



LEAD AND COPPER RULE IMPROVEMENTS

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Focus on Change | March 4, 2025



REGULATIONS, RULES AND RESOURCES

REGULATIONS:

- Federal Regulation; 40 Code of Federal Regulations (CFR) Parts 141 and 142.
- Published in the Federal Register on Oct. 30, 2024.

RULES:

- https://www.epa.gov/system/files/documents/2023-11/proposed-lcri_pre-pub-version-11_29_23.pdf.

RESOURCES:

- Lead Service Line guidance on the Florida Department of Environmental Protection's (DEP) Lead Service Line Inventory webpage at www.FloridaDEP.gov/LSLI.
- <https://www.epa.gov/dwreginfo/lead-and-copper-rule-improvements-supporting-materials>.
- U.S. Environmental Protection Agency (EPA) resources can be found at <https://www.epa.gov/dwreginfo/lead-and-copper-rule>.



PRESENTATION AGENDA

- Definitions.
- Baseline inventory.
- Inventory validation steps.
- Lead service line replacement plan (LSLRP).
- Deferred deadlines for service line replacement.
- Mandatory service line replacement.
- Risk mitigation.
- Tap monitoring requirements.
- Tap monitoring and tap sampling period.
- Calculating the 90th percentile.
- Public education requirements.
- Public education.



DEFINITIONS

Lead and Copper Rule Improvements



OVERVIEW OF THE LEAD AND COPPER RULE IMPROVEMENTS

- EPA has finalized requirements for drinking water systems to replace lead and certain galvanized service lines.
- The Lead and Copper Rule Improvements (LCRI):
 - Remove the lead trigger level, reduce the lead action level to 0.010 mg/L, strengthen tap sampling procedures to improve public health protection and simplify implementation.
 - Strengthen corrosion control treatment, public education and consumer awareness, requirements for small systems and sampling in schools and childcare facilities.
 - Reduce the adverse human health impacts of exposure to lead in drinking water.



COMPLIANCE DATES

INITIAL INVENTORY AND ASSOCIATED REPORTING

System Requirements Compliance Date Code of Federal Regulations	Compliance Date	CFR Section
Develop initial inventory (includes making inventory publicly accessible).	Oct. 16, 2024	40 CFR 141.84(a)(1) through 141.84(a)(10) (excluding 141.84(a)(6) and (a)(7))
Submit initial inventory to the state.	Oct. 16, 2024	40 CFR 141.90(e)(1)
Provide Tier 3 Public Notification (PN) if initial inventory is not submitted.	Beginning Oct. 16, 2024	40 CFR Appendix A to Subpart Q of Part 141 I.C.1 (excludes Tier 3 notification for 141.90 except 141.90(e)(1), (e)(13), and (f)(4))



COMPLIANCE DATES

NOTIFICATION OF SERVICE LINE MATERIAL AND REPORTING

System Requirement	Compliance Date	CFR Section
<p>Notify of known or potential service lines containing lead within 30 days of completion of initial inventory and repeat notification on an annual basis until the entire service connection is no longer lead, galvanized requiring replacement (GRR) or unknown. Must also notify new customers at service initiation.</p>	<p>Within 30 days of completion of the inventory; annually thereafter</p>	<p>40 CFR 141.85(e)</p>
<p>Provide revised lead health effects language in public education materials to ensure consistent notification messaging with PN requirements.</p>	<p>Beginning Oct. 16, 2024</p>	<p>40 CFR 141.85(e)(3) requires health information meeting the requirements of 40 CFR 141.85(a)(1)(ii)</p>



COMPLIANCE DATES

ANNUAL REPORTING

System Requirement	Compliance Date	CFR Section
Report to the state annually that the system provided notification and delivered lead service line information materials to affected consumers with lead, GRR or unknown service lines for the previous calendar year; provide a copy of notification and information materials.	July 1, 2025; annually thereafter	40 CFR 141.90(e)(13), 40 CFR 141.90(f)(4)
Provide Tier 3 PN if system failed to certify to the state that it notified persons served at service connections with a service line potentially containing or known to contain lead.	Beginning Oct. 16, 2024	40 CFR Appendix A to Subpart Q of Part 141 I.C.1 (excludes Tier 3 for 141.90 except 141.90(e)(1), (e)(13), and (f)(4))



COMPLIANCE DATES

PUBLIC EDUCATION

System Requirement	Compliance Date	CFR Section
Provide 2021 Lead and Copper Rule Revision (LCRR) revised lead health effects language in public education materials (including after a lead action level exceedance) to ensure consistent messaging with notification of service line material and PN requirements.	Beginning Oct. 16, 2024	40 CFR 141.85(a)(1)(ii)



TIER 1 PUBLIC NOTIFICATION

- Oct. 16, 2024, through the LCRI compliance date:
 - Tier 1 PN is triggered by a lead action level exceedance of 0.015 mg/L.
- Beginning on the LCRI compliance date:
 - Tier 1 PN is required if a system exceeds the new lead action level of 0.010 mg/L.



COMPLIANCE DATES

TIER 1 PUBLIC NOTIFICATION

System Requirement	Compliance Date	CFR Section
Provide Tier 1 PN to persons served by the system no later than 24 hours after the system learns of an exceedance of the lead action level.	Beginning Oct. 16, 2024	40 CFR 141.201(a)(3)(vi) (In Table 1 to § 141.201), 40 CFR 141.202(a)(10) (In Table 1 to § 141.202), 40 CFR Appendix A to Subpart Q of Part 141 C.2
Submit a copy of the Tier 1 PN for lead action level exceedance to the head of the primacy agency and the EPA administrator no later than 24 hours after the system learns of the exceedance.	Beginning Oct. 16, 2024	40 CFR 141.201(c)(3), 40 CFR 141.31(d)(2)
Provide revised lead health effects language as required in Tier 1 PN for lead action level exceedance and Tier 2 and 3 PN for violations.	Beginning Oct. 16, 2024	40 CFR Appendix B (D.23) to Subpart Q of Part 141



COMPLIANCE DATES

2027

- The following must be submitted to DEP by Oct. 30, 2027:
 - A baseline inventory or statement that they have no lead, GRR or unknown service lines (all water systems).
 - A Service Line Replacement Plan (systems with at least one lead, GRR or unknown service line).
 - A list of the schools and licensed childcare facilities served or certification that there are none (all community water systems).
- If a water system wishes to obtain a waiver from the inventory validation requirements, it must also submit a written request to DEP by the LCRI compliance date demonstrating that it has conducted an inventory validation that is at least as stringent as the LCRI inventory validation requirements.



