

EPA's Final Lead and Copper Rule Improvements Frequently Asked Questions for States and Public Water Systems October 2024

1. Why is EPA finalizing the Lead and Copper Rule Improvements (LCRI)?

EPA finalized the Lead and Copper Rule Improvements (LCRI) to strengthen nationwide requirements to protect children and adults from lead in drinking water. There is no known safe level of lead in drinking water. Exposure to drinking water contaminated with lead can cause serious human health impacts, including neurodevelopmental problems in children and heart disease in adults. Reducing lead in drinking water will reduce the risk of negative neurodevelopmental outcomes for children as well as reduce a range of health risks to adults. This final rule builds on the 2021 Lead and Copper Rule Revisions (LCRR) and the pre-2021 Lead and Copper Rule (LCR), originally promulgated in 1991.

2. What are the key provisions of the final LCRI?

Achieving lead pipe replacement within 10 years: EPA is requiring water systems to replace lead service lines (LSLs) and galvanized requiring replacement (GRR) (see [Question 5](#)) 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.

Locating legacy lead pipes: The LCRI builds upon the 2021 LCRR's requirement for water systems to create a service line inventory, to regularly update the inventory, and to identify the material of all service lines by the mandatory service line replacement deadline. Under the final LCRI, all water systems are required to make their service line inventories publicly accessible and to provide an annual notification to persons served by lead GRR, and lead status unknown service lines. Water systems must use a validation process to ensure the service line inventory is accurate. Water systems are also required to track lead connectors in their inventories and replace them as they are encountered.

Improving tap sampling: EPA is updating the tap sampling protocol to require systems to collect first-liter and fifth-liter samples at sites with LSLs and to use the higher of the two results for determining the 90th percentile lead levels.

Lowering the lead action level: EPA is lowering the lead action level to 0.010 mg/L and eliminating the lead trigger level to simplify the rule. The lower action level will require water systems to take actions sooner to reduce drinking water lead exposure through corrosion control treatment (CCT) and public education. The action level will no longer be used to determine whether a water system must replace LSLs.

Strengthening protections to reduce exposure: EPA is requiring water systems with multiple exceedances of the lead action level to conduct additional outreach to consumers and make filters that are certified to reduce lead in drinking water available to all consumers, as detailed in [Question 16](#).

3. Which systems does the final LCRI apply to?

The final LCRI applies to community water systems (CWSs) and non-transient non-community water systems (NTNCWSs). It does not apply to transient non-community water systems (TNCWSs).

4. What are the final service line inventory requirements?

Water systems must update the initial service line inventory prepared for the 2021 LCRR to create the LCRI baseline inventory, which is due by November 1, 2027. EPA is not changing the 2021 LCRR requirement for water systems to develop the initial inventory, make it publicly accessible, and submit it to the primacy agency by October 16, 2024. Those requirements are also incorporated into the final LCRI. The final LCRI also requires water systems to review specific sources for information on connector materials and include these identified connector materials and locations in the LCRI baseline inventory. In addition, the final rule requires water systems to:

- Update their inventory annually,
- Use a validation process to ensure the service line inventory is accurate, and
- Identify all service lines of unknown material by the replacement deadline.

5. What are the final requirements for replacing lead and GRR service lines?

Where LSLs are present, they represent the greatest source of exposure to lead in drinking water. EPA is requiring mandatory full service line replacement of all lead and GRR service lines under a water system's control, regardless of the system's 90th percentile lead level. The LCRI sets a national minimum service line replacement rate of at least 10 percent. The replacement rate is assessed as a cumulative average, equating to a 10-year replacement deadline. In addition, States must require systems to replace service lines by an earlier deadline if they determine that it is feasible. The final LCRI provides, in limited circumstances, additional time for some systems to complete systemwide full service line replacement (see [Question 9](#)). Water systems must also replace lead connectors as they are encountered (see [Question 12](#)).

6. What are “galvanized requiring replacement” (GRR) service lines and why is EPA requiring water systems to replace them?

