Operations and Maintenance

# Lead Service Line Inventory Guidance

331-711 • Revised 5/31/2023

This publication helps water systems comply with the service line inventory requirements of the January 15, 2021, Lead and Copper Rule Revisions (LCRR). It provides information needed for water systems to document their methods and organize their inventory.

All community and non-transient non-community (NTNC) water systems must develop an initial inventory of service lines that meets the LCRR requirements, including service line materials classification and information sources, for both the public and private portions of every service line, and submit the lead service line inventory to the state by October 16, 2024.

The LCRR inventory requirement directs water systems to undergo a record review of information pertaining to service lines, both water system-owned and customer-owned portions. The U.S. Environmental Protection Agency (EPA) understands that no inventory method is 100 percent accurate, and the LCRR requires utilities to update their inventories on a regular basis as new inventory information becomes available. Replacing lead service lines is the best way to reduce the risk of exposure to lead in drinking water across a community. EPA rule National Primary Drinking Water Regulations: Lead and Copper Rule Revisions and Governor's 16-06 Directive.

## Lead Pipe Background in Washington

In 1986, Congress amended the Safe Drinking Water Act (SDWA) to prohibit the use of pipes, solder or flux that are 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 percent lead and pipes with no more than 8.0 percent lead.

In 1996, Congress further amended the SDWA to prohibit the use of pipe and plumbing fittings and fixtures that are not lead free in the installation and repair of any public water system or plumbing in a facility providing water for human consumption. The 1996 amendments also required lead free plumbing fittings and fixtures (endpoint devices) to be in compliance with a lead leaching standard.

Service lines for homes constructed after 1986 in Washington should be made of materials other than lead. Water systems developing their lead service line inventories may designate homes built after 1986 as not having a lead service line in their inventory. Local ordinances or codes may provide an earlier time frame in determining service line materials. If there is an early ban date, you may use that date for anything older to be non-lead material.

## Inventory Templates and Required Minimum Elements

The Department of Health requires water systems use EPA's Service Line Inventory Template (Excel) for tracking the details of the lead service line inventory.

If you want to use a different format to capture inventory details, please contact your regional office. Systems are required to submit data in an electronic file that can be read using a current version of Microsoft Excel; other formats require our prior approval.

The following data is required for each service connection.

- **Location Information.** Street Address or Other Locational Identifier: Enter a street address or another, non-address locational identifier (e.g., block, intersection, or GPS coordinates) for each service line. Do NOT include specific individual names or identifying information.
    - Unique Service Line ID: This field is optional. Assign a unique ID to each row that represents one service line.
- **Service Line Material Classification Minimum Required.** Each service line or portion of the service line where ownership is split must be categorized as one of the following:
    - Lead,
    - Galvanized Requiring Replacement,
    - Non Lead, or
    - Lead Status Unknown.
- **Service Line Material Classification Recommended.** We recommend using more descriptive classification for the system owned and customer owned portions.
    - Lead.
    - Galvanized.
    - Galvanized Requiring Replacement.
    - Non-Lead Copper, Non-Lead—Plastic, or Non-Lead—Other (water systems are encouraged, but not required to specify the material of the non-lead service line).
    - Lead Status Unknown.
- **Was Material Ever Previously Lead?** Include this column if you choose to use more descriptive classifications for the system owned and customer owned portions. This is for determining whether a downstream or customer-owned galvanized service line would be considered galvanized requiring replacement. Refer to "Classifying the Entire Service Line."
    - Leave this field blank if system-owned portion of the service line is "Lead."
    - If "Yes" or "Don't know" and if the customer-owned or downstream service line is a galvanized line, then enter "Galvanized Requiring Replacement."
    - If "No" and if customer-owned or downstream service line is a galvanized line, enter "Galvanized."
- **Basis of Material Classification**. Options include:
    - Historical Records.
        - Previous materials evaluation.
        - Installation record.
        - Service line repair or replacement.
    - Installation Date.

        - If the basis for material classification is "Installation date is after state or local lead ban," enter the installation date.
        - If a water system uses a local ordinance that banned the use of lead other than the Washington lead ban implemented in 1986, provide in the Notes column the effective date of the local lead ban.
    - Service Line Size.
        - If the basis for classification is "Service line diameter greater than four (4) inches," enter the service line size in inches.
    - Field inspection (no records)—refer to "Was the Service Line Material Field Verified."
    - Other or Emerging Methods—Requires our approval—refer to "Approved Verification Methods."

**We recommend** water systems collect the following data fields and any other data found during the development of the inventory to assist with future planning, operations and maintenance activities, determination of future monitoring locations, asset inventory and capital improvement planning, and funding applications.

