
Oklahoma Department of Environmental Quality

Capacity Development Program
Annual Progress Report to EPA
State Fiscal Year 2024



OKLAHOMA
Environmental
Quality

September 28, 2024

TABLE OF CONTENTS

INTRODUCTION	3
ENFORCEMENT AND COMPLIANCE MECHANISMS	4
CAPACITY DEVELOPMENT PROGRAM.....	5
WATER QUALITY EFFORTS AND PARTICIPATION	6
Regionalization and Consolidation	6
Funding Agency Coordinating Team.....	6
WATER QUALITY PROGRAMS.....	7
Construction Permitting Program	7
PWS Enforcement Program	7
Operator Certification Program.....	7
Area-Wide Optimization Program (AWOP)	7
Drinking Water State Revolving Fund (DWSRF) Loan Program	9
PWS Sanitary Survey Program	10
PWS Quarterly Newsletter	10
CHALLENGES TO OKLAHOMA’S CAPACITY DEVELOPMENT STRATEGY	11
ETT IMPLEMENTATION	13
CAPACITY DEVELOPMENT SECTION PROGRAMS.....	13
Water Loss Auditing and Control.....	13
Capacity Development Baseline Assessment	17
Updated Capacity Development Assessment.....	21
Asset Management.....	23
Source Water Protection Program	25
Lead Testing in Schools and Child Care Facilities in Drinking Water Grant Program	27
PWS Sustainability	37
Technical Assistance Provided to Disadvantaged Communities	39
SUMMARY AND FUTURE PLANS.....	41
REFERENCES	43

INTRODUCTION

With the Safe Drinking Water Act (SDWA) Amendments of 1996, Congress put in place a variety of initiatives designed to assist public water 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 public water 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/>.

A *public water system* (PWS) is defined by the SDWA as a system that provides water via piping or other constructed conveyances for human consumption to at least 15 service connections or serves an average of at least 25 people for at least 60 days each year.

There are three types of PWSs:

1. Community Water Supplies (CWS) such as towns and rural water districts;
2. Non-transient non-community (NTNC) systems such as schools or factories; and
3. Non-community (NC) systems such as rest stops or parks.

The 1,267 PWSs in Oklahoma are characterized as follows:

Classification

- 890 community water systems
- 78 non-transient non-community water systems
- 299 non-community water systems

Types of Primary Source

- 178 surface water
- 705 groundwater
- 8 groundwater under the direct influence of surface water
- 301 purchase from surface water
- 71 purchase from groundwater systems; and
- 4 purchase from groundwater under the direct influence of surface water systems.

DEQ has the statutory authority to ensure that all water supply systems will have adequate TMF capabilities prior to their construction in Oklahoma. For new systems, these capabilities are assessed via two DEQ regulatory directives. The first directive derives from Oklahoma Administrative Code (OAC) 252-626: Public Water Supply Construction Standards [<https://www.deq.ok.gov/asd/rules-and-regulations/attachment/626/>], which states that a PWS must receive a "Permit-to-Construct" from DEQ prior to initiating construction. The other directive requires all operators of a PWS to be licensed by DEQ, according to OAC 252:710: Waterworks and Wastewater Works Operator Certification Regulations:

[<https://www.deq.ok.gov/wp-content/uploads/deqmainresources/710.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 2023*. 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. NOV's address matters such as maximum contaminant level (MCL) violations, monitoring failures, improper operating procedures, or construction deficiencies. NOV's have short deadlines for compliance, typically between fourteen (14) and thirty (30) days from the date the water system receives the document.

If it is determined that a system is not likely to regain compliance by a NOV's deadline, the 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 as a result of non-compliance.

An **Administrative Compliance Order** (ACO) is issued when time is limited and there is a significant health hazard, or when a water 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.

In calendar year 2023, DEQ issued 3,223 enforcement actions, which consisted of:

- 2,751 informal enforcement letters;
- 461 NOV's and CO's;
- 8 Administrative Compliance Orders; and
- 3 Boil Orders.

A total of 2,141 systems (66%) were returned to compliance during calendar year 2023 (some systems returned to compliance more than once).

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 and between DEQ and other state agencies and organizations that are involved with supporting and assisting public water supplies. 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 water 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

<i>Tool</i>	<i>Technical</i>	<i>Managerial</i>	<i>Financial</i>
Construction Permitting	X		
PWS Enforcement	X	X	
Operator Certification	X	X	
SWAP	X	X	
AWOP	X	X	X
DWSRF	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 water systems that may benefit from **regionalization and/or consolidation** into larger water systems in SFY24. 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. While there were no regionalization or consolidation of PWSs in SFY24, DEQ continues to seek out small water supplies that are struggling with compliance and help them consider regionalization and/or consolidation, if appropriate for their situations.

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 public water supply 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 water 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 water 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 also helps assure the technical capabilities of water 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 the 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 SFY24, 136 Water Operator and 17 Water Laboratory examinations were administered by DEQ Partners. ORWA, by means of a DEQ contract, administered eight (8) water operator and two (2) water laboratory examinations. Overall, 935 individuals were approved for water operator exams and 176 individuals were approved for water laboratory exams. Also, during SFY24, ten (10) public water supply systems were issued NOVs 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 water 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, which has included presentations over Asset Management presented by one of the members of the CD Staff.

Area-Wide Optimization Program (AWOP)

The Area-Wide Optimization Program (AWOP) was first piloted 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.

AWOP Region 6/7 Meetings and Workshops

EPA Region 6 and Process Applications, Inc. in Fort Collins, Colorado, assisted in the development of AWOP. The EPA Region 6 states: Oklahoma, Arkansas, Louisiana, New Mexico, and Texas, along with EPA Region 7 states: Missouri, Iowa, and Kansas, have combined to make a larger AWOP group that meets quarterly. Oklahoma continues its involvement by attending and hosting quarterly regional meetings, as well as the biennial national meetings. In SFY24, DEQ AWOP representatives attended all three (3) quarterly meetings and a national meeting either in person or remote. In October 2023 Oklahoma hosted the AWOP Region 6/7 Quarterly Meeting which included the completion of a turbidity data integrity workshop at two Oklahoma water systems. One system was a conventional water treatment plant and one system was a low-pressure membrane plant. The meeting was attended by Oklahoma DEQ staff as well as staff from Arkansas, Iowa, Kansas, Missouri, New Mexico, Louisiana, Texas, Indiana, EPA Regions 6 and 7, EPA Technical Services Branch, and Process Applications Inc. The Oklahoma DEQ staff and AWOP team members also conducted a manganese workshop in December 2023 in Claremore, OK modeled after a workshop presented at an AWOP Region 6/7 Quarterly Meeting in Dallas, TX in May 2023.

Other meetings attended by Oklahoma DEQ AWOP participants included the National AWOP Meeting in August 2023 where Oklahoma DEQ staff presented the AWOP Brochure and highlighted Oklahoma's unique 3-team structure, the AWOP Region 6/7 Quarterly Remote Meeting February 2023, and the AWOP Region 6/7 Meeting May 2024 held in Wichita, KS, which included a workshop focusing on the administrative portion of a Comprehensive Performance Evaluation. The AWOP team will continue to plan workshops and attend trainings including a remote low-pressure membrane training for AWOP Region 6/7 in July 2024 and a turbidity data integrity workshop, scheduled for September 2024 to train Oklahoma DEQ staff. Representatives from the AWOP team will also continue to attend all quarterly, regional, and national meetings. The next quarterly meeting will be July 2024 in Lenexa, KS.

DEQ AWOP Status

From 1997 through the end of SFY24, DEQ has conducted 25 optimization and seven (7) mandatory CPEs of water systems within the state. The original scope of the CPE effort was, and continues to be, to assist the community and train water operators and engineers in understanding the intricacies of optimizing water treatment. A CPE provides analysis of the facility's design capabilities and a system's administrative, operational, and maintenance practices. Within 60 days following the CPE, systems receive a report from DEQ that outlines factors that may influence the optimization of their treatment operations.

The AWOP team has expanded in recent years to provide technical assistance outside of just CPEs to include workshops on a number of topics such as turbidity data integrity, manganese, low-pressure membranes, and more. In order to prioritize at which system(s) AWOP workshops should be hosted, the AWOP team updated the status component and are utilizing a new spreadsheet to help determine which systems would benefit most from AWOP Technical Assistance. The AWOP team also presented at Oklahoma DEQ Operator Training events around the state to highlight how the program can help all water systems, and the team has also established working relationships with other AWOP Region 6/7 states which allows sending of staff to assist other states when needed. An example includes sending one of our engineers to assist with a CPE in Emporia, KS September 18-22, 2023.

Internally the AWOP team has grown in SFY24 to include three team leads who head the workshops, awards, and CPE components of AWOP, as well as 16 other active members from the various sections within the DEQ Water Quality Division, PWS Group. The AWOP team started hosting regularly scheduled "Recaps" of AWOP events for those who are unable to attend meetings or workshops and has established reoccurring monthly meetings between AWOP team leads to discuss progress and continue program momentum.

AWOP Awards

Oklahoma DEQ also has an AWOP Awards Program, in which water systems sign-up to participate. This program encourages water systems to go above and beyond regulations to meet optimized goals set by the state. Awards are determined within a tier system which rates each individual public water system based on their work to achieve the highest level of optimization given their unique system circumstances. The water systems are recognized for their efforts with plaques, trophies, flags, signs, and more. **To the right** is a flyer for the AWOP Awards program that offers information about the program, who can participate, and how public water systems can sign up to participate. The AWOP Awards team is continuously working on data collection for the purposes of determining AWOP Award recipients.



AWOP Goals

Oklahoma has been finding ways to further the incorporation of TMF concepts in the CPE process, with a focus on bolstering the administrative review with elements from the capacity development program. These elements include the capacity development assessments and water loss audits, with plans to incorporate asset management, operation and maintenance plans, and source water protection. The AWOP CPE team is currently coordinating a voluntary CPE for Fall of 2025 to train more Oklahoma DEQ staff on how to properly conduct a full, weeklong CPE. AWOP team members will also attend a week-long, multi-state CPE to be conducted in Rogers, AR October 2024. Along with the turbidity data integrity workshop scheduled for September 2024, the AWOP Workshop team is also looking to host an in-person, multi-day Low Pressure Membrane workshop based off the remote training to be held in July 2024. The AWOP group is also hoping to provide more outreach and inform more water systems about the program through updates to the website and more access to resources.

Drinking Water State Revolving Fund (DWSRF) Loan Program

The Drinking Water State Revolving Fund Loan Program was established by the 1996 SDWA Amendments, which allowed EPA to make a capitalization grant to Oklahoma to fund the DWSRF loan program. This program, co-managed by DEQ and OWRB, is dedicated to providing low-interest loans to upgrade public water system infrastructure. It is designed to help those in greatest need based on a priority system that places a primary emphasis on drinking water quality. DWSRF Project Engineers assure the *technical* capabilities of water systems by reviewing engineering reports on proposed construction projects. Borrowers also receive *technical*, *managerial*, and *financial* assistance from the CDS, who conducts a capacity development assessment, water loss audit, emergency response plans, operation & maintenance plans and asset management plans, providing assistance and guidance to correct any deficiencies for each borrower.

Currently, 115 water systems are on the DWSRF PPL for a total of over \$927,652,953 in projects to be funded within the next few years. DWSRF applicants are assisted throughout the planning, design, bidding, contracting and construction phases of the project by DEQ engineers, environmental specialists, and the CDS. Applications for the DWSRF program are accepted anytime throughout the year.

From 1998 to the present, the program has entered into binding commitments totaling over \$2,283,566,855 to fund a total of 289 water system upgrades. In addition to funding infrastructure improvements, the program funds

the CD Baseline Assessment Project, lab equipment in the State Environmental Lab, Small System Technical Assistance, SWAP, water loss auditing and leak detection programs, and the PWS Program (partial funding).

During SFY24, the DWSRF program received three (3) additional grants in addition to the Base grant. A major condition of the new grants was to use a required percentage of principal forgiveness which varies for each grant. Under the Base grant, DWSRF provided subsidies in the form of principal forgiveness to public water supplies with health-based violations or that serve disadvantaged communities. The total amount of subsidies given was determined by the FY 2022 Capitalization Grant.

For SFY24, DWSRF committed \$861,240 in disadvantaged subsidy to five (5) systems. DWSRF also provided subsidies in the form of principal forgiveness to public water supplies under the new FY 2022 Bipartisan Infrastructure Law (BIL) grants for disadvantaged communities. DWSRF had no health-based subsidy projects ready to move forward for SFY24.


The total amount of subsidies committed for BIL General Supplemental projects was \$14,681,227, to 18 water systems. Under the BIL Lead Service Line Inventory (LSLI) and Emerging Contaminants (EC) funding, zero subsidy was committed during SFY24.

PWS Sanitary Survey Program

The PWS Sanitary Survey Program is implemented by DEQ, in cooperation with EPA Region 6, and in the course of conducting inspections, field staff from the Environmental Complaints and Local Services (ECLS) Division of DEQ and the WQD of DEQ provide technical assistance to PWS system personnel in resolving compliance issues. Across the state, ECLS staff members inspect all water systems annually. In SFY24, 516 sanitary surveys were conducted by ECLS and WQD staff, and 736 primacy and non-primacy site inspections were completed by ECLS.

