

# COMPLETE DISTRIBUTION SYSTEM MATERIALS INVENTORY

## Evaluating Minimum Service Line Materials Verification Data

The Michigan Safe Drinking Water Act, 1976 PA 399, as amended, requires that water supplies develop and maintain a Complete Distribution System Materials Inventory (CDSMI) and submit the inventory to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) by **October 16, 2024**.

### Purpose

The purpose of the CDSMI is to characterize, record, and maintain a comprehensive inventory of distribution system materials, including service line materials on both public and private property. A reliable inventory of potable water service line materials is important for service line replacement planning, effective asset management, and notification of residents served by lead service lines.

To provide a reliable basis for developing their CDSMI, water supplies were provided direction for completing a [Minimum Service Line Material Verification \(MSLMV\)](#). The purpose of this guidance is to assist water supplies with evaluating the results of their MSLMV and to develop their CDSMI. After conducting the steps required in the MSLMV, water supplies should:

- Evaluate the data collected during the MSLMV.
- Compare pre-verification records with the field-verified findings to determine reliability of records.
- Determine whether additional verification activities are necessary for records found to be unreliable.
- Continue developing the CDSMI and work towards the completed product.

### Evaluating MSLMV Data and Developing the CDSMI

After completing the MSLMV steps, supplies may use this guidance to aid in the review and use of the MSLMV data to further develop their CDSMI. The MSLMV Requirements document can be found at EGLE's [Lead and Copper Rule website \(Michigan.gov/LCR\)](#). Water supplies should have already reviewed existing records, identified service lines of known and unknown material based on the criteria detailed in the MSLMV Requirements document, conducted physical materials verifications at the number of unknown sites and per the MSLMV method, and thoroughly tracked/documented the materials found during verification.

Water supplies should then review the information collected, evaluate the overall reliability of records, determine whether additional verification activities are necessary, and begin working

towards developing the CDSMI. The information below provides suggestions for how the data can be evaluated and used to make decisions. This information is NOT intended to describe all possibilities or address circumstances encountered by all water supplies. Each water supply must assess their own supply-specific information and circumstances to determine the best methods for developing a high-quality, reliable CDSMI.

### Assess the Reliability of the Records

Water supplies should compare recent physically verified materials data to existing records. Existing records can include all relevant information related to the service line material (tap cards, as-builts, permits, institutional knowledge, etc.). Additional information that may be useful for comparison includes, but is not limited to, service line age, watermain age, building age, timeline of projects, contracted work agreements, data collected during water meter replacements, and various controls or ordinances. Relevant information/records may vary from supply to supply. It is important to identify all useful information and conduct comparisons in a logical/methodical manner.

Once water supplies have compiled all relevant information, they should compare the findings to the data gathered during the MSLMV process. Supplies should ask themselves various questions such as: did the physical verification confirm existing records were accurate, can assumptions be made about subsets of data, is institutional knowledge reliable, were there errors in the data, are there patterns in reliable versus unreliable data, etc. By comparing the records using various methods, supplies can build confidence in what assumptions can and cannot be made.

### Ability to Make Assumptions Based on the Reliability of the Records

After reviewing the accuracy of records, supplies should determine if some or all records are reliable enough to make additional assumptions about service line materials in the rest of the distribution system. Supplies may find themselves in one of these categories:

- **MSLMV Confirms Records Are Reliable**

If a water supply has historical records documenting the materials of all service lines in the distribution system (both public and private property) and those records match the materials physically verified during the MSLMV, the supply can have high confidence that existing records are reliable and can be used to complete their CDSMI.

- **MSLMV Confirms Records Are Unreliable**

If a water supply has limited records and/or records that did not match the materials found during the MSLMV, it is unlikely the supply can make widespread assumptions about service line materials based solely on existing records. Instead, these supplies should find additional ways to efficiently determine service line materials. This may include conducting additional physical verifications, finding new/additional data sets that can help identify where assumptions could be confidently made, or a combination of the two.

- **MSLMV ESTABLISHES RELIABILITY OF RECORDS IS MIXED**

Water supplies may find some records are reliable and other records are not. While the reliable records may be used to develop the CDSMI, other records may require additional research or verification. Water supplies are encouraged to identify and utilize appropriate methods for completing the final steps of the CDSMI.

