool assists systems in cataloging their assets, determining the likelihood and consequence of failure, and exploring timeframes and funding options for asset replacement.

AM plans are a requirement for any PWS undergoing a project with DEQ's DWSRF section. Once completed, regular updates to the plan are strongly encouraged. AM plans are vital for making informed decisions on infrastructure acquisition, construction, operation, maintenance, renewal, replacement, expansion, and disposal. Having a plan in place that is regularly updated will minimize risk, help manage costs, and ensure the continuous delivery of safe drinking water to customers. The CDS assisted with the completion of 14 asset management plans in State FY25.

Asset Management Outreach

America's Water Infrastructure Act of 2018 (AWIA) and amendments to Section 1420 of SDWA brought about by Section 2012 of the America's Water Infrastructure Act (AWIA), required that states amend their capacity development strategies to include a description of how the state will encourage the development of AM plans at PWS systems. The state's strategy focuses on providing training seminars, one-on-one assistance, and providing for third-party AM plan development via technical assistance contracts. The CDS increased efforts toward promoting and supporting the implementation of AM plans) at the state's PWS systems. To further support AM training, DEQ included a presentation geared towards operators in the 10 Operator Renewal Trainings held across the state in State FY25.

Source Water Protection Program

As of State FY25, DEQ's Source Water Protection (SWP) Program finished the redevelopment of the Source Water Assessment and further developed SWP resources and a SWP Action Plan template for PWS systems to create a more comprehensive plan to understanding and protecting their source waters. During this period, DEQ successfully completed its first pilot assessment with the City of Antlers. Updates to this plan were developed following EPA's Source Water Assessment and Protection Programs Guidance. The SWP Assessment includes the following components:

- Delineation of the Source Water Protection Area(s)
- Inventory of the Potential Sources of Contamination (PSOC)
- Assessment of the sensitivity of the source(s)
- Determination of the susceptibility of each source

This re-development included alterations to the original methods of the assessment process. These changes include swapping the delineation method for groundwater sources to now be determined via a calculated fixed radius, switching to a more robust and extensive delineation method for surface water sources, applying a new inventory process, and introducing new calculations and score ranges for vulnerability, sensitivity, and susceptibility scores.

With the improved SWP Program, the process no longer ends at the assessment phase. Once the assessment is complete, a system then enters the protection phase (modeled after EPA's "Components of a Source Water Protection Program"). The SWP report has been modified into a more comprehensive document that provides systems with tailored results and resources to better implement the protection phase. Some of the additional resources include informational handouts that the CDS developed on topics such as best management practices (BMPs), funding, and green infrastructure. In addition, an action plan template has been created which serves as

an exercise for the system to consider beneficial SWP practices and projects that can be implemented at their system.

In addition to internal source water efforts, DEQ is also a member of the Oklahoma Source Water Collaborative with OWRB, OCC (Oklahoma Conservation Commission), ORWA, ODAFF (Oklahoma Department of Agriculture and Forestry), SWAWWA (Southwest Section of AWWA), USDA NRCS (United States Department of Agriculture Natural Resources Conservation Service), and the GWPC (Ground Water Protection Council). This group meets regularly to identify the source water protection needs of surface and ground water systems across the state, as well as to facilitate collaboration across the agencies involved. This past year, the collaborative worked on creating a comprehensive GIS map that houses a multitude of layers relating to the topic of Source Water Protection. The collaborative hopes to have this map be made public within the next year.

Lead Testing in Schools and Child Care Facilities in Drinking Water Grant Program

Background

Beginning in 2020, the CDS began implementation of a program aimed at reducing or eliminating lead from drinking water in public schools and public or private childcare centers. Using funding appropriated by the EPA Water Infrastructure Improvements for the Nation Act- Section 2107, the Lead Testing in Schools and Child Care Facilities Drinking Water Grant Program (LWSC) offers free testing of drinking water for lead to any Oklahoma public school or childcare facility that requests to participate. In addition to free drinking water sampling, these facilities receive direction on how to address high lead levels based on EPA's "3Ts" guidance, access to remediation funding, and follow up sampling if necessary.

Program Updates

During State FY25, DEQ hired a third-party contractor to assist with the reduction of waitlisted facilities. Partnership between the two organizations has been successful with a complete reduction of waitlisted facilities and an increase in the number of enrolled facilities from 146 to 288 through targeted outreach.

