

Communicating About Lead Service Lines: A Guide for Water Systems Addressing Service Line Repair and Replacement



**American Water Works
Association**

Dedicated to the World's Most Important Resource™

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Abbreviations

ANSI – American National Standards Institute

CDC – Centers for Disease Control and Prevention

EPA – Environmental Protection Agency

LCR – Lead and Copper Rule

NSF – National Science Foundation

PE – Public Education

PPB – Parts per billion

POU – Point of Use

SAB – Science Advisory Board

SDWA – Safe Drinking Water Act

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Executive Summary

Water utilities are facing a new communications challenge related to lead in drinking water. A growing body of research suggests that water customers may face increased risks of lead at the tap if lead service lines are disturbed during the course of utility operations. In the near future, utilities may be encouraged and even required to increase their communications efforts to better protect their customers from lead exposure at the tap.

Currently, utilities are required under the Safe Drinking Water Act to communicate lead risks when there is an exceedance of the Lead Action Level as defined in the Lead and Copper Rule, and annually as part of their consumer confidence reports. Utilities conducting mandatory lead service line replacements must meet specific outreach requirements targeting affected households. Beyond these requirements, many utilities also communicate lead exposure risks proactively in consumer confidence reports, on websites, and through other means.

However, the developing scientific and regulatory landscape suggests that water utilities should communicate lead exposure risks in a proactive and targeted manner not only when lead service lines are repaired or replaced, but also when routine maintenance work on water mains may disturb lead service lines. This change may dramatically alter the frequency of direct-to-customer lead communications and requires a new level of planning by utility managers and communicators.

This guide is designed to help water utilities build on their current communications strategies to address these new areas of concern. It provides utilities with customizable messages and templates to communicate with customers in a variety of ways to better protect public health.

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Introduction

Since the early 1970s, national and community-level public health intervention has successfully reduced exposure to lead for all ages and ethnic groups in the United States. Measures taken to manage lead exposure through drinking water include amendments to the Safe Drinking Water Act; establishment of the 1988 Lead Contamination Control Act; state plumbing codes and waterworks standards compliant with NSF/ANSI Standard 61; and, implementation of the Lead and Copper Rule by water systems throughout the United States. However, science continues to raise concerns about lead exposure at even very low levels. In fact, in 2012, the Lead Poisoning Prevention Control program at the Centers for Disease Control and Prevention (CDC) set a new blood lead level benchmark for community intervention programs at 5 micrograms per deciliter, which is half the previous benchmark.

While the water utility and public health communities have made significant strides in reducing lead exposure, public health advocates and regulatory agencies are looking closely at the contribution of lead at the tap from lead service lines—particularly lead service lines that have been disturbed. There are three typical scenarios that raise concerns about elevated lead levels:

- Mandatory lead service line replacement when required by the Lead and Copper Rule
- Infrastructure replacement when full or partial lead service line replacement occurs when other utility work is underway, such as during water main rehabilitation
- Repairs to lead service lines

Definitions:

Lead service line means a service line made of lead that connects the water main to the building inlet.

Partial lead service line replacement is the practice of replacing only the portion of a lead service line necessary to make a repair / reconnection to a service line or more often replacement of just the portion of a lead service line owned by a water system.

Full lead service line replacement involves replacing both the portion of the lead service line owned by the customer as well as that owned by the water system.

In September of 2011, the EPA's Science Advisory Board (SAB) found that the available data indicate that partial lead service line replacement "may pose a risk to the population, due

to the short-term elevations in drinking water lead concentrations.” Both CDC’s Advisory Committee on Childhood Lead Poisoning Prevention and EPA’s Children’s Health Protection Advisory committees have subsequently expressed similar concerns about elevated lead concentrations in drinking water from partial lead service line replacements. EPA’s National Drinking Water Advisory Council indicated that elevated lead levels were a concern from both full and partial lead service line replacement.

With this new information in hand, water providers should consider building on current communication plans to provide additional information to customers regarding lead and lead service line replacement.

Getting Organized

In light of the developing scientific and regulatory landscape, water utilities may re-evaluate their repair and replacement plans and their communication plans to better protect their customers from lead exposure at the tap. The following is a brief checklist a utility can use to prepare operations and communications around lead service lines and their replacement.

Checklist for Lead Service Line Replacement and Communication Efforts

- Determine if there are likely to be lead service lines remaining in your service area (owned by utility or customers).
 - Do these customers have direct relationship with utility (i.e. are they bill paying, or non-bill paying)?
 - If non-bill paying, adjust messaging and channels to reach property managers and apartment dwellers.
- Gauge extent of lead service line presence in community and which portions of service area are likely to still have lead service lines.
- Evaluate current communication materials on lead. Are lead service lines already addressed?
- Obtain organizational support for program and communications about lead service lines.
- Engage your local public health and/or primacy agency.
- Create implementation plan and set schedule.
- Review / develop organization policy and procedures regarding:
 - Roles and responsibilities for managing lead service lines.
 - Ownership of service lines.
 - Financial assistance available to homeowners for lead service line replacements.
 - Flushing practices after lead service line replacement.
 - Providing home treatment devices, information about home treatment devices, or bottled water to customers after lead service line replacement.
 - Information on licensed plumbers that can properly remove lead service lines.
- Prepare communication materials, such as

- Messages
- Website content
- Door hangers
- Fact sheets
- Test communication materials
 - Host focus groups with customers or internally to test effectiveness of messaging, as well as design and imagery.

Once communication materials are in use, it is important to periodically re-assess their effectiveness and applicability to current circumstances.

Guidelines for Effective Risk Communications

Communicating about lead in drinking water and the risks surrounding lead service lines can be a challenge from many perspectives. Before engaging with customers on these issues, a utility may benefit from reviewing basic risk communications principles. There are at least 10 guidelines for effective risk communication that should be considered:

1. Take the initiative in providing information to your community.
2. Plan your efforts in advance, test them before any “crisis” exists, and evaluate them upon completion.
3. Listen to your community members and acknowledge their concerns.
4. Be a reliable source of information.
5. Provide honest, accurate, and comprehensive information.
6. Partner with trusted sources in your community.
7. Provide timely and accurate information to the media.
8. Provide consistent messages.
9. Select representatives designated to speak to customers, officials and media very carefully and train them well.
10. Ensure your materials are easy to read and understandable for people with differing educational levels, and available in other languages if applicable.

Tip: Take steps to ensure that non-English speakers will have access to information. In particular, translate key messages and direct non-English speakers to sources of assistance.

Messaging on Lead Service Lines

This section of the guide provides utilities with the key messages about lead and lead service lines for incorporation into outreach materials. These key messages are provided as bullet points, each with supporting facts. Many will need to be customized to fit the unique circumstances of each utility. Opportunities for customization appear in blue type.

Concerns about Lead Service Lines

Message One: In our community, some of the pipes that connect older homes {e.g., before 1940} to the utility water main are made from lead.

- The pipe that connects your household plumbing to the water main in the street is called a service line.
- Neighborhoods in our community where lead service lines were commonly installed are: {xxxxxxx, xxxxxx, ...}. See map. {Utility Name} maintains records of initial service line construction materials, but these records may not reflect repairs or replacements made after the original service lines were installed.
- To determine if your home has a lead service line, hire a licensed plumber to inspect the service line.
- If your home has a lead service line, it is likely that other sources of lead exist in the home as well. Community health departments may offer free or low-cost lead assessments of the home to help homeowners identify and mitigate all sources of lead.

Message Two: Lead service lines are a health concern because they can be a source of lead in tap water.¹

- Lead can be harmful. It can impact normal physical and mental development in babies and young children, cause deficits in the attention span, hearing, and learning abilities of children, and increase blood pressure in adults.
- If you have a lead service line, the lead from your pipe may leach into water you drink. EPA estimates that 10 to 20 percent of lead exposure in young children may come from drinking water, and infants raised on mixed formula can receive 40 to 60 percent of their exposure from drinking water.
- There are steps you can take to help protect you and your family from exposure to lead in tap water.²

¹ USEPA, <http://epa.gov/region5/water/chicagoserviceline/>

² See more specific messages on flushing and filters on page 9.

Message Three: When lead service lines are disturbed, either by the utility or the homeowner, lead can be released and may end up in tap water.

- Studies have shown that when lead service lines are disturbed, they can release lead for weeks or months after the disturbance.³
- If {Utility Name} is doing work that may disturb lead service lines, we will notify our customers and advise them on how to minimize their risk of exposure at the tap.
- If you are replacing a lead service line, it is best to replace the entire service line rather than part of it. Ownership of the lead service line {may be shared between} homeowners and the {Utility Name} and therefore requires a cooperative effort.
- There are steps you can take to help protect you and your family from exposure to lead in tap water.⁴

Replacing Lead Service Lines

Message One: To determine whether your home has a lead service line, hire a licensed plumber to inspect the service line.

