



EPA Guidance for Service Line Inventories



Lead Exposure and Prevention Advisory Committee Meeting October 16, 2023

EPA's Service Line Inventory Guidance

This presentation summarizes EPA's Guidance and Small Entity Guidance for Developing and Maintaining a Service Line Inventory. EPA developed this guidance was to provide water systems with requirements and best practices for inventory development, as well as communicating information to the public.



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Presentation Outline

- What's in the Inventory Guidance?
- Topics
- Benefits of Complete and Accurate Inventory
- Inventory Elements
- Inventory Lifecycle
- Historical Records Review
- Materials Identification Methods
- Developing and Updating the Inventory
- Public Accessibility
- Template Overview

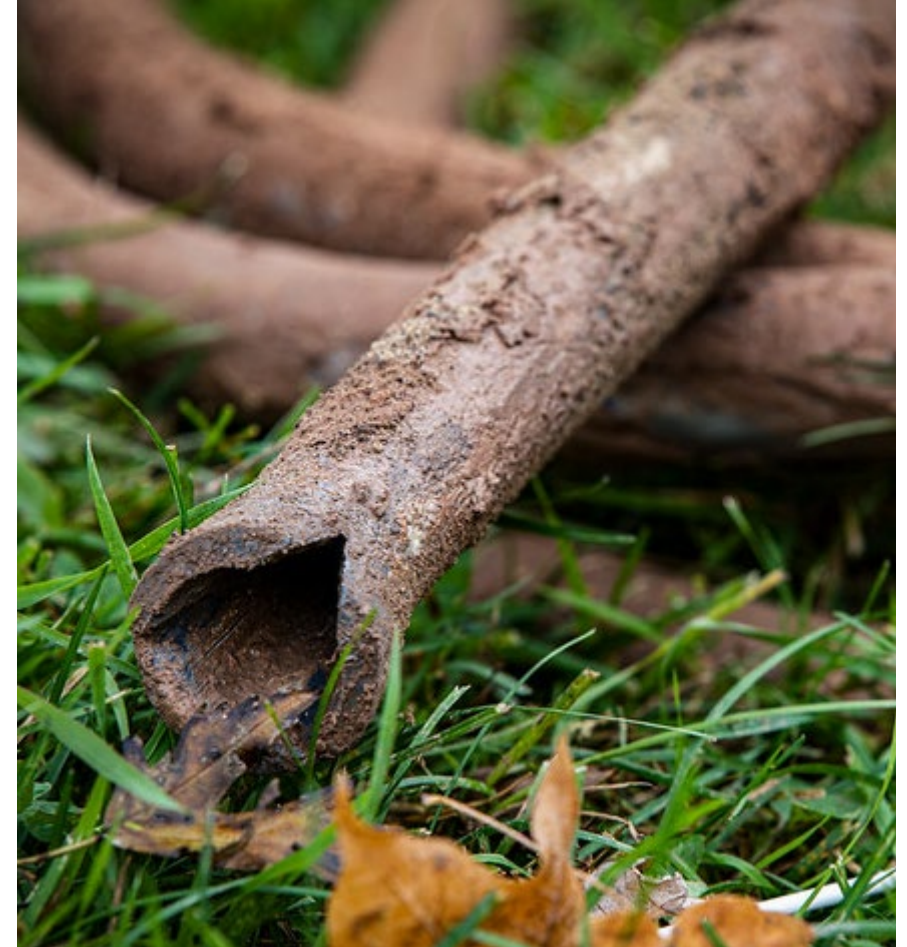


Guidance for Developing
and Maintaining a
Service Line Inventory

Office of Water (4606M)
EPA 816-B-22-001
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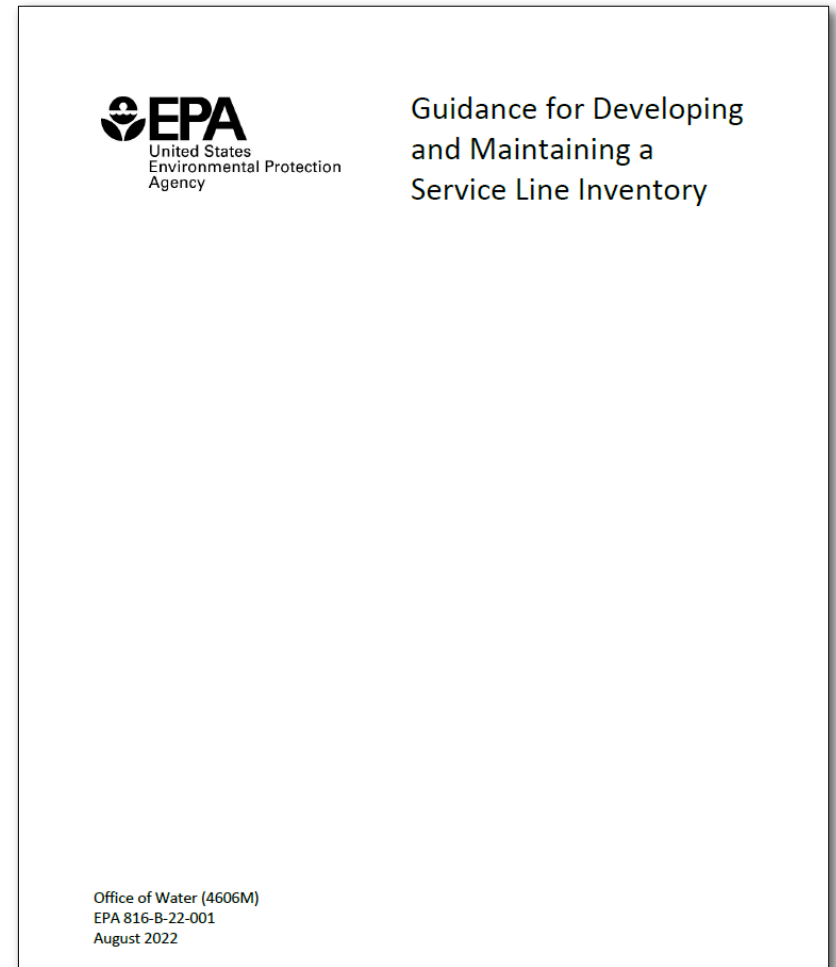
What's in the Inventory Guidance?

- **Purpose and audience**
 - Drinking water systems of all sizes
 - States and Primacy Agencies
- **Guidance scope**
 - LCRR inventory-related requirements
 - Recommendations/best practices
 - Case studies and example materials
 - Inventory template
- **Disclaimer**
 - *This document is not a regulation itself, nor does it change or substitute for those provisions and regulations nor impose legally binding requirements on EPA, states, or the regulated community.*



Guidance Document Topics

- Benefits of a service line materials inventory
- LCRR inventory requirements, as well as recommendations and best practices
 - Inventory elements
 - Inventory planning
 - Historical records review
 - Service line investigation methods
 - Developing and updating the inventory
 - Public accessibility
- Appendices featuring case studies and more
- Inventory Template

