

EPA's Final Lead and Copper Rule Improvements

Technical Fact Sheet: States and Public Water Systems

October 2024

EPA is finalizing the Lead and Copper Rule Improvements (LCRI) to significantly reduce exposure to lead in drinking water. The final rule builds on the 2021 Lead and Copper Rule Revisions (LCRR), which modified the previous Lead and Copper Rule (LCR). The final LCRI strengthens five main focus areas: achieving lead pipe replacement within 10 years, locating legacy lead pipes, improving tap sampling, lowering the lead action level, and strengthening protections to reduce lead exposure. Key improvements in each of these five main focus areas are described below.

1. Achieving Lead Pipe Replacements within 10 Years

Where lead service lines (LSLs) are present, they represent the greatest lead exposure source in drinking water. EPA is requiring water systems to conduct full replacement of all lead and galvanized requiring replacement (GRR) service lines that are under the control of the water system in 10 years or less, with limited exceptions, regardless of the water system's 90th percentile lead level. The final rule also:

- Requires States to set shorter deadlines for individual water systems where the State determines that it is feasible (e.g., by taking into account the number of lead and GRR service lines in a system's inventory).
- Provides deferred deadlines for water systems with a high proportion of known lead and GRR service lines in their system (unless the State determines that the 10-year deadline or a shorter deadline is feasible).
- Prohibits water systems from conducting partial lead or GRR service line replacement unless it is conducted as part of an emergency repair or in coordination with planned infrastructure work that impacts service lines. Planned infrastructure work excludes work solely for lead or GRR service line replacement. In the event of a partial replacement of a lead or GRR service line, the rule requires water systems to take additional protective measures, including public education and risk mitigation activities.
- Requires water systems to provide pitcher filters or point-of-use (POU) devices that are certified to reduce lead following replacement of lead and GRR service lines and additional types of disturbances to lead, GRR, and unknown service lines. Examples of service line disturbances include replacement of a connector, inline water meter, or water meter setter and disturbances that may be caused during inventorying efforts.

Galvanized Requiring Replacement: A GRR service line is a galvanized service line that currently is or ever was downstream of an LSL or is currently downstream of a service line of unknown material.

Control: A service line is under the control of the water system wherever it has access (e.g., legal access, physical access) to conduct full service line replacement.

2. Locating Legacy Lead Pipes

Knowing where lead pipes are located is critical to replacing them efficiently and equitably and informing consumers, so they can take actions to reduce their exposure to lead. The LCRI builds upon the 2021 LCRR's requirement for water systems to create an initial inventory and to regularly update this inventory.

Service Line Inventory

The final LCRI incorporates the 2021 LCRR requirement for systems to develop an initial service line inventory by October 16, 2024, and also requires water systems to:

- Develop an updated initial service line inventory, called the LCRI baseline inventory, that includes updated service line information and connectors. The baseline inventory is due by November 1, 2027.
- Review specific sources of information for connector materials and include the locations of the identified connectors in the LCRI baseline inventory.
- Validate the accuracy of the non-lead service line category in the inventory.
- Notify customers and persons served by a service line that is known to or may potentially contain lead (lead, GRR, or lead status unknown service lines).
- Annually update the inventory, submit the updates to the State, and include the following:
 - The total number of lead, GRR, non-lead, and unknown service lines; the total number of lead connectors and connectors of unknown material; and the total number of lead and GRR service lines fully and partially replaced in each preceding year.
- Make the inventory publicly accessible and include the following:
 - A street address associated with each service line and connector or a unique locational identifier (e.g., block, GPS coordinates, intersection, or landmark) if a street address is not available.
- Identify the material of all unknown service lines by the replacement deadline.

Water systems serving more than 50,000 persons must make the publicly accessible inventory available online.

Expanded Service Line Replacement Plan Requirements

The final LCRI requires water systems to:

- Include the following elements in the service line replacement plan: 1) strategy for identifying unknown service lines; 2) standard operating procedure for full service line replacement; 3) communication strategy to inform consumers and customers before full or partial replacement; 4) procedure for consumers and customers to flush service lines and premise plumbing; 5) strategy to prioritize replacements based on (but not limited to) known lead and GRR service lines and community-specific factors such as disproportionately impacted and/or sensitive populations; 6) funding strategy; 7) communication strategy to inform residential and non-residential consumers and customers about the replacement plan and program; and 8) identification of any State and local laws and water tariff agreements that affect the water system's ability to gain access to conduct full service line replacement.
- For systems that identify any lead-lined galvanized service lines in the inventory, the plan must include a strategy to determine the extent of the use of these lines in the distribution system and categorize them accordingly.

- For systems that are eligible for and plan to use a deferred deadline, the plan must include documentation that the systems meet the eligibility criterion and that the deferred deadline and associated replacement rate are the fastest feasible.
- Submit a service line replacement plan to the State by November 1, 2027 and update it periodically with new or updated information.
- Make the service line replacement plan publicly accessible. For water systems serving more than 50,000 people, post it online.

