

MassDEP Drinking Water Program

Statistical/Predictive Modeling Guidance for Evaluating Unknown Service Lines

May 2024

A. Initial Steps

PWS uses other MassDEP/EPA approved methodologies to categorize service lines (e.g. records review, customer self-identification, etc.) prior to deciding to use statistical/predictive models.

B. Performing a Service Line Investigation

***This number is dependent on which option the PWS chooses for their type of investigation pool. There are two (2) options.**

1. A pool of randomly selected known and unknown service lines from your entire service area.
2. A pool of randomly selected unknown service lines from your entire inventory of unknown service lines.

PWS randomly selects its Investigation Pool (i.e. a statistically significant sample group). PWS must meet the sample sizes* provided in Appendix A, Table A of the **MassDEP Drinking Water Program Statistical and Predictive Modeling Guidance for Evaluating Unknown Service Lines** for the PWS service area.

PWS randomly selects and performs field inspections on the known and unknown service lines included in the PWS investigation pool.

If no lead service lines are discovered, the expectation is that the system has no lead service lines...

If lead service lines are discovered...

PWS creates a Predictive Model

After creating your PWS model, test the Predictive Model using an 80/20 method, with the testing set matching the number of known service lines provided in Column 3 of Appendix A, Table A of the **MassDEP Statistical and Predictive Modeling Guidance**.

PWS performs a Statistical Model

Continue to Next Page

C. Choosing a Model

D. Submitting Your SLI

Record service line materials as lead (L), Unknown-definitely not lead or galvanized (UNK-NOLG) if predicted to be non-lead, or “Unknown – may contain lead and/or galvanized” if the service lines are not within the percentages that can be defined as “lead” or “non-lead” by MassDEP. See the **MassDEP Statistical and Predictive Modeling Guidance** for more information at <https://www.mass.gov/info-details/lead-and-copper-rule-revisions>.

Record the verification method as “statistical analysis” in your Service Line Inventory for each predicted service line.

Submit a report on your statistical/predictive model with your SLI, see **MassDEP Statistical and Predictive Modeling Guidance** for all required information to be included.

E. Steps after October 16th, 2024

PWS must prepare your public materials to include the required language as stated in the **MassDEP Statistical and Predictive Modeling Guidance**. **Public materials include:**

- SLI published in a format available to consumers (requirements are dependent on PWS size)
- Lead, Unknown, and GRR Service Line Notices

PWS must continue to verify service lines during routine operations and update their predictive model to improve predictions.

PWS may be required to verify some, or all service lines identified using a statistical/predictive model on a schedule determined by MassDEP after the submission of the initial SLI.

If your PWS used a Statistical Model...

If 1% or more of service lines are discovered to be lead following the submission of your SLI, all predictions must revert to unknown status.

If your PWS used a Predictive Model...

If 5% or more of service lines in the service area are discovered to have been predicted inaccurately, the status of all service lines with materials identified using a predictive model must revert back to an unknown status.