BASELINE INVENTORY

Lead and Copper Rule Improvements



BASELINE INVENTORY

- All water systems must develop an updated inventory, known as the “**baseline inventory.**”
 - This baseline inventory builds on the initial service line inventory and is due by the compliance date of Nov. 1, 2027.
 - It must include information on connectors as well as any updated or new information on service line materials and locations, regardless of ownership status.
 - Systems must review specified sources of information for connector materials and categorize them as “lead,” “non-lead,” “unknown” or “no connector present” where there is no connector at the location.



UPDATING THE INVENTORY

- The inventory is a living dataset that should be continually revised over time as systems replace lead and GRR service lines and identify the material of unknown service lines.
 - After the end of program year one (Jan. 30, 2029), and every Jan. 30th thereafter, water systems must submit an inventory update and post it online.
 - The inventory must include total counts for each service line material, known lead connectors and connectors of unknown material.
 - It must also include the total number of full and partial replacements that occurred during the past year.



CONNECTOR CLASSIFICATIONS

- **Lead** – the connector is made of lead.
- **Non-lead** – the connector is determined not to be made of lead through an **evidence-based** record, method or technique.
 - Water systems are not required to identify the specific material of a non-lead connector; however, they may use the material (e.g., copper or galvanized) as an alternative to categorizing it as “non-lead.”
- **Unknown** – the material of the connector is not known.
- **No connector present** – there is no connector at the location (e.g., where a service line directly connects a water main to a building inlet).



INFORMATION SOURCES

- For the baseline inventory, water systems must conduct a review of any information that describes connector materials and locations.
- Water systems must also conduct a review of any information on lead and galvanized iron or steel materials to identify connector materials and locations.
- The water system may use other sources of information if approved or required by DEP.
- Water systems must follow all requirements to provide inventory updates to DEP annually, with any new information acquired from all applicable sources.



SYSTEMS WITH NON-LEAD LINES AND CONNECTORS

- Water systems with inventories containing only non-lead service lines and non-lead connectors and those with no connectors present are not required to provide updated inventories to DEP or update the publicly accessible inventory.
- If, in the future, such a water system discovers a lead or GRR service line or lead connector within its system, the system must complete the following.
 - Notify DEP no later than 60 days after the discovery.
 - Prepare an updated inventory on a schedule established by DEP.
 - Replace the lead or GRR service line and replace any lead connector along the service line.



INVENTORY VALIDATION

- To assess inventory accuracy, each water systems must validate a subset of its non-lead service lines no later than Dec. 31, 2034, or on a schedule specified by DEP.
 - Purposes of this validation process:
 - Tests the reliability of certain methods, techniques and alternative sources of information used to identify non-lead service lines in the inventory.
 - Facilitates action to remedy inventory discrepancies.
 - Provides systems, DEP and consumers with additional confidence in the accuracy of the inventory.



PUBLIC ACCESSIBILITY

- Water systems must make the service line inventory publicly accessible.
 - Systems serving more than 50,000 people must post it online.
 - All other water systems can elect to post it online or use another method to make it accessible to the public (e.g., by mail, available at the water system's office, etc.).
- Starting with the baseline inventory, the publicly accessible inventory must include the **street address** of each service line and identified connector.
 - If the address is not available, a unique locational identifier (e.g., block, GPS coordinates, intersection, landmark, etc.) may be used.



INVENTORY VALIDATION STEPS

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STEP 1: IDENTIFY THE VALIDATION POOL

- To identify which service lines, require validation, water systems must first identify the validation pool.
- Inventories can change over time; a system must use the inventory from the current year to identify its validation pool.
- **Reminder:** “non-lead” service lines are identified through an **evidence-based record**, method or technique, not to be a lead or GRR service line.



VALIDATION POOL EXCLUSIONS

- The validation pool consists of all non-lead service lines in the inventory, **excluding**:
 - Lines for which records indicate installation occurred after the federal lead ban became enforceable (January 1989), or the compliance date of a state or local lead ban, whichever is earlier.
 - Some systems have found earlier local lead ban dates.
 - Non-lead lines identified exclusively by using other records must be included in the validation pool.
 - Lines for which the pipe exterior is visually inspected at a minimum of two points.
 - For example, a service line identified as copper based on a one-point visual inspection at the meter pit is **required to be in** the validation pool.
 - However, if this service line material was also visually inspected a second point, such as inside the home, it would be **excluded** from the validation pool.
 - Previously replaced lead or GRR service lines.



STEP 2: DETERMINE MINIMUM NUMBER OF VALIDATIONS REQUIRED

- Example:

- If a water system has 2,150 non-lead service lines in the validation pool, the minimum number of validations required is 341.
- If a water system has 1,000 non-lead service lines in the validation pool, the minimum number of validations required is 200 (20% of 1,000).

Size of Validation Pool	Minimum Number of Validations Required
< 1,500	20% of validation pool
1,500 to 2,000	322
2,001 to 3,000	341
3,001 to 4,000	351
4,001 to 6,000	361
6,001 to 10,000	371
10,001 to 50,000	381
> 50,000	384



STEP 3: RANDOMLY SELECT SERVICE LINES TO BE VALIDATED

- Randomly select service lines from the validation pool for visual inspection.
 - The minimum number of service lines that must be selected is the number from Step 2.
- Water systems can use tools such as a random number generator or lottery method to select service lines to validate.
- This approach is intended to minimize bias in the selection.



STEP 4: VALIDATE SERVICE LINE MATERIAL THROUGH TWO-POINT VISUAL INSPECTION

- The next step is to validate that the service lines identified in Step 3 are non-lead by conducting visual inspection at a **minimum of two points** along the service line exterior.
- For example, visual inspection of the service line could be conducted by excavation (such as “pothole-ing”), viewing the service line material in the meter pit or stop box or viewing the service line entering the building.
- If the water system has already conducted a one-point visual inspection, then one additional visual inspection at a different point along the line is required.



