How to Address Lead in Drinking Water

A Step-by-Step Guide to Reduce Exposure through Remediation

Last Updated: November 2023

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Get the Lead Out of Drinking Water

Reducing lead exposure at schools and child care programs

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Acknowledgment

This report was funded in part by grant funding from the United States Environmental Protection Agency (USEPA) Water Infrastructure Improvements for the Nation (WIIN) Act, Section 2107. This report was prepared by the New Hampshire Department of Environmental Services with assistance from TruePani Inc. and input from the New Hampshire Department of Health and Human Services (DHHS) and the New Hampshire Department of Education (NHED).

Overview of Required Remediation Actions

In New Hampshire, public and nonpublic schools and licensed child care programs are required by law (RSA 485-17a) to test all drinking water outlets (e.g., drinking fountains, classroom faucets, kitchen sinks) where water could be used for consumption by children. House Bill (HB) 1421, signed July 8, 2022, requires that action is taken to correct any outlets that test at or above 5 parts per billion (ppb). When an outlet tests at or above 5 ppb, the school or licensed child care program must:

1 Block Access

For outlets usually used for drinking or cooking, block access by turning off water flow to the tap or placing a bag and sign over the fixture. For outlets that are not commonly used for drinking water, such as classroom sinks or science lab sinks, posting "Do Not Drink" signage and converting the station to a "hand-wash only" station is an appropriate action. You can find template signage in Appendix A of this guide.

2 Provide Safe Water

If the outlet(s) that test at or above 5 ppb are your only source of drinking water, either filtered or bottled water can be provided. When using filters, it is important to make sure they are certified to remove lead according to NSF 53 and 42 standards, and the drinking water outlet should be tested with the filter to confirm that lead has been removed to less than 5 ppb. See Appendix B for the EPA's filter guide.

3 Communicate

Communications must happen within five days of receiving sample results and be available in at least two places (e.g., parent letters and the facility's website). Template notification letters can be found on the NHDES website at gettheleadoutnh.org.

4 Report Remediation

"Remediation" refers to the steps taken to correct sources of lead in drinking water. If sample results are at or above 5 ppb, facilities are required to remediate and report action(s) to NHDES. Once a Remediation Plan has been determined, submit your planned or completed remediation actions to NHDES through the Remediation Reporting Form. The next section of this guide outlines factors to help evaluate which remediation actions are best for your facility.

5 Resample After Conditioning

After completing plumbing work, a water outlet should be "conditioned" before resampling: run the water for 20 minutes, remove the aerator, and clean it using soapy water to remove any sediment. Use the outlet periodically for a few days for non-consumptive purposes prior to resampling.

Collect samples at remediated outlets after installing a filter, changing out a fixture, or completing any other plumbing repairs. Resampling is required to confirm that the lead was removed. Note that resampling is not needed if a location is converted to a "hand-wash only" location.

Because there is no safe level of lead in drinking water, NHDES encourages public and nonpublic schools and licensed child care programs to remediate and implement best practices to reduce **any** amount of lead in drinking water.

Glossary of Common Terms

Action Level	The action level is a level where follow up action is required based on laboratory analytical results for an individual water sample. HB 1421 set an action level of 5 parts per billion (ppb) for schools and child care programs.
Bubbler	Bubbler refers to the bubbler valve on water coolers or drinking fountains which is the mouthpiece where water is directly dispensed.
Exceedance	An exceedance is a water sample or outlet that has a test result at or above the action level.
Faucet	A valved outlet device attached to a pipe that normally serves a sink or tub fixture. A faucet discharges hot and/or cold water for a variety of consumptive uses, including drinking, cooking and washing. The term "faucet" is often used interchangeably with the terms "tap" "fixture" and "outlet."
Federal Lead and Copper Rule (LCR)	The Federal Lead and Copper Rule (LCR) was published in 1991 by the USEPA to control lead and copper in drinking water. The LCR requires community and non-transient, non-community water systems to conduct tests to determine if lead and copper are present in high levels at the consumer's tap. The action levels are 15 ppb for lead and 1.3 mg/L for copper. Some schools and child care programs in New Hampshire are also required to complete testing for lead under the Federal LCR in addition to HB-1421 requirements.
First Draw Samples	Samples that are collected in the morning after the water has been sitting overnight and are sometimes referred to as "stagnant" samples. These are the samples taken immediately after turning on the faucet or valve, without spilling, if possible.
Fixture	The plumbing component that immediately dispenses water (e.g., drinking fountain, bathroom faucet, water cooler, classroom faucet, kitchen faucet, service connection and others). Sometimes referred to as an "outlet."
Flush Draw Samples	These samples are taken after water has been running from the fixture for some pre-determined length of time, typically 30 seconds. They can be used to determine if lead is coming from the fixture itself or from interior plumbing.
Get the Lead Out of Drinking Water Program	The New Hampshire Department of Environmental Services created the Get the Lead Out of Drinking Water program to provide support to schools and child care programs in completing required sampling, taking action to reduce lead in drinking water, and increasing awareness of lead in drinking water issues.