PWS Quarterly Newsletter

The PWS Quarterly Newsletter was started in January SFY24 and will continue through SFY25. Four installations will come out each year at the start of each quarter. Creation of the newsletter is headed by the Capacity Development Section with input from all other sections within the PWS group. The newsletter is sent to all PWS staff contacts 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. **Below** is a snapshot of the first page of the most recent newsletter sent out July 1st, 2024.



Water, Water Everywhere
 DEQ PWS WQD Quarterly Newsletter **JULY 2024**


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 water and 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.

ENFORCEMENT ALERT: Cybersecurity

EPA is increasing enforcement activities related to drinking water system cybersecurity to reduce vulnerabilities. Read more and find actions systems should take now at [Drinking Water Systems Address Cybersecurity Vulnerabilities](#).

PFAS is Forever

This past April, EPA released their final rule regarding PFAS in drinking water. But what does that mean for water systems?



1. Within 3 years: must conduct initial monitoring or receive approval to use previous data
2. Starting 2027: must conduct ongoing compliance monitoring, include results in Consumer Confidence Report (CCRs), and start issuing public notification for monitoring and testing violations,
3. Starting 2029: must comply with PFAS Maximum Contaminant Levels (MCLs) and provide public notification for violation of PFAS MCLs.

Beat the Heat

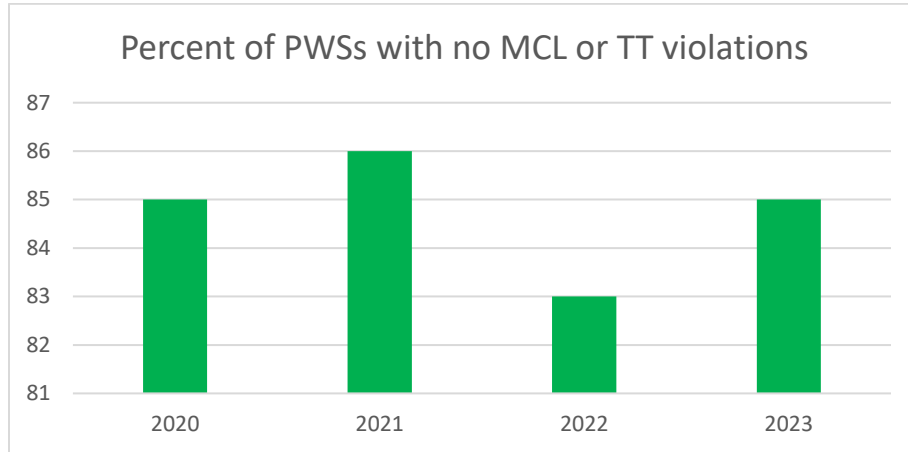
Get ready for summer weather with these steps and more here:

- **Plan:** Create and practice an Emergency Response
- **Coordinate:** Join [SoonerWARN](#)
- **Communicate:** Provide information to the public
- **Prepare:** Conduct facility maintenance and upkeep
- **Backup:** Obtain or have access to a generator or alternate power

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 correspondingly variety of treatment challenges for public water supplies.

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.



The State of Oklahoma’s PWS Program currently oversees 1,267 active entities that meet the federal definition of a PWS. Of these, 1,073, or approximately 85% of PWSs, reported no MCL or TT violations. **The table below** shows breakdown of the 15% of PWSs with violations for CY23.

CY23 Violation Breakdown

Contaminant	MCL, TT, or Monitoring /Reporting	Number of violating PWSs	Number of Violations
Arsenic	MCL	5	14
Arsenic	Monitoring	5	8
Inorganic Chemical	MCL	5	14
Inorganic Chemical	Monitoring	10	46
Nitrate	MCL	21	47
Nitrate	Monitoring	87	123
Synthetic Organic Chemical	MCL	0	0
Synthetic Organic Chemical	Monitoring	65	2,160
Volatile Organic Chemical	MCL	0	0
Volatile Organic Chemical	Monitoring	29	1062
Radionuclides	MCL	5	12
Radionuclides	Monitoring	19	180
Disinfection Byproducts	MCL	156	695
Disinfection Byproducts	TT	24	68
Disinfection Byproducts	Monitoring	218	596
Revised Total Coliform Rule	Acute MCL	2	2
Revised Total Coliform Rule	Monitoring	287	615
Surface Water Treatment	TT	16	72
Surface Water Treatment	Monitoring	26	90
Lead and Copper	TT	0	0
Lead and Copper	Monitoring	53	64
Groundwater Rule	TT	0	0
Groundwater Rule	Monitoring	32	39
Public Notice, failure to perform	Reporting	13	155
Consumer Confidence Report, failure to distribute	Reporting	76	76

Per Section I of The State of Oklahoma Capacity Development Strategy, DEQ ensures that new systems have TMF capabilities to provide safe and affordable drinking water. All new systems are referred to the CDS, who then assesses the system's TMF capabilities. The CDS then ensures that the system has an appropriately certified operator, notes the dates of sanitary surveys/inspections, determines if plans and specifications were submitted to and approved by DEQ, and makes TA referrals as indicated. A total of six (6) new or newly discovered water systems were identified by DEQ in SFY24 all were NC.

ETT IMPLEMENTATION

At the direction of EPA, DEQ has 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'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 water system. Water 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, NTNC, and NC 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.

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

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.

An M36 method water loss audit quantifies volumes and values of real and apparent water losses from a distribution system. 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 considered as finished water but is never delivered to customers and results in increased operational costs and stress on source water supplies. Apparent loss is revenue lost due to customer meter inaccuracies, billing system data errors, and/or unauthorized consumption. It is water that *could* have been sold, resulting in lost revenue for the system and distorted production and consumption data.

An M36 method water loss audit also determines the volumes and values of revenue and nonrevenue water that a PWS is producing. Revenue water is the water that a system sells to customers. The amount of revenue water a

system can deliver has a direct impact on its ability to pay for operations, make debt obligations, and provide for capital improvement and emergency response funding. In contrast, nonrevenue water is the sum of the real and apparent losses occurring at a system as well as all unbilled authorized usage, such as water used for municipal buildings, parks, swimming pools, irrigation, firefighting, and system flushing. Unbilled authorized usage is a necessity; however, these amounts can become excessive if not tracked. A water loss audit is often the first time many PWS systems become aware of the impact of unbilled authorized usage and can begin controlling it.

The figure below summarizes the volumes and percentages of water use and loss from the 334 water loss audits completed across the state since 2015.

Summary Water Balance (gallons per year identified)

	Water Sold as Exports: 12.940 billion		Billed Authorized Consumption: 72.248 billion	Billed Metered Consumption: 72.198 billion	Revenue Water: 72.248 billion
				Authorized Consumption: 76.192 billion	
Volume from Own Sources: 94.990 billion		Water Supplied: 95.894 billion	Water Losses: 20.250 billion		Unbilled Authorized Consumption: 3.944 billion
	Apparent Losses: 2.105 billion			Unbilled Unmetered Consumption: 1.652 billion	
	Real Losses: 18.144 billion			Unauthorized Consumption: 216.28 million	
Water Purchased as Imports: 12.459 billion				Customer Metering Inaccuracies: 1.702 billion	
				Systematic Data Handling Errors: 187.36 million	
				Water Main Leaks, Storage Overflows, Customer Service Line Leaks: 18.144 billion	

Apparent Losses

As defined earlier, 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. 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 \$42,973.01 per year per audited system and \$13.88 million in all systems audited. Apparent loss figures are summarized in the table, **below**:

Apparent Loss	Minimum	Maximum	Average	Total FY2024
Annual Apparent Loss:	0.132 MG/Yr.	110.801 MG/Yr.	12.04 MG/Yr.	325.05 MG/Yr.
Annual Cost of Apparent Loss:	\$1,599/Yr.	\$1,186,191/Yr.	\$104,799/Yr.	\$2,829,569/Yr.
Unauthorized Consumption:	0.022 MG/Yr.	9.445 MG/Yr.	1.09 MG/Yr.	29.56 MG/Yr.
Customer Metering Inaccuracies:	0.046 MG/Yr.	101.488 MG/Yr.	9.85 MG/Yr.	265.93 MG/Yr.
Systematic Data Handling Errors:	0.022 MG/Yr.	9.445 MG/Yr.	1.09 MG/Yr.	29.56 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, real water loss is the largest category of water loss observed from the audited systems, costing on average \$78,656.76 per year per audited system. This totals over 25 million gallons per year in identified loss. Real water loss is composed of three types of loss: water main leaks, storage area overflows, and leaks on customer service lines (portions that are the responsibility of the system). The AWWA software is not detailed enough to break down real water loss into these three categories and simply reports the amount as a total of all three.

The AWWA software did, however, provide several performance indicators that detailed the volume, cost, and relative magnitude of real water loss. These are summarized in the table, **below**:

Real Loss	Minimum	Maximum	Average	Total FY2024
Current Annual Real Losses	0.52 MG/Yr.	1.40 BG/Yr.	123.77 MG/Yr.	3.34 BG/Yr.
Annual Cost of Real Loss	\$10.00/Yr.	\$921,560/Yr.	\$130,602/Yr.	\$3,526,247/Yr.

Leak Detection, Meter Analysis, and Loss Correction

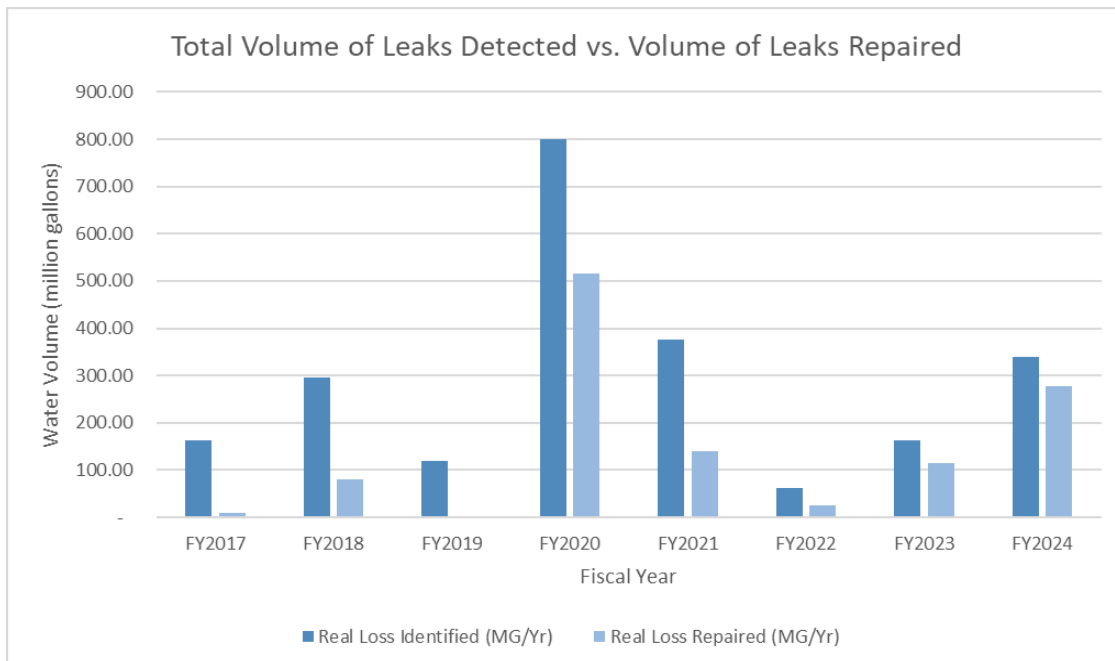
Conducting water loss auditing with the AWWA M36 method has improved understanding of real and apparent losses at participating systems; however, this is only the first step towards the ultimate goals of reducing water loss and retaining system revenue. The next step, intervention, takes the results 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 has indicated that significant problems with real and/or apparent loss may exist.

PWS systems that complete a water loss audit and meet the criteria of either nonrevenue water (as % of supply) greater than 20% or having apparent loss of greater than 10 gallons per connection per day (or both) qualify for leak detection and/or meter analysis technical assistance from ORWA. Participation in the technical assistance project is driven by the level of interest of the PWS in receiving the help (meaning that the system would benefit from the technical assistance in proportion to the level of effort and interest that the system contributed to the program).

For systems that choose to participate, ORWA meets with system personnel, reviews the results of the water loss audit, and then coordinates an in-depth schedule of leak detection and meter analysis help. The typical technical assistance event takes place over 2-3 weeks and involves locating leaks, analyzing meters and training PWS staff on how to conduct their own leak detection and meter analysis. Following the completion of this technical assistance effort, participating systems receive a detailed report indicating the location, volume, and value of all identified leaks. Systems are encouraged to act on the information provided and make repairs where possible.