SHARED OWNERSHIP

- Where ownership of the service line is shared:
 - Water systems must conduct visual inspections on both portions of the service line, one point on the publicly-owned portion and one point on the privately-owned portion.
 - If only one portion is included in the validation pool, water systems must conduct at least one point of visual inspection on the unconfirmed portion of the service line.
 - If access to private property is needed to complete the validation and the water system cannot gain the needed access, it must randomly select another non-lead service line in Step 3 to validate instead.



SHARED OWNERSHIP EXAMPLE

- A non-lead service line is included in the validation pool because the system-owned portion is copper due to a previous **partial replacement**.
- The customer-owned portion is estimated to be “non-lead” based on materials observed in other homes built around the same time in the same neighborhood.
- If this line is randomly selected for validation, the system must confirm that the customer-owned portion of the service line is “non-lead” through at least one point of visual inspection of the pipe exterior.



STEP 5: SUBMIT RESULTS TO DEP

- Water systems must submit the following to DEP:
 - A list of the locations of any non-lead service lines identified to be a lead or GRR service line, as well as the method(s) used to categorize the service lines as a result of the assessment.
 - The specific version (including the date) of the service line inventory used to determine the number of non-lead service lines in the validation pool.
 - Remember, the most current inventory must have been used to establish the validation pool.



DEADLINES FOR VALIDATION

- For systems on a 10-year mandatory replacement schedule and systems that have reported only non-lead lines in their inventories, validation must be completed by Dec. 31, 2034.
 - Validation results are due to DEP no later than Jan. 30, 2035.
- States will establish a validation deadline for water systems conducting mandatory service line replacement on a shortened deadline.
- For systems on a deferred deadline, states will establish a deadline no later than three years prior to the deadline for completing mandatory service line replacement.



IDENTIFIED LEAD OR GRR SERVICE LINES

- If a water system identifies a lead and/or GRR service line during validation, water systems must:
 - Provide DEP with those service line locations and the method(s) used to categorize the lines.
 - Update the service line inventory.
 - Comply with any actions required by DEP to address the inventory inaccuracy.
- Water systems should evaluate the methods used to categorize non-lead service lines if inaccuracies are found, and work with DEP to determine whether these were isolated events unlikely to occur again, or whether there are broader issues with the identification method used.



LCRI VALIDATION REQUIREMENT WAIVERS

- Water systems that completed validation efforts prior to Nov. 1, 2027, **can** be waived from the LCRI validation, provided that the system's validation methodologies are at least as stringent as the LCRI requirements.
- These systems can submit a written request with supporting documentation to DEP for waiver consideration.
- If approved, DEP will provide written approval of the waiver request to the system.



LEAD SERVICE LINE REPLACEMENT PLAN

Lead and Copper Rule Improvements



LEAD SERVICE LINE REPLACEMENT PLANS

- A lead service line replacement plan (LSLRP) is required for any water system with at least one lead, GRR or unknown service line.
- LSLRPs are due to DEP by Nov. 1, 2027, and must include the following:
 - A description of the system's strategy to identify the material composition of all unknown service lines in the inventory.
 - A standard operating procedure for conducting full-service line replacement.
 - A communication strategy for informing consumers and customers before a full or partial lead or GRR service line replacement.
 - A procedure for consumers and customers to flush service lines and premise plumbing of particulate lead following a disturbance of a lead, GRR or unknown service line or following full or partial replacement.



ADDITIONAL REQUIRED LSLRP CONTENT

- A strategy to prioritize service line replacement based on factors such as known lead and GRR service lines and community-specific factors.
- A funding strategy for conducting service line replacement that includes ways to accommodate customers that are unable to pay to replace the portion of the service line they own.
- A communication strategy to inform both consumers and customers served by the water system about the replacement plan and program.
- Identification of any laws, regulations and/or water tariff agreements that affect the water system's ability to gain access to conduct full replacement.
- For water systems that identify any lead-lined galvanized service lines in the inventory, a strategy to determine the extent of their use in the distribution system.



DEFERRED DEADLINES FOR LSLRP

- The final LCRI includes a deferred deadline option for systems with a high proportion of lead and GRR service lines compared to the number of total service connections.
- Systems that are using a deferred deadline must include additional elements in their LSLRPs.
 - Documentation to support the system's determination that it is eligible for a deferred deadline by showing that 10% of the total number of known lead and GRR service lines in the replacement pool exceeds 39 annual replacements per 1,000 service connections.
 - **Systems may not include unknown service lines in this determination.**



DEFERRED DEADLINES FOR LSLRP

- Identification of the deferred deadline and the associated cumulative average annual replacement rate that the system considers to be the fastest feasible.
 - The fastest feasible can be no slower than a deadline and replacement rate corresponding to 39 annual replacements per 1,000 service connections.
- The annual number of replacements required and the required time for completion.
- Information supporting the system's determination that replacing lead and GRR service lines at a rate faster than 39 replacements per 1,000 service connections is not feasible.



DEFERRED DEADLINES FOR LSLRP

- Every three years after the initial submission of the plan, the system must provide updated information to support DEP's evaluation of why it continues to need the deferred deadline.
- Water systems must make their LSLRPs publicly accessible, and those serving more than 50,000 people must post their plans online.



DEFERRED DEADLINES FOR SERVICE LINE REPLACEMENT

Lead and Copper Rule Improvements



DEFERRED DEADLINES FOR SERVICE LINE REPLACEMENT

- The final LCRI requires drinking water systems to replace all lead service lines within 10 years.
- EPA has accounted for the small number of drinking water systems with unusually high proportions of lead service lines by including a provision in the final rule allowing those systems to be eligible for additional time to replace all their lead service lines.
- The LCRI streamlines the procedure for qualifying for a deferred deadline while ensuring that communities with lead service lines accelerate progress on removing all their lead pipes.
- In addition, the rule includes requirements that will help protect people from exposure to lead in drinking water during lead pipe replacements, including, additional water system monitoring, communicating with customers, and installing treatment technologies or making filters available for customers if necessary.



QUALIFYING FOR A DEFERRED DEADLINE

HOW DO WATER SYSTEMS QUALIFY FOR A DEFERRED DEADLINE?

