



Massachusetts Department of Environmental Protection (MassDEP)  
-Drinking Water Program (DWP) Fact Sheet

## In-Pipe Testing Guidance for Verifying Unknown Service Lines

Formerly titled the “Electrical Resistance Testing Guidance for Evaluating Unknown Service Lines”

Revised ~~March~~ ~~February~~ ~~13~~ ~~26~~, 2026 ~~June~~ ~~13~~, 2024

### Background

## Introduction: ~~The Lead and Copper Rule Revisions (LCRR)~~ Requirements

~~The Lead and Copper Rule Revisions (LCRR) required~~ ~~The 2021 EPA LCRR requires~~ public water systems (PWS) to develop an initial Service Line Inventory (SLI) and submit this a complete inventory to MassDEP/DWP by October 16, 2024. The Lead and Copper Rule Improvements (LCRI) require systems to build on this inventory by submitting a -baseline SLI by November 1, 2027. Under the LCRI, PWS will then be required to identify their lead status unknown of all service lines and replace lead and Galvanized Requiring Replacement (GRR) . This includes identifying the materials of both public and private portions of the service lines according to. In this document, a “known service line replacement schedule of either 10 years, or ” is defined as a longer or shorter deadline assigned by MassDEP/DWP service line where the pipe material is categorized using records or other means. “Unknown service line” is defined as a service line of unknown material with no documented material history.

**In pipe testing** is a verification method used to identify the material of Lead Status Unknown complete a service line inventory by identifying unknown service lines in the service line inventory by using various technological and scientific methods which involve a probe being placed into the service line. while potentially reducing the amount of disruption to the average customer and distribution system.

### In-Pipe Testing Verification Methods

- **Electrical Resistance Testing** is aan established in pipe testing service line verification method where a probe is placed into a service line which then detects and transmits an electrical resistance signal of the service line material the probe is placed in contact with. Pre-established resistance ranges for common pipe materials then allow the user to identify service line materials.
- **Magnetic Resonance Testing** is a service line verification method where a probe containing a

~~magnetic resonant frequency circuit is placed into a service line, and the probe contains a magnetic resonant frequency circuit, which then monitors the resonant electromagnetic frequency measurements generated from the service line material. These measurements, which can be compared to the frequency of multiple categories of materials, either by the testing equipment or using generated reports generated.~~

- Other types of **in-pipe testing** have not yet been brought to MassDEP's attention and must be evaluated by MassDEP prior to use in Massachusetts for LCRI~~R~~ compliance. See section below on ***Required Steps to Use In-Pipe Testing as a Verification Method.***

## Some Considerations When Evaluating In-Pipe Testing Products:

### **Will the Product Meet Your Objectives?**

- Increase service line identifications.
- Accurately identifying service line materials.
- Minimizing disruption to customers.
- Meeting the ~~LCRI~~~~CRR October 2024~~ service line inventory [submission and service line replacement/identification deadlines](#)~~reporting deadline~~.
- ~~Provide a Service Line Inventory acceptable for MassDEP reporting (See MassDEP Service Line Inventory (SLI) Workbook at <https://www.mass.gov/media/2480901>. Instructions can be found at <https://www.mass.gov/media/2480886/>)~~

### **Cost? Is the Cost of the Method Satisfactory?**

A common selling point of in-pipe testing products/services is the lack of disruption to customers ~~needed~~ to identify their service line. In comparison to pot holing ~~and excavation~~, in-pipe verification methods can be less invasive and disruptive to customers. However, this type of verification method and its products, such as electrical resistance testing products- can scrape the interior of the service line and can disrupt the service line during testing. To protect the customer from potential increases in lead ~~levels~~ if the service line is Lead or Galvanized Requiring Replacement (GRR) ~~and disrupted~~, MassDEP/~~DWP~~ will require steps taken by PWS after the line is tested. With ~~these~~ additional required steps, this method may be more costly to systems, because of the cost of providing ~~ing~~ filters and lead testing required after the service line is tested.

- Upfront cost
- Cost of filters
- Cost of lead testing

### **The Responsibility of Using This Method Accurately and Safely?**

- PWS are responsible for ensuring whether each service line is or is not a good candidate for the utilization of in pipe testing.