- Lead service lines are generally a dull gray color and are very soft. They can be identified easily by carefully scratching them with a key or coin. If the pipe is made of lead, the area you've scratched will turn a bright silver color. Do not use a knife or other sharp instrument and take care not to puncture a hole in the pipe.
- Lead service lines can be connected to the residential plumbing using solder. They have a characteristic solder "bulb" at the end or a compression fitting or other connector made of galvanized iron or brass/bronze.
- If your service line cannot be accessed to determine whether it contains lead, you may have your water tested by a certified laboratory {insert website for laboratories in your area}.

Resources:

Schematic of a Lead Service Line, Page A-2.

Where to Look for a Lead Service Line, Page A-3.

Scenarios Where Lead Service Lines May Exist, Page A-4.

What Do Lead Service Lines Look Like? Page A-5.

Message Two: Broken service lines and routine water main work present ideal moments to

³ One recent publication on this topic by Del Toral et al. is titled [Detection and Evaluation of Elevated Lead Release from Service Lines: A Field Study](#). It was published in *Environmental Science & Technology* in July 2013.

⁴ See more specific messages on flushing and filters on pages 7 and 9.

replace lead service lines.

- Ownership of the lead service line {may be shared between} homeowners and the {Utility Name} and therefore may require a cooperative effort.
- The actual cost of service line replacement depends on a number of factors including the length of the service line, where the service line is located, and the technique used to install the new service line.
- Please contact {Utility Contact} to learn more about options for lead service line replacement {and any payment assistance available}.

Message Three: When replacing lead service lines, it is best to replace the entire lead service line.

- The surest way to remove concerns about lead from lead service lines is to remove all the lead by removing the entire service line.
- Research has shown that at least in the short-term, partial lead service line replacements are not as effective as previously thought.⁵
- Even after a full service line replacement, flushing of the service line is required, and may create lead deposits that could persist for weeks or months. Therefore, it is also highly recommended the resident also flush internal plumbing following replacement.
- Please contact {Utility Contact} to learn more about options for lead service line replacement {and information on opportunities for financial assistance}.

Message Four: Homeowners and contractors should flush internal plumbing to reduce the amount of lead-containing particles and sediment entering the home immediately following work on lead service lines.

- Do not consume tap water, open hot water faucets, or use icemaker or filtered water dispenser until after flushing is complete.
- Immediately after a lead service line replacement, flush the service line by running water from an available outside tap or from the inside cold water tap closest to where the service line enters the home. Flush the line at full flow for 30 minutes. If the cold water tap has an aerator (or screen), then remove it prior to flushing, and rinse it free of debris prior to replacing it.
- After an initial flush of the replaced service line is complete:

⁵ 2011. USEPA Science Advisory Board, "[SAB Evaluation of the Effectiveness of Partial Lead Service Line Replacements.](#)"

1. Remove faucet aerators from all cold water taps in the home
2. Beginning in the lowest level of the home, fully open the cold water taps throughout the home
3. Let the water run for at least 30 minutes at the last tap you opened (top floor)
4. Turn off each tap starting with the taps in the highest level of the home. Be sure to run water in bathtubs and showers as well as faucets.

Utility Disturbance of Lead Service Lines

Message One: {Utility Name} cares about your health and the health of your family.

- {Utility Name}'s first commitment is to public health.
- Lead in drinking water can be harmful. It can impact normal physical and mental development in babies and young children, cause deficits in the attention span, hearing, and learning abilities of children, and increase blood pressure in adults.
- {Utility Name} will take steps to protect you and your family if it expects to disturb lead service lines during the course of utility repair or maintenance.

Message Two: If {Utility Name} is doing work that may disturb lead service lines, we will notify our customers to minimize any increased risk of exposure to lead at the tap.

- When construction will affect a large group of customers, we will notify the impacted customers by {insert method of communications}.
- If emergency repair work impacts your lead service line, we will {insert how you will provide links to relevant information, e.g., hang a door hanger, etc.}.
- When planned construction directly involves your service line, our crews and contractors will first contact you to try and coordinate a full service line replacement. Then we will replace the utility owned portion of the lead service line and minimize disturbance of your portion as much as possible. Once water service is reconnected, the home's plumbing will be flushed using the closest available outside faucet where possible.
- After a service line has been replaced, a door hanger will be placed on your front door with flushing instructions and additional steps you can take to reduce lead in your drinking water.

Steps Homeowners Can Take

Message One: There are steps you can take to protect yourself and your family from lead in tap water, regardless of whether you have a lead service line.

- Running cold water from the faucets you use for drinking can improve water quality by drawing fresh water into the home, particularly after long periods of time when water has not been used.
- When purchasing replacement plumbing products, make sure the products have been tested and certified to “lead-free” standards.
- If you use a home treatment device to reduce your exposure to lead, make sure it is independently certified for that purpose and properly maintain it.

Message Two: You can reduce the risk of lead in tap water by flushing your home plumbing before consuming water.

- The longer water has been sitting in your home's pipes, the more lead it may contain.
- Even if you do not have a lead service line, plumbing fixtures like faucets, valves and solder can contain small amounts of lead, so flushing can still help reduce lead exposure.
- The amount of time you should run the cold water to flush your internal plumbing depends on whether you have a lead service line, the length of the lead service line, and the amount of plumbing in your home.
- The most important time to flush is after long periods of no use, such as first thing in the morning, after work, or upon returning from vacation.
- To conserve water, other household water usage activities such as showering, washing clothes, flushing the toilet and running the dishwasher, are effective methods for flushing pipes and allowing water from the distribution system to enter household pipes.

Message Three: You can purchase a home treatment device to reduce your exposure to lead, but you should make sure it is independently certified for that purpose and properly maintained.

- Home treatment devices use various types of filter materials.
- The effectiveness of these devices in reducing lead can vary greatly, so it is important that the model you select is certified to reduce lead according to NSF/ANSI-53.

Resources:

[NSF Home Drinking Water-
Quality and Treatment](#)

AWWA's *Facts and Filters* (To request a copy of the *Facts and Filters* CD, please contact publicaffairs@awwa.org.)

- Make sure to maintain the device as specified by the manufacturer. Failure to do so may result in exposure to higher lead levels.

Message Four: Make sure plumbing products contain the lowest possible levels of lead by purchasing replacement plumbing products that have been tested and certified to “lead-free” standards.

- Look for plumbing products that are NSF-certified and meet Standard NSF/ANSI 61 and/or 372. These products have been certified to meet the new lead-free requirement.⁶
- Products that have not been certified may still meet the new lead-free requirement. If consumers are unable to determine if a product is lead-free, they should contact the manufacturer to confirm the lead content.
- When repairing or installing new plumbing in old homes, use a licensed plumber and instruct him or her, in writing, to use only lead-free materials. When building a new home, be sure lead-free materials are used.

Resources:

Search for compliance with NSF lead-free certification. For certified “lead-free” products, consult [NSF International](#) (800-NSF-8010) or [Water Quality Association](#) (630-505-0160).

Message Five: Have water samples from your home analyzed for lead.

- Always use a certified laboratory to analyze water quality samples. A list of certified laboratories is available at {insert state laboratory certification website or <http://nelac-institute.org/abdb.php>}.
- {Utility Name} will analyze water samples from your home upon request. Contact {Contact Name} at {phone, email} for instructions.
- Plan to continue to have your water analyzed for lead {insert how often} after your service lines and/or plumbing are replaced.

⁶ The EPA provides illustrations/examples of packaging and material with certifiers' marks for the new requirement and the certification bodies' approved certification marks and required identifier text, as well as any additional remarks that indicate a product meets the new lead-free requirement, in the document “How to Identify Lead-Free Certification Marks for Drinking Water System & Plumbing Materials” <http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100GRDZ.txt>.

Flushing Guidance

Message One: The amount of time you should run the cold water to flush internal plumbing depends on many factors.

- Flushing times can vary based on the length of your lead service line and the plumbing configuration in your home. If your home is set back far from the street, a longer flushing time may be needed to lower lead levels.
- *If you have a lead service line*, run the water at the kitchen tap for three to five minutes (or longer if instructed to do so by your water provider) to clear most of the lead from the water.
- To conserve water, other household water usage activities such as washing clothes, showering, flushing the toilet and running the dishwasher are effective methods for flushing pipes and allowing water from the distribution system to enter household pipes.

Issues to Consider

Key Questions

Water utilities that integrate lead service line risk and replacement communications into their outreach activities may face several challenging questions from consumers and other stakeholders and therefore must be prepared to answer them. Some of those difficult questions may be:

1. What is the lead concentration in my water?
2. How do I know if there is lead in my plumbing or my service line?
3. What level of lead is safe?
4. Who should be concerned about lead service lines?
5. Who owns the service line?
6. What is the cost of service line replacement?
7. Who is responsible for paying for replacing the service line?
8. How much water should I flush to reduce lead levels?
9. Should I use pitcher filters or point-of-use devices after lead service lines are disturbed by construction and for how long?
10. Why didn't the previous owner of the home replace the lead service line?
(from new homeowner)
11. Have I been at risk all this time? What should I do?
12. I am a renter. How can I know if the plumbing or lines serving my building have lead? What rights do I have as a renter?
13. My water was tested and the lead level was above the 15 ug/L action level. What should I do?