A galvanized service line is iron or steel piping that has been dipped in zinc to prevent corrosion and rusting. A GRR service line is a galvanized service line that: 1) is currently or ever was downstream of an LSL; 2) is currently downstream of a lead status unknown service line; or 3) the water system is unable to demonstrate was never downstream of an LSL. “Downstream” means in the direction of flow through the service line.

EPA is requiring mandatory full service line replacement of all GRR service lines because they can adsorb upstream lead particulates and contribute to lead in drinking water even after the original lead source has been removed. Where systems are unable to demonstrate that a galvanized service line was never downstream of an LSL, it would be categorized as a GRR service line and be subject to the rule's service line replacement requirement to ensure that all service lines that have adsorbed lead particulates are eliminated from the system.

7. Does the final LCRI require water systems to replace all lead and GRR service lines even if they are privately owned or on private property?

Yes, if the service line is “under control” of the water system. This is because the LCRI requires full service line replacement, not partial replacement; and as stated under the Safe Drinking Water Act, drinking water regulations apply to “public water systems”, which are defined to include “distribution facilities under control of” the water system. Under the LCRI, a service line or lead connector is “under control” of a system wherever the system has access (e.g., legal access, physical access) to conduct full service line replacement or replacement of the lead connector. Where a water system does not have access to conduct full service line replacement, the system is not required by the LCRI to replace the line, but the system must document the reasons why the system does not have access and submit it to the State. EPA is not delineating the prerequisites or elements of “access” that a system would need to conduct full service line replacement because of the wide variation of relevant State and local laws and water tariff agreements as well as the potential for these to change over time. Instead, EPA emphasizes the many requirements in the LCRI, in addition to funding and non-regulatory actions, that increase transparency and may lead to changes that will increase a system’s ability to obtain access to conduct a full service line replacement. For example, EPA is requiring water systems to identify in their service line replacement plans any State or local laws or water tariff agreements that affect the water system’s ability to gain access as well as requiring systems to make their service line replacement plans publicly accessible.

If a water system has access to conduct a full replacement only where property owner consent is required, the system is required to make a “reasonable effort” to obtain property owner consent. A reasonable effort must include at least four attempts to engage the property owner using at least two different methods of communication. As long as property owner consent is required but not granted, the water system will not be required to conduct the full service line replacement because, under those circumstances, the full service line is not “under the control” of the operator of the system. However, the system must make further attempts to gain access to replace the service line when there is a change in property ownership.

8. What information must be included in the service line replacement plan?

Water systems with at least one lead, GRR, and unknown service line must develop and submit to the State a replacement plan November 1, 2027 and annually update the plan when there is new information until only non-lead service lines remain. The service line replacement plan must include the following:

- A strategy for determining the material composition of lead status unknown service lines in the service line inventory;
- A standard operating procedure for conducting full service line replacement;
- A communication strategy to inform consumers and customers before a full or partial replacement of a lead or GRR service line;
- A procedure for consumers and customers to flush service lines and premise plumbing of particulate lead following disturbance of a lead, GRR, or unknown service line and following full or partial replacement of a lead or GRR service line;
- A strategy to prioritize service line replacement based on factors including, but not limited to, known lead and GRR service lines and community-specific factors;
- A funding strategy for conducting service line replacement. Where the water system intends to charge

customers for the cost to replace all or a portion of the service line because it is authorized or required to do so under State or local law or water tariff agreement, the funding strategy must include a description of whether and how the water system intends to assist customers who are unable to pay to replace the service line portion that they own;

- A communication strategy to inform residential and non-residential customers and consumers served by the water system about the service line replacement plan and program; and
- Identification of any laws, regulations, and/or water tariff agreements that affect the water system's ability to gain access to conduct full lead and GRR service line replacement, including the citation to the specific laws, regulations, or water tariff agreement provisions. This includes any that require customer consent and/or require or authorize customer cost-sharing.
- Water systems that identify any lead-lined galvanized service lines in the service line inventory must also include a strategy to determine the extent of the use of lead-lined galvanized service lines in the distribution system.
- Water systems that are eligible for and plan to use a deferred deadline have additional requirements as described under [Question 9](#).