Leak Detection	Total	FY2024
Systems who received leak detection help	66	12
Total # leaks detected	426	51
Real Loss Identified (MG/Yr.)	2,322	340.06
Value of Real Loss (\$/Yr.)	\$14,579,684	\$1,217,359
Total # leaks repaired during detection	120	35
Real Loss Repaired (MG/Yr.)	1,163	278.0
Value of Real Loss Repaired (MG/Yr.)	\$9,820,048	\$1,042,703

The table above shows data from SFY24 and the total statistics from the eight-year history of this program. The figure below depicts gallons per year of leaks detected and repaired.



In total, 66 systems have received leak detection assistance from the ORWA, where, together, they have identified 426 leaks estimated at 2.322 billion gallons/year. Of the 426 leaks identified by ORWA, 120 of them have been repaired by the systems. These repairs have recovered an estimated 1.163 billion gallons of water per year valued at an estimated \$9,820,048 per year.

The amount of saved revenue has shown real, immediate, and positive impact, even saving at least one system from the brink of bankruptcy. Additional benefits seen by systems that have participated in the program are increased financial capacity, continued loss reduction, and better operational knowledge and decision making.

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. In contrast to other states where water loss auditing and control is involuntary, these methods can obtain significant cooperation and meaningful results via voluntary participation and free technical assistance, which can be seen in the results.

Capacity Development Baseline Assessment

Introduction

In 2017, DEQ began work on a project to assess the *Technical, Managerial, and Financial (TMF) capacity* of small municipal PWSs 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 project functioned by conducting capacity development assessments at all municipal PWSs and rural water districts in Oklahoma serving 10,000 or fewer individuals. By using the comprehensive capacity development assessment tools developed by DEQ, which were originally used for assessing DWSRF borrowers and newly created systems, a clearer picture of the TMF sustainability needs across the state was gained. Several capacity development assessments had been completed prior to the start of the Baseline Assessment project. This data is included in the final results reporting. **Below** is a snapshot of the top portion of a Capacity Development Assessment.

Facility Name: <u>Example Water System</u>				
DWSRF Project Number: <u>Triennial Governors Report</u>				
Completion Date: <u>9/28/2023</u>				
Prepared By / Title: <u>ODEQ Capacity Development</u>				
CAP DEV SCORE:		81.7%		
<i>Instructions:</i> Capacity development refers to the financial, managerial, and technical conditions that lead to the successful and sustainable operation of a water system. The purpose of this checklist is to help pinpoint areas in the operation of your water system that might significantly impact your ability to produce safe water now and in the foreseeable future. The form should be completed by a managing operator or other official that is familiar with the day-to-day operations of the system. None of the information placed on this form is intended for use in enforcement actions. If you are interested in assistance and/or resources on any specific topic, please make a note in the comments section and DEQ will contact you.				
Please note: items in bold are <i>required</i> for DWSRF loan applicants.				
If you have any questions, please contact the Capacity Development Section at (405) 702-8100.				
Technical Capacity				
	Operation and Maintenance Plan	Yes	No	Comments
1	Operation and Maintenance plan available and regularly updated, detailing all aspects of operating the water system.	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
2	Operation and Maintenance plan addresses leak detection/repair, flushing, meter calibration, elimination of cross connections, regular valve exercising, and testing/exercising of emergency/backup equipment.	<input checked="" type="radio"/> Yes	<input type="radio"/> No	

The baseline capacity development assessment project was implemented as a cooperative venture between the Water Quality Division (WQD) and the Environmental Complaints and Local Services (ECLS) division at DEQ. To complete the large number of assessments required of this project, a cadre of local ECLS inspectors were called up to conduct the assessments with PWS system personnel. ECLS inspectors are DEQ personnel that PWS systems see most frequently; therefore, relationships and trust were already established and a framework for efficient completion of the project already existed. This project capitalized on this framework to conduct the assessments. The baseline assessment was conducted for a three-year period from 2017 – 2020.

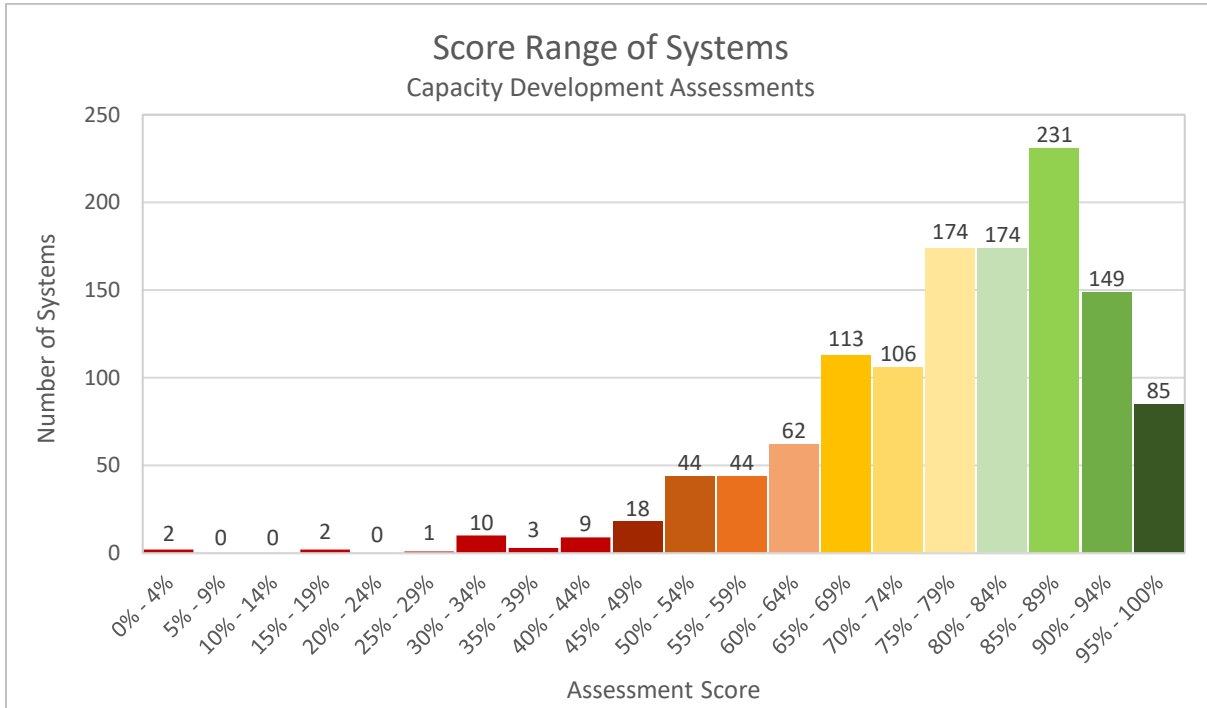
From 2021 through the end of 2023, capacity development assessments continued to be completed in order to establish initial assessment ratings for systems that may have been missed in the baseline assessment. In addition, an emphasis was placed on completing follow up assessments with already completed systems to see if and how their score had changed. The following results are reported for the 2018 - 2023 period as a whole. For the period from January 2024 through June 2024, a revamped capacity development assessment was implemented. The details regarding this improved assessment as well as primary results will be discussed at the end of this section.

Results

The results of the capacity development assessments have allowed DEQ to identify trends and correlations regarding the status of public water systems’ TMF capacities. The data has provided significant insights through a state-wide average assessment score as well as what the greatest issues are that affect a significant proportion of Oklahoma water systems. A total of 1,227 Capacity Development Assessments were completed since the inception of the assessment through December 2023. The results of these assessments indicate that, on average, water systems have 78.25% of the necessary TMF capacity to achieve sustainability. This means, on average, assessed systems are missing 21.75% of the items, procedures, policies, and resources needed to become sustainable. **The table below** provides a summary of the Capacity Development Assessments that were completed during this period.

Time Period	Number of Assessments	Average Score
Prior to FY2018	14	79.69%
FY2018	174	75.50%
FY2019	205	77.84%
FY2020	180	77.72%
FY2021	287	78.30%
FY2022	207	80.33%
FY2023	144	79.03%
FY2024 (end Dec 2023)	9	79.53%
ALL YEARS (through Dec 2023)	1,227	78.26%

The following figure illustrates the score range of all systems assessed by the capacity development assessment prior to calendar year 2024.



Understanding which capacities most systems seem to lack in aids the CDS in identifying where efforts need to be focused. **The table below** identifies the top ten missing capacities among Oklahoma water systems as reported by the Capacity Development Assessment. According to the data, the most common deficiency for water systems is not being a member of “SoonerWARN” or any mutual aid group. SoonerWARN is Oklahoma’s Water/Wastewater Agency Response Network. It is the formalized system of “utilities helping utilities” with mutual aid during emergency situations. The lack of systems involved in SoonerWARN may be due to a lack of promotion or marketing. Having a method of mutual aid is highly recommended to water systems.

% systems without	TMF Capacity Missing
75%	Member of SoonerWARN
67%	Has a written plan to regularly test backflow preventers
65%	Conducts an energy audit on a regular basis
59%	Has a written plan to eliminate dead ends in distribution system
57%	Has a written plan to acquire additional water rights
53%	Has completed and certified a risk assessment and an emergency response plan
52%	Has a written plan to respond to/address deficiencies on sanitary surveys and CPEs
50%	Operations and Maintenance plan is reviewed and approved by the board
49%	Tracks water loss on at least a yearly basis using the AWWA M36 method
44%	Operation and Maintenance plan is available, regularly updated, and detailed

Conclusions

A review of the capacity development assessments completed over this period yielded the following three primary conclusions:

1. Of all the Technical, Managerial, and Financial (TMF) issues surveyed, the top ten (10) limitations of Oklahoma systems are ‘technical.’

The top ten limitations of Oklahoma water systems were found to be in the technical section of the TMF assessment. Two out of the ten most common issues were related to Operation & Maintenance (O&M) plans. Based on the assessment data, systems tend to lack regularly updated board approved O&M plans. A complete and up-to-date O&M plan is crucial for PWS system sustainability. This plan should cover all aspects of system operations to ensure continuous water system operation in the event of an emergency or employee turnover.

O&M plans are also 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, seven (7) out of ten (10) included a lack of ‘written policy or plan’.

According to the table above, it is common for systems to lack written plans, policies, and procedures. Most systems say they have a plan, yet after more investigating, 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. Operators leaving or retiring has a major impact on the sustainability of a system.

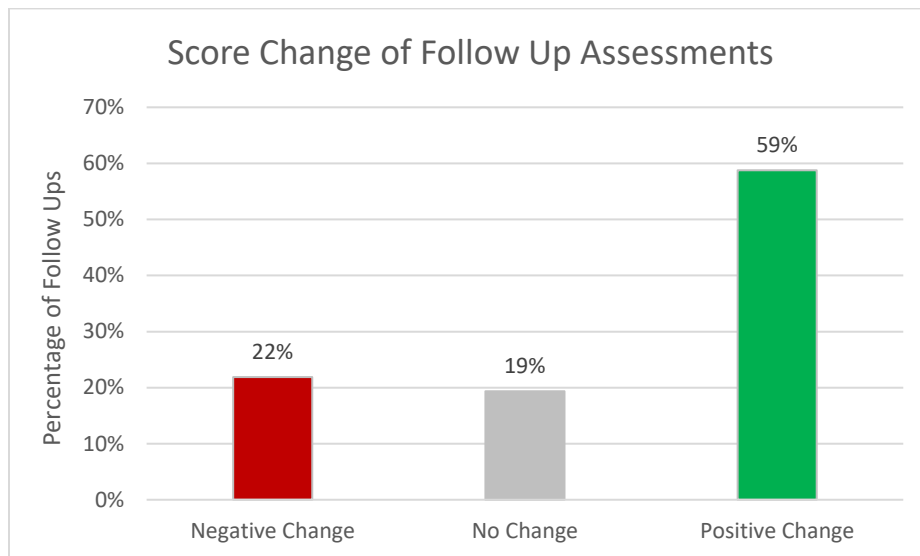
There are multiple factors that contribute to a system’s capacity development score decreasing over time. One of the biggest influences is high employee turnover. Many of the small systems assessed by DEQ have one operator who has run the system for many years, often taking on many different responsibilities 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.

Follow Up Results

After the completion of the baseline assessments, DEQ and ECLS continued to follow up with systems who completed their initial capacity development assessment to evaluate the effectiveness of conducting the assessment and subsequent technical assistance. By the end of December 2023, a total of 553 follow-up capacity development assessments had been conducted. Of the 553, several systems had multiple follow-up assessments completed. These follow-up assessments make up 45% of the total capacity development assessments completed prior to calendar year 2024.

Based on a comparison of the initial assessments and the follow-up assessments, 59% of systems saw an increase in their assessment score from their previously completed assessment. This is just one of the ways that Capacity Development measures the success of technical assistance. According to the **figure below**, about 20% of systems showed no change in score after the follow up assessment. This could potentially be a result of the system not requesting any assistance or not participating in a DWSRF project. It was also observed that 21% of the systems

scores decreased after the follow up assessment. The most common reason for this is because of water system staff turnover which leads to a lack of communication and transfer of knowledge.