Issues of Concern for Customers

To effectively communicate the messages provided in this document, a utility should have an understanding of the issues of concern for customers. Customers must understand historical uses of lead service lines, who owns which portions of the lines, the cost of service line replacement, options for paying for replacement, and perhaps most importantly, options for protecting themselves.

Customers for Whom Lead Service Lines May Be a Concern. It is important to help customers understand general trends in the occurrence of lead service lines within a

utility's service area. Utilities are likely to find homeowners more amenable to addressing lead service line issues if the utility can explain:

- Periods of development in the community when lead service lines were likely to have been installed
- Which portions of the community were already built before lead service lines were being installed
- Clear time points after which it is certain that lead service lines were not installed
- Who to contact within the water utility who can query system installation records
- Who to contact outside the utility concerning the risks of lead (i.e., local health department)

Each utility customer has his or her own perspective on risk. However, the lead service line issue is often a particular concern for:

- Expecting parents and parents of small children, as lead has been shown to impair physical and mental development in young children, and
- Individuals concerned that exposure over many years may lead to kidney problems or high blood pressure.

Resource:

[Strategies to Obtain Customer Acceptance of Complete Lead Service Line Replacement](#), AWWA, 2005

Ownership of Service Lines. Being clear, consistent, and accurate when describing ownership of service lines is very important. Actual practice varies by utility, but in most communities, the utility's ownership ends at the property line, curb stop, or water meter. The property owner owns the balance of the service line. There are communities where ownership of the entire service line is held by the water utility and in others by the property owner. Where systems serve multiple communities, additional care may be necessary to ensure that ownership is accurately characterized.

Cost of Service Line Replacement. The cost of service line replacement is very site-specific. Actual cost of replacement reflects a number of factors including the length of the service line, the technique used to install the new service line, and the built environment where the service line is located.

Typical Service Line Replacement Costs

Survey Effort	Utility Portion			Customer Portion		
	Average	Range	Unit Cost	Average	Range	Unit Cost
WaterRF (2006)	\$1,261	\$250-3,000	\$52/Lin. Ft.	\$2,300	\$600-4,000	\$46/Lin. Ft.
AWWA (2005)	\$1,756	\$800-3,200	--	\$2,144	\$450-10,000	--
AWWA (1990) <10,000 Pop. Served >10,000 Pop. Served			\$48.64/Lin. Ft.			\$25.95/Lin. Ft.
			\$61.85/Lin. Ft.			\$32.99/Lin. Ft.

The variables associated with a customer’s property (e.g., trees, walls, driveways, etc.) can quickly affect the cost of replacement. Also, full lead service line replacement can involve breaking through the customer’s basement wall at a new location, adding associated costs inside the home. In urban environments, the costs illustrated above can be even higher.

It should be noted that while there is not a direct correlation between the presence of lead service lines and impoverished or disenfranchised communities, in some communities, older housing is more affordable than newer homes. Consequently, customers with lead service lines within these older communities may face significant financial challenges if they must replace the portion of the service line they own.

How Much Water to Flush. There are two different scenarios when flushing is applicable to customers and a third flushing scenario applicable to the water utility.

Flushing instructions to customers with lead service lines concerned about elevated levels of lead: The current Lead and Copper Rule requirements and typical practice is to encourage customers with elevated lead levels to run the tap to remove stagnant water that might contain elevated levels of lead. Often, the instructions say “flush for 1 – 2 minutes” or “flush until water changes temperature.” Unfortunately, these instructions are geared toward flushing the water faucet and water in the home. The lead portion of a service line may be 20 – 70 feet in length and require drawing more water into the structure.

In the 2007 revisions to the Lead and Copper Rule, the EPA recognized that setting flushing volumes appropriate to a given community can improve communication with customers. There is clearly a balance between setting a duration that is protective and setting a value customers believe is wasteful. To encourage customer adherence to flushing recommendations, it is important to suggest alternative uses for first-flush water (e.g., toilet flushing, showering, laundry, plant watering, etc.).

Flushing instructions to customers who undertake a lead service line replacement: Available data illustrate that lead levels are often elevated for some period of time following lead service line replacement. Complete lead service line replacements tend to release less lead and to release lead for a shorter period of time. In instances when there is a partial lead service line replacement, customers should be provided with advice on flushing after periods when the water has been stagnant in the service line. The utility should consider collecting water samples one to two months after replacement in order to inform subsequent flushing guidance.

Flushing instructions to utility crews and independent plumbers: When undertaking either a partial or full lead service line replacement, the service line should be flushed once the line is reconnected to the main and prior to use by the customer. Utility crews and contractors—who generally lack access to the interior plumbing—should obtain permission from the homeowner to flush the line using the outside hose bib closest to the lead service line. Plumbers working for the customer should be instructed to flush the water inside the home, closest to where the service line enters the structure, immediately following a lead service line replacement. In either case, the cold water should be run for at least 30 minutes at full flow after removing the faucet aerator. The purpose of this flush is to remove any debris resulting from the replacement process that might contain lead. Customers or their plumbers should also flush the interior plumbing after a lead service line replacement. Beginning in the lowest level of the home, they should remove faucet aerators and fully open the cold water taps throughout the home, letting the water run for at least 30 minutes at the last tap. Then they should turn off each tap starting with the taps in the highest level of the home.

Pitcher Filters or Point-of-Use Devices. Individual customers may feel more comfortable applying additional treatment to remove lead from the water they drink or use for cooking. There is ongoing research into the effectiveness of available point-of-use (POU) technologies for removing both lead that is present in particles as well as lead that is dissolved in tap water.

Utilities can provide information about such devices to customers in preparation for a lead service line replacement or, when prudent, provide the device itself after a lead service line is replaced. In either instance, proper maintenance should be stressed to ensure filters are

changed according to the manufacturers' instructions. Customers should be instructed to choose devices, including pitcher filters, which have been certified to NSF/ANSI 53 standards.

Appendix A – Sample Materials

The following information and messaging is intended for use in fliers, websites, brochures or other materials.

Information to Include

1. It is critical that a utility include its designated point(s)-of-contact and how to reach the appropriate point-of-contact.
2. Provide background information on your system's general water quality and service information. This information can be obtained from the system's most recent Consumer Confidence Report. Example text:

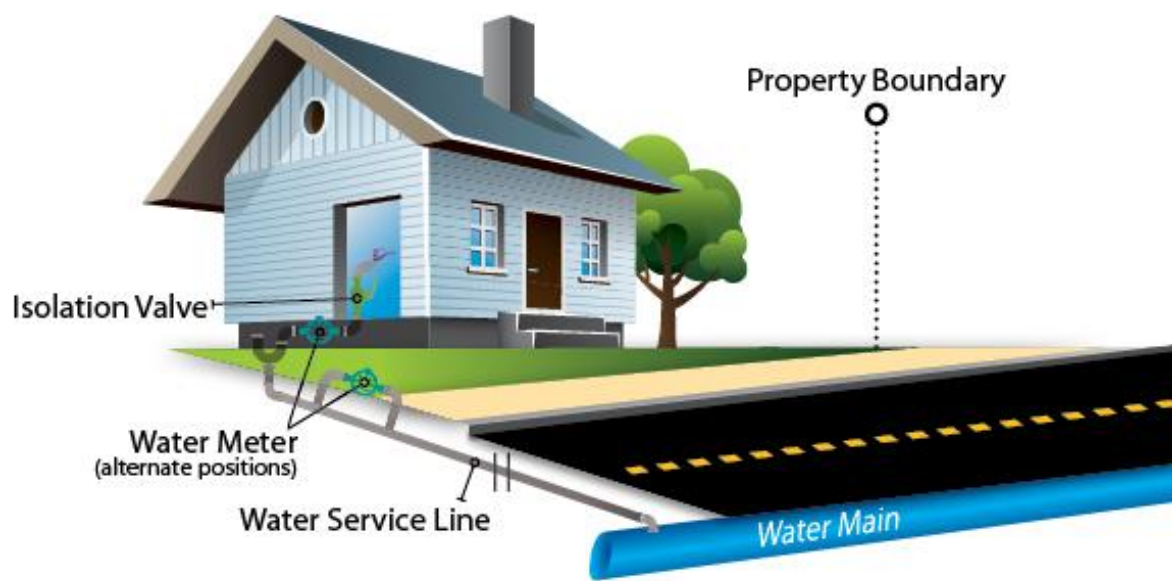
Learn more about your water quality and the importance of protecting our precious water sources in our annual water quality report [{hyperlink if possible}](#) or by calling [{Utility Name}](#) at [{xxx-xxx-xxxx}](#).

3. It is also important for customers to understand how to reach the regulators who oversee the utility. Example text:

Our [{Department of Health/Environment}](#) is also a valuable source of information and can be reached at [{State Primacy Agency Consumer Assistance Number}](#). For more information on drinking water in general, call the USEPA's Safe Drinking Water Hotline: (800) 426-4791.