HB-1421	House Bill 1421 (HB 1421), effective July 8, 2022, updated the requirements of RSA 485:17-a related to lead in drinking water testing at New Hampshire schools and child care programs.
Lead Service Line (LSL)	A service line connects a property to a water main. Service lines made of lead are called lead service lines (LSL).
Maximum Contaminant Level Goal (MCLG)	The MCLG is the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, allowing an adequate margin of safety.
New Hampshire Department of Environmental Services (NHDES)	The New Hampshire Department of Environmental Services (NHDES) is the state department of environment for New Hampshire with three divisions: Air Resources, Waste Management and Water. The mission of NHDES is to help sustain a high quality of life for all citizens by protecting and restoring the environment and public health in New Hampshire. NHDES oversees collection and organization of school and child care lead in drinking water testing and remediation data and RSA 485:17-a compliance.
Outlet	A location where water is dispensed, such as drinking fountains, classroom faucets and kitchen sinks. Sometimes referred to as a “fixture” “faucet” or “tap.”
Parts per billion (ppb)	A weight-to-weight ratio used to describe concentrations. HB 1421 set an action level of 5 parts per billion (ppb) for lead in drinking water. When laboratories return test results, the concentrations of lead in the drinking water samples will be reported in metric form such as milligrams per liter (mg/L) or micrograms per liter (ug/L) or in concentrations such as parts per million (ppm) or parts per billion (ppb). 1 micrograms per liter (ug/L) is equal to 1 part per billion (ppb) 1 milligrams per liter (mg/L) is equal to 1 part per million (ppm) 1mg/L = 1000 ug/L = 1 ppm = 1000 ppb
Remediation	Remediation is the process of eliminating or reducing the amount of lead at an outlet.
Senate Bill 247 (SB 247)	Senate Bill 247 (SB 247), passed in February 2018, enacted New Hampshire law RSA 485:17-a, which requires K-12 public and nonpublic schools and licensed child care programs to test for lead in drinking water at all outlets where water is available for consumption by children. House Bill 1421 (HB 1421), effective July 8, 2022, updated the requirements of RSA 485:17-a related to lead in drinking water testing at New Hampshire schools and child care programs.
United States Environmental Protection Agency (USEPA)	The United States Environmental Protection Agency is an independent executive agency of the federal government tasked with environmental protection matters. The mission of USEPA is to protect human health and the environment.

USEPA 3Ts	The USEPA "3Ts"(Training, Testing, Taking Action) for Reducing Lead in Drinking Water in Schools and Child Care Facilities is a manual and toolkit that provides guidance for schools and child care programs testing for lead in drinking water. The Get the Lead Out of Drinking Water program follows the 3Ts guidance and water samples collected for RSA 485:17-a compliance should also follow 3Ts guidance.
Public Water System (PWS)	A public water system (PWS) provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year. A public water system may be publicly or privately owned. There are over 148,00 PWSs with one of three classifications: *Community Water System* **(CWS),** *Non-Transient Non-Community Water System* **(NTNCWS) or** *Transient Non-Community Water System* **(TNCWS).** PWSs must adhere to requirements of the Federal Lead and Copper Rule (LCR).
RSA 485:17-a	New Hampshire law (RSA 485:17-a), which was enacted in February 2018 with the passage of Senate Bill 247 (SB 247), requires K-12 public and nonpublic schools and licensed child care programs to test for lead in drinking water at all outlets where water is available for consumption by children. House Bill 1421 (HB 1421), effective July 8, 2022, updated the requirements of RSA 485:17-a related to lead in drinking water testing at New Hampshire schools and child care programs.
Water Infrastructure Improvements for the Nation Act (WIIN Act)	The ***Water Infrastructure Improvements for the Nation Act*** *(WIIN Act)* addresses, supports and improves America's drinking water infrastructure. Included in the WIIN Act are three drinking water grants that promote public health and protection of the environment. Work of the Get the Lead Out of Drinking Water program that provides sample analysis and technical assistance at no cost to eligible schools and child care programs is funded through WIIN Act grant funding.