Updated Capacity Development Assessment

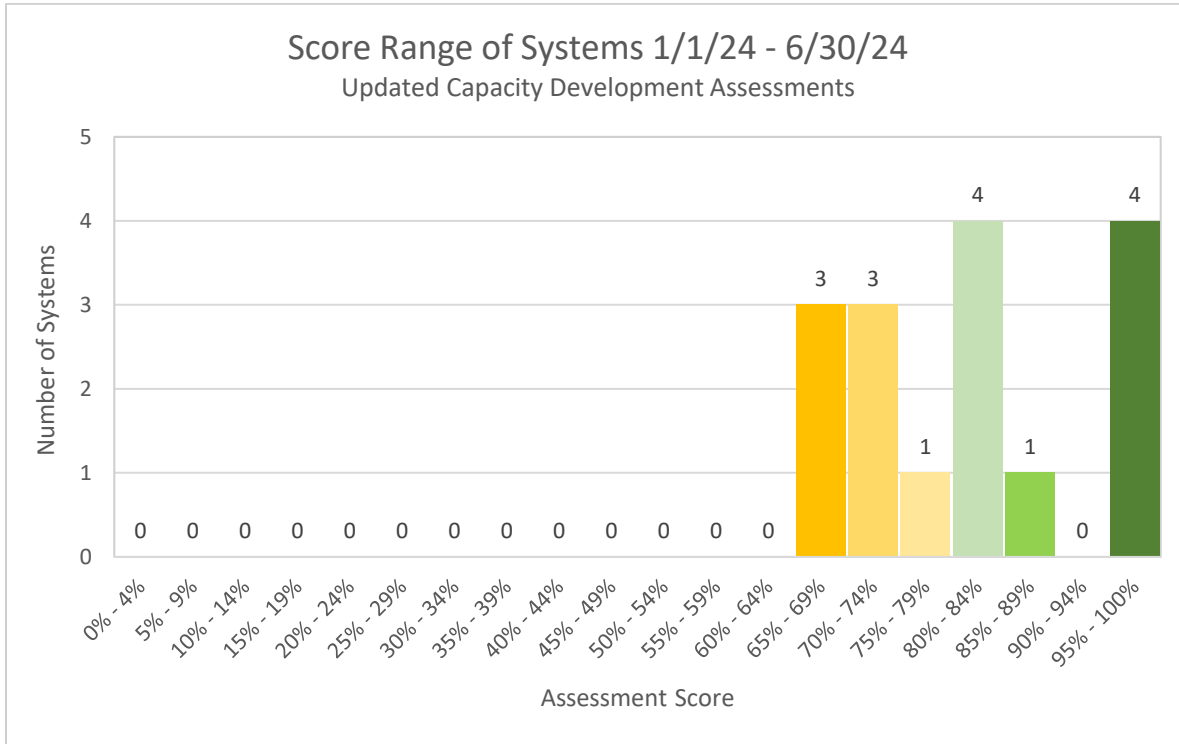
The original capacity development assessment had a total of 107 ‘yes or no’ TMF questions and simply consisted of the assessment alone. During SFY24, the Capacity Development Section finalized major improvements that have made the assessment easier to complete, understand, and synthesize. The updated assessment has a total of 75 primary questions with some questions consisting of several sub questions. For any questions that may not apply to some systems, N/A is now an option. In addition, when the DEQ representative is completing the assessment, they may either mark “Yes – Verified” or “Yes – Unverified” depending on whether a particular item was presented during the visit. If the meaning of a particular question is unclear, the user may now select a (?) button that will take them to a definitions and resources page. On this page, additional explanation is provided for every primary question in the assessment as well as links to any potential resources or references that DEQ maybe be able to provide.

Once a system completes the assessment, a newly added results page provides a descriptive overview of their overall score, how they performed in each TMF area, and for those wanting DWSRF funding, which of the items on the assessment they still must complete prior to receiving funding. These results provide systems with a more tangible direction towards making real improvements on their TMF capacities.

The updated assessment replaced the original assessment on January 1, 2024. Thus far, DEQ’s CDS has been the only group conducting the new assessments with systems. Since this assessment differs in the number of questions and had some language adjusted from the original assessment, the results cannot be compared.

Results

Since January 1, 2024, 16 updated capacity development assessments have been completed. On average, systems earned an overall score of 82%. The **below** figure represents the range in which systems scored on the new assessment. All systems thus far have shown to have completed between 65% and 100% of their overall TMF capacities.



Thus far, according to the updated assessment, the top ten missing capacities among Oklahoma water systems are the following:

% systems without	TMF Capacity Missing
69%	Operation and Maintenance plan is available, regularly updated, and detailed
69%	Service maps indicate water sources, facilities, and potential sources of contamination
69%	A written plan to prepare, act, and recover from a cybersecurity incident
63%	Conducts an energy audit on a regular basis
63%	A written policy to require/install backflow preventers or air gaps
63%	A written meter maintenance plan
56%	A written training and certification plan
50%	A written policy regarding communication
50%	A written plan to acquire additional water rights
44%	A written strategic growth plan with a mission statement, goals, and purpose

Similar to the results of the initial assessments, it seems to be common for systems to lack written plans, policies, and procedures. Considering this, DEQ spent significant time during SFY24 improving and developing its collection of templates for systems to utilize to address identified TMF deficiencies. As of the end of the SFY24 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

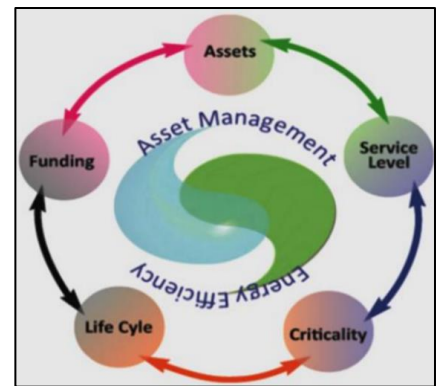
Asset Management

Asset management is the practice of operating a PWS 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 Asset Management 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.

Building an asset management plan that follows these core components guides water systems toward obtaining the longest and most efficient use of infrastructure possible while ensuring customers receive the quality of service they expect from the system.



The five core components of an asset management plan

The Capacity Development Asset Management Tool

The Capacity Development Section (CDS) has developed an asset management 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.

Asset management 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.

Asset Management Tool Improvements

The Capacity Development Section assisted with the completion of 19 Asset Management Plans in SFY24. Improvements continue to be made to DEQs Asset Management Tool. One of the new improvements was the addition of the “subtype” column to the Data Collection Sheet. The figure **below** exhibits this improvement made to the asset management tool in SFY24.

Source Water Protection Program

The Source Water Protection (SWP) Program is currently undergoing re-development in order to provide public water systems with a more comprehensive plan when it comes to understanding and protecting their source waters. At its inception, the *Source Water Assessment Program (SWAP)* was designed in accordance with the 1996 SDWA Amendments which require the development and implementation of a SWAP to analyze the existing and potential threats that public drinking water sources face throughout the state. DEQ developed this program utilizing EPA's Source Water Assessment and Protection Programs Guidance.

SWAP assessments include the following components:

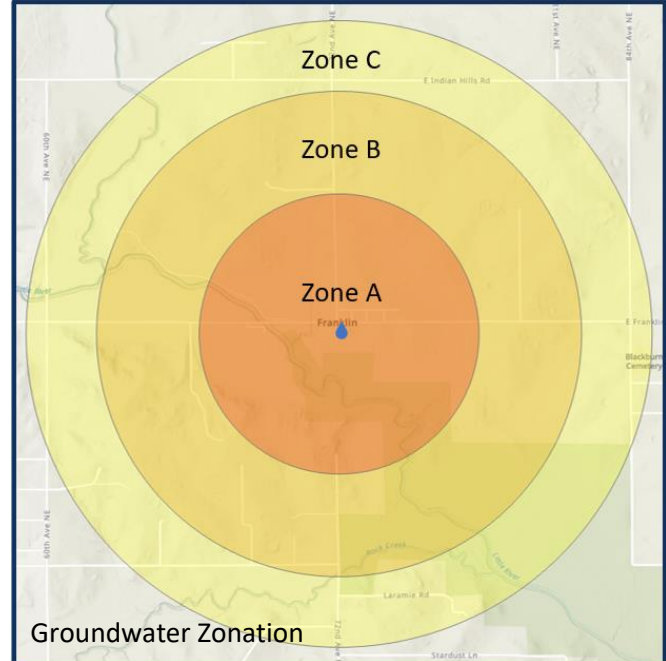
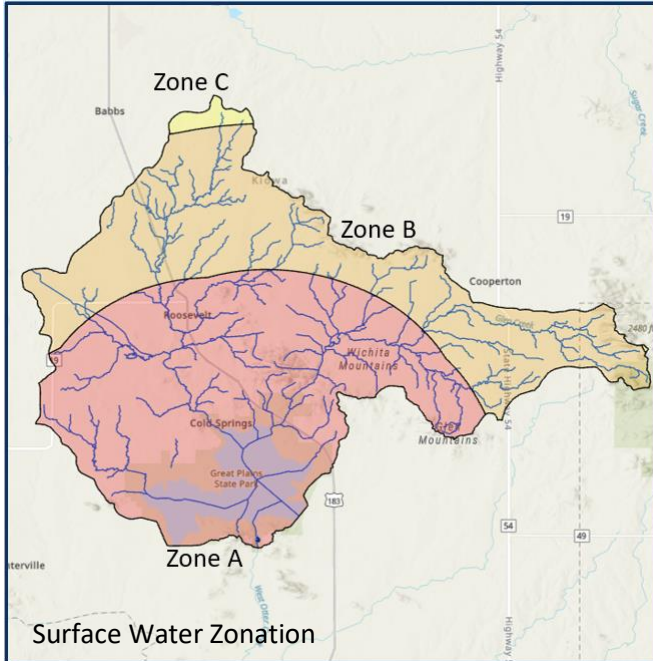
- Delineation of the Source Water Protection Area,
- Inventory of the Potential Sources of Contamination (PSOC),
- Determination of susceptibility of the water to contamination from the inventoried sources,
- Release of the results of the assessment to the public.

In the efforts to enhance the program, DEQ has first been focused on revamping the source water assessment portion of the program. This re-development has included altering some of the old assessment methods while establishing fresh written procedures regarding how to complete each step of the assessment. For example, the delineation method for groundwater sources has been altered to now consider a calculated fixed radius instead of a standard fixed radius to introduce more accuracy to the delineation. A fresh GIS master map has also been compiled that houses all the relevant assessment layers for a more streamlined method of delineation and inventory of PSOCs. The final susceptibility scores of these assessments shall be evaluated independently from the original SWAP reports since the vulnerability, sensitivity, and susceptibility analyses will now be calculated and reported on a new scoring scale.

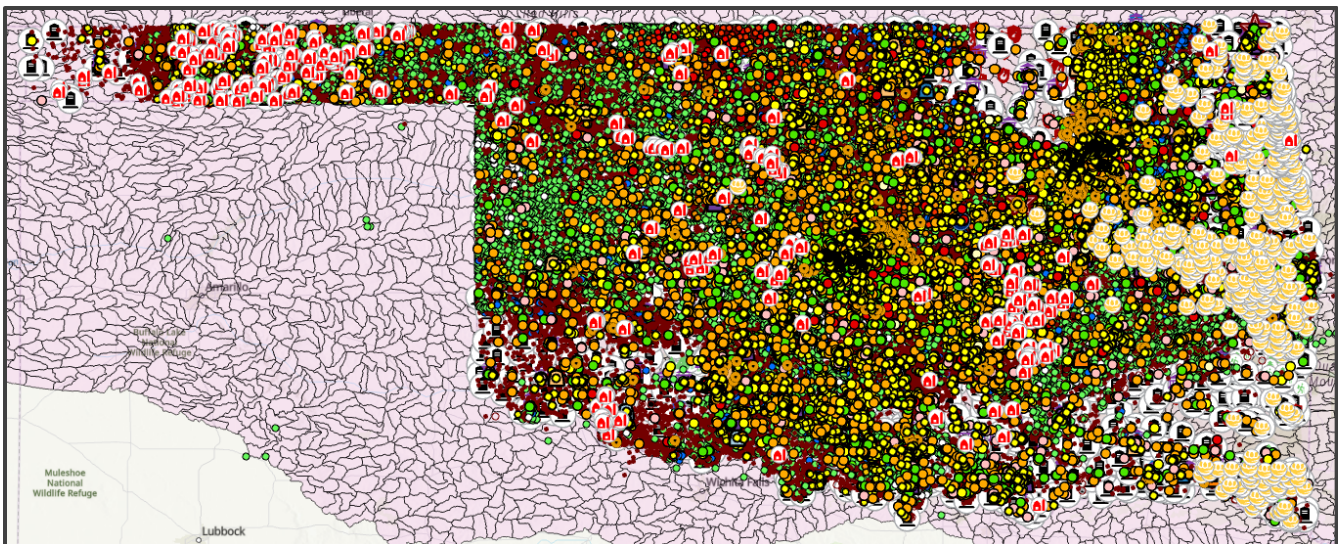
With the improved SWP Program, the process will no longer end at the assessment phase. Once the assessment is complete, a system will then enter the protection phase (modeled after EPA's "Components of a Source Water Protection Program"). DEQ is currently in the process of revamping the existing SWAP report to make it into a more comprehensive document that will provide systems with tailored resources to better implement the protection phase based on their assessment results. These resources will include informational handouts that DEQ has compiled and developed on topics such as best management practices (BMPs), funding, and green infrastructure. In addition, an action plan template is currently being developed. This action plan shall be an exercise that DEQ can assist systems with completing, and then, via set timelines, DEQ will follow up with the system to evaluate their progress.