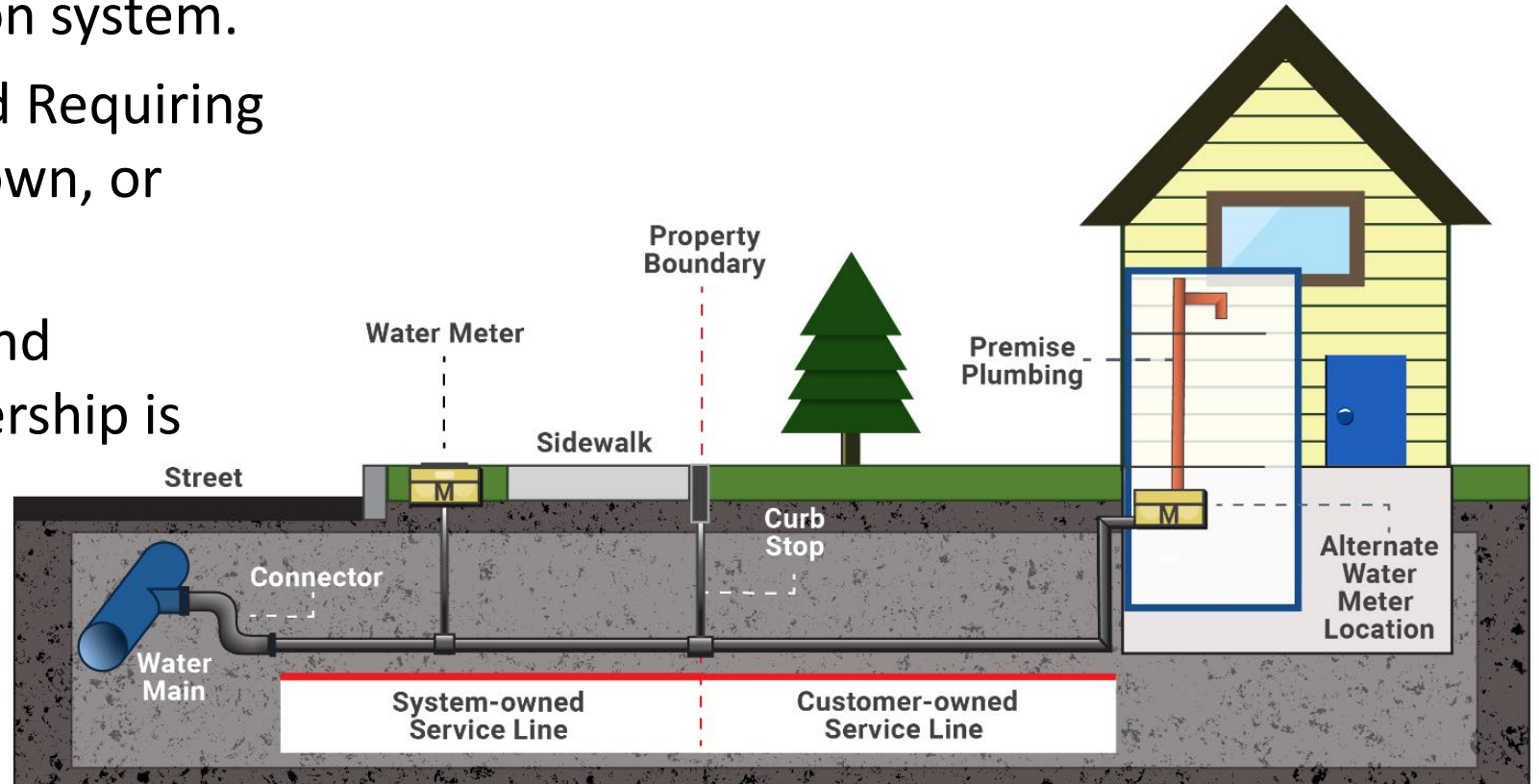


The Benefits of a Comprehensive and Accurate Inventory

- **Facilitate LSLR programs**
 - Can be used in applications for external LSLR funding
 - Increase LSLR programs efficiency, stretching the value of internal or external funding
 - Enables prioritization of underserved communities for LSLR
- **Improve public health and engage the community**
 - Opportunity to educate and involve customers, which can create opportunities for LSLR
 - Allows for notification to customers about lead sources in drinking water infrastructure so they can take action to reduce their risk of exposure