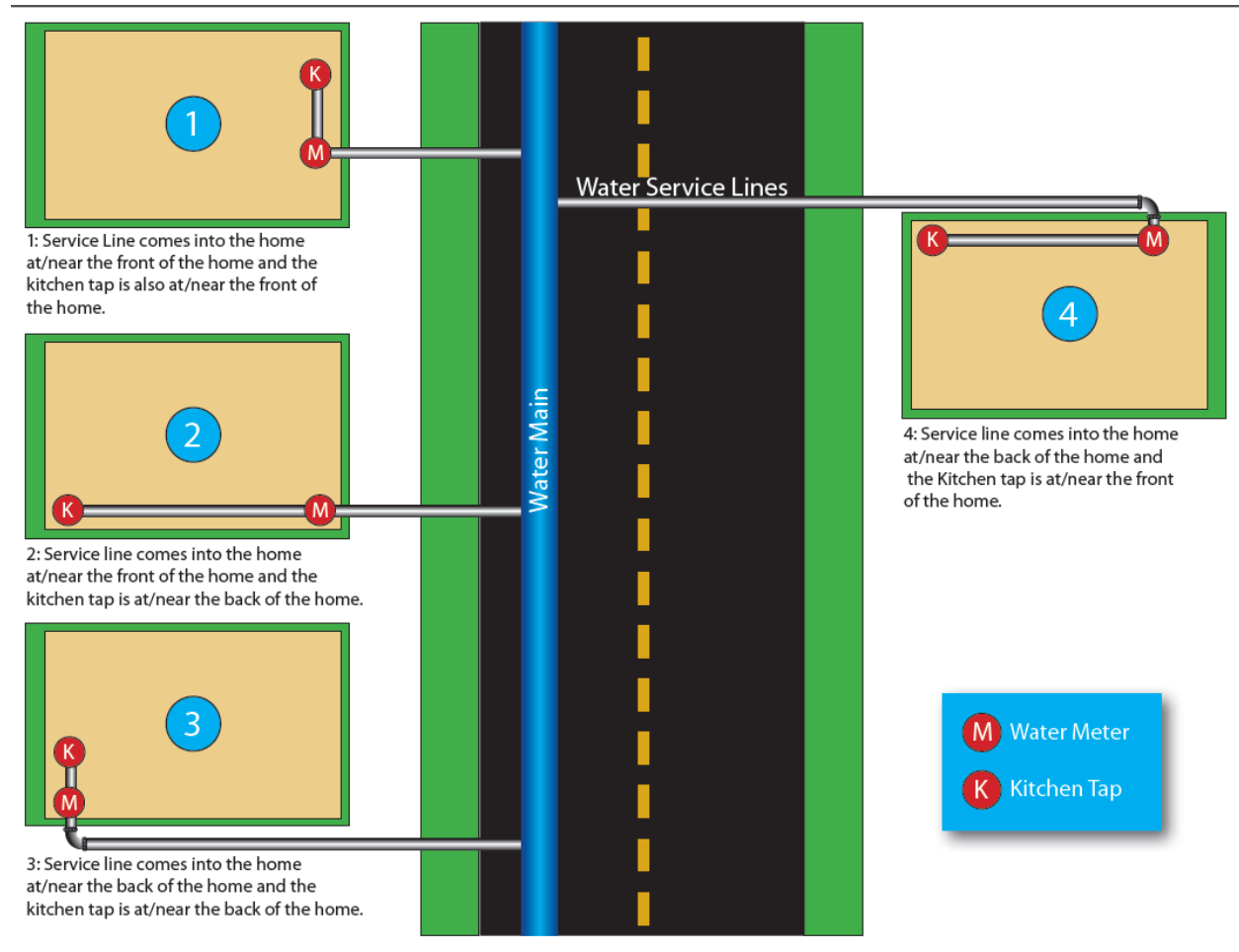
Sample Schematic: Residential Water Service Line

Your water service line is the pipe that connects the water main in the street to your household plumbing. The material of water service pipes can vary and some households still have lead service pipes.



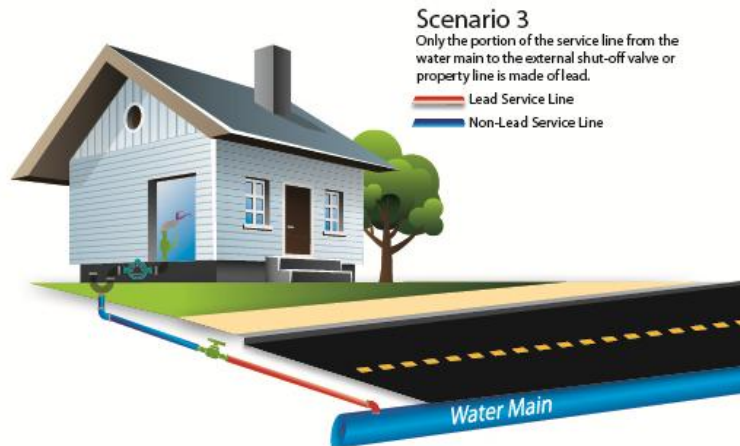
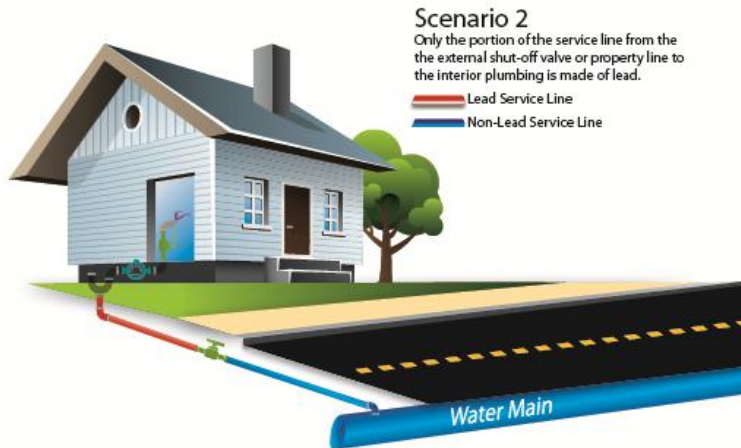
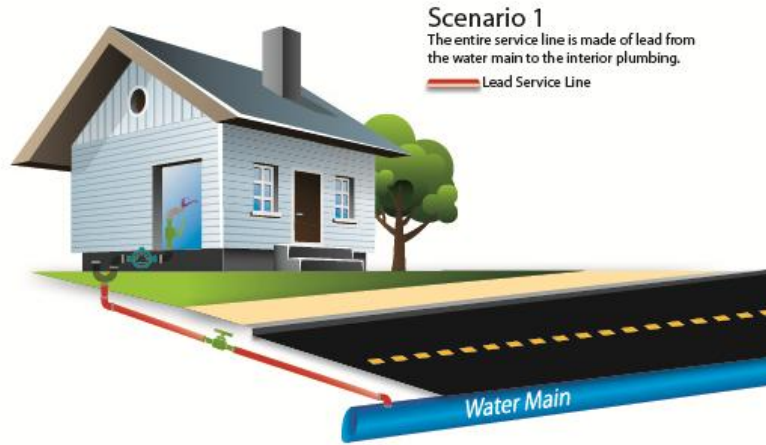
Where to Look for the Service Line⁷

Service lines typically enter a home in the basement or crawlspace. The following figure illustrates some common configurations.



⁷ Graphic modeled after figures prepared by USEPA (2013), <http://epa.gov/region5/water/chicagoserviceline/>

Scenarios Where Lead Service Lines May Exist⁸



⁸ Graphic modeled after figures prepared by USEPA (2013), <http://epa.gov/region5/water/chicagoserviceline/>

What Do Lead Service Lines Look Like?⁹



Lead service lines are generally a dull gray color and are very soft. You can identify them easily by carefully scratching with a key. If the pipe is made of lead, the area you've scratched will turn a bright silver color.

Do not use a knife or other sharp instrument and take care not to puncture a hole in the pipe.

Note: Galvanized piping can also be dull gray in color. A strong magnet will typically cling to galvanized pipes, but will not cling to lead pipes.



Lead service lines can be connected to the residential plumbing using solder and have a characteristic solder "bulb" at the end, a compression fitting, or other connector made of galvanized iron or brass/bronze.

