GA EPD Service Line Inventory (SLI) Guidance Manual



ENVIRONMENTAL PROTECTION DIVISION

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Lead and Copper Rule Revisions (LCRR)

What is the LCRR?

The Lead and Copper Rule Revisions (LCRR) were published by EPA on January 15, 2021. The revisions establish requirements for all Community Water Systems (CWSs) and Non-Transient Non-Community Water Systems (NTNCWSs) to develop and maintain a complete Service Line Inventory (SLI). The LCRR contains

If you haven't already begun preparing your SLI, the time to start is NOW!!! additional requirements that may be subject to change under the upcoming Lead and Copper Rule Improvements (LCRI). The LCRI is expected to propose rulemaking to replace all Lead Service Lines, establish new compliance tap monitoring requirements, establish new action and trigger levels, and prioritize underserved

communities. The LCRI is also expected to push the due date of the Lead Service Line Replacement Plan from October 16, 2024 to a later date.

What is an SLI and when is it due?

Service Line Inventories (SLIs) are the foundation from which water systems take action to address a significant source of lead in drinking water—Lead Service Lines (LSLs). In accordance with the LCRR, all CWSs and NTNCWSs must develop and submit an inventory of all service lines, including both water system owned portions and customer owned portions. The SLI must contain elements such as service line materials classification, basis of classification, and must be publicly accessible. All service lines, regardless of classification, must be included in the inventory. Even if all service lines have been identified as Non-Lead, an initial inventory must still be submitted. Water systems must submit their initial Service Line Inventories to GA EPD by October 16, 2024. SLI updates are due to GA EPD each year on or before July 1.

How do I prepare and submit my SLI?

When preparing their SLI, water systems must use the inventory format prescribed within the GA EPD LCRR Service Line Inventory Spreadsheet template and submit it to the GA EPD in an electronic manner identified by the State. The GA EPD is currently in the process of procuring a cloud-based software that will be used for SLI submission and tracking. Further guidance on the SLI submission process to be released Summer 2023. Resources to assist in completing your Service Line Inventory (SLI)

- ◆ <u>LCRR 40 CFR §141.80-93</u>
- ◆ <u>GA EPD LCRR Service Line Inventory Spreadsheet</u>

• <u>EPA's Guidance for Developing and Maintaining a</u> <u>Service Line Inventory</u>

*Note that the GA EPD Service Line Inventory (SLI) Guidance Manual addresses inventory requirements of the LCRR only. All LCRR requirements aside from the initial inventory are subject to change under the LCRI.



Service Line Inventory (SLI) Overview

Service Line Inventories are the foundation from which water systems take action to address a significant source of lead in drinking water - Lead Service Lines (LSLs). Establishing an inventory of service line materials and identifying the location of LSLs is a key step in getting them replaced and protecting public health.

- All <u>Community and Non-Transient Non-Community Water Systems</u> must develop and submit a comprehensive Service Line Inventory (SLI) to the GA EPD on or before October 16, 2024. All service lines, regardless of classification, must be included in the inventory. Even if all service lines have been classified as Non-Lead, an initial inventory must still be submitted.
- After an Initial Service Line Inventory is submitted, Service Line Inventory Updates are due to the GA EPD each year on or before July 1.
- Water systems that have identified all their service lines as Non-Lead in either their initial inventory or an inventory update, are not required to submit inventory updates to the GA EPD. If in the future, a water system finds a lead service line within its system, it must prepare an updated inventory and submit it to the State.
- Service Line Inventory must be completed using the inventory format prescribed within the GA EPD LCRR Service Line Inventory Spreadsheet and submitted in an electronic manner identified by the State. Further guidance on the SLI submission process to be released Summer 2023.
- Water systems must make their SLIs publicly available. Water systems serving a population exceeding 50,000 must make their inventory available online.
- Consumer Confidence Reports must indicate where customers can find their Service Line Inventory.

