FACT SHEET

Proposed Lead and Copper Rule Improvement (LCRI)
Technical Fact Sheet: Calculating Service Line Replacements
November 2023

This fact sheet is intended to assist water systems with lead, galvanized requiring replacement (GRR), and/or unknown service lines in understanding how they would comply with service line replacement rate requirements of the proposed Lead and Copper Rule Improvements (LCRI).

What are the proposed service line replacement requirements?

EPA is proposing to require water systems to fully replace lead and GRR service lines that are under the water system's control within 10 years, with limited exceptions. A lead or GRR service line is counted as fully replaced only when the entire length of the service line (both customer side and utility side) is non-lead. Water systems must replace at least 10% of the service lines in their replacement pool per year calculated across a 3-year rolling average unless the primacy agency determines your system can replace all its lead and GRR service lines in less than 10 years or your system qualifies for a deferred replacement rate.

For information on deferred replacement rates, see the fact sheet "Deferred Deadlines for Service Line Replacements" available at https://www.epa.gov/ground-water-and-drinking-water/lead-and-copper-rule-improvements.

How do I calculate the number of service lines that are proposed to be replaced each year?

Calculate your annual required replacements by dividing the number of service lines in your replacement pool by 10 (unless your primacy agency establishes a replacement deadline shorter than 10 years or your system qualifies for a deferred replacement deadline). If your primacy agency determines it is feasible to replace all the lead service lines in a time frame less than 10 years, calculate your annual required replacements by dividing the number of service lines in your replacement pool by the number of years specified by your primacy agency. If you are eligible for a deferred deadline see "Deferred Deadlines for Service Line Replacements" available at https://www.epa.gov/ground-water-and-drinking-water/lead-and-copper-rule-improvements.)

How do I determine the number of service lines in my replacement pool?

A key step in determining the number of service line replacements required per year under the proposed LCRI is to determine which service lines are included in your replacement pool. In the first year you are conducting replacements, calculate your replacement pool by adding together the total number of lead, GRR, and unknown service lines in your LCRI baseline inventory, which must be completed by the compliance date of the LCRI. The inventory consists of all service lines connected to the public water system regardless of ownership status, so the replacement pool would include all lead, GRR, and unknown service lines that could be under the control of the system and therefore, would be required to be replaced. For example, if you have 3,000 lead service lines, 500 GRR service lines, 35,000 non-lead service lines, and 1,500 unknown service lines in your baseline inventory, your total number of lines in your replacement pool would be:

3,000 lead service lines + 500 GRR service lines + 1,500 unknowns = 5,000 lines in replacement pool

With a 10-year replacement deadline, you would be required to replace 500 lines per year.

How do I update my replacement pool each year?

At the beginning of each subsequent year of your program, recalculate your replacement pool as you update your inventory by subtracting unknown service lines identified to be non-lead from the prior year's replacement pool. If your system determined in the last year that lines previously classified as non-lead service lines were actually lead or GRR service lines, then these lines must be added to the prior year's replacement pool. Do not subtract the GRR or lead service lines that have been replaced from the prior year's replacement pool. Lead and GRR service lines, replaced lead and GRR service lines, the current number of unknown lines, and unknown lines identified to be lead or GRR service lines will stay in your replacement pool for purposes of calculating the required number of lines that must be replaced each year.

For example, if in Year 1 you replace 300 lead and 200 GRR service lines, and you identify 100 unknown service lines as non-lead and identify 50 unknown service lines as lead, you would need to update your replacement pool. To calculate your replacement pool at the start of year 2, you would subtract the 100 unknown lines identified as non-lead from the total replacement pool. The 50 unknown lines recategorized as lead and the 300 replaced lead and 200 replaced GRR service lines will stay in the replacement pool. Your replacement pool for Year 2 would be:

5,000 lines in initial replacement pool – 100 unknown lines discovered to be non-lead = 4,900 lines

Your new required number of lines to be replaced per year is now 490. This example illustrates how identifying unknown lines as being non-lead can reduce your systems required replacement rate.

Why don't replaced lead or GRR service lines get subtracted from the replacement pool each year?