A system's final SWP report will contain polished maps that exhibit the source water protection zones around their source(s). Other potential maps that may be provided to systems include a land use analysis, a map of their PSOCs, stream buffer zones, and/or a map of impervious surface coverage.

Below is an example of each a surface water protection zone as well as a groundwater well protection zone.



As previously mentioned, a local GIS master map has been developed that contains the locations of and information on the potential sources of contamination that are to be considered in the assessments. In addition, relevant watershed information, elevation data, aquifer information, and other relevant feature layers have been included to aid in the completion of assessments. Once the improvements to the SWP Program have been implemented, DEQ will work towards prioritizing systems and sites for participation in the program. **Below** is an example of some of the layers housed in the master map. Represented here are numerous PSOCs as well as watershed boundaries.



In addition to the 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.

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



Background

Starting in early CY2020, the Capacity Development Section began implementation of a new program aimed at reducing or eliminating lead from the drinking water in public schools and public or private childcare centers. Using funding appropriated by the Water Infrastructure Improvements for the Nation Act- Section 2107 (WIIN 2107), the Lead Testing in School and Child Care Drinking Water Grant Program (or LWSC for short) offers free and voluntary testing of lead in drinking water outlets to any Oklahoma public school or public/private childcare center that requests to participate. In addition to free lead sampling in drinking water, these facilities receive direction on how to address high lead levels based on EPA’s “3Ts” guidance and follow up sampling if necessary.

In the past, lead was a common component of faucets and water supply plumbing. If the water transported and delivered by such plumbing is corrosive, lead can leach out from lines and fixtures and enter the water and thus exposing anyone using the water to this highly toxic metal. No level of lead in the body is considered safe. Children are at particular risk of adverse health effects including nervous system damage, learning impairment, bone development issues, hearing damage, and anemia. The LWSC program aims to protect the health of children by reducing or eliminating children’s exposure to lead in the water they drink at school or childcare centers.

Along with no-cost testing, program participants implement EPA’s 3Ts guidance to:

- **Communicate** sampling results and important lead information to the public, parents, teachers, and larger community,
- **Train** on the risks of lead in drinking water and of the importance of testing for lead, as well as developing key partnerships to support the program,
- **Test** using appropriate testing protocols and a certified laboratory, and
- **Take Action** by efficiently remediating outlets with elevated lead levels when necessary.

Program Partners

The program is guided by a coalition of agencies and organizations, including: the Secretary of Energy and Environment’s Office (OSEE), the Oklahoma Parent Teachers Association (OPTA), and the Departments of Education (OSDE), Environmental Quality (DEQ), Health (OSDH), and Human Services (ODHS). This partnership seeks to prioritize facilities that serve younger children (ages 6 and under), facilities serving or located in disadvantaged communities, and facilities that are older and are more likely to contain lead plumbing.

The program also works with groups internal to DEQ including; the State Environmental Laboratory Services Division (SELS), and the Land Protection Division.

The SELS division plays a large role in the program by creating sample kits for each sampling event and performing laboratory analysis on the samples. Consistent communication with the SELS Division regarding sampling schedules, and results notification is imperative.

The Land Protection Division of DEQ also contributes greatly to the success of Oklahoma’s LWSC program. Their partnership, specifically their choice to offer remediation funding through the Site Cleanup Assistance Program (SCAP), has encouraged many schools to sign up and continue with the program after sampling. So far, eight schools have been reimbursed for fixture remediation and replacement of high lead detections (over 15ppb). A total of \$42,154.42 in SCAP funding has been reimbursed to schools for fixture replacement of high lead detected fixtures (over 15ppb). This SCAP funding used for remediation efforts has positively impacted 2,465 students and staff.

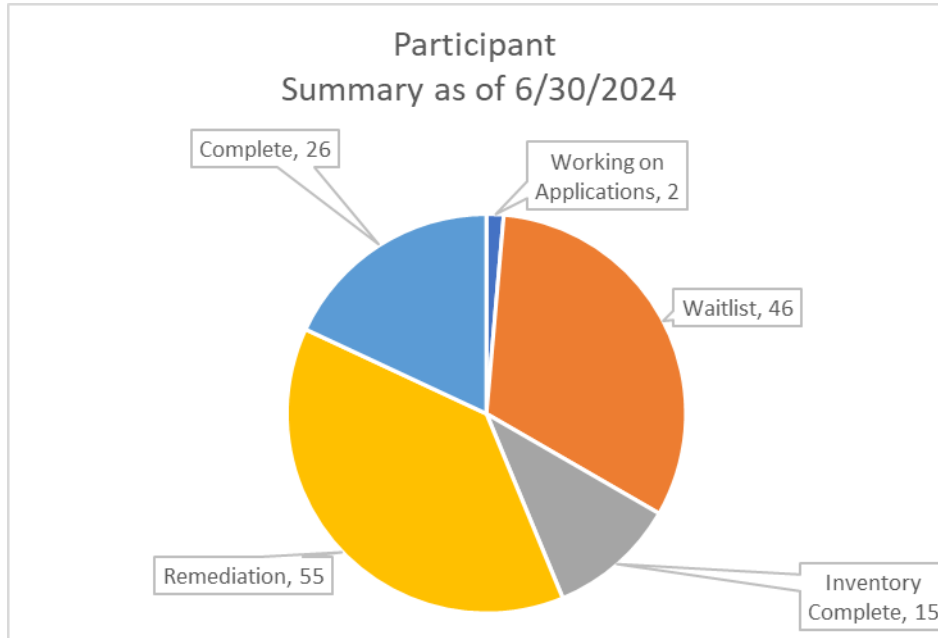
Sampling requirements necessitate that water samples must be collected before a facility opens and before any water is used. This has presented a challenge to central Oklahoma based staff as program enrollment is available to schools and childcare facilities across the state- regardless of distance from the central offices. Additionally, beginning in 2023, laboratory capacity at DEQ was limited in the number of samples they could accept and process per month. These limitations meant that there were many waitlisted facilities and inadequate capacity to complete sampling at the enrolled schools.

The program has made the decision to partner with a third-party contractor, TruePani Inc., to assist with the completion of the waitlisted facilities. TruePani is expected to begin sampling in August of 2024. The goal is that their involvement in the program will allow for sampling to continue at a consistent pace while balancing internal staffing constraints and limitations.

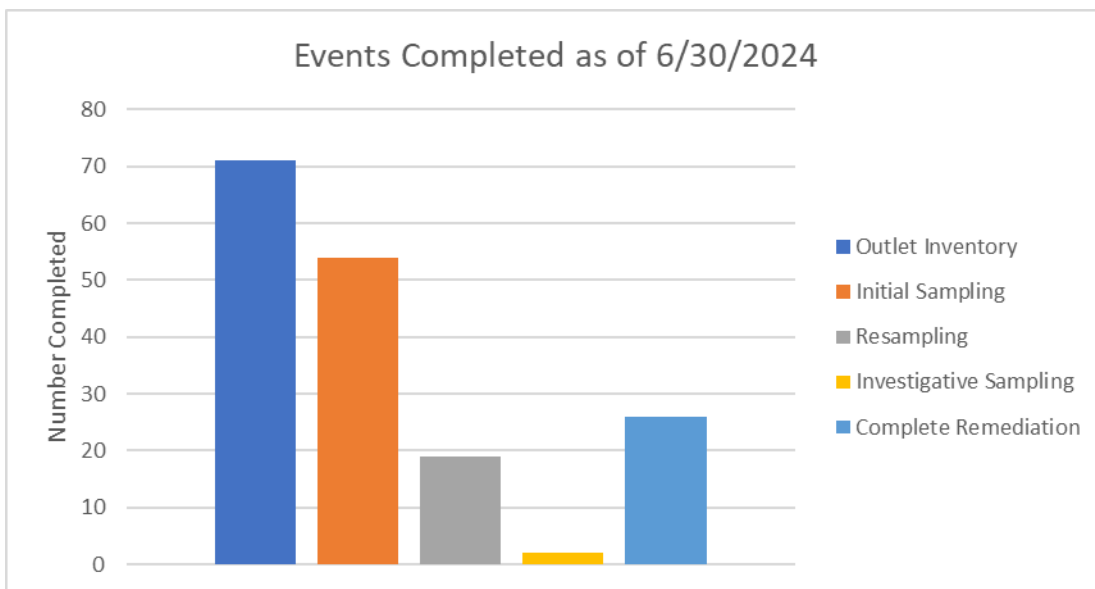
Program Updates

There have been many improvements since the program began in early CY2020. Currently, there are 3,326 eligible public schools and daycares in Oklahoma. Currently, 143 facilities are involved in the program; 66 public schools and 77 childcare facilities. Of the 144 facilities signed up to participate, 54 facilities have been sampled (37%). The pie chart **below (left)** details that status of each participating schools and childcare centers within the program. A total of 26 schools/daycares have completed the program.

Below is a chart summarizing the program participants by status in the program.



The bar graph below shows the type of events completed by the Capacity Development Section (CDS) as of June 30, 2024. DEQ maintains a hands-on approach for this program and has traveled across the state to answer questions and complete site visits. Currently, the program has applicants from 27 different cities. Since the beginning of the program, CDS has made: 71 inventory visits, 75 sampling visits, and 26 remediation visits.

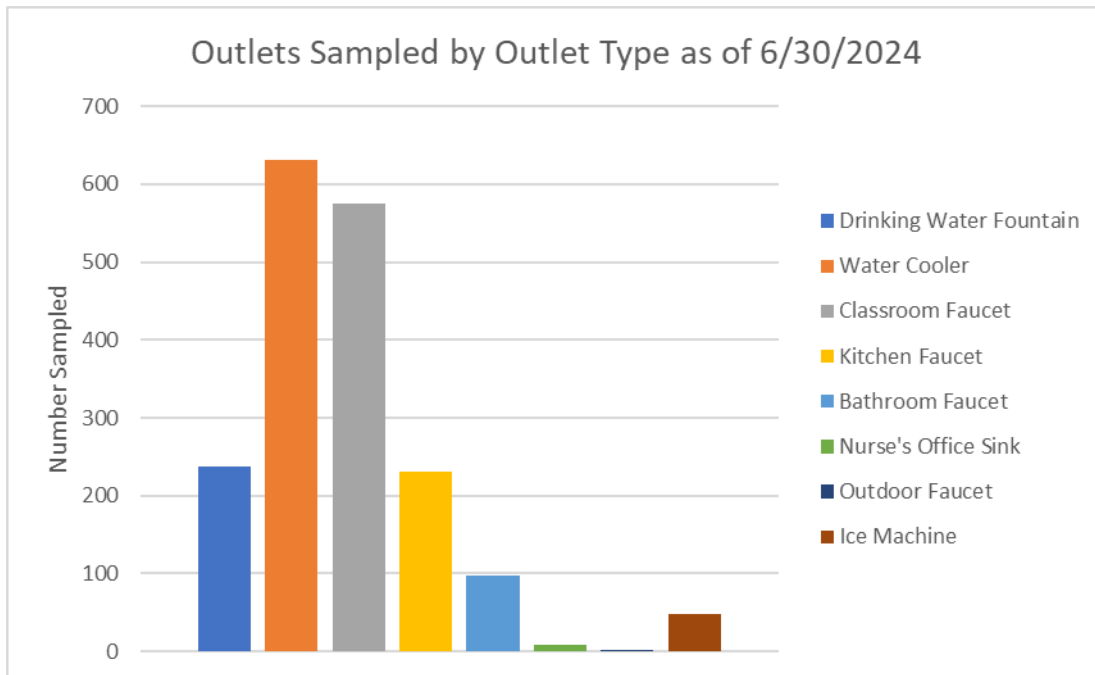


Data Analysis

DEQ has performed data analysis on all samples taken from the start of the program. Most samples taken were from drinking water fountains, kitchen faucets, water coolers with chiller units, and classroom faucets. There were minimal ice machines and bathrooms faucets for drinking at schools. The abbreviations for each type of fixture are listed below:

- **WC:** Water Cooler with Chiller Unit
- **CF:** Classroom Faucet

- **DW:** Drinking Water Fountain
- **KF:** Kitchen Faucet
- **IM:** Ice Machine
- **BF:** Bathroom Faucet
- **NS:** Nurse Sink
- **OF:** Outdoor Faucet



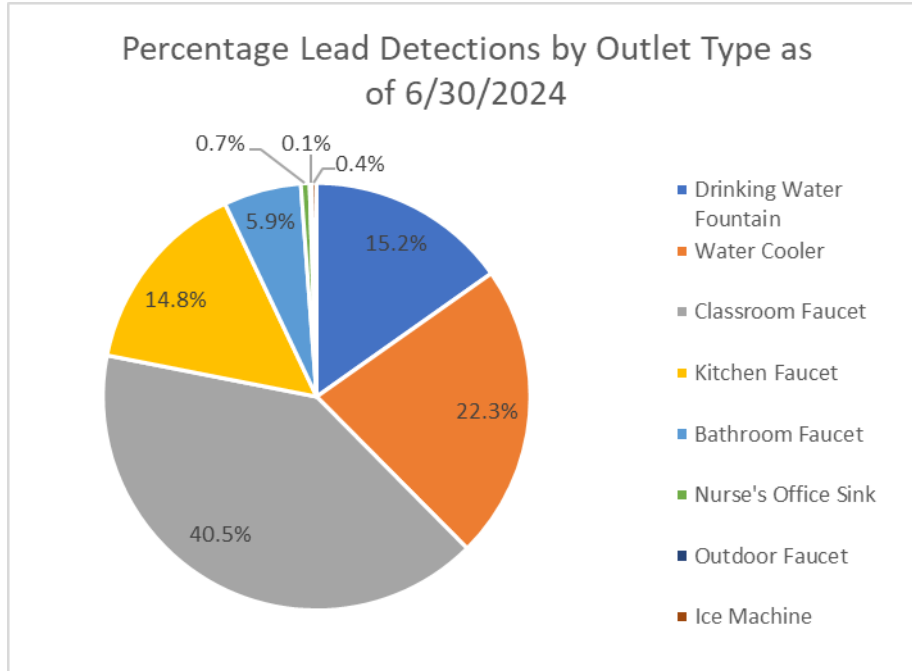
The image above is of a Classroom Faucet (CF) and Drinking Water Fountain (DW) that were sampled at a school. There were multiple schools with two (2) fixtures on each sink. These are often found in schools built prior to 1980.



