Fact Sheet

Frequently Asked Questions:
Lead and Copper Rule Revisions (LCRR)
Lead Service Lines (LSL) Inventory

**DISCLAIMER: This document is intended to provide answers to questions that may arise regarding developing a lead service line inventory in community and non-transient non-community water systems. This document is non-regulatory and nothing in this document supersedes any statutory or regulatory requirements or permit provisions for public water systems.*

The United States Environmental Protection Agency (U.S. EPA) issued revisions to the federal Lead and Copper Rule (LCR) on January 15, 2021. U.S. EPA's new Lead and Copper Rule Revisions (LCRR) strengthen every aspect of the LCR to better protect communities and children in elementary schools and childcare facilities from the impacts of lead exposure. The new LCRR will get the lead out of our nation's drinking water and empower communities through information. Over the next three years, the LCRR will require community water systems (CWSs) and non-transient non-community water systems (NTNCs) throughout the United States (approximately 4,000 water systems in California) to conduct an inventory of service lines and determine the material of those lines and fittings.

On January 20, 2021, federal Executive Order 13990 directed all federal agencies to undertake review and action, as appropriate, to address the promulgation of federal regulations and other actions during the prior four years. Of those actions, the LCRR was specifically identified as an agency action requiring review. Consequently, U.S. EPA delayed the effective and compliance dates established in the LCRR to December 16, 2021 and October 16, 2024, respectively. U.S. EPA also engaged with local communities, states, local governments, utilities, and stakeholders for input regarding any changes that should be made to the LCRR.

On December 16, 2021, following U.S. EPA engagement activities, U.S EPA published Docket No. EPA-HQ-OW-2021-0255 in the federal register. The LCRR compliance and effective dates listed above, as well as the text from the January 15, 2021 regulation, were not changed and became effective. Within the Docket, U.S. EPA committed to propose and revise the LCRR by October 2024 with the Lead and Copper Rule Improvements (LCRI). The LCRI are

expected to delay the implementation of portions of the LCRR beyond the October 16, 2024 compliance date. U.S. EPA will not delay the service line material inventory requirements in the LCRR.

The LCRI may include modifications to the following sections[1]:

- Timely replacements of lead service lines,
- Revised tap sampling and lead action/trigger levels,
- Small system flexibility,
- School and Child Care Center sampling,
- Public education, and
- Corrosion control treatment.

In August 2022, U.S. EPA issued "Guidance for Developing and Maintaining a Service Line Inventory" (Office of Water (4606M) EPA 816-B-22-001). The document discusses inventory requirements within the LCRR and recommendations to water systems in developing and maintaining a service line inventory. U.S. EPA also hosted a webinar that provided an overview of the inventory guidance and funding opportunities. The guidance document and the recorded webinar are available at https://www.epa.gov/ground-water-and-drinking-water/revised-lead-and-copper-rule.

1. What are the new requirements and what must be included in the LSL Inventory under the LCRR?

All community and non-transient non-community public water supply systems (water systems) must comply with the LCRR. Water systems must develop an inventory to identify service line materials connected to the public water distribution systems by October 16, 2024. Though the LCRR do not define a "service line," they define a "lead service line" as such: "Lead service line means a portion of pipe that is made of lead, which connects the water main to the building inlet. …" (Complete definition in Section 2). The inventory must include all service lines connected to the water system's distribution system, regardless of ownership status. If the service line ownership is shared, the inventory would include both the portion of the service line owned by the water system and the customer-owned portion of the service line.

2. What is the LCRR definition of a lead service line, gooseneck and galvanized line?

Lead service line means a portion of pipe that is made of lead, which connects the water main to the building inlet. A lead service line may be owned by the water system, owned by the

[1] U.S. EPA will also consider addressing these issues through non-regulatory actions such as the development of implementation tools, guidance, and other federal programs.

property owner, or both. A galvanized service line is considered a lead service line, or a "galvanized requiring replacement" (GRR) (see additional explanation below and definition in Section 4), line if it ever was or is currently downstream of any lead service line or service line of unknown material. If the only lead piping serving the home is a lead gooseneck, pigtail, or connector, and it is not a galvanized service line that is considered a lead service line, then the service line is not a lead service line.

Gooseneck, pigtail, or fitting, connector is a short section of piping, typically not exceeding two feet, which can be bent and used for connections between rigid service piping. Lead goosenecks, pigtails, fittings, and connectors are not considered to be lead service lines but must be replaced when encountered during planned or unplanned infrastructure work pursuant to 40 Code of Federal Regulation (CFR) section 141.84, subdivision (c).

Galvanized service line means iron or steel piping that has been dipped in zinc to prevent corrosion and rusting.

Note from the LCRR definitions above: *A galvanized line that is connected downstream of a lead gooseneck, pigtail, fitting, or connection is not considered a GRR and does not require replacement*

3. How are the general requirements in California Health and Safety Code section 116885 and the LCRR similar?

California Health and Safety Code section 116885—Lead Service Lines in Public Water Systems—added to the Health and Safety Code by Senate Bill No. 1398 (2015-2016 Reg. Sess., Stats. 2016, ch. 731) and amended by Senate Bill No. 427 (2017-2018 Reg. Sess., Stats. 2017, ch. 238), required all community water systems (CWSs) to compile an inventory of known partial or total lead user service lines in use in their distribution systems by July 1, 2018. The submission deadline for the final user service line inventory was July 1, 2020.

The definition of "user service line" in the California Health and Safety Code[2] includes the service line from the water main to the meter, which is typically the water-system-owned portion of the line. Health and Safety Code section 116885 requires that all lead from the water main to the meter be inventoried and replaced. The State Water Resources Control Board's (State Water Board) Division of Drinking Water (DDW) will continue to collect data on lead goosenecks and required service line replacement plans. Water systems that reported

[2] California Health and Safety Code section 116890, subdivision (a)(4) defines a "user service line" as the same definition found in California Code of Regulations, title 22, section 64551.06: "'User service line' means the pipe, tubing, and fittings connecting a water main to an individual water meter or service connection."

any lead service lines or lead fittings are required to update their inventory annually. A lead gooseneck needs to be replaced according to the approved timeline under section 116885.

The data collected by community water systems can be used to complete a portion of the LCRR inventory requirements, but the LCRR inventory must also include the portion of the service line from the meter to the building inlet, or the customer-owned portion of the total service line. Also, if a lead gooseneck is connected to a galvanized pipe, that service line may need to be included in the water system's new LCRR tap sampling plan pursuant to 40 CFR section 141.86, subdivision (a)(5).

Based on the information obtained from the California Health and Safety Code section 116885 inventory requirements, the following statistics are from July 2020:

- Over 10,000,000 user service lines inventoried on community water systems
- 10,992 lead fittings identified
- 1 lead pipe identified and removed in 2021
- 59,179 unidentified user service lines as of July 2020
- 97 systems with approved timelines for replacement of water-system-owned portion of unknown and known lead user service lines
- One system has completed its replacement plan
- 12 systems with approved timelines for replacement have identified lead fittings

4. How is each portion of the service line material categorized in the LCRR?

DDW will be collecting material data on both the water-system-owned portion of the service line (water main to the meter) and the customer-owned portion of the service line (meter to the building inlet). Each portion of all service lines served by all water systems must be categorized in the following manner:

(i) "Lead" where the service line is made of lead.

(ii) "Galvanized Requiring Replacement" (GRR) where a galvanized service line is or was at any time downstream of a lead service line or is currently downstream of a "Lead Status Unknown" service line. If the water system is unable to demonstrate that the galvanized service line was never downstream of a lead service line, it must presume there was an upstream lead service line.

(iii) "Non-lead" where the service line is determined through an evidence-based record, method, or technique not to be lead or galvanized requiring replacement. Sampling for lead and copper in the LCRR in non-lead systems requires additional knowledge of service line

material. DDW encourages the water system to classify the actual material of the service line (*i.e.,* plastic or copper) as often as possible as an alternative to classifying it as "Non-lead."

(iv) "Lead Status Unknown" where the service line material is not known to be lead, galvanized requiring replacement, or a non-lead service line, such as where there is no documented evidence supporting material classification.

The water system must identify all service lines, regardless of usage of the water (e.g., non-potable use such as fire suppression system), and active/emergency status of the service line. The service line could be repurposed in the future for a potable, active use.

The inventory is used in several parts of the LCRR, including to determine specific requirements on lead service line replacement which are triggered by tap sample results, to conduct customer and property owner notification, and to select compliance tap sampling sites.

All water systems must develop and submit to DDW an initial inventory **by October 16, 2024**.

5. How does a water system document each service line?

Pursuant to the LCRR, each service line or portion of the service line where ownership is split, must be categorized separately. Various states and the Association of State Drinking Water Administrators (ASDWA) have developed templates to input data for lead service line inventories. Examples from ASDWA, Wisconsin, Minnesota, Michigan, and Kansas are available at the following link: https://www.asdwa.org/lead-and-copper-rule-lcr/. In August 2022, U.S. EPA released an example inventory template at https://www.epa.gov/ground-water-and-drinking-water/revised-lead-and-copper-rule.

DDW has developed a spreadsheet that contains the minimum amount of information required for a water system to comply with the LCRR. Water systems must make this information available upon request for each service. Water systems may use the example template spreadsheets above to add additional information. Each water system must maintain the inventory information and be prepared to provide it to DDW during sanitary surveys or audits of the LCRR program. DDW has created a spreadsheet for required inventory information and posted the spreadsheet on the LCRR webpage at https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/leadandcopperrule.html.

DDW will collect the water system-owned and customer-owned summary inventory information in 2024. A specific address or location identifier will be required if any portion of the service line contains lead, GRR, or lead goosenecks/fittings. DDW will post the lead service line information publicly. Water systems are required to notify all customers served by lead service

lines, GRRs, or lead status unknown service lines within 30 days of completion of the inventory.

DDW will also collect a separate spreadsheet of all unknown material service lines. Lead Status Unknown service lines are treated as lead service lines in the LCRR until identified. Annual public notification to each customer with an unknown service line is required. The LCRR describes a disturbance where notification and flushing instructions are required for any act that causes the individual service line water to be shut off. The LCRR further describes a disturbance as the replacement of a meter, gooseneck, pigtail, or connector where pitcher filters and public education are also required. (40 CFR, §141.85 subd. (f).)

Water systems must make their service line inventory that includes a location identifier or specific address for any lead line or galvanized line requiring replacement publicly available. (40 CFR, §141.84, subd. (a)(8)(i).) Water systems serving more than 50,000 people must post their inventory online. CWSs and NTNCs must include instructions in their Consumer Confidence Reports on how to access the inventory. When a water system has no lead, GRR, or lead status unknown service lines in its inventory, it may meet LCRR public availability requirements by providing a written statement in lieu of publishing the inventory. The written statement (an example will be provided on DDW webpage) should also include a general description of methods used to make the determination that the system contains only non-lead service lines and a signature by an authorized representative of the water system. DDW will provide additional information when it is available on the LCRR webpage.

6. What information does a water system need to use to develop the required inventory?

The LCRR inventory requirement directs water systems to undergo a record review of information pertaining to service lines, both water system-owned and customer-owned portions. U.S. EPA understands that no inventory method is 100 percent accurate, but the LCRR requires utilities to update their inventories on a regular basis as new inventory information becomes available. The LCRR requires the water system to utilize the following information to develop an inventory.

- All construction and plumbing codes, permits, and existing records or other documentation which indicates the service line materials used to connect structures to the distribution system. (Example: Determine if there is any ordinance (City or County Building Department) that prohibits lead lines, and its effective date.)
- All water system records, including distribution system maps and drawings, historical records on each service connection, meter installation records, historical capital improvement or master plans, and standard operating procedures. (Example: System tap

cards may contain helpful information, such as the diameter of the service line and the installation date of the main and user service line.)

- All inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system.

California Health and Safety Code section 116885 required a material inventory of all community water systems' service lines from the water main to the meter by July 1, 2018. Accordingly, most community water systems have already obtained some of the information that can be used to complete the new U.S. EPA LCRR requirements. Water systems must continue to review records, such as those listed above, to further inventory the remaining service line information.

For example, California Health and Safety Code section 300.6 banned the use of lead solder and lead pipe in public water systems after 1985:

> Section 300.6. Lead solder or pipe; use in private or public potable water supply systems
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> (a) Solders containing more than 0.20 percent lead shall not be used in making joints and fittings in any private or public potable water supply system or any water user's pipelines.
>
> (b) No solder containing more than 0.20 percent lead shall be sold in California on and after July 1, 1986, unless it contains a warning label which states: "Contains lead. California law prohibits the use of this solder in making joints and fittings in any private or public potable water supply system or any water user's pipelines."
>
> (c) On and after January 1, 1986, lead pipe shall not be used in the construction of private or public potable water supply systems.

