ROADMAP:
Lead and Copper Rule Revisions

Idaho Rural Water Association
LCRR Training Manual

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IN COLLABORATION WITH

Idaho Rural Water Association

120Water

Idaho Department of Environmental Quality

COURSE OVERVIEW

Welcome to the LCRR Training. The Idaho Rural Water Association partnered with 120Water and Idaho Department of Environmental Quality to develop a course that successfully prepares you for the EPA's LCRR changes that go into effect in October 2024 and beyond.

GOALS, OBJECTIVES, OUTCOMES

Course Description

In this training, you'll be examining the new lead and copper rule revisions (LCRR) to implement successfully in your water system.

Course Goals

- Be your utility's expert - Understand the updated regulations
- Jumpstart internal problem solving discussion and determine best practices for compliance
- Identify gaps to determine resources needed and know how to fund your efforts

Learning Objectives

- Demonstrate knowledge of the five updates to LCRR.
- Demonstrate knowledge of LCR timeline and historical timeline.
- Understand inventory basics to be in compliance and produce a plan.
- Understand advanced inventory strategies with data/no data.
- Understand what's changed in sampling, ways to verify data and collaborating with customers.
- Learn the communication requirements and best practices for customer engagement
- Learn how to navigate the IDEQ LCRR Template
- Understand what funding is available for LCRR and future updates

Knowledge Check Quizzes

Each section is concluded with a Knowledge Check Quiz, for a total of 30 questions. The light bulb icon indicates a quiz question.

To receive a certification of completion, you must complete all Knowledge Check Quizzes.

PARTNERS

IDAHO RURAL WATER ASSOCIATION

IRWA is a 501(c)3 non-profit corporation originally formed in 1987 to provide training and technical assistance, and a strong representative voice to water and wastewater facilities in Idaho with populations under 10,000.

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

IDEQ's Drinking Water Bureau protects public health by ensuring drinking water from public water systems is safe and reliable. IDEQ works closely with the state's public drinking water systems to protect drinking water sources, monitor for contaminants, inspect water systems, and review system engineering.

120WATER

120Water is the comprehensive solution used by water professionals across the country to manage critical lead and drinking water programs. Comprised of secure cloud-based software, services and point-of-use kits, 120Water's solution provides tailored workflows for complying with lead and water quality programs to protect public health.

Working with thousands of utilities nationwide, 120Water is in the process of inventorying over 3 million service lines that impact more than 10 million individuals. Their team of water, policy and technology experts have supported over 8,000 sampling events, partnering with the National Rural Water Association (NRWA), water systems and government agencies such as Citizens Energy Group, the City of Providence, RI, the City of Asheville, NC, and Chicago Public Schools to protect public health and provide clean drinking water to all communities.

IRWA Commitment to Quality

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

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INTRODUCTION

Lead pipes and fixtures still exist in our country–11,000 communities, to be more specific– and no amount of lead is safe. Replacing 100% of the existing lead pipes in our country sounds daunting; however, for the first time in decades, water professionals have the opportunity to solve some of the most challenging industry-wide problems. Matt Damon, actor and Co-founder of Water.org, stated it best in the documentary Brave Blue World, "How lucky are we that we are the ones who get to solve this?"

We know that tasks set before you are a huge undertaking, but the EPA has made unprecedented amounts of funding available to assist systems in the goal of identifying and replacing all lead service lines in our great nation.

As a water operator professional, your number one priority is public health protection. Your duty is to uphold professional standards for the operation and maintenance of water systems. Fighting through the hardships of day-to-day operations, being short-staffed, and managing limited resources, you are the gatekeepers for safe, clean drinking water.

A lot rides on your shoulders, but for a good reason. The ultimate goal is to produce something other than safe, clean drinking water. You're here for those who consume, use, bathe and play in the water you treat.

It's important to remember whom you serve and protect as you carry out your day-to-day operations–children, mothers, fathers, neighbors, senior citizens, the healthy and immunocompromised, the young and old. While they may take water for granted, you do not have that luxury.

In decades past, water systems and the industry at large operated in a reactive, behind-the-scenes, siloed manner. However, systems cannot operate reactively and keep up with the way of the world. New technology, updated regulatory requirements, and the changing workforce and cultural landscape impact the way the industry must function. Public attention toward water-related issues is growing and will continue to get mainstream media's attention.

Two words forever changed the water industry and the public's perception of water utilities: Flint, Michigan.

> **How lucky are we that we're the ones who get to solve this?"**
>
> – Matt Damon, American Actor and Co-founder of Water.org,

The United States Environmental Protection Agency (EPA) established the Lead and Copper Rule (LCR) in 1991 to minimize lead and copper in drinking water. Thirty years later, the EPA published Lead and Copper Rule Revisions to further protect children and communities from lead exposure.

It's our responsibility as water professionals to build trust with the community we serve. To start, we must take proactive approaches in our daily operations, BUT it doesn't end there. We must communicate about our work with our customers. Transparency builds trust, even if the answer isn't good news. Arming customers with information allows them to make informed decisions and puts them at ease knowing you are working to ensure the water from their tap is safe.

The EPA considers the recent guidance, the Lead and Copper Rule Revisions (LCRR), part of a series of "long-term" revisions to significantly reduce water contaminants, enhance education, and protect children at schools and daycare facilities.

Although the LCR continues to change, the EPA and Idaho Department of Environmental Quality expect systems to prioritize the revisions as they gradually arrive.

As the person tasked with implementing your water systems LCRR, the following course and materials will help you understand the updated regulations, determine best practices for compliance and know how to fund their efforts. The goal is to help you understand the revised Lead and Copper Rule and feel confident in tackling the changes.

Idaho Rural Water Association partnered with 120Water and the Idaho Department of Environmental Quality to provide this course, which examines the new LCRR and provides guidance for your system to implement compliance successfully.

By attending this course, we assume you have a basic understanding of water operations. If you do not, we highly recommend partnering with your water utility operator.

01

LCRR FOUNDATION

Understanding the Foundation of LCR Revisions

YOU ARE THE EXPERT

As the water operator for your community, you will be seen as the expert. Many of you operate in rural and small systems without a specific point person to manage compliance, communications, and testing/sampling. Knowing the historical context of the rules and the updates helps you educate community members with limited understanding. As you talk about the changes your utility must implement, it's important to remember that most people's knowledge of lead and copper is tied to what's said in the media (Flint, Michigan) and by doctors or that the plumbing codes changed in the 1980s. By becoming an expert, you can ease their worries and ensure your community takes the proper steps.

Over the last thirty years, the Lead and Copper Rule focused primarily on sampling. The new rules require more data gathering, refined sampling methods, communications, and plans to replace all lead service lines. As the expert, you will be responsible for serving as a calming, trusted source in your community about the regulations. Expect questions from city officials and requests for presentations at local gatherings. Expect people to lead with worry and fear rather than rationale. It's ok. While the content and language are difficult to understand, this course will give you knowledge, a path to compliance, and confidence with your customers.

LEAD AND COPPER RULE REVISION APPLIES TO:

All Community Water Systems and Non-Transient Noncommunity Water Systems are affected by the LCRR

View the EPA Guidance for Developing and Maintaining a Service Line Inventory by scanning the QR Code in the Appendix

Lead and Copper Rule (LCRR)

The EPA published the LCRR on January 15, 2021, and formally approved it in December 2021. The revisions improve the Lead and Copper Rule to eliminate lead contamination in drinking water and increase public health protection by reducing lead exposure.

These revisions apply to 40 CFR Parts 141 and 142. At this time, the State of Idaho is following the EPA Guidelines (please refer to 40 CFR § 141.84 Lead service line inventory requirements) and the initial compliance deadline is October 16, 2024.

Lead and Copper Rule Improvements (LCRI)

It is important to note that we are exploring the rule as it is written in the law today. Still, the EPA has expressly committed to improving the regulation on a few key fronts and plans to promulgate the "Lead and Copper Rule Improvements" (LCRI) before the compliance deadline. On August 4th, 2022, the EPA released its final update to the "Inventory" component of the law and stated further that they would evaluate the other components. It is essential to know that the Inventory is final and will not change. Although the EPA issued Lead and Copper Rule Revisions (LCRR) in January 2021, the agency did not address practices for lead pipe replacement. The EPA later reviewed the LCRR to determine if it adequately protected families and communities, especially those at risk from lead in drinking water. The agency concluded that significant opportunities existed to improve the LCRR and proposed the LCRI.

Improvements include four priorities:

1. Replace lead service lines proactively and equitably.
2. Improve compliance with sampling at the tap to identify communities most at risk of lead in drinking water and compel action to reduce lead.
3. Decrease the complexity of the regulation (i.e., trigger-level vs. action-level, sampling methods, replacement schedules, etc.)
4. As part of the LCRI rulemaking process, the EPA is considering prioritizing protections for historically underserved and overburdened communities.

The Safe Drinking Water Act also requires the EPA to consult with the SAB on tools, indicators, and measures to evaluate the environmental justice impacts of lead service line presence and replacement in drinking water systems.

In addition, a Small Business Advocacy Review Panel will include Small Entity Representatives (SERs), specifically from public water systems serving 10,000 or fewer people. The EPA hopes SERs, particularly those in disadvantaged communities, will be fully engaged in proposing solutions. The National Drinking Water Advisory Council and federal and local entities also participate.

EPA plans to propose the LCRI for public comment in 2023 and take final action by October 16, 2024. Obtaining public input is essential, and public meetings were held online in October and November 2022.

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HISTORICAL CONTEXT

PRO TIP

Use this timeline to brief your staff, elected officials, the general public, schools, and media.

LCR BEGINNINGS

To know where we're going, it's important to know where the regulation began, how we've changed, and how not to repeat ourselves. Knowing the timeline helps explain WHY the changes are happening, which is ultimately for every community to have zero lead and copper in your system. While that may feel impossible now, this timeline represents how much closer we are to achieving that goal.

Federal Lead Pipe Timeline

If you live in a home built before 1986, it's possible there are lead pipes in your system. No matter the piping material, you will have to account for lines via an inventory – for which many utilities lack reliable or complete data.

Here's a quick rundown of our early days:

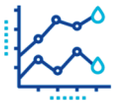
- 1800s - Installation on a major scale
- 1930 - Some cities moving away from LSL use
- 1970 - LIA Campaigns End
- 1977 - Changes to plumbing codes
- 1986 - Federal LSL ban (Date of Lead Ban in each State Varies from 1986 - 1991)

DATE	ACTION	RESULT
1974	The Safe Drinking Water Act (SDWA) was passed to protect our drinking water. The US Environmental Protection Agency (EPA) sets the standards for drinking water quality and monitors states, local authorities and water suppliers who enforce those standards.	The EPA sets legal limits for more than 90 contaminants in drinking water, including chemical and microbial contaminants.
1986	Congress amended the SDWA prohibiting the use of pipes, solder or flux that were not "lead free" in public water systems or plumbing in facilities providing water for human consumption.	At the time "lead free" was defined as solder and flux with no more than 0.2% lead and pipes with no more than 8%.
1991	EPA first issued the Lead and Copper Rule (LCR) to limit concentrations of lead and copper in public drinking water.	The rule also set a standard for pipe corrosion control, a proven method of controlling contaminants in drinking water.
1996	Congress further amended the SDWA requiring plumbing fittings and fixtures to be in compliance with voluntary lead leaching standards.	Further amended the SDWA to clarify that its "lead free" prohibition on the use of pipes, solder, and flux also applies to pipe fittings, plumbing fittings, and fixtures.
2014	Reduction of Lead in Drinking Water Act	Changed the Pb limit for pipes, fittings, and fixtures from 8% to 0.25% of the wetted surfaces of pipes, fittings, and fixtures
2021	Revised Lead and Copper Rule (LCRR)	Major changes to the LCR with a focus on reducing lead in drinking water and removing sources of Lead.
Oct. 16, 2024	Revised Lead and Copper Rule (LCRR) compliance deadline for utilities	The service line inventory is required by 10/16/24, all other LCRR requirements may be changed by a new rulemaking (Lead and Copper Rule Improvements). LCRI is expected to be proposed in 2023 and finalized prior to 10/16/24.

PILLARS OF LCRR

The EPA's Lead and Copper Rule Revision brings new challenges for water utilities across the country.The LCR revisions include five key updated areas.

LEAD SERVICE LINE INVENTORY



SAMPLING

CUSTOMER COMMUNICATION

LEAD SERVICE LINE REPLACEMENT

SCHOOL & CHILDCARE TESTING

To set your organization up for long-term compliance success, systems must take action by:

- developing action plans,
- revising current processes,
- organizing their data,
- engaging with customers and,
- creating and validating their Lead Service Line Inventory

Although we expect the EPA to provide additional guidance on sampling, LSL replacement and school and childcare testing, we include the existing revisions to better prepare you what's to come soon.

The first major hurdle to overcome is creating and validating your LSL inventory and developing customer communications. Your preliminary LSLI is due October 16, 2024.

This date doesn't mean you must have a lead-free system by then; it means you must gather all the data possible about your system by then to be prepared to move toward a lead-free system.

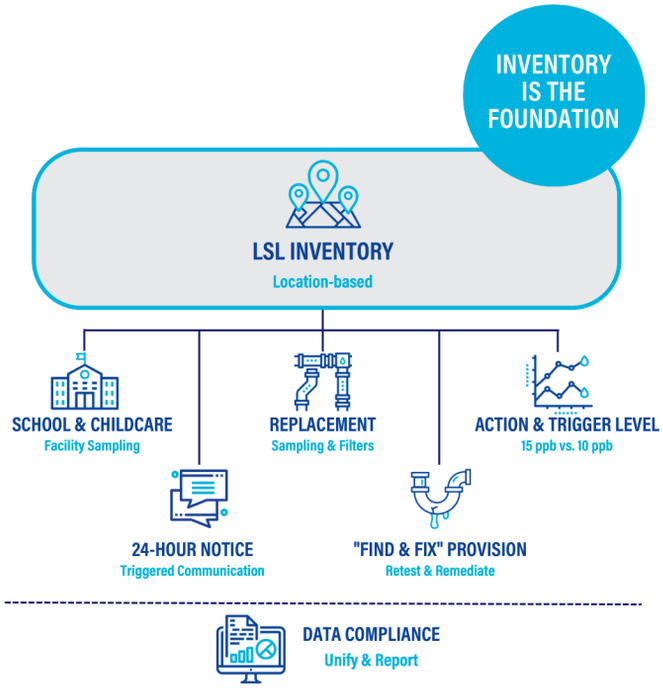
5 PILLARS OF LCRR

- Lead Service Line Inventory
- Residential Sampling
- School and Daycare Sampling
- Public Communications
- Lead Service Line Replacement

LEAD SERVICE LINE INVENTORY (LSLI)

The Lead Service Line Inventory is the foundation for the LCRR.

Every program (facility testing, public communications, replacement plans, new tier levels) depends on the preliminary inventory of your system. The goal here is to ascertain what you know – and don't know - about the materials in your system.



Below are the EPA's requirements for your lead service line inventory:

- Every public water system must compile and manage an inventory of public and private portions of all service lines within their service area by 2024.
  - Develop a preliminary inventory of ALL commercial, residential, public, and private service lines by October 16, 2024.
- Inventories must be made publicly available, and each customer serviced by an LSL, GRR, or a line with an unknown material must be notified annually.
  - Includes lead pipes, galvanized pipes previously or currently connected to lead, non-lead pipes, and unknowns.
  - Populations over 50,000 must be publicly available online.
- Systems must develop a Replacement Plan identifying an LSLI validation strategy and annual replacement goal.

BOTTOM LINE:

You must create a location-based inventory of the public and private sides of every service line in your system by October 16, 2024.

RESIDENTIAL SAMPLING

The EPA changed the sampling process to prevent issues like Flint, Michigan.

The EPA introduced a new trigger level, a redefined tier list, and a change in the sampling process. The goal is to gather more information on the entire system–public and privately-owned sides–to serve as an indicator that problems could be on the horizon.

New Trigger Level of 10 ppb.

The Action Level of 15 ppb remains the same; however, with the new trigger level of 10 ppb, you will see potential issues before becoming problems. This trigger level aims to force systems to identify issues before it causes harm to the public (Flint, MI).

THIS TRIGGER LEVEL WILL ALSO HAVE AN EFFECT ON YOUR SAMPLING.

The monitoring schedule is based on the 90th percentile level for all systems

P90 > 15 µg/L

If your 90th percentile is above 15 ppb:

- You'll test semi-annually at the standard number of sites, and
- At a minimum, you will be required to replace 3% of your lead service lines, annually.

P90 > 10 to 15 µg/L

If your 90th percentile is between 10 and 15 ppb,

- You'll sample annually at your standard number of sites
- You will reoptimize your corrosion control treatments
- You will work with state officials to set an annual goal for lead service line replacements

RESIDENTIAL SAMPLING, continued

New Tier Sites

Previously, there were three tiers defined below, but now the EPA has redefined the first three and added two more for five tiers.

The list will be based on the LSL inventory, and all Tier 1 samples must be collected from any home served by an LSL.

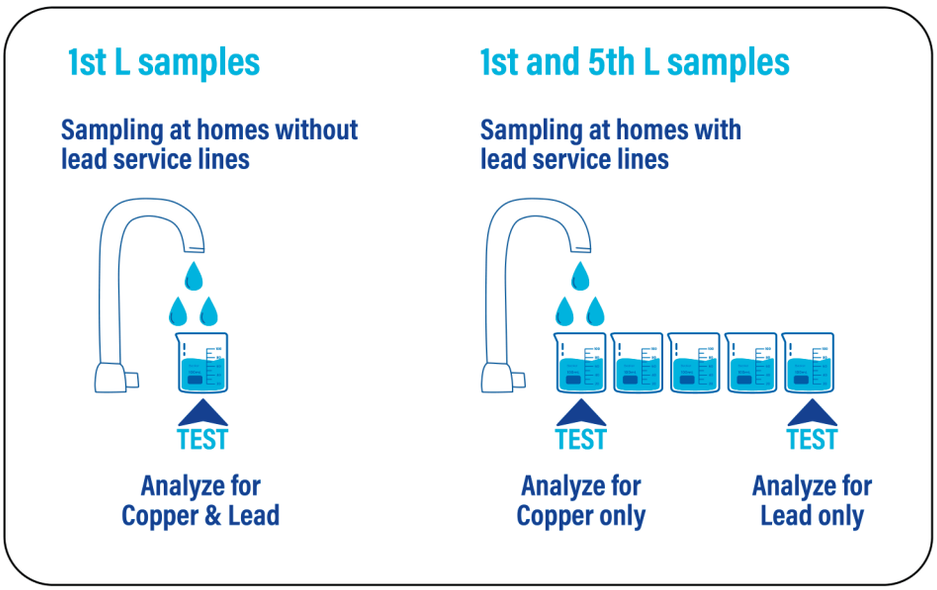
TIERS	OLD REQUIREMENTS FOR CWS	NEW REQUIREMENTS FOR CWS
1	Single Family Homes served by LSLs, goosenecks pigtails or copper service lines & lead solder (constructed between 1983-1988) • Allows for a 50-50% mix	Single Family Homes served by LSLs
2	All types of buildings served by LSLs, goosenecks/pigtails or copper service lines & lead solder (constructed between 1983-1988)	Multi-Family Residences served by LSLs
3	Single Family Homes served by copper pipes constructed before 1983	Single Family Homes with galvanized service lines currently or historically downstream of an LSL (Galvanized Requiring Replacement)
4		Single Family Homes with copper pipes and lead solder installed before the state's ban (1986-1988)
5		Representative sample where plumbing is "similar" to other sites served

RESIDENTIAL SAMPLING, continued

First- and Fifth-liter Sampling

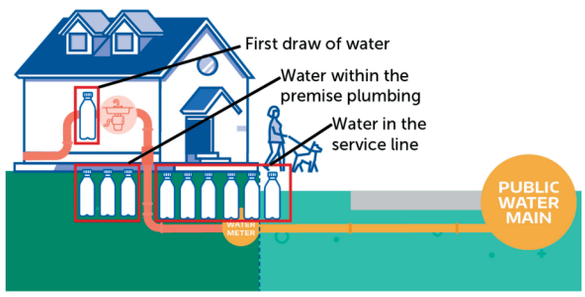
A 1st- and 5th-liter draw and analysis for any home served by an LSL is now required

- In 2024, we move from collecting only first-liter samples after stagnation to the following:
  - 1st and 5th L samples for Tiers 1-2
  - 1st L samples for Tiers 3-5



Why the First and Fifth?

Taking the first and fifth samples gives you more insights into your system! You are used to asking customers to collect the first draw of water; however, a first-liter draw only tells us what's going on in the internal plumbing of the homes water lines, whereas collecting a five-liter sample tells us what's going on deeper in the service line and can provide more accurate information.



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RESIDENTIAL SAMPLING, continued

What Does This Mean For You and the Customer?

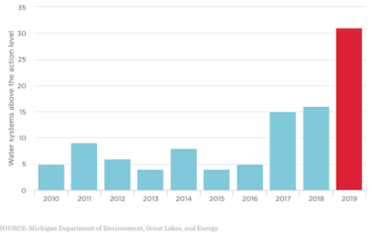
Having customers collect and submit one-liter stagnation samples is challenging in its own right. Collecting a 1st and 5th-liter sample requires even more communication and education between you and your customer. In light of this new requirement, it's vital to share WHY these samples need to be collected and the value it brings to your utility operations and them as a customer.

Provide clear communication in layperson's terms that includes explanations and graphics. Below is an example of why the fifth-sampling is so important.

FIRST & FIFTH-SAMPLING IN ACTION

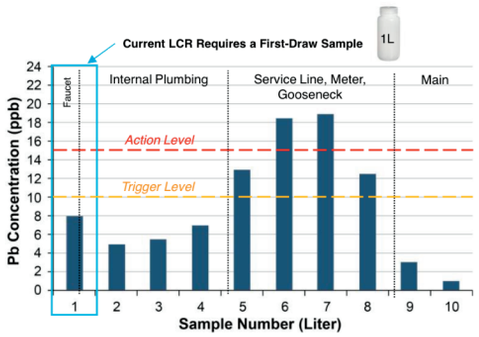
An APM Reports analysis of over 30,000 individual lead tests in Michigan over four years found that, on average fifth-liter samples had two and half times as much lead as first-liter samples.

After Michigan began sampling the fifth and first liter, the number of water utilities above the EPA's action level doubled from 16 in 2018 to 31 in 2019.



SOURCE: Michigan Department of Environment, Great Lakes, and Energy

This data lends credence to the argument that 1st-liter sampling will likely find lower lead levels. In comparison, the 5th-L sampling shows above the new trigger level.



RESIDENTIAL SAMPLING, continued

"FIND AND FIX" PROVISION

The EPA also introduces a “find and fix” provision, which asks utilities to take a second look at homes with high lead levels. In addition to the steps below, various notifications are associated with find and fix requirements. Small water systems have alternative find and fix requirements. Find-and-fix requires:

Step 1 (Corrosion Control Assessment):

Within five days of a system receiving a tap sample result exceeding 15 µg/L (Pb), water quality parameter (WQP) sampling must be conducted near the compliance sample site with a high lead value. Existing WQP and coliform sampling sites can be used for this purpose if appropriately sited.

Step 2 (Lead Source Evaluation):

Within 30 days, follow up tap sampling for lead at the site that exceeded 15 µg/L should be performed. Alternative sampling protocols are allowed to better understand the cause and source of lead. These samples are not included in compliance monitoring data used to calculate the 90th percentile lead levels for the system.

Step 3 (Evaluation):

Within six months, systems should submit an analysis based on results from Steps 1 and 2 to determine the cause of elevated lead. If the cause of elevated lead is unknown or determined to be from a source at the sampling location, then no fix is required. If the cause of elevated lead is determined to be corrosive water, then additional actions are required to restore optimal water quality to that portion of the system, which could include an evaluation of corrosion control.

Step 4 (Change Implementation):

Utilities will need to work with the State on implementing an approved treatment recommendation.

View 120Water's Service Line Replacement Fact Sheet by scanning the QR Code in the Appendix

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SCHOOL AND DAYCARE SAMPLING

No amount of lead is safe for children.

A recent study by the World Health Organization (WHO) found that when adults drink water with lead, they absorb up to 10%, but when children drink water with lead, they can absorb 40-60%. Consuming lead can cause nervous system damage, learning disabilities, behavioral problems, and in extreme cases, seizures, comas, and even death. Ever since the crisis in Flint, Michigan, lead in schools and facilities has been top of mind and a prevalent legislative issue. As of November 2021, almost half of the nation had voluntary programs in place and 18 states currently had mandatory programs. This has been the trend with the U.S. clearly prioritizing lead removal where children are present.

Water systems can get a head start for sampling schools and childcare facilities. Here are a few recommendations:

- Build a list of the schools and all licensed childcare facilities in your service area
- Meet with stakeholders to bring awareness of upcoming changes
- Provide training and education
- Develop a sampling schedule
- **Sign up the for the WIIN grant voluntary sampling program: https://www.epa.gov/dwcapacity/wiin-grant-voluntary-school-and-child-care-lead-testing-and-reduction-grant-program**

SCHOOL AND DAYCARE SAMPLING, continued

Before LCRR, lead sampling in school facilities was the responsibility of states, cities, and individual facilities. With the updated regulation, school and daycare sampling will now fall to water systems to operate, including the following:

IDENTIFY Every water system will be required to create an inventory of facilities they serve – elementary schools, middle schools, high schools, preschools, daycares, etc.