- A water system **is eligible** for a deferred deadline if replacing 10% of known lead and GRR service lines results in an annual number of replacements that exceeds 39 per 1,000 service connections.
- EPA determined this ratio based on water systems that have completed full lead service line replacement.
- The following steps outline how to determine if a water system is eligible and how to calculate a deferred deadline and minimum cumulative average replacement rate.



CALCULATING A DEFERRED DEADLINE

STEP 1

STEP 1: CALCULATE THE AVERAGE ANNUAL NUMBER OF REPLACEMENTS UNDER A 10-YEAR SCHEDULE.

- Determine the total number of lead and GRR service lines in the replacement pool.
 - Do not count the unknown service lines.
- Divide the total number of known lead and GRR service lines by 10.
 - Example: a water system has 6,000 lead and GRR service lines in the replacement pool.
 $6,000 \text{ lead and GRR service lines} \div 10 \text{ years} = \mathbf{600 \text{ annual replacements.}}$



CALCULATING A DEFERRED DEADLINE

STEP 2

STEP 2: CALCULATE THE ANNUAL REPLACEMENTS PER SERVICE CONNECTION UNDER A 10-YEAR SCHEDULE.

- Divide the annual replacements per year (from Step 1) by the total number of service connections in the system.

- Example: a water system has 12,000 total service connections.

600 annual replacements per year ÷ 12,000 service connections = **0.050 annual replacements per service connection.**

- Multiply by 1,000 to get the number of annual replacements per 1,000 service connections.

0.050 annual replacements per service connection x 1000 = **50 annual replacements per 1,000 service connections.**



CALCULATING A DEFERRED DEADLINE

STEP 3

STEP 3: COMPARE THE RESULT FROM STEP 2 TO THE DEFERRED DEADLINE THRESHOLD.

- If the number of average annual replacements in Step 2 **is higher than the threshold** of 39 annual replacements per 1,000 service connections, the water system is **eligible** for a deferred deadline.
- If the number of average annual replacements in Step 2 **is equal to or less than the threshold**, the system **is not eligible** and must replace all lead and GRR service lines that are under the control of the water system within 10 years.
 - Example: 50 annual replacements per 1,000 service connections **is** greater than 39 annual replacements per 1,000 service connections; **system is eligible**.



CALCULATING A DEFERRED DEADLINE

STEPS 4 AND 5

STEP 4: CALCULATE THE MINIMUM REQUIRED REPLACEMENT RATE.

- If a water system is eligible for a deferred deadline, determine the annual replacements corresponding to 39 annual replacements per 1,000 service connections.
 - Multiply the total number of service connections by 0.039.

12,000 services connections x 0.039 = **468 annual replacements.**

STEP 5: CALCULATE THE DEFERRED DEADLINE.

- The time needed to complete replacement is the number of known lead and GRR service lines from Step 1 divided by the number of annual replacements from Step 4.
 - Example: 6,000 lead and GRR service lines ÷ 468 annual replacements = **12.8 years.**



CALCULATING A DEFERRED DEADLINE

STEPS 6 AND 7

STEP 6: CALCULATE THE LENGTH OF TIME OF THE DEFERRED DEADLINE IN YEARS AND MONTHS.

- The length of time to complete replacement is the number years plus the number of months, which is calculated by multiplying the remaining decimal by 12 (number of months in one year). The number of months is rounded up the nearest month.
 - Example: $0.8 \text{ year} \times 12 = \mathbf{9.6 \text{ months}}$.

The length of time of this deferred deadline is **12 program years and 10 months**.

STEP 7: CALCULATE THE MINIMUM CUMULATIVE AVERAGE REPLACEMENT RATE.

- Dividing 100 by the deferred deadline in Step 5.
 - Example: $100 \div 12.8 \text{ years (from Step 5)} = \mathbf{7.8\%}$.



LSLRP REQUIREMENTS FOR SYSTEMS USING DEFERRED DEADLINES

- If a water system is using a deferred deadline, the water system must include the following information in the service line replacement plan.
 - Documentation to support the water system's determination that it meets the eligibility criteria.
 - The deferred deadline and the associated cumulative average replacement rate that **the system** considers to be the fastest feasible.
 - This deadline and rate cannot be slower than a deadline and replacement rate corresponding to 39 annual replacements per 1,000 service connections.
 - The annual number of replacements required, the length of time (in years and months) and the date of completion for this deferred deadline and rate.
 - Information supporting the water system's determination that replacing lead and GRR service lines by an earlier date is not feasible.



EVALUATION OF DEFERRED DEADLINES

LSLRPS ARE DUE TO DEP BY NOV. 1, 2027.

- The first program year runs from Nov. 1, 2027, to the end of the next calendar year (Dec. 31, 2028).
 - Every program year thereafter is a calendar year (Jan. 1 - Dec. 31).
- As soon as practicable, but not later than the end of the second program year, DEP must determine in writing whether the system's deferred deadline and associated cumulative average replacement rate are the fastest feasible rate for the system.
- DEP must review the replacement rate information submitted as part of the water system's service LSLRP updates every three years to ensure that water systems are replacing service lines at the fastest feasible rate.



MANDATORY SERVICE LINE REPLACEMENT

Lead and Copper Rule Improvements



MANDATORY SERVICE LINE REPLACEMENT

WITHIN 10 YEARS

- The LCRI requires all community water systems (CWSs) and non-transient non-community water systems (NTNCWSs) to fully replace all lead and GRR service lines under their control **within 10 years**.
 - Unless the system is eligible for a deferred deadline or DEP sets a shortened deadline.
- A service line is under the control of the water system wherever the system has access (e.g., legal access, physical access) to conduct full-service line replacement.



MANDATORY SERVICE LINE REPLACEMENT ASSESSMENT

- Water systems must assess the cumulative average annual replacement rate of 10% beginning at the end of program year three (Dec. 31, 2030) and annually thereafter.
- A lead or GRR service line counts as fully replaced only when the entire length of the service line (both customer side and system side) is non-lead.



OBTAINING PROPERTY OWNER CONSENT

(IF REQUIRED)

- Water systems must make a “reasonable effort” to obtain consent for customer-side service line replacement.
 - Water systems must obtain consent from the **property owner**.
- A “reasonable effort” is at least **four** attempts to engage the property owner using at least two different communication methods (e.g., in-person conversation, phone call, text message, email, written letter, postcard, door hanger, etc.).
- The water system must continue annual notification of service lines known or potentially containing lead regardless of whether access is obtained after making a “reasonable effort.”
 - Within six months of a change in property ownership, water systems must offer full-service line replacement to the new property owner.