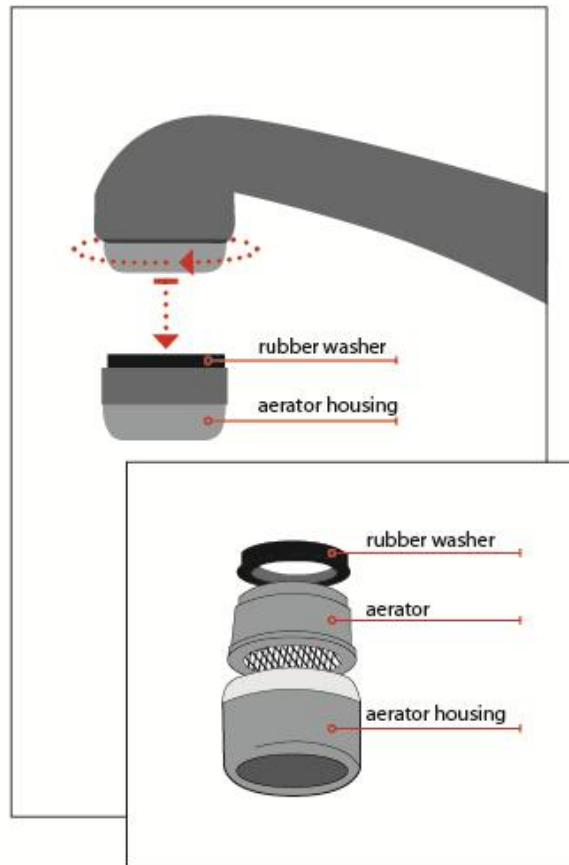
⁹ USEPA (2013), <http://epa.gov/region5/water/chicagoserviceline/>

Faucet Aerators (also called screens)¹⁰

Routinely clean faucet screens. Sediment and metals can collect in the faucet screen located at the tip of your faucets. Replace screens that are in poor condition. New screens are available at local hardware stores.

To clear the faucet screen of debris:

1. Unscrew the screen.
2. Separate the individual parts.
3. Remove any sediment (mineral or rust build up) on the screen and other parts. If necessary, soak the parts in white vinegar for a few minutes and scrub with a brush.
4. Reassemble the screen parts and re-attach to faucet.



¹⁰ Modified from DC Water, http://www.dewater.com/waterquality/household_water_quality.pdf

Sample Homeowner Checklist for Lead Service Line Replacement

If you are concerned about lead levels in your home and you want to replace a lead service line, **replace the entire service line**. In doing so, consider the following list of actions:

- Determine if your service line is made of lead. For guidance, see [{available fact sheet}](#) or contact [{Utility Name}](#) at [{xxx-xxx-xxxx}](#).
- Identify opportunities to incorporate lead service line replacement into larger projects (e.g., ongoing water main replacement program, home renovations, preparation of a home for re-sale).
- Contact [{Utility Name}](#) for information on permit requirements, specifications for service lines in your community, and assistance. Replacing the entire lead service line may require a collaborative effort with [{Utility Name}](#).
- Obtain multiple written quotes from licensed plumbers for the replacement.
- Make sure all required permits are in hand prior to beginning work.
- Schedule lead service line replacement and make sure your plumber coordinates with [{Utility Name}](#).
- Make arrangements for your plumber to access your interior plumbing when needed.
- Set aside or purchase enough water for anticipated uses during construction. You will not have water service in your home once your existing lead service line is disconnected and you will need three gallons per person per day.
- The field crew replacing your service line and your plumber will flush the service connection after the replacement. If your entire lead service line is replaced, your plumber should flush the service line using the faucet closest to where your service line enters your home. Your plumber should remove the faucet screen and open the cold water tap completely, letting the water flow for 30 minutes.
- Prior to using water inside the home for normal use, flush the service line as described above.
- You may consider purchasing a certified filter for water to be used for drinking and cooking, particularly if you are pregnant or have children under age six. [{More info.}](#)

TIP: Hire a licensed plumber. It is always a good idea to get a quote in advance of hiring a professional plumber to do work in your home. Your water utility cannot recommend plumbers. Seek plumbers who are reputable and

Sample Letter: To Customers Affected by Main Rehabilitation or Replacement

Distribute information about an upcoming project and information about removing lead service lines and reducing lead in drinking water.

{Date}

{Address}

{Appropriate Salutation}

{Utility Name} is preparing to {replace} the water main that serves your home. We expect to begin work in the {xxxx} block of {street} in approximately 45 days. We anticipate that this project will proceed smoothly and will we make every effort to minimize any inconvenience to you during construction.

Our records indicate that the pipe from your home to the water main may be made of lead. Lead service lines can increase your risk of exposure to lead through drinking water and should be replaced if possible.

As part of this water main replacement, our contractor will replace with a {copper} service line the portion of the service line that we own, from the water main to your {water meter}. {Utility Name} strongly encourages you to replace the portion that you own, between {the meter} and your household plumbing at this time as well. If only one portion of the lead service line is replaced, your risk of lead exposure at the tap may temporarily increase. {Utility Name} has information available to help protect yourself and your family from this risk.

Information about lead service lines, as well as important information about the harmful effects of lead and steps you can take to protect against lead exposure, is available on our website at [{website}](#). This information is particularly important if you are pregnant or have children under age six in your home.

If you have any questions about this project please visit our project website, [{Project website}](#), or contact:

General Project Contact: {Point of Contact}
{Phone number, (available between xx:xx a.m. and xx:xx p.m.)}
{E-mail address}

Lead Service Line Replacement Contact: {Point of Contact}
{Phone number, (available between xx:xx a.m. and xx:xx p.m.)}
{E-mail address}

Sincerely,
{Appropriate Manager}
{Title}
{Utility Name}

Sample Door Hanger: Before Lead Service Line Replacement

The following is model text for a door hanger that can be distributed just prior to utility main replacement or rehabilitation.

{Utility Logo}

48-Hour Notice

{Utility Name} is replacing the water main on your block. This work may affect your property on _____ [INSERT DATE].

- This work will temporarily affect your water service starting at _____ am/pm for approximately _____ hours.
- We will be working in public space, but depending on the location of the property line, we may need to dig in your yard.
- We will be replacing or reconnecting the pipe on the public space. We will then need to flush your water service pipes. Please open the valve to your outside faucet and make sure the outside faucet is available to us.
- Other _____

For more information, please contact:

{Utility Name}'s Contractor: _____

{Utility Name} Project Manager: {Project manager's name}

24-Hour Customer Service Line: {Utility customer service line number}

{Utility Website}

Sample Door Hanger: After Replacement

The following is model text for a door hanger that can be placed at homes where main replacement, main rehabilitation, or other maintenance has disturbed a lead service line.

{Utility Logo}

IMPORTANT HEALTH NOTICE

{Utility Name} replaced a portion of the water service line to your home with copper pipe. Because the original pipe was made of lead, some lead may have been released into the water during construction. Please take the following steps to minimize your exposure to any lead that may have been released.

Flush all your faucets using these steps:

1. Remove faucet aerators from all cold water taps in the home.
2. Beginning in the lowest level of the home, fully open the cold water taps throughout the home.
3. Let the water run for at least 30 minutes at the last tap you opened (top floor).
4. Turn off each tap starting with the taps in the highest level of the home. Be sure to run water in bathtubs and showers as well as faucets.
5. Do not consume tap water, open hot water faucets, or use icemaker or filtered water dispenser until after flushing is complete.

You may also wish to use a home filter for water to be used for drinking and cooking, particularly if you are pregnant or have children under age six. More information about filters can be found under the header {Utility website header} at our website.

For more information, please contact:

{Utility Name} Project Manager: {Project manager's name}

24-Hour Customer Service Line: {Utility customer service line number}

More information about lead in service lines can be found under the header {Utility website header} at our website.

{Utility website}

Sample Briefing Paper for Elected Officials or Business Leaders

Example talking points in a meeting or briefing memorandum might include:

- {Utility Name} has an {xxx}-year history of providing reliable, cost-effective water services that meet all federal standards for public health, including compliance with the Lead and Copper Rule.
- We view protection of public health as a core part of our mission.
- Lead can cause a variety of adverse health effects when people are exposed to it. These effects may include delays in physical and mental development in babies and young children; deficits in the attention span, hearing, and learning abilities of children; and, increases in the blood pressure of some adults.
- Available research indicates that when lead service lines are disturbed, the amount of lead found in customers' drinking water may increase for weeks to months.
- During recent main rehabilitation/replacement, we have encountered lead service lines {frequently} in {describe portions of service area}.
- Based on our records and understanding of historic construction practice, we believe there are roughly {xxx} lead service lines in use in our service area and expect that {xxx} homeowners will receive notices regarding lead service lines in the course of capital projects planned for the coming year.
- Beginning {insert date}, we plan to identify and contact customers with lead service lines who will be affected by main rehabilitation / replacement construction:
 - encouraging these customers to work with us to undertake a full lead service line replacement in conjunction with our projects, and
 - providing information on lead service lines and the possible health risks of elevated exposure due to disturbance of lead service lines.
- It is beyond our authority to replace pipes on a homeowner's property. Consequently, service line replacement can cost individual homeowners {\$1,500 to \$7,000}. To assist homeowners we are:
 - {INSERT UTILITY-SPECIFIC CONTENT, e.g., (Directing customers needing financial aid to contact the appropriate organization for funding assistance; ...)}

- We are recommending that customers with lead service lines affected by construction activity who do not complete lead service line replacement:
 - run water from the tap they are going to use for {xx} minutes when drawing water for drinking or cooking, or
 - purchase and use a certified water filter.
- We have set up a special webpage with information about lead in service lines at {Insert website}. Also, we have a dedicated point-of-contact for customers, {Name, contact information}.
- We ask for your support in our efforts to inform and educate our community's citizens about lead service lines. We also ask for your assistance and creative ideas for how to make this investment more affordable for them.