SAMPLE Utilities must sample 20% of elementary schools and 20% of all childcare facilities in the service area each year for five years

- **Five (5) samples per school and two (2) samples per childcare facility**
  - Schools - Sample:
    - Two (2) drinking water fountains,
    - One (1) kitchen faucet used for food or drink preparation
    - One (1) classroom faucet or other outlet used for drinking
    - One (1) nurse's office faucet (as available)
  - Child care facilities – Sample:
    - One (1) drinking water fountain
    - One (1) of either a kitchen faucet used for the preparation of food or drink OR one (1) classroom faucet or other outlet used for drinking
- **Secondary school sampling must also be provided when requested.**

SHARE You must deliver results and public education to each sampled facility, primary agency, and health department.

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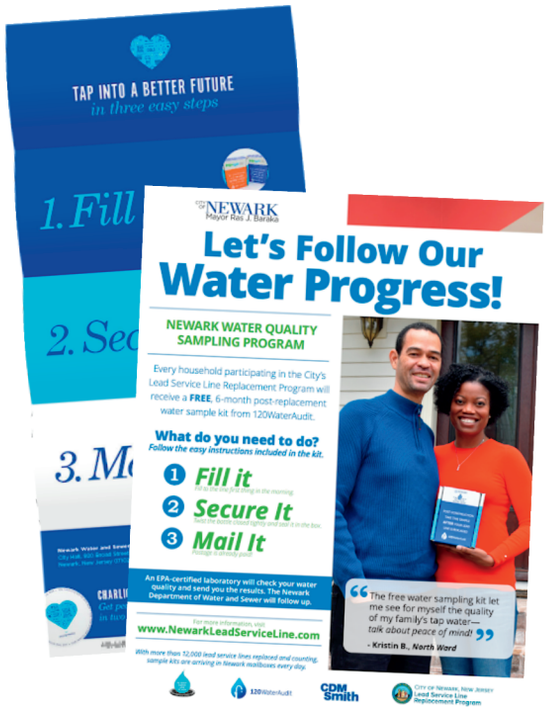
PUBLIC COMMUNICATIONS

The EPA recognizes public communication as an essential component in the new revisions. Talking about lead in drinking water can sound alarm bells in your residents' heads. Historically, the water industry has not prioritized public communication in years past. But it's proven that communicating with your customers early and frequently builds trust.

Previously, systems had 30 days to notify customers on their monitoring list and only used the annual drinking water report, the Consumer Confidence Report (CCR), to share monitoring results with the whole community. These reactive strategies are correct but should couple with proactive strategies allowing two-way communication between your water system and your resident.



> **If they hear it from you first, they trust you first. If they hear it from you last, they trust you last.**
>
> – Mike McGIll, President of WaterPIO

PUBLIC COMMUNICATIONS, continued

We will dive deeper into public communication later in this course, but below are the new communication requirements under LCRR:

- Systems must notify customers with an individual LCR sample result > 15 µg/L within three days (72 hours).
- After your monitoring period ends, water systems must notify all consumers within the service area within 24 hours if your 90th percentile is over 15 ppb.
- Water systems must now distribute annual notifications to customers served by known lead, GRR, and unknown service lines.
- In your LSLR plan, water systems must include targeted outreach if your trigger level is exceeded.
- LSLI info must be publicly available for all systems. If the population is greater than 50,000 inventory must be made available online.
- Water systems must provide public education materials when doing mandatory LSLR.

Your communication strategy is a crucial element of your LCRR compliance strategy. Here are a few recommendations to begin building your public communication strategy:

- Assess how you communicate now and how you can improve or add strategies
- Ensure you have updated customer contact information, including emails, addresses, and phone numbers
- Prepare your notification templates, postcards, and letters BEFORE you need them
- Start talking to your customers NOW. Talk to residents about the LCRR changes, what to expect from your system, and how you will need their help
- Communicate EARLY and OFTEN on all facets of your LCRR adoption

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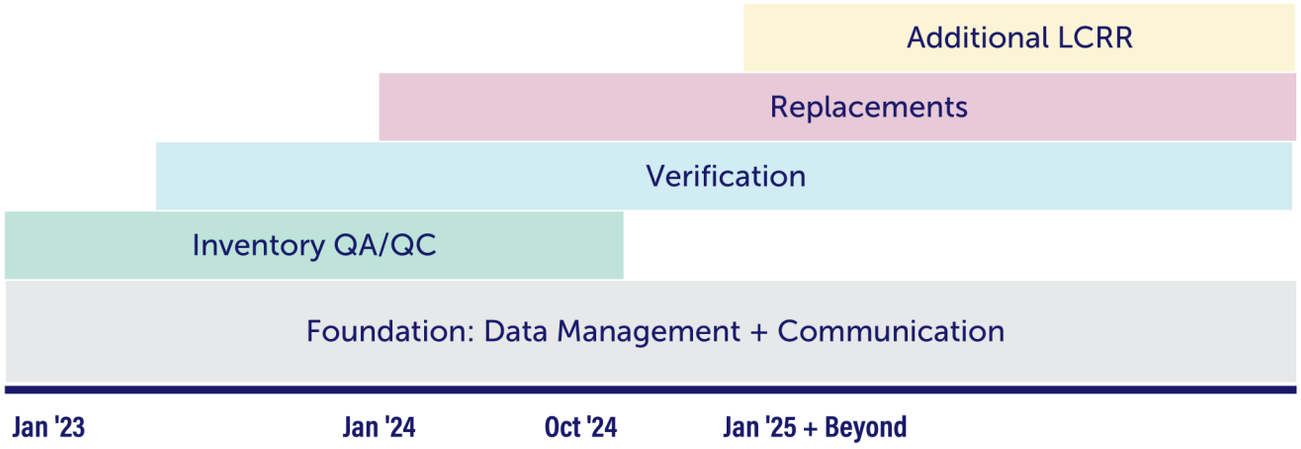
SEQUENCING YOUR LCRR PLAN

Timing is everything

Every water system's LCRR Plan will look different from one another. It's up to you and your team to ensure that you have a plan that accounts for the key elements of LCRR in a way that makes logical sense to you and your system based on what you know and how you operate. A plan that helps you identify gaps and lays out the steps you'll take to ensure those gaps are filled - all with the end goal of achieving compliance by October 2024 and maintaining it in the years that follow.

Knowing the LCRR requirements is important, but meeting the October 16, 2024 deadline and future compliance depends on your team executing the timeline.

In the graphic below, notice how the LCRR requirements overlap on the timeline versus completing them in a series.



BEST PRACTICE STRATEGY

To maximize effectiveness and efficiency, a best practice strategy is to run LCRR programs in parallel with communication and data management serving as the foundation throughout the timeline.

Quick Reference to LCRR Changes

LEAD SERVICE LINE INVENTORY	PUBLIC COMMUNICATION
Every public water system must compile and manage a preliminary inventory of all commercial, residential, public, and private service lines within their service area by October 16, 2024. • Includes lead pipes, galvanized pipes previously connected to lead, non-lead pipes, and unknowns.	Systems must notify customers with individual LCR sample results over 15 µg/L within three days (72 hours).
Submission recurrence is based on a system's monitoring compliance schedule, and you must submit the first inventory within three years (or prove they don't have any LSLs). • You can submit approved or compliant evidence of no LSLs to receive a waiver, but you still have to resubmit every 1-3 years based on your monitoring period.	After your monitoring period ends, you must notify all consumers within the service area within 24 hours if your 90th percentile is over 15 ppb.
Inventories must be made publicly available, and each customer serviced by an LSL or a line with an unknown material must be notified annually. • Over 50k population must be publicly available online.	You'll have to distribute annual notifications to customers served by known lead and unknown service lines.
Systems must develop a Replacement Plan by identifying an LSLI validation strategy and annual replacement goal.	Your LSLR plan must include targeted outreach when monitoring results if you exceed your trigger level.
	LSLI info must be made public and included in the CCR.
	Systems must provide public education materials when doing mandatory LSLR.

RESIDENTIAL SAMPLING	SCHOOL & DAYCARE FACILITY SAMPLING
New Trigger Level of 10 ppb • The Action Level of 15 ppb remains the same at this time.	Identify – Every water system will be required to create an inventory of facilities they serve – elementary schools, middle schools, high schools, preschools, daycares, etc.

The monitoring schedule is based on the P90 level for all systems.
• P90 > 15 µg/L - If your 90th percentile is above 15 ppb:
  ○ You'll test semi-annually at the standard number of sites, and
  ○ You will be required to replace a minimum of 3% of your lead service lines annually.
	Sample – Utilities must sample 20% of elementary schools and 20% of all childcare facilities in the service area each year for five years.
	• Five (5) samples per school and two (2) samples per childcare
	• Secondary school sampling must also be provided when requested.

• P90 > 10 to 15 µg/L - If your 90th percentile is between 10 and 15 ppb
  ○ You'll sample annually at your standard number of sites,
  ○ Reoptimize your corrosion control treatments, and
  ○ Work with state officials to set an annual lead service line replacement goal.
	Schools - Sample:
	• 2 drinking water fountains,
	• 1 kitchen faucet used for food or drink preparation
	• 1 classroom faucet or other outlet used for drinking
	• 1 nurse's office faucet, as available

New Tier Sites - The EPA redefined the first three and added two more for five tiers. • The list is based on the LSL inventory, and all Tier 1 samples must be collected from any home served by an LSL.	Child care facilities – Sample: • 1 drinking water fountain • 1 of either a kitchen faucet used for the preparation of food or drink • OR 1 classroom faucet or other outlet used for drinking
	Share –The water system must provide results and public education to each sampled facility, primary agency, and health department.

KNOWLEDGE CHECK

QUESTION 1: SHORT ANSWER / OPEN DISCUSSION

The LCR Revisions include five key updated areas (pillars of LCRR). List them below.

QUESTION 2: TRUE OR FALSE

It's recommended to wait until your preliminary inventory is complete to start verification and communication.

a.) True
b.) False

QUESTION 3: TRUE OR FALSE

All community water systems and non-transient noncommunity water systems affected by the LCRR.

a.) True
b.) False

QUESTION 4: FILL IN THE BLANKS

1. Every public water system must compile and manage location-based inventory of the ____ and _____ sides of every service line in your system by _____.

2. You must sample 20% of _____ and 20% of _____ in your service area each year over ___ years.

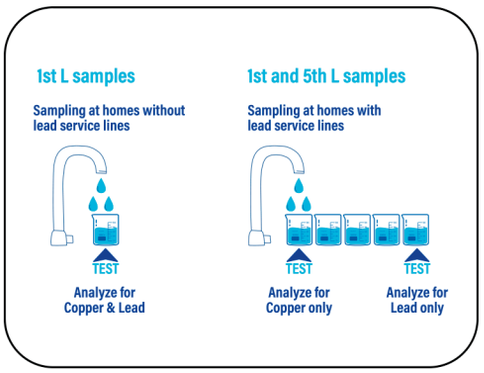
3. When sampling in schools and childcare facilities, water systems must provide_____ and _____ to each sampled facility, primary agency, and health department.

Use the word bank for the 3 statements above

all licensed childcare facilities
elementary schools
five
October 16, 2024
private
public
public education
results

QUESTION 5: FILL IN THE BLANKS

Write out which of the five tiers are associated with the samples in the blanks below.



A 1st- and 5th-liter draw and analysis for any home served by an LSL is now required. In 2024, we move from collecting only first-liter samples after stagnation to the following:

- 1st and 5th L samples _____
- 1st L samples _____

QUESTION 6: SHORT ANSWER

Briefly explain why pulling the 1st and 5th samples for single- and multi-family homes served LSLs is essential.

QUESTION 7: FILL IN THE BLANKS

The monitoring schedule is based on the 90th percentile level for all systems.
If your 90th percentile is above __ ppb:

- You'll test _____ at the standard number of sites, and
- At a minimum, you will be required to replace __% of your lead service lines, annually.

If your 90th percentile is between __ ppb and 15 ppb,

- You'll sample _____ at your standard number of sites
- You will reoptimize your _____
- You will work with state officials to set an annual _____

Use the word bank for the statements above

3	annually
10	semi-annually
15	corrosion control treatments
	goal for lead service line replacements

ACTIVITY SECTION 1: LCRR CHANGES

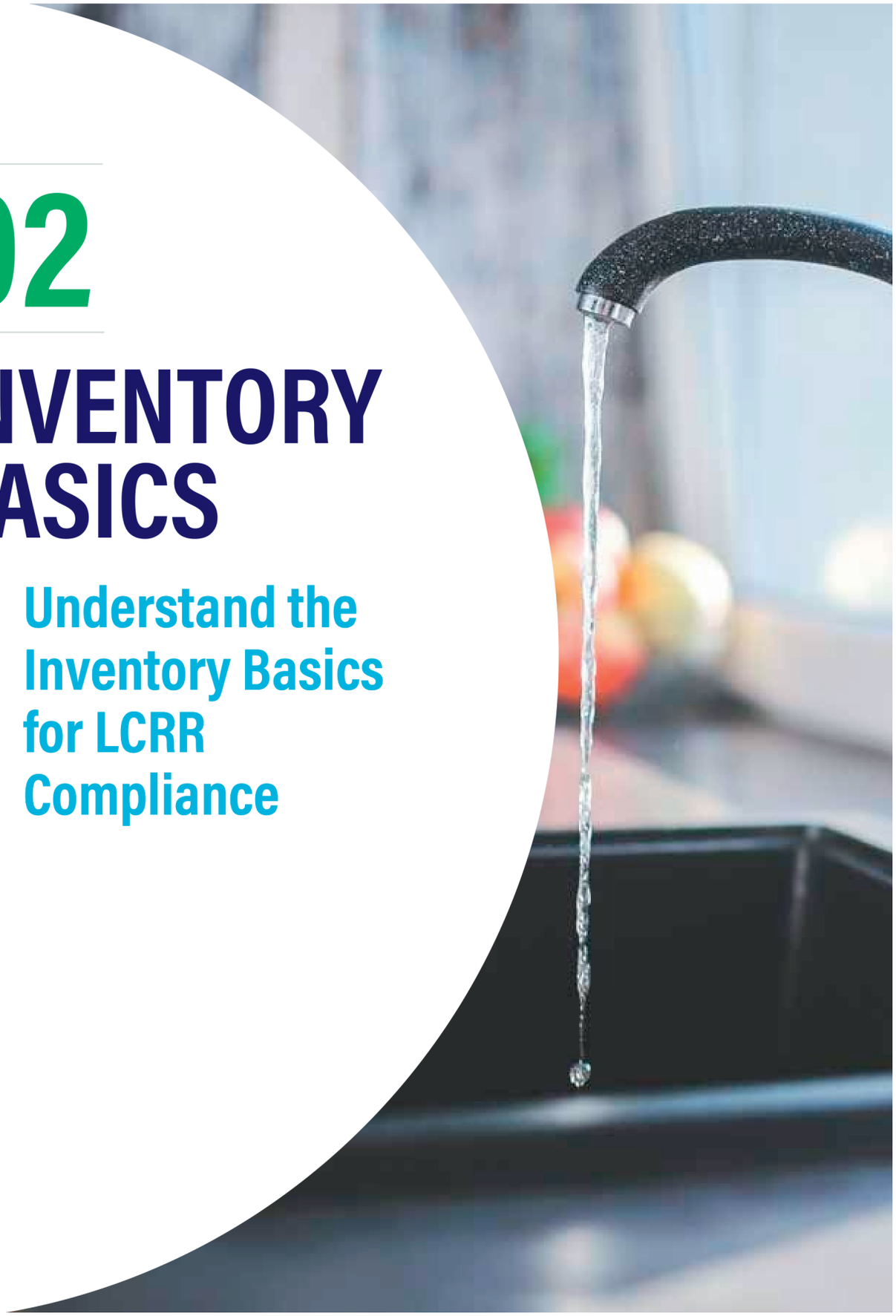
LEAD SERVICE LINE INVENTORY	PUBLIC COMMUNICATION
Every _____ must compile and manage a preliminary inventory of all commercial, residential, public, and private service lines within their service area by October 16, 2024. • • • •	Systems must notify customers with individual LCR sample results over 15 µg/L within _____ days (____ hours).
Submission recurrence is based on a system's monitoring _____ schedule, and you must submit the first inventory within _____ (or prove they don't have any LSLs).	After your monitoring period ends, you must notify all consumers within the service area within ____ hours if your 90th percentile is over ____ ppb.
You can submit _____ or _____ evidence of no LSLs to receive a waiver, but you still have to _____ based on your monitoring period.	You'll have to distribute annual notifications to customers served by _____ and _____ service lines.
Inventories must be made _____ available, and each customer serviced by an LSL or a line with an unknown material must be notified _____	Your LSLR plan must include targeted outreach when monitoring results if you exceed your _____.
Population over _____ must be publicly available online.	_____ info must be made public and included in the CCR.
Systems must develop a Replacement Plan by identifying an _____ and annual _____.	Systems must provide _____ materials when doing mandatory LSLR.

RESIDENTIAL SAMPLING	SCHOOL & DAYCARE FACILITY SAMPLING
New Trigger Level of ___ ppb • The _____ Level of 15 ppb remains the same at this time.	Identify – Every _____ will be required to create an inventory of facilities they serve. Including: _____, _____, _____, _____, _____, etc.
The monitoring schedule is based on the P90 level for all systems. • P90 > 15 µg/L - If your 90th percentile is above 15 ppb: ◦ You'll test _____ at the standard number of sites, and ◦ You will be required to replace a minimum of ____ of your lead service lines _____.	Sample – Utilities must sample ____ of elementary schools and ____ of all childcare facilities in the service area each year for _____ years. • _____ samples per school and ____samples per childcare
• P90 > 10 to 15 µg/L - If your 90th percentile is between 10 and 15 ppb: ◦ You'll sample _____ at your standard number of sites, ◦ Reoptimize your _____ _____ treatments, and ◦ Work with _____ to set an annual lead service line replacement goal.	Schools - Sample: • __ drinking water fountains, • __ kitchen faucet used for _____ or _____ preparation • __ classroom faucet or other outlet used for _____ • __ nurse's office faucet, as available.
New Tier Sites - The EPA redefined the first three and added _____ more tiers • The list is based on the LSL inventory, and all Tier 1 samples must be collected from any home served by an LSL.	Child care facilities – Sample: • __ drinking water fountain • __ of either a kitchen faucet used for the preparation of food or drink OR __ classroom faucet or other outlet used for drinking _____.
A ___ and _____ draw and analysis for any home served by an LSL is now required • In 2024, we move from collecting only first-liter samples after stagnation to the following: ◦ 1st and 5th L samples for Tiers ____ ◦ 1st L samples for Tiers ____	Secondary school sampling _____ also be provided when requested.
New Tier Requirements for CWS: 1. 2. 3. 4. 5.	Share –The water system must provide _____ and _____ to each sampled facility, primary agency, and health department.

02

INVENTORY BASICS

Understand the Inventory Basics for LCRR Compliance



UNDERSTANDING THE REQUIREMENTS

PURPOSE OF THE INVENTORY

The purpose of the inventory is to track a water system's progress to complete lead service line replacement.

A preliminary inventory helps you:

- Locate lead service lines and galvanized service lines that require future replacement throughout the distribution system.
- Identify the most vulnerable areas to target for replacement and sampling activities.
  - Including school and childcare facilities for future sampling
- Create a Lead Service Line Replacement Plan (if lead is present in your system)
- Provide the basis for communicating to the public, customers, residents, and anyone consuming water from your system.
- Track/verify sample monitoring (forces transparency and accountability)
- Access funding for replacement

INITIAL INVENTORY

The initial service line inventory is due by October 16, 2024.

- You can submit approved/compliant evidence of no lead service lines to receive waivers with an "initial inventory" and methods used.
- You'll be required to resubmit every 1-3 years based on your water systems monitoring period; however, it won't be more than one time per year.

LSL REPLACEMENT PLAN

As it stands now, the LCRR requires a LSL Replacement Plan to be submitted with the inventory. Replacement activities are tied to concentration levels below:

15 PPB (PB)

The Action Level in the revised LCR will remain the same, with concentrations above 15 ppb requiring actions to control corrosion.

10 PPB (PB)

The revised LCR introduces this new trigger level, requiring more proactive planning in communities with LSLs.

90TH PERCENTILE

If the 90th percentile monitoring results are between 10-15 ppb (Pb), the system will be required to pursue a replacement goal.

3 PERCENT

Any system with an action level exceedance needs to replace 3% of identified LSLs for at least two years (down from 7%).

DESCRIBING A SERVICE LINE

Under the LCRR, the inventory must use one of the following four material classifications to describe the entire service line, including separate material classifications for the system-owned and customer-owned portions of each service line where ownership is split:

- Lead service line
- Galvanized service line requiring replacement (GRR)
- Non-lead service line (such as copper or plastic)
- Lead status unknown service line

EPA'S SERVICE LINCE CLASSIFICATION DEFINITIONS

MATERIAL CLASSIFICATION	USE THIS CLASSIFICATION IF:
Lead	**The service line is made of lead.** Keep in Mind: • The LCRR updates the definition of a LSL as "a portion of pipe that is made of lead, which connects the water main to the building inlet" • If the only lead pipe serving the building is a lead gooseneck, pigtail, or connector, the service line is not considered an LSL under the initial inventory requirements of the LCRR. EPA recommends that the system track the material of all components that potentially contain lead, including connectors. ◦ A lead gooseneck, pigtail, or connector is defined as "a short section of piping, typically not exceeding two feet, which can be bent and used for connections between rigid service piping"
Galvanized Requiring Replacement (GRR)	**The galvanized service line is or ever was at any time downstream of an LSL or is currently downstream of a lead status unknown service line.** If the water system is unable to demonstrate that the galvanized service line was never downstream of an LSL, it must presume there was an upstream LSL. Keep in Mind: • Galvanized service lines that are or ever were downstream from an LSL can adsorb lead and contribute to lead in drinking water. • An example of a GRR service line is when the customer-owned portion from the meter to the building is galvanized, and the system-owned portion from the water main to the meter was previously lead but has been replaced. The customer-owned portion of the service line would be GRR. • Under the initial inventory requirements of the LCRR, a galvanized service line that was never downstream of an LSL but is downstream or previously downstream of a lead gooseneck, pigtail, or connector is not considered GRR. However, systems should check with their states if they have more stringent requirements.
Non-Lead	**The service line is determined through an evidence-based record, method, or technique that it is not lead or GRR.** Keep in Mind: • If a system can demonstrate that a galvanized service line was never downstream of an LSL, it may be classified as non-lead. • The water system may classify the actual material of the service line (for example, galvanized, plastic, or copper) as an alternative to classifying it as non-lead. • The term "non-lead" refers to the service line material only and does not include other potential lead sources present in solder, connectors, and other plumbing materials.
Lead Status Unknown	**The service line material is not known to be a lead, GRR, or non-LSL, such as where there is no documented evidence supporting material classification.** Keep in Mind: • Water systems have the option to use the terminology of unknown instead of lead status unknown service line. • Water systems may elect to provide more information regarding their unknown lines as long as the inventory clearly distinguishes unknown service lines from those where the material has been determined through records or inspections.

UNDERSTANDING THE REQUIREMENTS, continued

WHO'S AFFECTED?

All community water systems (CWSs) and non-transient non-community water systems (NTNCWSs) must prepare an inventory of all service lines connected to the public water distribution system, regardless of ownership status.

NON-TRANSIENT NON-COMMUNITY WATER SYSTEMS

A non-transient non-community water system is a public water system that is not a community water system and regularly serves at least 25 of the same persons over 6 months per year (40 CFR §141.2).

NOTE: For non-transient non-community systems, the service line is considered the line from the well or source to the building inlet (meter or pressure tank).

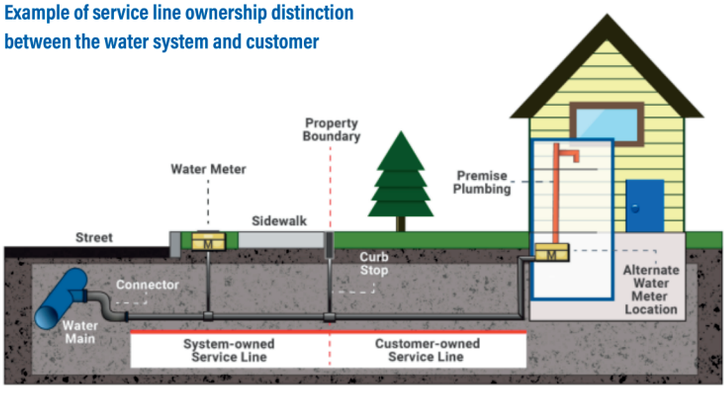
UNDERSTAND THE OWNERSHIP MAKEUP

The diagram below is an example of a possible division in service line ownership (or responsibility) between the customer and the water utility. The system-owned portion of the service line is from the water main to the curb stop and the customer-owned portion is from the curb stop to the water meter.