3. Improving Tap Sampling

The final LCRI makes key changes to the required protocol for tap sampling informed by best practices already being deployed at the State and local levels. The rule also revises the requirements for how frequently systems must conduct tap sampling and requires systems to submit a tap sampling plan to the State.

Sampling Protocol

The final LCRI:

- Prioritizes collecting samples from sites served by LSLs. All samples must be collected from sites served by LSLs and/or premise plumbing made of lead, if available.
- Modifies the tiering criteria that indicates where tap samples must be collected to include LSLs and premise plumbing made of lead (where known) in the highest priority Tier 1 and Tier 2 sites. Also, revises the Tier 3 criteria to include sites served by a lead connector and sites served by a galvanized service line or containing galvanized premise plumbing identified as ever having been downstream of an LSL.
- Requires water systems with LSLs to collect an additional fifth-liter sample at the same time as the first-liter sample (i.e., first-and-fifth-liter-paired sample) for lead at LSL sites and use the higher of the two values to calculate the 90th percentile lead level.
- Specifies which samples must be included in the 90th percentile calculation.
- Requires water systems to provide sampling instructions that do not include recommendations for aerator cleaning/removal and pre-stagnation flushing prior to sample collection.
- Requires the use of a wide-mouth bottle that is defined as having a mouth with an inner diameter of at least 40 millimeters.

Sampling Frequency

The final LCRI does not modify the minimum required number of samples but revises the monitoring schedule:

- Water systems with lead and/or GRR service lines must conduct standard six-month monitoring beginning January 1, 2028. Water systems that meet the requirements of the LCRI tap sampling protocols, such as the lower action level, prior to November 1, 2027 can remain on their existing sampling schedule.
- Water systems can qualify for annual monitoring if they do not exceed the lead action level of 0.010 mg/L or copper action level of 1.3 mg/L for two consecutive six-month tap monitoring periods after November 1, 2027. When conducting annual monitoring, systems must sample for lead at the **standard number of sites** and for copper at the **reduced number of sites**.

- Water systems can qualify for triennial monitoring at the **reduced number of sites** for both lead and copper if they serve:
 - 50,000 or fewer people and their 90th percentile levels do not exceed the lead action level of 0.010 mg/L or copper action level of 1.3 mg/L for three consecutive years of sampling.
 - Water systems serving any number of people and their 90th percentile levels do not exceed the lead practical quantitation limit (PQL) of 0.005 mg/L and copper PQL of 0.65 mg/L for two consecutive tap monitoring periods.

Sampling Plan

By the start of the first lead and copper tap monitoring period, all water systems must submit a site sample plan to the State. The plan must include:

- A pool of tap sampling sites from the highest tier(s) based on the materials of service lines and connectors in their service line inventory.
- A list of water quality parameter entry point and distribution sampling locations.

90th Percentile Calculation

The final LCRI updates how systems must calculate the 90th percentile for lead and copper. For most systems, the LCRI requires water systems to include all samples from sites that meet the prioritized site tiering criteria and compliance sampling protocol.

The final LCRI simplifies and streamlines the calculation for systems with insufficient Tier 1 and Tier 2 sites:

- Samples from Tiers 1, 2, and the next highest tier(s) (sufficient to supply enough sites to meet the minimum number of samples required) are eligible. Only when Tier 3 sites are exhausted can systems include samples from Tier 4, and only when Tier 4 is exhausted can systems include samples from Tier 5.
- The 90th percentile level is calculated using the highest results from the eligible samples, equal to the minimum number of samples required.

4. Lowering the Lead Action Level

The final LCRI streamlines and simplifies the rule requirements by eliminating the lead trigger level of 0.010 mg/L and lowering the lead action level from 0.015 mg/L to 0.010 mg/L. When a water system exceeds the lead action level, it is required to:

- Conduct Tier 1 Public Notification within 24 hours to inform the public,
- Take actions associated with corrosion control treatment (CCT), and
- Employ public education measures to reduce lead exposure.

5. Strengthening Protections to Reduce Exposure

The final LCRI requires water systems with continually high lead levels to conduct additional outreach to consumers and make filters certified to reduce lead in drinking water available to all consumers.

Actions When a System Has Multiple Lead Action Level Exceedances

The final LCRI requires:

Systems with **three action level exceedances** in a rolling five-year period must conduct public education activities and make filters available to consumers. After two action level exceedances in five years, water systems must submit a filter plan to the State within 60 days of the second action level exceedance. The filter plan:

The first rolling five-year period ends five years after November 1, 2027 followed by assessments every six months thereafter.

- Must describe how the water system will make filters and replacement cartridges available (e.g., operating distribution facilities, delivering filters when requested) and address any barriers to consumers obtaining filters.
- Does not need to be resubmitted unless there are updates or requested by the State.
- Must be approved by the State within 60 days.