PARTIAL REPLACEMENTS

- Partial replacements are **prohibited** unless conducted as part of an emergency repair or in coordination with planned infrastructure work that impacts the service line (e.g., water main replacement, meter replacement, etc.).
 - Infrastructure work does not include projects solely to replace lead and GRR service lines as part of a service line replacement program.
- During partial replacements, systems must install a dielectric coupling separating the remaining portion of the service line and the replaced portion of the service line (i.e., newly installed line) to prevent galvanic corrosion, **unless the replaced service line is made of plastic.**
- Partial replacements do not count towards the system's mandatory replacement rate.



REPLACING LEAD CONNECTORS

- Water systems must replace lead connectors under their control when encountered during planned or unplanned water system infrastructure work.
- Replacing lead connectors **does not** count towards the mandatory replacement rate.



RISK MITIGATION

Lead and Copper Rule Improvements



PROTECTING CONSUMERS

NOTIFICATION AND RISK MITIGATION REQUIREMENTS

- To protect public health, the LCRI requires water systems to conduct notification and risk mitigation measures **following full and partial lead and GRR service line replacements.**
- Water systems must provide consumers with the following:
 - A notification that explains that the consumer may experience a temporary increase of lead levels in their drinking water due to the replacement and contact information for the water system.
 - Written information about a procedure for the consumer to flush service lines and premise plumbing of particulate lead following replacement.
 - A pitcher filter or point-of-use device that is certified by an American National Standards Institute (ANSI) accredited certifier to reduce lead along with six months' worth of replacement cartridges and instructions for use.



RETURNING TO SERVICE

- For any service line replacement, notification and risk mitigation measures must occur before the affected line is returned to service.
- Additionally, the water system **must** offer to collect a follow-up tap sample between three months and six months after the completion of the replacement and test for lead.



TAP MONITORING REQUIREMENTS

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SUBMITTING A SAMPLING PLAN

- By the start of the first lead and copper tap monitoring period under the LCRI, all water systems **must submit** an updated sampling plan to their state.
- The plan must include the following:
 - A pool of tap sampling sites from the highest tier available based on the materials of service lines and connectors (gooseneck or pigtail) in the system's service line inventory.
 - A list of water quality parameter (WQP) entry point and distribution system sampling locations.
- DEP may review and require systems to modify their plan, but states are not required to approve the plan for water systems to use.
- Water systems must collect samples in accordance with the plan.



PRIORITIZING SAMPLE SITE LOCATIONS

- The LCRI revises the tiering criteria to prioritize where tap samples must be collected based on which sampling sites have the greatest likelihood of capturing the highest lead levels at the tap.
 - Tier 1 is the highest priority tier and Tier 5 the lowest.
- Water systems must identify locations in the site sample plan by selecting from sites in the highest tier unless the site is unavailable.
- For water systems where Tier 2 sites comprise at least 20% of the residential structures served by CWS, Tier 2 sites may be sampled even when Tier 1 sites are available.
- Systems without Tier 1 or Tier 2 sites must collect samples from sites in the next highest available tier.



SAMPLE SITE TIERING

SAMPLE SITE TIER	DESCRIPTION
Tier 1	Single-family structures (SFS) with premise plumbing made of lead and/or served by an LSL.
Tier 2	Buildings, including multiple-family residences, with premise plumbing made of lead and/or served by an LSL.
Tier 3	SFS served by a lead connector. SFS served by a galvanized service line or containing galvanized premise plumbing identified as ever having been downstream of an LSL.
Tier 4	SFS that contain copper premise plumbing with lead solder installed before the effective date of the state's applicable lead ban.
Tier 5	SFS or a building in which the plumbing materials used at the site would be commonly found at other sites served by the water system (i.e., representative of sites throughout the distribution system).



SAMPLE SITE CONSIDERATIONS

- Sampling sites cannot include sites with installed point-of-entry (POE) treatment devices or taps with point-of-use devices designed to remove inorganic contaminants, except in water systems using these devices at all service connections for primary drinking water taps to meet other primary and secondary drinking water standards.
- Water systems do not need to sample from a site in the sample plan after a customer refusal or two outreach attempts with no response from the consumer.
 - The number of refusals and non-response from customers must be reported to DEP.



SAMPLING PROTOCOLS

- The LCRI retains the following Lead and Copper Rule (LCR) requirements:
 - Samples must be collected from an interior kitchen or bathroom sink cold-water tap for residential buildings.
 - Samples must be collected from an interior cold-water tap from which water is typically used for human consumption for nonresidential buildings.
 - Samples must have stood motionless in the plumbing system and/or service line for at least six hours.
- Additional LCRI requirements:
 - Collection instructions cannot direct the sample collector to remove or clean the aerator or flush taps prior to the start of the minimum six-hour stagnation period.
 - Samples must be collected in a wide-mouth bottle that is defined as one liter in volume and has a mouth with an inner diameter of at least 40 millimeters.
- Tap samples requested by consumers and those collected as follow-up to a single lead result above 0.010 mg/L do not have to follow this sampling protocol.



FIFTH SAMPLES

- Water systems with lead service lines must collect an additional fifth-liter sample at the same time as the first-liter sample at sites served by a lead service line.
 - The fifth-liter sample increases the likelihood that samples capture water that has been sitting in contact with lead service lines.
 - Both the first- and fifth-liter samples must be analyzed for lead.
- The first-liter sample is also analyzed for copper when both contaminants are required to be monitored.



ADDITIONAL SAMPLING PROTOCOLS

- To collect a first-liter- and fifth-liter sample, the sample collector must:
 - Fill the first numbered wide-mouth sample bottle with tap water.
 - Immediately slide the second bottle under the tap without turning the water off and repeat the process for bottles three through five in consecutive order.
- Water systems without lead service lines must follow the general requirements provided, collect a first-liter sample **only** from the highest available tiered site, and analyze the sample for lead and copper where both contaminants are required to be sampled.