When comparing field-verified materials with existing records, supplies should look at the data in a variety of ways to determine if patterns can be identified that can be reliably used to develop the CDSMI. Below are examples to guide supplies through the thought process. **Not all examples below may be appropriate for all supplies and other methods may exist that are not provided. Water supplies must find reliable methods that result in a high-confidence CDSMI.**

### EXAMPLES

#### 1) REVIEWING DATA BASED ON CONSTRUCTION ERA:

- a. Eras of housing construction could be used to compare datasets. If a water supply can reliably compare what service line materials were installed to the era of a house, set of houses, neighborhoods, or subdivisions, then assumptions could be made when relevant.

**Example:** A supply may find their MSLMV indicated records for homes built after 1960 were reliable, but others were not. The supply may need to do additional work to verify pre-1960 construction but rely on existing records for buildings constructed after 1960.

- b. Eras of watermain installation could be used to compare datasets. If a water supply can accurately compare the material of service lines to the same period a watermain was installed, then assumptions could be made when relevant.

**Example:** The MSLMV may indicate records from a particular construction project were reliable, and therefore other records related to that project can be used to develop the CDSMI.

- c. Projects undertaken by a specific hired contractor could be used to compare datasets. If a supply can reliably compare the material of service lines to projects conducted by a specific contractor, then assumptions could be made when relevant.

**Example:** If the MSLMV finds records of projects conducted by a particular contractor to be reliable, other records related to that contractor's work may be reliable.

#### 2) REVIEWING DATA BASED ON KNOWN SERVICE LINE MATERIALS:

- a. Water supplies may be able to make assumptions based on the relationship of materials and their location along a service line.

**Example:** The MSLMV may indicate that when copper was found along points 1, 2, or 3 (refer to the diagram on page 6), the rest of the service

line was also copper. Similarly, if verification efforts indicate that when point 1 is plastic, a supply may find there is a high probability that plastic comprises the rest of the service line.

- b. Water supplies may be able to make assumptions based on certain locations in their distribution system.

**Example:** A supply has an older area of infrastructure that has been confirmed to have lead goosenecks connected to a galvanized service line, then the assumption could be made that the other buildings in that area likely have a similar design.

### 3) WATER SUPPLIES COULD USE ASSISTANCE FROM ADDITIONAL SOURCES:

- a. Outside vendors could be a helpful source of information or could provide insight not previously considered.

**Example:** Supplies could use vendors that provide statistical modeling services, plumbers that retain interior building material data, contractors used for service line repair, or any other potential outside help.

- b. Supplies could use other acceptable verification methods. Contact EGLE if there are questions regarding whether a certain methodology is acceptable.

**Example:** A supply could use tracer equipment to prove the difference between plastic and metal-based plumbing. Supplies could potentially use sequential lead sampling as a form of verification. **However,** sequential lead sampling can only be used to determine if a service line likely contains lead but is **not** an acceptable method to classify a service line as non-lead.

### 4) FILLING IN THE GAPS: IN SITUATIONS WHERE THE WATER SUPPLY HAS MINIMAL TO NO RECORDS, AND ASSUMPTIONS CANNOT BE DIRECTLY MADE:

- a. Supplies may need to complete additional physical verifications when records are inconsistent and unreliable.

**Example:** Supplies could develop a focused physical verification process that targets specific areas of infrastructure, specific age of construction ranges, or select portions of service lines to help expand the existing dataset. This could mean a supply needs to only verify the interior portion of the home or could mean that all points need to be verified so a trend can develop. As trends begin to develop, systems can reference previous examples in this document, such as example 2a, to expand assumptions to the remainder of the system.

- b. Supplies can also improve their lack of information by developing strategies to quickly collect records.

**Example:** Supplies could request residents to submit photos of the service line entering their building (point 1 in the diagram on page 6) to assist supplies in identifying the material. Supplies may also recognize opportunities to collect information during the watermain installation, new home construction, reconnecting services, meter replacement, cross connection inspections, etc.

- c. Despite having to complete additional verifications, a supply may determine that doing a full three- or four-point physical verification may not always be necessary.

**Example:** Similarly discussed in example 2a, supplies may find specific trends that would require only one or two verification points to classify the entirety of the service line.

- i. If a supply determines the materials at point 3 are known throughout the system, then only points 1 and 2 need to be verified.
- ii. If a supply reliably determines that the remaining points are also lead when lead is found at point 1, then a single verification at point 1 could be utilized to classify the entire service line as lead.