Water systems that exceed the lead action level **three times** during a rolling five-year period:

- According to their filter plan, must make available pitcher filters or point-of-use devices certified by an American National Standards Institute (ANSI) accredited certifier to reduce lead to all consumers and make available six months of replacement cartridges and user instructions.
 - Must be in place within 60 days after the tap monitoring period in which the water system exceeded the lead action level for the third time.
 - Must continue to make replacement cartridges available until the water system meets the criteria to discontinue described below.
- Must conduct at least one community outreach activity in addition to the outreach required when a water system has a single lead action level exceedance.
 - Can choose from: 1) public meeting; 2) participation in a community event; 3) customer contact via phone call or voice message, text message, email, or door hanger; 4) social media campaign; or 5) other State approved method.
 - Chosen activity must be conducted within six months of the start of the tap monitoring period after the most recent lead action level exceedance.
 - A community outreach activity is required every six months until the water system meets the criteria to discontinue described below.
- Can discontinue filter and public education requirements:
 - When the water system no longer has three lead action levels exceedances in a five-year period, or
 - At the States discretion if the water system no longer exceeds the lead action level for two consecutive tap monitoring periods and has taken actions to reduce lead levels (e.g., re-optimized CCT, completed lead service line replacement).

Improved Accessibility and Information about Lead

The final LCRI:

- Improves requirements for accessibility of public education and outreach materials to consumers including renters and for communities with a large proportion of individuals with limited English proficiency.
- Requires all public education and outreach materials to include improved and simplified lead health effects language so that it is easier for consumers to understand. The revised language would begin with a statement that there is no safe level of lead in drinking water.
- Adds language to highlight risks to pregnant people, infants (both formula-fed and breastfed), and young children.
- Requires additional information in all public education materials about steps that consumers can take to reduce their exposure to lead in drinking water (e.g., using a filter certified to reduce lead, cleaning faucet aerators).

Enhanced Service Line-Related Outreach

The final LCRI:

- Requires additional outreach activities for water systems that do not meet their service line replacement rate.
- Requires annual notification to customers and persons served by a lead, GRR, or unknown service line. Adds instructions for how consumers can notify the water system if they think the material classification is incorrect and a statement that the consumer can request to have their tap water sampled for lead.
- Requires water systems that cause a disturbance to a lead, GRR, or unknown service line to notify persons at the service connection and provide them with 1) information to reduce their exposure, including instructions for a flushing procedure to remove particulate lead; and, for some disturbances, 2) a pitcher filter or POU device certified to reduce lead and replacement cartridges to last six months. Clarifies that service line disturbances could also result from physical action or vibration. Clarifies that notification must be delivered within 24 hours of the disturbance if the service line was not shut off or bypassed.

Better Informing Consumers of Tap Sample Results

The final LCRI:

- Requires all notices of lead and copper tap sampling results to be delivered to consumers served at the sampled tap within 3 business days after the system learns of the results, regardless of the lead or copper concentration. Applies to samples from compliance monitoring and supplemental monitoring (e.g., sampling requested by consumers).
- Requires water systems to deliver the consumer notice of tap sample results either electronically (e.g., email or text message), by phone call or voice message, hand delivery, by mail (postmarked within 3 days of the system learning of the results), or by another method approved by the State. Notices by phone call or voice message must have a written follow-up notice within 30 days of the system learning of the results.

Improved Public Education Following a Lead Action Level Exceedance

The final LCRI:

- Requires delivery of public education materials to every service connection address, in addition to the bill-paying customer, so that consumers such as renters are informed of the exceedance and steps they can take to reduce their risk of exposure to lead in drinking water.
- Requires community water systems (CWSs) serving a population greater than 50,000 persons (lowered from 100,000) to post the public education materials online to increase consumer accessibility.
- Improves the timeframe of public education after a lead action level exceedance by requiring water systems to conduct public education activities within 60 days after the end of every tap sampling period until the system no longer exceeds the lead action level.
- Expands public education requirements for water systems with LSLs to systems with lead, GRR, and/or unknown service lines. Includes specific content requirements.
- Retains the 2021 public notification requirement for water systems to provide 24-hour Tier 1 public notification after exceeding the lead action level of 0.015 mg/L, starting October 16, 2024. Beginning on November 1, 2027, Tier 1 public notification is triggered by the revised lead action level of 0.010 mg/L.

Revised Consumer Confidence Report Information

The final LCRI:

- Revises the Consumer Confidence Report Rule requirements to:
 - Include an updated informational statement about lead to improve risk communication, updated lead health effects language, information about the requirement for systems to sample in schools and child care facilities, and how to access the water system's service line replacement plan.

Additional Resources

EPA has developed additional fact sheets and frequently asked questions on the final LCRI that are available on EPA's website at <https://www.epa.gov/dwreginfo/lead-and-copper-rule-improvements-supporting-materials>.

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