 - Allows for mitigation of exposure risk after disturbance of a known or potential lead service line (LSL) or galvanized requiring replacement (GRR) service line
- **Improved asset management**
 - Track service line diameter and installation year/useful life

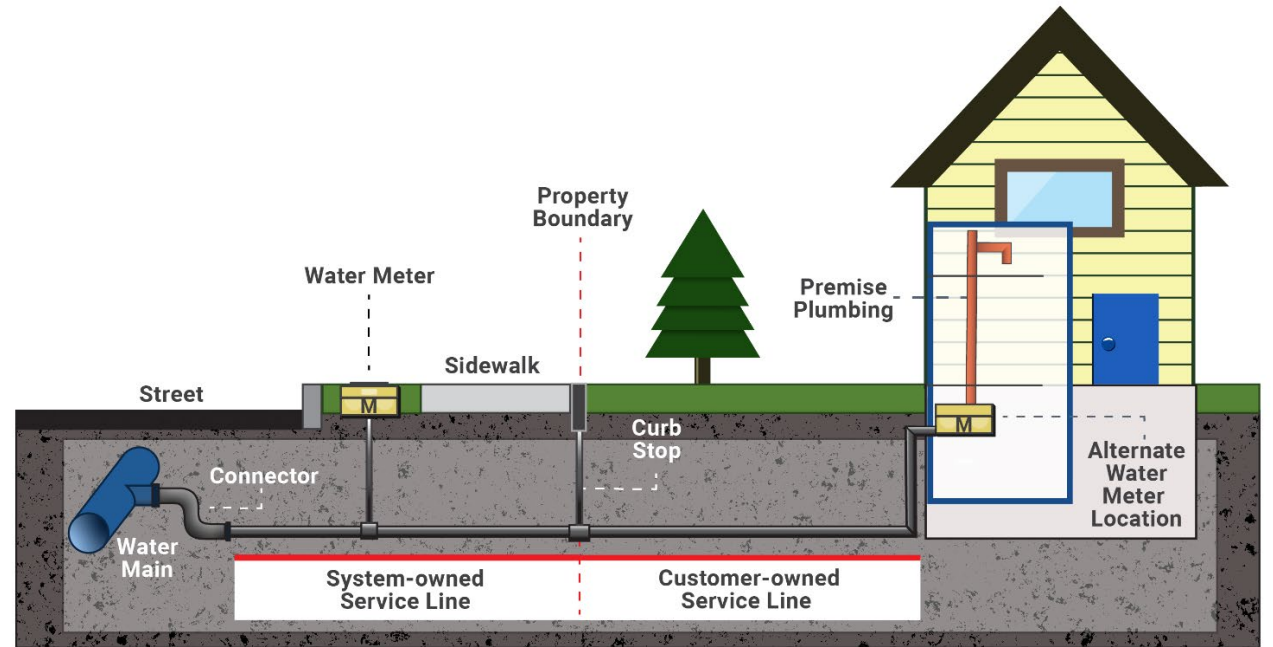
Inventory Elements- Required

- Include all service lines connected to the public water distribution system.
- Classify as Lead, Galvanized Requiring Replacement (GRR), Unknown, or Non-Lead Service Lines
- Include both the system- and customer-side where ownership is split