- PWS are responsible for ensuring that the materials of service lines verified using the chosen in-pipe testing method are accurate.
- PWS are responsible for determining if additional records or verification methods are necessary to support in-pipe testing results for each service line tested.
- PWS must ensure all equipment is thoroughly disinfected prior to any contact or potential contact with drinking water.

### **Non-Lead Validation Disclaimer**

Please be aware PWS are warned that at this time (March 13, 2026), due to the language of the LCRI regarding Non-Lead Validation requirements, PWS cannot use interior pipe verification methods to conduct Non-Lead Validation requirements, as the LCRI specifies that Non-Lead Validations must be conducted through a visual inspection of the “pipe exterior” (40 CFR 141.84(b)(5)(i)).

### **Required Steps to Use In-Pipe Testing as a Verification Method**

If your PWS is planning to use in-pipe testing to verify unknown service line materials, follow the steps outlined below:

Prior to beginning any testing, PWS must notify MassDEP DWP of their plan submit a plan to use the technology and obtain for MassDEP approval. The plan must outline include the following information: The plan should outline information regarding the technology to be used and how this technology will be applied. The plan should also outline the strategy to distribute filters, include flushing instructions for households where the technology will be used, and draft notices for MassDEP approval.

1. Include the tType of in-pipe testing your PWS plans to use (i.e., electrical resistance, magnetic resonance, or another method), and the company/brand used of who produced the technology.
2. ConfirmCertify that your PWS has read the full In-Pipe Verification Method Guidance and will follow the required Household Service Line Testing Procedure included below. If your PWS plans to divert from this procedure in a more stringent ny way by using a more stringent procedure, please provide your own procedure.
3. ConfirmDocument who willis operating the equipment (PWS staff or the equipmenttechnology company staff) and whether the persons responsible for to operating the equipment have training to accurately use this equipment accurately, and interpret any reports-/data needed produced to classify the service line material.

#### Include your

1. This plan formust also include a statement outlining disinfection procedures. All service line identification and inspection equipment that has the potential to come in contact with drinking water must be disinfected with 1% available chlorine solution. Disinfection solution must be discarded and refilled prior to each service line test. New gloves and clothes to clean equipment must be used at each testing site to prevent contamination.
4. Provide all iInstructions and notices which will be given to consumers during this in-pipe testing process to MassDEP/DWP for review and approval prior to distribution to consumers.
5. Confirm that your PWS will classify the verification method for in-pipe testing in your SLI Workbook and related documentation as “O”, Other MassDEP Approved Verification Method.

After a review of the plan and confirmation provided, MassDEP may provide approval to use the in-pipe testing as a MassDEP Approved Verification Method for the identification of service line materials for your PWS.

### Household Service Line Testing Procedure:

For each After PWS tests the service line using an in-pipe testing method, PWS must do the following:

1. PWS must disinfect the testing equipment using a 1% available chlorine solution before and after each service line test. All service line identification and inspection equipment that has the potential to come in contact with drinking water must be disinfected with 1% available chlorine solution. Disinfection solution must be discarded and refilled prior to each service line test.
  - a. All applicable equipment shall be swabbed with a new disposable cloth after soaking the cloth in a 1 % available chlorine solution before each service line test. Clean latex or nitrile gloves shall be worn during this process.
    - i. New gloves and a new cloth shall be used at each site.
  - b. If a bucket is used to produce a 1% available chlorine solution, it may be used for up to 5 service line sites or until the solution has become visually contaminated. To maintain the solution, ensure that a lid is secured to the bucket whenever not in use.
2. All consumers whose service lines are tested must be given instructions to residents for flush their service lining (See the MassDEP Building Flushing Information Guidance for approved flushing language).