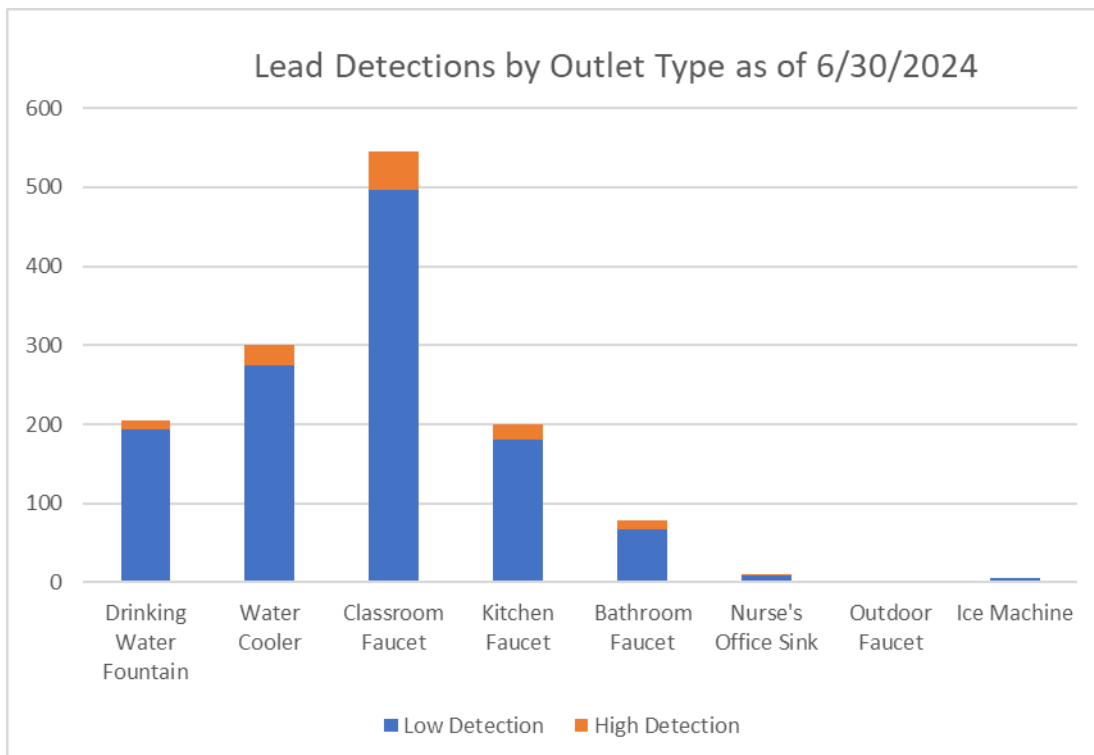
The image above is of a Kitchen Faucet (KF) that was sampled from a school in the program.

Sample Analysis

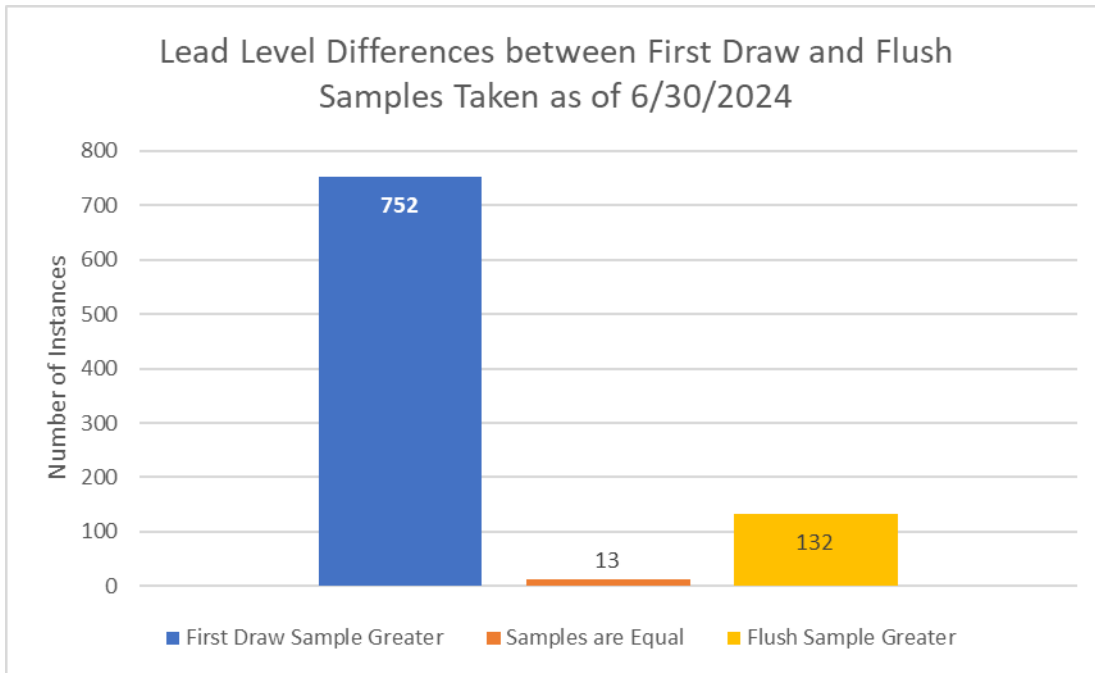
DEQ also performed a data analysis based on the sample results of each of those fixtures. The chart **below** shows the percentages of lead detections per fixture. Classroom faucets (CF) have the highest percentage of lead detections per fixture sampled at 40.5% while Ice Machines (IM) have the lowest percentage at 0.4%.



The chart **below** expands on this analysis by illustrating the total number of samples with lead detections by outlet type.



To collect accurate data and adhere with EPA’s 3T’s guidance- DEQ takes 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.



Program Improvements

To prepare for the increased capacity of the program with the addition of a third-party contractor, the CDS has begun a complete overhaul of LWSC program materials. The goal is to ensure that the branding and information included in applications, informational documents, and result reports remained consistent and accurate- and that the program would be prepared to take on new facilities as they applied. By increasing program *capacity* the section needs to ensure the program *infrastructure* will be resilient enough to handle the additional applicants.

This overhaul has included a reorganization of the main webpage. In past iterations of the website- finding results was not intuitive and the resources and information available was outdated. The CDS reorganized the site to make it easier to see sampling results for all facilities- and update available resources to reflect the current program. All the resources listed below are currently available on the site. Also, a ‘Nominate a Facility’ button has been added, which allows members of the public to nominate their facility to be contacted for free lead sampling.

The program has developed a report that includes participant information, sample results, program status, remediations completed, SCAP funding information, and other program highlights. This report is updated and published every quarter on the DEQ Lead Testing in Drinking Water in Schools and Child Care Webpage as well as DEQ social media platforms. This has been a great way to showcase the program’s hard work and accomplishments. A recent report is showcased **below**.

OKLAHOMA DRINKING WATER LEAD TESTING

IN PUBLIC SCHOOLS & CHILD CARE FACILITIES

PROGRAM REPORT AS OF 3/31/2024

DEQ's Lead Testing in Schools and Child Care Facilities Drinking Water (LWSC) Program is a voluntary program aimed at reducing lead exposure from drinking water within schools and childcare facilities in Oklahoma. This report is updated quarterly with new program totals.

146 Total Participants

67 Public Schools

79 Daycares/HeadStarts

Participant Summary

- Program Completed: 23
- Remediation Phase: 22
- Inventory Completed: 13
- Application Approved: 88

Where Do We Test?

DEQ will partner with any public school and public or private childcare facility throughout the state that requests free lead testing assistance.

News/ Overview

There are now 14,832 students and staff in participating facilities

Page 1 of 2

OKLAHOMA DRINKING WATER LEAD TESTING

IN PUBLIC SCHOOLS & CHILD CARE FACILITIES

DEQ Web

Visit our website for all detailed results by facility and more program information

Results to Date

Results are organized into three categories:

- None <1 ppb** = no significant lead level found, no recommended action.
- Low 1-15 ppb** = Lead was detected, recommend remediation and/or removal.
- High >15 ppb** = high levels of lead, immediate actions taken, followed by remediation and/or removal.

3,595 Samples Collected

Facility Remediation Efforts

- 95 Faucets/Fixtures Replaced
- 25 Water Coolers Replaced
- 34 Outlets Removed from Service
- 41 Outlets Included in Flushing Protocols
- 5 Filters Installed at Faucets
- 1 Location Conducted Plumbing Repairs

Funding Assistance

7 Schools have requested and received remediation funding to address lead detections.

\$38,452

Has been awarded to schools for the purpose of reducing lead exposure

Contact DEQ

- 405.702.8147
- lwsc@deq.ok.gov
- Department of Environmental Quality
- P.O. Box 1677
- Oklahoma City, OK 73102
- ATTN: LWSC

Page 2 of 2

Providing accurate educational resources is a foundational pillar of the program. Lead contamination is an often-contentious issue, it is imperative the facilities enrolled in the program understand the importance of this sampling and are prepared to answer any questions from their staff, concerned parents, or students. Additional resources have been created including a 'Program Fact Sheet' for principals, directors, or superintendents, a 'Parent factsheet,' designed to be handed out or displayed, and a 'Communication plan' template for communicating results and program involvement. These forms are included below.

OKLAHOMA DRINKING WATER LEAD TESTING

IN PUBLIC SCHOOLS & CHILD CARE FACILITIES

Program Fact Sheet

Thank you for participating in the Oklahoma Department of Environmental Quality (DEQ) Lead Testing in Schools and Child Care Facilities Drinking Water (LWSC) program. You are taking an important step to ensure the health of our communities. This fact sheet will help you better understand the program and your role, as well as prepare you for questions from teachers, parents, and community members.

Your Role in the Program

The LWSC program is a voluntary program run by DEQ - which utilizes EPA's 3Ts program framework. This framework aims to assist schools and child care facilities in the removal of lead from drinking water. While it is currently not federally required for public schools and childcare facilities to test for lead, EPA is working to pass new regulations that would require it. The LWSC program provides free sampling and laboratory testing, as well as remediation assistance and financial aid for the replacement of fixtures found to contain lead. All results will be made publicly available on DEQ's website. **You and your staff will work with a DEQ representative to schedule the following steps:**

Step 1

Inventory of all drinking outlets

Step 2

Sampling before school day starts

Step 3

Remediation & replacement of fixtures

Step 4

Resample as needed

Communication is Key

Why are we doing testing now?

Traditionally EPA regulations have focused on regulating treatment techniques of water systems to prevent corrosion of lead pipes. Recently there has been a push to remove all lead from drinking water lines, including fixtures, so it can't pose a threat to public health today or into the future.

What happens if we find lead?

If testing results show elevated lead levels, both short term actions such as: shutting off problem outlets, placing 'do not drink' signage, flushing taps, providing bottled water; and long-term actions such as: pipe/fitter replacements or installing permanent filters, can be taken. Actions will be recommended based on your unique sample results.

What should you share with the public?

Communicating early and often about testing plans, results, and actions is key in gaining the trust of the community. It is important to be a reliable source of information for your teachers, students, and parents.

