Service Line Inventory Requirements of the LCRR

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Presentation Overview

- Background
- Regulatory framework, history
- Methodologies
- Getting started, resources
- Reporting, format
- Q&A

History: Lead & Copper regulation

- Rule published in 1991
- Minor revisions in 2000 & 2007
- Long-term revisions January 15, 2021
- Upcoming: LCRI (improvements) ~2024
- Applies to 900 CWS, 300 NT systems in Oregon

Lead health effects

- Lead is a highly toxic pollutant that can damage neurological, cardiovascular, immunological, developmental, and other major body systems.
- **No safe level of lead exposure** has been identified, and it is especially harmful to children and pregnant women.
- Bans:
  - Gasoline for passenger cars: 1975
  - Paint for residential use: 1978
  - Components of an OR public water system: 1985
  - Gas for commercial vehicles: 1996

Goal:

To identify and remove ALL lead service lines as quickly as possible.

LCRR Improvements

- EPA announced it will take steps to strengthen the regulatory framework regarding lead, in a way that may be different from the LCRR
- Will maintain Inventory requirements of the LCRR
- Anticipated prior to October 16, 2024
  - Strengthen compliance tap sampling
  - Revisit action and trigger levels (reduce complexity?)
  - Prioritize historically underserved communities, those disproportionately impacted

Oregon Rule-making

- DWS will propose to add language from CFR to Oregon Administrative Rules in 2022
  - Service line inventory
  - LSL replacement plan
- Provides regulatory basis for work needed to be done now
- Remainder of LCRR will not be adopted
- Oregon will apply for primacy after LCRR Improvements
  - Proposed rules anticipated Fall 2022

LCRR: Lead Service Line Inventory

- Water systems must prepare an initial Lead Service Line Inventory by October 16, 2024 that identifies:
  - Lead Service lines (LSL)
  - Lead Status Unknown Service Lines (Unknown)
  - Galvanized lines requiring replacement (GRR)
  - Non-lead Service lines

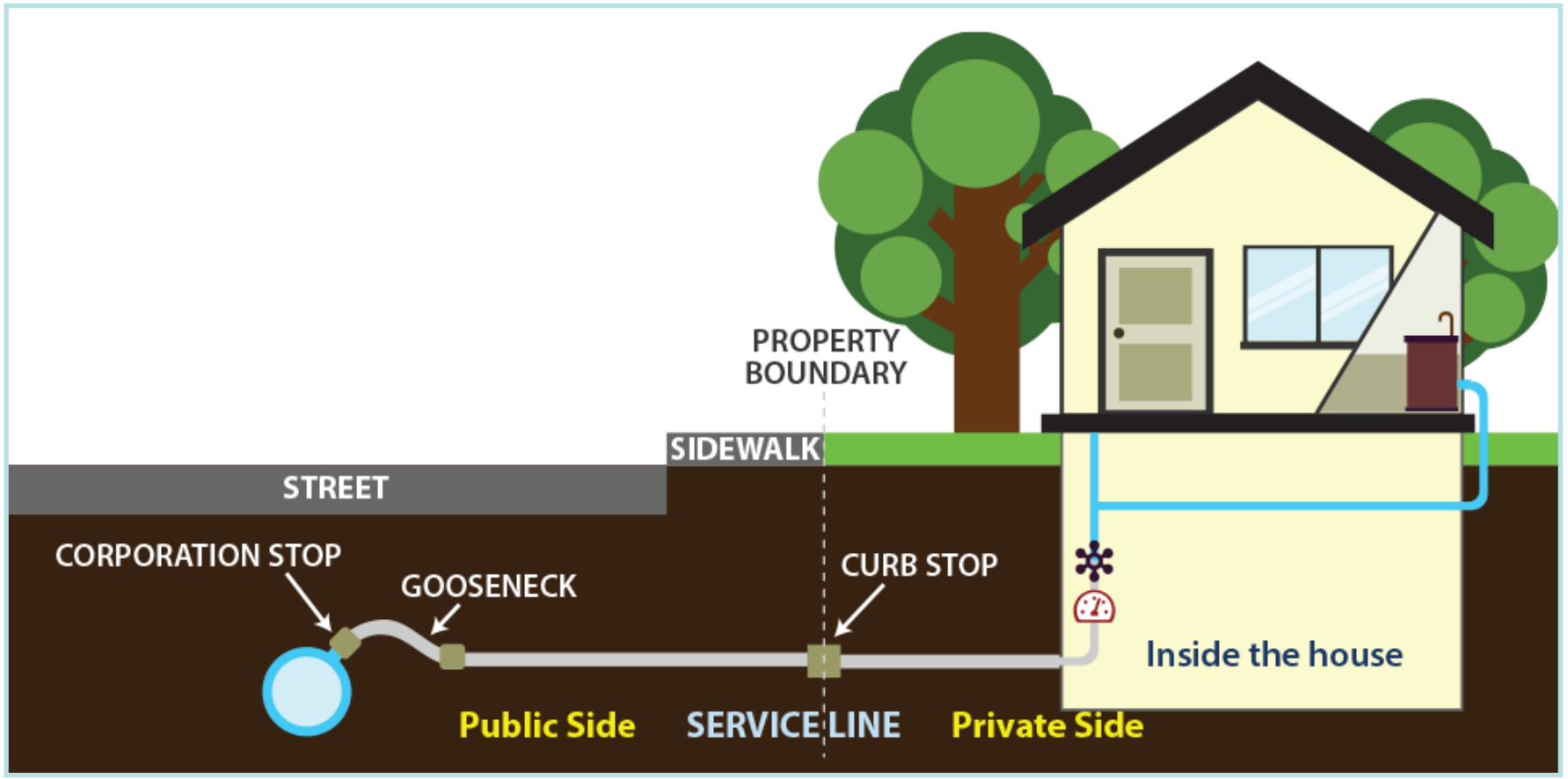
LCRR: Lead Service Line Inventory

- Lead connectors (i.e., goosenecks or pigtails) are not required to be included in the inventory
  - EPA recommends including lead connectors where records exist
  - Water systems must replace lead connectors when encountered