All water systems must make their replacement plan publicly accessible, and systems serving more than 50,000 persons must make the plan available online.

9. Under what circumstances can the service line replacement deadline be deferred or shortened?

EPA is finalizing one criterion that provides a path for water systems to defer their service line replacement deadline beyond 10 years if they have a high proportion of lead and GRR service lines in their distribution system relative to their total number of connections. Systems that would have to annually replace more than 39 service lines per 1,000 service connections (as opposed to per 1,000 households as proposed) are eligible for deferred deadlines longer than 10 years.

In addition, the final rule requires States to set a faster replacement rate where feasible. That requirement applies to all systems, including those that are eligible for the deferred deadline. By the end of the second program year, and every three years thereafter, the State must evaluate the system's use of the deferred deadline and associated replacement rate to determine if it is the fastest feasible rate for the system. The State must either approve the continued use of the deferred deadline and associated replacement rate or set a shorter replacement deadline and associated replacement rate so that replacements are conducted as fast as is feasible for the system. States must report these determinations to EPA.

In their publicly accessible replacement plans, water systems with deferred deadlines must document the system's eligibility for the deferred deadline, the deferred deadline and associated replacement rate, which must be at least 39 annual replacements per 1,000 service connections or faster if feasible, the annual number of replacements required, the length of time (in years and months), the date of completion for the deadline and rate, and other information supporting the system's determination that replacing lead and GRR service lines by an earlier date and faster rate is not feasible.

10. Are partial service line replacements prohibited under the final LCRI?

Partial lead and GRR service line replacements are prohibited unless they are conducted as part of an emergency repair or in coordination with planned infrastructure work (e.g., water main replacements), excluding planned infrastructure work solely for the purposes of lead or GRR service line replacement. In addition, the LCRI, like the 2021 LCRR, prohibits water systems from counting partial replacements and “test-outs” (i.e., where a service line sample measures at or below the lead action level) towards the service line replacement rate.

11. What risk mitigation measures does the final LCRI require to reduce lead exposure following service line replacement and disturbances?

EPA is finalizing requirements for risk mitigation after full and partial lead and GRR service line replacement and disturbances. EPA is requiring 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 information to reduce their exposure to potentially elevated lead levels that could result from the disturbance. Actions taken by a water system that cause a disturbance include actions that result in a shut off or bypass of water to an individual line or group of service lines or other actions that cause a disturbance such as a physical action or vibration that could result in pipe scale dislodging and associated release of particulate lead.

EPA is requiring water systems to provide pitcher filters or point-of-use devices certified by an American National Standards Institute (ANSI) accredited certifier to reduce lead in drinking water and six months of replacement cartridges following full and partial replacement of lead and GRR service lines and after disturbances resulting from the replacement of an inline water meter, a water meter setter, or connector, or from the replacement of water main whereby the service line pipe is physically cut.

To strengthen these risk mitigation requirements, EPA is clarifying that water systems must provide filters and replacement cartridges to every unit to ensure that residential and non-residential building occupants also receive filters following replacements or disturbances. EPA is also requiring that risk mitigation actions after a disturbance apply to lead status unknown service lines, given the possibility they might be lead or GRR service lines.

In addition, EPA is finalizing a new mitigation requirement that, for partial service line replacement, water systems must install a dielectric coupling to separate the remaining lead or GRR service line and the replaced service line (i.e., the newly installed service line) unless the replaced service line is made of plastic.

12. What are the replacement requirements for lead connectors?

EPA is requiring that water systems replace lead connectors under their control as they are encountered, for example, where they are encountered during the replacement of an LSL. This requirement is intended to help ensure regular progress towards lead connector replacement is made in coordination with other activities, such as planned or unplanned infrastructure work, while resources are prioritized for replacement of lead and GRR service lines as quickly as feasible.