Additional Messages: Lead Basics

Lead as a Potential Health Risk¹¹

Message One: Lead can be harmful to humans when ingested or inhaled.

- Lead has been shown to cause delays in physical and mental development.
- Pregnant women are at particular risk for lead exposure.
- Children six years old and younger are very susceptible to the effects of lead.
- Long-term exposure to lead can affect blood pressure and kidney function.

Routes of Exposure

Message One: Everyone is exposed to "background levels" of lead, given its widespread distribution.

- The most common route of lead exposure is from soil, paint chips or dust.

Message Two: One way humans are exposed to lead is through drinking water.

- Infants who consume mostly mixed formula can receive 40 to 60 percent of their exposure to lead from drinking water.

Sources of Lead in Drinking Water¹²

Lead levels in your drinking water are likely to be highest if:

- your home has **faucets or fittings of brass** which contains some lead, or
- your home or water system has **lead pipes**, or
- your home has **copper pipes with lead solder**, and
 - you have naturally soft water, or
 - water often sits in the pipes for several hours.

Lead in Drinking Water

Message One: The amount of lead in drinking water is typically very low.

- Water in streams and lakes is essentially lead-free and drinking water treatment and distribution do not typically add lead to drinking water.

¹¹ USEPA, *Learn About Lead*, <http://www2.epa.gov/lead/learn-about-lead#effects>

¹² USEPA, *Actions You Can Take to Reduce Lead in Drinking Water*, <http://water.epa.gov/drink/info/lead/lead1.cfm>

- Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in lead service lines and household plumbing.
- These materials include lead-based solder used to join copper pipe, brass and chrome-plated brass faucets, and in some cases, pipes made of lead that connect your house to the water main (service lines).

Message Two: {Water Utility} therefore has taken proactive steps to prevent corrosion from occurring.¹³

- We have been treating your water to minimize its corrosiveness for XX years.
- The corrosion control treatment is safe for human health and helps build a protective coating around pipes.
- Drinking water also contains dissolved minerals that, over time, form a mineral scale or coating on the inside of pipes and fixtures.
- Once this coating forms, there is a protective barrier between any metal in the plumbing and the water.

Message Three: Regulatory measures taken during the last two decades have greatly reduced human exposure to lead in drinking water.

- In 1974, Congress passed the Safe Drinking Water Act. This law requires the EPA to determine the level of contaminants in drinking water at which no adverse health effects are likely to occur with an adequate margin of safety.
- In 1991, the EPA published a regulation to control lead and copper in drinking water. This regulation is known as the Lead and Copper Rule (also referred to as the LCR or 1991 Rule). The EPA revised the regulation in 2000 and 2007.
- Congress has also set limits on the amount of lead that can be used in plumbing products. These requirements were first enacted in 1986 and then reduced to even lower levels in 2011.

Message Four: We regularly monitor the drinking water in the distribution system for lead.

- The EPA sets an action level for lead at 15 micrograms per liter. At least 90 percent of samples taken must be less than 15 micrograms per liter.
- Your water has {INSERT SYSTEM-SPECIFIC INFORMATION (e.g., “never exceeded”, “not exceeded in last x years,” etc.)} this action level.

¹³ USEPA, Factsheet on Lead in Drinking Water,
http://water.epa.gov/lawsregs/rulesregs/sdwa/lcr/fs_consumer.cfm

Sample Frequently Asked Questions and Answers

What is lead?

Lead is a naturally occurring metal that is harmful if inhaled or swallowed. Lead can be found in air, soil, dust, food, and water.

How can I be exposed to lead?

The most common source of lead exposure is from paint in homes and buildings built before 1978. Lead-based paint and lead-contaminated dust are the main sources of exposure for lead in U.S. children. Lead-based paints were banned for use in housing in 1978.

Although the main sources of exposure to lead are ingesting paint chips and inhaling dust, lead also can be found in some household plumbing materials and some water service lines. The Environmental Protection Agency estimates that 10 to 20 percent of human exposure to lead may come from lead in drinking water. Infants who consume mostly mixed formula can receive 40 to 60 percent of their exposure to lead from drinking water.

What are the risks of lead exposure?

Lead can cause a variety of adverse health effects when people are exposed to it. These effects may include increases in the blood pressure of some adults; delays in normal physical and mental development in babies and young children; and, deficits in the attention span, hearing, and learning abilities of children.

How does lead get into my drinking water?

Lead is rarely found naturally in our source water or in the treated water flowing through the distribution system. More commonly, lead leaches into water over time through corrosion—a dissolving or wearing away of metal caused by a chemical reaction between water and your plumbing. Lead can leach into water from pipes, solder, fixtures, faucets (brass) and fittings. The amount of lead in your water depends on the types and amounts of minerals in the water, how long the water stays in the pipes, the water's corrosivity, and water temperature.

How will I know if my drinking water has lead in it?

{Utility Name} regularly tests the water at a selected number of high-risk homes. If more than {insert number} samples show lead at above 15 micrograms per liter, we notify all of our customers and provide instructions on what to do to limit lead exposure as required by {insert state primacy agency name}.

You can also have your water tested for lead. Since you cannot see, taste, or smell lead dissolved in water, testing is the only sure way of telling whether there are harmful

quantities of lead in your drinking water. A list of certified laboratories is available from your state or local drinking water authority (contact labs directly for information on cost and sampling bottles).

Is my home at risk for lead plumbing?

The EPA defines high-risk homes as follows:

- Homes with a lead service line that connects the water main (located under the street) to your home's internal plumbing.
- Homes with copper pipe and lead solder built after 1982 and before 1988.
- Homes with lead pipes.

In 1986, Congress enacted the "lead ban," which stated that not only public water systems, but also anyone else who intends to install or repair drinking water plumbing connected to a public water system, must use "lead free materials." As a result, homes built in or after 1988 are far less likely to have lead solder.

I'm concerned my home may have lead plumbing. How can I find out?

If you're concerned your home plumbing may contain lead pipes (lead is a dull gray metal that is soft enough to be easily scratched with a house key) or if you see signs of corrosion (frequent leaks, rust-colored water), you may want to have your water tested by a state-certified laboratory. Testing is the only way to confirm if lead is present or absent. For more information on testing your water, you can call [{insert utility name, local health agency contact and / or state primacy agency contact as well as appropriate phone numbers}](#).

Will my water utility replace my lead service line?

Lead services lines on a customer's property are not part of the public water system and are the responsibility of the property owner. Lead service lines are owned and installed at the expense of the property owner [{insert available assistance if applicable}](#). [{Utility Name}](#) strongly advises that you contact a licensed plumber for work on your service line. [{Include actions utility is undertaking to replace the portion of lead service lines that it owns.}](#)

How can I reduce my exposure to lead in my drinking water?

There are many steps you can take to reduce your exposure to lead in drinking water, but if you have lead service lines, the best step you can take is to have them replaced in conjunction with [{Utility Name}](#)'s lead service line replacement plan. In addition:

- **Run your water to flush out lead.** If it hasn't been used for several hours, run the water for three to five minutes [{or longer if appropriate given construction practices in the communities served}](#) to clear most of the lead from the water. (To conserve

water, remember to catch the flushed tap water for plants or some other household use such as cleaning.)

- **Always use cold water for drinking, cooking, and preparing baby formula.** Never cook with or drink water from the hot water tap. Never use water from the hot water tap to make formula.
- **Do not boil water to remove lead.** Boiling water will not reduce lead.
- **Periodically remove and clean the faucet screen/aerator.** While removed, run the water to eliminate debris.
- **You may consider investing in a home water treatment device or alternative water source.** When purchasing a water treatment device, make sure it is certified under [NSF/ANSI 53](#) to remove lead. Search for certified products at [NSF International](#) (800-NSF-8010) or [Water Quality Association](#) (630-505-0160).
- **Identify and replace plumbing fixtures containing lead.** Brass faucets, fittings and valves may leach lead into drinking water. Products sold after Jan. 4, 2014, must by law contain very low levels of lead.
- **Have a licensed electrician check your wiring.** Your home electrical system may be attached to your service line or elsewhere in your plumbing. If this connection is electrified, it can accelerate corrosion. Check with a licensed electrician to correct ground faults and evaluate your local electric code to determine if your wiring can be grounded elsewhere. DO NOT attempt to change the wiring yourself because improper bonding or grounding can cause electrical shock and fire hazards.

PDF and Translations

"Is there lead in my drinking water?"

Office of Water (4606 M)
EPA 816-F-05-001
February 2005

[English PDF File](#) (2 pp, 1.2 M)
[En Español \(PDF\)](#) (2 pp, 301 K)

Should I test my children for exposure to lead?

Children at risk of exposure to lead should be tested. Your doctor or local health center can perform a simple blood test to determine your child's blood-lead level.

Additional information

Read {Utility Name}'s annual consumer confidence report (CCR) {[hyperlink](#) or [date of](#)

[publication](#) to find out how we are working to reduce levels of lead in drinking water and other information about your drinking water. Call [xxx-xxx-xxxx](#) if you have any questions.