For some systems, the delineation may be different, (e.g., the ownership or responsibility distinction is at the water meter or property line). In other instances, the water system may share ownership with customers, or the water system or customer may have sole ownership of the service line.

Service lines vary depending on your county and state code. It's up to you to understand the ownership makeup in your distribution system.

Example of service line ownership distinction between the water system and customer



DEFINE OWNERSHIP: PUBLIC/PRIVATE OWNERSHIP

Any service line connected to the public water system, even where the water system owns no portion of the service line, must be included in the inventory. In those instances where ownership is split, the inventory must include both the system-owned and customer-owned portions of the service line. Water systems must internally track address locations of each service line and their respective material classification.

While the LCRR requires the inventory to categorize each service line or portions of the service line where ownership is split, a single classification per service line is also needed to support various LCRR requirements, such as lead service line replacement (LSLR), tap sampling, and risk mitigation. Systems should follow these guidelines to the right to comply with the LCRR requirements when classifying the entire service line when ownership is split.

CLASSIFYING THE ENTIRE SERVICE LINE WHEN OWNERSHIP IS SPLIT, ACCORDING TO THE EPA'S DEFINITION:

SERVICE LINE = LEAD	If either portion is a lead service line (LSL).
SERVICE LINE = GRR	If the downstream portion is galvanized and the upstream portion is unknown or currently non-lead, but the system is unable to demonstrate that it was never previously lead.
SERVICE LINE = LEAD STATUS UNKNOWN	If both portions are unknown, or one portion is non-lead, and one portion is unknown.
SERVICE LINE = NON-LEAD	Only if both portions meet the definition of non-lead.

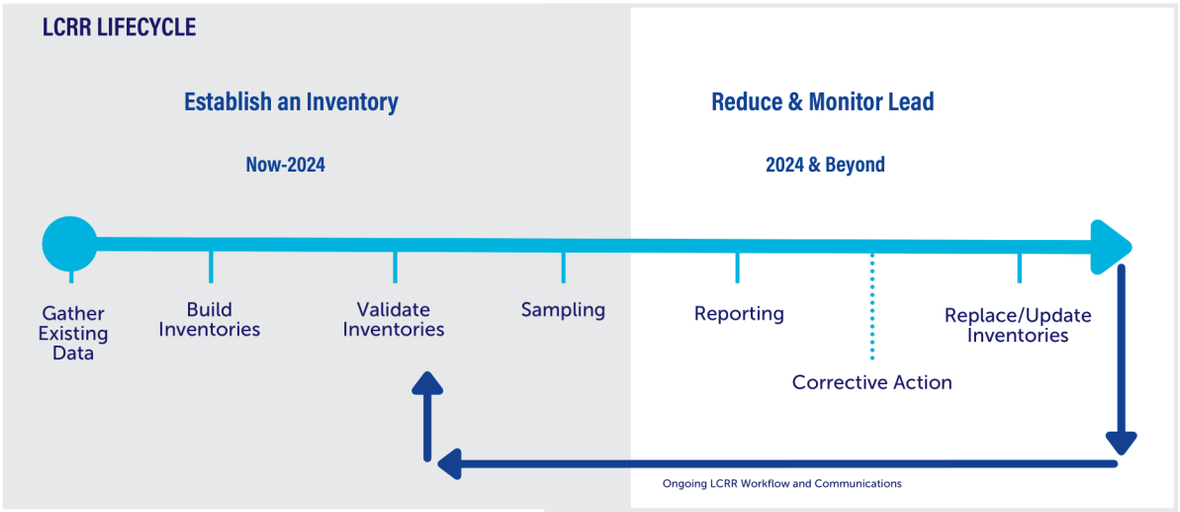
The EPA recognizes that some segments of the system- or customer-owned service lines could be made of more than one material. EPA recommends that systems follow the guidelines above to classify the system-owned or customer-owned portion in these cases.

Below are EPA's examples for classifying the entire service line for various system-owned and customer-owned material combinations.

System-Owned Portion	Customer-Owned Portion	Classification for Entire Service Line
Lead	Lead	Lead
Lead	Galvanized Requiring Replacement	Lead
Lead	Non-lead	Lead
Lead	Lead Status Unknown	Lead
Non-lead	Lead	Lead
Non-lead and never previously lead	Non-lead, specifically galvanized pipe material	Non-lead
Non-lead	Non-lead, material other than galvanized	Non-lead
Non-lead	Lead Status Unknown	Lead Status Unknown
Non-lead, but system is unable to demonstrate it was not previously Lead	Galvanized Requiring Replacement	Galvanized Requiring Replacement
Lead Status Unknown	Lead	Lead
Lead Status Unknown	Galvanized Requiring Replacement	Galvanized Requiring Replacement
Lead Status Unknown	Non-lead	Lead Status Unknown
Lead Status Unknown	Lead Status Unknown	Lead Status Unknown

OTHER COMMON TERMS

MATERIAL	DEFINITION
Curb Stop	An exterior valve located at or near the property line that is used to turn on and off water service to the building
Community water system	A public water system that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents (40 CFR §141.2)
Full lead service line replacement	Replacement of a lead service line (as well as galvanized service lines requiring replacement) that results in the entire length of the service line, regardless of service line ownership, meeting the Safe Drinking Water Act (SDWA) Section 1417 definition of lead free3 applicable at the time of the replacement. See 40 CFR §141.2 for the full regulatory definition
Galvanized service line	Iron or steel piping that has been dipped in zinc to prevent corrosion and rusting (40 CFR §141.2).
Gooseneck, pigtail, or connector	A short section of piping, typically not exceeding two feet, which can be bent and used for connections between rigid service piping. For purposes of this subpart, lead goosenecks, pigtails, and connectors are not considered to be part of the lead service line but may be required to be replaced pursuant to §141.84(c)4 (40 CFR §141.2).
Service line	The pipe connecting the water main to the interior plumbing in a building.2 The service line may be owned wholly by the water system or customer, or in some cases, ownership may be split between the water system and the customer.
Water main	A pipe that conveys water to a connector or customer's service line. In residential areas, it is usually located underground.2
Water meter	An instrument, mechanical or electronic, used for recording the quantity of water passing through a particular pipeline or outlet.2



STARTING YOUR INVENTORY

The LCRR lifecycle starts with gathering existing data but before you jump into researching inventory, your water system should develop a plan first. Developing a plan will ensure you accomplish the requirements in a timely manner and reduce duplication and inefficient workflows.

SUCCESSFUL LEAD SERVICE LINE PLANS INCLUDE:

- Defined internal team leaders and their roles and responsibilities
- Data management strategies to collect, centralize, and store inventory data
- Opportunities for the field team to collect data and update throughout the project
- An realistic timeline for your team to complete inventory
- Communication strategies and engaging the public from the beginning
- Replacement rate for any LSLs discovered
- Lead sampling protocols for the changes occurring in 2024

ACTIVITY: LSL PLAN WORKSHEET

Work together or independently to develop your LSL plan on the worksheet provided.

FOUNDATIONS OF A SUCCESSFUL PRELIMINARY INVENTORY

The Idaho Department of Environmental Quality has developed an inventory template, water systems can use to track and submit inventory. We will walk through the template in Chapter 6.

We will dive deeper into inventory strategies in the next lesson, but here are a few ways to start developing a successful preliminary inventory.

REVIEW OLD RECORDS WHILE DOCUMENTING YOUR CURRENT WORK.

To start inventory data collection document service lines you see during routine work or capital improvement projects and start asking your current staff and recent retirees where records may be stored. Here is a list of old records you can start with:

- Your water system's records (SL/meter/main install records)
- Your existing Standard Operating Procedures, OPs manuals
- Your community's local plumbing codes: When did your community ban lead private plumbing?
- Old homes/neighborhoods/schools
    - Assessor/County Zoning & GIS Office can help with this
        - Search your County Name + "GIS" to get their contact info

PARTNER AND EDUCATE

Don't wait until you need something from your customers and partners to begin the communication process! Building trust early will increase response rates and help you achieve success. Start sharing educational materials with your community regarding the LCRR and what is coming over the next few years so they aren't surprised or concerned by any future requests you may have. Offer reassurance regularly and create a convenient way to submit the information that can inform your inventory.

There are required communication timeframes and language we will cover in section 5.

STANDARDIZED DATA-ENTRY METHODS

Developing a standardized data-entry method as staff collects information in the field is vital. The method should be a simple, friction-free way to add data to the inventory. Remember to include customer survey results and other customer-submitted data in one central location with the rest of your inventory.

TIP: ADD TO YOUR ASSET MANAGEMENT PLAN

Once the inventory is complete and all lead service lines have been removed, the data can be added to your asset management plan.

THE KEY TO YOUR LCRR COMPLIANCE SUCCESS

Your inventory will impact your access to funding, LCRR execution, consumer outreach and identification of schools, and childcare facilities for future sampling.

Here are some tips we've compiled from working with dozens of utilities all over the country to begin their inventories:

- Stay organized from the beginning
- Start now - break it into small amounts each week and start with what you already know
- Be specific and codify definitions of LSL
- Communicate from the beginning (with your team and with other departments/agencies)
- Identify data sources and uncertainties
- Determine what data is needed, how it's defined, who inputs it, and who manages it
- Scan in paper records and add them to a database when compiling data
- Take advantage of all opportunities to support inventory development - hire it out!

TIP: FUTURE-PROOF YOURSELF

While you are collecting data for the preliminary inventory, you can future-proof yourself by identifying other service line materials relevant to lead levels, including brass, lead alloy, tube alloy, all galvanized, pigtails or gooseneck, copper and lead solder, and detail actual materials for non-lead lines like PVC.

PITFALLS TO CONSIDER

TIME

Not taking this seriously now will be damaging in the future. Building and managing an inventory is a lot of work for every size system. Avoid thinking that the EPA may reverse the decision to eliminate lead service lines or no longer require data management. Public health-focused legislation typically receives bipartisan support. Getting your "house in order" will smooth the path forward - data centralization, digitization and using technology will only aid our progress and help future generations of water system employees.

SUPPORT/PARTNERSHIPS

Doing it alone. Data management is an undertaking, especially starting at square one. It's essential to enlist as many people on staff and partners (from the community and within the industry) to help gather information. Remember: there are third-party companies whose sole job is to compile data quickly. If budgets are limited, pooling funds with other water systems to afford more help may be an option.

COMMUNICATIONS

Not communicating to the public and stakeholders from the beginning will be to your detriment. Building trust with your customers only happens when you prioritize transparency and are willing to have "good" and "bad" conversations. Don't fall into the trap of delaying or withholding information - residents want to know what's happening with their drinking water.

UNKNOWN CLASSIFICATIONS:

Labeling everything as "unknowns." The EPA has no limits on the number of unknowns you are "allowed" to submit, however you will have to account for them eventually. All unknowns are considered lead in the eyes of the EPA and will therefore require sampling along with known LSLs after 2024.

PROCESS MANAGEMENT

Developing inventory by the October 2024 deadline is the first step, not the finish line. Future-proofing will help you in the long run. Collect data and put processes in place that ensure you're ready for any upcoming change in regulation, whether federal or state.

KNOWLEDGE CHECK

QUESTION 1: CHECK ALL THAT APPLY

A preliminary inventory helps you:

( ) Locate lead service lines and galvanized service lines that require future replacement throughout the distribution system.
( ) Identify the most vulnerable areas to target for replacement and sampling activities.
( ) Create a Lead Service Line Replacement Plan (if lead is present in your system)
( ) Provide the basis for communicating to the public, customers, residents, and anyone consuming water from your system.
( ) Access funding for replacement

QUESTION 2: SHORT ANSWER

List the four material classifications inventory must use to describe the entire service line, including separate material classifications for the system-owned and customer-owned portions of each service line where ownership is split:

QUESTION 3: TRUE OR FALSE

While you are collecting data for the preliminary inventory, you should future-proof yourself by identifying other service line materials relevant to lead levels, including brass, lead alloy, tube alloy, all galvanized, gooseneck/pigtails, copper and lead solder, and detail actual materials for non-lead lines like PVC.

a.) True
b.) False

QUESTION 4: TRUE OR FALSE

The LCRR currently states all of the following statements are correct except one.

a.) The initial service line inventory is due by October 16, 2024.
b.) You are required to replace all known lead lines by October 16, 2024.
c.) You can submit approved/compliant evidence of no lead service lines to receive waivers with an “initial inventory” and methods used.
d.) You’ll be required to resubmit every 1-3 years based on your water systems monitoring period; however, it won’t be more than one time per year.

QUESTION 5: MATCHING

Match the service line category with the correct description that systems should follow to comply with the LCRR requirements when classifying the entire service line when ownership is split.

Categorize the Service Line As:	
Lead	If both portions are unknown, or one portion is non-lead, and one portion is unknown.
Galvanized Requiring Replacement	Only if both portions meet the definition of non-lead
Lead Status Unknown	If either portion is a lead service line (LSL).
Non-lead	If the downstream portion is galvanized and the upstream portion is unknown or currently non-lead, but the system is unable to demonstrate that it was never previously lead.

QUESTION 6-12: LABEL THE DIAGRAMS

Identify which of the four categories the complete service line would be considered.

CATEGORIES

- Lead
- Galvanized Requiring Replacement
- Non-lead
- Lead Status Unknown

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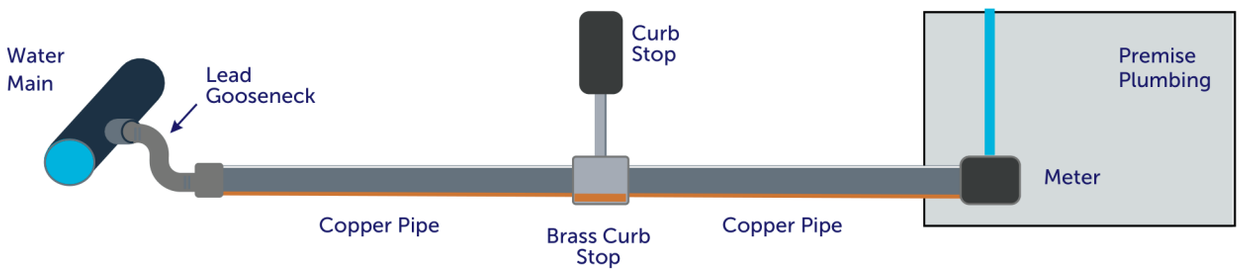

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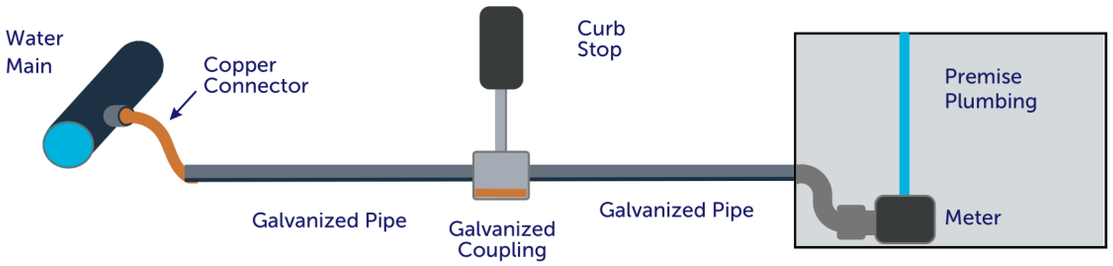

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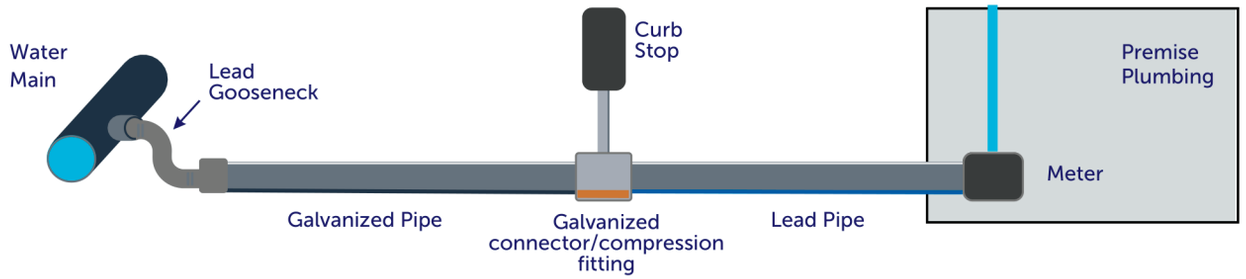

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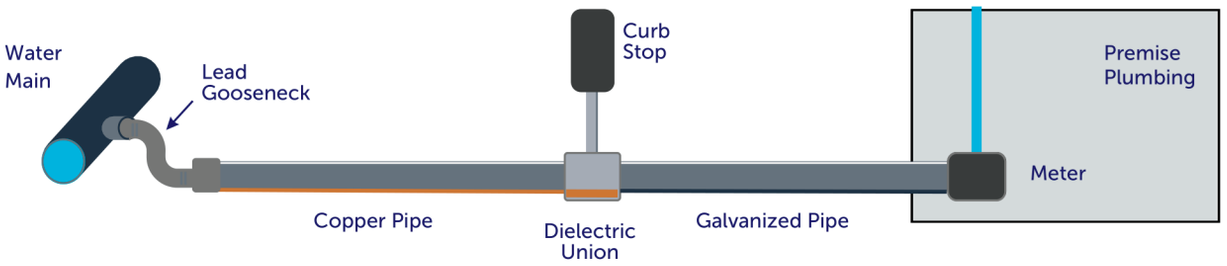

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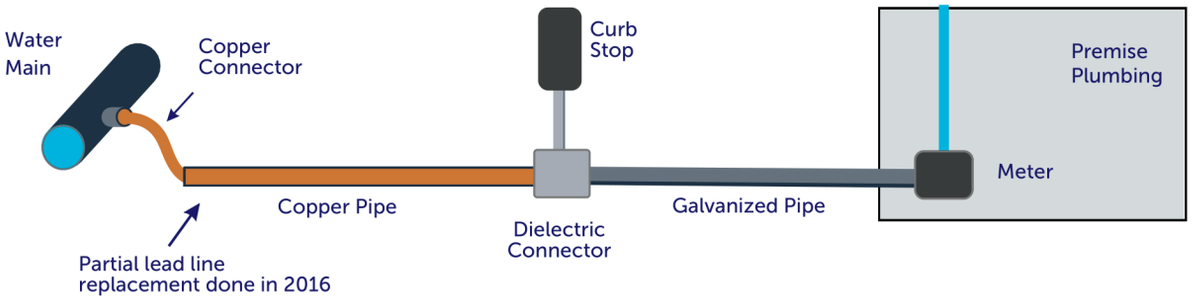

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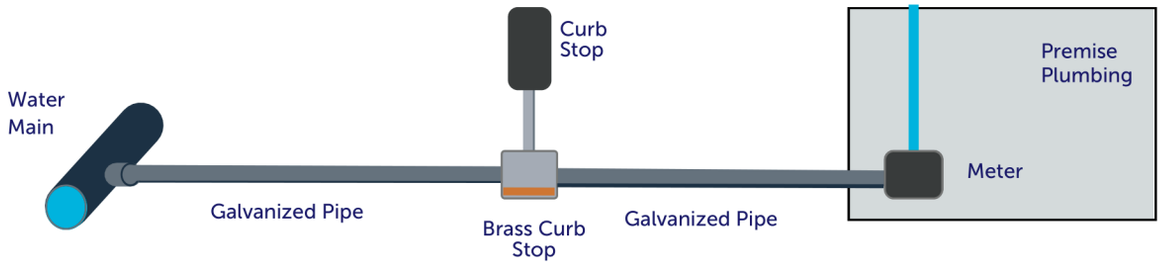

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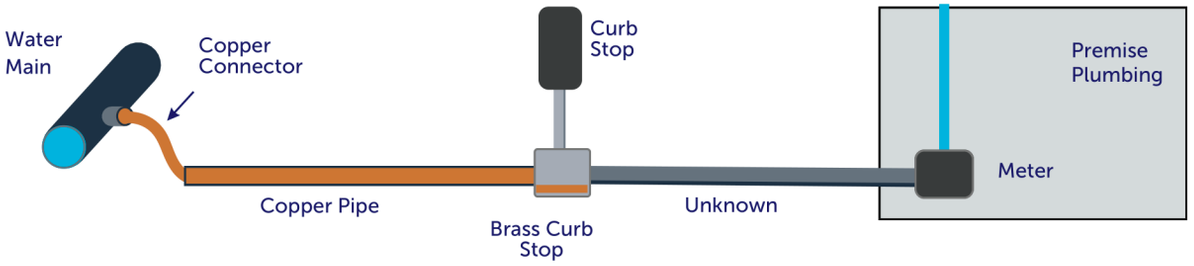


ACTIVITY SECTION 2: LSL PLAN WORKSHEET

LSL PLAN QUESTIONS	YOUR CWS PLAN
INTERNAL TEAM: Define team leaders, roles and responsibilities, etc., to ensure there are clear owners for every step of the process	
DATA MANAGEMENT STRATEGY: How will you manage data over the coming years? Is it manual with spreadsheets or using a software platform? Ensure you have a system to collect, centralize, and store all data.	
OPPORTUNITIES TO INVENTORY: Provide plenty of opportunities for your field team to interact with service lines and update the inventory throughout the project.	
INVENTORY TIMELINES: Set up your ideal timeline for completing the LSL inventory to achieve compliance.	
COMMUNICATION: How will you engage with the public throughout this process? Have a proactive communication strategy set up and finalized from the start.	
REPLACEMENT RATES: Decide at what rates you will replace any LSLs discovered each year – ensuring you stay within the parameters of the revised LCR.	
SAMPLING AND REMEDIATION: Decide how your system will handle the lead sampling changes occurring in 2024 for residential, schools, and childcare facilities.	

03

ADVANCED INVENTORY STRATEGIES

Explore Strategies for a Complete Inventory Plan

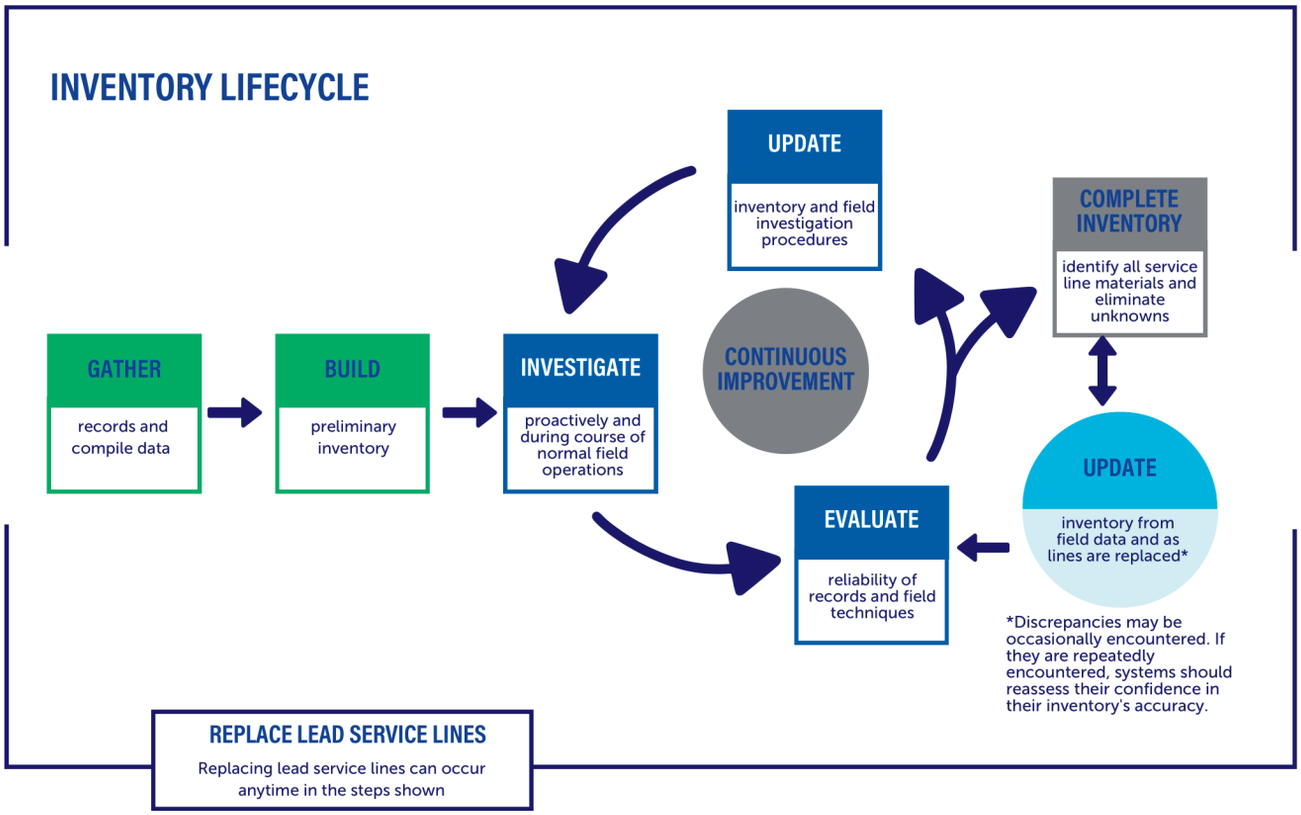
TOOLS AND STRATEGIES FOR A WINNING INVENTORY PLAN

Now that you understand the basics of the inventory and why it's important, let's dive deep into how we build a compliant inventory.