13. What financial assistance is available to help pay for service line replacements?

There are a number of pathways for systems to receive funding for service line replacement and related activities, both for ongoing service line replacement efforts and replacements that would be conducted under the LCRI. These include low- to no-cost financing through the Drinking Water State Revolving Fund (DWSRF), lead remediation grants established by the Water Infrastructure Improvements for the Nation (WIIN) Act and incorporated into the Safe Drinking Water Act (SDWA), and low-cost financing from the Water Infrastructure Finance and Innovation Act (WIFIA) program. Funding may also be available from other Federal agencies, State, and local governments.

The Infrastructure Investment and Jobs Act, also referred to as the Bipartisan Infrastructure Law (BIL), appropriated \$30.7 billion in supplemental DWSRF funding and reemphasized the importance of lead service line replacement (LSLR) under the DWSRF program by including \$15 billion specifically appropriated for “lead service line replacement projects and associated activities directly connected to the identification, planning, design, and replacement of lead service lines.” The dedicated LSLR appropriation and the General Supplemental appropriation under the BIL, as well as annual base appropriations for the DWSRF, can pay for lead service line and lead connector replacement and related activities. The BIL requires that States provide 49 percent of their LSLR and General Supplemental capitalization grant amounts as additional subsidization in the form of principal forgiveness and/or grants to disadvantaged communities, as defined under SDWA section 1452(d)(3).

EPA has compiled information on Federal and non-federal funding sources available to assist States and water systems with replacement efforts, available online here: <https://www.epa.gov/ground-water-and-drinking-water/funding-lead-service-line-replacement>. EPA also developed a guide to help small and disadvantaged communities identify potential Federal funding sources for service line replacement and technical assistance related to LSLR, available online here: https://www.epa.gov/sites/default/files/2020-12/documents/ej_lslr_funding_sources-final.pdf. EPA strongly encourages water systems to evaluate these available funding opportunities to support LCRI implementation and full service line replacement.

14. How have the tap sampling requirements changed for water systems with LSLs under the final LCRI?

EPA is finalizing the requirement for systems to collect both a first- and fifth-liter sample from sites served by LSLs and to use the higher of the two lead sample results in calculating the 90th percentile level. EPA is prioritizing LSL sites for tap sampling, requiring water systems with LSLs to collect all samples from sites served by LSLs and/or premise plumbing made of lead, if available.

15. What happens when a water system’s 90th percentile level exceeds the lead action level of 0.010 mg/L?

Water systems that exceed the lead action level of 0.010 mg/L must take actions, including public education and CCT. EPA is maintaining the 2021 LCRR requirement for water systems to conduct 24-hour Tier 1 public notification following a lead action level exceedance at an action level of 0.015 mg/L starting October 16, 2024 and at the LCRI lead action level of 0.010 mg/L starting on November 1, 2027.

Water systems must optimize or re-optimize optimal corrosion control treatment (OCCT) and conduct public education, with some exceptions. Small CWSs serving 3,300 people or fewer and all NTNCWSs can choose an alternative compliance option in lieu of the CCT requirements. EPA is allowing systems to defer installing or re-optimizing CCT if they can remove 100 percent of their lead and GRR service lines at a minimum annual rate within five years or less of being triggered into CCT steps. See [Question 19](#), [20](#), and [21](#) for information about CCT, small system flexibility, and public education requirements, respectively, and the final rule for a full description of all requirements.

16. What happens when a water system's 90th percentile level continues to exceed the lead action level?

Water systems with at least two lead action level exceedances in five years must provide a filter plan to the State that includes a description of which methods the system will use to make filters and cartridges available and how the system will address any barriers to consumers' obtaining filters. EPA is requiring systems with at least three lead action level exceedances in five years to make filters certified to for lead reduction, replacement cartridges, and instructions for use available to consumers and conduct the following public education activities:

- Conduct at least one additional system-wide public education outreach activity from the list specified in the rule (e.g., conducting a public meeting or participating in a community event to discuss the multiple lead action level exceedances), identify steps consumers can take to reduce their exposure, and provide information about how to obtain a filter.
- Repeat the public education activity every six months until the system no longer meets the multiple lead action level exceedance criteria.