Introduction

This guide, created by the New Hampshire Department of Environmental Services (NHDES) Get the Lead Out of Drinking Water Program, explains the required actions a facility must take when a drinking water outlet tests at or above 5 ppb. Information is included in this guide on how to choose and implement the best remediation action(s) for drinking water outlets at your facility, how to report remediation activities to NHDES, and how to establish routine practices to decrease lead exposure in your school or child care.

While lead can be found in paint, soil, consumer products, job sites and drinking water, lead in drinking water is the focus of this guide. Lead typically enters drinking water due to the wearing away of piping, faucets, fixtures, and other plumbing materials. Lead rarely occurs naturally in New Hampshire's drinking water sources (groundwater or surface water). In the past, lead was used in plumbing materials because it's easy to shape and doesn't easily leak; recent regulations have restricted, but not eliminated, its use.

Because lead is tasteless, odorless and colorless in drinking water, testing is the only way to learn if lead is present. After completing remediation actions, it is important (and required by HB1421) to retest each corrected drinking water outlet. Samples that are collected should be "first- draw" meaning that the water collected is the first water to leave the outlet after a stagnation period where the water sits unused in the pipes for 8-18 hours.

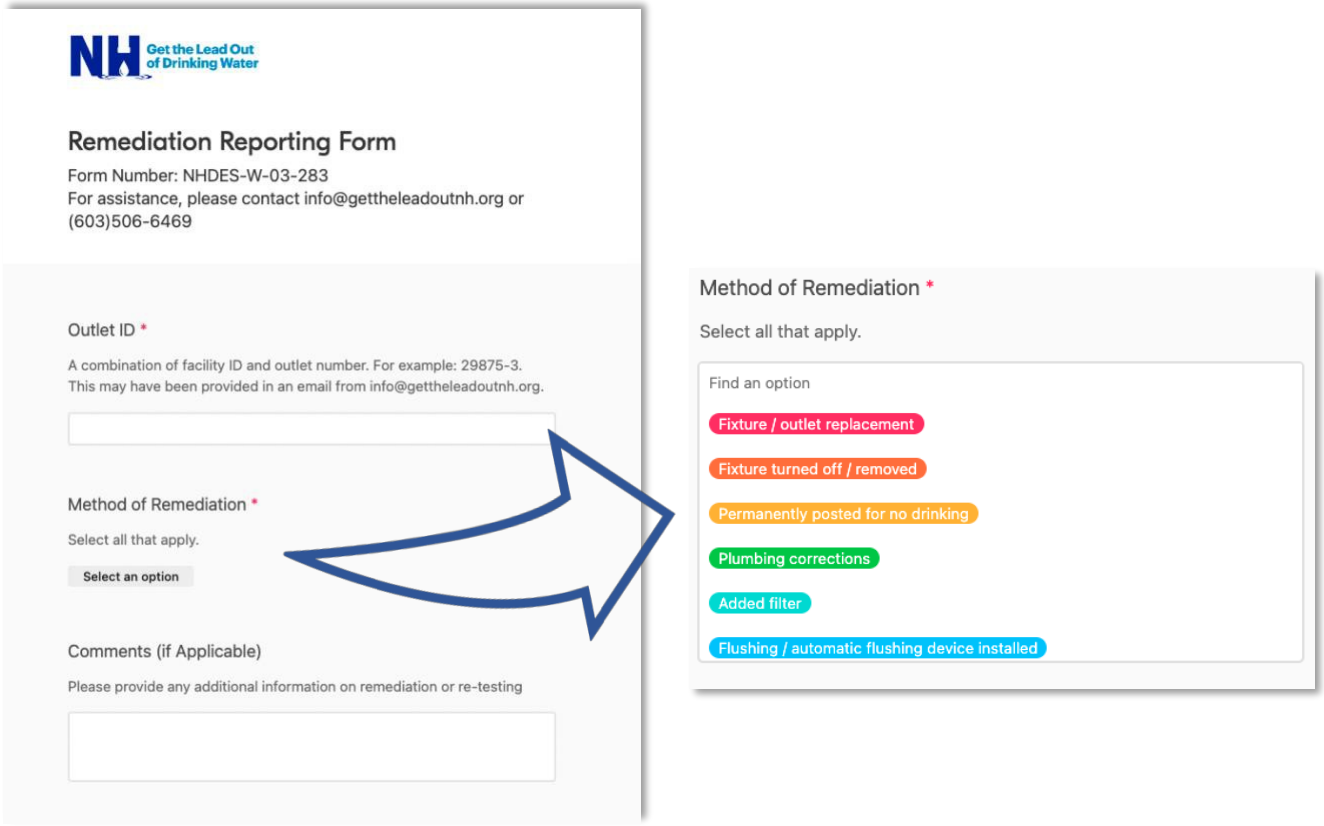
The Get the Lead Out of Drinking Water Program provides free technical assistance to all schools and child care programs completing remediation plans.

