DEP SERVICE LINE INVENTORY EXCEL TEMPLATE – JOB AID

Contents

Recommended Process:
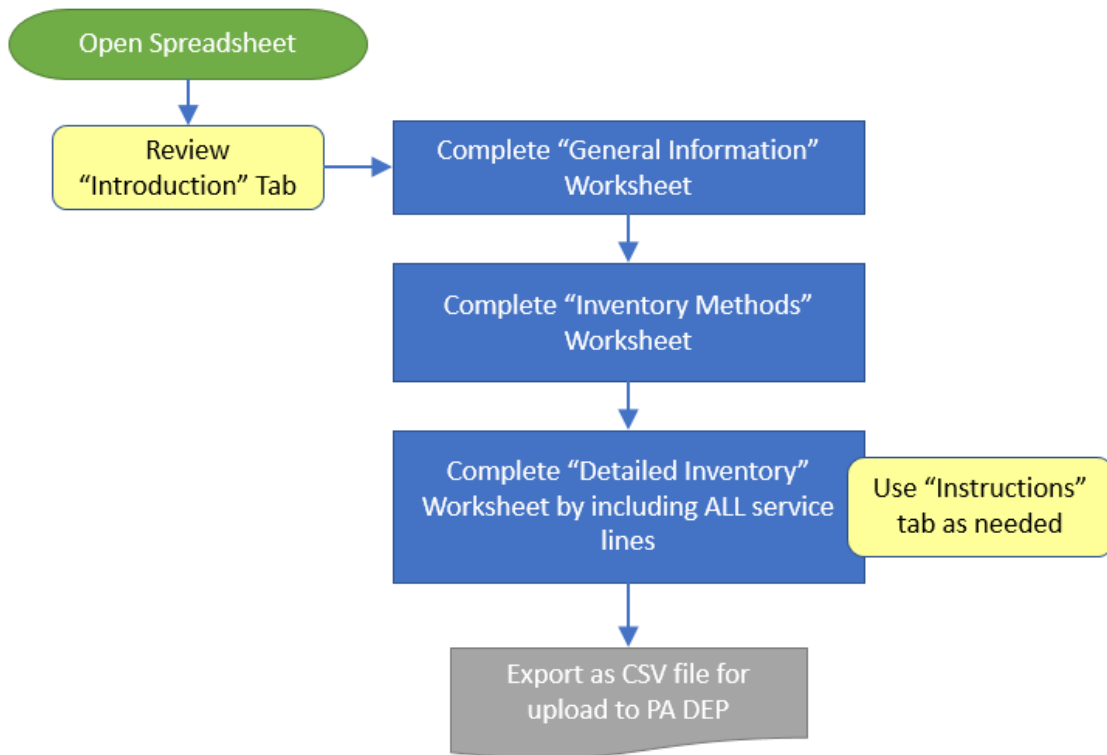
I. Introduction

The purpose of this template is to help water systems comply with the Service Line Inventory requirements of the January 15, 2021 Lead and Copper Rule Revisions (LCRR). This template provides fillable forms and tables t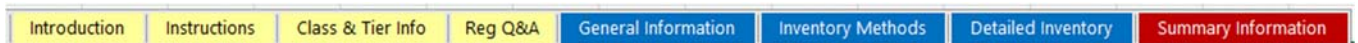hat water systems can use to document their methods, organize their inventory, export the inventory for submission to the state, and document how they are making the inventory publicly available. Note that DEP does NOT require systems to use this template for their inventory, but it is recommended.

For the spreadsheet to function properly, please use Microsoft Excel® 2013 or newer.

Questions on the use of the spreadsheet can be directed to the Bureau of Safe Drinking Water at RA-PADWIS@pa.gov

How is the template organized?

This workbook contains several worksheets, which are accessed by clicking the tabs at the bottom of the workbook window. They appear like this:

| Introduction | Instructions | Class & Tier Info | Reg Q&A | General Information | Inventory Methods | Detailed Inventory | Summary Information |

The tabs are color-coded as follows:

Template Organization		
Worksheet Type	**Worksheet Name**	**Description**
Background	**Introduction**	Introductory template information
	Instructions	Contains detailed instructions for systems.