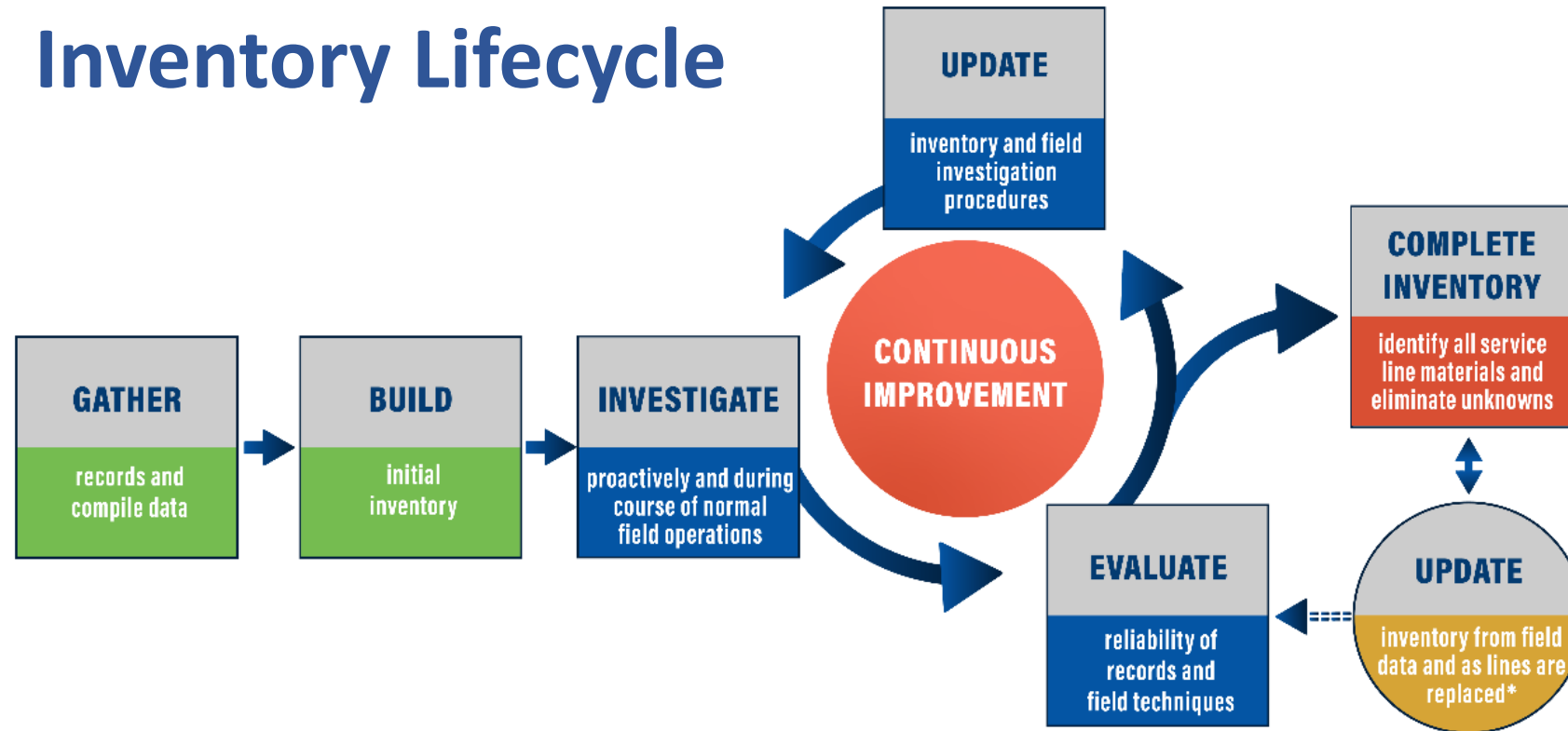


Inventory Elements- Recommended

- **Subclassifications**
 - Likelihood that an unknown is lead
 - Actual material of non-lead lines
- **Include other drinking water infrastructure potentially containing lead**
 - Lead goosenecks, pigtails, connectors
 - Lead solder
 - Other leaded infrastructure
- **Service line characteristics to include**
 - Pipe diameter
 - Installation date
 - Source of material information



Inventory Lifecycle



*Discrepancies may be occasionally encountered. If they are repeatedly encountered, systems should reassess their confidence in their inventory's accuracy.