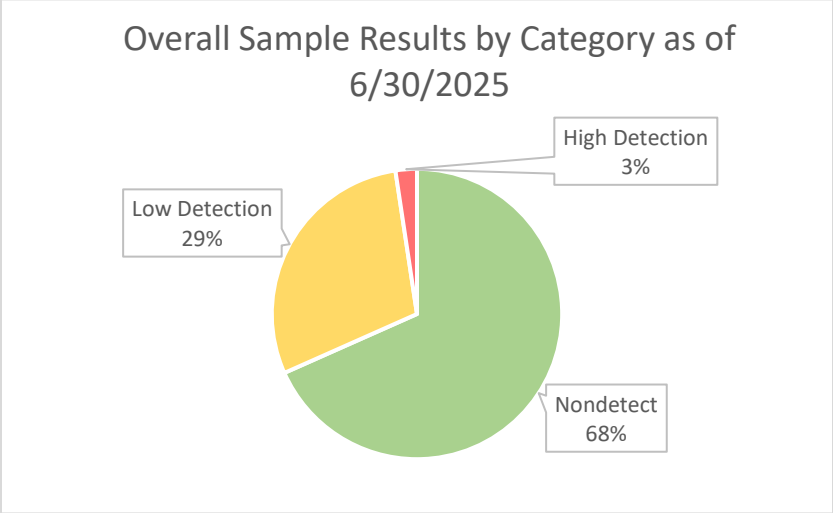
Currently, there are 4,836 eligible public schools and childcare facilities in Oklahoma. Currently, 288 facilities are involved in the program: 96 public schools and 192 childcare facilities. A total of 102 facilities completed the program. **Below** is a chart summarizing the program participants by status in the program.

Status of Facilities in Program	Number of Facilities
Waitlist (signed up for program, waiting to be sampled)	55
Inventory Complete (waiting to be sampled)	20
Remediation (sampling complete, facilities are fixing fixtures with lead detections before re-sampling)	111
Complete (done with entire program)	102

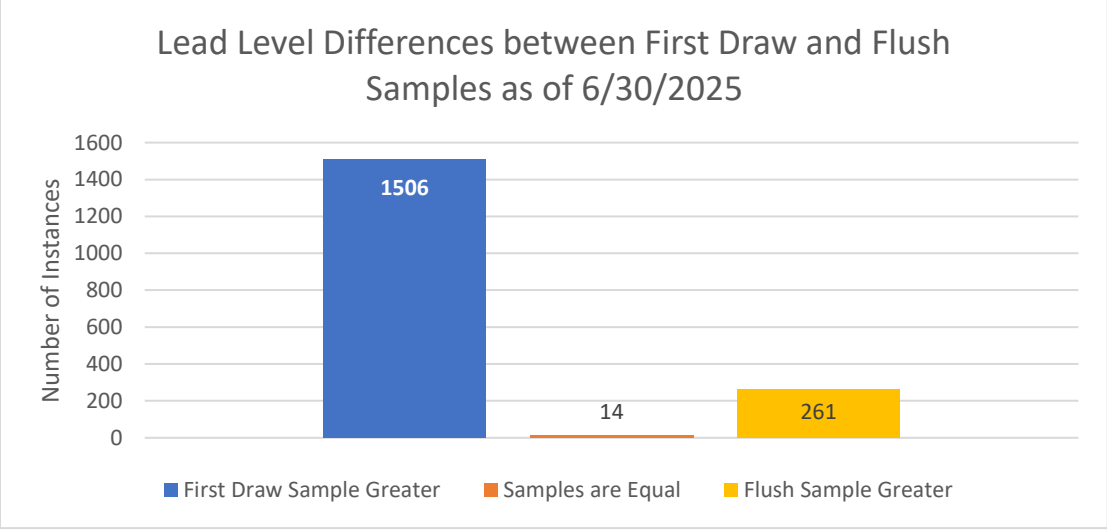
Sample Analysis

Program representatives have collected a total of 8,144 samples from school and childcare facilities across the state. These sample results are summarized **below** and categorized into three categories: non-detect, low detection, and high detection. Facilities with high detection samples (equal to or above 15.0 µg/L) are immediately contacted and instructed to remove the fixtures from service until a remediation plan is implemented.