	Class & Tier Info	Contains information on:
		  - how service line classification is determined when ownership is split
		     between the system & customer;
		  - how LCRR tap sampling tiers are determined.

	Regulatory Q&A	Explains the service line inventory requirements of the January 15, 2021 LCRR in Q&A format.
Templates for Water Systems	**General Information**	For systems to document relevant information about their system.
	Inventory Methods	For systems to document the methods and resources they used to develop their service line inventory.
	Detailed Inventory	For systems to organize their detailed inventory. Each row equals one service line connecting the water main to the customer's plumbing. Separate columns track locational information, the system-owned portion, the customer-owned portion, other possible sources of lead, and information for assigning a tap sample tiering classification.
Summary	**Summary Information**	This sheet automatically generates totals based on information in the Detailed Inventory worksheet.

Template Use:

Open the spreadsheet. If you have a large amount of data it make take a few minutes. Please be patient. Upon opening, you may see this message at the top of the spreadsheet; click on "Enable Content" before you begin:


Note that you may need to add additional Trusted Locations in the Trust Center Settings of Excel in order to run the macros. These locations may include server drives and/or locations where you intend to save the file for use. The following steps may be taken:

1. Excel Options > Trust Center > Trust Center Settings > Trusted Locations
2. Check the box to "Allow Trusted Locations on my network"
3. Select "Add new location"
4. Browse to select the folder (or server) where the file will be saved, check the "Subfolders of this location are also trusted" box, and then OK

Drop-down menus:

Some cells require you to use a drop-down menu to select an option. To access the drop-down menu, simply click into the cell and the drop-down arrow will appear to the right of the cell, as shown here:
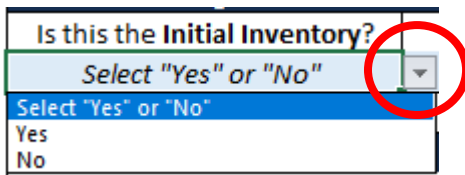
If you type an answer into the drop-down cell rather than using the drop-down, you will receive this error message below. Click Cancel and the cell will be cleared.
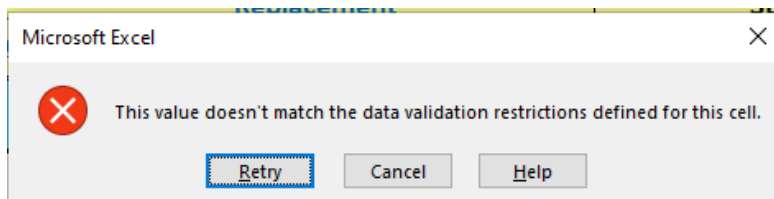
Input Cell Color Formatting:

	Table Key
	All light blue fields should be completed
	If a selection from a dropdown menu causes the cell color to change to light brown, additional information needs to be entered in the Additional Comments field.
	If a cell or set of cells is XX'd out, these questions should not be answered.
	A pinkish-red cell indicates a duplicate value

II. General Information Worksheet

General Information

To begin, click on the "General Information" tab.

1. For the initial inventory, select "Yes" in the first column. The initial inventory date should be the date you complete the inventory.

General Information

Revision Tracking

Is this the Initial Inventory?	Enter Initial Inventory Date:	Is this an Updated Inventory?	Enter Updated Inventory Date:
Select "Yes" or "No"		Select "Yes" or "No"	

2. Complete the Facility Information. Remember you can only fill-in cells that are light blue. Note: The Detailed Inventory will not work correctly if you do not answer question 1-4 in the facility information.

Facility Information

Water System Name:

PWSID (7-digit number):	Total Population Served (number of people):	Number of Service Connectio
		0

NOTE: You cannot manually complete the cell for "Number of Service Connections". This will auto-populate as you enter service lines on the Detailed Inventory tab.