TAP MONITORING REQUIREMENTS

- A water system that has **fewer than five sites** with drinking water taps that can be used for human consumption meeting the sample site criteria to reach the required number of samples must:
 - Collect at least one sample from each tap.
 - Collect additional samples from those taps on different days during the tap sampling period to meet the required number of sites.
- DEP may allow these water systems to collect a fewer number of samples than the number of sites, provided that 100% of all taps that can be used for human consumption are sampled.
- DEP must approve this reduction of the minimum number of samples in writing based on a request from the system or onsite verification by DEP.



TAP MONITORING AND TAP SAMPLING PERIOD

Lead and Copper Rule Improvements



TAP MONITORING AND SAMPLING PERIODS

- The **tap monitoring period** determines the frequency that a water system must conduct tap sampling; this ranges from six months to nine years.
- The **tap sampling period** is the time period within the tap monitoring period during which the system must collect the samples.
- There is **one tap sampling period per tap monitoring period**.



STANDARD MONITORING

- **Beginning Jan. 1, 2028**, the following systems must conduct standard monitoring for at least the next two consecutive six-month tap monitoring periods.
 - Systems with lead and/or GRR service lines, unless they already follow the LCRI tap sampling protocols prior to Nov. 1, 2027.
 - In the latter case, the water system can remain on its existing sampling schedule.
 - Systems that exceed the revised lead action level of 0.010 mg/L or copper action level of 1.3 mg/L in their most recent tap monitoring period as of Nov. 1, 2027.



ADDITIONAL CRITERIA

- A system must conduct standard monitoring for at least two consecutive six-month monitoring periods at any time if it meets any of the following criteria:
 - Exceeds a lead or copper action level.
 - Fails to operate at or above the minimum value or within the range of values for the DEP-designated optimal water quality parameters (OWQPs) for more than nine days in any tap monitoring period.
 - Becomes a large water system (i.e., grows to serve more than 50,000 people) and has no corrosion control treatment (CCT).
 - Is a large water system, has no CCT, and its 90th percentile lead level exceeds the lead practical quantitation limit (PQL) of 0.005 mg/L.



ADDITIONAL CRITERIA

- Installs or re-optimizes optional corrosion control treatment (OCCT) or adjusts OCCT following a distribution system and site assessment.
 - Systems must continue standard monitoring until DEP designates new OWQPs.
- DEP has designated new values for OWQPs.
- Installs source water treatment.
- Notifies DEP of an upcoming addition of a new source or long-term change in treatment, unless DEP does not require more frequent monitoring.
- Has no lead or GRR service lines in its inventory but subsequently discovers such a service line, unless the line(s) are replaced prior to the start of the next tap monitoring period.



REDUCED MONITORING

- Water systems can qualify to conduct tap monitoring **annually** if they do not exceed the lead and copper action levels for two consecutive six-month tap monitoring periods and meet their OWQPs (if applicable).
 - Systems must sample for lead at the standard number of sites and for copper at the reduced number of sites.
- Water systems can qualify to conduct tap monitoring **every three years** at the reduced number of sites for both lead and copper if they meet their OWQPs (if applicable).
 - For systems serving 50,000 or fewer people, they do not exceed the lead and copper action level for three consecutive years.
 - For any water system, their 90th percentile lead and copper levels do not exceed the lead PQL of 0.005 mg/L and copper PQL of 0.65 mg/L, respectively, for two consecutive tap monitoring periods.
- Systems on reduced monitoring must sample during the tap sampling period of June through September, unless DEP has approved a different sampling period.



TRIENNIAL MONITORING

- Prior to conducting triennial monitoring, systems must receive a written determination from DEP approving triennial monitoring.
- The LCRI **did not** modify the provisions for systems serving 3,300 or fewer people to qualify for monitoring every nine years at the reduced number of sites.



NUMBER OF SAMPLES REQUIRED

- The final LCRI **did not** change the minimum number of tap samples that a system must collect.

System Size (Number of people served)	Standard Number of Sites	Reduced Number of Sites
≤100	5	5
101 - 500	10	5
501 – 3,300	20	10
3,301 – 10,000	40	20
10,001 – 100,000	60	30
>100,000	100	50



SAMPLE INVALIDATION

- Is sample invalidation allowed under the LCRI?
 - The LCRI retains the ability for states to invalidate samples from LCRR with some modifications.
 - Under LCRI, states now have the authority to invalidate samples that do not meet the site selection criteria (e.g., when sites of a higher tier were available and were not sampled) and/or the sample collection criteria, including minimum stagnation time.



CALCULATING THE 90TH PERCENTILE

Lead and Copper Rule Improvements



CALCULATING THE 90TH PERCENTILE

- What samples must be used to calculate the 90th percentile levels?
 - The 90th percentile levels of a system's lead and copper tap samples are compared against the respective action levels of 0.010 mg/L for lead and 1.3 mg/L for copper.
 - If a system exceeds either of these levels, the system must undertake steps to install or re-optimize OCCT and educate the public.
 - A description of the LCRI modifications to the 90th percentile calculation with examples follows.



ELIGIBLE SAMPLES

- Systems must first compile eligible sample results for the 90th percentile calculation.
- Samples are eligible to be included if they are:
 - Collected according to the LCRI compliance tap sampling protocol.
 - Collected during the appropriate tap sampling period; and are from the highest tiers with available samples.
 - The highest sample from each site collected during that tap sampling period must be included. For sites with LSLs, only the higher of the first- or fifth-liter sample can be included.
- Samples should be excluded if they were collected as follow-up to a single lead result above 0.010 mg/L or after service line replacement.



SYSTEM FEATURES

Systems must then calculate the 90th percentile levels according to the system characteristics below.

- Systems with **sufficient** Tier 1 and 2 sites.
 - Tier 1 samples are eligible.
 - Only when Tier 1 sites are exhausted can systems include samples from Tier 2, unless the system has 20% or more of residential sites in Tier 2.
 - Samples from Tiers 3 through 5 are **not** eligible.
- The 90th percentile levels must be calculated using all eligible sample results.



WHICH SAMPLES MUST BE INCLUDED IN THE 90TH PERCENTILE CALCULATION?

- **Example:** A system with lead service lines serves 10,001 people and is required to sample at 60 sites. The system collects samples from 62 Tier 1 and 2 sites and samples from eight Tier 3 sites. All samples meet the sampling protocol requirements. All available Tier 1 sites are exhausted.
- Which samples should be included in the 90th percentile calculation?
 - For lead, the higher of the first- or fifth-liter sample result from each of the 62 Tier 1 and 2 sites.
 - For copper, the first-liter sample results from the 62 Tier 1 and 2 sites.