### Complete the Distribution System Materials Inventory

Supplies should use the information gained above to complete their CDSMI for submission to EGLE by October 16, 2024. As the CDSMI is developed, supplies will need to extrapolate the information collected in the MSLMV and other historically based records to the remainder of the service lines, in their entirety, that lack material classification. Although heavily focused on service line materials, the CDSMI shall also identify whether and where construction materials listed in the United States Code of Federal Regulations (CFR), Title 40, Part 141, National Primary Drinking Water Regulations, 40 C.F.R. §141.42(d), are present in the piping, storage structure, pumps, and controls used to deliver water to the public.

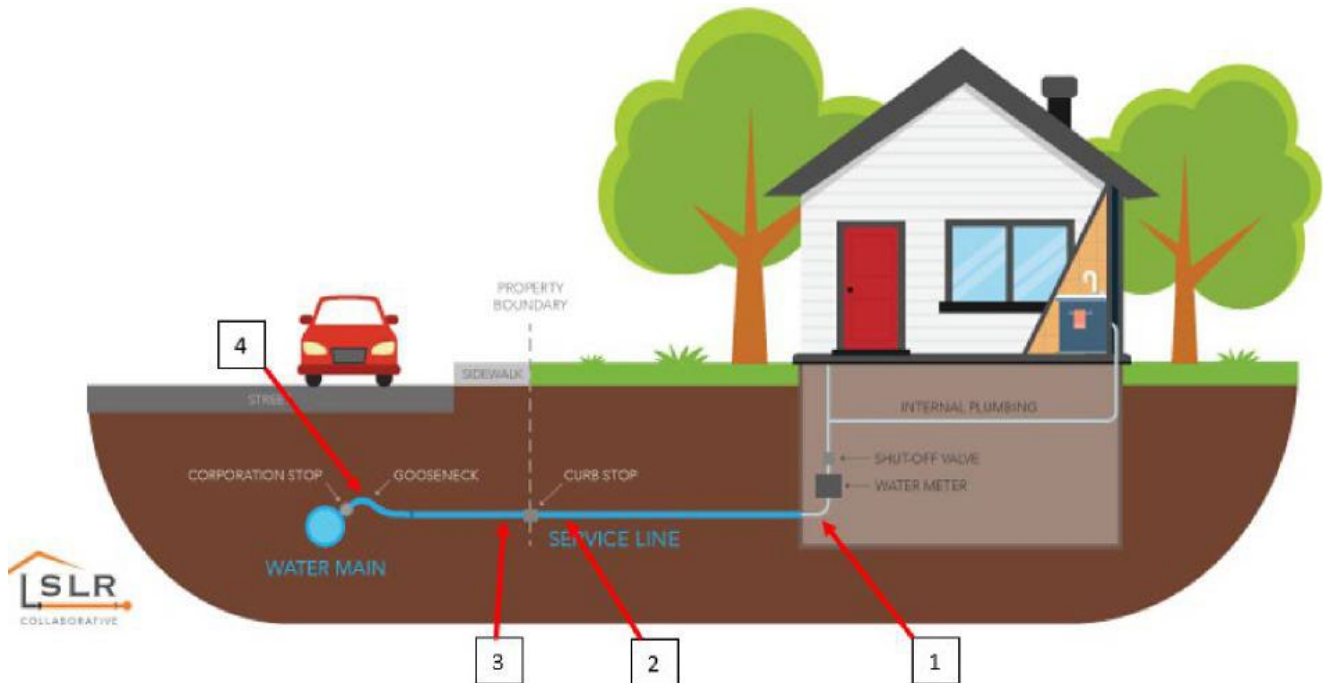
### DOCUMENT DECISIONS

Water supplies should retain documentation regarding how decisions were made during development of the CDSMI. Supplies may be asked by EGLE to produce this information.

### “ABC” ALWAYS BE IMPROVING CDSMI

The CDSMI is considered a “living” document, which supplies must continue to improve and update as more information is understood about their system and as service lines are replaced. EGLE recognizes there is a chance of error during this project, but the error percentage will continue to decrease over time. Water supplies are required to submit an updated materials inventory to EGLE every five years.

## SERVICE LINE SEGMENTS



- 1) **Interior portion** of the service line up to the first shutoff valve or 18 inches inside the building, whichever is shorter.
- 2) **Curb stop to building**, a minimum of 18 inches from the curb stop.
- 3) **Main to curb stop**, a minimum of 18 inches from the curb stop.
- 4) **Lead connector (gooseneck/pigtail)** if present. In this context, a gooseneck or pigtail is a short section of material, typically not exceeding two feet, which can be bent and used for connection between a rigid fitting (corporation stop) and the service line piping.

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