Below is an overview of the inventory lifecycle. While this looks like a linear journey, it's important to remember that you may experience these steps simultaneously, depending on the situation and data available.

For example, when you begin, you may review meter install records or plumbing codes while documenting service lines your system is installing or replacing. Every project, whether in the field or the office, is an opportunity to update your inventory.

For the sake of this training, we will take a linear approach by starting with gathering data, building the inventory, and investigating and evaluating records, then either completing the inventory or updating it further.



GATHER DATA

Start with what you have.

To help identify the service line material(s) and build your inventory, gather existing data you can access. Below is a overview strategies:

ALL WATER SYSTEM RECORDS, INCLUDING DISTRIBUTION SYSTEM MAPS AND DRAWINGS

A system's distribution map could include the pipes' size, location, and construction material.

METER INSTALLATION RECORDS

The meter size and type can indicate service line size and building usage. Most lead service lines are 2 inches or less in diameter.

HISTORICAL RECORDS ON EACH SERVICE CONNECTION

Tap cards, ledgers, or drill cards may give detailed information on location and size.

HISTORICAL CAPITAL IMPROVEMENT OR MASTER PLANS

CIP or Master Plan can help identify historical installation patterns to determine when lead service lines were used

STANDARD OPERATING PROCEDURES

SOPs may indicate the allowable materials for service lines and repairs.

RECORDS REQUIRED BY THE STATE

Existing water quality information (areas with higher lead and copper results)

ANY INSPECTIONS OR RECORDS

- Customer complaints
- Investigation of leaks
- Meter and Cross-connection Inspections
- Anytime your water system has the opportunity to view the service line (main breaks, valve installation, meter installation)

ALL CONSTRUCTION AND PLUMBING CODES, PERMITS, AND EXISTING RECORDS OR OTHER DOCUMENTATION

Plumbing permits indicate when existing structures were built/renovated and service lines were installed/replaced. These permits should include the location and date of installation and an inspection record accompanying the permit.

Construction and plumbing codes may indicate when lead service lines were used and when they were prohibited. Some municipalities may have adopted their codes and ordinances.

Municipal tax records typically contain the date of home construction, which could indicate the likelihood of a lead service line when cross-referenced with construction practices at the time.

The requirement for materials evaluation is not new. It already exists in our current lead and copper rule to determine lead and copper sample site selection.

EXAMPLES WHERE TO FIND DATA

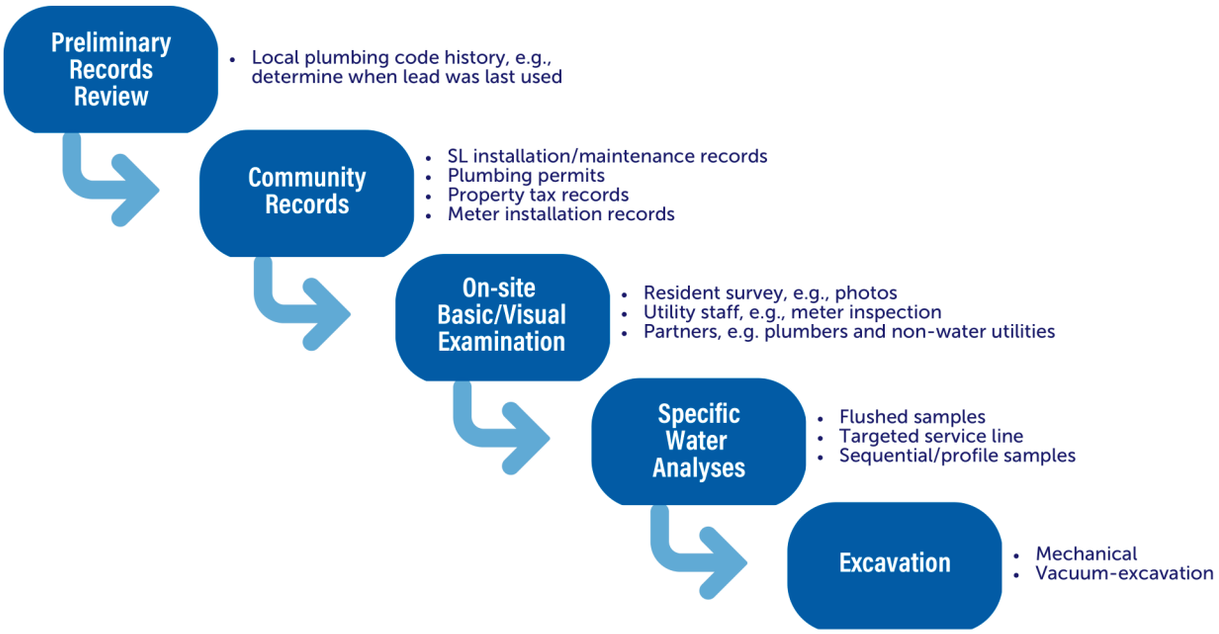
Billing records
Sampling/LIMS data
GIS records
Work order records
Capital projects data
Tier site information
Schools and daycare facilities
Contractor knowledge (plumbers, inspectors)

Compliance reports
Tap cards
Paper records
As-builts
Tax parcel data
Engineering schematics
Inspection records
Meter install dates

USING THE STEPWISE APPROACH

At the heart of the stepwise approach, you start with the most accessible and cost effective method to identifying service lines.

Suggested Stepwise SL Identification Approach



From Hensley, Bosscher, Triantafyllidou, Lytle, 2021, AWWA Water Science
"Lead Service Line Identification: A Review of Strategies and Approaches"
http://awwa.onlinelibrary.wiley.com/doi/abs/10.1002/aws2.1226

BUILDING INVENTORY

Categorize each line and segment.

Now that you've gathered all the data, you. can build your inventory using a template provided or third-party tools. You will classify each service line or portion of the service line where ownership is split. Below is a brief overview of the materials. For more details regarding the materials classification, refer back to Chapter 2.

LEAD SERVICE LINE

Any portion of the pipe that connects the water main to the building inlet is made of lead.

After October 16, 2024, if lead goosenecks, pigtails, or connectors are encountered (e.g., service line is dug up for repairs or replacement), water systems need to replace these connectors with non-lead connectors.

Removal of lead connectors would not count towards lead line replacement. When these lead connectors are replaced it would require public education for the disturbance.

NON-LEAD

A service line that is determined through evidence-based record, method, or technique not to be lead or GRR.

Best practices is specifically-identify the material as simply noting that the material is "Non-Lead" does not future-proof your efforts.

LEAD STATUS UNKNOWN

Lead status unknown is used when the service line material is not known to be lead, GRR, or non-lead, (i.e., there is no documented evidence supporting any material classification.)

Water systems may elect to provide more information regarding their unknown lines as long as the inventory clearly distinguishes unknown service lines from those where the material has been verified through records or inspection. (e.g., unknown-likely lead, unknown-unlikely lead)

NOTE: For this initial inventory a system may have many unknown service lines. If either side (system-owned or customer-owned) is unknown, then the line as a whole is categorized as an unknown service line. Systems with unknown lines are treated like lead lines by the EPA until it is determined that they are not lead.

BUILDING INVENTORY, cont.

GALVANIZED REQUIRING REPLACEMENT (GRR)

A service line is considered GRR if the galvanized line is or ever was downstream of any portion of a lead service line, lead gooseneck, pigtail or connector, or service line of unknown material.

WHAT IS MEANT BY DOWNSTREAM?

Downstream refers to a galvanized pipe positioned after a lead connector or pipe in the same service line.

The water system must demonstrate that the galvanized service line was never downstream of a lead service line. Otherwise, it must be considered galvanized requiring replacement.

ACTIVITY: CATEGORIZING SERVICE LINES WORKSHEET

Determine the service line classification based on the system-owned portion and customer-owned portion material type

WHY ARE WE CONCERNED WITH GALVANIZED SERVICE LINES?

Galvanized pipes are iron pipes dipped in a protective zinc coating to prevent corrosion and rust and can be a source of lead exposure. Galvanized piping was commonly installed in homes built before 1970 and was an alternative to lead for service lines.

Captures Lead Upstream

Galvanized lines can capture lead released from upstream lead pipes. This stored lead can be released into the home.

The release can vary in concentration and can happen over a long period of time. In-home galvanized plumbing can also be a potential source of lead exposure if the house has or has ever had a lead service line.

Zinc Coating Contains Lead

The zinc coating on galvanized pipes contains lead that can corrode and leach into the drinking water. Galvanized pipes manufactured before 2014 contain a higher percentage of lead (0.5 % - 1.4%), whereas newer galvanized pipes must contain 0.25% lead or less.

Inside Lined With Lead

Lead-lined galvanized pipes are galvanized lines in which the inside of the pipe is lined with lead. These types of lines were used in the eastern part of the United States. These pipes are usually larger in diameter than typical LSLs and sometimes have a rusty appearance.

BUILDING INVENTORY, continued

Going above and beyond LCRR requirements

Although not required, water systems should consider going beyond the requirements of the LCRR by subclassifying service line materials and tracking additional information. These best practices can provide additional information to help facilitate material classification and inform the public about service lines in their homes and communities.

RECOMMENDED SUBCLASSIFICATIONS

Lead Status Unknown's "LSL Likelihood"

Some water systems have incorporated additional information that indicates the probable material of an unknown service line, such as an "LSL Likelihood."

For example, Flint, Michigan, categorized unknowns as low likelihood of lead, medium likelihood of lead, and high likelihood of lead (see their online map showing these sub-classifications). Systems using predictive models may also assign numerical probabilities to unknowns representing the probability they are LSLs.

Ex: if an individual service line material is unknown but was installed when lead was not commonly used in the system based on interviews with experienced system staff and plumbers, the system could consider subclassifying the service line as "Unknown-Unlikely Lead." Suppose the system has confirmed service line materials in a representative number of locations in a neighborhood to be lead. In that case, it could consider subclassifying the remaining unknown service lines in the neighborhood as "Unknown-Likely Lead" until its material can be investigated.

GRR Known or Unknown to Have Been Downstream of an LSL

The EPA recommends systems that identify GRR service lines consider tracking and differentiating these lines into subclassifications to indicate if:

- The pipe is known to be currently downstream of an LSL
- The pipe was previously downstream of an LSL
- The system is unable to demonstrate the pipe was never downstream of an LSL

This information could be used for many purposes, such as informing an LSLR prioritization approach or serving as an input for a predictive model. The system could also consider sub-classifying galvanized service lines that are or were downstream of a lead gooseneck, pigtail, or connector.

Lead-Lined Galvanized Pipes

The EPA is aware of lead-lined galvanized service lines but found limited information indicating their prevalence nationally. A lead-lined galvanized service line is consistent with the definition of an LSL under the LCRR ("a portion of pipe that is made of lead, which connects the water main to the building inlet"). It must therefore be classified in the inventory as an LSL. These lines would be subject to the same LCRR requirements as other LSLs in the inventory, such as LSLR, public education, tap sample tiering, and risk mitigation.

Inventorying these lines will be more straightforward where water systems have known or likely use records. These pipes may appear to be non-lead on the exterior, but attempts to identify their material by visual observation or excavation may not reveal an interior lead lining. The EPA recommends that water systems consider any available information that indicates where (if ever) lead-lined galvanized pipes were used in the system, along with approaches such as service line sampling, to populate the inventory accurately.

Actual Material for Non-Lead

LCRR states that water systems may classify the actual material of the service line (e.g., galvanized, plastic, or copper) as an alternative to classifying it as non-lead. Suppose states and systems wish to classify these lines as non-lead. In that case, the EPA encourages systems to track the materials internally and/or as part of the publicly accessible inventory. Including these classifications could improve asset management and better inform a statistical model.

Goosenecks, Pigtails, and Connectors

The EPA encourages water systems to identify the location and material of goosenecks and pigtails (connectors) and include this information in their inventories. This would track and manage this potential source of lead, improve asset management, and increase customer transparency. This practice could also help systems identify where lead connectors are or were previously upstream of galvanized pipe and manage this additional potential source of lead in their system.

NOTE: LCRR requires that when lead connectors are encountered, they be removed or disconnected.

Lead Solder

The EPA recommends systems track the presence of lead solder in the service line or premise plumbing, such as after encountering information indicating their presence in records or if seen during inspections or maintenance. Tracking the presence of lead solder also improves asset management and can inform future actions for reducing lead sources in drinking water. In addition, knowing locations with lead solder in premise plumbing can help identify tap monitoring locations under LCRR.

Fittings and Equipment Connected to the Service Line

Devices such as curb stops and meters may be made of older brass that pre-date the effective date for the Reduction of Lead in Drinking Water Act (January 4, 2014). These devices may not meet the revised lead-free standard and could contribute to lead exposure (Sandvig et al., 2008). The EPA recommends systems consider tracking these if the information is available.

INVESTIGATE

Track service line materials during normal operations

Carefully track service line material(s) as they are encountered. Tracking during normal field operations is a recommended proactive best practice.

IDENTIFY AND TRACK SERVICE LINE MATERIALS

Water systems will need to identify and track service line materials in the inventory as they are encountered during routine operations such as during:

- Meter repair/replacement
- Service line repair/replacement
- Water main repair/replacement
- Backflow prevention projects
- Other street repair or capital projects with open excavations

As systems encounter unknown materials, service line designations could be impacted.

Anytime the system can physically view a service line, it should document and cross-reference what is listed for that line in the inventory.

INCLUDE A LOCATION IDENTIFIER FOR EACH SERVICE LINE.

The inventory must include a location identifier (unique ID) for each service line. This location identifier can and should be the same identifier used in the publicly available version of the inventory. The water system should maintain the specific street address corresponding to the Unique ID in its records.

Using the same identifier for the written inventory submitted to the Idaho Department of Environmental Quality and what is made available to the public ensures privacy information related to each homeowner is protected.

EVALUATE

Evaluate the reliability of records and field techniques

Your LCRR team should evaluate which LSL identification methods is best your water system.

Below is a table that compares each service line identification method by cost, disturbance, impact to homeowner, utility skills required, time and accuracy.

RELATIVE PROS/CONS OF LSL IDENTIFICATION METHODS
L- LOW; M-MEDIUM; H-HIGH

	UTILITY COST			DISTURBANCE		IMPACT TO HOMEOWNER			UTILITY SKILLS REQUIRED		OVERALL	
	Financial	Onsite Time	Pre-/Post-Time	Service Line	Traffic Flow	Water Service Disruption	Property Damage	Homeowner Involvement (Pre-/Post-Time)	Technical Interpretation	Labor	Time	Accuracy
LSL ID Method												
Community Records Review	L or M (if digitized)	NA	L or M (if digitized)	None	None	None	None	None	L to M	None	M	L to H
Basic/Visual Observations (on private-side)	L	L	L or M	None	None	None	None	L	L	L	L	M to H
Water Quality Sampling - Flushed	L	L	M to H	None	None	None	None	L	M	LM to H	M	L to M
Water Quality Sampling - Sequential	M	L	M to H	None	None	M	None	M to H	M	L to MH	M	L to H
Water Quality Sampling - Targeted	L	L	M to H	None	None	M	None	M to H	M	L to M	M	M
Excavation - Mechanical	H	H	M to H	H	M to H	H	H	L	L to M	H	H	H
Excavation - Vacuum	M to H	L to M	M to H	M	L to M	M to H	M to H	L	M	M to H	M	M to H

From Hensley, Bosscher, Triantafyllidou, Lytle, 2021, AWWA Water Science
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COMPLETE/UPDATE INVENTORY

Identify service lines, eliminate unknowns, and update inventory as LSL are replaced

SUBMIT YOUR INITIAL INVENTORY

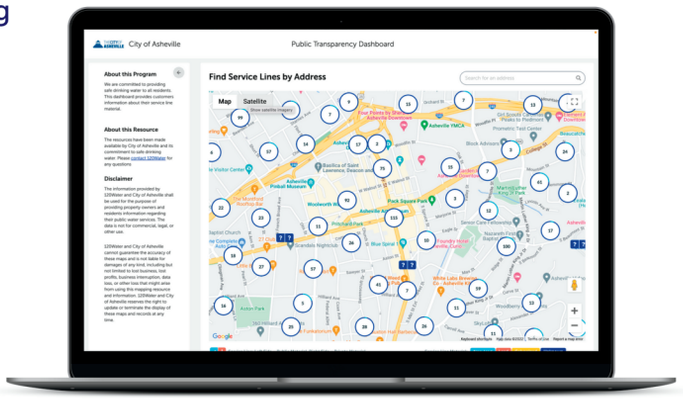
- Inventory and field investigation procedures
- Inventory from field data and as lines are replaced

UPDATE REGULARLY

- After the initial inventory, systems are required to submit updated service line inventories annually within 30 days of the end of the tap sampling monitoring period. Systems with inventories that contain only non-lead service lines are not required to provide inventory updates unless they discover any service lines requiring replacement within their distribution.
- Systems with all non-lead service lines must meet the verification requirements (discussed later in this training). These systems need to notify the state within 30 days of identifying service lines requiring replacement. The water system would then need to submit an updated service line inventory in accordance with the state's approved schedule.

What if your system is not on an annual monitoring schedule?

Inventory updates are required no more than annually. If they are on reduced monitoring then the inventory updates only need to be submitted every 3 years (e.g. a cadence that aligns with their monitoring schedule)



THINK YOU HAVE NO DATA? THINK AGAIN!

Water systems may find themselves in two categories–some may have data digitized and organized, and some may have little or no clue where to start uncovering relevant data.

If you're thinking, "But we have no data!"–think again. To begin, put away your shovel–you won't start with physically digging up lines to develop your inventory. You can rely on records and do not need to see each line to classify if these records include material type or installation date information.

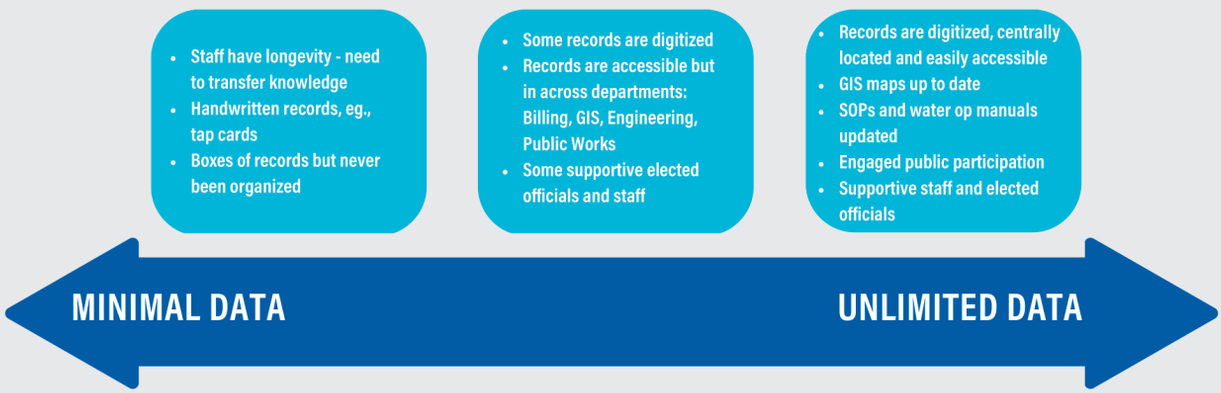
YOU HAVE DATA

It may be challenging to locate or access (for example, inside an unlabeled box in the corner of an old building), but you have data somewhere. A good place to start is with your billing department. Likely, you have service address, maybe emails and phone numbers.

WHERE DO YOU FALL ON THE SPECTRUM?

It's important to understand where you realistically fall on the spectrum to determine what level of effort and timeline is needed to build your inventory and achieve compliance.

WHERE DO YOU FALL ON THE SPECTRUM?



Lean on technology

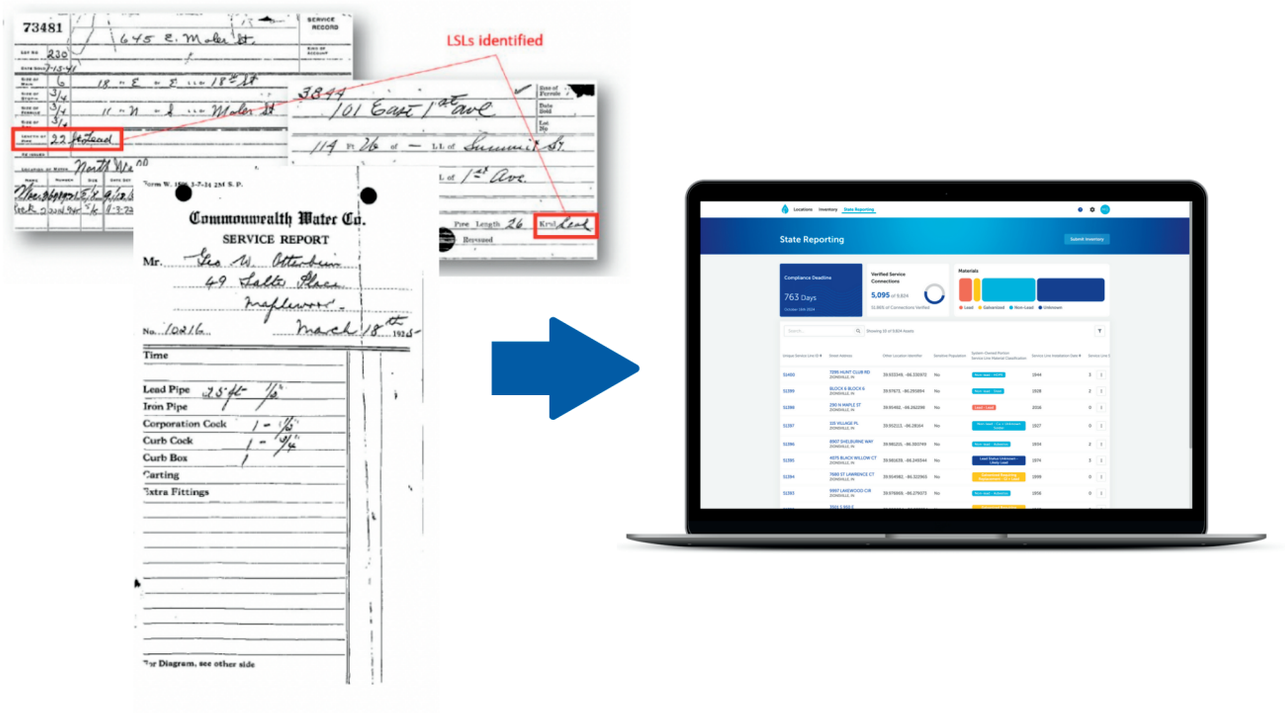
If you have a filing cabinet full of paper-based records (ex., tap cards), now would be an excellent time to push for digitizing and moving them to a system that can aggregate the data for you.

Using technology designed to scan these documents and aggregate data costs money, but the trade-off is time, staffing, and a looming deadline.

Here's an example of tap cards with lead listed as service line materials.

Using a digital database (for example, 120Water) transforms your physical data assets speedily and at scale to inform your service line inventory. Think about this– assuming the Idaho Department of Environmental Quality will require/recommend collecting about 30 data points per location, the average 2,500 population town with roughly 750 taps/connections has to collect an estimated 22,500 data points in the EPA template.

On the following page, we included a real example of how digitization and data transcription of physical assets can help.

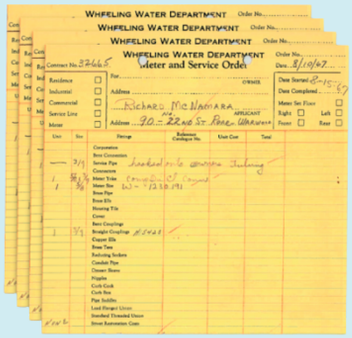


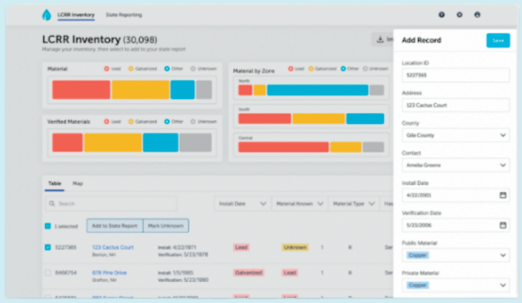
STORY TIME

The Wheeling Water Department needed a location-based database (e.g., GIS) to build its service line inventory. They have:

- 13,000+ Service connections
- 27,000+ Population served
- 72,000+ Files to be processed

They used tap cards as their reliable data source but needed specific data points to inform their inventory. However, that volume of data could not be done in-house, so they shipped their entire filing cabinet of tap cards to 120Water. Within 50 days, they received accessible, digestible, and actionable data compared to what would have taken the Wheeling Water Department years to achieve.