Category	Samples	Percentage
No detectable level of lead (under 1.0 µg/L)	5,566	68.3%
Low Detection (between 1.0 and 14.9 µg/L)	2,384	29.3%
High Detection (equal to or above 15.0 µg/L)	194	2.4%



To collect accurate data and adhere with EPA's 3T's guidance program representatives take two samples at each outlet: a first draw (right from the tap) and a flush sample (taken after running the water for 30 seconds). The results of these two samples helps inform remediation decisions, if needed. The chart **below** depicts the difference in lead results from the first draw vs. "flush" (second draw) samples. Higher lead results in the first draw with lower results in the second draw, imply that the lead source could be from fixture contamination, not plumbing lines. Chart below only includes sample results with detectable levels of lead.



Expected Outcomes

Expected outcomes for the "Lead Testing in Public Schools & Childcare Facilities" project are:

- The reduction of children's exposure to lead in drinking water.
- The increase in community knowledge on the harmful effects of lead in drinking water- and what can be done to mitigate exposure.
- Water quality improvement and lead exposure reduction in drinking water.
- Establishment of routine practices such as those outlined in the 3Ts guidance.
- Fostering sustainable partnerships at the state and local level to allow for a more efficient use of resources and the exchange of information among experts in various areas of school, childcare, utility, and health sectors.

PWS Sustainability

Adequate TMF capacity is a critical component of PWS sustainability and is required for a system to consistently provide safe drinking water to the public. Acquiring and maintaining this TMF capacity can be challenging for many PWS systems. A failure to maintain TMF capacity can lead to unsustainable, inefficient operation, and frequent or continuous violations of health-based, primary drinking water standards.

If a PWS system requests technical assistance, the CDS schedules a visit with the PWS to help with various TMF policies and plans to improve the sustainability of the PWS system. To maximize assistance throughout the state, Oklahoma DEQ contracted with ORWA to provide TMF assistance with rate analyses, financial management planning, SWP planning, and much more.

In State FY25, 184 instances of technical assistance were provided to 77 unique systems across Oklahoma, each of them receiving customized assistance based on their needs. The specific assistance that was provided in State FY25 to these systems is detailed in the table **below**.

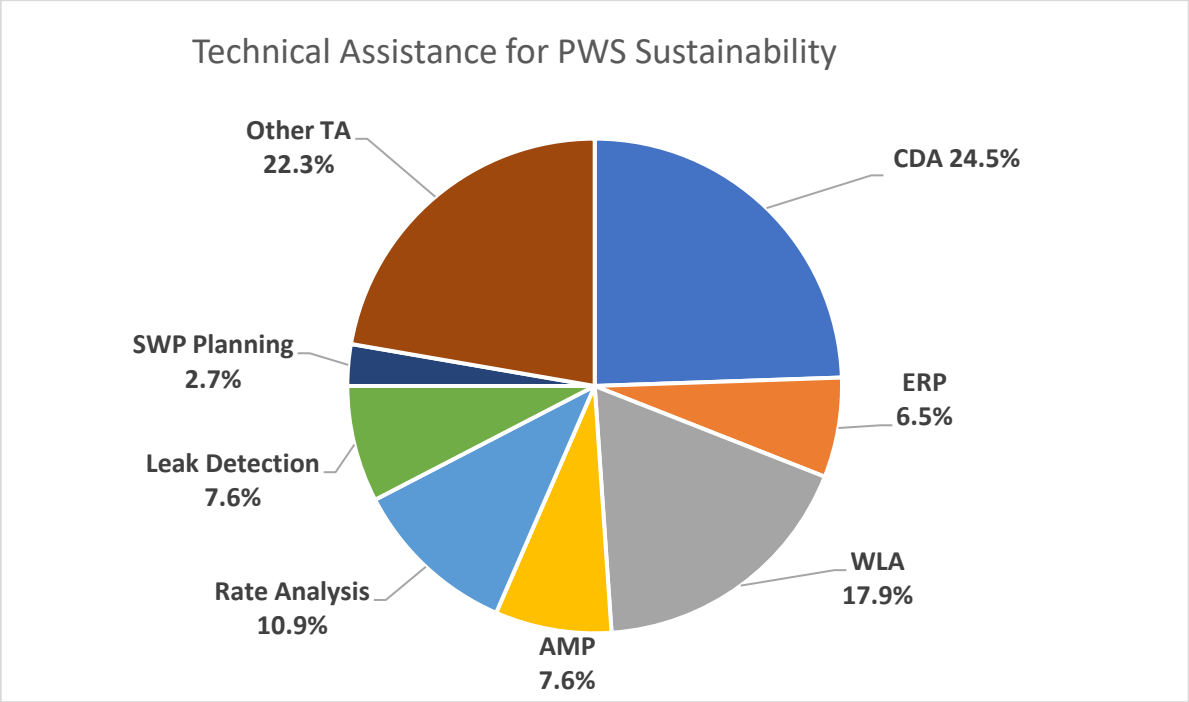
Type and Number of TMF Assistance Provided for PWS Sustainability in State FY25