Replace Lead Service Lines

Replacing lead service lines can occur anytime in the steps shown

Historical Records Review

- **LCRR Initial Inventory Requirements**
 - Review and/or use the records specifically referenced in 40 CFR §141.42(d), 40 CFR §141.84(a)(3), including any required by the state
- **Recommended Practices**
 - Document the records source used to identify a service line's material
 - Continue to gather information on service line materials after they have been classified to assess the accuracy of historical records
 - If a certain record source is found to be unreliable, consider reclassifying service lines based on that source as “unknown” until additional information can be gathered
 - Records already reviewed for service line material information (i.e., for proactive inventory efforts done previously) do not need to be reviewed again

(a)

73481 SERVICE RECORD

645 E. Molen St

LET NO 230

DATE BORN 7-15-41

SIZE OF MAIN 6

SIZE OF STUB 3/4

SIZE OF SERVICE 3/4

SIZE OF TAP 3/4

LENGTH OF PIPE 22 feet

FE ISSUED

LOCATION OF WATER North Wall

NAME NUMBER SIZE DATE SET REMARKS

2200 230 6 9/12/41 REAM 11-3-72

2200 230 6 11-3-72

3844

101 East 1st Ave

114 Ft 26 of - LL of Summit St

12 Ft N of S LL of 1st Ave

Remarks

Main Size 6" Stab Size 3/4 Pipe Length 26

Date Renewed 9/14/14 Reissued

Size of Ferrule

Date Sold