LCRR: Lead Service Line Inventory

- Location Identifier for LSL and GRR
- Will need to be made available to the public
- Systems must update the inventory annually (or tri-annually if the system is on reduced monitoring)
- Must include ALL service connections: residential, commercial, fire, irrigation, etc

Service lines



Oregon's Lead Ban

- In July 1985, Oregon banned all future use of lead components in public water systems
- There should not be any known lead components in a PWS (public side)
- Service connections installed in 1986 or later will be considered non-lead.

Previous efforts to certify no lead

- In 1985, PWSs had to certify that they did not have any lead in the public system, or be on a schedule to remove all lead components
- This certification is not adequate for the LCRR for the public service lines, because non-evidence-based methods were allowed
- Thus, the public service lines still need to be included in the inventory, though we don't expect to find many.

Tools: Overview

- Records review
- Basic / visual inspection
- Special tap sampling
- Physical excavation
- Predictive modeling & Statistical sampling
- Emerging methods

Tools: Records review

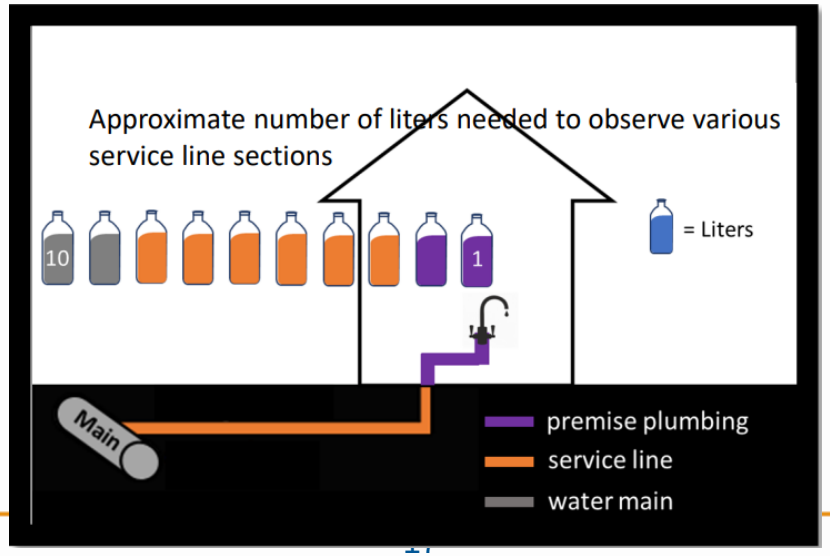
- Service line installation records
  - Any lines installed after 1986 can be designated non-Lead
- Tap cards
- Plumbing permits
- Maintenance records
- Meter installation records
- Property tax records
- Drawings or maps
- Issues: may not be legible, complete, or accurate

Tools: Basic / Visual

- Scratch test: PWS staff or residents scratch the pipe using a coin or key
- Magnet test: lead is not magnetic but iron pipe is
- Resident survey, photos
- Plumbers, other utilities

Tools: Sequential or targeted sampling

- Captures water from tap to main in multiple liters.
- Can identify lead peaks
- Need community-specific lead thresholds (compare areas with lead vs areas with no lead)
- Not very effective where OCCT is practiced



Tools: Physical inspection / excavation

- Mechanical:
  - Gold standard
  - Reliable, high accuracy
  - Expensive, time-consuming
- Vacuum:
  - Hydro vacuum loosens the soil, exposes smaller section of service line
- One location is adequate
- CCTV: inspect from the inside

Tools: Predictive methods

- Machine learning uses a self-learning algorithm with geospatial data.
  - Need good data going in
  - Determine confidence level
- Determines probability of lead service lines
- Used to prioritize physical excavation when lead lines are possible

Tools: Statistical Analysis (under consideration!)

- If no LSLs are known, may be able to verify that no lead service lines are present within a specific group of unknowns:
  - Group services lines (age, location, public/private)
  - Use 95% confidence interval
  - DWS may require flat percentage for small systems
  - EPA guidance *may* address
- Physical verification of the number necessary for 95% confidence
- If any lead is found, may need to regroup