INSUFFICIENT SITES

- Systems with an **insufficient** number of Tier 1 and 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.



WHICH SAMPLES MUST BE INCLUDED IN THE 90TH PERCENTILE CALCULATION?

- **Example:** A system with lead service lines serves 10,001 people and is required to sample at 60 sites. The system samples at a total of 65 sites: 50 Tier 1 and 2 sites, 12 Tier 3 sites, and 3 Tier 4 sites. All samples meet the sampling protocol requirements. All available Tier 1 sites are exhausted.
- Which samples should be included in the 90th percentile calculation?
 - Since sites from Tiers 1 through 3 are sufficient to meet the minimum number required, Tier 4 samples are not included.
 - For lead, the highest 60 samples (the minimum number of required samples) from Tiers 1, 2, and 3.
 - For each Tier 1 and 2 sample, only consider the higher of the first- and fifth-liter sample result.
 - For copper, the highest 60 first-liter sample results from Tiers 1, 2 and 3.



NO TIER 1 OR TIER 2 SITES

- Systems with **no** Tier 1 and Tier 2 sites.
 - Tier 3 samples 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 levels for lead and copper must be calculated using all eligible sample results.



WHICH SAMPLES MUST BE INCLUDED IN THE 90TH PERCENTILE CALCULATION? (3)

- **Example:** A system with no Tier 1 or Tier 2 sites serves 10,001 people and is required to collect 60 samples. The system collects a total of 70 samples: 30 samples from Tier 3 sites and 40 from Tier 4 sites. All samples meet the sampling protocol requirements. All available Tier 3 sites are exhausted.
- Which samples should be included in the 90th percentile calculation?
 - For lead, the first-liter sample results from the 70 Tier 3 and 4 samples.
 - For copper, the first-liter sample results from the 70 Tier 3 and 4 samples.



FIVE OR FEWER SAMPLES

- Systems collecting **five or fewer** samples.
 - Systems collecting five samples must use the average of the highest and second highest sample results.
 - The LCRI clarifies that systems collecting fewer than five samples must use the sample result with the highest concentration as their 90th percentile value if they meet one of the following criteria.
 - Have been approved to collect multiple samples from the same site on different days during the same tap sampling period.
 - Failed to collect the required minimum number of samples.



SAMPLE COLLECTION PROTOCOL

- All tap samples collected for analysis of lead and copper must be one liter in volume and have stood motionless in the plumbing system and/or service line of each sampling site for at least six hours.
- Bottles used to collect samples for analysis must be wide-mouth, one-liter sample bottles.
- Samples from residential housing must be collected from an interior kitchen or bathroom sink cold-water tap.
- Samples from a nonresidential building must be collected at an interior cold-water tap from which water is typically drawn for human consumption.
- Samples may be collected by the system, or the system may allow members of the public to collect samples after providing instructions for collecting samples.



PUBLIC EDUCATION REQUIREMENTS

Lead and Copper Rule Improvements



PUBLIC EDUCATION REQUIREMENTS

- The LCRI includes clearer and more complete messaging about lead in drinking water, including updated lead health effects language, steps consumers can take to reduce exposure and strengthens translation requirements for public education.
- Water systems must provide the updated health effects language in PNs and all public education materials.
- CWSs must provide updated health effects language in the CCR.
- Water systems must use the LCRI health effects language beginning Nov. 1, 2027.



LIMITED ENGLISH PROFICIENCY

- To ensure greater protection of consumers with limited English proficiency, water systems serving a large proportion of consumers with limited English proficiency must develop public education materials that contain the following:
 - Information in the appropriate language(s) regarding the importance of the materials.
 - Contact information for persons served by the water system to obtain a translated copy of the materials or assistance in the appropriate language, or the materials must be translated into the appropriate language.
- Water systems must submit a copy of all written public education materials to DEP prior to delivery.
- **DEP may require the system to obtain approval of the content of written public education materials prior to delivery.**



MATERIAL NOTIFICATIONS

NOTIFICATION OF SERVICE LINE MATERIAL

- The LCRI maintains the 2021 LCRR requirement for water systems to annually inform all persons at a service connection with a lead, GRR or lead status unknown service line of the material of their service line.
- In addition to notifying persons at the service connection, the LCRI also requires water systems to provide the notice to customers if different than the person served at the connection.
- A water system must provide notification no later than **30 days** after completion of the baseline inventory (due by Nov. 1, 2027) and repeat the notification no later than 30 days after the deadline for each annual update to the service line inventory until the entire service connection is no longer a lead, GRR or lead status unknown service line.
- For notifications to new customers, water systems must provide the notice at the time of service initiation.



INCLUDED CONTENT

- Water systems must include the same notification content for lead and GRR service lines, including instructions for consumers to notify the water system if they think the material categorization is incorrect.
- All notices (lead, GRR and unknown service lines) are required to include information about accessing the LSLRP, steps consumers can take to reduce exposure to lead in drinking water and a statement that the consumer can request to have their tap water sampled.



ADDITIONAL INFORMATION

- Water systems must deliver notice and educational materials to customers and persons served by the water system at potentially affected service connections during water-related work that could disturb lead, GRR or unknown service lines, including disturbances due to inventorying efforts.
- The notification must explain that the consumer may experience a temporary increase of lead levels in their drinking water due to the replacement and contact information for the water system.
- The system must provide written information about a procedure for the consumer to flush service lines and premise plumbing of particulate lead following replacement.
- For disturbances resulting from the replacement of an inline water meter, a water meter setter, or connector, or from the replacement of a water main whereby the service line pipe is physically cut, the water system must provide the persons served by the water system at the service connection with a pitcher filter or point-of-use device certified by an ANSI accredited certifier to reduce lead, instructions to use the filter and six months of filter replacement cartridges.