TMF Assistance Type	# of Assistances Provided
Capacity Development Assessments (CDA)	45
Emergency Response Planning and Procedures (ERP)	12
Water Loss Auditing (WLA)	33
Asset Management Plans (AMP)	14
Rate Analysis	20
Leak Detection Assistance	14
Source Water Protection (SWP) Planning	5
Other Technical Assistance (TA) (Plans, Policies, and SOPs)	41
Total	**184**

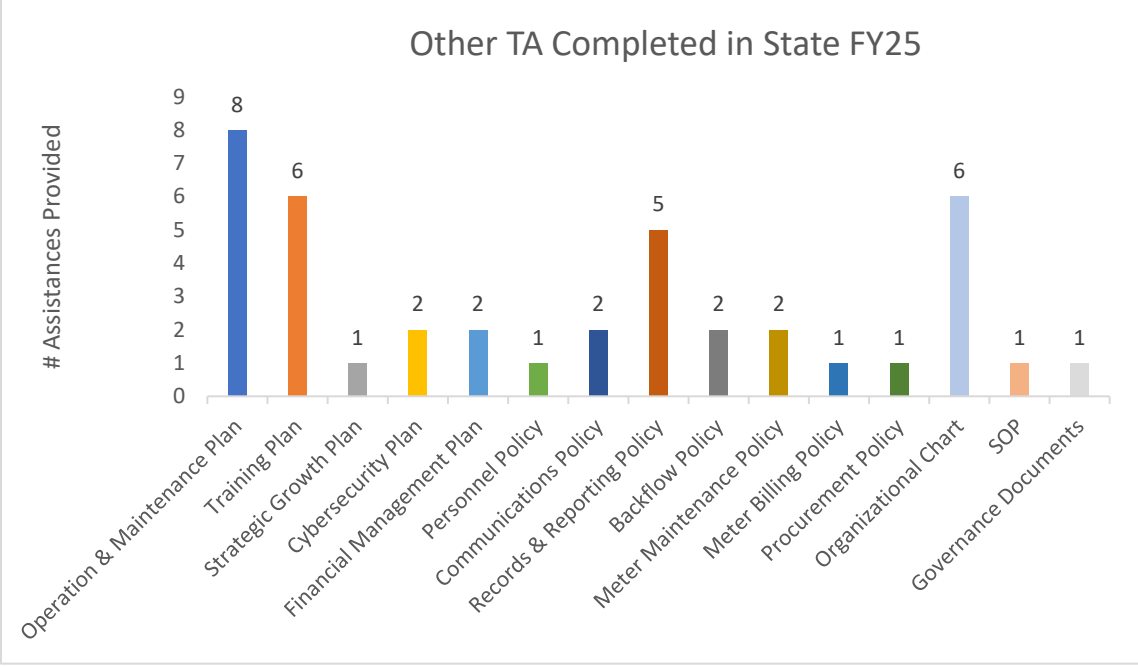
To maximize effectiveness, each participating PWS received a package of technical assistance activities focused on their individual needs. There is no maximum amount of time or effort that may be expended on an individual system: as much assistance and guidance as needed will be provided to the participating system. Participation is voluntary and is driven by the level of interest of the participating system.

The PWS technical assistance program focuses on these seven priority areas for improved resiliency and sustainability of PWS systems in Oklahoma. However, any system in Oklahoma can reach out to the CDS through their website to receive technical assistance and guidance on the creation of multiple plans and policies.

Percentage of TMF Assistance Provided for PWS Sustainability State FY25



Along with the main technical assistance outlined **above**, the CDS can aid with the completion of templates on various plans and policies related to maintaining an efficient and sustainable water system. The chart **below** displays the type and number of "Other TA" completed for State FY25.