BOTTOM LINE

- Identify all potential data sources - prioritize by starting with low-hanging fruit (information you know and can access immediately)
- Pull together and clean - carefully tracking where the information came from and categorizing each line and segment
- Digitize and identify opportunities to supplement

LSL INSTALLATION RECORDS

SOURCES	DESCRIPTION	PROS
LSL INSTALLATION RECORDS		
Installation records	Records may be in the form of ledgers, cards, or databases; records describe the length, location, and construction material used for service line	Provides: location, timeframe when replacement occurred, may include information on material
Service card or ticket	Subsequent to installation, repairs or replacement activity conducted by the water system describe action taken	Provides: location, timeframe when replacement occurred, may include information on material
Construction records	Major main repair and construction project records will identify services replaced by those projects	Provides: a location and a timeframe when replacement occurred. May include information on material
Plumbing permits	Water system or local plumbing codes may require plumbers to obtain permits to replace service lines	Provides: a location and a timeframe when replacement occurred. May include information on material
CONSTRUCTION PRACTICES		
Utility construction standards and specifications	Water systems provide their own staff, contractors, and plumbers with standards for construction including service lines	Good reference: informed practice by water system and plumbers
Plumbing code; local ordinance	State and community plumbing codes specify, often by reference, pipe standards and specifications	Good reference: informed practice by water system and plumbers
Field experience	Interviews with experienced water system distribution system field staff and plumbers active in the system's service area	Can be used to: inform where to focus inventory effort and verify practice reflected in existing documentation; confirm absence of lead service lines
Summary notations of practice	Reports to governing bodies, internal memoranda, purchasing records, annual reports, etc.	Describes both water system and plumbing community practice
PARCEL RECORDS		
Tax records	Municipal tax records provide a database that typically contains the date of home construction	Electronic resource; typically includes address, subdivision, building age, number of bedrooms / square footage (information that can be used to compare against construction practice to assess likelihood of a lead service line); typically map is available
HISTORICAL ACCOUNTS		
Distribution system maps and record drawings	Should be a primary source of service line and connection information including materials, line sizes, and dates	Useful indicating historical growth of system
Capital improvement plans and maps	Historical CIPs can provide insight into historical installation patterns; current CIPs can be used to inform field investigations	Useful indicating historical growth of system
Community planning documents and maps	Subdivision plots, planning reports, records of housing starts, types and placement of initial construction, and reconstruction / renovation efforts can be used to determine which homes were constructed during time period lead service lines were used	Generally available information
Newspaper accounts	Changes in policy on topics of interest to the public, like lead, are sometimes captured in local media accounts	Generally available information

CONS	POSSIBLE LOCATIONS
Lead services are 30 - >130 years old; all or part of an installed line may have been replaced	Water system / municipal water department, municipal building permit / code enforcement department
May require cross-referencing with construction practice at the time of service to determine materials used; typically limited to portion of service maintained by utility; retention policy for these tickets may be inconsistent	Water systems / municipal water department
May require cross-referencing with construction practice at the time of service to determine materials used; typically limited to portion of service maintained by utility; retention policy for these records may be inconsistent	Water system / municipal water department, municipal planning department (new subdivision construction)
May require cross-referencing with construction practice at the time of service to determine materials used; typically limited to portion of service maintained by the customers; adherence to permit requirement may be incomplete; retention policy for these tickets may be inconsistent	Municipal building permit / code enforcement department, water system / municipal water department
Retention policy for these documents may be inconsistent; limited opportunity	Water system / municipal water department's administrative records; governing body (city or town council, etc.) records
Retention policy for these documents may be inconsistent; state plumbing codes are less likely to be useful than local codes	Municipal building permit / code enforcement department administrative records; governing body records; agency overseeing state plumbing code's administrative records
Some communities may lack a long-term internal workforce or a local plumbing workforce; relies on memory of available field personnel; personnel interviewed are only familiar with the portion of the service line their work affected	Existing and retired water system personnel; local plumbing companies; local plumbers union
Retention policy for these documents may be inconsistent	Water systems / municipal water department
Requires cross-referencing with construction practice information from other sources; does not have information specifically about lead service line	Municipal tax assessor's office; centralized municipal government GIS office
May lack desired level of detail, retention policy for these documents may be inconsistent	Water systems / municipal water department
May lack desired level of detail, retention policy for these documents may be inconsistent	Water systems / municipal water department
Requires cross-referencing with construction practice information from other sources; may require a combination of historical documents to establish construction patterns at level of detail required	Municipal planning departments, regional planning agencies, public library, local historical society
Limited potential for useful information	Newspaper, public libraries, local historical society

KNOWLEDGE CHECK

QUESTION 1: MULTIPLE CHOICE

According to the EPA's definition a _____ is any portion of the pipe that connects the water main to the building inlet is made of lead

a.) lead service line
b.) pigtail / gooseneck
c.) galvanized line
d.) non-lead service line

QUESTION 2: TRUE OR FALSE

According to the EPA's definition, a service line is considered GRR if the galvanized line is or ever was downstream of any portion of a lead service line, lead gooseneck, pigtail or connector, or service line of unknown material.

a.) True
b.) False

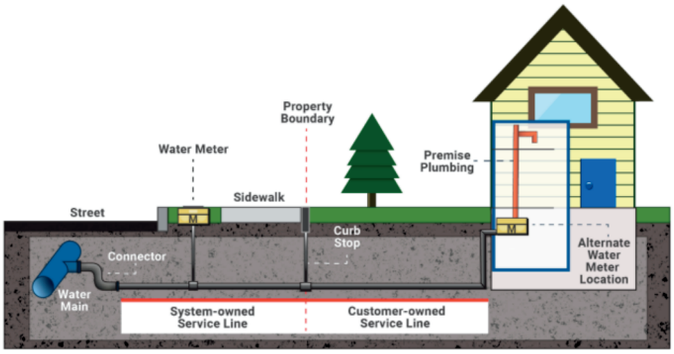
QUESTION 3: SHORT ANSWER / DISCUSSION

The following information and records can be used to complete the initial service line inventory:

120Water™

ACTIVITY SECTION 3: SERVICE LINE CATEGORIZATION

Fill out the service line classifications according to the EPA's definitions.



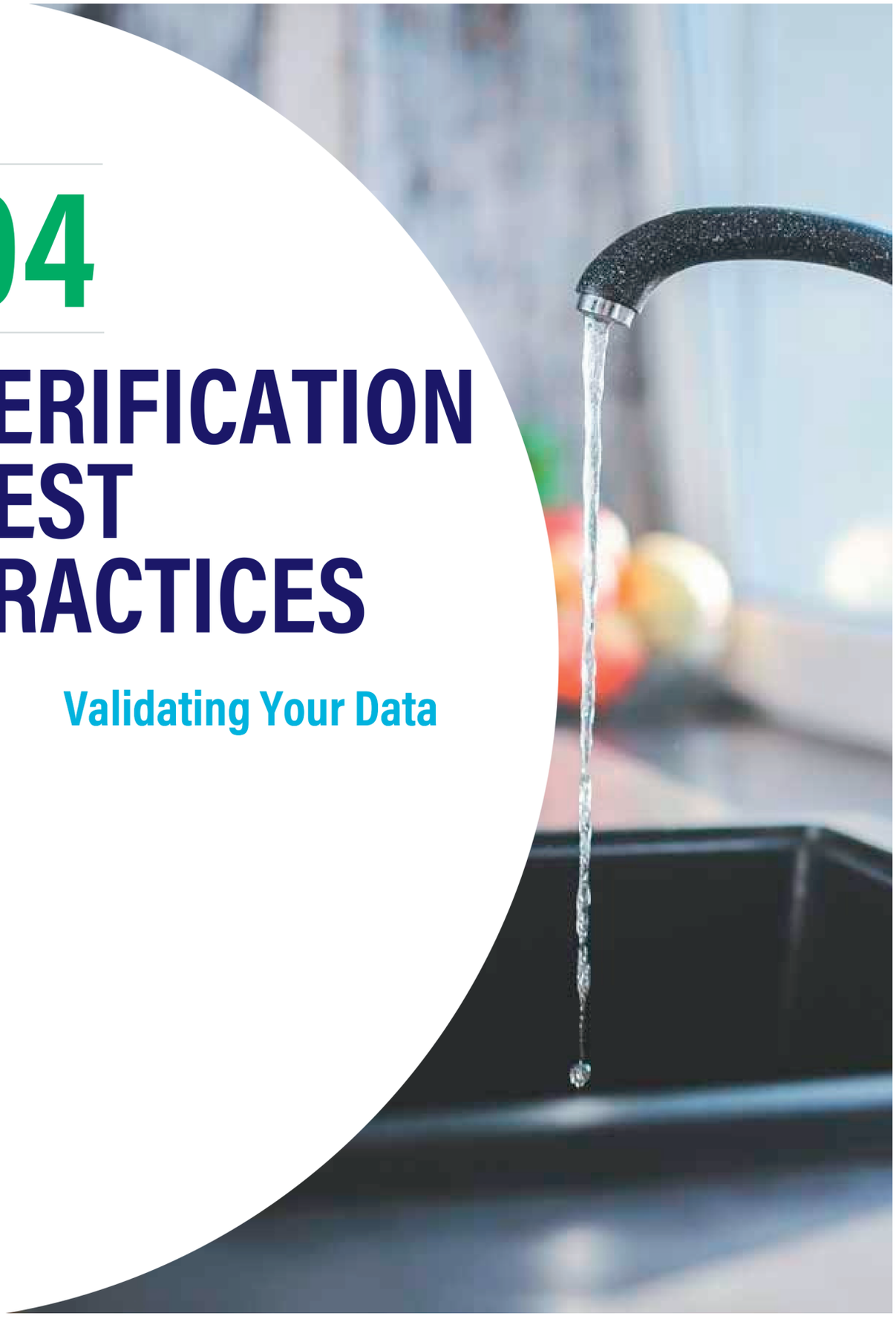
System-Owned Portion Material Type	Customer-Owned Portion Material Type	Service Line Classification
Lead or lead-line	Any material	
Any material	Lead or lead-line	
Unknown	Any material but lead or lead-lined	
Any material but lead or lead-lined	Unknown	
Any material but lead, lead-lined, galvanized, or unknown	Any material but lead, lead-lined, galvanized, or unknown	

System-Owned Portion		Customer-Owned Portion		
Lead Connector Upstream?	Material Type	Lead Connector Upstream?	Material Type	
No	Any material but lead, lead-lined, or unknown	No	Galvanized	
No	Galvanized	No	Any material but lead, lead-lined, or unknown	
No	Galvanized	No	Galvanized	
No	Any material but lead, lead-lined, or unknown	No	Galvanized	
Yes or Not sure	Galvanized	Any response	Any material but lead, lead-lined, or unknown	
Yes or Not sure	Any material but lead, lead-lined, or unknown	Any response	Galvanized	
No	Any material but lead, lead-lined, or unknown	Any response	Galvanized	
Any response	Previously lead or unsure if previously lead	Any response	Galvanized	

04

VERIFICATION BEST PRACTICES

Validating Your Data



VALIDATING YOUR DATA

Once a preliminary inventory has been created through gathering existing data sources, field inspections, and potentially employing techniques such as predictive modeling, the next step is validating that data, reducing the unknowns, and filling in gaps to ensure the accuracy of records and predictions. Although there is no deadline for validated inventories, your preliminary inventories must be fully validated to remain in compliance with the rule.

There are numerous options to verify your community's materials of service lines. The biggest challenge will be validating private-side lines, a new undertaking requiring collaboration and communication with residents to compile data for your system.

There are three main categories of verification:

- Digital
- Interior
- Exterior

It is essential to consider each type of verification practice and determine which one(s) make the most sense for your utility staff, budget, and community. Methods of verification vary depending on what makes sense for your utility. Some are more within your control as the water system, while others rely on customers to take action. Some are cost-effective, while others may be outside of realistic budget expectations.

 Consider the following factors when deciding which combination of methods to employ:

- Inventory goals – Compliance or LSL removal
- Meter location
- Service line ownership
- Budget and resources (i.e., utility-owned hydrovac truck)
- Customer community and demographics (including age and language(s) spoken)

OPEN DISCUSSION

Which factors have impacted your system when attempting to verify LSLs? Which do you anticipate are barriers to overcome?

COMMON VERIFICATION METHODS

Three main categories of verification:

- Digital
- Interior
- Exterior

DIGITAL

Valuable if the PWS has access to robust digital and physical datasets.

- Data mining of existing internal & external databases
  - E.g., GIS, CMMS, Digital Billing, etc
- Predictive modeling/machine learning
- Physical asset digitization and transcription
  - E.g., Tap Cards

Data Mining of Existing Internal & External Databases

Many utilities manage their service addresses in billing software. This is a great place to start. Additionally, you may have a GIS or database with work-orders that note the service line material. Other agencies in your community will have a list of schools and daycares for your inventory as well.

Physical Asset Digitization and Transcription

In Chapter 3, we mentioned the value of evolving from paper-based records to a fully digital database. Transforming physical data assets such as tap cards and as-built records is a recommended best practice that informs your service line inventory in a quick and efficient manner.

This requires scanning and transcribing the record, then standardizing the data to match the state reporting template. The scans should then be attached to the location record.

Predictive Modeling

Predictive modeling looks for patterns in data to develop rules or algorithms and predict likely outcomes. These models use attributes from known service line materials at specific locations to make inferences about unknown locations. The models compile several layers of data. The model will then estimate the probability that a service line is lead, which can help systems prioritize their investigations.

Statistical models are a powerful tool for systems with many unknown service lines. Models “learn” about the characteristics (i.e., home age and other variables) of homes with known LSLs and generate probabilities for every home with an unknown service line. Utilities can quantify the effort and resources needed to tackle their inventory with predictive modeling.

Several inputs go into a service line inventory – GIS, historical paper data, customer information, and demographic information. It’s key to centralize all data, keeping critical components together so that you can manage successful replacement programs. You’ll need a quick and easy way to understand your LSLR Program fully. Look for a software program that provides a visual picture of customers and service line connections to view and map your progress at a glance.

INTERIOR

Valuable if the resident population can be engaged to assist in mostly-private side data collection.

- Door-to-door/Visual inspections
- Resident surveys/photos
- Inspections during compliance sampling
- Contractor inspections
- Swab and magnet tests
- Water quality sampling

Visual Inspections

There are many opportunities to gather data on service line materials during a normal work week, such as reading or replacing meters, main replacement projects, or fixing leaky service lines. Be prepared to request access to the customer's home or building to verify the composition of the customer-owned portion of the service line.

If predictive modeling is used, utilities could also use probabilities to determine where to direct their validation efforts, saving time and money.

Customer Participation

Most utilities have little to no information about material types on the customer's side of the service connection (usually from the curb stop to the home). Customers can help utilities fill in significant data gaps through communication campaigns.

By leaning on marketing and education efforts (sending physical or digital materials directly to customers), utilities can communicate the importance of this identification project and request direct assistance on private side materials from customers via photographs or surveys. Building trust with your customers throughout this process is vital to ensure buy-in and to achieve desired response rates.

Engaging your customers is a great way to get information on the private side. Customers can complete surveys, send photos, perform water testing, lead check swabs and/or scratch and magnet tests, or schedule water system personnel to inspect their lines.

Customer Participation Resources

- The EPA has developed a guide to walk consumers through determining if they have a lead service line. The "Protect Your Tap – A Quick Check for Lead" can be found on a URL Resource page by scanning the QR Code in the Appendix.
- View a digital survey example by scanning the QR Code in the Appendix.

INTERIOR, continued

Lead Check Swab Kit

Lead check swabs are typically used to identify leaded paint but can be used on visible portions of lead service lines (including leaded solder and leaded brass) by field teams or customers.

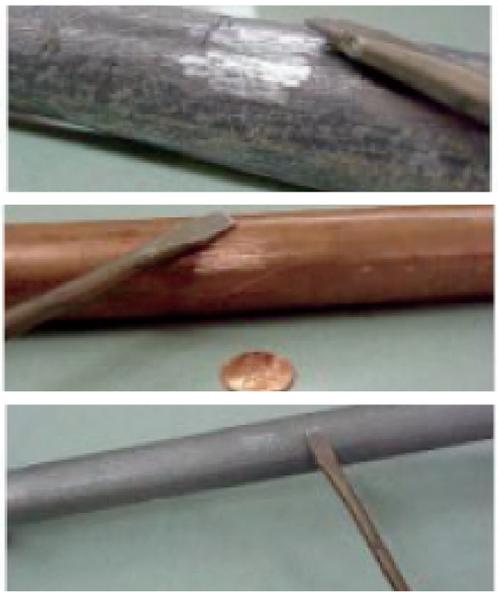
The lead check swab will turn red if there's lead in the pipe when applied. This is a good strategy if there are exposed parts of the line.

Lead Check Magnets

Similar to lead check swabs, strong magnets can identify if a pipe contains lead. Magnets will NOT stick to lead or copper pipes; thus, if a strong magnet is placed on a pipe and sticks, it can be presumed that the pipe is made of galvanized steel. Magnets can be utilized by utility staff or residents.

COMMUNICATION TIP

If you task residents to perform lead check swabs or magnet test, you must communicate instructions proactively, simple and clearly.



Images courtesy of City of Rockford, IL

Lead	• Dull silver gray • Soft - easily scratched (appear shiny) • Magnet will not stick
Copper Pipes	• Copper/bronze color • Magnet will not stick
Galvanized	• Silver gray • Difficult to scratch • Magnet will stick

Water Quality Sampling

Water quality sampling protocols have been used by water systems to detect the presence of LSLs. Three sampling protocols are described in Hensley et al. (2021), each with varying degrees of cost, complexity, accuracy, and customer cooperation required:

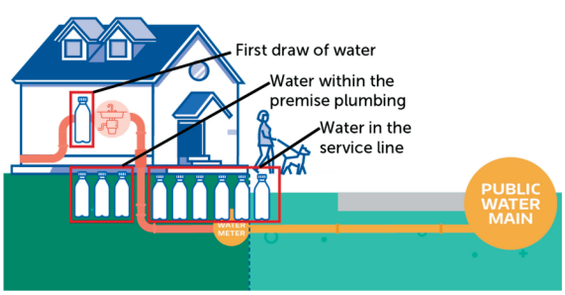
- **Targeted service line sampling**
  - Involves flushing out the volume of water in the premise plumbing and collecting and analyzing a sample from the service line. The volume of water from the tap to the service line can be estimated based on pipe diameters and lengths.
- **Flushed sampling**
  - Involves collecting a sample from the customer's tap after a set flushing time. For example, flushing for five minutes could result in a sufficient difference in lead levels to distinguish LSL sites from non-LSL sites. This method is simple and can be done as an initial screening.
- **Sequential sampling**
  - Uses series of consecutive samples (typically 500 mL to 1 L) collected from an interior tap after a stagnation period (typically 6 hours or more). The number of samples needed depends on the length and diameter of the plumbing from the tap through the length of the premise plumbing and service line, but it is commonly between 8 and 15 liters. Although sequential sampling can be a sensitive tool for identifying LSLs, it is relatively invasive to the resident and more complex than other water quality sampling methods.

It is important to note that water quality sampling is a more appropriate screen for the presence of LSLs since low and non-detect lead levels may not reliably detect the absence of LSLs. The key to using water quality sampling for identifying LSLs is establishing a community-specific threshold above an indicator for the possible presence of an LSL.

Researchers found that using the flushed sampling protocol and sequential sampling in communities with varying levels of corrosion control to be robust in predicting the presence of LSLs under different corrosion control and household plumbing scenarios.

The recommended four-step sampling approach for identifying LSLs is as follows:

1. Establish baseline threshold lead concentrations for fully flushed and sequential samples from homes that have never had LSLs.
2. Collect fully flushed and sequential samples from homes with LSLs.
3. Collect fully flushed samples from homes with unknown service line materials suspected to be lead (i.e., unknown, likely lead).
4. Collect sequential samples from the same homes in step 3 if fully flushed samples do not clearly indicate the presence of an LSL.



Example of sequential sampling.

EXTERIOR

Valuable if the PWS has a large capital budget and wants to optimize planned investments.

- Field Validation
  - Mechanical excavation
  - Potholing or hydrovacing
  - CCTV
- Planned capital programs
  - E.g., water main rehabilitations

If a service line is not accessible for visual inspection, the water system may need to excavate soil, and potentially remove portions of the road, sidewalk, or other obstacles to determine service line materials. Excavation methods require different levels of disturbance, time investment, and cost as well as coordination with the property owner

Potholing or Hydrovacing:

- Involves using a water jet or compressed air to loosen soil, which is vacuumed up resulting in a small hole to access the service line

This method exposes a visible portion of the pipe without needing to excavate an entire yard.

Before excavation, identify other utility lines and mark the locations where the holes will be excavated. A best practice is to expose a line at 2-3 points, as leaded segments can be attached throughout the line, and one pothole may miss a segment.

Once excavated, the holes allow for visual inspection and photos to be taken before restoring the holes, and it's less disruptive and cheaper than digging up an entire service line.

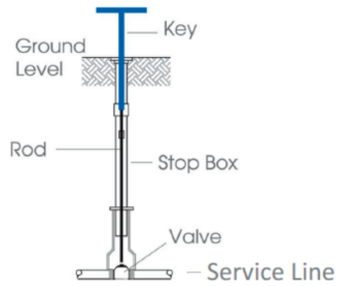
However, multiple holes may be needed to capture partial replacements, splicing, or key service line areas.

Mechanical Excavation

- Involves a backhoe or excavator to dig a "pothole" or test pit to expose the serivce line.
- Typically at a curb box or shutoff valve.
- Option: dig a full trench:
  - Pros: results in higher accuracy than methods that only expose sections of the service line because it typically exposes a longer length of the service line, up to 10 feet in some situations
  - Cons: labor- and time-intensive and possibly results in disturbance or damage to the yard, service lines, and nearby infrastructure

Camera Curb Box Inspections

A low-impact way to determine the material of service lines is through curb box inspections. The curb box is a hollow tube that leads to the shut-off valve.

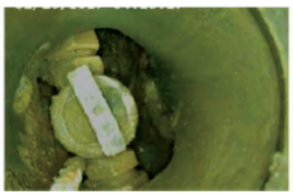


Cutaway view of the curb box

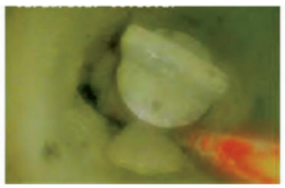
Cameras are used to take pictures of the exterior piping on either side of the curb box, and these images are then sent away for identification.

Challenges include locating/accessing the curb box and cleaning out debris from the box so that both sides of the valve can be inspected. Some imagery may not be clear enough to see the bulb-shaped "wipe joint," which facilitates identification.

Lead Service Line



Non-Lead Service Line



Unable to Determine

Camera Pipe Scope

Fiber optics closed circuit TV camera technology can be used to inspect the service line's interior visually. To complete this type of inspection, the service must be shut off to send the camera through the disconnected meter or another valve on the service line.

Benefit: the entire length of the service line, rather than just portions of the service line, can be inspected.

Challenge: once inside the pipe, the interior walls may be coated with corrosion or scale deposits, which can conceal the pipe wall surface and make identification impossible.

EVALUATE SERVICE LINE IDENTIFICATION TECHNIQUES

Refer to the chart in Chapter 3 (page 51) for a comparison of techniques that meets your water systems needs and resources.

BEST PRACTICES BEYOND INVENTORY DEVELOPMENT

MAINTAINING ONGOING COMPLIANCE

You've learned how to gather records, build your preliminary inventory, validated your data. The next step is ensuring that you can maintain ongoing compliance with the LCRR.

LEAN ON MODERN SOLUTIONS

No matter which validation method(s) you use, modern solutions can move your program forward more efficiently.

Statistical modeling can help you get a complete picture of your LSLR program, layering verification information over existing data from your preliminary inventory to help you visualize lead service lines in your community.

CENTRALIZE YOUR SERVICE LINE INVENTORY DATA

Easy-to-use software options will give your team efficient ways to centralize your service line inventory data. Several inputs go into a service line inventory – GIS, historical paper data, customer information, and demographic information.

The verification process adds another layer of accuracy to the collected data and adding data while in the field can streamline efforts. Having one central place to house all data is vital, keeping critical components together so you can manage ongoing compliance requirements, such as replacement programs, successfully.

Why is Centralized + Organized Data Important?

We know that the inventory is the backbone of the LCRR and managing it in a centralized and organized manner will support many other elements of the LCRR requirements

- Centralizing and organizing your inventory data optimizes the private-side communication strategy because your communications strategy is directly connected to the SL inventory.
- Centralizing and organizing your inventory data helps utilities prioritize replacement efforts.
- Centralizing and organizing helps save time and money on unnecessary digs because there are efficiencies gained in taking a strategic approach to inventory development, which is especially important for utilities with limited resources.
- Centralizing and organizing creates long-term data management efficiencies by streamlining management processes.