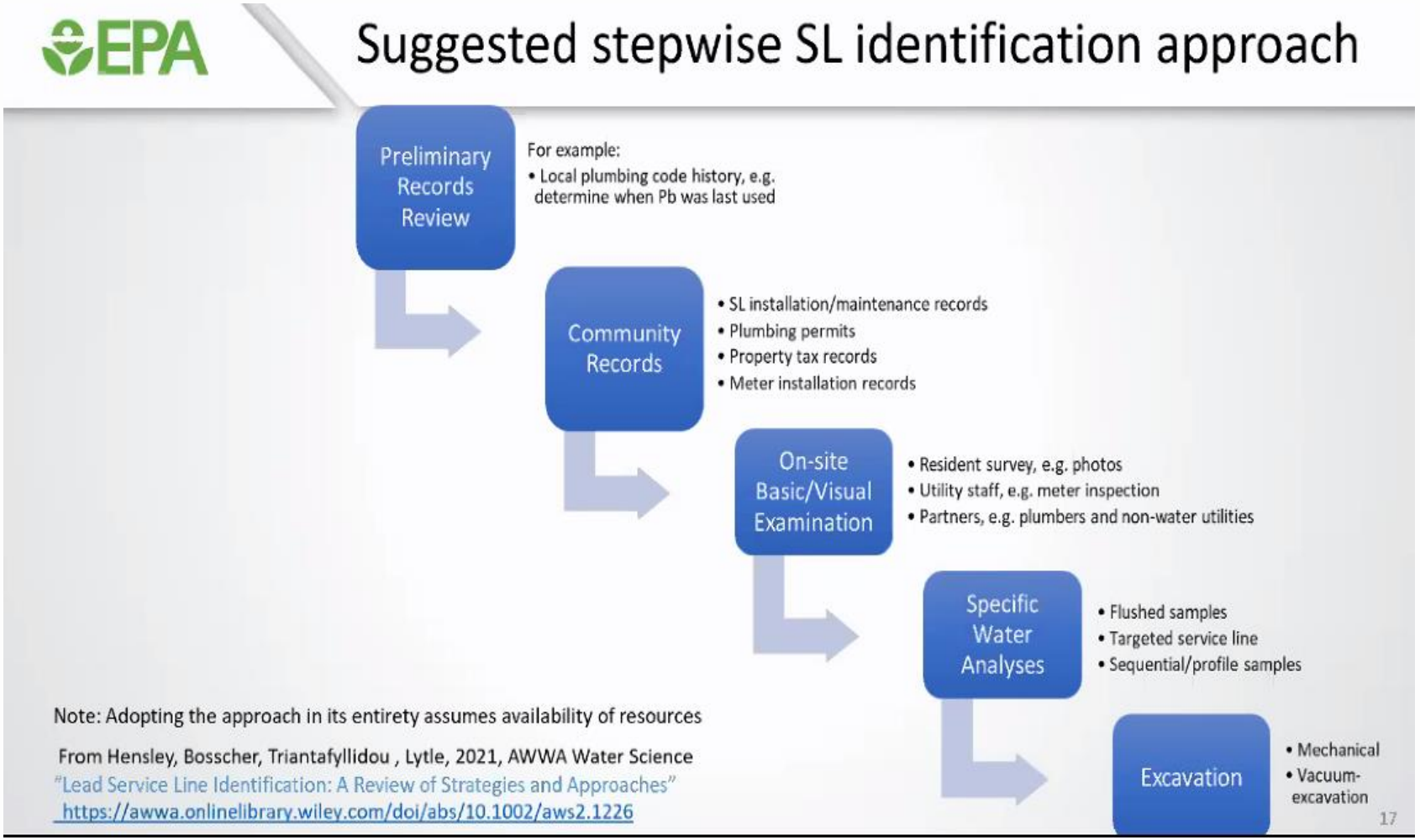
Operator statement?

- Oregon will not allow an operator to simply state or certify that no lead was used in their system based on historical knowledge.
- Studies have shown that:
  - Some operators are willing to certify something even in the absence of supporting evidence
  - Some operators are reluctant to certify something even with solid supporting data

Getting started

- Develop a plan
  - DWS does NOT need to approve your plan
- Staff time
  - Consider an intern?
- Train all distribution staff
- Develop data collection method for work done in next 2 years
- Evaluate available methods by cost, disturbance, impact to homeowner, skills required, time, and accuracy

LCRR: Lead Service Line Inventory



Bipartisan Infrastructure Law (BIL)

- Money is coming to states to fund lead service line replacements.
- Oregon will use that money to provide assistance related to service line inventories to
  - CWSs serving 10,000 people or fewer and
  - non-profit NTNC systems

- If lead service lines are found, BIL funding will be available to fund replacement

Assistance

- Request for Proposals posted
  - Hope we get several successful bids
- Training and outreach related to service line inventory, methodologies, and reporting requirements, and
- Individual assistance to public water systems
- May also help with mapping of PWS facilities
- Assistance provided to PWSs is strictly on a voluntary basis.

Assistance, cont'd

- Records review
- Records compilation
- Use of spreadsheet to track data
- Develop a strategy for identifying unknowns
- Assistance with reporting
- Updates to initial inventory

- Hope to start this Fall

What about the unknowns?