ADDITIONAL OUTREACH

ENCOURAGING PARTICIPATION IN SERVICE LINE REPLACEMENT

- If a CWS does not meet the cumulative average annual replacement rate required by the rule, the CWS must conduct additional public outreach activities to encourage customers to participate in the service line replacement program.
- Starting after the third program year, the CWS must conduct outreach and distribute public educational materials at least once per year following the year the system does not meet the required cumulative average annual replacement rate.
 - This must continue annually until the system meets the required cumulative average annual rate, or there are no more lead, GRR or unknown service lines in its inventory.
- Outreach activities are specified in the rule and include but are not limited to conducting a public meeting, participating in a community event and contacting customers by phone, text, email or door hanger.



SYSTEM-WIDE LEAD ACTION LEVEL EXCEEDANCE

- **Tier 1 PN.**

- All water systems must continue to issue Tier 1 PN within 24 hours following a lead ALE as required under the 2021 LCRR and outlined here.
- Beginning Nov. 1, 2027, water systems must:
 - Issue Tier 1 PN when the lead 90th percentile exceeds the new action level of 0.010 mg/L.
 - Include the updated mandatory lead health effects language from the LCRI.



PUBLIC EDUCATION

Lead and Copper Rule Improvements



PUBLIC EDUCATION

- All systems must provide public education to all customers and persons served by the water system when the lead 90th percentile exceeds the new action level of 0.010 mg/L.
- The LCRI made additional changes to public education requirements after a lead ALE.
 - Water systems must conduct the public education activities within **60 days** of the end of the tap sampling period in which the exceedance occurred.
 - A water system must repeat the public education activities until the system is at or below the action level.
 - If DEP grants an extension for a water system to conduct the public education activities, the deadline must not extend beyond six months after the end of the tap sampling period in which the lead ALE occurred.



WRITTEN EDUCATION MATERIALS

- Public education materials must be written, meaning they can be printed (i.e., delivered by mail or hand) or electronic (i.e., delivered by email) materials.
 - The public education **cannot** be oral (i.e., delivered by phone call or voice message), unless this is done in addition to one of the other allowed delivery formats.
- Water systems must include information in the public education materials about lead in plumbing components, steps consumers can take to reduce exposure to lead in drinking water and how consumers can get their water tested.
- Systems with lead, GRR or unknown service lines and lead and unknown connectors must include information about the service line inventory in the public education materials.
 - Systems with lead, GRR or unknown service lines must include additional information about replacement of lead and GRR service lines and identification of unknown service lines.



CONSUMER-REQUESTED SAMPLING

- Water systems must offer to sample for lead in the tap water of any person served by the water system who requests it if:
 - The water system has a lead ALE.
 - The consumer is served by a lead, GRR or lead status unknown service line.
- At sites served by a lead, GRR or lead status unknown service line, the samples must capture both water in contact with premise plumbing and water in contact with the service line (e.g., first- and fifth-liter samples).
- **Systems must deliver results of this on-request sampling within three business days of learning the results.**



CONSUMER NOTICE OF TAP SAMPLING RESULTS

- Consumer notice of tap sampling results informs consumers of their individual tap sampling results when their home's or building's drinking water is tested for lead and copper.
 - The LCRI requires water systems to provide consumer notice of lead or copper tap sampling results as soon as practicable, but no later than three business days from the system learning the results.
 - Consumer notification is required in the same time frame regardless of lead or copper levels and includes both tap sampling results from lead and copper tap water monitoring compliance samples as well as consumer-requested tap sampling.
 - Water systems can deliver the notice either electronically (e.g., email or text message), by phone call or voice message, hand delivery, by mail (postmarked within three business days of the system learning of the results) or by another method approved by DEP.
 - Water systems that choose to deliver the notice orally by phone would be required to follow up with a written notice hand delivered or postmarked within 30 days of the water system learning the results.



OUTREACH TO LOCAL AND STATE HEALTH AGENCIES

- CWSs must annually provide public education materials and information about distribution system and site assessment activities (DSSA) to local and state health agencies.
 - CWSs must provide DSSA information from the previous calendar year, including the location of the tap sample site that exceeded 0.010 mg/L; sample results for initial tap sample, follow-up sample, water quality parameter monitoring; and any distribution system management actions or corrosion control treatment adjustments made.
 - CWSs must also provide copies of public education materials for actions conducted in the previous calendar year.



MULTIPLE LEAD ACTION LEVEL EXCEEDANCES

- Water systems with multiple lead ALEs (i.e., at least three lead ALEs in a five-year period) must conduct additional public outreach activities and make filters available.
 - The LCRI requires water systems to take preparatory action after two lead ALEs.
- **Within 60 days** after a water system exceeds the lead action level for the **second time** in a rolling five-year period, the water system must submit a **filter plan** to the State.
- The plan must include the following:
 - How the system will make pitcher filters or point-of-use devices certified by an ANSI accredited certifier to reduce lead and replacement cartridges available.
 - How the system will address any barriers to consumers obtaining filters.
- **DEP must review and approve the filter plan within 60 days.**



FILTERS AND PUBLIC EDUCATION

- **Within 60 days** after the tap sampling period during which a water system exceeds the lead action level for the **third time** in a rolling five-year period, the water system must make pitcher filters or point-of-use devices, six months of replacement cartridges and instructions for use available to **all** consumers.
- **Within six months** of the start of the tap sampling period after the most recent lead ALE in which the system meets the criteria for multiple ALEs, a water system must conduct at least one outreach activity.
 - This activity is in addition to the public education required after a single lead ALE.
 - **Outreach activities** are specified in the rule and include but are not limited to conducting a public meeting and contacting customers by phone, text, email or door hanger.
- A water system must conduct an outreach activity every six months and continue to make replacement cartridges available until the system no longer has at least three lead ALEs in a rolling five-year period or if DEP allows the system to discontinue these activities sooner given certain conditions.



CONSUMER CONFIDENCE REPORTS

- Starting with the first CCR distributed after Nov. 1, 2027, CWSs must include the following lead-related content:
 - Updated informational statement about lead.
 - Updated mandatory lead health effects language.
 - Informational statement about sampling for lead in schools and childcare facilities that directs the public to contact their school or childcare facility for further information.
 - Information about corrosion control efforts.
 - A statement that a service line inventory (including inventories indicating no lead, GRR or lead status unknown service lines, or known lead connectors or connectors of unknown material) has been prepared and include instructions to access the publicly accessible service line inventory.
- CWSs with lead, GRR or unknown service lines must include information on how to obtain a copy of the service line replacement plan or view the plan online.



THANK YOU

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