Water systems may discontinue these activities when the system no longer has at least three lead action level exceedances in a rolling five-year period. States can allow a system to discontinue these activities sooner if the system has taken actions to reduce lead levels and is at or below the lead action level for two consecutive tap monitoring periods.

17. For water systems with multiple lead action level exceedances, does making filters available mean that water systems must deliver filters to all consumers?

No. Water systems that exceed the lead action level at least three times in a five-year period are required to make filters available to all consumers but are not required to deliver or distribute them to every consumer. Water systems must include a description of the methods they plan to use to make filters available to all consumers and address any barriers to consumers obtaining filters in their filter plan that is submitted to the State (see [Question 16](#)). This could include multiple methods such as operating a distribution center, providing at-home delivery upon request, or other methods to accommodate consumers with different accessibility needs based on transportation and other consideration. However, the LCRI does not require water systems to use a specific method.

18. What happens when a lead result from an individual tap sample site exceeds 0.010 mg/L?

EPA is requiring systems to conduct additional activities when a tap sample exceeds 0.010 mg/L. Previously called “find-and-fix” under the 2021 LCRR, EPA renamed this requirement “Distribution System and Site Assessment” (DSSA) to describe this requirement more precisely, recognizing that the “fix” to address the exceedance may be outside of the control of the water system. Consistent with the lowering of the lead action level, systems must conduct the DSSA for any compliance sampling site with a lead result that exceeds 0.010 mg/L. The DSSA requires systems to collect and analyze a follow-up tap sample for lead, and, for systems with CCT, collect and analyze a sample from a nearby site in the distribution system for water quality parameters (WQPs). Systems must evaluate the results of follow-up samples to determine if either a localized or centralized adjustment of the OCCT or other distribution system actions are necessary and submit a recommendation to the State.

Water systems must provide follow-up lead tap sample results to the consumers served at the site within three business days of when the system receives the results regardless of whether the results exceed 0.010 mg/L.

19. What are the changes to corrosion control treatment (CCT) and water quality parameter (WQP) monitoring under the final LCRI?

EPA is finalizing several changes to the CCT and WQP requirements in the LCRI to streamline the rule and improve its implementation, including:

- Requiring systems with a lead action level exceedance to install CCT regardless of subsequent lead levels if they have started to install CCT.
- Requiring some systems with CCT that exceed the lead action level to re-optimize OCCT. Systems with CCT and lead or GRR service lines that exceed the lead action level only need to re-optimize once after November 1, 2027 as long as they are meeting optimal water quality parameters (OWQPs). However, systems with OCCT that exceed the lead action level after removing all lead and GRR service lines must re-optimize again. States can also require systems to re-optimize CCT at any time.
- Allowing water systems to defer installing or re-optimizing CCT if they can remove 100 percent of their lead and GRR service lines at a minimum annual rate within five years or less of being triggered into the CCT steps.
- Requiring all water systems serving 10,001 to 50,000 people with CCT to monitor for WQPs, similar to the requirements for systems serving more than 50,000 people, unless the system is deemed optimized by having a 90th percentile level at or below the lead practical quantitation limit (PQL) of 0.005 mg/L.

20. What are the small system compliance flexibilities under the final LCRI?

The final LCRI provides small system compliance flexibilities for CWSs serving 3,300 or fewer people and all NTNCWSs. CWSs serving 3,300 or fewer people and all NTNCWSs that exceed the lead action level of 0.010 mg/L may choose implementation of point-of-use devices or full replacement of lead-bearing plumbing materials in lieu of CCT with State approval. However, systems with CCT must collect WQPs and continue to operate and

maintain OCCT while they are assessing other compliance options. The final LCRI does not include lead and GRR service line replacement as a compliance option because all systems are required to conduct full service line replacement, regardless of their 90th percentile lead levels.