- A system can list service lines without documentation as “lead status unknown” in the initial inventory
- Unknowns must eventually be determined
- Until material type is identified, service lines will be assumed to be lead for purposes of lead service line replacement plan

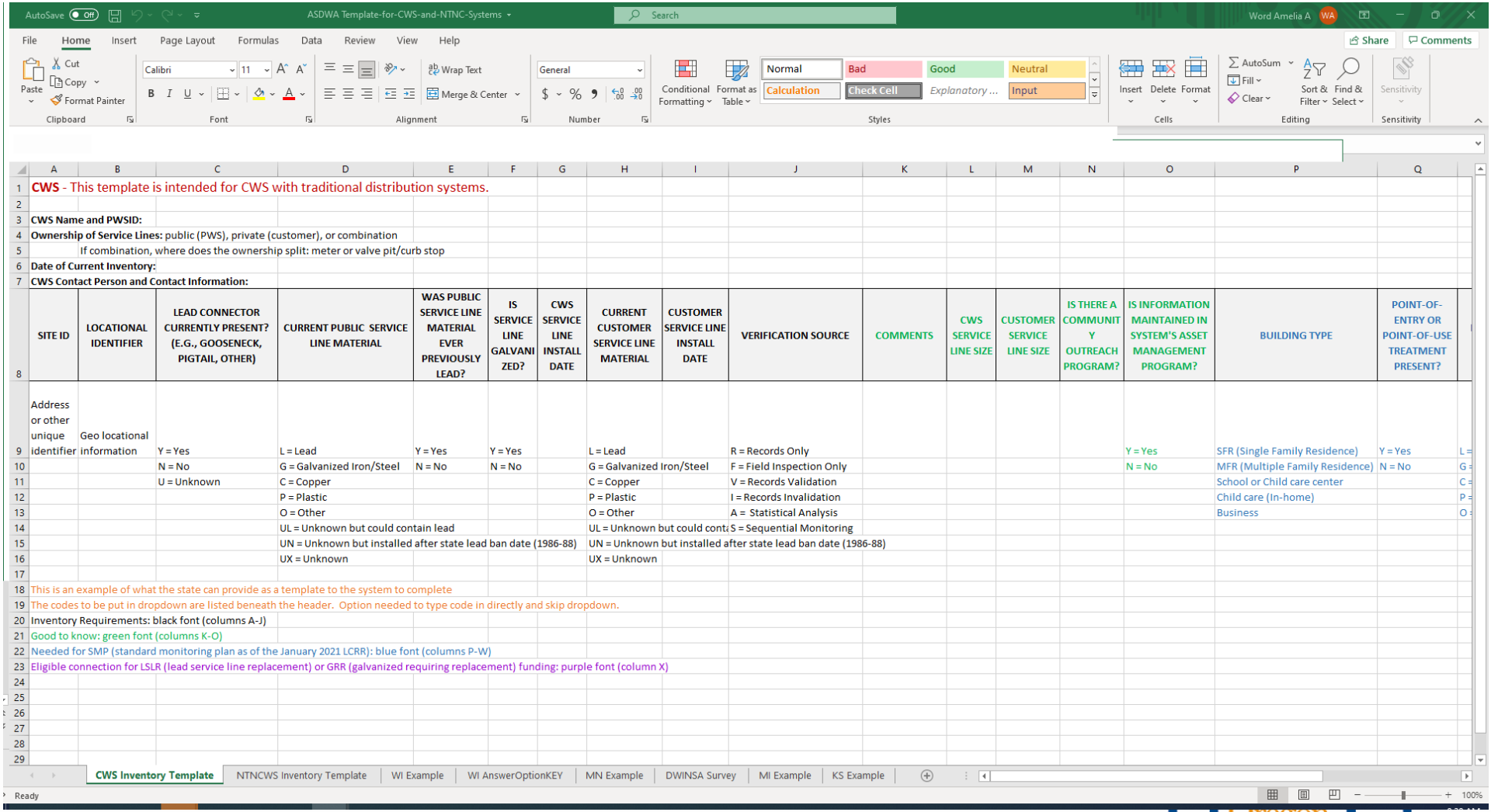
Lead Service Line Replacement (LSLR) Plan

- Water systems with LSLs or unknowns must prepare an LSLR plan by October 16, 2024 that includes:
  - Strategy for determining the composition of lead status unknown lines
  - LSLR replacement prioritization strategy
    - disadvantaged consumers
    - populations most sensitive to the effects of lead
    - known lead service lines
  - Funding strategy to accommodate customers unable to pay
- LCRR Improvements may refine reporting requirements

Inventory Reporting

- Entire inventory must be submitted (not summary data)
- Due October 16, 2024
- Oregon template/spreadsheet
- Required elements
- Optional elements – info for tap sample siting, others “while you’re there”
- Electronic submittal process

DWS spreadsheet template: online soon



CWS - This template is intended for CWS with traditional distribution systems.

CWS Name and PWSID:

Ownership of Service Lines: public (PWS), private (customer), or combination

If combination, where does the ownership split: meter or valve pit/curb stop

Date of Current Inventory:

CWS Contact Person and Contact Information:

SITE ID	LOCATIONAL IDENTIFIER	LEAD CONNECTOR CURRENTLY PRESENT? (E.G., GOOSENECK, PIGTAIL, OTHER)	CURRENT PUBLIC SERVICE LINE MATERIAL	WAS PUBLIC SERVICE LINE MATERIAL EVER PREVIOUSLY LEAD?	IS SERVICE LINE GALVANIZED?	CWS SERVICE LINE INSTALL DATE	CURRENT CUSTOMER SERVICE LINE MATERIAL	CUSTOMER SERVICE LINE INSTALL DATE	VERIFICATION SOURCE	COMMENTS	CWS SERVICE LINE SIZE	CUSTOMER SERVICE LINE SIZE	IS THERE A COMMUNITY OUTREACH PROGRAM?	IS INFORMATION MAINTAINED IN SYSTEM'S ASSET MANAGEMENT PROGRAM?	BUILDING TYPE	POINT-OF-ENTRY OR POINT-OF-USE TREATMENT PRESENT?
Address or other unique identifier	Geo locational information	Y = Yes	L = Lead	Y = Yes	Y = Yes		L = Lead		R = Records Only					Y = Yes	SFR (Single Family Residence)	Y = Yes
		N = No	G = Galvanized Iron/Steel	N = No	N = No		G = Galvanized Iron/Steel		F = Field Inspection Only					N = No	MFR (Multiple Family Residence)	N = No
		U = Unknown	C = Copper				C = Copper		V = Records Validation						School or Child care center	
			P = Plastic				P = Plastic		I = Records Invalidation						Child care (In-home)	
			O = Other				O = Other		A = Statistical Analysis						Business	
			UL = Unknown but could contain lead				UL = Unknown but could conta		S = Sequential Monitoring							
			UN = Unknown but installed after state lead ban date (1986-88)				UN = Unknown but installed after state lead ban date (1986-88)									
			UX = Unknown				UX = Unknown									