- Water systems must provide notification to persons served with a service line classified as Lead, GRR, or Lead Status Unknown within 30 days of submitting their Service Line Inventory. Proof/certification of completed Service Line Consumer Notices is due to the GA EPD annually by July 1 for the previous calendar year.
- EPA intends to promulgate the <u>Lead and Copper Rule Improvements (LCRI)</u> prior to October 16, 2024. The LCRI is expected to propose rulemaking to replace all Lead Service Lines, establish new compliance tap monitoring requirements, establish new action and trigger levels, and prioritize underserved communities. The LCRI is also expected to push the due date of the Lead Service Line Replacement (LSLR) Plan from October 16, 2024, to a later date.

Resources to assist in completing your Service Line Inventory (SLI)

- ◆ <u>LCRR 40 CFR §141.80-93</u>
- ◆ GA EPD LCRR Service Line Inventory Spreadsheet
- EPA's Guidance for Developing and Maintaining a Service Line Inventory



All Community Water Systems (CWS) and Non-Transient Non-Community Water Systems (NTNCWS) are required to complete an Initial Service Line Inventory using the inventory format prescribed within the GA EPD LCRR Service Line Spreadsheet and submit it to the GA EPD on or before October 16, 2024. An Initial Service Line Inventory must be submitted to the State even if all service lines are classified as Non-Lead. Service Line Inventory Updates are due to the GA EPD on or before July 1 of each subsequent year.

- Service Line Inventory Updates are not required once all service lines have been classified as Non-Lead on either the Initial Service Line Inventory or a Service Line Inventory Update.
- The Service Line Inventory <u>must include all service lines</u> connected to the public water distribution system for both water system-owned and customer-owned portion.
- Service Line Inventories must be made publicly available by all water systems. Systems serving a population exceeding 50,000 must make their inventory available online.



7 Elements of the GA EPD Service Line Inventory

GA EPD LCRR Service Line Inventory Spreadsheet



1. Location Information

Each service line must be assigned a Unique Location Identifier on the Service Line Inventory. The Unique Location Identifier can be the Service Line Address or a Secondary/Other Location Identifier. A complete Service Line Address must be submitted to the GA EPD for each service line on the Service Line Inventory, no matter the material classification.

- A Unique Location Identifier must be included on the <u>publicly available</u> Service Line Inventory for all service lines classified as Lead or GRR.
- The LCRR does not require water systems to include the exact service line address on the publicly available SLI. Instead, a Secondary/Other Location Identifier may be used in place of the exact service line address in the publicly available SLI (e.g., block number, intersection, landmark, GPS coordinates). If a secondary location identifier is used, it must not be so overly broad that the public could not adequately track general service line locations or where the system is making progress in replacing lead service lines.
- Water systems should add additional descriptors that differentiate between multiple service lines at the same address (e.g., apartment buildings with multiple service lines after the meter).
- The GA EPD highly recommends systems include publicly accessible location identifiers for all service lines including Lead Status Unknown and Non-Lead
- In addition to a Unique Location Identifier, a Unique Service Line ID for each service line is recommended to track service lines, lead and copper monitoring sites, tap monitoring results, and Service Line Consumer Notices. The GA EPD recommends using a numbering or sequential naming system.

Unique Service Line ID	Street Address *Required*	Other Location Identifier *Required if Street Address is not used for the publicly accessible inventory*
1	12 N. Example Rd., City, State, ZIP	
2	1136 Hwy 12, City, State, Zip	
3	16 Capital St., City, State, Zip	Water Ave- Main St, Intersection Apt A1
SL1	16 Capital St., City, State, Zip	Water Ave- Main St, Intersection Apt A2
SL2	671 Main St, City, State, Zip	600s Main St. 4
SL3	674 Main St, City, State, Zip	600-700 main Street 2
A1	768 South Road, City, State, Zip	760s South Road
A2	232 System Blvd., City, State, Zip	System Blvd. Office Park 1
A3	8675 Song Rd., City, State, Zip	Tommy Tutone Office Park 1
Aa	309 Song Rd., City State, Zip	Tommy Tutone Office Park 2
Ab	123 System Ave., City, State, Zip	
Ac	1234 Test St., City, State, Zip	Intersection of Test and Main St.
Ad	4321 Test St., City, State, Zip	Intersection of Test and Elm StB
100-1	987 Water Road, City, State, ZIP	Water Lab Building
100-2	346 Services Park, City, State, Zip	