Lot No

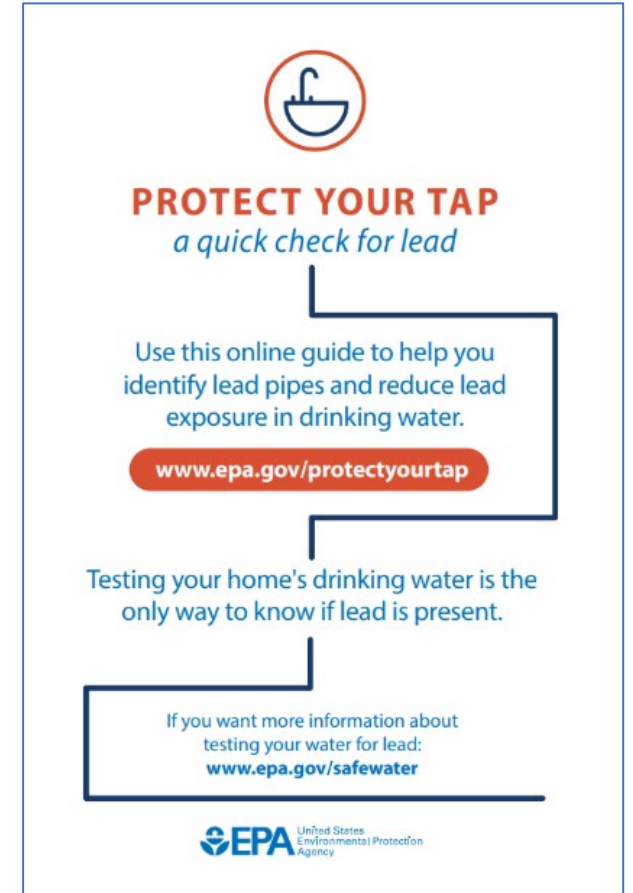
Kirk Lumber

LSLs identified

Source: Hensley et al., 2021

Service Line Material Investigation Methods

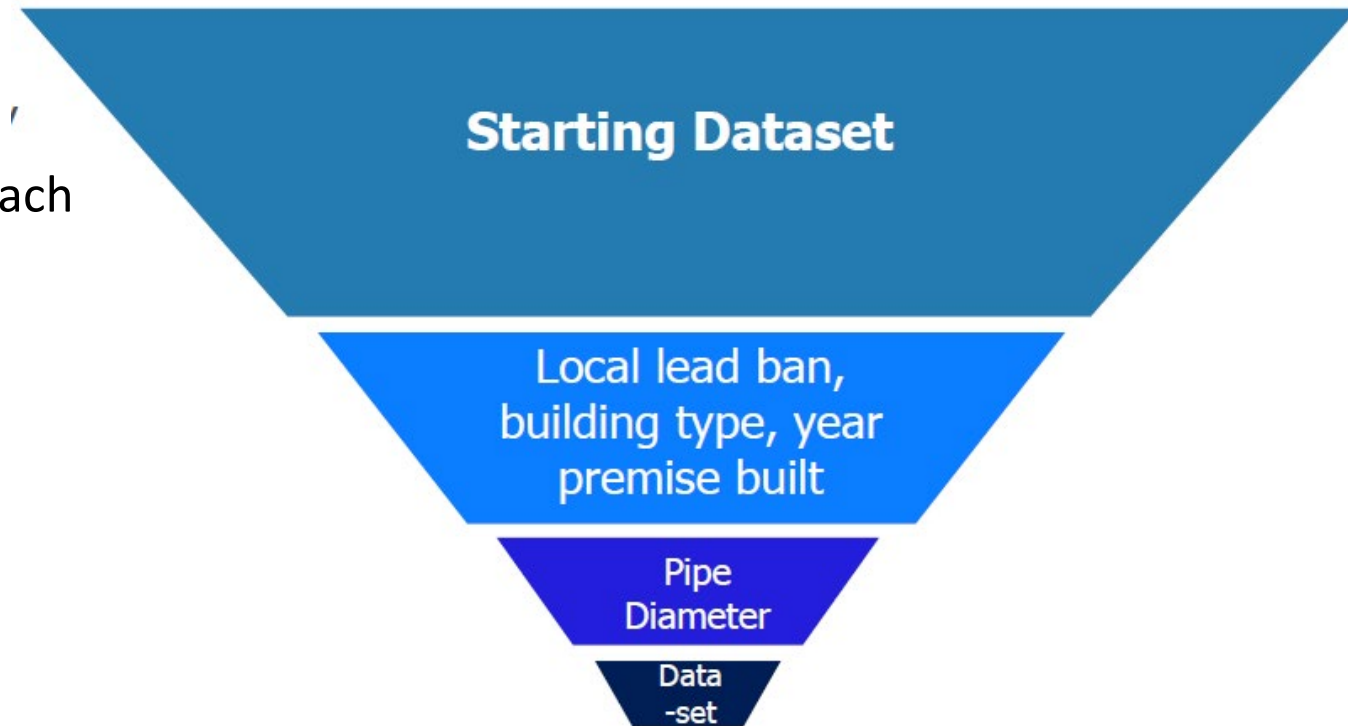
- **Investigation Methods**
 - Description of service line investigation methods that water systems have used to identify the material of unknown service lines and to verify records
 - Note the LCRR requires that states approve which investigation methods are acceptable
- **Pros and Cons of Each Method**
 - Including but not limited to cost/labor, disturbance, and accuracy
- **Real-World Examples**
 - System level examples as well as their lessons learned



<https://www.epa.gov/ground-water-and-drinking-water/protect-your-tap-quick-check-lead>.

Developing and Updating the Inventory

- **Developing the Initial Inventory**
 - LCRR initial inventory requirements
 - Recommended initial records screening process
 - Recommended weight-of-evidence approach when records are conflicting
- **Prioritizing Field Investigations**
 - Vulnerable or environmental justice populations
 - Areas with the most unknowns
 - Service lines that are most likely lead, especially in tandem with LSLR
 - Areas where LSLR is occurring
 - To verify historical records



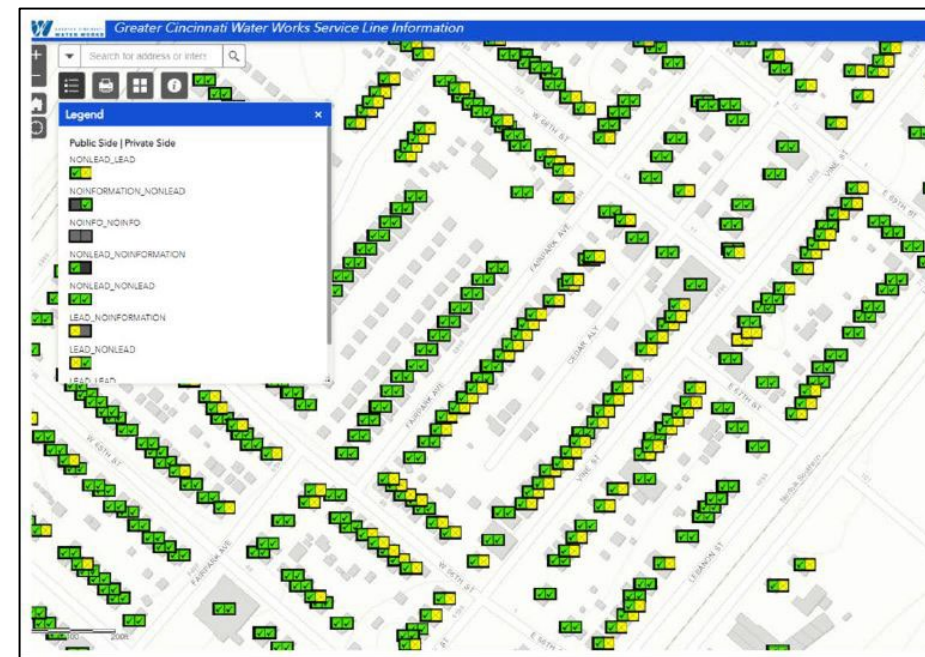
Source: Liggett, 2021

Developing and Updating the Inventory (continued)