This is an example of what the state can provide as a template to the system to complete

The codes to be put in dropdown are listed beneath the header. Option needed to type code in directly and skip dropdown.

Inventory Requirements: black font (columns A-J)

Good to know: green font (columns K-O)

Needed for SMP (standard monitoring plan as of the January 2021 LCRR): blue font (columns P-W)

Eligible connection for LSLR (lead service line replacement) or GRR (galvanized requiring replacement) funding: purple font (column X)

CWS Inventory Template | NTNCWS Inventory Template | WI Example | WI AnswerOptionKEY | MN Example | DWINSA Survey | MI Example | KS Example

Reporting: Required information

- Ok to modify template but must have required info.

Required for Lead service line inventory						
Locational Identifier	Did service line ever contain lead?	system owned service line installed	Year customer owned service line installed	Water system owned service line material	Customer owned service line material	Service line Verification Source
#1	yes	1980	1980	Lead	Lead	
#2	yes	1980	1980	Lead	Galvanized	
#3	yes	1980	1980	Lead	Plastic	
#4	yes	1980	1980	Lead	other	
#5	yes	1980	1980	Lead	unknown	
#6	yes	1980	1980	Lead	NA	
#7	yes	1980	1980	Galvanized	Lead	

Reporting: Useful info for tap sample sites

Needed for Standard monitoring plan			
Service type of connection	connector materal to water main (i.e. goosenecks)	Interior plumbing	POINT-OF-ENTRY OR POINT-OF-USE TREATMENT PRESENT?

Reporting: Other

Good to know		
Water system service line size	Customer service line size	Water system Notes

Reporting: Summary

Summary				
Lead	GRR	Non-Lead	Unknown	Total
48	13	87	18	170
	GRR=Galvanized requiring replacement			

Making the inventory publicly available

- The service line materials inventory must be publicly accessible.
- For LSL and GRR: The inventory must include an associated location identifier, such as a street address, block, intersection, or landmark
- Optional: include a locational identifier for lead status unknown service lines
- Optional: List the exact address of each service line.

Resources:
Drinking water website / LCRR Inventory

Oregon Drinking Water Services

Working to keep drinking water safe for Oregonians

Access to safe drinking water is essential to human health. Each person on Earth requires at least 20 to 50 liters of clean, safe water a day for drinking, cooking and simply keeping themselves clean. Oregon Drinking Water Services works to help keep drinking water safe for Oregonians.

Oregon Drinking Water Services (DWS) administers and enforces drinking water quality standards for public water systems in the state of Oregon. DWS focuses resources in the areas of highest public health benefit and promotes voluntary compliance with state and federal drinking water standards. DWS also emphasizes prevention of contamination through source water protection, provides technical assistance to water systems and provides water system operator training.

Contact Us | Sign up for DWS Alerts | Water Advisories Map | Data Online

Guidance for Reopening Building Water Systems After Prolonged Shut Down - *Updated October 7, 2020*

Public Water Systems and Novel Coronavirus 2019 (COVID-19) Frequently Asked Questions - *Updated May 1, 2020*

Services

- Cross Connection & Backflow Prevention
- Emergency Planning and Response
- Groundwater & Source Water Protection
- Monitoring & Reporting
- Operator Certification
- Plan Review
- State Revolving Fund (SRF)
- Water System Operations

Resources

- County & Department of Agriculture Resources
- Data Online
- Domestic Well Safety Program
- Drinking Water Advisory Committee (DWAC)
- For Consumers
- Rules & Implementation Guidance
- Training Opportunities
- Site Map
- Contact Us

News and Hot Topics

Link
Wildfire information for water systems
Drinking Water Source Protection Funding Available - LOI Due March 24, 2021
NEW - Annual Water System Fee Info
SRF PPL Public Notices
Rulemaking: Adoption of Annual Fees
Cyanotoxin Resources for Water System Operators
Shutdown tips for seasonal groundwater systems