- Lead connector, lead solder, or other fittings that contain lead.
- Interior building plumbing that contains copper pipes with lead solder installed on or before 1986 or local lead ban.
- Current LCR sampling site.
- Pipe material and size (for non-lead).
- Building type connected to service line.
- Was the service line material field verified? If "Yes," describe the field verification method and enter the date of field verification. Possible acceptable options for field verification method include:
    - Visual inspection at meter pit.
    - Customer self-identification.
    - CCTV Inspection at Curb Box—Internal.
    - CCTV Inspection at Curb Box—External.
    - Mechanical Excavation at one location
    - Mechanical Excavation at multiple locations.
    - Other. Specify method used.

The above list is not all inclusive. Please consider the effort you are putting into developing this inventory, and what additional information you can collect at the same time that will assist you with planning and operations.

## Classifying the Entire Service Line

The lead service line inventory must include material data on both the water-system-owned portion of the service line (water main to the meter) and the private-side portion of the service line (meter to the building inlet). Internal premise plumbing is not required to be inventoried.

Each service line or portion of the service line where ownership is split must be categorized as one of the following:

- Lead,
- Galvanized Requiring Replacement,
- Non-Lead, or
- Lead Status Unknown.

A split ownership service line means that a system and the customer each own a portion of the service line. A single classification per service line is also required by the LCRR. Table 1 from Exhibit 2-3 of EPA's Guidance for Developing and Maintaining a Service Line Inventory shows how to classify the material classification for the entire service line when ownership is split.

**Exhibit 2-2: Example of Service Line Ownership Distinction between the Water System and Customer**

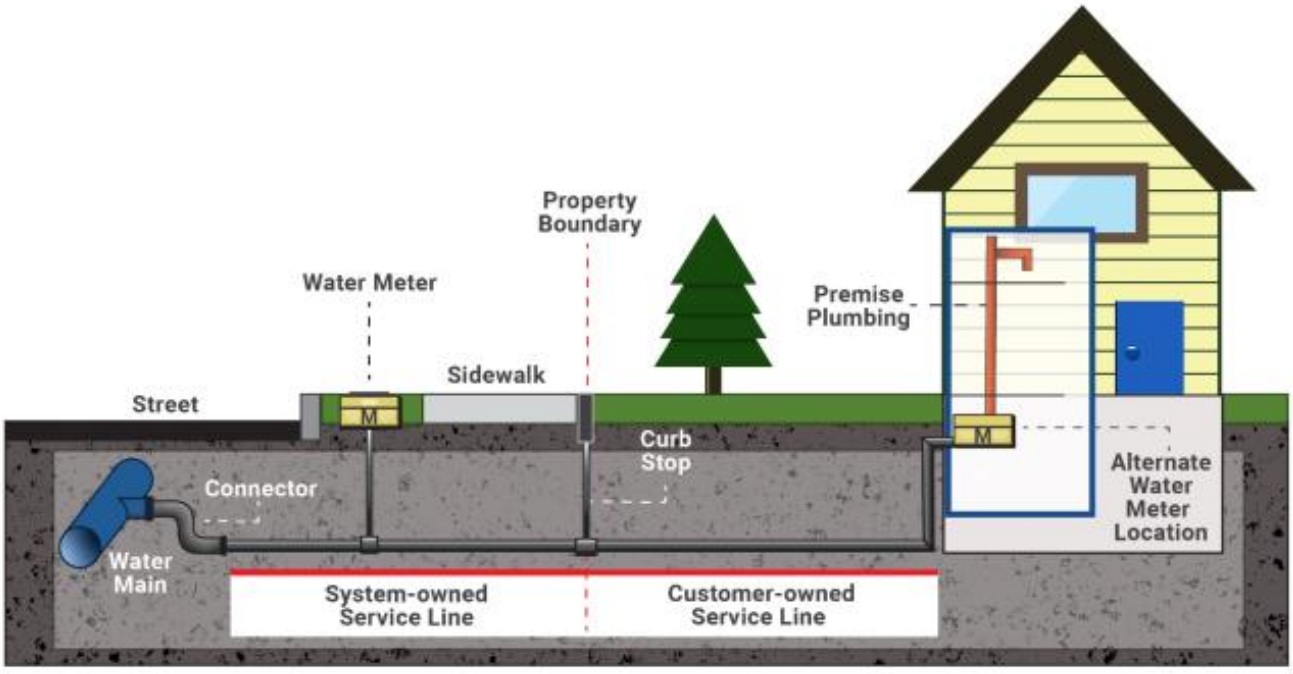


Exhibit 2-2 of Guidance for Developing and Maintaining a Service Line Inventory (USEPA, 2022).

**Exhibit 2-3: Classifying Service Line Materials When Ownership is Split According to the LCRR 40 CFR §141.84(a)(4)**

| 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 |

*Source: Exhibit 2-3 of Guidance for Developing and Maintaining a Service Line Inventory (USEPA, 2022).*

# Approved Identification Methods

The LCRR 40 Code of Federal Regulation (CFR) §141.84(a)(3) requires water systems to use the following information to develop an inventory. The rule requires water systems to review historic records prior to utilizing alternative methods to complete the inventory.