(603) 506-6469, Monday to Friday 7 AM – 4 PM
info@gettheleadoutnh.org

How to Create a Remediation Plan and Resample

A remediation plan, submitted to NHDES for approval, is required for all outlets with results at or above (≥) 5 ppb. The remediation plan outlines the planned or completed corrective actions for each outlet. Once each outlet has a planned corrective action, a facility should report that remediation using the Remediation Reporting Form or spreadsheet template. By filling out the form once for each outlet, a remediation plan will be generated specific to your facility and submitted to NHDES for review and approval. For assistance with reporting remediation, or to request a pre-populated spreadsheet template, please email info@gettheleadoutnh.org or call (603) 506-6469. A remediation plan must be implemented within 180 days.

Funding may be available to cover some remediation costs. For the most up-to-date funding information, please visit the program webpage.

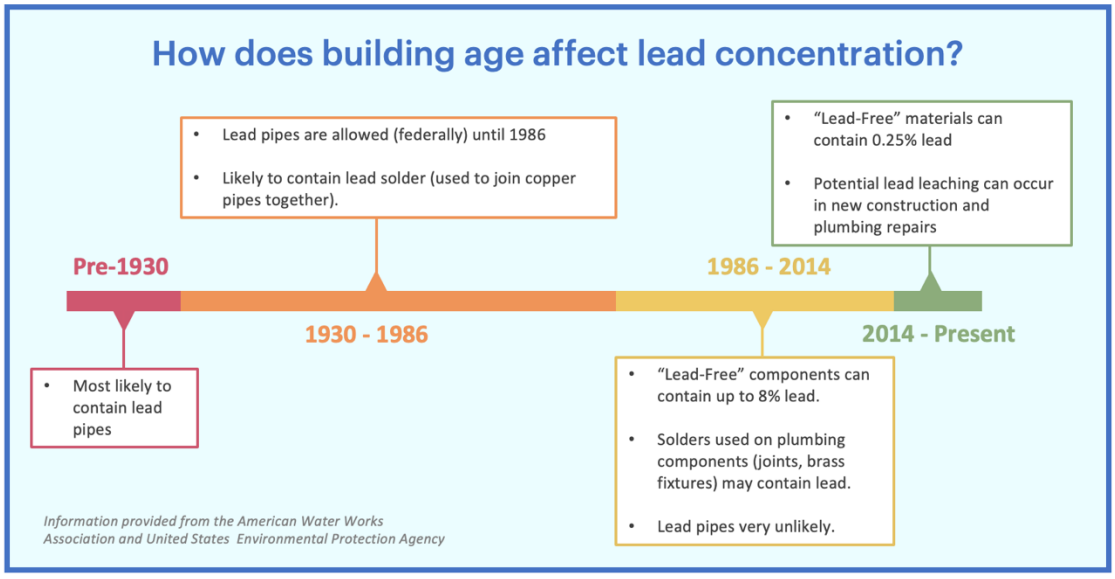


The Remediation Reporting Form can be accessed online.