1. After testing in a household, the PWS must:

- a. Give instructions to residents for flushing. (See the *MassDEP Building Flushing Information Guidance for approved flushing language*)  
[<https://www.mass.gov/doc/massdep-building-flushing-information/download/>]

3. When the service line is identified as lead or GRR, the following additional actions must be taken:

1. The Give resident must be given a drinking water filter with 6-months of filter cartridge replacements that has been certified by a third-party certification body listed in the EPA's Consumer Tool for Identifying drinking water filters certified to reduce lead. (See Filter Cartridge Notice below).
- a. If the in-pipe testing method can detect if a service line is lead or Galvanized Requiring Replacement (GRR) on site, the PWS must also offer the resident 6-month of filter cartridge replacements:
  - a.
  - b. If the in-pipe testing method cannot provide a detection of lead onsite, the PWS must take a lead drinking water test sample must be taken from a kitchen or bathroom regularly used faucet to be tested for lead. Water samples must be 1<sup>st</sup> and 5<sup>th</sup>-liter samples, to take a representative sample of the service line disruption, and not possibly from the premise plumbing.

~~2.c. The resident (and the property owner, if different) must be given an LCRR/LCRI compliant consumer notice, notifying the consumer of their nowew identified service line material. This maywill count asfor the annual service line material notification for this consumer will receive that year, should they not have received a notice already.~~

~~a. If the service line is then determined to be detected as lead after the results of testing are in, or the lead water test detects lead over 10 parts per billion (ppb),<sup>†</sup>; PWS must offer the resident 6-month of filter cartridge replacements.~~

~~b. If the lead water test has detected lead over 10 ppb and the service line has not been detected as a lead service line LSL, PWS should follow up with a more in-depth field inspection to confirm the service line is not a GRR service line.~~

~~All instruction and notices must be provided to MassDEP/Drinking Water Program for review and approval PRIOR to use with consumers.~~

### **Service Line Inventory Verification Method Selection**

~~As this method is an interior pipe inspection method which has not been documented in the LCRR/LCRI, PWS using this method must select the verification method "O", other MassDEP Approved Method in the MassDEP SLI Workbook file when documenting the verification method.~~

**PLEASE NOTE:** MassDEP does not endorse or promote any particular technology, but we encourage consultants and others to educate their clients on the particular product being considered so that they can make an informed decision. Public Water Systems (PWS) considering electro scan technology (~~e.g. Swordfish Electroscan~~) or any other type of technology for gathering service line information required under the ~~Lead and Copper Rule Revisions (LCRR/LCRI)~~, need to ensure the product meets their goals for both the short and long-term, including whether the technology can disrupt or destroy the existing coating on the pipe possibly causing more lead to be released after using the technology. MassDEP recommends that PWS fully evaluate the options and ask all the necessary questions to make an informed decision prior to agreeing to any contract. PWS are again reminded to carefully evaluate all products to ~~avoid reduce~~ any increased lead ~~exposure impact for~~ the consumer.

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~~<sup>†</sup>This method cannot identify galvanized piping downstream of an LSL (GRR) or lead soldering by electrical conductivity alone. If a water sample is positive for lead when no LSLs were found, this may indicate a galvanized service line downstream of an LSL or lead solder joints.~~

**PWS NAME HERE**

## Filter Cartridge Notice

Replace or add text *personalized specific to your system in the as needed if text is highlighted blocks in yellow.*

Dear Water Customer,

The **PWS NAME HERE** is supplying you with an **[Name of Filter Provided]** **American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) certified lead removal pitcher and filter including a 6-month supply of filter replacement cartridges for use after your service line inspection, as your service line material was determined to be of a lead containing material.** ~~for use after your service line inspection, for use until your service line material is confirmed as not lead and that your water does not have lead levels exceeding 10 parts per billion (ppb).~~ Should your service line be confirmed as lead or have lead levels exceeding 10 ppb, **PWS NAME HERE** will provide a 6-month replacement supply of filters for **[Name of Filter Provided]** and ~~discuss service line replacement options.~~ This precautionary measure is intended to mitigate any potential lead **concentration** in your drinking water following the **field** inspection. Please follow the instructions below to ensure proper use.

### **[Type of] CERTIFIED LEAD REMOVAL PITCHER AND FILTER INSTRUCTIONS:**

1. This lead removal pitcher and filter is certified by **NSF/ANSI Standard 53** to remove lead levels below **10 ppb** with proper flushing and cartridge replacement.
2. Prior to filtering with your pitcher, run your cold water for at least 5 minutes.
3. Follow the manufacturer's instructions for changing filters (attached to notice),
4. Clean faucet aerator/screens every 3-4 weeks.