Figure 1. GA EPD LCRR Service Line Inventory (SLI) Spreadsheet – Location Information



Water System-Owned Portion Customer-Owned Portion

The LCRR requires the Service Line Inventory to <u>classify each service line or portions of the</u> <u>service line where ownership is split.</u> An overall classification per service line is needed to support various LCRR requirements, such as a lead service line replacement (LSLR), lead and copper tap monitoring, and risk mitigation.

Service Line Ownership

- If ownership of a service line is split, each portion must have its own material classification on the SLI.
- Exhibit 1. is an example of how a service line ownership may be split. While in Georgia it is common that the meter is located at the dividing point of the water system and customer ownership, that may not always be the case, as shown in the figure below. Water systems should check local rules, laws, and ordinances to determine how ownership may be determined.



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

Service Line Classification

- Each service line must be classified as one of five service line classifications outlined in Table 1.
- A classification of Non-Lead or GNRR must be supported by evidence-based records, methods, or techniques to prove it is not lead or GRR. Supporting documentation used to classify service line material must be made available to the GA EPD.
- For service lines classified as Non-Lead, the GA EPD highly recommends water systems include additional information such as specific service line material (e.g., copper, plastic).

Table 1: Defining Service Line Material Classifications		
Service Line Material Classification	Definition	
Lead	Any portion of the service line is known to be made of lead.	
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.	
Galvanized Not Requiring Replacement (GNRR) ¹	The service line is not made of lead and the system is able 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.	
¹ Georgia-specific material classification.		

Basis of Material Classification

- Water systems must identify the **Basis (method) of Material Classification** for each service line and make supporting documentation available to the GA EPD upon request.
- GA EPD specific requirements and recommendations on service line identification and investigation methods can be found in the Service Line Identification and Investigation Methods section of this document. For more detailed information not discussed in this document regarding specific methods, please reference EPA's Guidance for Developing and Maintaining a Service Line Inventory.
- The GA EPD highly recommends water systems include additional information on the method used to classify each service line including specific notes and details that may support classification. Tracking this information is valuable for systems to assess their confidence in the accuracy of an individual service line's material classification, evaluate the reliability of certain records or identification methods as a whole, and facilitate updates to the inventory in the future.

Service Line Installation Date

If documentation can be provided, service lines installed on or after January 1, 1990, can be classified as Non-Lead based on the effective dates of lead ban. If there are local laws or ordinances that were in effect before January 1, 1990, documentation can be submitted to the GA EPD to justify an earlier date in which the water system may classify service lines as Non-Lead.

Service Line Diameter

Pipe diameter can be an important factor in determining service line material classification, considering that Lead Service Lines are typically 2 inches or less in diameter. Tracking pipe diameter is important for asset management and can be useful for other information collection efforts such as the Drinking Water Infrastructure Needs Survey and Assessment (DWINSA).

Presence of a Lead Connector

- Pigtails, goosenecks, and connectors 24 inches or less are not considered to be part of the service line. Any connectors over 24 inches are considered service lines and should be treated as such.
- If the only lead pipe serving a home or building is a lead connector less than 24 inches, that line should not be identified as a Lead Service Line in the SLI.
- Water Systems must replace any lead gooseneck, pigtail, or other lead connector it owns when encountered during planned or unplanned water infrastructure work.
- The GA EPD highly recommends water systems proactively identify, track, and replace all lead connectors.