Resources:
Drinking water website / LCRR Inventory

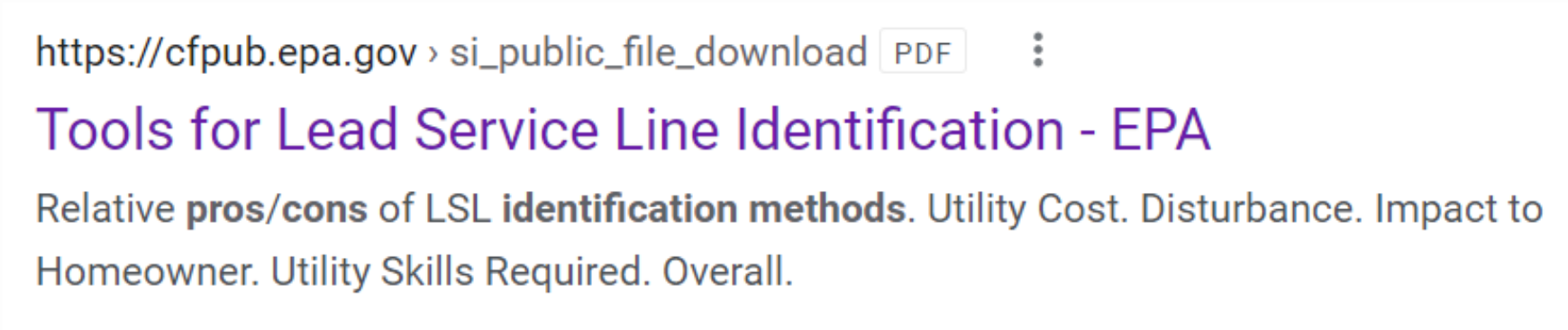
Frequently Asked Questions (FAQ)

Inventory Template – coming soon

Helpful Links

- Together, Let's Get the Lead Out (video) - American Water Works Association (AWWA)
- Preparing a Lead Service Line Inventory – The Lead Service Line Replacement Collaborative offers resources on where to start, reviewing existing data, identifying service line material, and integrating data collection into ongoing activities.
- ASDWA Lead Service Line Inventory Framework - Association of State Drinking Water Administrators
- Revised Lead and Copper Rule - U.S. Environmental Protection Agency

Resources, cont'd



- AWWA article on LSL ID strategies: https://awwa.onlinelibrary.wiley.com/doi/abs/10.1002/aws2.1226.

- ASDWA 2019. Developing lead service line inventories. https://www.asdwa.org/wp-content/uploads/2019/08/ASDWA_Developing-LeadService-Line-Inventories.pdf

Resources, cont'd

Lead Service Line Replacement Collaborative

Preparing a Lead Service Line Inventory

This section addresses resources and techniques for identifying which of the buildings in the community are likely to have lead service lines (LSLs). Lead lines were installed before 1986, although in some cases they were banned decades earlier. Since installation, some LSLs have failed and been replaced or repaired, some have been partially replaced, and still others remain in service. When preparing an inventory, it is important to understand if lead pipe is still in use both in the portion of the service line owned by the water system and the portion on private property. To provide the most benefit, the inventory should include the pipe material on both public and private property.

One aspect in describing service lines is the short piece of lead pipe sometimes used to connect the water main to customers' service lines called goosenecks or pigtails. Preparing an inventory is also an opportunity to identify other service line materials relevant to lead levels, including brass, lead alloy, and tube alloy. Recognizing materials that do not contain lead, like copper, PVC, and galvanized pipe, will also improve planning for subsequent removal of lead piping.

In amending the Safe Drinking Water Act in 1986, Congress incorporated a ban on the use of lead pipe. The ban went into effect June 19, 1986. It was applicable nationwide. As of that date, installation of lead pipe, including LSLs, was prohibited. Following the law, states had two years to incorporate the ban into State law and regulations. Where lead pipe was installed until the Lead Ban, it is likely wise to look to the actual state implementation date of the ban (e.g., 1 – 2 years after federal law passed).

Lead gooseneck

Resources

https://www.asdwa.org/wp-content/uploads/2019/08/ASDWA_Developing-Lead-Service-Line-Inventories.pdf

Developing Lead Service Line Inventories
Presented by the Association of State Drinking Water Administrators

Summary: Many state drinking water administrators are considering developing inventories of the materials used in service lines that are part of the distribution systems of community water systems (CWSs) they regulate. Some states have already conducted voluntary or mandatory surveys of CWSs whether on their own or in response to state legislation. Others are preparing to use the information in the next round of Drinking Water Infrastructure Needs Survey and Assessments (DWINSA) that the Environmental Protection Agency (EPA) is developing pursuant to Section 2015 of the America's Water Infrastructure Act of 2018. The 2020 DWINSA will include an estimate of the number of public and

