EPA Lead and Copper Rule Revisions

LSL Inventory Compliance

Georgia Association of Water Professionals

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Acknowledgements

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LSL Inventory: How It May Affect You

On October 10, 2019 the EPA released the much-anticipated proposed Lead and Copper Rule Revisions (LCRR). These proposed revisions mark the first major revisions to the Lead and Copper Rule since its original release in 1991. While the final LCRR continues to be reviewed by the Biden administration, the proposed changes to the rule are focused on six major areas:

1. Identifying areas most impacted
2. Strengthening drinking water requirements
3. Replacing lead service lines
4. Increasing drinking water sampling reliability
5. Improving risk communication to customers
6. Better protecting children in schools and daycare facilities

Though the timeline is not yet finalized, the figure below summarizes what is currently anticipated based on the latest EPA action in mid-2021 following the change in administration:
The one thing that we know for certain is that within three years of the effective date, utilities must identify areas most impacted by lead within their respective water systems. To do this, the first step is to create a lead service line (LSL) inventory.
Identifying Areas Impacted: LSL Inventory

One of the most daunting and time-consuming compliance challenges for many utilities will be the potential replacement of LSLs, if required based upon compliance sampling. Yet, prior to this effort, all water systems must first identify the location of LSLs within their service area. Service line materials must be identified on both the customer and utility side of the meter for the entirety of a water system’s service area. The figure below provides an example of typical ownership of service lines for a customer with a lead gooseneck on their service.

![Diagram of water system with labels for different service lines]
Achieving 100-percent certainty of all service line materials is difficult; however, there are several strategies that may facilitate compliance prior to the deadline. Let’s start with the basics.

**Q: WHAT is an LSL inventory?**

**A:** An inventory must be created by each utility that identifies all service line materials and locations within the distribution system. All service lines, regardless of ownership, must be classified in one of the following categories: LSL, galvanized requiring replacement, lead status unknown, or non-LSL. Definitions of each category are provided below.

<table>
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<th>LSL: Service lines constructed of lead materials</th>
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<td>Galvanized Requiring Replacement: Galvanized service lines that are or were downstream of an LSL</td>
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<tr>
<td>Lead Status Unknown: Service lines that are unidentified materials</td>
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<tr>
<td>Non-LSL: Service lines made of materials such as plastic and copper. The material does not need to be identified</td>
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Pipe materials classified as lead status unknown will be considered as lead if the 90th percentile level of samples collected from the system exceeds the action or trigger level. The 90th percentile samples are the top 10% of highest lead concentrations within a sample set. The 90th percentile concentration is the concentration at which the top 10% of sample concentrations all exceed. The action or trigger level exceedance of these samples will result in utilities having to comply with the mandated replacement rate of service lines (currently 3% per year for action level exceedances but could be subject to change).

Although it was considered, the final rule does not require an investigation or inventory of the materials connecting the service lines to their mains (e.g., pigtails, whips, goosenecks, etc.), but the EPA still recommends reviewing connector material during the initial records search and documenting the material if available. Connectors are not considered part of the service line and are thus treated separately under the rule.

Instead, the rule addresses the presence of lead connectors by requiring replacement of system-owned lead connectors any time they are encountered while conducting other maintenance and replacement activities and offer to replace a customer-owned connector at no cost to the system (cost passed onto customer).

Galvanized lines requiring replacement include galvanized service lines that are currently downstream of a lead status unknown service line. If a utility is unable to demonstrate that the galvanized service line was never downstream of a lead service line it must presume the upstream was lead. ¹

The final rule also requires that the inventory be publicly accessible and should be provided online for water systems serving at least 50,000 persons. This inventory must include a location
identifier for known and possible LSLs and galvanized requiring replacement service lines, but it is at the discretion of the water system to determine which location identifier best meets the needs of its own community.

**Q: WHO is required to conduct an LSL inventory?**

**A:** All water systems, regardless of size or other water system characteristics, must develop an inventory to identify the materials of service lines connected to the public water distribution system.

Was your utility’s infrastructure built after the lead ban in 1986 AND all customer-owned services can be identified as non-lead? If so, water systems with only non-LSLs are still required to conduct an initial inventory. These systems are not required to provide updates to the state or public and may fulfill the requirement to make the inventory publicly accessible with a statement that there are no known or possible LSLs or galvanized requiring replacement services, along with a general description of the methods used to make that determination.

**Q: WHEN does the LSL inventory need to be complete?**

**A:** The initial inventory must be available to the public within three years of the rule effective date and must be submitted to the primacy agency (Georgia EPD) in accordance with the reporting requirements outlined in the rule. The current compliance deadline is **October 16, 2024**. Utilities should consider starting as soon as possible, as reviewing and compiling data is a high effort, time consuming task.

**Q: HOW do we get started?**

**A:** If you’re wondering how to even do this – you are not alone. Each utility must go back in time and review as much of their quantified distribution system asset history as possible. Many utilities will be left trying to figure out the material of an asset they cannot see and likely have incomplete records on. These utilities will have to take a more strategic approach and ask questions such as “When were these service line connections made to our system?”, “Where have we historically had lead exceedances?” and “Where has lead been identified during main work?” The next section outlines seven strategies that may be used to classify services lines within a utility’s distribution system.