An Overall Service Line Classification for each service line must be reported to the GA EPD. For service lines with split ownership, the overall service line classification is based on the Water System-Owned Portion Service Line Classification and the Customer-Owned Portion Service Line Classification. Based on the Lead and Copper Rule Improvements (LCRI), water system Lead Service Line Replacement (LSLR) schedules will be determined by each service line's overall classification. Lead Status Unknown service lines must eventually be investigated and designated as another classification. Table 2 lists the possible combinations of the Overall Service Line Classification.

Table 2: Classification of Entire Service Line When Ownership is Split		
Water 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	Galvanized Not Requiring Replacement	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
<i>Source:</i> Taken and modified from Exhibit 2-3 of Guidance for Developing and Maintaining a Service Line Inventory (USEPA, 2022).		



Final Lead and Copper Tap Monitoring requirements are still being discussed and are subject to change with the Lead and Copper Rule Improvements (LCRI). The LCRI is to be finalized and released by EPA prior to the October 16, 2024 Initial Service Line Inventory deadline and is expected to address issues such as action levels and sampling requirements. While the Lead and Copper Tap Monitoring Tier Classification criteria established by the LCRR is not expected to change, it may be subject to change in the final LCRI. **Required Lead and Copper Tap Monitoring under the LCRR is based on a tiering system for prioritizing sample sites.** The purpose of this section is to assist water systems in using their Service Line Inventory to identify routine tap monitoring sites that will be targeted for routine compliance monitoring. The GA EPD recommends systems double check each tier classification with Federal and State rules and regulations.

- Lead and Copper Tap Monitoring Tier Classification is based on the Overall Service Line Classification, the Water System Type, and the Building Type connected to the service line.
- Service lines classified as Lead Status Unknown do not meet the criteria of a sample site tier and should NOT be used for routine tap monitoring.

Table 3: Lead and Copper Tap Monitoring Tier Classification			
Overall Service Line Material	Duilding Tune	CWS	NTNCWS
Classification	Bunning Type	Tier	
Lead	Single Family Residence	Tier 1	
Lead	Multi Family Residence	Tier 2	
Lead	Non-Residential Building	Tier 2	Tier 1
Lead Status Unknown	Single Family Residence	N/A	
Lead Status Unknown	Multi Family Residence	N/A	
Lead Status Unknown	Non-Residential Building	N/A	N/A
Galvanized Requiring Replacement	Single Family Residence	Tier 3	
Galvanized Requiring Replacement	Multi Family Residence	Tier 3	
Galvanized Requiring Replacement	Non-Residential Building	Tier 3	Tier 3
Non-Lead	Single Family Residence	Tier 4 or 5	
Non-Lead	Multi Family Residence	Tier 4 or 5	
Non-Lead	Non-Residential Building	Tier 4 or 5	Tier 5



All community water systems must conduct directed public education and lead monitoring at the elementary schools and licensed childcare facilities they serve if those schools or childcare facilities were constructed prior to January 1, 2014. By October 16, 2024, all Community water systems must compile a list of elementary schools and licensed childcare facilities served by the water system. Subsequently, all elementary schools and licensed childcare facilities must be sampled at least once during the five years following the October 16, 2024 compliance date.

- Water systems must contact the elementary schools and licensed childcare facilities identified in their service area and provide:
 - 1. Information about health risks from lead in drinking water on at least an annual basis.
 - 2. Notification that the water system is required to sample for lead at elementary schools and licensed childcare facilities. This notice must include a proposed sampling schedule, information about sampling for lead in schools and childcare facilities (EPA's 3Ts for Reducing Lead in Drinking Water Toolkit), and instructions for identifying outlets/faucets for sampling and preparing for a sampling event 30 days prior to the event.
- Elementary schools are defined as Pre-K and above, but do not exceed 8th Grade.
- Water systems shall collect samples from at least 20 percent of elementary schools served by the system and 20 percent of licensed childcare facilities served by the system per year until all schools and licensed childcare facilities have been sampled or have declined to participate.
- Water systems must collect five samples per school and two samples per licensed childcare at outlets/faucets typically used for consumption.