KNOWLEDGE CHECK

QUESTION 1: MULTIPLE CHOICE

What factors should your water system consider when deciding to deploy verification methods?

a.) Inventory goals – Compliance or LSL removal
b.) Meter location and service line ownership
c.) Budget and resources
d.) Customer community and demographics
e.) All the above

QUESTION 2: TRUE OR FALSE

Transforming physical data assets such as tap cards is a recommended best practice that informs your service line inventory in a quick and efficient manner.

a.) True
b.) False

QUESTION 3: MULTIPLE CHOICE

If your water system needs private-side data collection what methods of verification would you NOT use to engage your residents?

a.) Physical asset digitization and transcription
b.) Submit surveys and photos
c.) Swab and magnet tests
d.) Water quality sampling

QUESTION 4: SHORT ANSWER / OPEN DISCUSSION

Why is centralized and organized data important to achieving and maintaining LCRR Compliance? Give one example.

ACTIVITY SECTION 4: OPEN DISCUSSION

Which factors have impacted your system when attempting to verify LSLs?

Which do you anticipate are barriers to overcome?

05

ENGAGING CUSTOMERS

Communication Requirements and Best Practices

COMMUNICATING WITH YOUR COMMUNITY

Our job as water providers is to produce and deliver the highest quality of drinking water that meets regulations for our consumers. Although communities depend on water to thrive, consumers must trust water providers. Historically, water providers have taken the silent approach, producing the drinking water and staying behind the scenes in most communities. What's "worked" in the past is no longer an option today. Infrastructure is crumbling, populations are rising, and repair and replacement costs have skyrocketed. Consumers are regularly hit with bills and national "water crisis" headlines, leaving them dumbfounded and eroding trust in their water providers.

The Lead and Copper Rule Revisions are challenging but also serve as an opportunity to strengthen the relationship with your community. The LCRR public communication requirements allow you to engage with consumers, teach about drinking water, and communicate with full transparency and empathy how to minimize lead and other contaminants in their drinking water.

In this section, you will review the LCRR communication requirements and learn tips and best practices for developing your content that helps you build trust with your community.

VALUE OF COMMUNICATION

Public communication is required to achieve LCRR compliance but more importantly it's required to earn trust, respect and confidence between you and your customers. Proactive communication drives positive partnerships with schools, collaboration with homeowners, understanding from stakeholders and the media, and support from elected officials.

PUBLIC TRUST

Oftentimes, your customers only hear from you when you send a utility bill or if there is a problem, leaving little foundation for trust.

Water systems face many challenges from increasing regulations and infrastructure repairs to affordability concerns and the spread of misinformation. Although you can't control these challenges, you can get ahead of them by keeping consumers engaged and informed about your local water system needs to build trust and community support.

We'll dive into strategies later, but it's important to remember that trust is at the epicenter of goodwill (best interest at heart), competency (have the knowledge and skills), and integrity (do what's right) and those components you and your staff can control.

PUBLIC HEALTH

For decades water systems operated behind the scenes, resulting in customers taking their drinking water for granted—not understanding where it comes from, how it's treated or how lead or other contaminants enter the system.

Safe, clean drinking water is vital to a community. You are more than just a billing company - you are the keeper of your community's public health. You provide value. You drive life.

It's your job to provide safe clean drinking water, but it's your responsibility to provide your community with transparent information to empower them to make the best decisions for their families livelihood.

"The LCRR will require strategic communication to the customer...there is a chance to cause a lot of fear, so if you don't go about it in a way that easily explains [what is happening] and will help mitigate that, responses will be emotion-based,"

- Melissa Meeker, CEO of The Water Tower

TOUCHY SUBJECT

Communicating about lead exposure and exceedance has the potential to cause panic in the public's eyes, which means planning communication strategies need to be thought out and planned in advance to avoid public relations crises.

Water systems that are willing to communicate effectively about their efforts around lead removal and remediation will likely find better understanding and trust from consumers and community stakeholders. Taking this compliance requirement one step further to promote community confidence around utility efforts will ultimately set you up for longer-term success.

Building trust begins with you. As you develop messages, talk to customers and implement the strategies, do so with purposefulness and thoughtfulness.

WAYS TO BUILD TRUST

- Give public tours of your water treatment plant
- Present to local organizations and schools
- Engage in public events to educate and build brand awareness
- Serve your tap water at events and meetings
- Get to know your customers in real life
- Host educational classes on topics that affect your customer's daily life (i.e. water conservation, water quality)
- Partner with other departments, local organizations, businesses, leaders to spread educational messages and awareness

WHAT IS COMMUNICATION?

Before we jump into the LCRR requirements, you need to understand the fundamentals. There are five types of communication: verbal, non-verbal, written, visual, and listening. All types should be considered when creating any form of communication, whether in face-to-face, printed or digitally on a website or social media channel.

Verbal	Occurs when we speak with others face-to-face, over the phone, or engage on Teams or Zoom. Can be formal (work meeting) or informal (lunch or coffee break). What and how we say it matters but it also involves non-verbal communication.
Non-verbal	Includes facial expressions (smiles, frowns, perplexed look), posture, eye contact, hand movements, body language, breathing (huffs or deep sighs) and touch.
Written	Examples include writing emails, reports, social posts, text messages, notes. Written communication should be clear and concise to disseminate information. Whether it's Informal or formal communication, remember in the digital space, it can live on forever so it's important to write well and be thoughtful.
Visual	Photos, videos, graphics, memes, imagery in ads
Listening	Listening is the ability to receive and interpret information. It's the key to understanding what people are really trying to say. Active listening builds trust and understanding of others feelings because it encourages openness and honesty.

View the AWWA Lead Communication Guide and Toolkit by scanning the QR Code in the Appendix

IMPROVE YOUR SKILLS

Developing effective communication pieces starts with you. Here are nine communication skills you can improve on that don't cost a dime:

- Be respectful in the way you communicate
- Actively listen to others
- Have empathy for others
- Be aware of and projecting positive body language
- Encourage collaboration
- Be curious - ask questions
- Ensuring you adhere to email and phone etiquette
- Be open minded to other peoples' ideas, feelings, and preferences
- Provide candid, respectful feedback

BEST PRACTICES

When developing communication pieces follow these best practices:

TELL YOUR WATER STORY

Communicating about where your water comes from, how your system operates, and efforts your utility is making to ensure safe, reliable, and affordable service.

BE TRANSPARENT

Release information, whether positive or negative, as it becomes available to enhance your organizations' accountability and build trust.

CONSIDER ALL DEMOGRAPHICS

Include disadvantaged communities in your messaging: translate materials and engage with different groups to better meet their needs

PARTNER WITH OTHERS

Let schools, local organizations, health agencies, HOAs be an ally to garner support and reach new audiences.

COMMUNICATE INTERNALLY

Educate internal departments about the LCRR requirements and work together to develop messages

BE PROACTIVE

Communicate consistently and before concerns arise to establish your utility as the trusted source of information about lead and other issues.

COMMUNICATION CHANNELS

When you commit to implementing effective communication strategies you end up with highly engaged community advocates. It's important to pick the right strategies for your community that meet your needs. Below is a short list of options you can start developing.

- Press Release
- Community Presentation
- Flyers, Factsheets, One-Pagers
- Postcard
- Website: FAQs, Videos
- Social Media
- Direct Mail, Letters
- Email
- Printed or Digital Newsletter
- Town Hall, Public Meetings
- Text, Robo calls
- Face-to-Face Conversations
- Phone Calls
- Community Meetings

The matrix below can help you determine which strategy you need depending on your goal.

	Urgent	Action Needed	One-way	Feedback Needed	Education	Compliance
Letter			■		■	■
Direct Mail			■		■	
Email	■	■			■	■
Social Media	■	■			■	
Town Hall				■	■	■
Door-to-door				■		■
SMS	■	■				
Community Partnerships					■	

EXPLAINING COMPLEX TOPICS

The LCRR Requirements and drinking water, in general, are complex topics that pose as a challenge to communicate with customers. There is a delicate balance between not saying enough and leaving the public to their imagination and overwhelming them with too much information. Both can cause the spread of misinformation and misunderstandings.

LCRR MESSAGING

When developing your messages, it's important to understand that most residents have little to no awareness of clean drinking water: water sources, what it takes to keep drinking water clean and how lead and other contaminants even end up in their taps and fixtures.

Consumers need to be educated on the value of water and how it ends up in their homes and facilities. While public awareness of water quality and water-related issues has increased in recent years, the general public's knowledge and understanding of their water has not in most cases. Particularly in the ongoing aftermath of the Flint water crisis, there is significant public fear around the cleanliness of drinking water.

Many consumers don't realize that not only do most lead and contaminants come from pipelines, plumbing and fixtures rather than the water itself but that in many cities, pipes were installed prior to when most staff began working at the utility.

> **In fact, the lead issue doesn't have anything to do with your water per say, it's with the [pipes and plumbing] it goes through...there's a big misconception about that**
>
> – Charlie Gray, CEO Chesterfield County Rural Water and President of the South Carolina Rural Water Association

POTENTIAL COMPLEX TOPICS

- Your Water System Process
- Potential Health Effects of Lead Exposure
- General LCRR Information and Updates
- Building a Service Line Inventory
- Sampling and Monitoring
- Triggers Levels
- 90th Percentile
- Action Level Exceedance
- School and Childcare Facility Requirements
- Lead Service Line Removal and Replacement
- Disturbances
- Corrosion Control Measures
- Filters and Point of Use Devices

COMMUNICATION TACTICS

Compiled below is a list of actions you can take to communicate the various complex LCRR topics. This is not an exhaustive list but rather a list to jump start your communication tactics. Your team will determine what fits bet for your organization.

ACTIONS

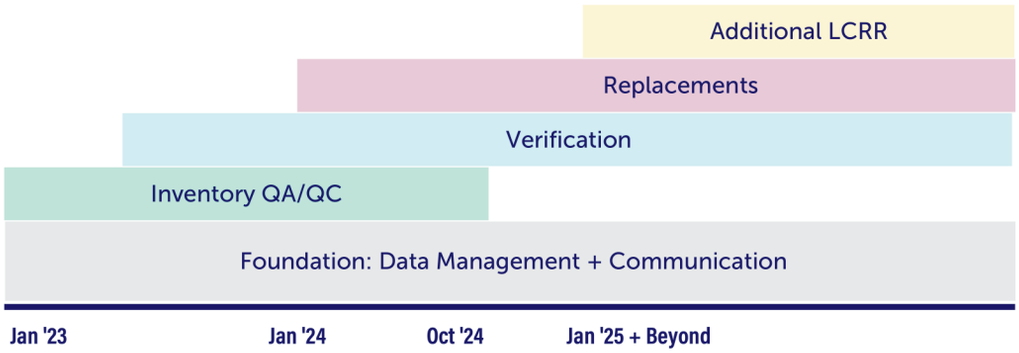
- Provide educational materials to customers about your water system, how lead enters drinking water, effects of lead, how to reduce exposure.
- Use existing content from the expert sources such as the EPA, your primary regulators and member associations.
- Collaborate with other departments, your local governments, local health department, and neighboring water systems to develop materials and spread resources.
- Visual content grabs attention and keeps people engaged. Provide illustrations, graphics, pictures and videos in place of texts when possible or to supplement text-heavy materials.
- Create updated easy-to-read instructions on sampling or submitting information.
- Develop “Frequently Asked Questions” and provide a point of contact to make it easy for customers to ask follow-up questions.
- Distributing sampling kits for homeowners? Make it easy and convenient. Identify a staff person responsible for coordinating delivery of sampling kits.
- Be prepared to provide testing results in a timely manner. If your consumer requires a notification within 24 hours, a phone call is may be the best means of delivery.
- Public meetings and face-to-face conversations are powerful opportunities to connect. Be prepared to talk.
- Know who's living in the home. Is it the homeowner or a renter? Sending a notification to the homeowner rather than the renters (consumer) does not satisfy the requirements.
- When satisfying notification requirements provide humanized explanations along side the regulatory language. See Preparing for the Publics Response.
- Use the CCR as your organizations "State of the Union" address or annual report to tell your water systems story: introduce staff, treatment processes, updates and future plans. Hire a designer to make it look good!
- Embrace social media-share behind the scenes viewpoints or a "day in the life" of staff. The goal is to build "super fans" aka community advocates.
- Include a QR Code on door hangers and postcards that directs consumers to an LCRR specific webpage that houses maps, inventory progress, and resources.
- Set up a "library of resources" in public accessible locations (billing, libraries, city hall, schools, etc) BUT consistently remind consumers it exists.
- Engage community events and meetings to educate and get to know your community.

PRO TIP

> Preform the "Grandma Test" before you send out new instructions and information. Let a friend or family member review the content and confirm if what you are saying is understandable.

LCRR COMMUNICATION REQUIREMENTS

In order to achieve LCRR compliance, you'll need to treat communication as a foundational component that begins now. Communication requirements occur at every step in your LCRR journey. Although many aren't required until after the October 16, 2024 deadline, at the very least right now you need to start collecting customer information and introducing your community to their involvement in achieving compliance.



WORKING WITH CUSTOMERS TO INVENTORY AND BEYOND

Here are a few communication-related steps you can take now that will help you beyond the inventory deadline and set your communication efforts up for future success:

- Collect consumer contact information for the required annual notifications
- Work with customers to collect data and send pictures of their service lines for your inventory
- Initiate outreach to schools, daycares, and organizations to establish a point of contact for sampling requirements
- Identify the educational materials you need from agencies or develop in-house
- Introduce the community to your water system, staff, partners, and LCRR requirements

SERVICE LINE INVENTORY COMMUNICATIONS

The LCRR explicitly states certain notification requirements but throughout the guidance, you'll notice communication tactics are necessary in every step to achieve success. You'll need to build out your communication plan while you're building out your inventory. The ultimate goal isn't to achieve compliance but rather to provide safe, clean drinking water to your well-informed community members who trust you.

WHAT'S REQUIRED?

- All water systems are required to make their LSL inventory publicly available by October 16, 2024 regardless of your water systems size.
  - Water systems serving greater than 50,000 people are required to make their inventory available online.
  - *Serving 50,000 or fewer? Mail to customers, upload to a website or social media, post in public accessible areas, include in a newsletter*
  - Water systems with only non-LSLs can meet this requirement with a publicly accessible statement that there are no LSLs, along with a general description of the methods used to make that determination.
- All water systems are required to include information on how to access the LSL inventory in their Consumer Confidence Report (CCR).
  - Systems with no lead, GRR, or lead status unknown service lines can instead provide a statement that they have no LSLs or GRRs with the description of methods used to make that determination.

WHAT'S ENCOURAGED?

Water systems should begin engaging customers and conducting proactive, on-site service line material investigations as soon as possible to improve their inventory, verify existing records, and reduce the number of unknowns.

Water systems should capture as much information as possible for unknowns and consider assigning a likelihood that they are lead.

Although it's not "required", most water systems will likely need to involve customers to acquire evidence-based records and meet certain requirements, for example:

- Non-lead service lines must be determined through an evidence-based record, method, or technique not to be lead or GRR

ANNUAL LEAD SERVICE LINE NOTIFICATION REQUIREMENTS

All water systems must notify and provide education materials annually to households with lead, galvanized service lines requiring replacement, or "lead status unknown" service lines.

Annual notices must include:

- Statement on the classification of the property's service line
- Information on the health effects of lead
- Actions that can be taken to reduce exposure to lead

WHAT'S REQUIRED?

- For persons served by an LSL or a "galvanized requiring replacement" service line:
  - The notice must also provide information about opportunities for LSLR, including:
    - The water system's requirement to replace its portion of an LSL when notified by property owners that they intend to replace their own portions of the LSL.
    - A description of financing solutions for property owners seeking to replace their portions of an LSL is also required, if available.
- For "lead status unknown" service lines:
  - The notice must include information about:
    - Ways that homeowners can verify the material of their service lines
    - A statement that the service line material is unknown but may be lead
    - Health effects of lead
    - Actions people can take to reduce their exposure to lead
- This notification must be delivered within 30 days of the completed LSL inventory and continue annually thereafter.
- For new customers: this notification must be delivered at the time-of-service initiation.

SERVICE LINE INVENTORY COMMUNICATIONS

BEST PRACTICES

- Publish a simple explanations of your data and required language. The average American reads at a 7th-8th Grade reading level. Tools such as Grammarly and within Microsoft Word to help you determine the complexity of information.
- Provide or create:
  - Educational resources for consumers served by LSLs to reduce lead or protect themselves from lead exposure.
  - A schedule for when staff plans to investigate unknowns in neighborhoods.
  - Information about tap sampling, opportunities for customers to participate in your LSL efforts such as identifying customer-owned service lines, and actions your system is taking to reduce lead.
- Deploy opportunities for feedback and data submission.
  - Tactics: website forms, phone calls, emails, host public meetings, surveys
- Understand your community's demographics. Partner with a local community member to translate your data and education materials or attend public meetings.
- Accessibility and inclusivity considerations should be made throughout the map development process, e.g., using a color-blind safe color scheme, providing alternate text that can be read aloud using software for the visually impaired, using simple or defined terminology, and offering text in multiple languages.
- An interactive online mapping application can be an effective means for distributing service line inventory information and allows users to comprehensively evaluate a water system's service line materials anywhere there is access to a basic computer and internet.
- Use your Consumer Confidence Report as an opportunity to educate customers. Go beyond the required regulatory language by providing simplified summaries of what your customer needs to know

MARKETING RULE OF 7

Customers need to "hear/see" your message at least 7 times before they'll take action. If you want their help, engage often!

SAMPLING & MONITORING

Water system should consider providing outreach to consumers about the LCRR sampling changes. Likely you will need to update sampling instructions, explain the new first- and fifth-sampling protocols, expected frequency of sampling, and provide materials encouraging customers to fix their lead problem if found in their plumbing. LCRR Sampling changes include:

- The LCRR requires a first-liter sample for copper and fifth-liter sample for lead to be collected at sites served by LSLs
- Sampling is required every six months following the addition of a new source water or a long-term change in treatment unless the state determines that these changes do not warrant more frequent monitoring.

WHAT'S REQUIRED?

- Systems must notify customers with an individual LCR tap sample result > 15 µg/L within three days (72 hours).
  - System-wide notice is required within 24 hours for an Action Level Exceedance. See "Action Level Exceedance | 24-Hour Notification" section for details
- For individual samples ≤ 15 ug/L, provide sampling results to each sampling site within 30 days

NEW TRIGGER LEVEL COMMUNICATIONS

The LCRR introduces a new Trigger Level of 10 µg/L (micrograms per liter) in addition to the Lead Action Level of 15 µg/L. There are different parameters depending on if you are a water system serving 10,000 people or more versus serving 10,000 people or less.

WHAT'S REQUIRED?

- Water systems that serve more than 10,000 persons that fail to meet their annual LSLR goal must conduct public outreach activities until they meet their replacement goal or they are no longer required to perform a goal-based LSLR program.
- When the Trigger Level exceedance occurs:
  - Water systems with LSLs, galvanized requiring replacement, and/or "lead status unknown" service lines must provide information within 30 days of the end of the monitoring period to consumers about their LSLR program and opportunities for LSLRs.
  - This information must continue annually until the system no longer exceeds the Trigger Level.
- If small water systems select the Point of Use compliance alternative, they must provide public education materials to inform users how to properly use POU devices to maximize the units' effectiveness in reducing lead levels in drinking water.

ACTION LEVEL EXCEEDANCE | 24-HOUR NOTIFICATION

The LCRR adds exceedances of the Lead Action Level of 15 µg/L to the Tier 1 violation list requiring the distribution of system-wide notices within 24 hours.

WHAT'S REQUIRED?

24-hour notice is required when the 90th percentile value of lead sample results exceed 15 µg/L as opposed to the three-day notice requirement for individual sample results exceeding 15 µg/L.

In addition to the major changes, there are several communication requirements, in terms of both content and delivery, that apply to water systems that exceed the Action Level.

These requirements include delivering public education materials to organizations such as:

- pediatricians
- local welfare agencies
- Obstetricians-Gynecologists
- Midwives

Water systems must deliver Tier 1 notices to all water system customers within 24 hours of receiving and calculating the 90th percentile value exceeding the Lead Action Level.

Water systems must submit a copy of the notice water system's primacy agency and the EPA within 24 hours.

- The mandatory health effects language must be included in public notifications.
- Water systems must translate their public education materials into other languages upon request by a customer.

HOW TO MANAGE REQUIREMENTS

- Prepare materials and messaging ahead of the requirements
- Develop your distribution list
- Understand your communities demographics and translate materials in advance
- Develop a distribution plan you can sustain in advance

LSL REMOVAL & REPLACEMENT

The LCRR requires that all water systems with LSLs or "lead status unknown" service lines develop and submit an LSL replacement plan (LSLR plan). At this time, water systems must develop a strategy to inform customers before full or partial LSLRs.

WHAT'S REQUIRED

- Water systems must provide customers with a procedure to flush service lines and premise plumbing during LSLRs before the service line is returned to service.
  - The notification must explain that consumers may experience a temporary increase of lead levels in their drinking water due to the replacement.
  - It must also include information about the health effects of lead and actions consumers can take to minimize their exposure to lead in drinking water.
  - In instances where multi-family dwellings are served by the lead service line to be replaced, the water system may elect to post the information at a conspicuous location instead of providing individual notification to all residents.

POTENTIAL LSLR REQUIREMENTS THAT TRIGGER COMMUNICATIONS

TESTING

The water system must offer the customer a follow-up tap sample between three months and six months after the completion of any full replacement of a lead service line.

FILTERS AND POINT-OF-USE DEVICES

- If a partial LSLR takes place, the water system must provide the consumer a pitcher filter or point-of-use (POU) device as well as six months of replacement cartridges and instructions for use until the full replacement is completed.
- If a full LSLR takes place, the water system must provide the consumer a pitcher filter or POU device as well as six months of replacement cartridges before the service line is returned to service.
- Water systems must provide a filter within 24 hours of learning of a customer replacement that left a system-owned LSL in place within the past six months.

CUSTOMER-INITIATED LSLR

If a customer replaces their section of a LSL, water systems must complete their side of the LSL within 45 days of being notified by the customer, with a possible extension to 180 days after notification to the primary regulator.

REPLACEMENT RATE

- Water systems must fully replace at least 3% of their total LSLs, galvanized requiring replacement, and lead status unknown service lines annually after a Lead Action Level Exceedance. States must set this replacement rate higher if it is determined to be feasible.
- The water system must provide the results of the sample to the consumer within 30 days if below 15 µg/L.
- If a customer refuses or is non-responsive, speak with your primacy agency to see how they want to handle the situation.

IF A DISTURBANCE IS CAUSED

If a disturbance is caused to a customer served by lead, “galvanized requiring replacement,” or “lead status unknown” service lines, notification is required. Provide materials in advance of water disturbances.

Disturbances include:

1. The service line being shut off or bypassed
2. Partial or full LSLR
3. The replacement of an inline water meter, water meter setter, gooseneck, pigtail, or connector.

WHAT'S REQUIRED?

The notice must include information on how to reduce exposure to potentially elevated lead levels.

FILTERS AND POINT OF USE DEVICES COMMUNICATION TIPS

At this time, the LCRR requires water systems to distribute filters in certain circumstances to reduce the risk of lead. Although it doesn't state specific communication requirements, there are a few necessary communication-related actions to take:

- Provide guidance on what the filter should be used for (i.e. drinking water, ice, cooking, and preparing infant formula) and what it may not need to be used for (i.e. watering plants).
- Provide information on the potential sources of lead with all filter-related communications.
- Provide information on properly maintaining the filter and highlight the filter’s certification

PRO TIP

Crate a webpage describing filter use and maintenance with "Frequently Asked Questions" or video to assist customers.

SCHOOL & CHILDCARE FACILITIES

Under the LCRR ALL COMMUNITY WATER SYSTEMS are required to sample for lead in elementary schools and licensed child care facilities in your service area once during the first five years after October 16, 2024.

WHAT'S REQUIRED

- Water systems are required to contact all elementary schools and licensed child care facilities, and
  - Provide information about health risks of lead in drinking water within the first 5 years after the compliance date
  - Complete testing at 5 water outlets per school and 2 water outlets per child care facility
  - Provide EPA's 3T's Toolkit
- At secondary schools, water systems must:
  - Contact with information about the health risks of lead in drinking water
  - Provide information on how to request sampling
- Water systems are required to contact and attempt to test 20% of elementary schools and 20% of licensed child care facilities per year such that all facilities are sampled once over the 5 years.
- After the water system has met the requirements for elementary schools and licensed child care facilities once, the water system must
  - Provide annual information on the health risks of lead in drinking water
  - Provide information on how to request sampling.
- A water system must provide analytical results as soon as practicable but no later than 30 days after receipt of the results to the school or child care facility,
  - Along with information about remediation options

WAYS TO SUCCEED

- Compile a list of all schools and licensed child care facilities they serve.
- Partner with with school districts, private schools, PTAs/PTOs, after-school programs, day nurseries, drop-in care centers, indoor recreational facilities, teenage parenting programs, school-age centers housed in faith-based facilities, non-public kindergarten programs, Head Start programs, shelters, and juvenile detention facilities.
  - Also consider: elected officials, municipal and state level partners, local government and non-profit agencies such as social justice and advocacy organizations or agencies that administer assistance programs for low-income households, to create information-sharing campaigns.
- Take a proactive and transparent communication approach with the school and childcare facilities to strengthen community trust and alleviate concerns.
  - Align on existing communication tactics deployed by schools and childcare facilities
  - Build a testing regimen with the school systems
  - Create targeted messages and materials for the various demographics and cultures
  - Develop and practice crisis communication plans.