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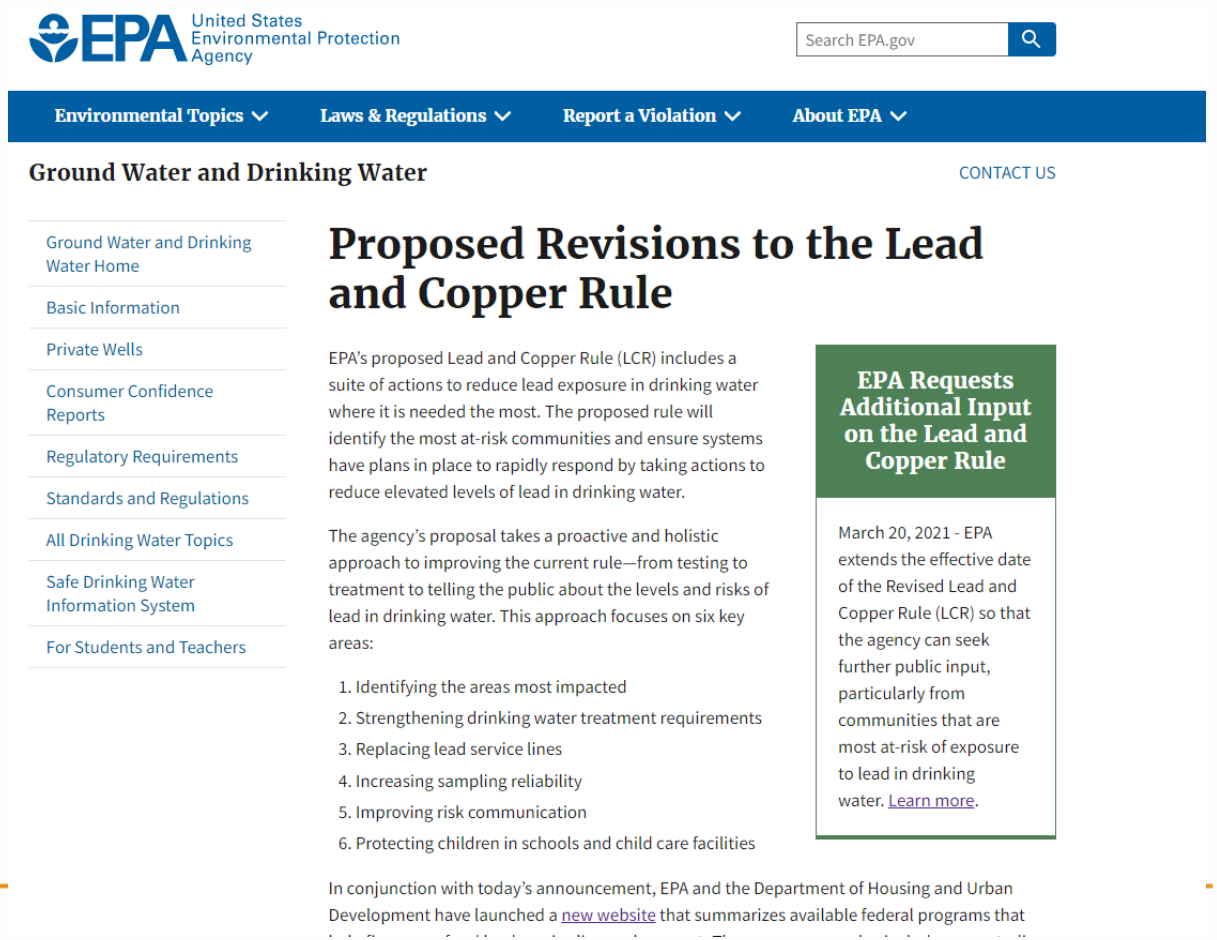
Resources, cont'd

https://www.epa.gov/ground-water-and-drinking-water/proposed-revisions-lead-and-copper-rule



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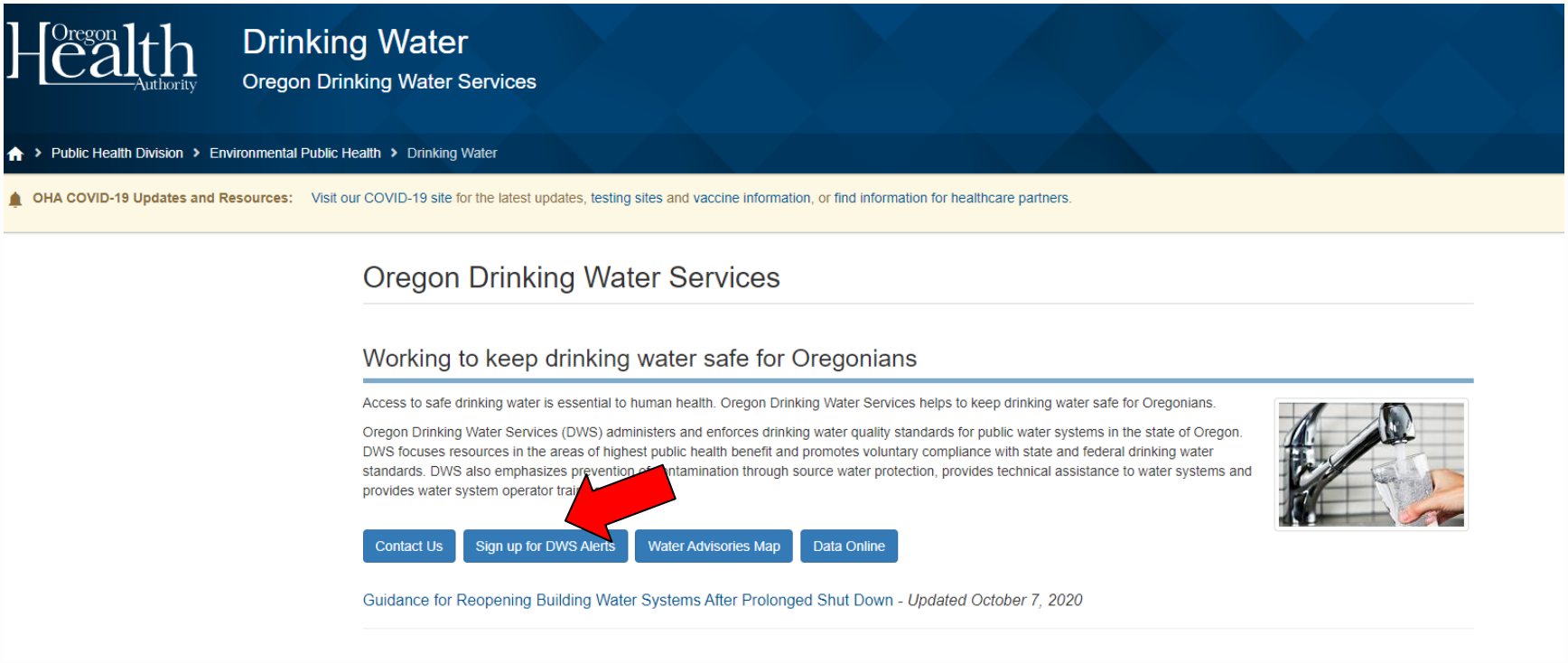
Stay informed



Next steps

- Start developing a plan now
- Find out what records are available
- Who is going to do this work?
- What assistance will you need?

Questions??

- Contact your regulator with specific questions
- Presented by: Kari Salis, DWS Technical Manager, karyl.l.salis@dhsoha.state.or.us

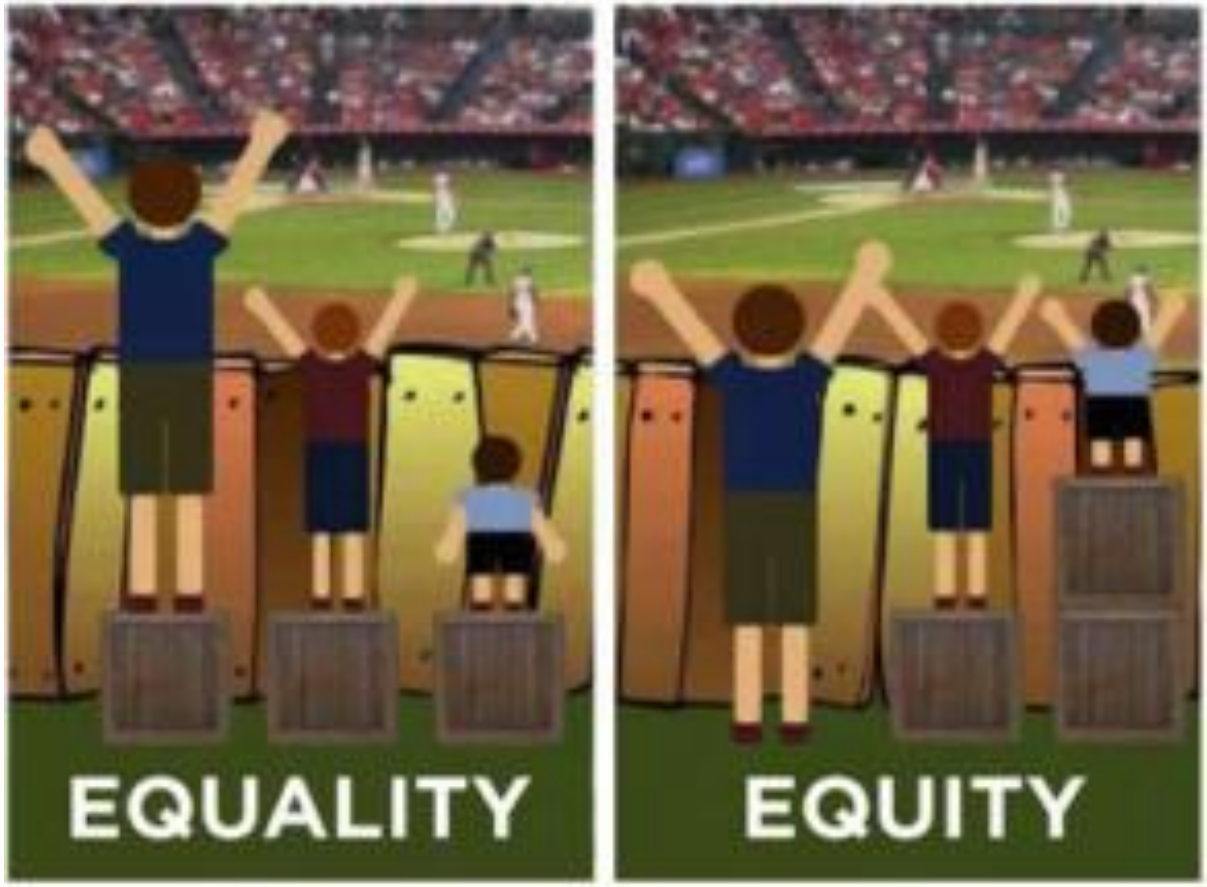
Updating the inventory

- A system does not need to do anything else if:
  - No lead service lines are found
  - No galvanized downstream of former lead lines are found
  - There are NO unknowns
- If not the case, the inventory needs to be updated annually
- Will show progress of LSL replacement plan
- More details with LCRR Improvements

Fun facts: Lead and the ancient Romans

- Lead was one of the earliest metals discovered and in use by 3000 B.C.
- Ancient Romans used lead for making water pipes and lining baths
- The plumber who joins and mends pipes takes his name from the latin word plumbum, meaning lead
- Plumbum is also the origin of the terms plumb bob and plumb line used in surveying

Focus on Equity



Fun Facts: Lead and the ancient Romans

- Winemakers in the Roman Empire insisted on using lead pots or lead-lined copper kettles because of the sweet overtones from the lead.
- From the middle ages on, people put lead acetate or “sugar of lead” into wine and other foods to make them sweeter.
- Some think the use of lead caused severe illness that eventually could have brought down the Roman Empire.