3. Next complete the "Public Access Documentation" section:

Public Access Documentation

How is the system making its inventory accessible to the public? Check all that apply.
NOTE: *If the system serves > 50,000 people, the inventory MUST be provided on-line.*

- ☐ Interactive on-line map
- ☐ Static on-line map
- ☐ Printed service line map
- ☐ Printed tabular data

- ☐ Information on water utility mailings or newsletter
- ☐ Hard copy information available in water system office
- ☐ Other

If "Other", please describe:

III. Inventory Methods Worksheet   Inventory Methods

Part 1. Historical Records Review

The LCRR specifies the types of historical records that water systems must review to develop their initial service line inventory. These record types are listed in the **Part 1. Historical Records Review table.**

To use the table:

- First use the drop-down in the far-right column to indicate the level of confidence you have in the records (low, medium, or high). For example, if you have recent records from a distribution system repair, you may have high confidence in this record.
- Once you select a level of confidence, the column for "Describe the Records Reviewed" will turn light blue and be available for entry.

> First, use the dropdown to select the level of confidence in the record. Once selected, the "Describe the Records Reviewed" cell will open for entry.

Inventory Methodology

PWS Name: ABC Water
PWSID: 86478787

Part 1: Historical Records Review

Type of Record	Examples	Describe the Records Reviewed	Level of Confidence in Records
1. Previous Materials Evaluation	*Locations of Tier 1 lead tap sampling locations that are served by a lead service line.*		*High*
2. Construction and Plumbing Codes and Records	*Local ordinance adopting an international plumbing code. Permits for replacing lead service lines.*		*No Records*

Part 2: Identifying Service Line Material During Normal Operations

1. Check each box that indicates during which normal operating activity(ies) your water system collects service line material information.
2. Use the dropdown menu to indicate if you developed or revised your standard operating procedures. If yes, provide a brief explanation of the SOP.

Part 3: Service Line Investigations

1. Identify the service line investigation methods used by the system to prepare this inventory (check all that apply).

Column A: File/Record Review	Column B: Analytics	Column C: Physical Inspection
☐ Customer Self-Identification	☐ Statistical Analysis	☐ Visual Inpection at Curb Box
☐ Previous Materials Evaluation	☐ Modeling	☐ CCTV Inspection Inside Pipe
☐ Installation Record (e.g., tap card)	☐ Water Quality Sampling	☐ CCTV Inspection Outside Pipe (Curb Box)
☐ Repair or Replacement Record	☐ Other analytics technique	☐ Mechanical Excavation (e.g., Potholing, Trenching)
☐ Other type of record review		☐ Other physical inspection method

Part 3: Service Line Investigations

1. Check each box that indicates the investigative methods used to prepare your inventory.
2. Use the space provided to describe how service line locations are selected for physical inspection.

IV. Detailed Inventory Worksheet

Detailed Inventory

You will be entering all data into **row 7** in the worksheet.

- **NOTE:** The first 3 columns with green headings will be auto-populated based on how you complete other data columns in the sheet.
    - **Column A: Service Line Classification –** This column will display the category classification of the complete service line (e.g., Non-lead)
    - **Column B: Sufficient Evidence for Non-Lead?**
    - **Column C: LCRR Sampling Tier**

PWSID:		
Service Line Classification	**Sufficient Evidence for Non-Lead?**	**LCRR Sampling Tier**
Answer all system & customer owned questions	*Not Applicable*	*Answer all questions*

Layout of Detailed Inventory Worksheet:

The worksheet is organized into yellow, light orange, pink, and purple sections by column. As depicted in the diagram below, the yellow column headings represent the **overall** service line information; the light orange columns represent the **system-owned portion**, and the pink columns represent the **customer-owned portion**. The purple columns are for information used to determine the sampling tier (not shown).
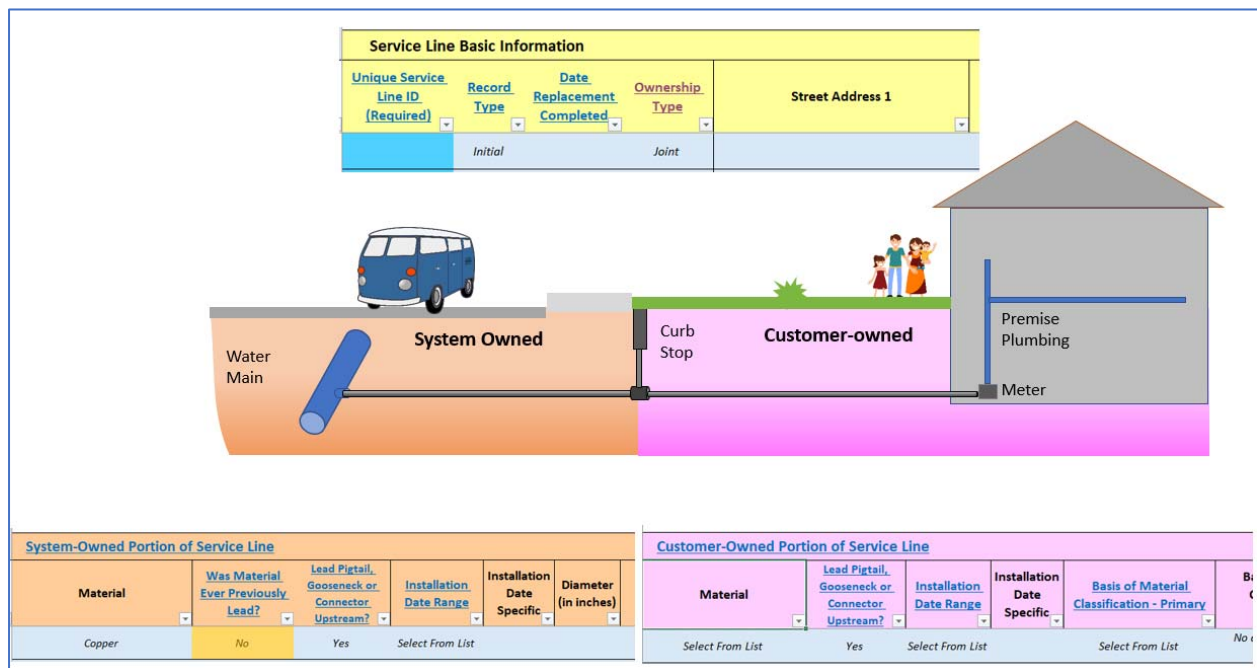
Service Line Basic Information:

1. Begin with **column E Unique Service Line ID.**

Create a naming system for your system with unique IDs for each service line. The naming rules are:

- Can contain up to 12 characters
- Can use letters and/or numbers in any combination
- <u>DO NOT</u> use spaces or other special characters (i.e., *, !, @, etc.)
- Can use dash (-) or underscore (_)
- Lowercase letters will be converted to uppercase

Some water systems use a numbering system (e.g., 1001, 1002) or simply the location address as the unique identifier (e.g., 101DOGWOOD, 104DOGWOOD)

2. **Columns F and G: Record Type and Date Replacement Completed**
   - This is a drop-down menu. Click into the cell, then click on the drop-down arrow to access the options as shown below.
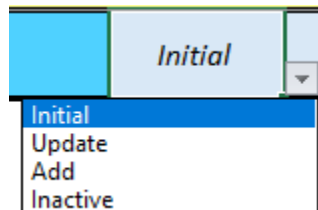
Initial	Use this designation for all entries in the initial inventory submitted on or before October 16, 2024
Update	Use this designation when submitting an updated inventory, to indicate the record is being revised • If the update is due to a service line replacement, enter the replacement date in Column G
Add	Use this designation to add more service lines to an existing inventory
Inactive	Use this designation to indicate a record is being inactivated. Records cannot be deleted. Example: Property was made into a parking lot and the service line was decommissioned. Add comment explaining inactivation in columns Y and/or AH.

3. **Column H: Ownership Type**
   - Indicate whether the entire service line is owned by the system, the customer, or jointly.
     - Most Common: Select *Joint* if the system owns a portion (e.g. from the main to the curb stop), and the customer owns the other portion.
   - Note: If the Ownership Type selected is System, any answers entered in the Customer-Owned columns will be grayed out, and vice versa.

Customer-Owned Portion of Service Line			
Material	Lead Pigtail, Gooseneck or Connector Upstream?	Installation Date Range	Installation Date Specific
Select From List	*Yes*	*Select From List*	

4. **Columns I-L: Address Information**
   - Enter the address information for the service line
   - If the address has already been entered these cells will turn pink with red text

5. **Columns M and N: School?/Childcare Facility?:** Indicate if the service line provides water to a school and/or childcare facility.
   - A childcare facility is "a location that houses a licensed provider of childcare, day care, or early learning services to children as determined by the State licensing agency."
   - A school is "any building associated with public, non-public/private, or charter institutions that primarily provides teaching and learning for elementary or secondary students.
     - An elementary school contains students in grades up to and including grade 8 (includes pre-school).
     - A secondary school contains students in grades no less than 9 and no greater than 12.