- Water systems must thereafter conduct lead sampling at elementary schools and licensed childcare facilities they serve upon request of the school or facility thereafter.
- Water systems shall also conduct lead sampling upon request at secondary schools served by the water system.
- Sample results from schools and licensed childcare facilities are not part of routine compliance tap monitoring and will not be included in the water system's 90% calculation.

Lead Sampling in schools and licensed childcare facilities must be conducted in accordance with the EPA's 3Ts for Reducing Lead in Drinking Water Tool Kit or subsequent EPA guidance. The 3Ts manual can be found at https://www.epa.gov/safewater/3Ts.

3Ts Toolkit

https://epa.gov/safewater/3Ts

Build a team and make a plan! Protecting school and child care facility drinking water is a group effort and you will need to have a plan for who you will work with, how you will test, and how you will address elevated lead that may be found. Make sure you are transparent in your communications with your community. The 3Ts toolkit includes modules and helpful resources you can use to implement a successful program!



Source: 3Ts Manual- 3Ts for Reducing Lead in Drinking Water in Schools and Childcare Facilities (USEPA, 2018)



Service Line Consumer Notice

Water Systems must provide notification to persons served by a service line classified as Lead, GRR, or Lead Status Unknown within 30 days of submitting their Service Line Inventory.

- The information provided in the Service Line Consumer Notice must allow the consumer to easily access and identify their service line details in the publicly available SLI. If a Secondary/Other Location Identifier is used on the publicly available SLI, the **consumer notice must contain the location identifier**.
- Service Line Consumer Notices must provide:
 - 1. Statement of what the service line material classification is (Lead, GRR, Lead Status Unknown).
 - 2. Opportunities to replace lead service lines and/or opportunities to verify unknown service lines.
 - 3. Information on the health effects of lead.
 - 4. Steps to minimize exposure.
- Water systems must provide proof/certification of completed Service Line Consumer Notice and information materials to the GA EPD by July 1 each year for the previous calendar year.
- For new customers, the Service Line Consumer Notice must be provided at the time of service initiation.
- Additional information regarding the method of delivery, documentation, and submission of Service Line Consumer Notices will be released by the GA EPD prior to October 16, 2024.

Lead Service Line Replacement (LSLR)

All water systems that have identified Lead, GRR, and Lead Status Unknown service lines must submit a Lead Service Line Replacement (LSLR) Plan to the GA EPD. The Lead and Copper Rule Improvements (LCRI) is expected to propose rulemaking to replace all lead service lines and extend the due date of the Lead Service Line Replacement Plans from October 16, 2024 to a later date.

EPA's website addressing the Lead and Copper Rule Improvements (LCRI)



Service Line Inventory Submission

Water Systems must complete their Service Line Inventory using the format prescribed within the GA EPD LCRR Service Line Spreadsheet and submit it to the GA EPD in an electronic manner identified by the State. The GA EPD is currently in the process of procuring a cloudbased software that will be used for SLI submission and tracking. The goal of the SLI software is to act as a tool for water systems to track Service Line Inventories, replacements, and consumer notices. Further guidance on the SLI submission process to be released Summer 2023.

Proposed Draft Amendments to Chapter 391-3-5-.25 GA Rules for Safe Drinking Water

Rule 391-3-5-.25 Treatment Techniques, Lead and Copper Requirements

•••

(13) All water systems must develop an initial lead service line inventory by October <u>16, 2024 in accordance with 40 CFR 141.84(a)</u>, and submit it to the Division in <u>accordance with 40 CFR Part 141.90 (e) in an electronic format prescribed by</u> <u>the Director.</u>



Service Line Inventory (SLI) Development

Developing a process by which a water system will approach and develop a Service Line Inventory needs to take into account multiple factors such as the expected level of effort and availability of resources. The purpose of this section is to assist water systems in approaching and developing their Service Line Inventories. Further information on this topic can be found in Chapter 3 of EPA's Guidance for Developing and Maintaining a Service Line Inventory.

Living Dataset

Water systems should treat the inventory as a *living dataset* that is continuously improved over time as the inventory is updated. The number of unknowns in the inventory should decrease as systems gather new information through normal operation and any proactive material identification activities in which the water system is engaged.