**Strategies for Classifying Service Lines**

For a utility, determining service line materials is not a straightforward task, as many service lines are old or have been modified over time by the utility or customer. Some utilities have proactively begun to implement one or more of the following seven strategies to classify services lines as LSL, galvanized requiring replacement, lead status unknown, or non-LSL.
<table>
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<th>STRATEGIES TO CLASSIFY SERVICE LINES</th>
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| **Water System Data**              | • Fully understand what’s stored in the utility’s records.  
• Review GIS, customer service databases, maintenance records and stop cards and tap cards. |
| **Date of Installation**           | • Review service line construction dates for specific time frames when lead was primarily used.  
  » Pre 1930s – assume lead  
  » 1930s to 1980s – investigate further  
  » Post 1988 mains – assume non-LSL |
| **Public Records Review**          | • Partner with local plumbers, building/inspection departments, or similar entities, to access their records and industry knowledge.  
• Review historical permits, plumbing codes, and local building codes. |
| **Service Line Diameter**          | • If available, the utility can use information on the size of its service lines to classify material.  
• LSLs are almost always < 2 inches in diameter.  
• Any service line > 2 inches in diameter can typically be assumed to be non-LSL. |
| **Customer Obtained Data**         | • Reach out to the public and provide simple instructions to customers to collect and send data that can be used to classify a service line.  
• Be sure to assess and check the received data for accuracy. |
| **Water System Operations Data**   | • Review daily utility activities to see if standard operating procedures can help obtain service line information.  
• Implement procedural changes to standard operating procedures and maintenance activities to collect service line data. |
| **LSL Focused Excavations**        | • Perform excavations on the utility and customer side of the water meter and conduct tests to confirm service line material.  
• This strategy is the most expensive but yields the best data. Most utilities only conduct excavations when other data is unavailable. |
LSL Inventory: Achieving Compliance

For many utilities, the task of beginning the LSL inventory can be very daunting but to begin this task utilities must assess gaps in their record information as outlined in the flow chart to the right. The development of the inventory will be an iterative and continuous process as more field information becomes available and more service line materials are known.

It may take years of regular data collection to develop a high-confidence inventory of service line material. Developing a standard operating procedure for typical utility operations that includes data collection and documentation (i.e., photos) when performing normal utility activities, such as repairing a water main or a service line, will produce a high-confidence inventory while holding costs down. However, it should be noted no utility will ever know with absolute certainty all the service line materials in their system, and that is absolutely acceptable.

The implementation of the seven strategies previously discussed, while channeling your inner Sherlock Holmes, can be very effective in allowing utilities to comply with the LCRR within the three-year compliance window. Still, when the compliance deadline arrives, this won’t be the last utilities should expect to see of the LSL inventory.

The LSL inventory must be updated annually or triennially based on utility tap sampling frequency for LCRR compliance. Given the extensive effort that will be required to complete the service line inventory, utilities need to craft their strategy and begin this work as soon as possible while remaining informed and staying on the lookout for any future legislation that may impact compliance deadlines or funding.
Next Steps: Lead Service Line Replacement Plan

Three years may seem like all the time in the world for utilities to create their LSL inventories, however, it is important to not underestimate all the unknowns – lead status unknowns that is. The level of detail included within the LSL inventory will be heavily dictated by the utility’s risk tolerance. A utility may choose not to investigate any services and classify these as “lead status unknown”. However, this approach will largely impact the level of effort required for lead service line replacement in the event of a trigger or action level exceedance. To guide these efforts, the LCRR requires systems with LSLs, galvanized requiring replacement or lead status unknown services lines to develop and submit a Lead Service Line Replacement (LSLR) plan to Georgia EPD for approval by the rule compliance deadline.

The LSLR plan is to include the following:

- Procedures to conduct full LSLR
- Strategy for informing customers before a full or partial LSLR
- For systems serving more than 10,000 persons, a goal-based LSLR rate must be established to be implemented in the event of a lead trigger level exceedance of the 90th percentile level of samples.
  - Annual LSLR rate is based on the number of LSLs and galvanized requiring replacement service lines when the system first exceeds the trigger or action level, plus the current number of lead status unknown service lines.
  - LCRR establishes the mandatory LSLR rate of 3% per year in event of an action level exceedance in 90th percentile level of samples.
  - Utilities should work with the Georgia EPD to determine a goal-based LSLR rate for a trigger level exceedance.
- A procedure for customers to flush service lines and premise plumbing of particulate lead
- A LSLR prioritization strategy based on factors including but limited to:
  - Targeting known LSLs
  - LSLR for disadvantaged consumers and populations most sensitive to the effects of lead
  - Funding strategy to facilitate customer side LSL replacement for underserved communities.
Utilities should work closely with Georgia EPD when tackling lead service line replacement as well as engage with the local community and stakeholders. Although utilities are required to include privately owned services in the LSL inventory there is no obligation for the water system to pay for the replacement of customer owned LSL’s. A utility is required to replace the utility owned portion of an LSL within 45 days following notification of a customer-initiated LSL replacement. The EPA encourages the creation of financial assistance programs to support customers who are unable to pay for the customer owner LSLR.

Closing Thoughts

The LCRR is very complex with many facets that can be confusing or overwhelming and make compliance seem like a real challenge. It is important to keep in mind that the rule is still being evaluated for further revisions and therefore, this document is for informational purposes only and utilities should stay up to date on any further clarifications and revisions issued by the EPA/GA EPD including additional guidance documents. To make sure your utility complies by the deadline it is best to get started now, 2024 will be here before we know it!

Sources: