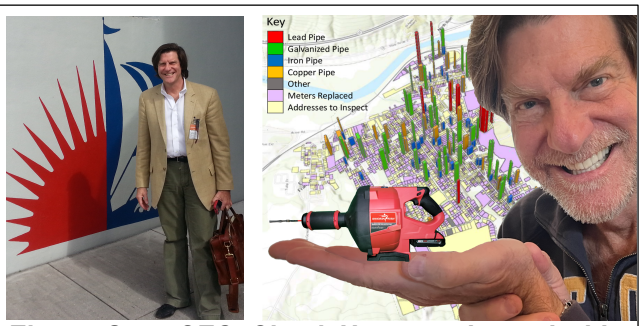
Element 82 Helping Florida Utilities Identify Lead Service Lines With SWORDFISH

Table 1. State of Florida, Construction by Decade

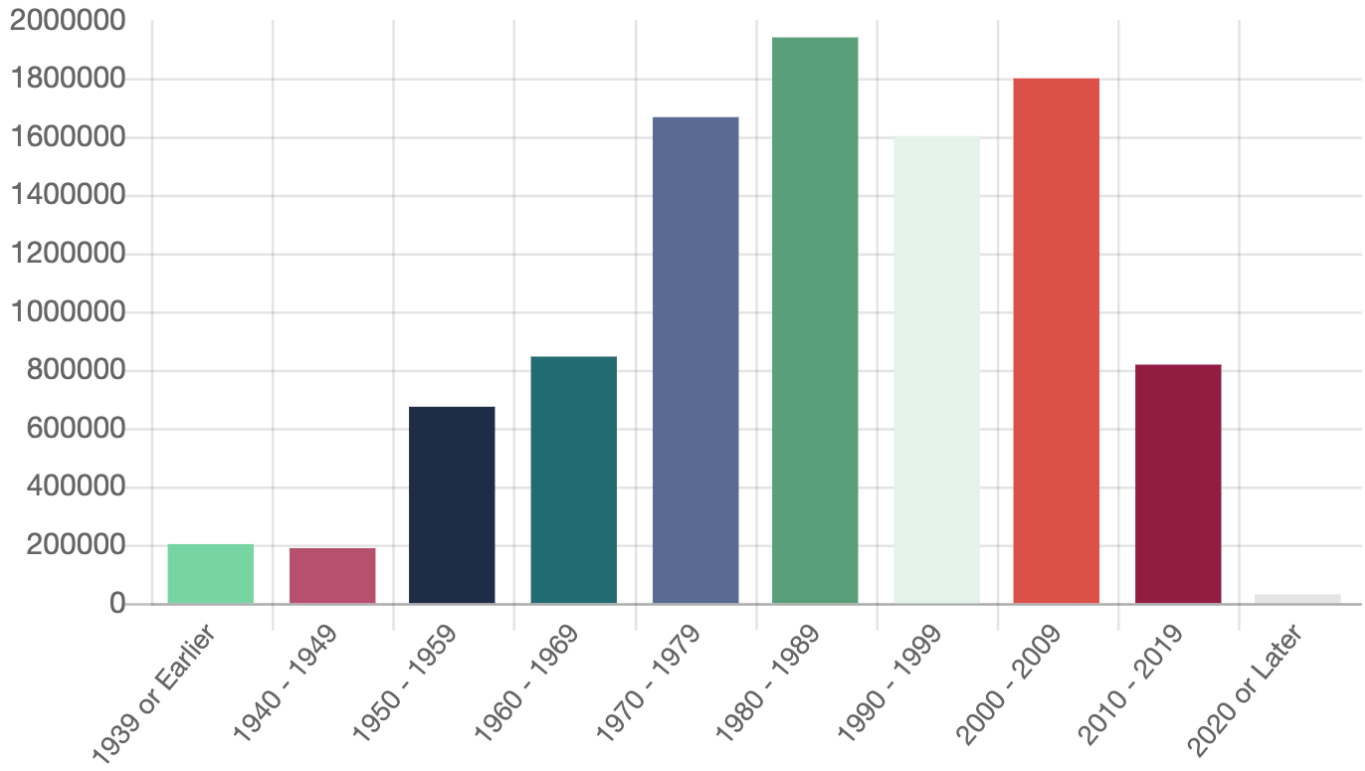
Housing Units	9,764,897
Median Year Built	1987
Built in 1939 or Earlier	202,182
Built between 1940 and 1949	188,288
Built between 1950 and 1959	673,306
Built between 1960 and 1969	845,308
Built between 1970 and 1979	1,666,513
Built between 1980 and 1989	1,940,031
Built between 1990 and 1999	1,601,799
Built between 2000 and 2009	1,799,525
Built between 2010 and 2019	817,835
Built in 2020 or Later	30,110

With a Median Year Built of all homes of 1987 and lead banned for use in construction in 1986, there is a good reason the State of Florida has the highest projected number of lead service lines in the U.S.



Electro Scan CEO, Chuck Hansen, pictured with its award-winning, SWORDFISH.

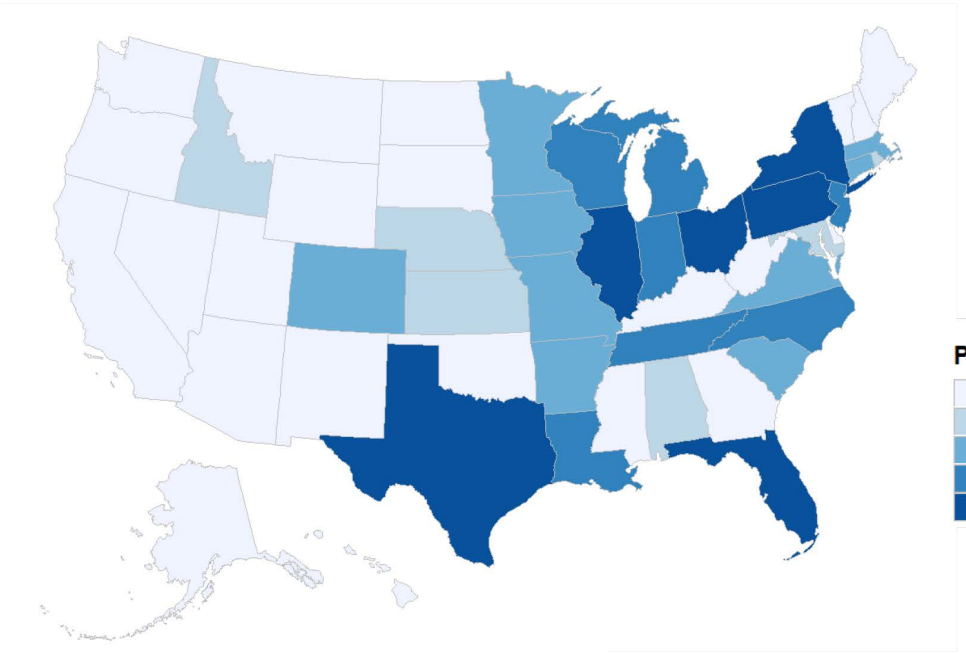
Figure 1. State of Florida, Home Construction by Decade



SOURCES

https://www.point2homes.com/US/Neighborhood/FL.html

Projected Number of Lead Services Lines by State

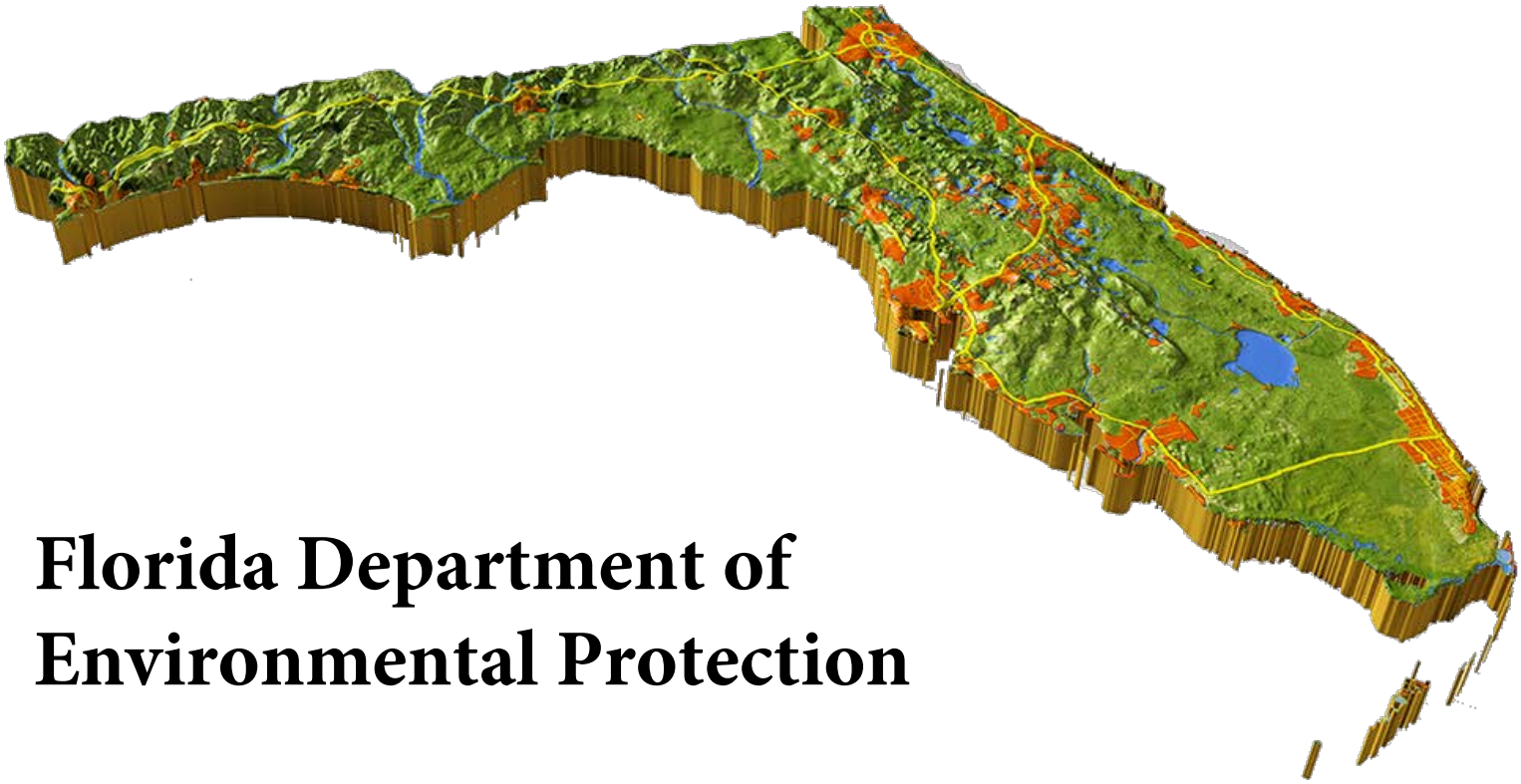


Total Projected Lead Services Lines by State

State	Projected LSL	
	Number	% of Total
Alabama	91,544	1.00%
Alaska	1,454	0.02%
Arizona	11,429	0.12%
Arkansas	171,771	1.87%
California	13,476	0.15%
Colorado	111,907	1.22%
Connecticut	146,574	1.60%
Delaware	42,479	0.46%
Florida	1,159,300	12.62%
Georgia	45,985	0.50%
Hawaii	9,589	0.10%
Idaho	49,434	0.54%
Illinois	1,043,294	11.35%
Indiana	265,400	2.89%
Iowa	96,436	1.05%
Kansas	54,107	0.59%
Kentucky	40,207	0.44%
Louisiana	266,984	2.91%
Maine	18,057	0.20%
Maryland	71,166	0.77%
Massachusetts	117,090	1.27%
Michigan	301,790	3.28%
Minnesota	136,873	1.49%
Mississippi	11,098	0.12%
Missouri	202,112	2.20%
Montana	14,125	0.15%
Nebraska	53,230	0.58%

State	Projected LSL	
	Number	% of Total
Nevada	9,048	0.10%
New Hampshire	14,819	0.16%
New Jersey	349,357	3.80%
New Mexico	15,453	0.17%
New York	494,007	5.38%
North Carolina	369,715	4.02%
North Dakota	26,443	0.29%
Ohio	745,061	8.11%
Oklahoma	28,679	0.31%
Oregon	3,530	0.04%
Pennsylvania	688,697	7.50%
Puerto Rico	51,490	0.56%
Rhode Island	75,749	0.82%
South Carolina	108,177	1.18%
South Dakota	4,141	0.05%
Tennessee	381,342	4.15%
Texas	647,640	7.05%
Utah	14,293	0.16%
Vermont	5,263	0.06%
Virginia	187,883	2.04%
Washington	22,030	0.24%
West Virginia	20,259	0.22%
Wisconsin	341,023	3.71%
Wyoming	10,477	0.11%
District of Columbia	27,058	0.29%
Total	**9,188,545**	

Source: 7th Drinking Water Infrastructure Needs Survey and Assessment, April 2023.



Florida Department of Environmental Protection

Guidance for Service Line Inventory and Compliance Requirements

"EPA's SLI Guidance also discusses a variety of emerging technologies that can reliably evaluate the physical properties of the service line in order to indicate what materials were or were not used for the line's construction. For example, the SLI Guidance discusses the use of ground-penetrating radar (GPR) as an emerging technology where it can be used to determine the pipe diameter. The Department also approves the usage of insertion probes or similar technology devices as a tool to determine properties such as the electrical resistance of the service line material. The Department recommends that each utility conduct its own cost and/or risk analysis on any emerging technology it considers for usage. See Figure 2 and Appendix for announcement."

FLORIDA DEPARTMENT OF
Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Secretary

Guidance for Service Line Inventory and Compliance Requirements

Released January 12, 2024

FLORIDA DEPARTMENT OF Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Secretary

Memorandum

To: Division of Water Resource Management Drinking Water Program
Regulatory District Directors
District Compliance Assurance Programs
ACHD Drinking Water Drinking Water Programs
Interested Parties

From: John A. Coates, Director
Division of Water Resource Management

Digitally signed by John A. Coates
Date: 2024.01.12 12:15:42 -05'00'

Subject: Guidance for Service Line Inventory and Compliance Requirements, in Accordance with Subpart I of Title 40 CFR Part 141, Control of Lead and Copper, for Community and Non-Transient, Non-Community Public Water Systems in Florida

Date: January 12, 2024

This document provides guidance for Department of Environmental Protection (Department) staff, Approved County Health Department (ACHD) staff, and interested parties on the Department's evaluation of lead service line inventories prepared for Community and Non-Transient Non-Community Public Water Systems in accordance with Subpart I of Title 40 Code of Federal Register Part 141 (40 CFR Part 141), Control of Lead and Copper, in Florida. Specifically, this guidance addresses the Department's review and basis for approval of lead service line inventories (LSLIs or Inventories) that are required to be submitted to the Department by October 16, 2024, in accordance with 40 CFR Part 141.

The U.S. Environmental Protection Agency (EPA) published the Lead and Copper Rule Revisions (LCRR) on January 15, 2021; however, as a result of subsequent EPA reviews and updated requirements, the deadline for submittal of an initial LSLI to the Department was effectively delayed to October 16, 2024[1]. Establishing an initial LSLI is

[1] EPA published the LCRR on January 15, 2021 (Federal Register Vol. 86, No. 10, p. 4198); however, on June 16, 2021, the EPA published a rule change (Federal Register Vol. 86, No. 114, p. 31939) to delay the effective date of the LCRR to December 16, 2021, and to delay the compliance date for the LCRR. As a result, the deadline for the initial submittal of a service line inventory is October 16, 2024.

a critical first step for public water systems to deploy a variety of methods to identify the materials used for construction of service lines within their respective water distribution service areas. The Inventory is an essential process for identifying any lead service lines (LSLs) in Florida, and ultimately providing for their replacement over time[2].

Federal Regulations under the Safe Drinking Water Act, at Title 40 Part 141.80, require all community and non-transient, non-community public water systems to prepare and maintain an inventory of service line materials, the Service Line Inventory (LSLI), for the purpose of identifying lead service lines (LSLs). All initial LSLIs must be submitted to the appropriate DEP Regulatory District Office or Approved County Health Department (ACHD) no later than October 16, 2024.

EPA's LCRR regulations identify a minimum of four classifications of service lines for the purpose of completing an initial LSLI and reporting those results to the Department:

1. Lead service lines;
2. Non-lead service lines;
3. Galvanized requiring replacement; or
4. Lead status unknown.

Lead Service Line Inventory

The minimum requirements for the information in the initial submittal are specified at 40 CFR §141.84(a), and include the following general requirements:

1. The initial inventory must be developed and submitted to the Department, or the ACHD where applicable, in accordance with §141.90(e), by Oct. 16, 2024.

2. The inventory must address both the portion of a service line owned by the public water system and the customer owned portion of any service line.

[2] In Florida, the Department continues to ensure that Florida public water systems are properly monitoring for lead in their required tap sampling programs, and that lead is being actively controlled where needed to ensure lead action levels are not exceeded. Those results have continued to show a low occurrence rate for lead concentrations (e.g., approx. 2% in 2023), based on tap sampling results that were above the lead action level of 0.015 mg/L for the 90th percentile of the samples in a given monitoring period. In addition, Public Water Systems in Florida are required to perform follow-up tap sampling and to implement corrective actions, such as increased corrosion control treatment, where needed to eliminate conditions causing lead concentrations above the lead action level. Where lead is detected in a tap sampling program, it may be from lead service lines, or from customer valves, faucets, or other point-of-use devises that may contain lead.

3. The public water system should use any information on lead and galvanized iron or steel that was identified under the previously existing requirements for monitoring for corrosivity characteristics at §141.42(d) when developing the inventory of service lines.

In addition, 40 CFR §141.84 specifies the following sources of information that are required to be used when developing the LSLI:

1. 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.

2. 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.

3. 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.

4. Any resource, information, or identification method provided or required by the State to assess service line materials.

At the present time, the Department's rules do not specify or require additional resources, information, or identification methods for assessing LSL materials. However, in accordance with 40 CFR §141.84(a), public water systems, "may use other sources of information not listed in paragraphs (a)(3)(i) through (iv) of this section if approved by the State." Potential other sources of information are identified, in part, by EPA's guidance, "Guidance for Developing and Maintaining a Service Line Inventory," EPA 816-B-22-001, August 2022 (SLI Guidance). The SLI Guidance references and discusses additional methods for identifying LSL materials and developing the LSLI for submission in accordance with 40 CFR §141.84(3)(iv). This regulation allows the Department, as Florida's primacy agency, to approve additional identification methods or techniques for conducting the LSLI.

The Department recognizes that EPA's SLI Guidance identifies additional methods which may indeed be critical for public water systems to efficiently and effectively develop their LSLIs, and for providing future updates that would be required over time.

Accordingly, the Department has reviewed EPA's SLI Guidance and is approving the following additional methods, as referenced and more fully described in EPA's SLI Guidance, as other sources of information that may be used by public water systems to identify the materials of service lines connected to the public water distribution system pursuant to 40 CFR §141.84(3)(iv):

- Any documentation for an enforceable date after which the use of pipe, solder, and flux that were not "lead free" was banned or otherwise prohibited from use in the construction of service lines within a system's distribution system;
- Visual inspection, including with excavation;
- Other physical verification:
    - Pipe diameter; and/or
    - Selected emerging technologies;
- Predictive modeling; and
- Water sampling (limited for supplemental information).

Attachment A, *Reference for Additional Approved Methods for Identification of Service Line Materials*, also provides additional information on these approved identification methods.

Inventory Template

EPA developed a spreadsheet template that public water systems may use to organize their LSLI. Florida has determined that to provide consistency throughout the State, and to efficiently manage, analyze and report data, CWS's and NTNC's should utilize EPA's template for the required LSLI submittal, as required by 40 CFR § 141.84(a)(1) and 141.90(e)(1).

EPA's Service Line Inventory template which includes the following: Public Water System ID Information, Inventory Methodology, Inventory Summary, Public Accessibility Documentation, and a State Checklist. See EPA's website at: https://www.epa.gov/ground-water-and-drinking-water/revised-lead-and-copper-rule for a downloadable, spreadsheet version of the template.

Supporting Documentation

Submission of Information for Service Line Inventories under the Lead and Copper Rule Revisions

The initial LSLI is required to be submitted to the Department or our ACHDs, by October 16, 2024, in accordance with 40 CFR § 141.84(a)(3). Subsequent annual or triennial updates are also required to be submitted to the Department in accordance with 40 CFR § 141.90(e)(3); however, the requirements for subsequent inventory updates are being included in EPA's proposed revisions under the LCRI rule[3].

The Department is not requiring submittal of backup records or documentation that the public water system relied upon to develop its LSLI, with the exception of a summary report to document the use of predictive modeling, where utilized, as described in Attachment A. The required Inventory information should be submitted using the above referenced EPA template, and following the additional guidance included as Attachment B, *Submission of Information for Service Line Inventories under the Lead and Copper Rule Revisions*.

The LSLI is designed to be a living document that will be updated until each utility can document that all service lines are identified as non-lead. All documentation obtained and used by public water systems to identify service line materials should be actively maintained by each utility for a period of at least 12 years in accordance with 40 CFR §141.91.

If you have questions regarding this guidance, please feel free to contact Ron McCulley, or Stacey

Public Water Systems should not submit backup information or supporting documentation such as existing records or inspection results (e.g., building permits, construction records, or inspection photographs) as part of the initial LSI submittal. However, such information should be maintained for a period of at least 12 years in accordance with 40 CFR § 141.90(e)(3), and may be requested and used to verify the accuracy of service line inventories as part of follow-up compliance reviews.

Public water systems should submit there LSLIs using the EPA Template referenced above.

[3] On November 30, 2023, EPA announced their planned Lead and Copper Rule Improvements (LCRI), and the proposed rule was published on December 6, 2023, (Federal Register Vol. 88, No. 233, p. 84878), National Primary Drinking Water Regulations for Lead and Copper: Improvements.

Odom, Division of Water Resource Management, at 850-245-8384 or 850-245-8491, respectively.

Sincerely,

John A. Coates, P.E.
Director, Division of Water Resource Management

Attachments:

Attachment A *Reference for Additional Approved Methods for Identification of Service Line Materials*

Attachment B *Submission of Information for Service Line Inventories under the Lead and Copper Rule Revisions*

cc: Ron McCulley, FDEP, Drinking Water and Aquifer Protection Programs
Jessica Kramer, FDEP Deputy Secretary, Regulatory Programs
Gary Williams, Florida Rural Water Association
Monica Wallis, Water Utility Council, Florida Section American Water Works Association

Based on the Department's review of the Environmental Protection Agency's (EPA's) requirements for public water systems and state reporting pursuant to 40 CFR §141.84, and EPA's guidance titled, "Guidance for Developing and Maintaining a Service Line Inventory," EPA 816-B-22-001, August 2022" (SLI Guidance), the Department is approving the following additional methods as other sources of information that may be used by public water systems to develop inventories identifying the materials of service lines connected to the public water distribution system:

- Any documentation for an enforceable date after which the use of pipe, solder, and flux that were not "lead free" was banned or otherwise prohibited from use in the construction of service lines within a system's distribution system – also known as the "Lead Ban Date";
- Visual inspection, including with excavation;
- Other physical verification methods:
    - Physical testing;
    - Pipe diameter; and
    - Selected emerging technologies;
- Predictive modeling; and
- Water sampling (limited for supplemental information).

These listed additional identification methods that may be used in Florida pursuant to 40 CFR §141.84 are more fully described in EPA's SLI Guidance.

Lead Ban Date

Pursuant to 40 CFR §141.84(a)(3)(i), public water systems are to use and review documentation on, "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." Accordingly, a public water system may use any documentation for an enforceable date after which the use of pipe, solder, and flux that were not "lead free" was banned or otherwise prohibited from use in the

Example of an alternative lead ban date: The 1989 South Florida Building Code, Broward County Edition Sec. 4604.1(c), Limits on Lead Content of materials in Potable Water Systems had an effective date of September 9, 1988. Service lines installed in Broward County after this date can be considered non-lead based on this local lead ban.

construction of service lines within its distribution systems, as an indicator of the material the system's service lines would be made of.

In some cases, a local jurisdiction may be able to document early implementation of EPA's 1986 Safe Drinking Water Act (SDWA) amendments which prohibited the use of pipe, solder, and flux that were not "lead free" and directed states to enforce the provision through state or local plumbing codes or other means. In Florida, Rule 62-555.322, Fla. Admin. Code (FAC), required that, as of January 18, 1989, any pipe, pipe fitting, solder, and flux that is used in the construction of any public water system be lead free. Accordingly, the Department of Environmental Protection (DEP or Department) has determined that a public water system:

- May use the January 18, 1989, based on the prohibition under Rule 62-555.322, Fla. Admin. Code, for identifying subsequently constructed services lines as "non-lead" without further specific documentation; and/or

- Where the public water system uses an earlier date after which services lines are classified as "non-lead", the public water system should maintain and be able to provide documentation on the local building or other plumbing building codes that were enacted and relied upon as prohibiting lead in service lines constructed prior to the January 18, 1989, date.

Visual Inspection, Including with Excavation

In the absence of other forms of service line material identification, service lines with a material status identified as "unknown" may ultimately require visual inspection or physical verification to identify service line material. To visually inspect a service line, at least two points of the line must be verified, corresponding to the requirement under 40 CFR §141.84(a) to identify the materials for the portion of the service line owned by the water system and the customer-owned portion of the service line (i.e., this two-point verification can be conducted at the meter box (if accessible), to determine the service line material coming into the meter box and the service line material exiting the meter box).

In some cases, where a reliable visual inspection point is not accessible, EPA's SLI Guidance discusses the use of excavation to expose the service line to verify the material used for its construction. For example, both mechanical excavation (e.g., using an excavator or a backhoe) to expose the line, and vacuum excavation methods (e.g., using water to remove and vacuum the soil) may be used. When using a more intrusive

method such as excavation for a visual inspection, care should be taken to avoid unintended damage to the service line and to minimize disturbance that could temporarily mobilize lead if present in the service line.

Other Physical Verification Methods

In addition to visual inspections of the service line, EPA's SLI Guidance provides an overview of other techniques that are grouped here as, "other physical verification methods." These methods generally include methods that can be used to determine and relate a physical property of the service line to the material that was used for the line's construction.

Physical Testing

The public water system may also perform a series of physical tests that would identify or rule out types of service lines materials. Such methods would include surface testing of the service line pipe such as carefully scratching the surface of the pipe to check for the materials characteristics (soft and scratches easily revealing a shiny silver color being indicative of lead) and magnet testing (to rule out ferrous metal pipe materials). Additional confirmatory testing could be done with lead paint test kits which would indicate the presence of lead in the pipe material. EPA's SLI Guidance includes a website with references for lead paint test kits.

Pipe Diameter

Pipe diameter can be an important physical property, in certain circumstances, for determining service line material classification. In particular, it is generally accepted that LSLs are often 2 inches or smaller in diameter. Lead service lines (LSLs) were generally not constructed with an interior diameter over two inches, therefore they will typically be connected to single family homes or buildings with a limited number of units.

As such, service lines that are greater than 2 inches in diameter can be identified as non-lead on the inventory, as further described by EPA's SLI Guidance.

Selected Emerging Technologies

EPA's SLI Guidance also discusses a variety of emerging technologies that can reliably evaluate the physical properties of the service line in order to indicate

what materials were or were not used for the line's construction. For example, the SLI Guidance discusses the use of ground-penetrating radar (GPR) as an emerging technology where it can be used to determine the pipe diameter. The Department also approves the usage of insertion probes or similar technology devices as a tool to determine properties such as the electrical resistance of the service line material. The Department recommends that each utility conduct its own cost and/or risk analysis on any emerging technology it considers for usage.

Predictive Modeling

The Department has reviewed available literature and EPA's SLI Guidance on the application of predictive geostatistical models (predictive models) to determine the likelihood that a service line is lead or non-lead. The Department approves the use of predictive modeling where the model is based on representative data that is applicable to the public water system or portions of its distribution system. For example, utilities may wish to use predictive modeling to guide confirmation inspections of the predicted service line material, to inform the model inputs, and to ultimately reduce the number of service lines identified as "unknown," especially in the initial lead service line inventory (LSLI). It is incumbent upon the public water system to document, in detail, its approach to predictive modeling in such a way as to provide documentation to the Department that the model results are believed to be accurate, reliable, and that the predictions of the model have been verified as being representative of its water distribution system.

If predictive modeling is used for service line identification, the public water system should provide a written summary of the predictive modeling approach to the Department, along with the assumptions and corresponding representative data that was incorporated in the model development. For public water systems in Florida, predictive modeling does not require approval prior to its use by a public water system. At a minimum, the written summary must contain the following:

a. Information describing the representative source data used to train the model. For example: local building or plumbing codes, known service line diameters, known service line materials, service line installation dates, operation and maintenance records, historical records, etc.

b. Information describing any and all field verifications that were performed to determine service line materials. Information describing the method used in collecting representative data.

c. Methods used for verifying or validating the accuracy of previously collected information. For example, verification that model source data were verified with field confirmation to increase the confidence in the model results.

d. Documentation showing that the predictive model results were evaluated and tested to determine that the model has a minimum of 95% confidence level and an accuracy rate of 90% or higher for verified model predictions.

e. Information describing how the model is able to avoid potential biases, and how false negatives or false positives are minimized.

f. Summary of model predictions, including the translation of predictive modeling results to individual service lines in its inventory.

Water Sampling (Limited for Supplemental Information)

While water sampling and analysis has the potential to aid in the identification of service line material (specifically lead), there are too many variables associated which prevent it from being the sole consistent and a reliable indicator of service line material. That is, water sampling results alone are limited and cannot be used to rule out the presence of a lead service line, especially where water treatment and corrosion in the distribution is under adequate control.

For example, a positive detection of lead in a customer sample does not reveal whether the lead originates from a LSL, from lead solder, or from leaded-brass fixtures elsewhere in the premise plumbing system or point of use devices. A positive detection of lead in a customer sample may also be attributed to the source water and not attributed to the service line material. Again, the use of water sampling results is limited to provide supplemental information since the absence of lead in water samples does not necessarily mean a LSL is not present, especially where utility corrosion control practices are effective.

However, water sampling and analysis may be used to provide additional representative data and supporting information that could be incorporated as part of predictive modeling or used to prioritize areas for service line investigations to target specific areas of the water system for visual inspection or other physical verification methods.

Attachment B

Submission of Information for

Service Line Inventories

under the Lead and Copper Rule Revisions

Submission of Information for Service Line Inventories under the Lead and Copper Rule Revisions

Drinking Water Program
Division of Water Resource Management
Florida Department of Environmental Protection
January 2024

Florida's Guidance on the LCRR

Table of Contents

What is a Service Line Inventory and when is it due?

Service Line Inventories (SLIs) are the foundation from which water systems take action to identify potential sources of lead in drinking water, which would lead to locating Lead Service Lines (LSLs) for their ultimate removal to increase existing protections for the potential for lead exposure from drinking water. In accordance with EPA's Lead and Copper Rule Revisions (LCRR), all Community Water Systems (CWSs) and Non-Transient Non-Community Water Systems (NTNCs) must develop and submit an inventory of all service lines, including both water system owned portions and customer owned portions. The SLI must contain elements such as service line materials classification and the methods used for identifying service line materials. The LSLI must be made publicly accessible. All service lines, regardless of classification, must be included in the inventory. Where all service lines have been identified as non-Lead, an initial inventory must still be submitted; however, in that case the public water system would not be required to provide inventory updates. Water systems must submit their initial Service Line Inventories to their appropriate Florida Department of Environmental Protection (DEP) District or Approved County Health Department (ACHD) office by October 16, 2024.

How to prepare and submit your Service Line Inventory?

EPA developed a spreadsheet template that systems may use to organize their inventory. Florida has determined that to provide consistency throughout the state, and to efficiently manage, analyze and report data, CWS's and NTNC's should utilize the same format for the LSLI. The EPA template is the only approved template to be used by public water systems for the purposes of the initial LSLI submittal as required by 40 CFR § 141.84(a)(1)) and 141.90(e)(1). When preparing your SLI, you should use the inventory format prescribed within the EPA's Service Line Inventory spreadsheet template and submit it to the appropriate DEP District Office or ACHD in an electronic manner. As for a downloadable, spreadsheet version of the template, is available on EPA's website at: https://www.epa.gov/ground-water-and-drinking-water/revised-lead-and-copper-rule.

Elements of the Service Line Inventory (SLI)

All Community Water Systems (CWSs) and Non-Transient Non-Community Water Systems (NTNCs) are required to complete an Initial Service Line Inventory using the inventory format approved by DEP and submit it to the DEP appropriate District Office or

ACHD on or before October 16, 2024. An Initial Service Line Inventory must be submitted to DEP even if all service lines are classified as non-Lead in accordance with 40 CFR § 141.84(a)(3).

- The Service Line Inventory must include all service lines connected to the public water distribution system. This includes both water system owned and customer owned portions.

- All Service Line Inventories must be made publicly available. Systems serving a population 50,000 or more must make their inventory available online via the internet. Those serving a population of less than 50,000 are not required to make inventories available online, as long as they are made publicly accessible in some fashion. This may include availability by mail or being made available at the water system office for public viewing.

- Water systems must provide notification to persons served with a service line classified as Lead, Galvanized Requiring Replacement (GRR), or Lead Status Unknown, within 30 days of submitting their Initial Service Line Inventory to DEP.
- Consumer Confidence Reports (CCR) must indicate where customers can find their utility's Service Line Inventory.

FDEP's Guidance for Completing the EPA's Lead Service Line Inventory Excel Spreadsheet

EPA developed a spreadsheet template that systems may use to organize their inventory. Florida has determined that to provide consistency throughout the state, and to efficiently manage, analyze and report data, CWS's and NTNC's should utilize the same format for the LSLI. DEP guidance indicates that the EPA template is the approved template to be used by public water systems for the purposes of the initial LSLI submittal as required by 40 CFR § 141.84(a)(1)) and 141.90(e)(1).

The next several pages of this guidance review provide related guidance on the use of the EPA Service Line Inventory Template for submittal of the initial service line inventory.

Inventory Methods Tab:

This worksheet is for water systems to document the methods and resources used to develop and update their inventory.

Part 1: Historical Records Review: Describe the records you reviewed for your inventory and the level of confidence (low, medium, high) in these records for each of the five types of records that must be reviewed under the LCRR. Document other records that you reviewed in section 6. Refer to the examples provided in Column B.

Part 2: Identifying Service Line Material During Normal Operation:

Question 1: Check each box that indicates during which normal operating activity your water system collects service line material information. If you Check "other", explain in the space below the question.
Question 2: Use the drop-down menu to indicate if you developed or revised your standard operating procedures. If "yes", include a description of the revision in the space below the question.

Part 3: Service Line Investigations:

Question 1: Check Each box that indicates the investigative methods used to prepare your inventory. If you check "other", please explain in the space below the question.
Question 2 and 3: Enter your response to each question in the space below each question.

Inventory Summary Tab:

This worksheet is for water systems to provide a summary of their service line inventory, including information on ownership, inventory format, and the number of service lines for each of the four required materials classifications. Part 3, inventory summary table, will autofill from the data entered in the detailed inventory in which it is suggested to fill this form out last.

Each row in the Lead Service Line Inventory worksheet represents one service line connecting the water main to the customer's plumbing. You will either select your response from a drop-down menu or directly enter information. Currently, there are examples in italics entered on the spreadsheet.

Detailed Service Line Inventory Tab:

Location Information Each service line must be assigned a unique location identifier on the Service Line Inventory. The unique location identifier can be the service line address or a secondary/other location Identifier. A complete service line address must be submitted to the DEP for each service line on the Service Line Inventory, no matter the material classification.

Note: Columns such as B, D, E and F are examples of data fields that are not required for the EPA template and reporting under the LCRR service line inventory requirements. Those optional columns are identified using the color "Navy Blue" in the, "Detailed Inventory," tab and the EPA's template instructions for public water systems on the "Template Instructions System," tab. The columns, while not required, should not be deleted to maintain the formatting of the EPA template and aid in the review of submittals. In each case, optional fields may be left blank unless the system wishes to include information for selected service lines.

Column B * - Unique Service Line ID: Assign a unique ID to each row that represents one service line. You can number each row starting with the number 1 and ending with the number that equals the number of service lines included in your inventory.

Column C - Street Address & **Column D *** Other Location Identifier: Enter a street address in Column C with the option of including another, non-address location identifier (e.g., block, intersection, landmark, GPS coordinates, or water meter) in Column D for each service line.

Note: that the LCRR requires the publicly accessible inventory to include a location identifier for each lead and galvanized requiring replacement service line. DEP recommends that systems consider using addresses as their location identifier and to include this information for non-lead and unknown service lines.

Column E * - Sensitive Population: Indicate if the location serves a sensitive population using the dropdown menu. if you select, "Yes - Other", provide additional information in Column O - Notes.

Column F *- Disadvantaged Neighborhood: Indicate if the location meets the state affordability guidelines and/or other measures using the dropdown menu.

The LCRR requires the Service Line Inventory to classify each service line or portions of the service line where ownership is split. An overall classification per service line is needed to support various LCRR requirements, such as a lead service line replacement (LSLR), lead and copper tap monitoring, and risk mitigation. In many cases, service line ownership is split meaning that the system owns a portion, and the customer owns a portion of the service line.

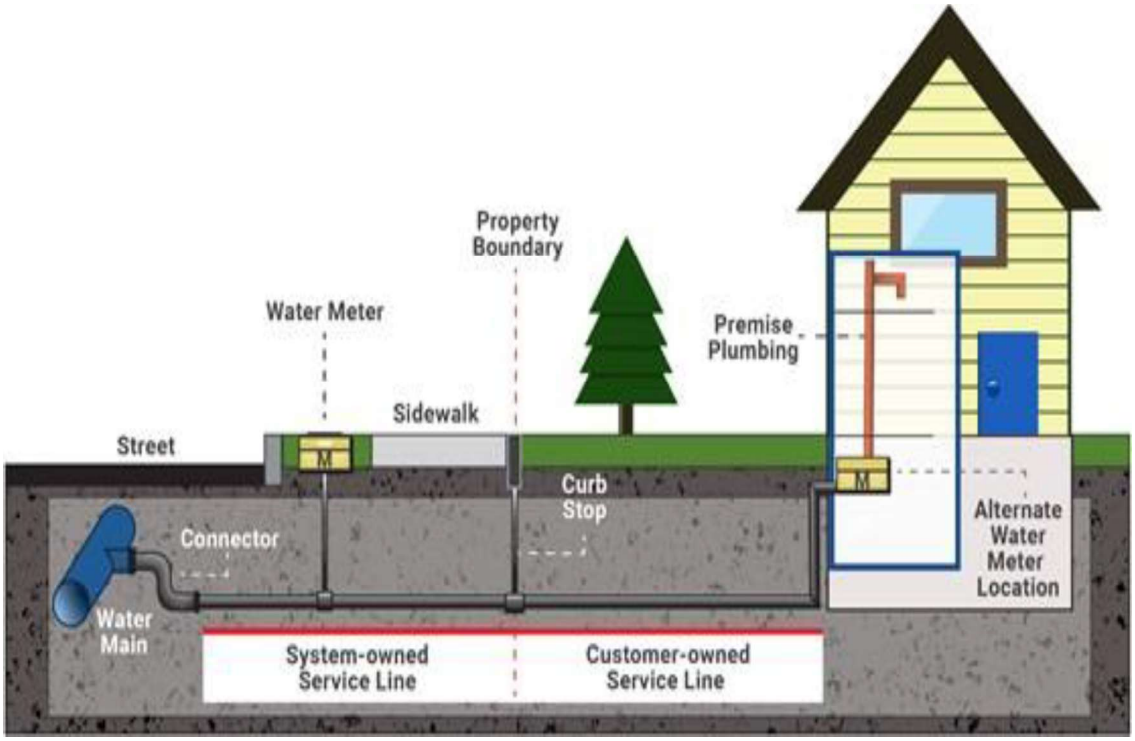


Exhibit 1, above, is a diagram of a possible division in service line ownership between the water system and customer. While the LCRR requires the inventory to categorize each service line, or portions of the service line where ownership is split, a single classification per service line is required. The material for the entire service line when ownership is split between the water system and customer is outlined below in Table 1.

Table 1: Classification of Entire Service Line When Ownership is Split		
System-Owned Portion	**Customer-Owned Portion**	**Classification for Entire Service Line**
Lead	Lead	Lead
Lead	Galvanized Requiring Replacement	Lead
Lead	Non-lead	Lead
Lead	Lead Status Unknown	Lead
Non-lead	Lead	Lead
Non-lead and never previously lead	Non-lead, specifically galvanized pipe material	Non-lead
Non-lead	Non-lead, material other than galvanized	Non-lead
Non-lead	Lead Status Unknown	Lead Status Unknown
Non-lead, but system is unable to demonstrate it was not previously Lead	Galvanized Requiring Replacement	Galvanized Requiring Replacement
Lead Status Unknown	Lead	Lead
Lead Status Unknown	Galvanized Requiring Replacement	Galvanized Requiring Replacement
Lead Status Unknown	Non-lead	Lead Status Unknown
Lead Status Unknown	Lead Status Unknown	Lead Status Unknown
Source: *Exhibit 2-3 of Guidance for Developing and Maintaining a Service Line Inventory (USEPA, 2022).*		

A classification of non-Lead must be supported by evidence-based records, methods, or techniques to prove it is not lead or GRR. Supporting documentation used to classify service line material will be maintained by the water system and made available to the DEP upon request.

For service lines classified as non-Lead, the DEP recommends water systems include additional information such as specific service line material (e.g., copper, plastic, or galvanized).

Defining Service Line Material Classifications	
Service Line Material Classification	**Definition**
Lead	Any portion of the service line is known to be made of lead.
(GRR) Galvanized Requiring Replacement	The service line is not made of lead, but a portion is galvanized, and the system is unable to demonstrate that the galvanized line was never downstream of a lead service line.
Non-Lead	All portions of the service line are known NOT to be lead or GRR through an evidence-based record, method, or technique.
Lead Status Unknown	The service line material is not known to be lead or GRR. For the entire service line or a portion of it (in cases of split ownership), there is not enough evidence to support material classification.

Basis of Material Classification

- Water systems must identify the Method of Material Classification for each service line and maintain supporting documentation, if needed for review by the DEP or ACHD upon request.
- The DEP recommends water systems include additional information on the method used to classify each service line including specific notes and details that may support classification. Tracking this information is valuable for systems to assess their confidence in the accuracy of an individual service line's material classification, evaluate the reliability of certain records or identification methods as a whole, and facilitate updates to the inventory in the future.

Lead ban date

If the utility has maintained documentation of localized building or plumbing codes enacted prior to the January 18, 1989, ban date in Rule 62-555.322, Fla. Admin. Code, the public water system may use that date to classify the service line as non-lead.

Service Line Diameter

Pipe diameter can be an important factor in determining service line material classification, considering that Lead Service Lines are typically 2 inches or less in

diameter. Tracking pipe diameter is important for asset management and can be useful for other information collection efforts such as the Drinking Water Infrastructure Needs Survey and Assessment (DWINSA).

Presence of a Lead Connector

Pigtails, goosenecks, and connectors 24 inches or less are not considered to be part of the service line. Any connectors over 24 inches are considered service lines and should be treated as such.

- If the only lead pipe serving a home or building is a lead connector less than 24 inches, that line should not be identified as a Lead Service Line in the SLI.
- Water Systems must replace any lead gooseneck, pigtail, or other lead connector it owns when encountered during planned or unplanned water infrastructure work. 40 CFR 141.84(c)(1-6). The DEP highly recommends water systems proactively identify, track, and replace all lead connectors.

Entire Service Line Classification:

Use the dropdown menu to indicate which of the required four service line material classifications apply to the entire service line based on your entries for the system-owned portion (Column G) and customer-owned portion (Column P). Refer to the classifying SL worksheet for guidance, Table 1 above, on how to classify the material for the entire service line when ownership is split. The inventory summary sheet will auto- calculate the total service lines in each of the four categories based on your entries in this column.

- **Customer-Owned Portion:** Complete the information in Columns P-W, if either (1) the customer owns the entire service line, or (2) ownership is split, where the system owns a portion of the customer owns a portion.

- **System-Owned Portion:** Complete the information in Columns G-O if either (1) the system owns the entire service line, or (2) ownership is split, where the system owns a portion, and the customer owns a portion.

- **Column G** -System-Owned Service Line Material Classification: Use the dropdown menu to select the recommended material subclassifications for the system-owned portion. If you select "non-lead-Other", Provide additional information in Column O-Notes.

- **Column H**-If non-Lead, was material ever previously lead? Use the dropdown menu to select "Yes", "NO", or "Don't Know." This information is important for determining if a downstream/customer-owned galvanized service line requires replacement.

- **Column I**- Service Line Installation Date: Enter the date, year, or estimated date range when the service line was installed or replaced?

- **Column J** - Service Line Size: Enter the diameter in inches. This information may be useful as a screening method to help identify if a service line is lead. Most lead service lines are 2 inches or less in diameter.

- **Column K** - Basis of Material Classification: Use the drop- down menu to select the method used for materials classification. If the method you used is not one of the options, select "Other" and describe the basis for materials classification in Column O - Notes.

- **Column L** - Was the service line material field verified: Select "Yes" or "No" from the dropdown menu.

- **Column M** - Describe the Field Verification Method

- **Column N** - Enter the Date of the Field Verification: If you selected "Yes" in Column L, use the dropdown menu to select the method used for field verification. If the method you used is not one of the options, select "Other" and describe the field verification in Column O- Notes.

- **Column O** - Notes: Use this column to provide any additional information, such as additional details about the basis of material classification, additional information on the field verification method, or documentation of

Lead and Copper Tap Monitoring Tier Classification, previous materials classification.

The purpose of this section is to assist water systems in using their Service Line Inventory to identify routine tap monitoring sites that will be targeted for routine compliance monitoring. The DEP recommends systems double check each tier classification with Federal and State rules and regulations. Lead and Copper Tap Monitoring Tier Classification is based on the Overall Service Line Classification, the Water System Type, and the Building Type connected to the service line.

Table 3: Lead and Copper Tap Monitoring Tier Classification			
Overall Service Line Material Classification	**Building Type**	**CWS**	**NTNCWS**
		Tier	
Lead	Single Family Residence	Tier 1	
Lead	Multi Family Residence	Tier 2	
Lead	Non-Residential Building	Tier 2	Tier 1
Lead Status Unknown	Single Family Residence	N/A	
Lead Status Unknown	Multi Family Residence	N/A	
Lead Status Unknown	Non-Residential Building	N/A	N/A
Galvanized Requiring Replacement	Single Family Residence	Tier 3	
Galvanized Requiring Replacement	Multi Family Residence	Tier 3	
Galvanized Requiring Replacement	Non-Residential Building	Tier 3	Tier 3
Non-Lead	Single Family Residence	Tier 4 or 5	
Non-Lead	Multi Family Residence	Tier 4 or 5	
Non-Lead	Non-Residential Building	Tier 4 or 5	Tier 5

- Service lines classified as Lead Status **Unknown** do not meet the criteria of a sample site tier and cannot be used for routine tap monitoring.
- Additional Information to Assign Tap Monitoring Tiering: Columns AB through AE are for documenting additional information that is helpful in assigning a tap sample tiering classification as follows:
- **Column AB** - Building Type Connected to the Service Line: Use the dropdown menu to indicate if the building type connected to the service line is single family, multiple family residence, building or other.
- **Column AC** - Point of Entry or Point of Use Treatment Present: Use the dropdown menu to indicate if the home or building connected to the service line has a Point of entry or point of use device.
- **Column AD** - Does the interior building plumbing contain copper pipes with lead solder installed before your state's lead ban (1989). Use the dropdown menu to indicate if lead solder pre-dates your states lead ban.
- **Column AE** - Current LCR sampling sites. Use this dropdown menu to indicate if you have identified this location as a sampling site for lead and copper tap sampling.

Lead service Line Replacement (LSLR)

- **Column AF -** Date of System -owned LSLR: Indicate the date the system-owned portion of the lead service line was replaced, if applicable.

- **Column AG -** Date of Customer- owned LSLR: Indicate the date the customer-owned portion of the lead service line was replaced, if applicable.

- If there are no Lead service connections identified, you can put NA in these columns.

Lead Service Line Replacement Plan (LSLRP)

All water systems with one or more lead, galvanized requiring replacement, or lead status unknown service lines in their distribution system must, by October 16, 2024, submit a lead service line replacement plan, LSLRP, to the State in accordance with 40 CFR § 141.90(e). The lead service line replacement plan must be sufficiently detailed to ensure a system is able to comply with the lead service line replacement requirements in accordance with this section. Based on the LCRR requirements, the plan must include

the information described below; however, public water systems are encouraged to monitor the development of a final Lead and Copper Rule Improvements (LCRI)[1] rule as EPA's Dec. 6, 2023, proposed rule includes proposed revisions that would alter the requirements for the LSLRP:

- A strategy for determining the composition of lead status unknown service lines in its inventory.
- A procedure for conducting full lead service line replacement.
- A strategy for informing customers before a full or partial lead service line replacement.
- For systems that serve more than 10,000 persons, a lead service line replacement goal rate is recommended by the system in the event of a lead trigger level exceedance.
- A procedure for customers to flush service lines and premise plumbing of particulate lead.
- A lead service line replacement prioritization strategy based on factors including but not limited to the targeting of known lead service lines, lead service line replacement for disadvantaged consumers and populations most sensitive to the effects of lead.
- A funding strategy for conducting lead service line replacements which considers ways to accommodate customers that are unable to pay to replace the portion they own.

[1] On November 30, 2023, EPA announced their planned Lead and Copper Rule Improvements (LCRI), and the proposed rule was published on December 6, 2023, (Federal Register Vol. 88, No. 233, p. 84878), National Primary Drinking Water Regulations for Lead and Copper: Improvements.

Public Accessibility

The purpose of this form is for systems to provide documentation to states on how they met the public accessibility requirements of the LCRR.

- Water systems serving greater than 50,000 persons must make the publicly accessible inventory available online.
- A community water system serving a population greater than 100,000 shall post and retain material on a publicly accessible website pursuant to paragraph 40 CFR 141.85(b)(2)(iv).
- When a water system has no lead, galvanized requiring replacement, or lead status unknown service lines (regardless of ownership) in its inventory, it may comply with the requirements in paragraph (a)(8) of this section using a written statement, in lieu of the inventory, declaring that the distribution system has no lead service lines or galvanized requiring replacement service lines. The statement must include a general description of all applicable sources described in paragraphs (a)(3), (5), and (6) of this section used to make this determination. (40 CFR 141.84 (a)(9))
- Instructions to access the service line inventory (including inventories consisting only of a statement in accordance with paragraph (a)(9) of this section) must be included in Consumer Confidence Report in accordance with CFR 141.53(d)(4)(xi).

Directions on how to fill out the public accessibility form:

Enter Date Last Updated in row 5 of the worksheet. You do not need to complete the information for PWS name and PWSID in rows 3 and 4, respectively. They will autofill from the information provided in the PWS Information worksheet.