- **Requirement for customer notification of known or potential service line containing lead**
 - Water systems with LSL, GRR, or lead status unknown services lines must provide notification to persons served by these lines within 30 days after completing the initial inventory.
- **Requirements and recommendations for systems with only non-lead lines**
 - May publish a statement indicating they have only non-lead service lines in lieu of making their inventory publicly accessible
 - Requirements and recommendations for non-lead systems that later discover an LSL in their system
- **Submitting the initial inventory**
 - Initial inventory must be submitted to the state by October 16th, 2024
- **State review and reporting**
 - EPA has developed a checklist for the initial inventory submittal with recommended considerations for states to use in their review

Public Accessibility

- **Elements of the Publicly Accessible Portion of the Inventory**
 - Must include each LSL and GRR with a location identifier, such as a street address, block, intersection, or landmark.
 - Recommended to include (see document for full list)
 - All service line materials (include unknowns and non-lead lines)
 - Consider using street addresses as your location identifier
 - Information on steps that consumers served by LSLs can take to reduce exposure risk
 - Instructions on how to use and interpret the inventory along with a disclaimer
- **Format Considerations** (i.e., pros and cons of various formats)
- **Consumer Confidence Report Requirements**



Source: Greater Cincinnati Water Works Service Line Information map.
<https://gcww.maps.arcgis.com/apps/webappviewer/index.html?id=0a170c268c694e46a8a4e394630df0bd>. Accessed December 16, 2021.

Appendices

- **Appendix A:** Selected Forms from Service Line Inventory Template
- **Appendix B:** Case Studies
- **Appendix C:** Instructions for Self-Identifying LSLs and Information When Water System Conducts Verification
- **Appendix D:** Summary of State Lead Ban Provisions
- **Appendix E:** Michigan Field Investigation Protocol
- **Appendix F:** Data Quality Disclaimer Language

Inventory Summary (Continued)		
Part 3. Inventory Summary Table ¹		
<i>Enter the number of service lines in the aqua-colored cells. Remember this is the classification for the entire service line.</i>		
Service Line Material Classification	Definition	Total Number of Service Lines (REQUIRED to be reported under the LCRR)
Lead	Any portion of the service line is known to be made of lead. ²	
Galvanized Requiring Replacement (GRR)	The service line is not made of lead, but a portion is galvanized and the system is unable to demonstrate that the galvanized line was never downstream of a lead service line.	
Non-Lead	All portions of the service line are known NOT to be lead or GRR through an evidence-based record, method, or technique.	
Lead Status Unknown	The service line material is not known to be lead or GRR. For the entire service line or a portion of it (in cases of split ownership), there is not enough evidence to support material classification.	
TOTAL		
Notes		
¹ This summary table is for reporting material for the entire service line connecting the water main to the customer's plumbing. See Section 2.1 for additional guidance on assigning a materials classification to the entire service line when ownership is split. Remember that systems must track the system-owned and customer-owned portions separately in their inventory.		
² 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") (40 CFR §141.2) and must therefore be classified in the inventory as an LSL. Do NOT, however, count non-lead service lines with a lead gooseneck or pigtail as lead service lines unless required by your state.		

Template Overview

- **Instructions and Background**
 - Introduction
 - Template Instructions for Systems
 - Template Instructions for States
 - Information on Classifying Service Lines
- **Templates for Systems**
 - PWS Information
 - Inventory Methods
 - Inventory Summary
 - Detailed Information
 - Public Accessibility Documentation
- **Template for States**
 - State Checklist for Initial Inventory Submittal



Service Line Inventory Template

Date last updated: July 27, 2022

What is the purpose of this template?

The purpose of this draft template is to help water systems and states comply with the service line inventory requirements of the January 15, 2021 Lead and Copper Rule Revisions (LCRR). This template supplements the draft EPA document, **Guidance for Developing and Maintaining a Service Line Inventory** (2022) by providing fillable forms and tables that water systems can use to document their methods, organize their inventory, submit the initial inventory and inventory updates to the state, and document how they are making the inventory publicly available. This template also provides a checklist for state review. Note that EPA does **NOT** require systems use this template for their inventory. Refer to EPA's 2022 Inventory Guidance for minimum LCRR inventory requirements, recommendations, and disclaimers.