- All construction and plumbing codes, permits, and existing records or other documentation that indicates the service line materials used to connect structures to the distribution system. (Example: determine if there is any ordinance—city or county building department—that prohibits lead lines and its effective date.)
- All water system records, including distribution system maps and drawings, historical records on each service connection, meter installation records, historical capital improvement or master plans, and standard operating procedures. (Example: Tap cards may contain helpful information, such as the diameter of the service line and the installation date of the main and user service line.)
- All distribution system inspections and records that indicate material composition of the service connections that connect a structure to the distribution system.

**Pipe Dating.** The initial or most recent construction of the service line (both purveyor and customer owned) can be used in conjunction with a state or municipal/local code banning lead to determine non-lead status if the initial or most recent construction occurred after a lead ban. Any construction occurring after 1986 is assumed to not contain lead pipes; however, there may be an earlier local lead ban date. You will not need physical verification, but you'll need to verify dates of construction by a record or building permit. All installations after the state ban or local ban can be labeled non-lead.

**Pipe diameter** can be used to determine if a pipe is non-lead. Most lead pipes and lead goosenecks are two inches in diameter or less. Some three-inch diameter lead pipes have been identified. We allow water systems to use a non-lead designation for any pipe four inches in diameter or greater.

## Other Identification Methods

Investigation methods are used to assess accuracy of historical records and gather information when service line material is unknown. These methods are NOT required under the LCRR but are methods for systems to consider.

There is no requirement to unearth service lines for the purpose of inventorying; however, **physical visual inspection** of the piping is an acceptable method to determine the material of a service line. You can visually inspect the service line at the meter or valve box. A record of the physical visual verification must be made by the water system.

When physically identifying the material of a service line that has a split ownership (i.e., water-system-owned and customer-owned), a water system may verify the following locations or points: the connection at the main, the pipe from the main to the meter, the connection at the meter, the pipe to the building inlet, and the connection at the building. A water system needs to plan how to verify the material of the pipe and connectors, if connectors exist, such as tails on meters. Not all service lines need to be inspected at all points. We require a minimum of one verification point for each side of the service line; however, the water system may need to verify more locations on the service line to ensure the inventory is accurate. The water system may discuss their inventory plans with their DOH regional engineer.

We encourage water systems to classify the actual material of the service line (i.e., plastic or copper) as often as possible as an alternative to classifying it as "non-lead" to help with future assets.

Customers may also assist with a visual inspection (e.g., by using scratch or magnet tests or lead paint test kits) to help identify the material of the customer-owned portion of the service line. The water system should develop a check list and instructions for customers and obtain a written record and photograph for verification. The water system needs to ensure the customer verification is appropriate prior to creating a record of the service line. Examples of cities using customers' verification are included in EPA's inventory guideline section 5.1.1.

**Other methods** such as predictive models, statistical approach, water quality monitoring, and new emerging methods for determining "unknown" material, please refer to FAQ (insert link) :

## Other Public Notification and Accessibility Requirements

Water systems must notify every person served by a lead, galvanized requiring replacement, or lead status unknown within thirty days of completing their inventory.

Inventories must be publicly accessible. We require you to tell us how you will make the inventory publicly accessible. Water systems serving more than 50,000 people must provide the inventory online for customer access.

Community water systems must indicate on their consumer confidence reports how customers can access service line inventory information.

## Submittal Process/Requirements*

Each community and NTNC public water system must submit a file containing required data elements per service connection in an electronic file that can be read using a current version of Microsoft Excel (other formats require our prior approval) and a cover page containing a summary of the information and methods used to determine the data submitted. We recommend water systems use the EPA template.

**We are not accepting lead service line inventories at this time. The cover page is under development and will be shared in early 2023.*

## Additional Resources

EPA's Guidance for Developing and Maintaining a Service Line Inventory to help guide public water systems in developing and maintaining the LSL inventory.

Lead service line inventory-related information and tools:

- EPA LSLI webinar, August 10, 2022. Getting the Lead Out: Guidance for Developing Service Line Inventories and Funding Information on The Bipartisan Infrastructure Law.
- Lead Service Line Replacement Collaborative.
- Lead service line identification: A review of strategies and approaches.
- Lead Service Line Inventory Symposium: 2022—ASDWA.
- EPA Site—Funding for Lead Service Line Replacement.
- EPA Office of Water—LSL Identification and Replacement Webinars.

General LCRR information:

- EPA December 2021 announcement of the LCR and the LCRI.
- EPA Basic Information about Lead in Drinking Water.

- AWWA Lead Resource Page.
- Association of State Drinking Water Administrators (ASDWA).

## For More Information

Please email your questions to LCRRassistance@doh.wa.gov.

Contact our nearest regional office from 8 AM to 5 PM, Monday through Friday.

Eastern Region, Spokane Valley 509-329-2100.

Northwest Region, Kent 253-395-6750.

Southwest Region, Tumwater 360-236-3030.

Washington State Department of HEALTH

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