



In-Pipe Testing Guidance for Verifying Unknown Service Lines

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

Revised March 18, 2026

Background

The Lead and Copper Rule Revisions (LCRR) required public water systems (PWS) to develop an initial Service Line Inventory (SLI) and submit this 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 service lines and replace lead and Galvanized Requiring Replacement (GRR) service lines according to a service line replacement schedule of either 10 years, or a longer or shorter deadline assigned by MassDEP/DWP.

In pipe testing is a verification method used to identify the material of Lead Status 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.

In-Pipe Testing Verification Methods

- **Electrical Resistance Testing** is a 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. 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 which then monitors the resonant electromagnetic frequency measurements generated from the service line material. These measurements can be compared to the frequency of multiple categories of materials, either by the testing equipment or using generated reports.
- 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 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 service line inventory submission and service line replacement/identification deadlines.

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), 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 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 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 any testing, PWS must notify MassDEP DWP of their plan to use the technology and obtain MassDEP approval. The plan must include the following information:

1. Type of in-pipe testing your PWS plans to use (i.e., electrical resistance, magnetic resonance, or another method), and the company/brand of the technology.
2. Certify 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 way, please provide your own procedure.
3. Document who will operate the equipment (PWS staff or the technology company staff) and whether the persons responsible for operating the equipment have training to use this equipment accurately and interpret any reports/data produced to classify the service line material.
4. Instructions and notices which will be given to consumers during this in-pipe testing process.
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, 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 test using an in-pipe testing method, PWS must do the following:

1. Disinfect the testing equipment 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 flush their service line (See the [MassDEP Building Flushing Information Guidance](#) for approved flushing language).
3. If the service line is identified as lead or GRR, the following additional actions must be taken:
 - a. The 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).
 - b. A drinking water sample must be taken from a kitchen or bathroom faucet to be tested for lead. Water samples must be 1st and 5th liter samples, to take a representative sample of the service line.
 - c. The resident (and the property owner, if different) must be given an LCRR/LCRI compliant

consumer notice, notifying the consumer of their now identified service line material. This will count as the annual service line material notification for this consumer.

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 or any other type of technology for gathering service line information required under the 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 any increased lead exposure for the consumer.

PWS NAME

Filter Cartridge Notice

Replace or add text specific to your system in the highlighted blocks.

Dear Water Customer,

The **PWS NAME** is supplying you with an **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. This precautionary measure is intended to mitigate any potential lead in your drinking water following the 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.