21. What are the public education and public notification requirements under the final LCRI?

Water systems are required to provide public notification within 24 hours whenever the water system exceeds the lead action level and over a longer period of time, the water system must provide public education to customers and persons served by the water system about lead in drinking water. In the LCRI, EPA is improving the public education requirements by updating the content and delivery frequency for more proactive messaging about lead in drinking water. The final LCRI includes new public education requirements for lead and copper, including consumer notification of individual tap sampling results within three business days regardless of the lead or copper levels sampled. EPA is requiring systems to offer to sample the tap water for lead for any consumer served by a lead, GRR, or unknown service line who requests it. In addition, EPA is finalizing requirements that would help to ensure greater accessibility of public education and outreach materials to consumers, including renters and individuals with limited English proficiency.

EPA is also improving the timing of public education after a lead action level exceedance. Specifically, water systems that exceed the lead action level must provide public education no later than 60 days after the end of a tap sampling period and continue providing public education according to this same frequency until the system no longer exceeds the action level. This public education is in addition to the requirement for water systems to provide public notification of a lead action level exceedance within 24 hours under the Public Notification Rule.

Other examples of final changes to public education and public notification requirements include: 1) updated mandatory language on the health effects of lead, 2) required outreach activities for CWSs that do not meet the mandatory service line replacement rate, 3) additional information included in annual notifications of service line material, and 4) improved notification of service line disturbances.

The LCRI does not change the requirement for water systems to conduct 24-hour public notification following a lead action level exceedance at an action level of 0.015 mg/L starting October 16, 2024. After November 1, 2027, the 24-hour public notification requirement will apply whenever the system exceeds the LCRI lead action level of 0.010 mg/L.

22. What are the final LCRI requirements for lead sampling and public education at schools and child care facilities?

EPA is retaining the 2021 LCRR requirements for CWSs to conduct sampling and public education in the schools and licensed child care facilities they serve. Requirements include compiling a list of all schools and licensed child care facilities served by the system and providing annual public education, conducting sampling at all elementary schools and licensed child care facilities and offering to sample at secondary schools during the first five-year cycle after November 1, 2027, offering to sample at all schools and child care facilities after the first five-year cycle, delivering results and remediation options to the sampled school and child care facilities, and submitting results to the State and State and local health departments annually.

EPA is expanding the time period to allow States to waive the sampling requirements for the first five-year cycle if sampling was conducted at a school or licensed child care facility between January 1, 2021 and November 1, 2027. The 2021 LCRR only allows waivers for sampling conducted after the LCRR compliance date of October 16, 2024. The LCRI is also expanding the waiver allowances to allow States to waive the sampling requirements for water systems for any schools or licensed child care facilities that install and maintain filters certified to reduce lead. EPA is retaining the other waiver provisions introduced in the 2021 LCRR and proposed for LCRI including allowing States to waive sampling requirements for water systems to sample in schools and child care facilities that are covered by alternative testing programs that are at least as stringent as the sampling requirements in the LCRI.

EPA is authorized under SDWA to establish National Primary Drinking Water Regulations (NPDWRs) that are legally enforceable standards that apply to public water systems as defined in SDWA section 1401(4) and 40 CFR § 141.2. EPA does not have the authority under SDWA section 1412 to require schools and child care facilities that are not regulated as public water systems to act under an NPDWR. However, schools and child care facilities that operate their own public water systems are subject to the requirements of the LCRI. EPA anticipates that the majority of these systems would be eligible for the small system flexibilities discussed under [Question 20](#).

23. Where can I find additional resources?

A copy of the final LCRI and additional fact sheets for the final LCRI are available on EPA's website at <https://www.epa.gov/dwreginfo/lead-and-copper-rule-improvements-supporting-materials>.

Disclaimer: This document is being provided for informational purposes only to assist members of the public, States, Tribes, and/or public water systems in understanding the Lead and Copper Rule Improvements (LCRI). It includes descriptions of regulatory requirements. In the event that there are any differences, conflicts, or errors between this document and the LCRI, States, Tribes, and/or public water systems should refer to the LCRI. This document does not impose any legally binding requirements on the EPA, States, Tribes, or the regulated community. Further, this document does not confer legal rights or impose legal obligations on any member of the public. In the event of a conflict between the discussion in this fact sheet and any statute or promulgated regulation, the statute and any promulgated regulations are controlling.