- **Question 1**: Check each box that indicates the location identifiers that you use for your service line inventory. If you check "Other", please explain in the space below the question.
- **Question 2:** Use the dropdown menu to indicate if every service line has a location identifier. If "no", explain in the space below the question. Remember that the LCRR requires systems to use a location identifier for service lines that are lead and galvanized requiring replacement.

- **Question 3**: Check each box that indicates how you are making your inventory publicly accessible. If you check "Other", please explain in the space below the question. Note that the LCRR requires all systems that serve more than 50,000 people to provide the inventory online.

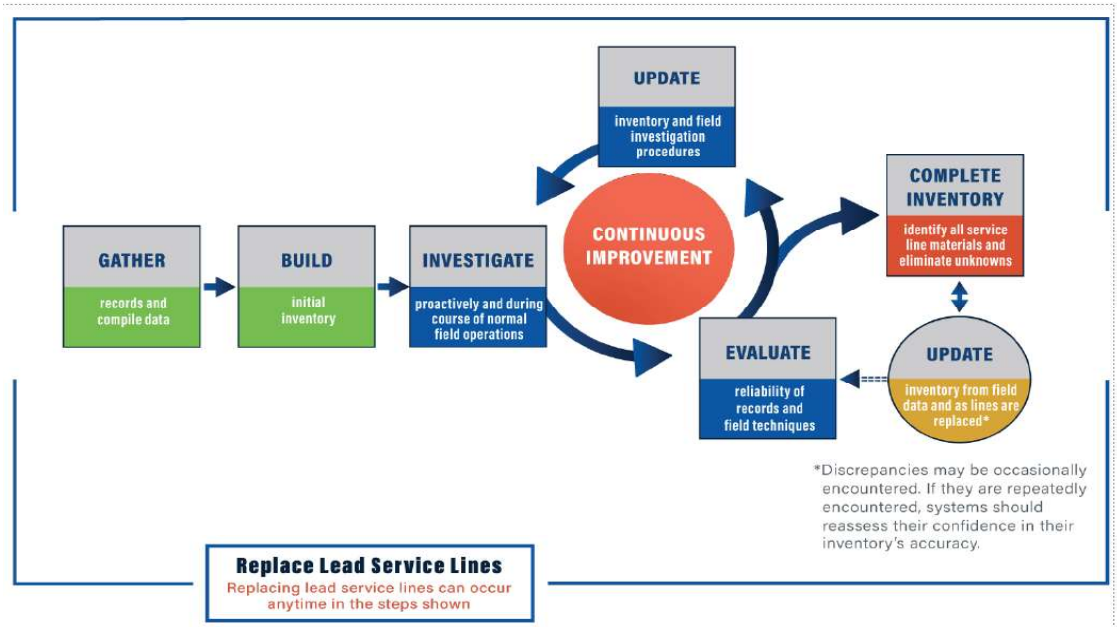
State Checklist

The 'State Checklist' is for the DEP District and ACHD staff to use to validate submitted inventories. Systems do not need to do anything with this form.

Submitting your Service Line Inventory:

All Non-Transient Non-Community (NTNCs) and Community Water Systems (CWSs) must submit an initial service line inventory on or before the compliance date of October 16, 2024. (40 CFR § 141.84(a)(1) and 141.90(e)(1)). EPA recommends considering the inventory as a living data set that is continuously improved over time as materials are investigated and LSLs are replaced.

Systems that report all service lines as being non-Lead and that can demonstrate through evidence-based records, methods, or techniques that all service lines are non-lead, including both the system-and customer-owned portions service lines will still need to submit an initial inventory. The requirements for developing an initial inventory are the same for systems with all non-Lead service lines as they are for those with LSLs, GRRs, and/or Unknowns.



When submitting the initial inventory, please ensure that it contains the following:

- **Lead Service Line Inventory** - The EPA SLI template is the only SLI format approved by Florida. Your inventory **must** include all service lines, regardless of the actual or intended use. You must classify the system- and customer-owned portions separately where ownership is split.
- **Lead Service Line Replacement Plan –** If Lead, GRR and/or Unknown service lines have been identified a LSLRP is required. If 100% of your service connections are identified as non-lead, then you are not required to submit a LSLRP.
- **Certification of Customer Notification –** Systems must certify to DEP or ACHD, that customers of systems with identified Lead, GRR and/or Unknown service connections have been notified within 30 days of initial inventory submittal date.
- **Public Accessibility Compliance –** At a minimum, you **must** make publicly available a location identifier (*e.g.,* street address, intersection, or landmark) for each LSL and GRR service line.

    - All systems will ensure that the SLI is made publicly accessible.
    - Systems serving a population of 50,000 or more are required to post their inventory online.
    - Systems serving 100,000 or more are required to post their inventory on their website.
    - Systems must document the location of the inventory on their Consumer Confidence Report beginning in 2025.
    - For those systems reporting all service lines as non-Lead, they have the option of (1) making the inventory publicly available, or (2) providing a written statement on the CCR that the system has no LSLs, GRRs, or lead status unknown service lines, and a general description of methods used to make the determination.

Each water system must submit their initial Service Line Inventory and Lead Service Line Replacement Plan (if applicable) to their appropriate Department of Environmental Protection District Office (DEP) or Approved County Health Department (ACHD). The table below contains the applicable contact information for submittals in your area.

Department of Environmental Protection District Offices			
Office	**Contact**	**Phone**	**Email**
NED	Shane Tierney Env. Manager	904-256-1642	TBD
NWD	Michael Mucci Env. Manager	850-595-0569	TBD
CD	Jill Farris Env. Administrator	407-897-4136	TBD
SWD	James Brock Env. Manager	813-470-5737	TBD
SD	Louise Chang Env. Administrator	239-344-5630	TBD
SED	Greg Kennedy Env. Administrator	561-681-6607	TBD
Approved County Health Departments			
Office	**Contact**	**Phone**	**Email**
Hillsborough	Therese La Douceur Env. Supervisor	813-559-4334	TBD
Miami-Dade	Mariela Batista Sr. Eng. Specialist	786-412-8331	TBD
Palm Beach	Henry Hardman, P.E. Supervisor	561-837-5958	TBD
Polk	Eric Pitts PWS Manager	863-578-2034	TBD
Sarasota	Paul Penumudi PE	941-228-7344	TBD
Volusia	Andy Natal EH Program Consultant	386-736-5444	TBD

Please be sure to save a copy of your service line inventory for your records. Send in a copy of the entire SLI spreadsheet to your appropriate DEP District office or ACHD, on or before October 16, 2024. Do not send in the supporting documentation

such as receipts, invoices, pictures, historical records, etc. with your initial service line inventory. Rather, each public water system should maintain these records for a period of at least 12 years in accordance with 40 CFR § 141.91 and should keep the supporting documentation organized and readily available for future inventory updates or in the event DEP or ACHD staff request more information to support your Service Line classifications.

Water systems must submit updated inventories to the primacy agencies annually or triennially based on lead tap sampling frequency, but not more frequently than annually. Water systems that have demonstrated the absence of LSLs by October 16, 2024, are not required to provide an update, as stated in §141.90(e)(3), §141.90(e)(3)(ii). However, if these systems subsequently find any Lead service line or galvanized requiring replacement service line, they have 30 days to notify the DEP and prepare an updated inventory on a schedule established by DEP.

All CWSs and NTNCWSs must notify all persons served by the water system at the service connection with a lead, GRR, or lead status unknown service line within 30 days of completing their service line inventory (40 CFR § 141.85(e)).