Under the LCRR, systems must identify and track information on service line material as they are encountered in the course of normal operations. Inventory activities should be considered as something that can be worked into the day-to-day activities of the system rather than treated as an independent effort. Inventories updates must be submitted to the GA EPD each year by July 1, but water systems should be continually updating their inventory and make the decisions of how to proceed based on up-to-date information.

The GA EPD highly recommends systems consider developing Standard Operating

Procedures (SOPs) or modifying existing SOPs to document how their staff and contractors will collect this information and use it to update their Service Line Inventory. SOPs can help ensure that a consistent method of tracking, updating, and reporting is used for staff and contractors of all experience levels. Written SOPs can also provide a way for water systems to document how they met the requirement to collect information during normal operations.



Figure 2. Source: Guidance for Developing and Maintaining a Service Line Inventory (USEPA, 2022).

Initial Screening Process

Making use of historical data can assist in narrowing the initial dataset with a relatively low effort and cost compared to other methods. Examining available historical records such as building documents, tax records, and internal reports, water systems can assist in the initial classification of service lines. The GA EPD highly recommends water systems continue to gather information on service line materials after service lines have been designated Non-Lead and assess the accuracy of records through verification.

Initially, water systems may want to start by gathering building or tax records. As discussed previously, if documentation can be provided, service lines installed on or after January 1, 1990, can be considered Non-Lead based on the effective dates of the Federal/State lead ban. Using these records, service lines can initially be classified as one of the five material classification types.

Water systems can then also use other factors, such as service line diameter size, to further identify service line materials and decrease the number of Lead Status Unknown service lines.

As discussed in EPA's Guidance for Developing and Maintaining a Service Line Inventory, most lead service lines are 2 inches or less in diameter. There have been a few instances of lead service lines larger than 2 inches and water systems should conduct verifications.

In Figure 3. below, the top portion of the graph represents your starting dataset wich is a list of all service lines. Non-Lead service lines are then screened out based on the effective date of the lead ban using documentation such as construction records. The remaining dataset or Lead Status Unknowns are then further screened through the use of documented service line pipe diameter records or other historical records that may result in the classification of a service line as Lead, GRR, GNRR, or Non-Lead. Water systems should then be left with a smaller dataset of Lead Status Unknown service lines that will need further investigation to determine their material classification. More information on sevice line identification and investigation methods can be found in the next section of this document.



Figure 3. Initial Screening Process- Using historical records to classify service.

Water systems are encouraged to use the records at their disposal to narrow down their initial inventory to make it more manageable. Water systems must make all documentation used to develop the service line inventory available to the GA EPD. As seen in Figure 3. above, **once a water system uses all the records at its disposal to filter out the starting dataset, they must continue to investigate any service lines identified Lead Status Unknown**.



Figure 4. Developing a Service Line Inventory using an initial screening process, field investigation, and field verification.

Field Investigations

Once systems have used historical records to minimize the number of Lead Status Unknowns in the ir inventory, field investigations can be used to further reduce the number of unknowns in the system as quickly as possible. When conducting field investigations, water systems should consider the completeness of historical records, confidence in the accuracy of historical records, the extent the system will already be in the field doing work (e.g., meter replacement), previous service line investigations, and the number of Lead Status Unknowns. In EPA's Guidance for Developing and Maintaining a Service Line Inventory, they recommend the following examples for consideration when prioritizing service line investigations:

- 1. Prioritize vulnerable or environmental justice populations.
- 2. Target areas with the most unknowns.
- 3. Prioritize investigations by the likelihood of finding lead service lines.
- 4. Use field investigations to verify historical records.

Using Field Investigations to Verify Historical Records

The GA EPD highly recommends water systems continue to gather information on service lines materials after service lines have been designated Non-Lead and assess the accuracy of records and investigative techniques through verification. One possible approach:

- 1. Select random set of addresses where service line material has been assigned based on historical records.
- Use one or more of the investigation methods described in the Service Line Identification and Investigation Methods section to identify the service line material for the water system and customer-owned portions.
- Compare field results to historical records. If field and historical records do not match, water systems should reassess the use of the historical records in question and update their inventory accordingly.