The service line replacement pool is intended to represent the maximum number of lines that may require replacement under the proposed LCRI. To assure that a system is replacing enough lines each year to replace all lines by the end of the replacement deadline, the system's minimum annual rate is calculated as 10 percent of the maximum number of lines that may require replacement. EPA is proposing to require that systems consider all unknown lines as requiring replacement until and unless the system determines that the unknown line is not a lead or GRR service line. Systems that work to identify unknown lines as non-lead can reduce their annual rate and still be on pace to replace the lead and GRR service lines if they only replace the minimum required number. If a system were allowed to subtract the replaced lead or GRR service lines that have been replaced from the replacement pool, and the system only replaced 10 percent of the lines in the replacement pool, the system would not replace all of its lead service lines in 10 years.

How do I calculate the number of service lines that must be replaced?

Calculate your annual required replacements to achieve 10% replacement by dividing the number of service lines in your replacement pool by the replacement deadline.

For example, if you have 500 lead, GRR, and unknown service lines in your replacement pool and a 10-year replacement deadline, your annual replacement rate would be 500 / 10 = 50 service lines per year (unless a faster rate is determined by the primacy agency).

Do this calculation at the beginning of each program year. Note, the example provides the exact number to achieve a 10% rate, but compliance would be calculated over a three-year rolling average.

How does EPA propose to determine compliance with the replacement rate?

EPA is proposing to determine compliance with the LCRI replacement rate based on a 3-year rolling average that would begin in the third year after the proposed LCRI compliance date. At the end of each service line replacement year, a system would calculate the percent replaced by dividing the total number of lead and GRR service lines fully replaced by the number of service lines in your replacement pool. At the end of year 3, a primacy agency would determine compliance by taking the sum of the annual percentages of service lines replaced from year 1, year 2, and year 3 and dividing by 3.

For example, if a system replaced 8%, 12%, and 15% of its replacement pool in years 1, 2, and 3, respectively, the system's 3-year rolling average replacement rate would be (8 + 12 + 15)/3 = 11.7%. That system would be in compliance with the required service line replacement rate under the proposed LCRI because the 3-year rolling average is greater than 10%.

For the next year, the primacy agency would follow the same steps but use the percent replacements for years 2, 3, and 4. The primacy agency would continue this process through year 10 (unless your primacy agency establishes a replacement deadline shorter than 10 years or your system qualifies for a deferred replacement deadline).

What does EPA mean when it says that a water system must replace lead and GRR service lines "under the water system's control"?

It means that systems must replace all lead and GRR service lines where a water system has access to conduct a full service line replacement.

What if a water system does not have access to conduct full service line replacement?

Where a water system lacks access to conduct a full service line replacement, the water system is not required by the proposed rule to replace it, but the water system must document the reasons that it does not have access and include any specific 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. The water system must provide that documentation to the State.

What are the criteria for determining whether a water system has access to conduct full service line replacement?

The proposed LCRI does not establish the criteria for determining whether a water system has access to conduct full service line replacement because that will depend on the specific facts. For example, there may be State or local laws governing the water system's ability to go onto private property to conduct the replacement. There may also be State or local laws, or water tariff agreements that restrict a water system's ability to conduct a full service line replacement without the consent of the property owner; in some cases, those State or local laws or water tariff agreement might restrict water systems from conducting the full replacement without the property owner's agreement to pay for all or a portion of the replacement. In such cases, the water system would not have access to conduct a full service line replacement without the property owner's consent. However, the water system would be required to make a reasonable effort to obtain the property owner's consent. EPA strongly encourages water systems to evaluate available funding opportunities to support LCRI implementation and full service line replacement.

When does the water system's obligation to make a reasonable effort to obtain the property owner's consent end?

It ends when the line is replaced. Where a water system has legal access to conduct the replacement only where customer consent is obtained, the water system must make a reasonable effort to obtain it. The water system is required to make four attempts per customer in order to obtain consent. When there is a change of ownership at an address, then the water system has to make a reasonable effort (four attempts) again until the line is replaced. This obligation continues indefinitely until the line is replaced.

What if a water system replaces all lead and GRR service lines in the system before the deadline?

Systems are encouraged to replace all lead and GRR service lines in the system as soon as possible. The rule sets a minimum replacement rate. Systems that replace all lead and GRR lines in the system provide their consumers with the benefits of full service line replacement even sooner, increasing public health protection in the community. Systems also benefit from accelerated replacement because it reduces their obligation to notify persons served by a lead, GRR, or unknown line. Systems without lead or GRR service lines are also less likely to exceed the action level for lead and therefore, less likely to be required to take additional actions to address an action level exceedance (ALE) (control corrosion; provide public education; make filters available following multiple ALEs).