Technical Assistance Provided to Disadvantaged Communities

Long-Range System Sustainability (LRSS) Program

Adequate TMF capacity is especially critical, but often difficult, for the success and sustainability for small (less than 10,000 in population), underserved (by having been in violation of a health-based primary drinking water standard at some point over the past five years), and disadvantaged (communities where the median household income is at 85% or less than the national median household income according to the United States Census Bureau / American Community Survey) communities. Inability to possess adequate TMF capacity can lead to health-based enforcement actions, unpreparedness during emergencies, financial issues, and more.

In State FY20, DEQ and ORWA, as members of the Oklahoma Strategic Alliance, joined forces and developed a program aimed at improving and enhancing PWS sustainability at small, underserved, and disadvantaged communities. Named the Long-Range System Sustainability (LRSS) Program, the program leads PWS systems through a series of programs and trainings, that once complete, provide a significant boost to TMF capacity and system sustainability. The LRSS program focuses on many of the issues examined by the Baseline TMF Assessment, and systems that complete the program demonstrate an improved TMF score, as well as improved efficiency, operations, and fiscal condition.

Small, Underserved and Disadvantaged Communities Grant

In addition to the LRSS Program, DEQ was awarded grant funds through the Water Infrastructure Improvements Act (WIIN) for FFY2024. DEQ plans to use this grant for infrastructure projects to achieve compliance at small, underserved, and disadvantaged communities and enable them to provide water while meeting state and federal regulations. DEQ will combine these grant funds with Drinking Water State Revolving Fund (DWSRF) principal forgiveness funding, which will allow additional oversight in the planning, design, bidding, and construction phases of the projects. DEQ plans to continue using the funds as described as long as the grant funding is available.

Emerging Contaminants-Small and Disadvantaged Communities Grant

DEQ was awarded Federal FY22 and Federal FY23 funding for the EPA Emerging Contaminants in Small and Disadvantaged Communities Grant (EC-SDC) in State FY24. DEQ is using EC-SDC funding to take a proactive approach to sampling and remediation/reduction of possible exposure in and around PWS systems that are small, disadvantaged and lack the capacity to effectively identify and treat the emerging contaminants on their own. Funding under the EC-SDC in the Safe Drinking Water Act (SDWA) section 1459A will help small and disadvantaged PWS systems across the State to sample for and implement remediation and mitigation measures for per- and polyfluoroalkyl substances (PFAS) and other emerging contaminants, including manganese.

In State FY25, DEQ partnered with the ORWA and the State Environmental Lab Services to sample all eligible PWS systems for PFAS. So far, 126 out of the 318 small and disadvantaged PWS systems were sampled under Method 537.1 v2. All eligible systems were sent letters explaining the PFAS Rule and the grant program prior to their first sampling event. The EC-SDC Grant Program will sample each eligible system up to four times for PFAS to fulfill the initial monitoring requirements and to establish a year baseline for the emergence of PFAS. Sampling will continue through State FY26 and is expected to conclude in November 2026.

So far, there have been eight instances of PFAS detection, with one system being known to need remediation. It is expected that these numbers will increase as more systems are sampled in different parts of the state and at different times of the year.

The final three years of this program will be used to implement remediation projects at the systems that are highest on the prioritization list. These projects will have an emphasis on PFAS removal, but other projects for the

removal of manganese and other emerging contaminants will be eligible for remediation funding as well. EC-SDC funds will be partnered with Drinking Water State Revolving Fund (DWSRF) principal forgiveness funding, which will allow additional oversight in the planning, design, bidding, and construction phases of the projects. DEQ anticipates receipt of funds to be used to implement remediation measures where the PFAS and other emerging contaminants levels exceed the health advisories of the EPA. In addition, DEQ will develop outreach materials to educate the public on PFAS and other emerging contaminants and their health effects and occurrence in water before, during, and after all actions pertaining to EC-SDC.

This program will result in a reduction in the number of PWS systems serving small or disadvantaged communities that have elevated levels of PFAS or other contaminants that threaten public health.