You can also contact [public health department](#) or talk to your doctor about reducing your family's exposure to lead.

Hotlines

[{Insert local public health agency contact information.}](#)

[{Insert state primacy agency contact information.}](#)

National Lead Information Center: 1-800-424-LEAD (or visit: www.epa.gov/lead)

Appendix B – Lead Messages When in Exceedance of Action Level

Available regulatory guidance for drinking water systems focuses on when a drinking water utility experiences an exceedance of the Lead Action Level of 15 ppb in more than 10 percent of its LCR compliance monitoring samples. When this occurs, the utility must undertake a Public Education (PE) program to inform customers about lead in drinking water. The following guidance is from the EPA and provides an outline of the information a utility is required to include in its messaging during a PE program.

Sources of lead

- What is lead?
- Where does the lead in drinking water come from?
- Include information on home/building plumbing materials and service lines that may contain lead.
- What are other important sources of lead in addition to drinking water? (e.g., paint)

What happened? What is being done?

- Why are there high levels of lead in the drinking water (if known)?
- What is the water system doing to reduce the lead levels in homes in this area?
- Does your system have lead service lines?
- How can customers find out if their homes have lead service lines?
- Is there a program to replace lead service lines? Are there any special incentives offered?
- Your system may also want to provide information on the history of lead levels in tap samples:
 - Have they declined substantially over time?
 - Have they been low and risen recently?
 - Is there a known reason for any change?

TIP: Any utility found in exceedance of the EPA Action Level for lead must comply with the EPA's requirement for Public Education, as part of the LCR.

For complete guidance on required messaging and delivery methods if an exceedance occurs, please refer to the EPA's "[Implementing the Public Education Provision of the Lead and Copper Rule.](#)"

Source: USEPA, <http://water.epa.gov/lawsregs/rule/sregs/sdwa/lcr/>

Guidance utilities must provide customers on steps they can take to reduce their exposure to lead in your water

- Encourage running water to flush out the lead.
- Explain concerns with using hot water and specifically caution against the use of hot water for baby formula (because lead dissolves more easily in hot water).
- Tell customers that boiling water does not reduce lead levels.
- Discuss other options customers can take to reduce exposure to lead in drinking water, such as alternative sources or treatment of water.
- Suggest that parents have their child's blood tested for lead.
- Tell customers how to get their water tested.
- Discuss lead in plumbing components and the difference between low lead and lead free.

Appendix C - Planning Effective Public Communication

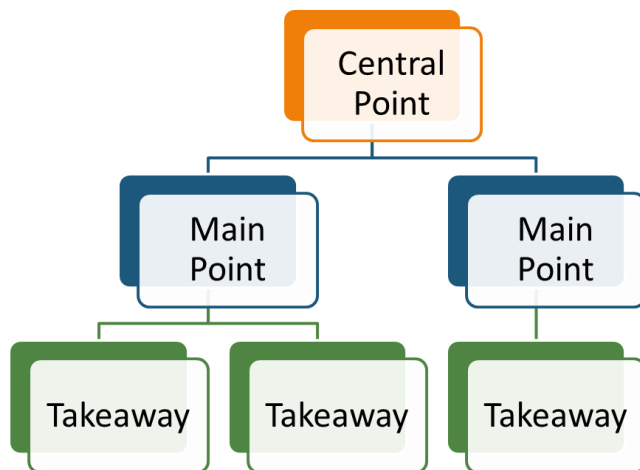
Adequate planning is critical for effective communication. Planning efforts should both align new communication initiatives with an organization's strategic communications objectives and help it answer basic implementation questions. Plans must identify the internal and external target audiences of communications efforts, the information to be communicated, communications channels and timelines. AWWA offers many resources at its website for building and executing a strategic communications plan.

Resources:

[Public Communications Toolkit](#)

Message Mapping as a Tool for Risk Communications

Message maps are used for a variety of purposes in communications and are an ideal way to refine and localize your lead-in-drinking-water messaging program. A message map is a guide for displaying detailed, deliberately organized responses to anticipated questions or concerns.



Message maps are particularly well-suited for crisis communications because they offer an effective visual aid that provides an “at-a-glance” view of your messages for high concern or controversial issues, making it easy for a multitude of staff to learn and use the messages consistently and without fail.

Developing and using message maps achieves several important risk communication goals. They help:

- Organize your thought process so messages are prepared in response to anticipated questions and concerns.
- Develop key memorable messages and supporting information within a clear, concise, transparent, and accessible framework.
- Provide easy-to-follow guidance for spokespersons.
- Ensure there is one central location for consistent messages.

- Ensure an organization speaks with one voice.

Messages that convey risk or define an issue affecting public health must be crafted and delivered carefully. It is imperative that your messages:

- Are clear and concise;
- Compel or encourage simple actions;
- Communicate the risks from all sources of lead with a particular emphasis on drinking water as an increasingly significant source; explain simply and thoroughly how to take action and reduce risk; and
- Meet the communication needs of your entire community.

External Communications Considerations

Special Audiences

Below are some of the audience segments that will be of concern in lead communications. Note that in the event of an LCR exceedance, there are specific requirements for reaching out to certain groups.

General Public – This includes everyone in your service area who may be affected by lead in water or an action level exceedance.

High-Risk Groups – Those particularly vulnerable to exposure to lead in drinking water include children 6 years of age and younger, infants, and pregnant women. Your public education (PE) program should target agencies and organizations that serve high-risk groups (e.g., child care facilities, WIC programs), deliver materials and messages that make the risks clear, and provide actionable recommendations for how to protect oneself and one's children from the risks of lead in drinking water.

Different Language Communities – If significant portions of the population in your community speak languages other than English, the PE materials must contain information in the appropriate language(s) regarding the importance of the notice or contact information where persons can obtain a translation or assistance. Don't overlook any non-English media outlets for message dissemination.

Low-Literacy Audiences – Some individuals in your community may possess limited reading skills. To reach these individuals, print materials must be written as simply and concisely as possible and should contain graphical representations of key messages and actions. Low-literacy groups are more likely to rely on non-print forms of communication, such as TV or radio Public Service Announcements (PSAs), to receive information about critical health topics.

Non-bill Paying Customers – Some people who drink your system’s water may not receive a water bill (e.g., commuters working within the water system area, but living outside of it; residents in multi-unit dwellings who may not pay for water; restaurant owners who use the water).

The Power of Partnerships

Collaborating with other organizations and individuals is often a smart communications strategy for water utilities. In times of crisis, community partners with established, trusted relationships with the audiences you need to reach will play a critical role in efficient message dissemination. They can also mitigate or extinguish any negative biases a particular audience has against water providers. These partners may include:

- city, county, and state government officials including representatives of the city, county, or municipal council
- the mayor’s, city administrator’s, or county commissioner’s office
- city or county government agencies including the public affairs, health, and environmental protection departments, and local agencies responsible for lead screening programs
- representatives of local school systems
- representatives of hospitals and/or clinics
- representatives of community organizations that the LCR requires water systems to reach in the event of an exceedance
- members of civic groups such as the Chamber of Commerce, neighborhood associations (HOAs), local chapters of community service organizations, and environmental and health advocacy groups
- private sector leaders such as child care centers and health care providers

Working with the Public Health Community

Collaborating with public health officials is crucial to developing an effective lead outreach effort in normal times and during a crisis. Different parts of the health department, including maternal and child health, community health, and environmental health, can assist in developing your materials and conducting effective outreach.

Local public health agencies often know how to reach specific segments of your target audience, because they may have had to previously conduct a similarly targeted outreach campaign. Connecting your lead communications effort to the health department’s lead poisoning prevention, water quality, and broader environmental programs, can seed the kind of holistic lead education program that communities require.

Recognize that the public health community is a much larger group than just the local government agencies. Local universities, community-based organizations, health care providers and insurers, nurse practitioners, and many others create the network of care that surrounds your community. You should try to access as many of these organizations as you can to determine the most effective communication channels and outreach tactics for your lead communications. The more allies you have, the better.

Chances are that public health officials who regularly work on lead issues already have contact lists for health care providers, schools, child care organizations, and social service providers with close ties to women, infants, and children in your community. Learn from what they already know. In addition, explain your role in monitoring for and communicating about lead and educate health officials and others about how lead enters drinking water, how the water system monitors for it, and steps one can take to minimize lead exposure.

Develop a relationship and response plan with your local health department so that you have an agreed upon process for sharing information about lead in drinking water risks and communicating with the public. Consumers may call the health department for information about the health risks described in your materials; if you coordinate in advance, you can ensure that, regardless of who they call, your public hears consistent messages that will help them understand the risks and how to manage them.

The LCR requires that water systems must have direct contact with public health officials in the event of an exceedance. Establishing and maintaining relationships with these individuals as you plan your program will make it easier to communicate with them if your utility experiences an exceedance.