School?	Childcare Facility?
No	*No*

No
Yes, Elementary
Yes, Secondary
Yes, All Grades

System-Owned Portion of the Service Line:

6. **Column O** begins the **System-Owned portion** of the service line.

System-Owned Portion of Service Line					
Material	Was Material Ever Previously Lead?	Lead Pigtail, Gooseneck or Connector Upstream?	Installation Date Range	Installation Date Specific	Diameter (in inches)
Copper	No	Yes	Select From List		

> **NOTE:** If the system owns the entire service line, the questions for the customer-owned portion (pink columns) are automatically grayed out. In this case, answer the system-Owned portion questions for the <u>entire</u> service line.

In Column O, Material, select the type of pipe material from the drop-down by selecting the cell first, then clicking the drop-down arrow. The material options include:

- Lead
- Lead-lined galvanized
- Galvanized
- Copper
- Cast iron, lined
- Cast iron, unlined
- HDPE – high density polyethylene
- PVC – Polyvinyl chloride
- CPVC – chlorine treated PVC

- PEX – cross-linked polyethylene
- ABS – acrylonitrile butadiene styrene
- PB – polybutylene
- Asbestos cement
- Other non-lead material
- Unknown
- Unknown – likely lead
- Unknown – unlikely lead

> In the inventory, you can indicate "Unknown" for service lines that you have yet to determine the material composition. Alternatively, the form allows you to selection Unknown-likely lead or -unlikely lead based on the material research and evaluation you have completed when the initial inventory is submitted. These identifiers are to be used by the system to help focus continued material identification efforts.

7. **Column P: Was Material Ever Previously Lead?**
   - This question is asked because previous lead pipes upstream of a galvanized section means that the galvanized section will be classified as Galvanized Requiring Replacement. The worksheet will determine this classification for you.

8. **Column Q: Lead Pigtail, Gooseneck, or Connector Upstream?**
   - Indicate if there is a lead pigtail, gooseneck or connector between the main and the system-owned portion of the service line.
   - Note that it defaults to "Yes". Change this as appropriate using the drop-down.

9. **Column R and S: Installation Date Range and Installation Date Specific**
   - Column R is a drop-down list of 10-year ranges to indicate the timeframe in which the service line was installed. If you know the specific date of install, place it in column S (MM/DD/YYYY). Example:

Installation Date Range	Installation Date Specific
2000 - 2009	12/13/2004

10. **Column T: Diameter in Inches -** Enter the service line pipe inner diameter, in inches. Use up to two decimal places (e.g., 1¾ inch = 1.75).

11. **Columns U, V, W, and X: Basis of Material Classification 1 and 2, Field Verification Method, and Date of Field Verification.** Use these columns to identify the methods employed to determine the service line material. For more details on each method, see the EPA Document: Guidance for Developing and Maintaining a Service Line Inventory (EPA 816-B-22-001)

Basis of Material Classification - Non-Field Method	Basis of Material Classification - Non-Field Method	Basis of Material Classification - Field Method	Date of Field Verification
Non-field method	*Non-field method*	*Field method*	

- The choices for "non-field" methods include the following.
  - *Records review*
  - *Modeling/statistical analysis*
  - *Water Sampling (No CCT)*.
    - This can only be used as evidence for non-lead by systems that do <u>not</u> have corrosion control treatment installed.
  - *Other (explain in the comments field)*

- Column W: Field Verification Method options include:
  - *Visual inspection at existing access point*
    - This includes any access points in which you can clearly determine the material type of the service line, such as a meter pit, or the service line entry to the basement at the customer side.
  - *CCTV inspection inside pipe – full-length*
  - *CCTV inspection outside pipe – at curb box*
  - *Mechanical Excavation, 1 location*
  - *Mechanical Excavation, 2 locations*
  - *Mechanical Excavation, 3+ locations (described below)*
 - *Other – enter in comments field*

SUFFICIENT EVIDENCE FOR NON-LEAD:

- If your investigation concludes that the pipe material is non-lead (e.g. copper), you are expected to show sufficient evidence through one of the "stand-alone" verification options, or a combination of 2 or more other methods as described below.