Any construction occurring in 1986 to present is assumed to not contain lead pipes or goosenecks. Physical verification will not be needed, but dates of construction need to be verified by a record. The service line material can be labeled non-lead.

7. Identification methods approved by DDW

Physical visual inspection of the piping is an acceptable method to determine the material of a service line. The service line can be visually inspected at the meter or valve box. If inspecting near the meter, ensure the observed material is the actual service line and not part of the metering components or a second point of verification will be needed for that portion of the service line. A record of the physical visual verification must be made by the water system. Customers may also assist with a visual inspection (e.g., by using scratch or magnet tests or lead paint test kits) to help identify the material of the customer-owned portion of the service line. The water system should develop a check list and instructions for customers and obtain a written record and photograph for verification. The water system will need to ensure the

customer verification is appropriate prior to creating a record of the service line. Examples of cities using customers' verification are included in the U.S. EPA's inventory guideline section 5.1.1.

Dating the initial or most recent construction of the service line can be used in conjunction with a state or municipal code banning lead to determine non-lead status if the initial or most recent construction occurred after a lead ban. Any construction occurring after January 1, 1986 is assumed to not contain lead pipes or goosenecks. Physical verification will not be needed but dates of construction need to be verified by a record. All installations after January 1, 1986, can be labeled non-lead.

Pipe diameter can be used to determine a pipe is non-lead. Most lead pipes and lead goosenecks are 2 inches in diameter or less. Some 3-inch diameter lead pipes have been identified. DDW will allow the water system to use a non-lead designation for any pipe 4 inches in diameter or greater.

NOTE: When physically identifying the material of a service line that has a split ownership (i.e., water-system-owned and customer-owned), a water system may verify the following locations or points: the connection at the main, the pipe from the main to the meter, the connection at the meter, the pipe to the building inlet, and the connection at the building. A water system needs to have a plan on how to verify the material of the pipe and connectors, if connectors exist, such as tails on meters, and determine if a second point of verification is needed for that portion of the service line. Not all service lines need to be inspected at all points. The water system must verify enough locations on the service line as needed to ensure the inventory is accurate. The number of verifications will be determined on a case-by-case basis by the water system. Verification of service line material on each side of the meter is usually adequate to determine the pipe material. The water-system-owned portion of the service line verification has been completed. The water system may discuss their inventory plans with the DDW district office.

DDW encourages the water system to classify the actual material of the service line (*i.e.,* plastic or copper) as often as possible as an alternative to classifying it as "Non-lead." Sampling for lead and copper in the LCRR in non-lead systems requires additional knowledge of service line material.

8. Methods of identification approved on a case-by-case basis

Water quality sampling may be used by a water system to detect the presence of a lead service line. Water systems may use the sampling protocols discussed under Section 5.2 of U.S. EPA's inventory guideline to develop a sampling strategy. A water system using water quality sampling to identify lead service lines will need to establish a community-specific

threshold lead concentration above which would indicate possible presence of a lead service line. The water system will also need to pilot the sampling protocol on a known lead service line and a known non-lead service line prior to conducting sampling and identifying unknown material service lines. The proposed sampling protocol and pilot sampling results need to be reviewed and approved by DDW.

Predictive models look for patterns in a known dataset to develop algorithms to determine what material may be at located in an area with unknown material service lines. The predictive models are not 100 percent accurate, but they are a useful tool to find areas that need more attention or additional verification. Any water system that finds it necessary to use a predictive model will need to develop a plan and provide it to DDW for review and approval. The water system will need to identify as many service lines as possible using means described above and in EPA Guidance Section 6 and 7 before using the model to predict the remaining unknown lines. Using representative known data on service line material will improve the accuracy and reliability of the model. Most lead service lines were installed prior to 1950. More accurate identification methods will be needed for older service lines.

Interpolation is a method of using known service lines in one area and assuming other service lines in that area are the same based on date of installation, contractor used, or some other method. Any interpolation in a water system inventory and the associated data or documentation used will need to be approved by DDW.

Interviews with experienced system staff and plumbers can be used to focus the inventory effort and verify utility practices. Classifications of service line materials based on interviews, however, should not be used as a sole source of information for the initial inventory. Systems may also consider interviewing their neighboring water systems to inquire about regional practices. A significant number of field verification is needed to validate staff interviews.