FAQs

- Where can I find results once they are posted?
 - All results will be posted on the DEQ LWSC program website under the "Testing Results by School" page.
- Why should I care about lead?
 - There is no safe lead level and children are especially susceptible to exposure.
- Should I expect to find lead in my school?
 - Most samples come back with no lead detected, but the only way to know is to test. See our website for a full list of results.
 - How can one know if a child has been exposed to lead?
 - The best way to know is through a blood test. Most children will have no obvious symptoms.

Contact DEQ: 405.702.8147 | lwsc@deq.ok.gov | Department of Environmental Quality | P.O. Box 1677 | Oklahoma City, OK 73102 | ATTN: LWSC

Visit our website:

Created July 2024

OKLAHOMA DRINKING WATER LEAD TESTING

IN PUBLIC SCHOOLS & CHILD CARE FACILITIES

Communication Plan Resource

Thank you for participating in the Oklahoma Department of Environmental Quality (DEQ) Lead Testing in Schools and Child Care Facilities (LWSC) program. As outlined by the EPA, all participants of Oklahoma DEQ's LWSC Program must agree to publicly post sampling results for the public to access. Communicating early and often about your testing plans is a valuable step in building public trust around a delicate subject-potential lead contamination.

When Developing your Communication Plan:

- Make sure your information is honest, accurate and comprehensive
- Speak with one consistent voice
- Anticipate questions and concerns and address them proactively
- Keep your audiences up to date as new information becomes available
- Be positive and forthcoming- remember that lead contamination can be a scary thing to consider, make sure parents and staff understand your commitment to maintain a safe learning environment.

Step 1: Assemble your team

Organize a team of internal staff who will serve as the facility's Lead Testing ambassadors. This team should include those directly involved with sampling events and remediation work, facility leadership, and communication coordinators. Determine the individuals best suited to implement this program in your unique facility.

Step 2: Identify target audience

Identify the primary audiences or interested parties involved in the facility or surrounding community. This may include facility staff, students, and parents. Be aware of any organizations that you may need to communicate with such as your local PTA or school board.

Step 3: Decide on method(s) of communication

What method or combination of methods would be most appropriate for your target audience? Example methods of communication include: updating your school or district website, sending out emails to parents or staff, handing out letters or fliers, including information in a newsletter, or posting signage on public bulletin boards. Be sure to include information in other languages or provide a contact for non-English speakers to get more information.

Step 4: Make a plan of action!

Timely dissemination of communication materials is of the utmost importance. Public communication efforts are less complicated and generate less conflict if those affected are notified in advance of important issues and events. It is recommended that schools communicate with their audience before sampling begins, after testing results are received, if/when corrective measures are decided upon, and the results of post-remediation sampling (if applicable).

OKLAHOMA DRINKING WATER
LEAD TESTING
IN PUBLIC SCHOOLS & CHILD CARE FACILITIES

The Oklahoma Department of Environmental Quality (DEQ) utilizes EPA's 3T's program framework to assist schools and child care facilities in the removal of lead from drinking water.

HEALTH EFFECTS

Lead is harmful to everyone but because their bodies and brains are still developing, children are especially vulnerable to lead exposure.



DAMAGE TO BRAIN AND NERVOUS SYSTEM



SLOWED GROWTH AND DEVELOPMENT



LEARNING AND BEHAVIOR PROBLEMS



HEARING AND SPEECH PROBLEMS

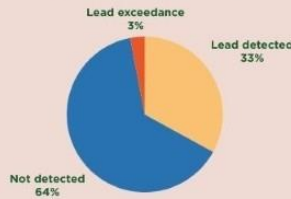
LEAD IN DRINKING WATER

2021

EPA announced the Lead and Copper Rule Revisions to include a focus on removal of lead from schools and child care facilities.



RESULTS TO DATE*



- Results are organized into three categories:
- Not detected <1 ppb = no significant lead level found, no recommended action
 - Lead detected 1-15 ppb = Lead was detected, remediation and/or removal
 - Lead exceedance >15 ppb = high levels of lead, immediate actions taken, followed by remediation and/or removal

*Find all results by school on DEQ's website.

PARTICIPATION

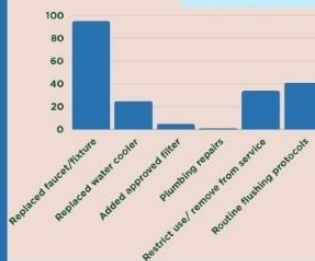
146



- 67 - Public Schools
- 79 - Childcare, Daycare
- 1 - Other Youth Facility

To date, 146 facilities have participated in the Lead Testing in Schools and Childcare Facilities program.

ACTIONS TAKEN BY FACILITIES



When lead is detected in any amount, the facility works with DEQ to reduce the risk of lead entering drinking water through actions such as flushing taps, removing coolers or faucets from service, replacing fixtures, and more.



WHERE DO WE TEST

DEQ will partner with any public school and public or private childcare facility throughout the state that requests free lead testing assistance.

WHAT YOU CAN DO

Lead poisoning is 100% preventable. Nominate your facility for DEQ's lead testing program today.



QR code to DEQ's Lead Testing in Schools and Child Care Facilities Drinking Water Program website.

The goal of educating facility staff and parents is to remove the stigma around lead sampling and increase the number of schools who will participate in this voluntary water quality testing program. Lead is a highly toxic metal that is harmful to human health and development- especially children, and the only way to know if there *is* lead present- is to test. School officials will be more likely to endorse the program if there is adequate support and resources necessary for success.

Results Reporting

The CDS has updated the results reporting documents to make it easier for the public to digest and understand lead testing sample results. It is a requirement of the EPA 3T's guidance that all sampling results through the LWSC program be made publicly available. The potential challenges that come with reporting laboratory data for public consumption are well known- the CDS has updated the approach to allow those without a science background to understand the sampling results for facilities they are interested in. **Below** is the updated 'LWSC Results Interpretation' resource which attempts to break down the sampling process to give context to sampling reports.

LEAD TESTING

IN PUBLIC SCHOOLS & CHILD CARE FACILITIES

Understanding the Results

The only way to know if there is lead in your drinking water is to TEST. Lead is colorless, odorless- and harmful to human health. DEQ's Lead Testing in Schools program is a *voluntary* program for schools and childcare facilities to receive assistance in reducing lead in their drinking water to maintain a healthy learning environment for Oklahoma's students.

1. Outlet Inventory

Before a sampling event can take place, DEQ staff meets with school officials to create an 'outlet inventory' of all drinking outlets in a facility. This step is important because it allows our staff a chance to create maps, investigate sources of drinking water, and create an accurate sampling plan to send to our laboratory.

We have created [codes](#) for types of drinking water outlets we often encounter while touring schools.

Drinking water outlet codes

- BF – Bathroom Faucet
- CF – Classroom Faucet
- DW – Drinking Water Fountain
- IM – Ice Machine
- KF – Kitchen Faucet
- NS – Nurse's Office Sink
- OF – Outdoor Faucet
- WC – Water Cooler

A

B

Example: Outlet 'A' would be recorded as a Water Cooler (WC).
Outlet 'B' would be recorded as a Drinking Water Fountain (DW).

Sample ID Breakdown Example

Our staff uses these 'Drinking water outlet codes' combined with other location identifiers, to create a unique 'Sample ID' for each location.

Sample ID	Building	Floor	Room	Outlet Type
1-2-43-CF1	1	2	43	CF
2-1-GYM-WC2	2	1	GYM	WC
3-1-CONC-KF1	3	1	CONC	KF

- The first sample: **1-2-43-CF1**, is in the main building, on the second floor, in Room #43- and is a sample of a "Classroom Faucet"
- The second Sample ID is **2-1-GYM-WC2**. This means that it is in the second building of the school, on the first floor, in the gym- and is a sample of a "Water Cooler."
- The final example, **3-1-CONC-KF1**, is in building 3 on the first floor. CONC is used to mark that this "Kitchen Faucet" fixture is in the Concessions Stand.

Below is an example of an outlet inventory. We utilize this resource to be better able to communicate with schools and our laboratory about samples, results, and suggested remediation actions.

Name of School/Facility		Grade/Age Levels: Pre-K through 5th										Sample Point	
Outlet #	Building #	Floor #	Room #	Outlet Type Code	Outlet is a water cooler (WC), hot water and/or ice	Room Name/Contents Description	Comments	Is a Break in line at this outlet? (Y/N)	Other Break, Valve and Meter	Does Lead/Lead or Meter	Plumbing Fixtures		WSP Lead/Lead or Meter
1	1	1	HALL	WC	Yes	Elbow in kitchen 6th LEFT	Outside 3rd grade	LEFT	Y				1-1-BALL-WC1
2	1	1	HALL	WC	Yes	BOTTLE FILLER LEFT	Outside 3rd grade	BOTTLE FILLER	Y				1-1-BALL-WC2
4	2	1	KIT	KF1	N/A	Kitchen	Sink by number in kitchen	Y					2-1-KIT-KF1
5	2	1	KIT	KF2	N/A	Kitchen	Sink by door - small	Y					2-1-KIT-KF1

2. Sampling Events

After scheduling a sampling event with facility staff, our program coordinators will send the completed 'outlet inventory' document to our laboratory staff. They will then prepare a sampling kit. Each sampling kit comes with two (250 ml) bottles for each outlet to be tested and Sample ID labels for each bottle.

How samples are taken

Our staff takes two (2) samples at each outlet: a First Draw Sample, and a Flush sample. If lead is found in the sample- these two samples will help us determine the possible sources of contamination (i.e. fixture issue, interior plumbing issue, etc.)

First Draw Sample

Sample taken first thing in the morning. Water sat in pipes for 8-18 hours

Flush

Fixture is run for 30 seconds of continuous water.

Flush Sample

Second sample taken after running the water.

3. Results Breakdown

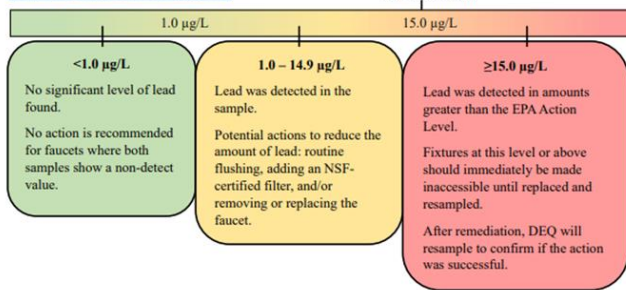
After receiving the samples- our laboratory analyzes them and generates a report. Our program staff then organizes this report to make the data more digestible. We organize sample results into three categories: Non-Detect (<1.0 µg/L), Low Detection (1.0 – 14.9 µg/L), and High Detection (≥15.0 µg/L).

Below is an example of a results report at a location which has had multiple sampling events (note: micrograms per liter (µg/L) is also known as: parts per billion (ppb)).

Sample ID	Description	First Draw (µg/L)	Flush (µg/L)	Remedial Action	First Draw (µg/L)	Flush (µg/L)
		Initial Sampling			Resampling	
Non-Detect (<1.0 µg/L)						
1-2-43-CF	Classroom Faucet in art room (Room 43)	<1.0	<1.0	N/A		
Low Detection (1.0 – 14.9 µg/L)						
2-1-GYM-WC	Bottle filler on Elkay water cooler in basketball gym	2.8	<1.0	Flush	<1.0	<1.0
High Detection (≥15.0 µg/L)						
3-1-CONC-KF	Kitchen faucet in concessions stand near football field	20.9	16.7	Replaced	<1.0	<1.0

Sample ID Description of Outlet Initial results Action Resampling Results

What do These Numbers Mean?



District: [Redacted]
 School: [Redacted]
 Sampling Date: [Redacted]
 Status: Remediation

RESULTS

Below are the results from the first round of testing of drinking water for lead that was conducted at [Redacted] - [Redacted] on [Redacted]. Overall, ten (10) outlets were tested resulting in a total of twenty (20) samples being sent to the lab.

- Seven (7) samples had no detectable level of lead.
- Twelve (12) samples had a low detection of lead between 1.0 and 14.9 µg/L.
- One (1) sample had a high detection of lead equal to or above 15.0 µg/L.

The table below shows all sample results. Sample results are in micrograms per liter, shown as µg/L. For more information on how to read this report, please see our Results Interpretation Fact Sheet.

Sample ID	Comments	First Draw (µg/L)	Flush (µg/L)	Remedial Action
		Initial Sampling		
Non-Detect (<1.0 µg/L)				
1-1-FH-WC1	Elkay water cooler in front hall	0.0	0.0	N/A
1-1-FH-WC2	Elkay bottle filler in front hall	0.0	0.0	N/A
Low Detection (1.0 - 14.9 µg/L)				
1-1-KIT-KF2	Kitchen faucet in facility kitchen; right side	1.7	1.1	
2-1-EH-CF2	Classroom faucet in Early HeadStart Room; right side; in temporary building	2.5	0.0	
2-1-BB-CF1	Classroom faucet in baby room; in temporary building	3.0	1.0	
1-1-2-BF3	Bathroom faucet in Room 2 bathroom; right side	5.2	4.2	
2-1-EH-CF1	Classroom faucet in Early HeadStart Room; left side; in temporary building	5.3	0.0	
1-1-2-BF2	Bathroom faucet in Room 2 bathroom; middle unit	9.2	2.6	
1-1-KIT-KF1	Kitchen faucet in facility kitchen; left side	11.7	0.0	
High Detection (≥15.0 µg/L)				
1-1-2-BF1	Bathroom faucet in Room 2 bathroom; left side	18.9	2.8	

This new interpretation DEQ document has been created to aid in the digestion of sample results that are publicly posted to the DEQ’s LWSC webpage. **Above on the right** is an example of what is posted on the website for each school. The snapshot above is a Head Start facility (daycare) that was sampled in 2024; ten outlets (20 samples) were sampled which resulted in 13 lead detections. This location is currently in the ‘remediation’ stage- and will be updated to reflect any remediation actions taken, and any re-samplings completed with this facility. This allows viewers to understand the on-going nature of the work within the program and works to actively champion facilities which have completed remedial actions.

