

# **Brief of United States Environmental Protection Agency Guidance for Developing and Maintaining a Service Line Inventory and What it Means to Public Water Systems**

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## **ABSTRACT**

The United States Environmental Protection Agency (USEPA) has published Lead and Copper Rule Revisions (LCRR) to the 1991 Lead and Copper Rule (LCR) to better protect children and communities from lead exposure in our nations drinking water. The foundation of this rule requires Community Water Systems (CWSs) and Non-Transient Non-Community Water Systems (NTNCWSs) to develop a comprehensive service line inventory that is continuously updated as new information is gathered and as service lines are replaced (USEPA, 2022). The service line inventory requirement directly correlates and effects how Public Water Systems (PWSs) will achieve compliance with other requirements of the LCRR.

## **INTRODUCTION**

On January 15, 2021, the USEPA published regulatory revisions to the LCR under the Safe Drinking Water Act (SDWA). The LCRR strengthen public health protection by reducing exposure to lead and copper in drinking water by enhancing the requirements of sampling, treatment, service line replacements, and public education (USEPA, 2022). To comply with the requirements of the LCRR, CWSs and NTNCWSs must develop a comprehensive service line inventory by October 16, 2024.

The service line inventory requirement of the LCRR provides the foundation to the rule and shapes how individual PWSs will strategize their approach in achieving compliance with other aspects of the regulation, such as: Customer Notification, Public Education, Lead Service Line Replacements (LSLRs), Corrosion Control Treatment (CCT), Tap Sampling and Monitoring.

The LCRR, effective on December 16, 2021, requires CWSs and NTNCWSs to achieve compliance with the LCRR requirements by October 16, 2024. The USEPA intends to provide additional revisions to the LCRR by the October 16, 2024, compliance date, known as the Lead and Copper Rule Improvements (LCRI). However, USEPA does not expect to revise the requirements of the initial service line inventory (USEPA, 2022), as identifying and replacing Lead Service Lines (LSLs) is an integral part to equitably improving public health protection.

## **DISCUSSION**

The LCRR requires CWSs and NTNCWSs to develop a publicly available service line inventory that includes material classifications (Lead, Galvanized Requiring Replacement (GRR), Non-Lead, or Lead status unknown) of all service lines connected to a public water distribution system (40 CFR §141.84(a)(2)). This inventory must define service line

ownership, and where dual ownership applies, materials must be defined on both the PWS and customer portion of the line to accurately provide a single classification per service line (USEPA, 2022).

Under the LCRR, a LSL is defined as “a portion of pipe that is made of lead, which connects the water main to the building inlet” (40 CFR §141.2). If a lead gooseneck, pigtail, or connector is the only portion of the service line that is lead, the service line is not considered a LSL. The USEPA strongly recommends tracking the material of all components of the service line, such as goosenecks, pigtails, and connectors (USEPA, 2022). A service line is considered to be GRR if it is or ever was downstream of a LSL. If the PWS is unable to prove the galvanized line was never downstream of a LSL, the line must be presumed to be GRR (40 CFR §141.84(a)(4)(ii)). If through evidence-based record, method, or technique a service line is classified as a material other than lead (i.e., copper, plastic, or galvanized never downstream of a LSL), the service line is considered to be Non-Lead (40 CFR §141.84(a)(4)(iii)). A service line is Lead Status Unknown, or Unknown, if the line material is not known to be Lead, GRR, or Non-Lead n (40 CFR §141.84(a)(4)(iv)).

All service lines that are classified as Lead or GRR must include a location identifier in the publicly available inventory. A PWS that serves more than 50,000 people is required to make their inventory publicly available online (§141.84(a)(8)). While the LCRR does not require publicly available inventories to include specific addresses, PWS are required to create and maintain an inventory that includes the exact address associated with the service line (40 CFR §141.84(a)). USEPA strongly recommends PWSs include location identifiers for all service lines regardless of material classification, preferably the exact street address to provide customers with the most accurate and informative information (USEPA, 2022)

According to the USEPA (2022), additional recommended components of the LCRR service line inventory includes sources of information, pipe diameter, installation/replacement dates, subclassifications, lead solder, and fitting and equipment connected to the service line. Including the source of information used to classify a service line allows systems to assess the reliability of records and confidence in individual service line classifications. Pipe diameter helps determine service line classifications, specifically the likelihood of LSLs, as majority of LSLs are 2 inches or less in diameter. Similarly, service line installation or replacement dates are useful assets in assessing potential LSLs, as lead was banned in 1986 at the federal level, and even earlier in some states and local municipalities. Recommended subclassifications to the service line inventory includes the LSL likelihood for unknown lines, whether GRR lines are known or unknown to be downstream of a LSL, and the actual material of Non-Lead lines. Like goosenecks, pigtails, and connectors, the USEPA encourages PWSs to track the presence of lead solder on service lines and internal plumbing, when possible, as lead solder is a potential source to lead in drinking water, although not considered a LSL in itself. Fittings and equipment connected to the service line, such as meters and curb stops, could also contribute to lead exposure, therefore materials should be tracked when possible.