    - o **"Stand-Alone" <u>Records</u> Method Options:** If you can use one of the following record verification methods, you do not need an additional method to verify the pipe is non-lead:
        - Records indicating service line installation/replacement date after January 6, 1991 (the effective date of the PA Lead Ban) – **OR** –
        - Record of a local ordinance prohibiting lead service line installation and water system records indicating service line installation/replacement after the ordinance effective date.

    - o **Combination of Two (or more) Other Methods:** If your system records do not meet either of the criteria above, you may use any TWO other investigation techniques from the dropdown lists in columns U – W. This includes using any combination of two of:
        - Records review
        - Modeling/Statistical analysis
        - Water sampling
        - Field verification; Options include*:
            - Visual inspection at existing access point
                - o This includes any access points in which you can clearly determine the material type of the service line, such as a meter pit, or the service line entry to the basement at the customer side.
            - CCTV inspection outside pipe – at curb box
            - Mechanical excavation at a location along each half of the service line (i.e. customer-side and system-side)
            - Other method reviewed by DEP

        For example, a system may have records that indicate a service line is copper that was installed in 1985. Since this is prior to the PA lead ban, a second verification of the records is expected. The system chooses to verify the records through CCTV inspection at the curb box.

    - * **Representative Field Verification:** Note that if a system is verifying records using a field method, a statistically sound subset of service lines can be field verified, rather than every line. Systems should follow the procedure established in the Michigan EGLE "Minimum Service Line Material Verification Requirements" document. This method should only be used for a homogeneous area, such as a residential neighborhood in which the houses were built in the same time period.

- o **"Stand-Alone" <u>Field</u> Method Options:** If you do not have any other method options there are two stand-alone field method options. Use ONE of the following verification methods:
  - Internal CCTV inspection over the full length of the service line **– OR-**
  - Mechanical excavation in at least 3 locations over the length of the service line as follows (visual below):
    - Curb stop to building:
      - o A minimum of 18 inches from the curb stop
      - o If the distance to the building is less than 18 inches, halfway to the building
    - Curb stop to water main:
      - o A minimum of 18 inches from the curb stop
      - o If the distance to the water main is less than 18 inches, halfway to the main
    - Third point (choose one):
      - o Inside the home where the service line enters (inspected by water system personnel, not customer)
      - o A second excavation point in the longer section of service line that is at least halfway between the first point and the building or water main
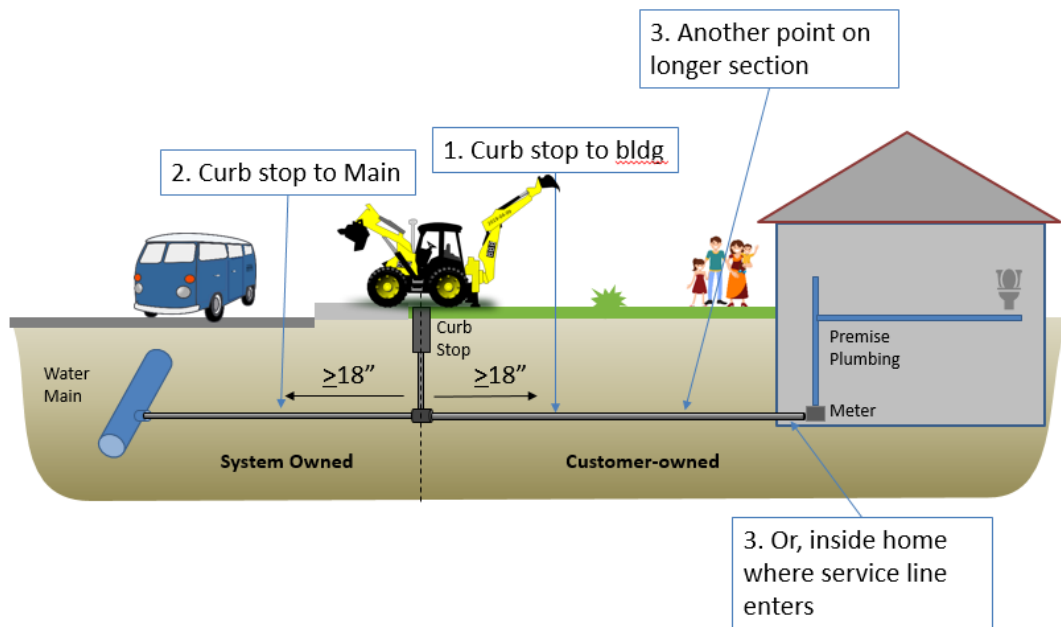
Columns U, V, W, and X are tied to Column B "Sufficient Evidence for Non-lead". The spreadsheet determines if there is enough evidence for the non-lead designation by looking at the basis of material classifications identified by the water system. The water system is expected to use a stand-alone method described above or a combination of methods, also described above.