SUMMARY AND FUTURE PLANS

Enhancing the *technical, managerial,* and *financial* capacities of Oklahoma's PWS systems is a group effort. The continued success of DEQ CD program is dependent on the efforts of the DWSRF Section, PWS Engineering and Enforcement Section, PWS Compliance Section, Operator Certification Section, State Environmental Lab, and the various agencies that represent the FACT and OSA. This cooperative effort is very effective at promoting Capacity Development enhancement, but it can possibly be made more effective when efforts are targeted to where they are needed most.

DEQ CDS is looking forward to continue updating and implementing the SWP program, enhance AWOP Awards, complete water loss audits, assist in solutions to reduce loss, further improve water system capacity across the state of Oklahoma through technical assistance, continue improving the asset management tool, continue sampling for lead at enrolled schools and daycares, and guide the Disadvantaged Communities Program and Emerging Contaminants Program, targeting systems that need the most assistance through onsite help as well as infrastructure funding.

Long-Term expected outcomes for the Capacity Development program include:

1. A trend showing reduction in the number of PWS systems out of compliance with health-based standards.
2. A trend showing continued improvement in TMF assessment scores, especially in small, underserved, and disadvantaged communities leading to an improvement in the overall state TMF assessment score.
3. Improved understanding of current and emerging threats to water quality, safe drinking water, public health, and environmental health.
4. Reduction in real and apparent water loss at PWS systems as well as an increased understanding of types of loss and importance of data integrity.
5. A continuation in the promotion of the lead testing in drinking water in schools and daycare facilities program across the state with an expectation of increased enrollment into the program.
6. A continuation in the reduction of lead exposure from drinking water at schools and daycare facilities by assisting with remediation actions to reduce or eliminate lead.
7. Increase the number of completed and active SWP plans for a variety of PWS systems using accurate, up-to-date and easily accessible data. Perform outreach emphasizing the benefits of implementation of protecting Oklahoma's source water and information on funding opportunities.
8. Provide more funding opportunities and resources for small, underserved, and disadvantaged communities through the emerging contaminants and SUDC EPA grants.
9. Increased use and promotion of DEQ's asset management tool to improve understanding of asset criticality and enhance sustainability of PWS systems.

10. Promotion of the AWOP Awards Program to increase awareness and implementation of optimization concepts.

APPENDIX A

Total Count of Violations by number of PWS Systems in 2024

	MCLs		Treatment Technique		Significant Monitoring/Reporting	
Chemical Contaminant	**Number of Violations**	**Number of Systems with Violations**	**Number of Violations**	**Number of Systems with Violations**	**Number of Violations**	**Number of Systems with Violations**
Phase II/V						
Arsenic MCL Violations	21	6				
Arsenic Monitoring Violations					6	6
IOC MCL Violations	25	1				
IOC Monitoring Violations					22	11
Nitrate & Nitrite as (N) MCL	50	23				
Nitrate Monitoring Violations					153	108
SOC MCL Violations	0	0				
SOC Monitoring Violations					8291	165
VOC MCL Violations	0	0				
VOC Monitoring Violations					1441	32
Radionuclide						
MCL Violations	21	8				
Monitoring Violations					240	20
DBPR Rule						
DBP MCL & MRDL	587	125				
Treatment Technique (TOC's)			56	23		
Monitoring Violations					596	221
Total Coliform Rule (RTCR)						
Acute MCL Violations	7	6				
TCR Monitoring Violations					633	294
Lead & Copper Rule						
Treatment Technique			0	0		
Monitoring Violations					94	69
Ground Water Rule						
Treatment Technique			0	0		
Monitoring Violations					54	44
Surface Water Rules						
Treatment Technique			49	20		
Monitoring Violations					104	19
Consumer Confidence Report						
Failure to distribute or submit					78	78
Public Notification						
Failure to notify					67	6
SUBTOTALS	**711**	**175**	**105**	**43**	**11,779**	**1,073**
GRAND TOTAL OF VIOLATIONS = 12,595						
ACTUAL TOTAL NUMBER OF PUBLIC WATER SYSTEMS WITH MCL VIOLATIONS = 190						
ACTUAL TOTAL COUNT OF PUBLIC WATER SYSTEMS IN VIOLATION FOR MCL, TREATMENT TECHNIQUE AND MONITORING/REPORTING ACROSS ALL RULES = 576						

REFERENCES

Oklahoma Capacity Development Strategy Document State FY25 DWSRF Intended Use Plan

2024 State of Oklahoma Public Water Supply Program Annual Compliance Report