Service Line Identification and Investigation Methods

This section details several common methods used to identify and investigate **Lead Status Unknown** service lines. Water systems should consider the method(s) that are best suited to their particular distribution system and community, considering State approval, cost, labor skill requirements, disruption to consumers, overall time, and accuracy. This guide will briefly discuss various methods, requirements, and recommendations by the GA EPD. A more detailed look at these methods can be found in EPA's Guidance for Developing and Maintaining a Service Line Inventory.

Historical Documentation

As discussed in the previous section, historical documentation such as municipal codes, construction records, service line records such as material and line diameter, and replacement records can be a major tool for identifying service line materials. The GA EPD highly recommends water systems continue to gather information on service lines materials after service lines have been classified as Non-Lead and assess the accuracy through verification.

Interviews

Interviews with experienced system staff and water professionals can be used as a tool to identify service line materials. Experienced staff may have relevant knowledge of historical records and events. However, interviews should not be used as a sole source of information for the Initial Service Line Inventory.

Water Systems must be able to provide documentation regarding the basis of material classification for each service line. If interviews were used to assist in identifying service line material classification, water systems must document these interviews. Inclusion of names, credentials, and descriptions are highly recommended. The GA EPD highly recommends a subset of verifications are utilized to confirm any material classification in which an interview was conducted.

Water Quality Sampling

Water quality sampling can be used by water systems to potentially detect the presence of lead and assist in classifying service line as Lead. EPA's Guidance for Developing and Maintaining a Service Line Inventory details 3 water quality sampling protocols.

- 1. **Targeted service line sampling** involves flushing out the volume of water in the premise plumbing and collecting and analyzing a sample taken from the service line.
- 2. **Flushed sampling** involves collecting a sample from the customer's tap after a set flushing time.
- 3. **Sequential sampling** uses a series of consecutive samples collected from an interior tap after a stagnation period.

It is important to note that water quality sampling can be a viable screening method for identifying the **presence of Lead Service Lines but may not reliably detect the absence of Lead Service Lines**. All water quality sampling heavily relies on <u>proper and consistent sampling procedures and establishing a community specific threshold</u> which a water system uses as an indicator for the possible presence of a Lead Service Line.

If water quality sampling is used as an investigative method, water systems must make documentation available to the GA EPD outlining the criteria used to classify services line materials and justification for use. The GA EPD highly recommends trained water system personnel collect each sample and that samples are analyzed by a drinking water laboratory certified by the GA EPD for the analysis of lead.

Predictive Modeling

Predictive modeling looks for patterns in a dataset to develop rules or algorithms. Geostatistical models use attributes from known locations to make inferences about areas of unknown condition. These models are usually built using an initial dataset and can be continually improved upon as more data is added. A key factor in the success of predictive modeling is the use of representative data. Prior to the model being functional, a baseline representative dataset will have to be collected. For predictive modeling to be successful, it must be accompanied by accurate data obtained through previous investigation.

While there is an applicability of predictive modeling for service line inventory development, to date there have been few studies of use and water systems are cautioned to depend heavily on this method of investigation. If predictive modeling is used, water systems must supply documentation to the GA EPD outlining the criteria used to classify service lines and justification for its use, including what confidence threshold is used. The GA EPD highly recommends that verification of predictive modeling data is thoroughly conducted.

Visual Inspection/Customer Identification

Material composition of a service line can be identified through visual inspection. EPA's Guidance for Developing and Maintaining a Service Line Inventory details visual inspection of service lines and identifies several resources water systems can use. Visual inspection can include, but is not limited to visual inspection by customers, water system personnel, and CCTV. The GA EPD highly recommends visual inspections are conducted by trained water system personnel. If visual inspections are completed by customers, the GA EPD recommends customers submit a photograph of their service line to the water system. Water systems are encouraged to review photographs submitted by customers and confirm material classification.