Internal Communications Considerations

Obtain Utility Leadership Support

The senior leadership of a utility may include the General Manager or President, Deputy General Manager or Vice President, Director of Operations, Director of Finance, Director of Engineering, Director of Laboratory and others. These leaders should be fully prepared and trained to speak about lead service lines and potential risks of lead in water. As leaders of the organization, both customers and employees expect them to set the tone and model the behavior for all staff. Also, some members of leadership may be contacted by their counterparts in local government, or by business leaders, regulatory officials, or even customers, who will all expect them to be knowledgeable on the topic.

To frame the issue of lead in drinking water with the appropriate level of priority and importance, the utility leadership must be fully on board. As appropriate, leadership team

members should understand and be prepared to communicate to utility staff, board members, and other stakeholders:

- the nature of the lead concerns and the actions the utility plans to take
- distinct roles each department has in the success of the program, so that all employees understand their stake and the expectation
- implementation plan and timeline for communications and operations
- how success will be evaluated, on a department level and individual level.

A cross-functional steering committee should clearly identify department and individual roles and expectations. The committee must ensure that everyone has the information and resources necessary to be successful.

Along with the steering committee, a utility's communications staff (e.g., public affairs, communications and public relations, or community relations) will likely lead the strategy and execution of a utility's lead communications program. That said, all employees of a utility, whether or not they are directly involved in the task of communicating with the public, will have a role when the time comes to talk about lead service lines and potential risks of lead in water. For a utility without dedicated communicators on staff, it will be even more critical for all employees to be able to communicate to customers regarding the task at hand. A utility should consider the following groups of employees and the influence they may have on messaging, response, and customer service or perceptions.

Call Center Employees

Call center employees, or customer service representatives, have a key role in lead communications, as they are likely the primary way in which customers interact with the organization. It is imperative that these staff members are trained on lead messaging and understand fully the sensitivity of the issue. Some utilities may find it most effective to train just one or two call center employees on lead communications, and direct all calls on the subject matter to them. The advantage of this approach is a utility can select the staff most capable and best suited to be communicating about the topic and conserve time and resources. The disadvantage of this approach is the risk of counting on one or two people to always be available when the call comes in. It could be challenging for a utility if one or both are absent in any given day.

Field Service Representatives

Field service representatives, or those members of your staff who spend the bulk of their time in your customers' neighborhoods, are also key employees to consider for lead communications. Customers will see a uniformed representative of your company and

expect them to be able to answer questions. To make sure your field service representatives are ready:

- Utilities should train all field service representatives on selected key messages.
- Utilities should provide each field service representative with a business card (either paper, laminated, or even magnetized) containing general information should a customer have questions. The business card should include the direct line of one or more individuals trained to answer the questions with hours of availability, a direct website link for after hours, and, possibly, links and phone numbers to other important local resources.

Landscape Orientation

{Utility Logo}

For questions pertaining to lead in your water, or any water quality question, here are some resources:

{Utility Website}, and click on {Website Header}

Call {Direct Line of Designated Personnel}

Call {24-Hour Customer Service Line}

National Lead Information Center: 800-424-LEAD

EPA Safe Drinking Water Hotline: 800-426-4791

Portrait Orientation

{Utility Logo}

For questions pertaining to lead in your water, or any water quality question, here are some resources:

{Utility Website}, and click on {Website Header}

Call {Direct Line of Designated Personnel}

Call {24-Hour Customer Service Line}

National Lead Information Center: 800-424-LEAD

EPA Safe Drinking Water Hotline: 800-426-4791

Operations Staff

The operations staff is also likely to be approached by customers, as they are often working on service lines and may also be involved with a lead line replacement project. For that reason, it is important that these employees be trained and fully briefed on the risks of working with lead service lines and appropriate safety measures. In addition, they need to have some training and resources made available to them for communicating about lead to customers in case they are approached. It may make sense for a utility to designate one or two employees as the points of contact for lead issues for operations staff and to provide informational cards to operations personnel.

Board of Directors/Elected Officials

Examples of water and wastewater system governing bodies include local water boards, commissions, city councils, and regional water authorities. Within these governing bodies are local decision-makers who need to be involved early and frequently in the process. If governing boards are involved late in the process or if their input is not sought, a decision made by water system staff is more likely to be rejected or re-evaluated. In some cases, this disconnect may result in confused or contrary messaging to the community. A key aspect of early involvement is to obtain direction from the water system's governing board on the utility's goals and performance objectives for the outreach program and operational decisions. Because governing bodies must be responsive to other governmental agencies, early engagement of influential agencies is important. Examples include:

- State primacy agency
- City or county manager
- Local elected officials
- Public utility commission
- Building code officials
- Local emergency coordinator

These stakeholders are knowledgeable about the water system and its mission and should not be surprised by the utility's lead mitigation efforts. Informed officials and governing body leaders can support the water system in its risk communication plan by identifying considerations that warrant evaluation and disclosure and by communicating accurate messages to their constituencies. Their input and involvement in the communications process provides additional credibility to the utility's approach.

All Other Employees

With call center, field and operations staff, as well as senior leadership trained on messaging, a utility is prepared to answer the calls and proactively communicate about lead in drinking water. This does not, however, mean that the rest of the staff should be uninformed. All employees, regardless of their role, are ambassadors and spokespersons for the organization. They may be soccer coaches, church volunteers, or school leaders in their spare time and may also be approached by community members about the issue. Therefore, it is important that all staff is briefed about the sensitivity of lead communications and trained on the appropriate messaging. These briefings can occur as part of monthly or weekly staff meetings or through a series of special meetings.

Each group above has an opportunity through its discrete function to impact the success of this outreach; that is why it is so important for a utility to take a holistic approach and be as inclusive as possible when planning internal training on lead service lines.

Build on Current Communication Practices

This guide is intended to help water systems address emerging communication challenges associated with lead service lines, building upon existing communication practice. As you employ this guide, be sure to integrate the selected practices and messages into your broader communications efforts.

Currently, lead communications typically focus on lead concentrations in drinking water, the health risks associated with lead, what the utility is doing to control lead levels in drinking water, and what customers can do themselves to reduce lead exposure. There is already extensive guidance and supporting materials for communication activities on these aspects of communicating about lead in drinking water. The gap in current lead communications is when service lines are disrupted and/or replaced and the need for specific guidance to customers about flushing their lines following that type of work.

Construction Activities

Drinking water utilities have established processes for engaging customers in the process of capital improvement projects. Utilities engage customers through:

1. Media outreach associated with major capital improvement planning activities,
2. Notification of upcoming main rehabilitation and replacement affecting their neighborhood,
3. Providing information about possible water quality or aesthetic issues associated from construction activity,
4. Direct contact with individual customers affected by construction activities, and
5. Providing customers points of contact either to specific staff or through a customer service center.

Mandatory Lead Service Line Replacement

Mandatory lead service line replacement may be required of some water systems under the current Lead and Copper Rule. The Lead and Copper Rule lead service line replacement requirements include specific provisions for customer notification. While these provisions are not required during routine infrastructure replacements, they provide a framework for

notification of individual customers about such replacements. In general, these provisions require utilities to:

- Provide notice by mail to resident(s) of affected buildings at least 45 days prior to commencing with the partial replacement of a lead service line. The notice must:
 - explain that residents may experience a temporary increase of lead levels in their drinking water,
 - provide guidance on measures consumers can take to minimize their exposure to lead, and
 - inform the resident(s) served by the line that the utility will, at its own expense, collect a sample from each partially-replaced lead service line that is representative of the water in the service line for analysis of lead content within 72 hours after the completion of the partial replacement of the service line.
- Report the results of the analysis to the owner and the resident(s) served by the line within three business days of receiving the results.
- Use other distribution methods (for instance in multi-family dwellings, post the information at a conspicuous location).

Financial Assistance

In many communities, financial aid programs are available for low-income and/or fixed-income households to pay for utilities and make basic plumbing improvements. Where such financial aid programs are available, water systems make this information available through customer call centers, fact sheets, bill stuffers, website content, newsletters, and awareness building through partner organizations.

Routine Work Channels

Drinking water utilities interact with customers, plumbers, other utilities, and contractors on a daily basis. Thus, most utilities have standard practices and specific points of contact, and/or protocols for routine activities. You may find it helpful to use these established channels to provide basic information about lead service line activities as well as the roles and responsibilities of the utility, the customer, property owners, and other entities.

Appendix D - Resources for Further Exploration

American Water Works Association

<http://www.awwa.org>

CDC's Healthy Homes and Lead Poisoning Prevention Program

<http://www.cdc.gov/nceh/lead/about/program.htm>

CDC's Childhood Lead Poisoning Data, Statistics, and Surveillance

<http://www.cdc.gov/nceh/lead/surv/surv.htm>

U.S. Environmental Protection Agency

<http://www.epa.gov/safewater/lead/index.html>

Implementation of the Lead and Copper Rule -

<http://www.epa.gov/safewater/lcrmr/implement.html>

Product Standards

<http://www.nsf.org>

Hotlines:

National Lead Information Center: 800-424-LEAD

EPA Safe Drinking Water Hotline: 800-426-4791