How is the template organized?

The **worksheets** in this template are color coded:

- Yellow sheets are instructions and background.
- Dark blue sheets are templates for systems.
- The dark green sheet is a template for states.

The **cells** in this template are also color coded:

- Gray cells are background or instructions.
- Light blue cells are fillable cells for systems.
- Aqua cells are the required fields in the **Detailed Inventory** worksheet.
- Light green cells are fillable cells for states.

See the table below for a description of each worksheet.

Template Overview

Location Information					System-Owned Portion								Customer-Owned Portion	
Unique Service Line ID	Location Identifier		Sensitive Population? (Yes/No)	Disadvantaged Neighborhood? (Yes/No)	System-Owned Portion Service Line Material Classification	If Non-Lead in Column G, Was Material Ever Previously Lead?	Service Line Installation Date	Service Line Size	Basis of Material Classification	Was the Service Line Material Field Verified?	If "Yes" Service Line Material Was Field Verified:		Notes	Customer-Owned Portion Service Line Material Classification
	Street Address	Other Location Identifier									Describe the Field Verification Method	Enter the Date of Field Verification		
A Unique ID is recommended for each service line.	Water systems must track addresses of all service lines in their internal inventory. For the publicly accessible version, location identifiers are required for lead and galvanized requiring replacement. If the system does not use addresses for their location identifier, other options could include GPS coordinates, landmark, intersection, block, or other details to specify service line locations.		Select Yes if sensitive subpopulation, e.g., day care, school, multifamily home. If Yes-Other, describe in the Notes field.	Does location meet state affordability guidelines or other measures?	Dropdown list includes recommended subclassifications. If "Non-Lead Other", describe in Notes field	Select Yes, No, or Don't know. Important for determining if downstream/ customer-owned galvanized service line requires replacement	Date, year, or estimated date range when the service line was installed or replaced	Diameter in inches	Select option from drop down list. If "Other," describe in the Notes field	Select Yes or No	Select option from drop down list. If "Other," describe in the Notes field	Enter approximate date of field verification or date that the record was updated	Can use this field for documenting additional relevant information, including when classification changes.	Dropdown list includes recommended subclassifications. If non-other, describe in Notes field
Example 1	1234 Test St., City, State, Zip Code	Intersection of Test and Elm St.	No	No	Non-Lead - Plastic	Yes	1997	2	Installation date after lead ban	Yes	Visual inspection at the meter pit	5/1/2019		Non-Lead - Plastic
Example 2	4321 Test St., City, State, Zip Code	Intersection of Test and Main St.	No	No	Non-Lead - Plastic	No	Fall 1980	2	Installation record (e.g., tap card)	Yes	Mechanical excavation at one location	9/10/2020		Galvanized
Example 3	16 Capital St., City, State, Zip Code		No	No	Non-Lead - Copper	Don't know	1985	1 1/2	Service line repair or replacement record	No				Galvanized
Example 4	1 Water Avenue, City, State, Zip Code		No	No	Unknown - Likely Lead		1940's	2		No				Galvanized
Example 5	67 Children's Place, City, State, Zip Code		Yes - Day Care	No	Unknown - Material Unknown		1950-1960	3/4		No				Unknown - Material Unknown
Example 6	30 Price Street, City, State, Zip Code		No	No	Lead-lined galvanized		1955	2	Installation record (e.g., tap card)	Yes	CCTV investigation at curb stop - internal	8/8/2020		Lead-lined galvanized
Example 7	123 System Ave., City, State, Zip Code	Building A	No	Yes	Non-Lead - Copper	Yes	2015	2	Service line repair or replacement record	No				Galvanized
Example 8	123 System Ave., City, State, Zip Code	Building B	No	No	Non-Lead - Copper	Don't know	2015	2	Service line repair or replacement record	No				Unknown - Material Unknown

Resources and Next Steps

- For the inventory guidance, small entity compliance guidance, and inventory factsheet, visit: <https://www.epa.gov/ground-water-and-drinking-water/revised-lead-and-copper-rule>.
- Provide templates for the notification of a potential lead service line to persons served by the end of 2023.
- Propose LCRI in 2023 and finalize no later than October 16, 2024
 - EPA does not expect to change the requirements for the initial inventory



Questions

- Contact me at smith.kira@epa.gov
- Provide comments on guidance materials at LCRR@epa.gov.
- Visit our website: <https://www.epa.gov/ground-water-and-drinking-water/revISED-lead-and-copper-rule>