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 any water system. 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 water 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 water system. To maximize assistance throughout the state, Oklahoma DEQ has contracted with ORWA to provide TMF assistance with rate analyses, financial management planning, SWP planning, and much more.

In SFY24, 186 instances of technical assistance were provided to 80 unique systems across Oklahoma, each of them receiving customized assistance based on their needs. The specific assistance that was provided in SFY24 to these systems is detailed in the table below.

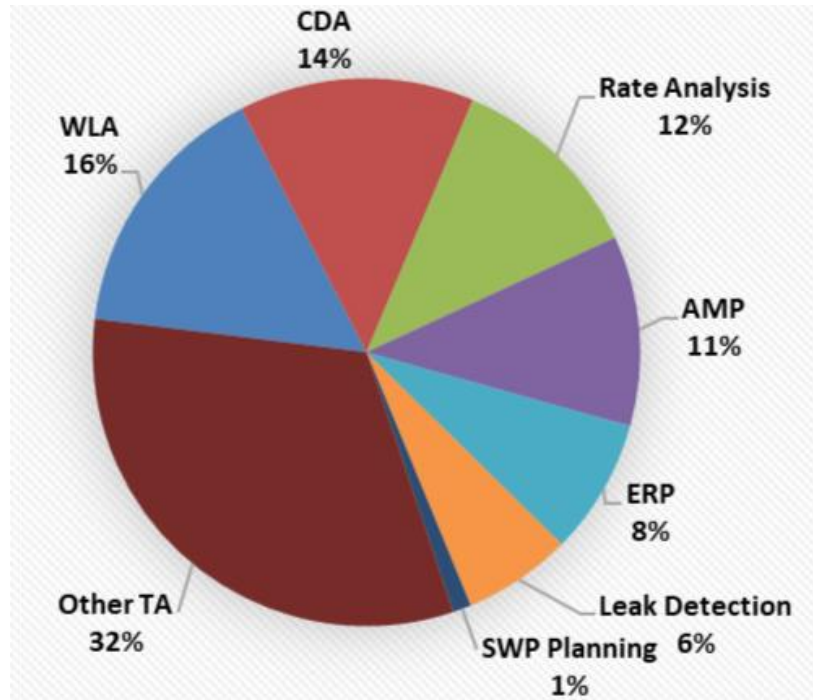
Type and Number of TMF Assistance Provided for PWS Sustainability 7/1/2023-6/30/2024 (SFY24).

TMF Assistance Type	# of Assistances Provided
Capacity Development Assessments (CDA)	26
Emergency Response Planning and Procedures (ERP)	14
Water Loss Auditing (WLA)	29
Asset Management Plans (AMP)	21
Rate Analysis	22
Leak Detection Assistance	12
Source Water Protection (SWP) Planning	2
Other Technical Assistance (TA) (Plans, Policies, and SOPs)	60
Total	186

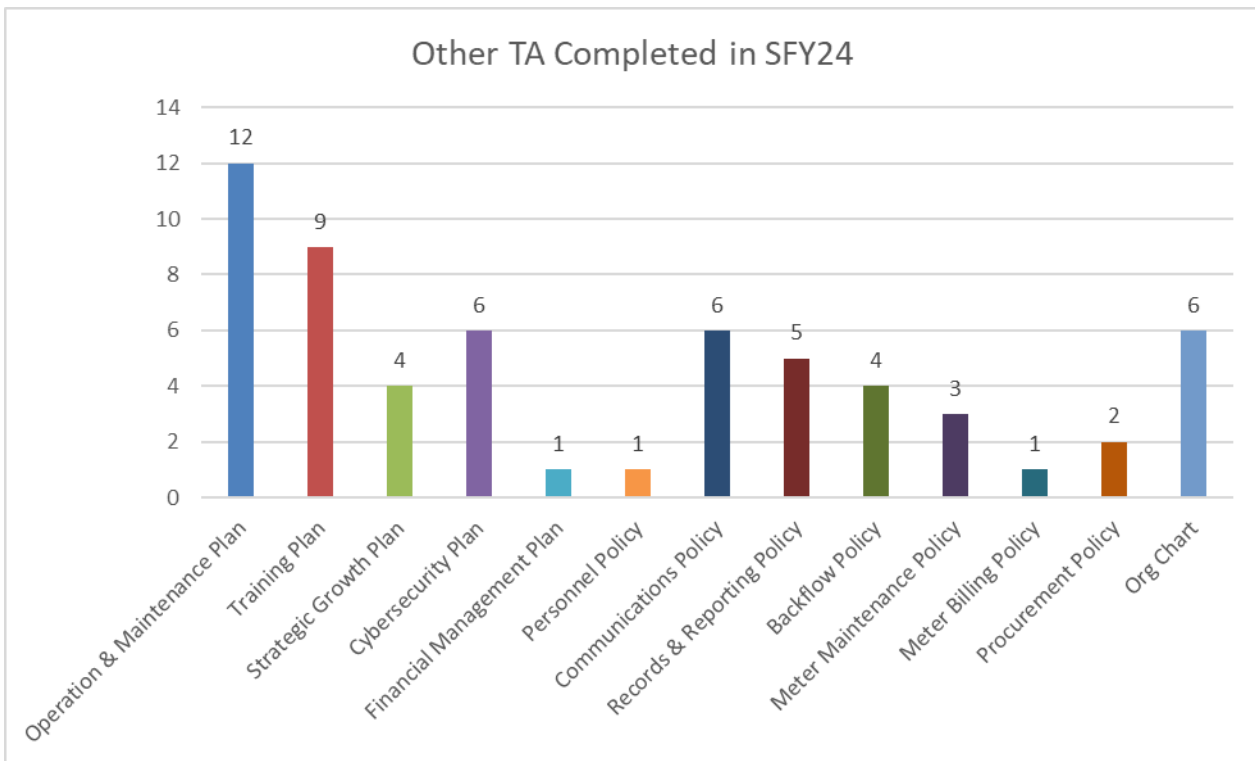
To maximize effectiveness, each participating PWS received a package of technical assistance activities focused on their individual needs. There is no maximum amount of time or effort that may be expended on an individual system; as much assistance and guidance as needed will be provided to the participating 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 public water 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 7/1/2023-6/30/2024 (SFY24).



Along with the main technical assistance outlined **above**, the CDS can aid with 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 SFY24.



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.

Over the past seven years, the DEQ has been surveying the TMF needs of rural and small municipal PWS systems via the Capacity Development Baseline Assessment Project. Each system was assessed on 109 different aspects of operational sustainability. Preliminary results of the survey found that, on average, the assessed systems possessed 78.26% of needed TMF capacity, and that both decreasing TMF score, and population correlated with an increasing likelihood and frequency of primary drinking water standards violations.

In SFY20, 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 Assessment, and systems that complete the program demonstrate an improved TMF score, as well as improved efficiency, operations, and fiscal condition. The image below features representatives from OWRB, ORWA, DEQ, and a water system supervisor. The members of the Oklahoma Strategic Alliance all played a part in helping the water system complete their Long-Range Sustainability Program.



Photo of members from ORWA, OWRB, DEQ, and the Town of Jet at the Long-Range Sustainability Program Awards.

Small, Underserved and Disadvantaged Communities Grant

In addition to the LRSS Program, DEQ was awarded grant funds through the Water Infrastructure Improvements Act (WIIN), Section 2104, funding for FFY19 and FFY21. Funding received for FFY19 was used to contract with ORWA during SFYs 2021-2023 to provide one on one TMF technical assistance for small, underserved, and disadvantaged communities. These grant funds have provided TMF assistance with a focus on actions that lead

to resolution of violations of health-based primary drinking water standards and that significantly improve PWS system efficiency, operation, and fiscal health.

During SFY23, 58 water systems benefited from the WIIN 2104 FFY19 grant funds. Technical assistance provided by ORWA included compliance assistance with nitrate, Disinfection By-Products (DBPs), lead and copper as well as help with rate analyses, source water plans, emergency response plans, policy development, asset management plans, board member training, and much more.

DEQ received WIIN 2104 funding for FY2022 and FY 2023. DEQ has also applied for FY 2024 funding as of July 2024. 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 soon as the award is granted hopefully October 2024.

Emerging Contaminants-Small and Disadvantaged Communities Grant

Near the end of SFY24, DEQ was awarded FFY22 and FFY23 funding for the EPA Emerging Contaminants in Small and Disadvantaged Communities Grant (EC-SDC). DEQ proposes to use the EC-SDC funding to take a proactive approach to sampling and remediation/reduction of possible exposure in and around public water supply systems (PWSs) that are small and disadvantaged and lack the capacity to effectively identify and treat the emerging contaminants on their own. Many issues in drinking water, such as emerging contaminants, affect small and disadvantaged communities to a greater extent than communities that are larger and have better access to resources and funds. Addressing this disproportionate exposure to emerging contaminants is an important component to the State’s environmental justice goals. Funding under the EC-SDC in the Safe Drinking Water Act (SDWA) section 1459A will help small and disadvantaged PWSs across the State to sample for and implement remediation and mitigation measures for PFAS and other emerging contaminants, including manganese and lithium.

DEQ plans to hire a contractor to sample finished water for all small or disadvantaged communities for PFAS, within the first two years. And the last three years to plan and construct for necessary remediation. 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 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 or state. 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. The projects funded by this grant will benefit SDCs as defined by SDWA 1459A(c). The full list currently includes approximately 569 water systems that are eligible.

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

Disadvantaged Communities Summary

Using guidance from the Baseline Assessment, tools developed in the LRSS program, and technical assistance through the WIIN 2104 grant, significant positive changes have been achieved at Oklahoma’s small, underserved, and disadvantaged systems. This approach has several advantages:

- **Targeted TMF Assistance:** Via the recently completed Baseline Assessment, the PWS systems most in need of TMF help are known. Furthermore, the assessment specifies precisely what type of assistance is needed. Using WIIN 2104 funds, DEQ is able to target technical assistance on missing or malfunctioning PWS processes for maximum positive effect.
- **Rapid Deployment:** The LRSS program is completely developed and functional, having been in service for several years. By using the structure and services of the LRSS program, DEQ will be able to immediately begin work at targeted PWS systems, generating positive results quickly.
- **Proven Results:** The LRSS program is a significant part of the technical assistance provided to small Oklahoma PWS systems by the Oklahoma Strategic Alliance. In FY2024, the work of alliance partners has saved over 278 million gallons per year of water via water loss reduction, improved small Oklahoma PWS financial operating ratios by 22%, (via rate adjustments and efficiency improvements), and helped systems implement numerous policy and procedure improvements.

By using the Baseline Assessment as a roadmap, WIIN 2104 funds for targeted TMF assistance and the LRSS program as tools to arrive at a safe water destination, DEQ has initiated rapid and significant positive changes in the PWS systems that are included in this program. DEQ CDS effectively tailor the provided TMF assistance to focus on resolution of health-based drinking water standards violations that can be corrected via improved operations and system optimization, as well as on improving all aspects of the system’s TMF capacity. CDS measure and report on success in terms of system compliance, capacity development assessment scores, and improvements in PWS system financial conditions (as indicated by fiscal indicators and metrics).

SUMMARY AND FUTURE PLANS

Enhancing the *technical, managerial, and financial* capacities of Oklahoma’s public water supplies is a group effort. The continued success of the 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 CD enhancement, but it can possibly be made more effective when efforts are targeted to where they are needed most.

To this end, DEQ CDS is looking forward to continue updating and implementing the SWP program, enhance AWOP Awards, complete water loss audits and 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 in partnership with TruePani, 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. Completion of a revamped SWP program, including accurate, updated, and easily accessible data. Perform outreach emphasizing the benefits of implementation and information on funding projects to protect Oklahoma’s source water with an overall trending increase in SWP plans completed and implemented.

5. Promotion of the AWOP Awards Program to increase awareness and implementation of optimization concepts.
6. 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.
7. Increased use and promotion of DEQ's asset management tool to improve understanding of asset criticality and enhance sustainability of PWS systems.
8. 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.
9. 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.
10. Provide more funding opportunities and resources for small, underserved, and disadvantaged communities through the emerging contaminants and SUDC grants.

REFERENCES

Oklahoma Capacity Development Strategy Document SFY23 DWSRF Intended Use Plan

2023 State of Oklahoma Public Water Supply Program Annual Compliance Report