The LCRR service line inventory is meant to act as a living dataset that is continuously updated as new information is gathered and as LSLs are replaced (USEPA, 2022). The initial inventory is required to be submitted to the primacy agency by October 16, 2024 (§141.80(a)(3)). Within 30 days of completing the initial inventory PWSs are required to provide notice to individuals served by a LSL, GRR, or unknown service line. This notification must be completed on an annual basis until the service line is classified as Non-Lead (40 CFR § 141.85(e)). Following the initial inventory, PWSs are required to submit an updated inventory on the same schedule as the systems tap monitoring, but no more frequently than annually (40 CFR 141.90(e)(3)). This requirement may be revised with the LCRI (USEPA, 2022).

For the initial service line inventory, as referenced by USEPA (2022), PWSs must review historical records as specified by the LCRR. Existing records and the accuracy of the information will vary greatly by system and depending on the system type and characteristics, different records may be prioritized over others. Historical records required to be reviewed for the initial inventory includes previous material evaluations, construction and plumbing codes/permits, water system records, distribution system inspection records, and any other state required method. Previous material evaluations, under 40 CFR §141.42(d), required PWSs to identify certain construction materials present in the distribution system, such as lead and galvanized steel, while the 1991 LCR required material evaluations to be used in identify targeted sampling sites, such as homes served by LSLs. Construction and plumbing codes may indicate when lead or lead containing pipe was prohibited from use or other ordinances relevant to LSLs. Plumbing permits, if required, may provide service line installation or replacement dates, as well as service line material. Other records, such as tax records, may provide building construction dates which can be cross referenced to determine the likelihood of a LSL or GRR line. Water system records to be reviewed for the initial service line inventory include distribution system maps and drawings, historical records on service line connections, meter installation records, historical capital improvement plans, standard operating procedures, and distribution inspection records.

PWSs are also required to identify and track information on service line material as they are encountered during normal operations (40 CFR §141.84(a)(5)). Normal operation activities include but are not limited to water meter reading, repair, or replacement, service line repair or replacement, water main repair or replacement, backflow prevention inspections, or other street repair or capital projects with excavations (USEPA, 2022).

Investigative methods, described by USEPA (2022), are expected to be used to verify the accuracy of historical records and allow PWSs to update their inventory accordingly. As outlined in the LCRR, investigative methods include, visual inspections, excavation, water quality sampling, predictive modeling, and emerging methods. However, PWSs should check with their State's Regulatory Agency before completing any investigative method, as some methods, such as water quality sampling, predictive modeling, and emerging methods, may require State approval.

It is of the benefit to PWSs to thoroughly review historical records, capture service line materials during normal operations, and verify the accuracy of service line classifications through investigative methods, as the service line inventory lays the foundation to other requirements of the LCRR. Specifically, the revised monitoring requirements of the LCRR changes the tier structure under the current LCR, prioritizing LSLs over copper pipes with lead solder. PWSs will be required to update their sampling pools with the information contained in their service line inventory. Systems will need to evaluate the likelihood of exceeding the lead action level (AL) of 15 ppb or the lead trigger level (TL) of 10 ppb, established under the LCRR and subject to change under the LCRI. In assessing the likelihood of exceeding a lead AL or TL, the effectiveness of a systems CCT, if applicable, needs to be understood, as well as how systems will install or reoptimize CCT in the event of an exceedance. Most importantly, the service line inventory will shape how PWSs strategize LSL replacements.

## **CONCLUSIONS**

For CWSs and NTNCWSs to achieve compliance with the LCRR it is imperative that the requirements of the LCRR are reviewed and PWSs strategize a plan by the October 16, 2024, compliance date. Most importantly, CWSs and NTNCWSs, if not done so already, need to begin to review historical records, implement service line classifications into normal operations, and investigate the accuracy of service line materials, to generate a comprehensive service line inventory. Systems that have a thorough and accurate inventory will be able to better prepare and strategize for the other requirements of the LCRR.

It is highly recommended that PWSs required to prepare a service line inventory include as much detail on the service line as possible, not just the minimum required information. The more detail provided the more likely systems are to accurately classify a service line and spot discrepancies in records.

While the USEPA does intend to issue LCRI to the current LCRR, PWSs should not wait to strategize and plan for the upcoming requirements. The USEPA does not intend to change the requirements of the initial service line inventory due to the primacy agency by October 16, 2024. Although other requirements of the LCRR are subject to change, extensive changes are unlikely, and PWSs should develop a plan to meet the compliance requirements of the current LCRR and adjust that plan as needed once the USEPA issues the LCRI.

CWSs and NTNCWs should thoroughly review the requirements of the LCRR and assess how those requirements relate to their system. When planning for the LCRR, PWSs should consider key stakeholders, funding opportunities, and the staff and resources needed to achieve compliance with the LCRR.

The USEPA LCRR is one of the largest regulatory revisions many PWS stakeholders have seen to date. Achieving compliance with these revisions will by no means be an easy task. However, PWSs have over 3 years to prepare for these regulatory changes and PWSs are highly advised to begin preparing, strategizing, and implementing the requirements of the LCRR now.

## **REFERENCES**

USEPA. (2022). *Guidance for Developing and Maintaining a Service Line Inventory*.

USEPA. 2021. National Primary Drinking Water Regulations: Lead and Copper Rule Revisions; Final Rule. *Federal Register* 86(10): 4198. January 15, 2021. Washington, D.C.: Government Printing Office.