CONSUMER CONFIDENCE REPORT

Consumer Confidence Reports can serve as a great outreach strategy. Many water systems use them to tell their water systems story, introduce staff, updates on long-term projects and a reflection of the previous year's achievement. The LCRR includes requirements for the CCR.

WHAT'S REQUIRED?

The LCRR requires additional information to be added to the CCR related to the LSL inventory, sampling results, and mandatory health effects statement.

- All water systems are required to include information on how to access the LSL inventory in their Consumer Confidence Report (CCR).
- Each CCR must include the 90th percentile concentration of the most recent rounds of sampling, the number of sampling sites exceeding the Action Level, and the range of sampling results for lead and copper.
  - If water systems are on a six-month monitoring schedule, both rounds of results must be included.
- The report must include information on how to access the complete lead tap sampling data.

CCR AND PUBLIC EDUCATION HEALTH EFFECTS LANGUAGE

Water systems must include the following mandatory health effects language in Consumer Confidence Reports, public notices, and public education materials:

"Exposure to lead in drinking water can cause serious health effects in all age groups. Infants and children can have decreases in IQ and attention span. Lead exposure can lead to new learning and behavior problems or exacerbate existing learning and behavior problems. The children of women who are exposed to lead before or during pregnancy can have increased risk of these adverse health effects. Adults can have increased risks of heart disease, high blood pressure, kidney, or nervous system problems."

STATE AND LOCAL HEALTH AGENCIES

The LCRR requires water systems to conduct annual outreach (in the form of a letter is acceptable) to state and local health agencies to discuss the sources of lead in drinking water, the health effects of lead, steps to reduce exposure to lead in drinking water, information on find-and-fix activities, and any changes made to corrosion control.

State and local health agencies include:

- State health department
- City or county health department

For tribal systems, this includes:

- Indian Health Service Area
- Division of Environmental Health Services program or applicable tribal program

WHAT'S REQUIRED?

- The annual outreach to local and state health agencies must include information about
  - Find-and-fix activities conducted in the previous calendar year, including
    - the location of tap sample sites that exceeded 15 µg/L,
    - the result of the initial tap sample,
    - the result of the follow-up tap sample,
    - the result of water quality parameter monitoring,
    - any distribution system management actions or corrosion control treatment adjustments made.
- Water systems must also provide school sampling results to local and state health agencies.

PREPARING FOR THE PUBLICS RESPONSE

You will likely encounter frustrated customers during your LCRR journey—not everyone will see or hear your message, trust your intentions, or willingly participate. It's important to train your staff on how to deal with upset customers, especially as public servants. Below are a few tactics your team can practice when responding to community members.

RESPOND WITH EMPATHY

Empathy helps you connect with others and show compassion for them. Identifying your audience is the first step, but to deliver effective messages, you must have the ability to empathize with your audience. Empathy is understanding or being aware of what another person is experiencing from their point of view. It's placing yourself in someone else's shoes.

ACTIVITY: EMPATHY MAPPING

As a group, complete an empathy map provided in the back of the chapter for a specific community group as they relate to an LCRR situation.

WORST PRACTICES

- Waiting to respond or leaving customers "in the dark" which grows fears and skepticism
- Failing to inform elected officials, board members, city council, and stakeholders
- Responding in "corporate speak" rather than humanized and with empathy or compassion

TEMPLATES

The Covello Center for Risk Communication developed templates to serve as a guide when talking or writing about challenging topics like lead.

AAF TEMPLATE

Use when your goal is to build, maintain or restore trust.

- **Acknowledge Uncertainty Message:**
  - Identify knowledge gaps and challenges.
- **Action Message:**
  - State actions you have, are or will take to address the issue. For example, the message might indicate you are cooperating with other organizations or investigating the situation.
- **Follow-Up Message:**
  - Provide information on where people can obtain timely and credible information.

CAP TEMPLATE

Use if responding to a high concern question or statement.

- **Caring Message:**
  - Provide a message indicating caring, concern, empathy or compassion. You should communicate the seriousness of the situation.
- **Action Message:**
  - State actions you have, are or will take to address the issue or problem.
- **Perspective Message:**
  - Provide information that puts the issue in perspective or context.

KNOWLEDGE CHECK

QUESTION 1: MULTIPLE CHOICE

In the new communication requirements, water systems are required to notify any customer with an individual LCR sample result greater than 15 µg/L within ____.

a.) 3 days (72 hours)
b.) 1 day (24 hours)
c.) 1 week
d.) 30 days

QUESTION 2: MULTIPLE CHOICE

In the new LCRR, Water systems must deliver Tier 1 notices to _____ within _____ of receiving and calculating the 90th percentile value exceeding the Lead Action Level.

a.) All consumers / 24 hours
b.) Only consumers with lead / 24 hours
c.) All consumers / 30 days
d.) Only consumers with lead / 30 days

QUESTION 3: MULTIPLE CHOICE

_____ notifications must be distributed to customers served by known and unknown lead service lines.

a.) Annual
b.) Monthly
c.) Quarterly
d.) Every three years

QUESTION 4: TRUE OR FALSE

Only systems greater than 50,000 are required to include information on how to access the LSL inventory in their Consumer Confidence Report (CCR).

a.) True
b.) False

ACTIVITY SECTION 5: EMPATHY MAPPING

An empathy map is a tool used to articulate what we know about a particular group of people in regards to a specific experience or situation. After you complete the activity, use the data to help you formulate messages that will resonate with the target audience.

TARGET AUDIENCE:

SITUATION:

SAY List what the persona "says" out loud about the experience or situation.	**THINK** What is the persona thinking throughout the experience?
DO List the actions the persona takes. How do they act? What do they do?.	**FEEL** List the persona's emotional state. How do they feel about the situation?

06

IDEQ'S LCRR TEMPLATE

Navigating IDEQ'S LCRR TEMPLATE

SUBMITTING YOUR REPORT

The Idaho Department of Environmental Quality has provided a template for water systems. The purpose of the template is to help you comply with the EPA's Service Line Inventory due October 16, 2024.

The following pages in this chapter are screen grabs of the template for you to take notes as the trainer walks through each column. You can find the template by scanning the QR Code in the Appendix.

Questions on the use of the template can be directed to the Idaho Department of Environmental Quality

IDEQ CONTACT

Cassandra Lemmons
Drinking Water Compliance & Enforcement Supervisor
Phone: (208) 737-3871
Email: Cassandra.Lemmons@deq.idaho.gov

IDEQ'S LCRR TEMPLATE

GENERAL INFORMATION ABOUT THE TEMPLATE

Upon opening the spreadsheet, you'll see three tabs along the bottom: Summary Information, Inventory Sheet, and Instructions.

INSTRUCTIONS TAB

First, open the Instructions Tab and review how the template is color-coded. Refer to this page as often as needed.

NOTE: The green section states that this template is the required form to submit inventories for public drinking water systems in Idaho.

If you have questions or need assistance, contact your Regional DEQ or local Health District office with. thenumber provided below.

General information about this template	This template is the required form to submit service line inventories for public drinking water systems in Idaho. No other form is permitted. You may include additional columns at the end of the existing columns as needed. Be aware, some cells are locked to protect formulas and other information.
Summary information sheet	This sheet is for general information about the water system and the summary for the service line inventory. Every blank cell, highlighted in gray, next to informational text is required. You will note - some cells are locked. Locked cells are to prevent modification of formulas used to calculate reporting information.
Inventory sheet	This sheet is for line by line entry of the PWS/private side service line materials inventory. Headers are locked to prevent modification. When printed, the columns will span at least 2 pages (more if you add to them).
Locational information, columns A through E	Water systems are required to provide locational specific information for every service line. This information is required for service lines that are not serving consumers (such as those for fire flow or irrigation) but are connected to the drinking water system. Not every column is required, however water systems must provide enough information to adequately identify each individual connection.
Overall Service Line Category, column F	Column F is not editable. This column is automatically filled based on information from columns G and H to determine the overall service line category based on EPA guidance.
Columns G through O	These columns are required information to ensure compliance
Questions? Need assistance?	For specific questions about your lead service line inventories, or anything else about your drinking water system, please contact your Regional DEQ or local Health District office.
(208) 769-1422	Coeur d'Alene Regional Office
(208) 415-5100	Panhandle Health District
(208) 799-4370	Lewiston Regional Office
(208) 799-0349	North Central Health District
(208) 373-0550	Boise Regional Office
(208) 455-5300	Southwest District Health
(208) 375-5211	Central District Health
(208) 736-2190	Twin Falls Regional Office
(208) 737-5900	South Central Public Health
(208) 236-6160	Pocatello Regional Office
(208) 233-9080	Southeastern District Health
(208) 528-2650	Idaho Falls Regional Office

SUMMARY INFORMATION TAB

Complete the Summary Information tab. This sheet is for general information about the water system and summary for the service line inventory. Every blank cell highlighted in gray, is required. Some cells are locked to prevent modification of formulas used to calculate reporting information.

Official Service Line Inventory for Idaho Public Drinking Water Systems

	WATER SYSTEM INFORMATION	
	PWS ID #:	
	PWS Name:	
	Service Line Ownership:	
	Date of Inventory:	
	PWS Contact Information:	
	Name:	
	Title:	
	Phone:	
	Email:	
	INVENTORY AVAILABILITY	
	Website:	
	Location:	
	INVENTORY SUMMARY (automatically calculated from Inventory Sheet)	
	# Lead Service Lines	0
	# Galvanized Requiring Replacement (GRR)	0
	# Lead status unknown	0
	# Non-lead service lines	0
*PWS = Public Water System	TOTAL CONNECTIONS	0

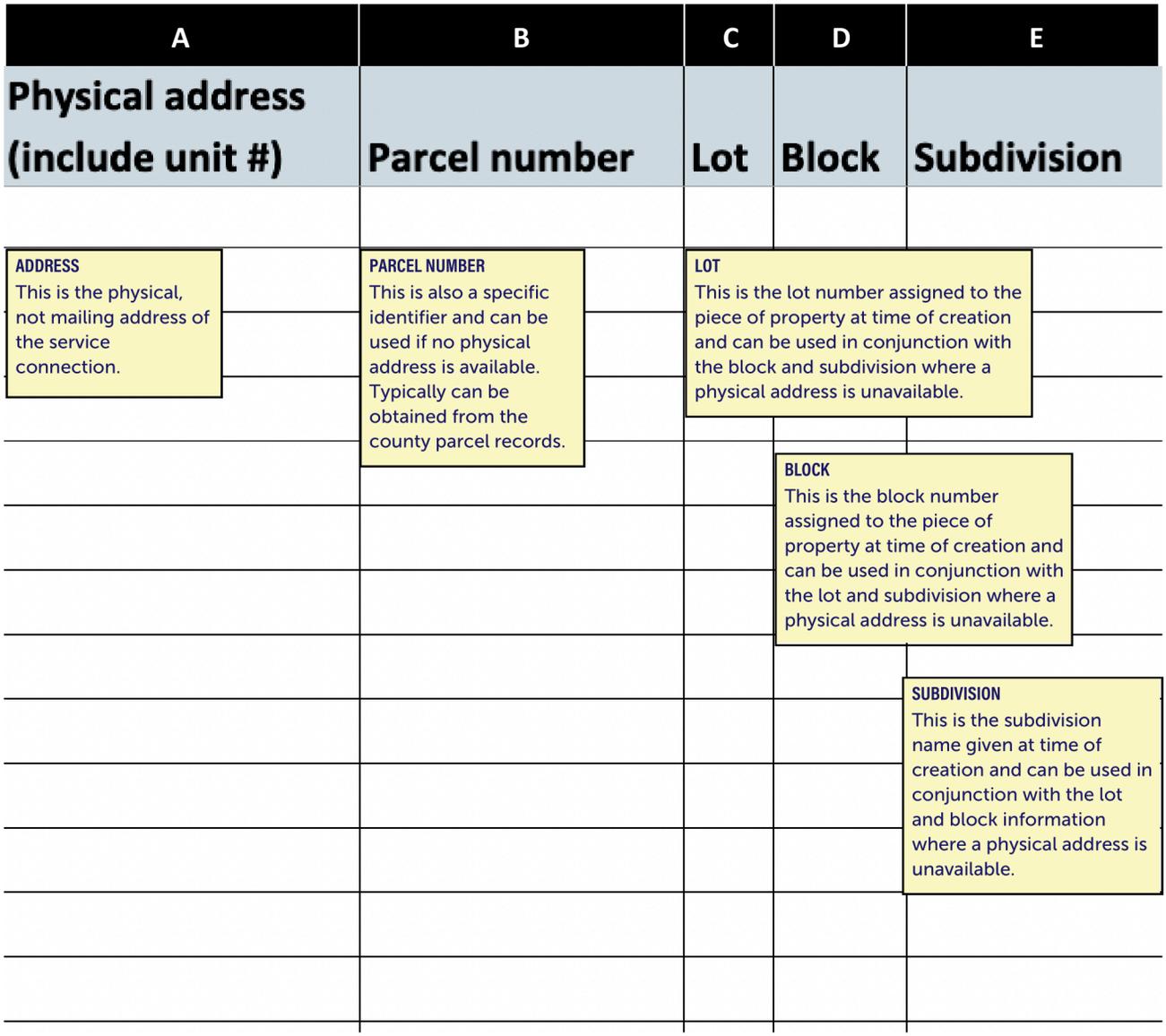
INVENTORY SHEET TAB

This sheet is for line by line entry of the PWS/private side service line materials inventory. Headers are locked to prevent modification of formulas used to calculate reporting information.

LOCATION INFORMATION, COLUMNS A-E,

Water systems are required to provide locational specific information for every service line. This information is required for service lines that are not serving consumers (such as for fire flow or irrigation) but are connected to the drinking water system. Not every column is required, however, water systems must provide enough information to adequately identify each individual connection.

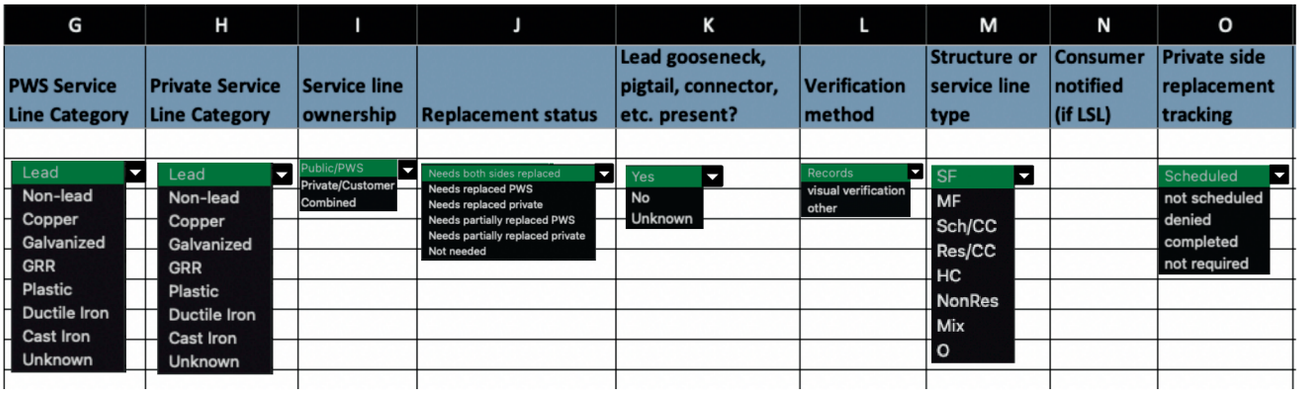
Note: You'll need to click on each column to view specific information about the column.



COLUMNS G THROUGH O

These columns are required information to ensure compliance.

Note: You'll need to click on each column to view specific information about the column.



G - PWS Service Line Category
Indicate service line materials on PWS side of service line. Drop Down Menu: Lead, Non-lead, Copper, Galvanized, Galvanized Required Replacement (GRR), Plastic, Ductile Iron, Cast Iron, Unknown

H - Private Side Line Category
Material on private side of service line. Select material even if both sides of service line are owned by the PWS. Indicate PWS in H. Drop Down Menu: Lead, Non-lead, Copper, Galvanized, Galvanized Required Replacement (GRR), Plastic, Ductile Iron, Cast Iron, Unknown

I - Service Line Ownership
Who owns the service line. Drop Down Menu: Public/PWS, Private/Customer, Combined

J - Replacement Status
Indicate if service line needs to be replaced, and which side needs replaced.

K - Lead, Gooseneck, Pigtail, Connector, etc. Present?
Are there any lead containing components attached to the service line? If so, indicate what it is.

L - Verification Method
Records such as permits, plans, inspections/site visits, engineering documents

M - Structure Or Service Line Type
SF-Single Family Residence, MF-Multi-Family Residence, Sch/CC-School or Child Care, Res/CC-Residential & In-home Child Care, HC-Any Health Care Facility, NonRes-Non-Resident/Non-School/Non-Child Care, Mix-Res & Non-Res, O-Other, Fire, Irrigation

N - Consumer Notified (If LSL)
Did you notify the consumer if there is a lead service line connected? If so, when?

O - Private Side Replacement Tracking
Select the replacement status of the service line.

OVERALL SERVICE LINE CATEGORY, COLUMN F

Column F is not editable. This column is automatically filled based on information from columns G and H to determine the overall service line category based on EPA guidance.

F	G	H	I	J
Overall Service Line Category	**PWS Service Line Category**	**Private Service Line Category**	**Service line ownership**	**Replacement status**
Unknown	Non-lead	Unknown		
Non-lead	Copper	Galvanized		
GRR	GRR	Non-lead		
GRR	Plastic	GRR		
Lead	Ductile Iron	Lead		

Material on private side of service line. Select material even if both sides of service line are owned by the PWS. Indicate PWS in H. Lead, Non-lead, Copper, Galvanized, Galvanized requiring replacement: GRR, Plastic, Ductile Iron, Cast Iron, Unknown

OVERALL SERVICE LINE CATEGORY, COLUMN F

The Inventory Summary is found on the Tab: Summary Information. These numbers are automatically calculated from the Inventory Sheet.

INVENTORY SUMMARY (automatically calculated from Inventory Sheet)	
# Lead Service Lines	1
# Galvanized Requiring Replacement (GRR)	2
# Lead status unknown	1
# Non-lead service lines	1
TOTAL CONNECTIONS	5

WALK THROUGH OF COLUMNS G-P

F	G	H	I	
Overall Service Line Category	**PWS Service Line Category**	**Private Service Line Category**	**Service line ownership**	**Re**
Unknown	Non-lead	Unknown	Combined	
Non-lead	Copper	Galvanized	Public/PWS	
GRR	GRR	Non-lead	Private/Customer	
GRR	Plastic	GRR		
Lead	Ductile Iron	Lead		

Ownership
Who owns the service line

I	J	K
Service line ownership	**Replacement status**	**Lead goosen pigtail, conne etc. present**
Combined	Needs replaced private	
Public/PWS		
Private/Customer		

- Needs both sides replaced
- Needs replaced PWS
- Needs replaced private
- Needs partially replaced PWS
- Needs partially replaced private
- Not needed

I	J	
Service line ownership	**Replacement status**	**Lead g pigtail etc. pr**
Combined	Needs replaced private	
Public/PWS	Not needed	
Private/Customer	Needs replaced PWS	
	Needs replaced private	
	Needs replaced private	

Indicate if service line needs to be replaced, and which side needs replaced.

J	K	L
Replacement status	**Lead gooseneck, pigtail, connector, etc. present?**	**Verification method**
Needs replaced private	Unknown	
Not needed	No	
Needs replaced PWS	Unknown	
Needs replaced private	Yes	
Needs replaced private	Yes	

L	M	N
Verification method	Structure or service line type	Consume notified (if LSL)
Records		
Records		
Records		
visual verification		
other		

Verification Method
Records such as permits, plans, inspections/site visits, engineering documents

M	N	O
Structure or service line type	Consumer notified (if LSL)	Private si replacem tracking
SF		
MF		
Sch/CC		
Res/CC		
NonRes		

Structure Type
SF - single family residence
MF - multi-family residence
Sch/CC - school or childcare
Res/CC - residential & in-home child care
HC - any health care facility
NonRes - non-res./non-school/non-cc
Mix - res. & non-res.
O - other, fire, irrigation

M	N	O
tructure or ervice line ype	Consumer notified (if LSL)	Private side replacement tracking
F		
/IF		
ch/CC		
es/CC		
lonRes		

Did you notify the consumer if there is a lead service line connected? If so, when?

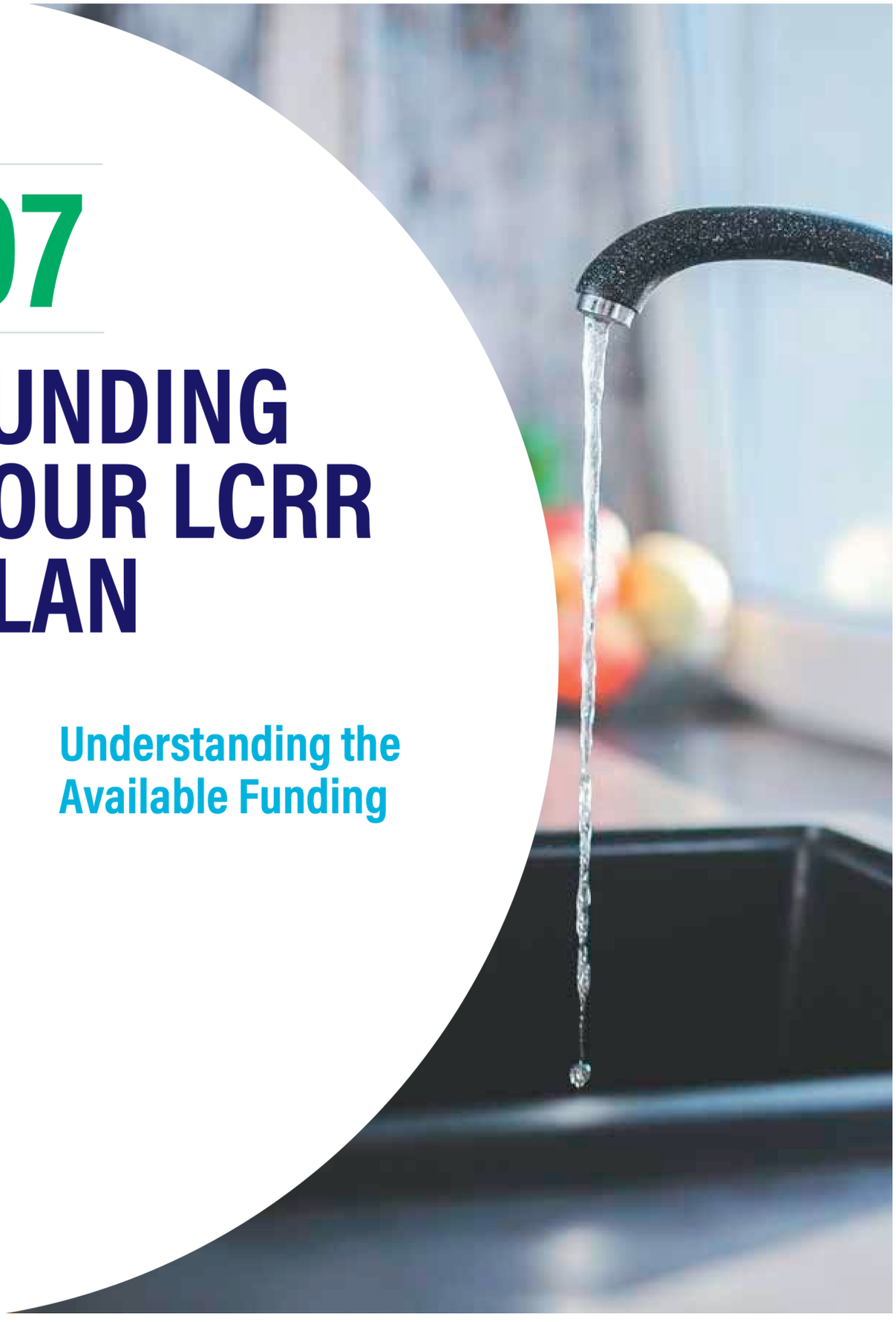
N	O	P
nsumer tified LSL)	Private side replacement tracking	Other relevant information
	Scheduled	
	not scheduled	
	Scheduled	
	not scheduled	
	denied	

Select the replacement status of the service line.

07

FUNDING YOUR LCRR PLAN

Understanding the Available Funding



HOW DO WE FUND LCRR?

You've spent the day learning about the LCRR requirements. Now begs the question, how do you fund these requirements? Each water system's answer may be different. The type and amount of funding your water system will need to complete your inventories and compliance plans depends on how you and your system plans to tackle the requirements.

For the first time in years, water professionals finally have significant federal funding to support their efforts of providing clean, safe water, giving them an unparalleled opportunity to eliminate lead from our infrastructure.

We will review the funding mechanisms being made available for you so that you can figure out which type of funding will suit your needs the best.

YOU'RE NOT ALONE

The LCRR is new to everyone, and remembering requirements of this magnitude have never occurred before is essential.