- For example, if "Records review" is identified as the sole method in "Basis of Material Classification" and the service line was installed prior to 1991, the spreadsheet will indicate "No" in column B. An additional evidence-based method of material classification is expected since the service line was installed prior to the PA Lead Ban Act of 1991.

Service Line Classification	Sufficient Evidence for Non-Lead?
Non-Lead	No

- NOTE: If a water system has a record of a local ordinance prohibiting lead service line installation and water system records indicating service line installation/replacement after the ordinance effective date, choose "Records review" as the first basis in Column U and "other" as the second basis in column V. In the Additional Comments field in Column Y, please explain when the ordnance was effective that prevented lead service line installation.

Customer-Owned Portion of the Service Line:

12. **Column Z** begins the **Customer-Owned portion** of the service line starting with the material type of the customer-owned portion.

13. Columns Z through AH in the Customer-owned portion are the same as Columns O through Y of the System-owned portion, except for Column P (Was Material Ever Previously Lead). Column P does not have an equivalent column in the customer-owned portion, since it does not matter if the material was previously lead in the customer-owned portion.

14. See the instructions above by header title for columns Z through AH.
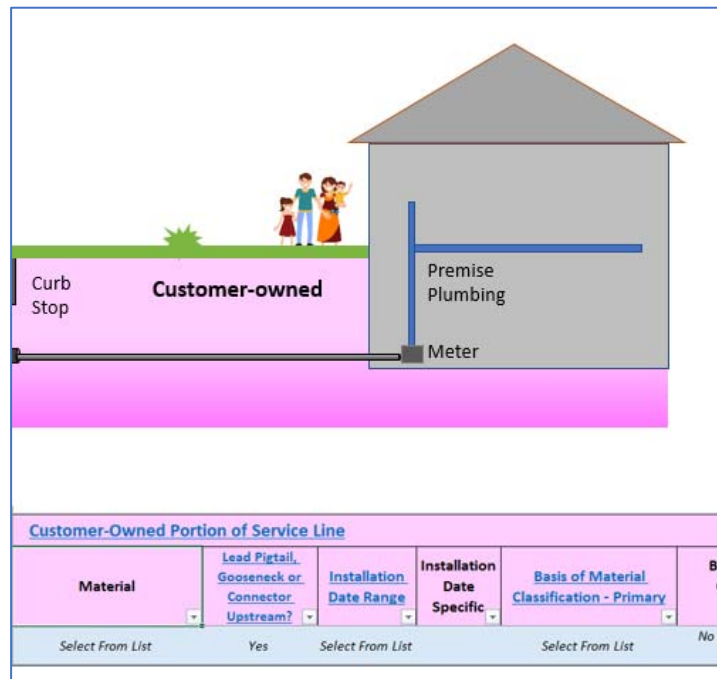
## Additional Information to Assign Tap Monitoring Tier

Columns AI through AL: Fill out information in these columns to automatically assign Tiers to tap sampling monitoring locations.