Excavation/Pot-holing

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. EPA's Guidance for Developing and Maintaining a Service Line Inventory details both mechanical excavation and vacuum excavation, each with its own pros and cons.

If a Lead Service Line or Galvanized Requiring Replacement service line is disturbed during the excavation, both EPA and the GA EPD recommend replacing it right away. The customer should also be alerted of the disturbance and be provided with information on how to reduce lead levels, such as flushing.

Emerging Technologies/Other Methods

Service line material identification technology is the subject of ongoing research. If a water system chooses an investigation method not specified by the State under 40 CFR §141.84(a)(3)(iv), State approval is required. If a water system wishes to submit an investigation method for approval, please contact the GA EPD Compliance Unit.



CCR	Consumer Confidence Report
CCTV	Closed-Circuit Television
CFR	Code of Federal Regulations
CWS	Community Water System
DWINSA	Drinking Water Infrastructure Needs Survey and Assessment
EPA	United States Environmental Protection Agency
GA EPD	Georgia Environmental Protection Division
GNRR	Galvanized Not Requiring Replacement
GRR	Galvanized Requiring Replacement
LCR	Lead and Copper Rule
LCRI	Lead and Copper Rule Improvements
LCRR	Lead and Copper Rule Revisions
LSL	Lead Service Line
LSLR	Lead Service Line Replacement
NTNCWS	Non-Transient Non-Community Water System
PWS	Public Water System
PWSID	Public Water System Identification Number
SDWA	Safe Drinking Water Act
SLI	Service Line Inventory
USEPA	United States Environmental Protection Agency



Term	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 free applicable at the time of the replacement. See 40 CFR §141.2 for the full regulatory definition.
Galvanized Not Requiring Replacement (GNRR)	The service line is not made of lead and the system is able to demonstrate that the galvanized line was never downstream of a lead service line.
Galvanized requiring replacement	A galvanized service line that is or was at any time downstream of a lead service line 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 a lead service line, it must presume there was an upstream lead service line (40 CFR §141.84(a)(4)(ii)).
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) (40 CFR §141.2).
Lead service line	A portion of pipe that is made of lead, which connects the water main to the building inlet. A lead service line may be owned by the water system, owned by the property owner, or both. For the purposes of this subpart, a galvanized service line is considered a lead service line if it ever was or is currently downstream of any lead service line or service line of unknown material. If the only lead piping serving the home is a lead gooseneck, pigtail, or connector, and it is not a galvanized service line that is considered a lead service line, the service line is not a lead service line (40 CFR §141.2).
Lead status unknown service line	A service line where the material is not known to be lead, galvanized requiring replacement, or a non-lead service line, such as where there is no documented evidence supporting material classification. It is not necessary to physically verify the material composition (<i>e.g.</i> , copper or plastic) of a service line for its lead status to be identified (<i>e.g.</i> , records demonstrating the service line was installed after a municipal, state, or federal lead ban) (40 CFR §141.2).

Term	Definition
Non-Lead	A service line that is determined through an evidence-based record, method, or technique not to be lead or galvanized requiring replacement (40 CFR § 141.84(a)(4)(iii)).
Non-transient non- community water system	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).
Service line	The pipe connecting the water main to the interior plumbing in a building. 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.
State	State means the agency of the State or Tribal government that has jurisdiction over public water systems. During any period when a State or Tribal government does not have primary enforcement responsibility pursuant to Section 1413 of the Act, the term "State" means the Regional Administrator, U.S. Environmental Protection Agency (40 CFR §141.2).
Water main	A pipe that conveys water to a connector or customer's service line. In residential areas, it is usually located underground.
Water meter	An instrument, mechanical or electronic, used for recording the quantity of water passing through a particular pipeline or outlet.

Source: Taken and Modified from EPA's Guidance for Developing and Maintaining a Service Line Inventory (USEPA, 2022)