Emerging methods of service line material identification technology are being developed by researchers. Any emerging method of identification will need to be piloted by the water system on known lead service lines and non-lead service lines to determine the effectiveness of the product prior to engaging with DDW for an approval process. All emerging methods will need to be approved by DDW at each water system.

9. Non-Transient Non-Community Water Systems (NTNC)

NTNC water systems traditionally are connected directly to the source and do not contain service lines. Examples are schools and private businesses. The NTNC water systems will need to inventory all piping from the source to the building inlet. U.S. EPA is developing additional guidelines for these systems.

10. What other inventory information is needed for schools and child care centers?

The LCRR requires that each water system compile a list of schools and child care facilities served by the water system by October 16, 2024. (40 CFR, §141.92, subd. (a).)

"Child care facility" means a location that houses a licensed provider of child care, day care, or early learning services to children, as determined by the State, local, or tribal licensing agency. (40 CFR, §141.2.) In California, licensed Child Care Centers are regulated by the Department of Social Services. California's "Child Care Center" definition does not include Family Child Care Homes.

"School" means any building(s) associated with public, private, or charter institutions that primarily provides teaching and learning for elementary or secondary students. (40 CFR, §141.2.) A secondary school is considered a middle school (usually 6 to 8 grade) and high school (usually 9 to 12 grade).

11. Is funding available to develop the inventory and replace lead service lines?

Yes, the U.S.EPA will provide funding to states to help pay for utility service line inventory development and replacement of lead service lines. U.S.EPA funding will go to the State Water Board. The State Water Board, Division of Financial Assistance (DFA) administers the implementation of the State Water Board's financial assistance programs, including loan and grant funding.

General Inquiries
Telephone: (916) 327-9978

Drinking Water State Revolving Fund

Email: DrinkingWaterSRF@waterboards.ca.gov

Webpage: https://www.waterboards.ca.gov/water_issues/programs/grants_loans/

12. How will a water system with an approved timeline for replacement, required by California Health and Safety Code section 116885, be incorporated into these new requirements?

A water system with an approved Lead User Service Line Replacement Plan must continue to replace lead user service lines per the required timeline. Timeline approval letters came with instructions for precautions water systems should take when doing replacements to protect their customers and requirements for annual reporting. Permit amendments reiterating and

elaborating on these precautions were also issued to water systems replacing lead pipes or lead goosenecks. Replacements must continue in accordance with the approved timelines and permit amendments regardless of tap sample results. In contrast, under the LCRR, replacements are not required unless tap sample results exceed certain levels.

13. If a water system is replacing lead pipe, GRR or lead goosenecks, connectors or fittings, what procedures should be followed to prevent lead exposure to customers?

The LCRR requires the water system that has an approved replacement plan to follow procedures to prevent lead exposure to customer during construction. DDW recommends a water system conducting construction on any lead pipe, GRR, gooseneck, connector or fitting to:

- Determine the service line material on the landowner/customer property.
    - If the landowner/customer is unwilling to allow the water system to determine the service line material, the water system should document the interactions with the landowner/customer.
    - If the landowner/customer-owned service line is also lead, the water system needs to inform the customer of the lead service line and work with the landowner/customer to remove all lead materials at the same time.
    - The water system is not required to bear the cost of the replacement of the portion of the affected service line not owned by the water system.
    - If the landowner/customer-owned service line is lead and the landowner/customer is unwilling to replace the service line, the water system may continue the water-system-owned user service line replacement.
- Provide the person served by the water system at the service connection with educational information about the potential for elevated lead levels in drinking water as a result of the disturbance.
- Provide the person served at the service connection with flushing instructions for the building following the replacement.
- Provide a pitcher filter certified by an American National Standards Institute (ANSI) accredited certifier to reduce lead, instructions to use the filter, and six months of filter replacement cartridges or an equivalent certified ANSI point of use device registered with DDW.
- Offer to the consumer to take a follow-up tap sample after completion of the service line replacement.

Resources:

Many examples of strategies, webpages, and resources have been developed by water systems and states over the past few years. Some are provided below:

Example of road map to LSLR - how to identify service line material and prepare an inventory: https://www.lslr-collaborative.org/

Example of how to identify service line material: Madison (WI) https://www.cityofmadison.com/water/water-quality/water-quality-testing/lead-copper-in-water

Example of a map and how to identify service line material: Greater Cincinnati (OH) Water Works webpage: https://la.mygcww.org/do-i-have-a-lead-service-line/

(*These FAQs were last updated on March 2023)*