Additional Information to Assign Tap Monitoring Tiering			
Service Line Connected To:	POE Treatment Present?	Interior Building Plumbing Contains Lead Solder?	Current LCR Sampling Site?
Select From List	Select From List	Select From List	No

15. **Column AI, Service Line Connected To:** Indicate if the service line is connected to a Single-Family Residence (SFR), Multi-Family Residence (MFR), or Other type of building
    - The building is considered a single family residence if one service line provides drinking water for one family.
    - The building is considered a multi-family residence if one service line provides drinking water for multiple families (e.g., apartment complex where there is only a single service line).
    - If the connection cannot be categorized as an SFR or MFR choose Building/Other.

16. **Column AJ - POE Treatment Present?** Locations with Point-Of-Entry (POE) treatment for Lead are not eligible for sampling under the Lead and Copper Rule. Point-of-entry (POE) treatment devices are used when the whole building is served with treated water.
    - IMPORTANT: If the location has a Point-Of-Use (POU) filter, collect the sample from a different tap used for dispensing potable water. For example, if the kitchen tap has a filter, collect a sample from the bathroom tap. Do not remove the filter to collect the sample.

17. **Column AK - Interior Building Plumbing Contains Lead Solder?:** Indicate for this service line by using the Yes, No, or Not Sure options.

18. **Column AL - Current LCR Sampling Site?** Indicate by using the Yes/No dropdown.
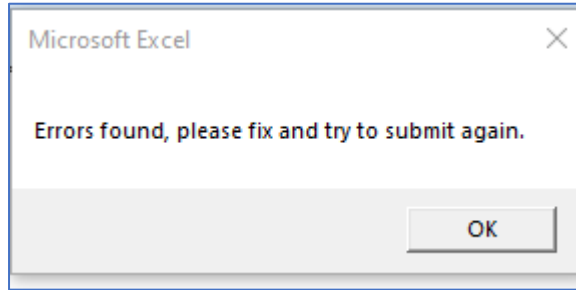

Adding the service line to the inventory list:

1. When row 7 has been completely filled out, click on the "Add To Inventory" button at the far right (column AM):
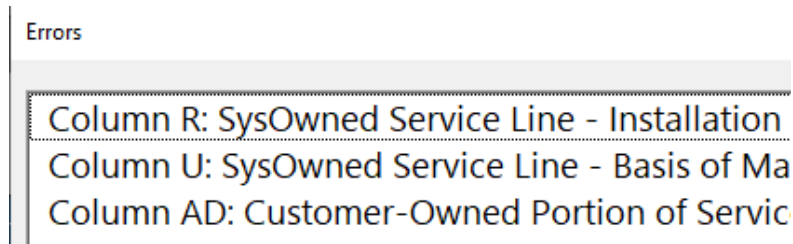
   Add To Inventory
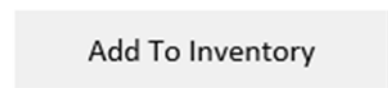
2. The values will be transferred to the list below. Values in the list cannot be edited directly.

3. The system will run an error check. If you receive the error message below, click OK.

Upon clicking OK, a window will appear that describes the errors that need to be corrected. Here is an example snippet:

Editing Service Line Data You Have Already Entered:

Rows may be edited by re-entering the desired Unique Service Line ID in Column E, Row 7. This will call up the previously entered information for that service line ID, which can then be edited and re-entered.

Type the Unique ID here and the existing record information will appear in row 7 for you to edit

## V. Summary Information Worksheet

You cannot enter data in this worksheet. Rather the table will auto-populate based on the answers provided in other tabs of the workbook.

Service Line Classification Summaries: The total number of Lead, Galvanized Requiring Replacement, Lead Status Unknown, and Non-Lead services lines is displayed. Breakout information regarding Schools & Daycares is also provided.

Tap Sampling Monitoring Locations by Tier: A breakdown of the tap sampling location Tier assignments based on the information entered in the Detailed Inventory.

VI. Exporting the Inventory for State Upload

Once the inventory is final, use the "Export All To CSV" button at the top of the **Detailed Inventory tab** to create the export files.
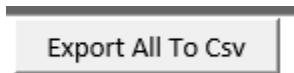
- A folder called "PA_SLI" will be created on your desktop and the export files will be placed inside the folder.
- Three export files will be created with "General", "Methods", and "Detail" appended to the file name.
- Each export file name will be date stamped using YYMMDD format.
- The date stamp appears at the beginning of the file name so that the export files will automatically sort by date.