Our goal is to help you understand the different mechanisms in place so that you can work with your state contacts to locate, apply and receive the funding you need to catalyze your program now and in the future.

Applying for funding may be confusing and labor-intensive, but you can access experts within your state to guide you

OVERVIEW OF FUNDING SOURCES

There are several federal and non-federal funding sources available to assist states and water utilities with these efforts, including lead service line replacement (LSLR).

The new LCRR is a funded mandate backed by two noteworthy acts of legislation in 2021. Many municipalities are already using the American Rescue Plan Act (ARPA) to fund lead pipe replacement.

At the same time, the passage of the Infrastructure Investment and Jobs Act (also known as the Bipartisan Infrastructure Act, or BIL) has positioned an additional $15 billion for lead pipe replacement.

The following charts are overviews of the funding options available for LCRR-related projects.

FUNDING OPTIONS FOR LCRR RELATED PROJECTS:

- **Government Subsidized Loans**
  - Drinking Water State Revolving Funds (SRFs)
  - Water Infrastructure Finance and Innovation Act (WIFIA)
  - USDA Rural Development (RD)
- **Newer Sources (since 2021)**
  - Infrastructure Investment and Jobs Act
    - Drinking Water
    - Wastewater
  - American Rescue Plan Act
    - Coronavirus State and Local Fiscal Recovery Funds
- **Government Grants**
  - Water Infrastructure Improvements for the Nation Act (WIIN Act)
  - Community Development Block Grant (CDBG) program

View additional funding resources by scanning the QR Code in the Appendix

GOVERNMENT SUBSIDIZED LOANS OVERVIEW

Program/Features	State Revolving Funds (SRFs)	WIFIA	USDA RD - Water & Waste Disposal Loan & Grant Program
Administered by	U.S. Environmental Protection Agency (EPA)	EPA	U.S. Department of Agriculture (USDA)
Loan From	State SRF	U.S. Treasury	U.S. Treasury
Subsidized Interest Rates	At or below market, established by each state	U.S. Treasury rate	Tiered national rates, established by USDA
Additional Subsidy	Principal Forgiveness, Grants	NA	Grants
Communities& Project Size	All communities, all sized projects	Trends toward larger projects	Communities with 10,000 or fewer people

NEWER SOURCES OVERVIEW

Program/Features	Infrastructure Investment and Jobs Act (Drinking Water and Clean Water portions)	Coronavirus State and Local Fiscal Recovery Funds
Administered by	U.S. EPA / States	U.S. Treasury/ States/ Counties/ Local Governments (NEUs)
Communities	Many programs target systems with smaller population sizes and/or disadvantaged communities	All
Projects	Drinking Water/Wastewater	Drinking Water/Wastewater

GOVERNMENT GRANTS OVERVIEW

Program/Features	Small & Disadvantaged Communities Drinking Water	Reducing Lead in Drinking Water	Lead Testing in School and Child Care Program Drinking Water	Community Development Block Grants (CDBG)
Administered by	U.S. EPA / States (WIIN Act)	U.S. EPA / States (WIIN Act)	U.S. EPA / States (WIIN Act)	U.S. Department of Housing & Urban Development (HUD) / States / Municipalities
Communities	Communities that are disadvantaged or have fewer than 10,000 people	Disadvantaged communities	Schools and child care facilities	Must benefit low and moderate income people, trends toward more urban areas
Projects	Drinking Water	Drinking Water	Drinking Water	Variety

WATER INFRASTRUCTURE IMPROVEMENTS FOR THE NATION ACT (WIIN ACT)

Programs	Small, Underserved, and Disadvantaged Communities Grant Program	Reduction in Lead Exposure Via Drinking Water	Lead Testing in School and Child Care Program Drinking Water
Focus	Provide grants to eligible entities for use in carrying out projects and activities the primary purposes of which are to assist public water systems in meeting Safe Drinking Water Act requirements	Reducing lead in drinking water through drinking water infrastructure, treatment improvements, and facility remediation in schools and child care facilities	Funding to states and tribes to assist local and tribal educational agencies in voluntary testing for lead contamination in drinking water at schools and child care programs
Project Eligibility	Projects and activities eligible for assistance can include infrastructure projects; technical, managerial, and financial capacity building activities; and activities necessary for a state to respond to a contaminant.	Lead Service Line Replacement Projects or Lead in Schools and Childcare Facilities Projects	The EPA's 3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities guidance

DRINKING WATER STATE REVOLVING FUND

The Drinking Water State Revolving Fund (DWSRF) has provided loans that directly supported lead pipe replacement projects in cities across the United States. Over the years, EPA has provided states $20 billion through the DWSRF program for infrastructure improvements, including lead service line replacement projects throughout the country; totaling $1.126 billion for the fiscal year 2019.

ELIGIBLE PROJECTS

- **Infrastructure Replacement:**
  - Complete service line replacement is an eligible DWSRF expense, regardless of pipe material and ownership of the property on which the service line is located. The entire service line from the public water main to the point at which it connects with premise plumbing is DWSRF-eligible.
- **Corrosion Control Optimization**
- **Lead Testing and Education**
- **Interim/Emergency Protocols**

APPLY FOR FUNDING

Water systems receive DWSRF assistance directly from state agencies. Each state has its own application procedure. Visit the IDEQ Grants and Loans webpage for more information.
https://www.deq.idaho.gov/water-quality/grants-and-loans/

BIPARTISAN INFRASTRUCTURE LAW

There are still an estimated 6 to 10 million lead service lines in cities and towns across the country, many of which are in low-income neighborhoods and communities of color. The Bipartisan Infrastructure Law will deliver resources to remove these lead pipes, in line with President Biden's goal of removing 100% of lead service lines.

The Bipartisan Infrastructure Law invests $15 billion towards Lead Service Line Replacement through the DWSRF. With this investment, 49% of funds will be provided to communities as grants or principal forgiveness loans and 51% of funds will be available to communities for low-interest loans. State match is not required.

FY	Drinking Water SRF (supp)	Lead Remediation (DWSRF)
2022	$1.902B	$3.0 B
2023	$2.202 B	$3.0 B
2024	$2.403 B	$3.0 B
2025	$2.603 B	$3.0 B
2026	$2.603 B	$3.0 B

The BIL is the largest bucket of funding for LCRR through the DWSRF.

As you can see, the funding increases each fiscal year through 2026. Take some time to familiarize yourself with the different programs within the BIL.

FUNDING AND TECHNICAL RESOURCES FOR LEAD SERVICE LINE REPLACEMENT IN SMALL AND DISADVANTAGED COMMUNITIES

EPA developed this guide to help small and disadvantaged communities identify potential federal funding sources for lead service line replacement (LSLR) and technical assistance related to LSLR. Read more.

View the list of Federal Funding Programs by scanning the QR Code in the Appendix

HUD COMMUNITY DEVELOPMENT BLOCK GRANT (CDBG)

The Community Development Block Grant (CDBG) program is a flexible program that provides communities with resources to address a wide range of unique community development needs. Beginning in 1974, the CDBG program is one of the longest continuously run programs at HUD. The CDBG program provides annual grants on a formula basis to 1209 general units of local government and States.

CDBG is an important tool for helping local governments tackle serious challenges facing their communities. The CDBG program has made a difference in the lives of millions of people and their communities across the Nation.

ASSISTANCE FOR SMALL AND DISADVANTAGED COMMUNITIES GRANT

Authorized under the Water Infrastructure Improvements for the Nation (WIIN) Act, EPA's Assistance for Small and Disadvantaged Communities Drinking Water Grant program assists public water systems in underserved, small, and disadvantaged communities in meeting Safe Drinking Water Act (SDWA) requirements. The grant will include approximately $42.8 million in funding for 2019.

For the purposes of this Grant Program, a disadvantaged community is one determined by the state to be disadvantaged under the affordability criteria established by the State under section 1452(d)(3) of the SDWA, or may become a disadvantaged community as a result of carrying out a project or activity.

ELIGIBLE PROJECTS

A project in a small community is eligible for assistance if the community served has a population of less than 10,000 individuals and lacks the capacity to incur debt sufficient to finance a project to comply with the SDWA.

APPLY FOR FUNDING

The Grant Program is a noncompetitive program. Eligibility to apply for and receive funds is limited to the geographical 50 states, Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and tribes within the U.S.

Applications from states are now being accepted at www.Grants.gov, CFDA 66.442.

Additionally, the Grant Program includes a tribal allotment of 2% of funds appropriated. Federally recognized tribes are eligible to receive tribal grant funds to support activities in communities that meet the requirements of the grant program.

120Water™

LEAD TESTING IN SCHOOL AND CHILD CARE DRINKING WATER GRANT

Authorized under the Water Infrastructure Improvements for the Nation (WIIN) Act, EPA's Lead Testing in School and Child Care Program Drinking Water Grant creates a voluntary program to assist with testing for lead in drinking water at schools and child care programs. The grant will include approximately $43.7 million in funding.

ELIGIBLE PROJECTS

Grant funds can be used to carry out testing under EPA's 3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities guidance or applicable state regulations or guidance regarding reducing lead in drinking water in schools and child care programs that are not less stringent.

These grant funds may be used for testing in school and child care facility efforts. This may include sample collection and analysis, first draw and flush sampling, the development of sampling plans, training in preparation of sampling, communication related to sampling efforts, use of a contractor to support sampling efforts, and sampling after remediation.
Grant funding cannot be used to replace fountains, fixtures, lead lines or any remediation activity.

APPLY FOR FUNDING

The Grant Program is a noncompetitive program. Eligibility to apply for and receive funds under the grant program is limited to the 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Northern Mariana Islands. View the state agencies implementing this grant program.

Additionally, 6.44 percent of appropriated funding will be distributed to assist tribal education agencies (including in Alaska Native Villages) in testing for lead contamination in drinking water at schools and child care programs.

REDUCING LEAD IN DRINKING WATER GRANT

In 2018 and 2019, Congress appropriated $25 million, authorized under the Water Infrastructure Improvements for the Nation (WIIN) Act, for reducing lead in drinking water across the country, including activities such as full lead service line replacement. Section 2105 of the WIIN Act, Reducing Lead in Drinking Water, creates a new EPA grant program for lead reduction projects.

This grant program is designed to facilitate reducing lead in drinking water in disadvantaged communities through infrastructure and/or treatment improvements or facility remediation in schools and child care facilities.

The goal of these projects is to address conditions that contribute to increased concentrations of lead in drinking water.

ELIGIBLE PROJECTS

Eligible projects include projects or activities where the primary purpose of which is to reduce the concentration of lead in water for human consumption.

Priority will be given to disadvantaged communities with an action level exceedance in the last three years or to address lead levels in school, daycare, or other facility that primarily serves children.

ELIGIBLE ENTITIES

- Community water systems
- Non-governmental organizations
- Tribal water systems
- Nontransient noncommunity water systems
- Municipalities or States
- Interstate or inter-municipal agencies

WATER INFRASTRUCTURE FINANCE AND INNOVATION ACT (WIFIA)

Established by the Water Infrastructure Finance and Innovation Act of 2014, the WIFIA program is a federal loan and guarantee program administered by EPA. WIFIA provides long-term and low-cost supplemental credit assistance for regionally and nationally significant projects. The WIFIA program has an active pipeline of pending applications for projects that will result in billions of dollars in water infrastructure investment and thousands of job

ELIGIBLE ENTITIES

- State
- SRF programs
- County
- Municipal
- Tribal
- Utilities

FUNDING SOURCES FOR SCHOOLS AND CHILD CARE FACILITIES

EPA has compiled a list of funding sources for improving drinking water quality in schools and child care facilities. This compiled list of 200 sources are from federal partners, associations, non-profits, and organizations. These can be used to test drinking water, implement remediation measures, and replace old plumbing fixtures and service lines.

View the list of Potential Funding Sources for Reducing Lead in Drinking Water in Schools & Child Care Facilities by scanning the QR Code in the Appendix

CORONAVIRUS STATE AND LOCAL FISCAL RECOVERY FUNDS PROGRAM

Established by the American Rescue Plan of 2021, the Coronavirus State and Local Fiscal Recovery Funds Program (SLFRF) provides resources to state, local, and tribal governments across the country to maintain vital public services and support recovery from the COVID-19 pandemic. Eligible uses for SLFRF funds include investment in water infrastructure to improve access to clean, safe drinking water.

WATER TECHNICAL ASSISTANCE

OVERVIEW

EPA's free water technical assistance (TA) supports communities to identify water challenges, develop plans, build technical, financial, and managerial capacity, and develop application materials to access water infrastructure funding. EPA collaborates with states, tribes, territories, community partners, and other key stakeholders to implement water TA efforts.

The end result: more communities with applications for federal funding, quality water infrastructure, and reliable water services.

TA SUPPORT

EPA has a history of providing water TA to support communities to build their capacity and address compliance challenges—and is now expanding its TA efforts to help more communities. The Bipartisan Infrastructure Law presents an unprecedented opportunity to address water infrastructure needs by providing $50 billion in new funding, the largest federal investment in water in the history of our nation. New and existing EPA water TA programs will be utilized to support effective implementation of the Bipartisan Infrastructure Law.

- Communities may request (subject to availability) free EPA water TA by filling out a simple interest form.

WHO CAN RECEIVE WATER TA SERVICES?

- Local governments/communities
- Drinking water utilities/systems
- Wastewater utilities/systems
- Stormwater utilities/systems
- States, tribes, territories
- Non-governmental organizations (in pursuit of Clean Water SRF financing)

SERVICES PROVIDED

EPA water TA provides a variety of services in order to address water and wastewater challenges. These services include:

- Identifying water infrastructure or water quality improvement needs,
- Planning for capital improvements,
- Building technical, managerial, and financial capacity, and
- Preparing for and developing applications materials for financing a project through the State Revolving Funds (SRF) and other EPA-supported funding opportunities.

Challenges that TA can help your community address include:

- Lead service line identification and replacement, among others

View for more information about the Water Technical Assistance Program by scanning the QR Code in the Appendix

FUNDING LANDSCAPE IN IDAHO

Federal and state funds that improve Idaho's water quality are administered through the Idaho Department of Environmental Quality Grants and Loans Department. Drinking water grants and loans assist eligible public drinking water systems with facility planning projects to ensure safe and adequate drinking water supplies.

The following section is an overview of Idaho's Grants and Loans information shown on the website. More details can be found by visiting the site www.deq.idaho.gov/SRF. The information is based is subject to change but it's recommended to become familiar with the site and prepare for future funding options.

SECTION HIGHLIGHTS

- SRF Loans
- FY Letter of Interest
- Funding Options
  - School and Child Care Funding and Educational Resources
- Drinking Water Funding Map
- Resources & Contacts

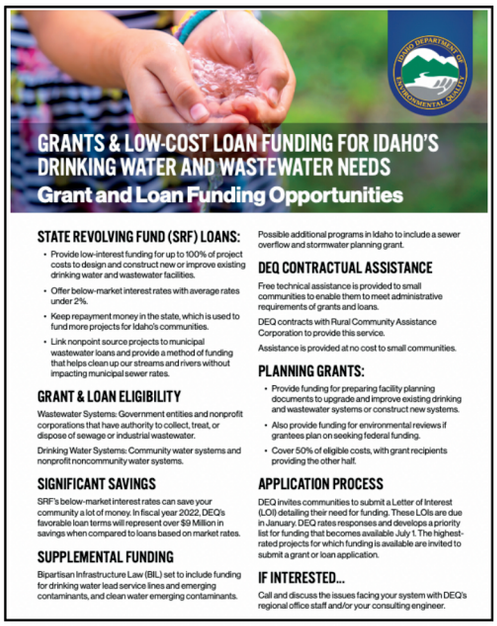
DRINKING WATER GRANTS & LOANS

GRANTS AND STATE REVOLVING FUNDS (SRF)

Planning grants provide funding for facility planning, improving existing drinking water systems or constructing new systems. These often cover 50% of eligible costs with grant recipients providing the other half.

SRF Loans provide low-interest funding options that cover up to 100% of drinking water projects. Often the below-market interest rates average under 2% and they help keep repayment money in the state, which is used to fund more projects in the future.

The DEQ contracts with Rural Community Assistance Corporation to provide contractual assistance at no cost to small communities.



GRANTS & LOW-COST LOAN FUNDING FOR IDAHO'S DRINKING WATER AND WASTEWATER NEEDS

Grant and Loan Funding Opportunities

STATE REVOLVING FUND (SRF) LOANS:

- Provide low-interest funding for up to 100% of project costs to design and construct new or improve existing drinking water and wastewater facilities.
- Offer below-market interest rates with average rates under 2%.
- Keep repayment money in the state, which is used to fund more projects for Idaho's communities.
- Link nonpoint source projects to municipal wastewater loans and provide a method of funding that helps clean up our streams and rivers without impacting municipal sewer rates.

GRANT & LOAN ELIGIBILITY

Wastewater Systems: Government entities and nonprofit corporations that have authority to collect, treat, or dispose of sewage or industrial wastewater.

Drinking Water Systems: Community water systems and nonprofit noncommunity water systems.

SIGNIFICANT SAVINGS

SRF's below-market interest rates can save your community a lot of money. In fiscal year 2022, DEQ's favorable loan terms will represent over $9 Million in savings when compared to loans based on market rates.

SUPPLEMENTAL FUNDING

Bipartisan Infrastructure Law (BIL) set to include funding for drinking water lead service lines and emerging contaminants, and clean water emerging contaminants.

Possible additional programs in Idaho to include a sewer overflow and stormwater planning grant.

DEQ CONTRACTUAL ASSISTANCE

Free technical assistance is provided to small communities to enable them to meet administrative requirements of grants and loans.

DEQ contracts with Rural Community Assistance Corporation to provide this service.

Assistance is provided at no cost to small communities.

PLANNING GRANTS:

- Provide funding for preparing facility planning documents to upgrade and improve existing drinking and wastewater systems or construct new systems.
- Also provide funding for environmental reviews if grantees plan on seeking federal funding.
- Cover 50% of eligible costs, with grant recipients providing the other half.

APPLICATION PROCESS

DEQ invites communities to submit a Letter of Interest (LOI) detailing their need for funding. These LOIs are due in January. DEQ rates responses and develops a priority list for funding that becomes available July 1. The highest-rated projects for which funding is available are invited to submit a grant or loan application.

IF INTERESTED...

Call and discuss the issues facing your system with DEQ's regional office staff and/or your consulting engineer.

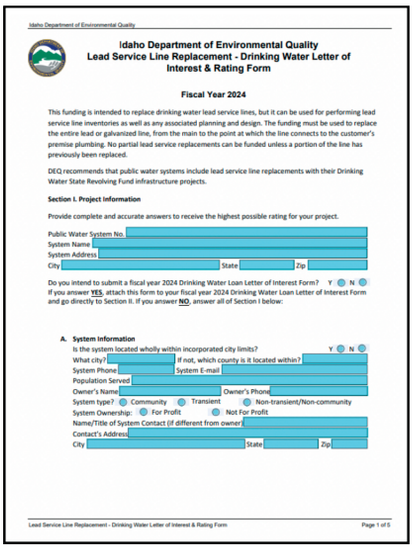
View the full brochure by scanning the QR Code in the Appendix

LETTER OF INTERESTS

Letter of Interests (LOI) are required for grant funding and State Revolving Fund loans and typically due in January. The DEQ rates responses and develops a priority list for funding that becomes available in July. Highest-rated projects are invited to submit a grant or loan application.

Click on the link provided on the website to see the FY2024 Letter of Interest forms. This link will take you to all the available LOI. For LCRR, you'll look for the Lead Service Line Replacement -Drinking Water Letter of Interest and Rating Form.

A LOI Training video is provided on the website to learn more the process.



Idaho Department of Environmental Quality

Idaho Department of Environmental Quality
Lead Service Line Replacement - Drinking Water Letter of Interest & Rating Form

Fiscal Year 2024

This funding is intended to replace drinking water lead service lines, but it can be used for performing lead service line inventories as well as any associated planning and design. The funding must be used to replace the entire lead or galvanized line, from the main to the point at which the line connects to the customer's premise plumbing. No partial lead service replacements can be funded unless a portion of the line has previously been replaced.

DEQ recommends that public water systems include lead service line replacements with their Drinking Water State Revolving Fund infrastructure projects.

Section I. Project Information

Provide complete and accurate answers to receive the highest possible rating for your project.

Public Water System No.
System Name
System Address
City State Zip

Do you intend to submit a fiscal year 2024 Drinking Water Loan Letter of Interest Form? Y N
If you answer **YES**, attach this form to your fiscal year 2024 Drinking Water Loan Letter of Interest Form and go directly to Section II. If you answer **NO**, answer all of Section I below:

A. System Information

Is the system located wholly within incorporated city limits? Y N
What city? If not, which county is it located within?
System Phone System E-mail
Population Served
Owner's Name Owner's Phone
System type? Community Transient Non-transient/Non-community
System Ownership: For Profit Not For Profit
Name/Title of System Contact (if different from owner)
Contact's Address
City State Zip

Lead Service Line Replacement – Drinking Water Letter of Interest & Rating Form Page 1 of 5

Page 1 of the FY2024 LOI Form

DRINKING WATER GRANTS & LOANS

FUNDING OPTIONS

Each section listed below can be found on the website. Clicking through each one will show you details of grants or loans, such as eligibility, the grant or loan process, any federal requirements, projects currently funded and additional resources. The two sections include a brief overview specific to school and child care facilities.

Facility Planning Grants	Construction Loans	Other Funding Opportunities
Source Water Protection Grants	Nonpoint Source Subgrants	Free Lead Testing

REDUCTION OF LEAD EXPOSURE

Under the Other Funding Opportunities you'll find a section titled Reduction of Lead Exposure.

Public drinking water systems (and including public schools (K-12)) will have access to $500,000 per year for the entire state for projects that:

- remediate corrosive water for systems with lead service lines or fixtures; or,
- replaces lead pipes or fixtures; and,
- have been identified by DEQ as at risk.

These funds are available on a first-come, first-serve basis. At the end of the year, unused project subsidy funds will not be rolled forward into the next year.

FREE LEAD TESTING

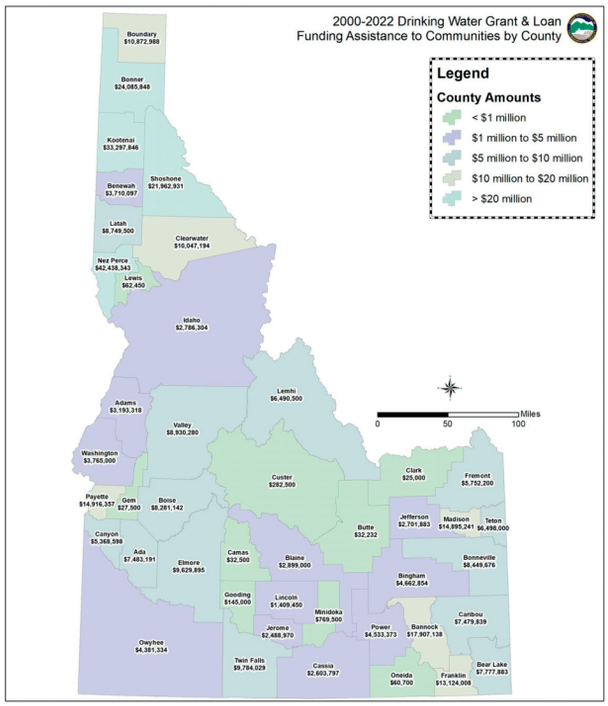
Under the Free Lead Testing section, you will find information and resources for school and child care facilities. These tools can help water systems educate schools, child care facilities, and families about the health effects of lead, how it gets into drinking water, and how to reduce lead levels.

DRINKING WATER GRANTS & LOANS

MAP OF FUNDING ASSISTANCE

Many communities have projects under the FY2023 American Rescue Plan Act (ARPA). The ARPA infrastructure and planning grants priority list shown on the website breaks down the system's total dollar requests, status, amount disbursed and percentage spent. These lists are updated monthly.

The map to the right shows the 2000-2022 Drinking Water Grants and Loans Funding Assistance to Communities by County. This map can also be found on the website.



RESOURCES AND CONTACTS

www.deq.idaho.gov/SRF

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY STATE OFFICE

MaryAnna Peavey (208) 373-0122
1410 N. Hilton, Boise, ID 83706
grants.loans@deq.idaho.gov

REGIONAL OFFICES

Boise
1445 N. Orchard,
Boise, ID 83607
(208)373-0550

Coeur d'Alene
2110 Ironwood Pkwy,
Coeur d'Arlene, ID 83814
(208)769-1422

Lewiston
1118 F Street,
Lewiston, ID 83501
(208)799-4370

Idaho Falls
900 N. Skyline, Ste B,
Idaho Falls, ID 83402
(208)528-2650

Pocatello
444 Hospital Way #300,
Pocatello, ID 83201
(208)236-6160

Twin Falls
650 Addison Ave W., Ste 110,
Twin Falls, ID 83301
(208)736-2190

APPENDIX

To reduce the size of the manual we uploaded several resources referenced throughout this manual to a webpage.

Scan this QR Code to view additional resources, toolkits, templates, and guides.