Explore Remediation Options

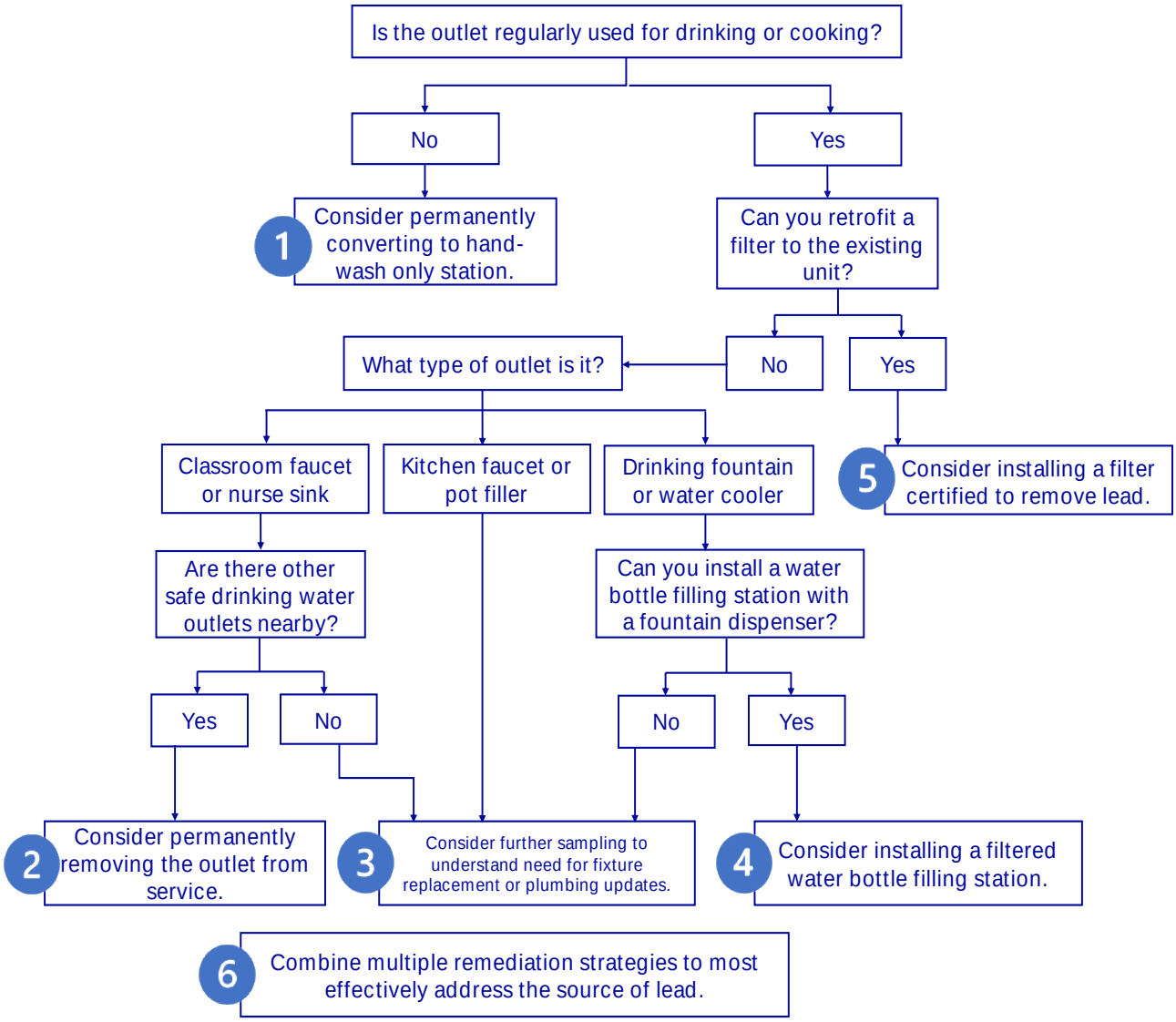
Remediation Plans are specific to each facility, and even to each individual outlet. There are many remediation options, and decisions should be based on what works best for your facility. Information such as the age of the building infrastructure may indicate that old plumbing materials could be a possible exposure risk at your facility. The make and model of fixtures like kitchen sinks, water coolers, and fountains may indicate whether the outlet was made with lead materials and is of possible concern. These are all important factors to consider when exploring possible remediation options. Factors to consider include:

- Outlet type
- Use purpose of outlet
- Age of building
- Age of fixture
- Lead sample results
- Presence of nearby exceedances
- Funding availability



The following decision tree is a guide to help you explore which remediation options may be best for your specific facilities and outlets in your Remediation Plan.

The Remediation Decision Tree



1 Consider permanently converting the outlet to hand-wash only station, instruct individuals to drink only from designated nearby outlet(s).

For outlets that are not commonly used for drinking, such as a classroom faucet in an art or science room, consider permanently turning the outlet into a hand-wash only station. Printable template signs are available in Appendix A.

Hand washing is not a concern for lead exposure because skin does not absorb lead in water. For many facilities, this is an accessible and immediate remediation option. However, if the outlet is necessary for drinking water, please see scenarios 3 to 6.

2 Consider permanently removing the outlet from service, instruct individuals to drink only from designated nearby outlet(s).

If the water outlet is not necessary for drinking, or if purchasing a new fixture or adding a filter is not feasible, it may be best to permanently remove the faucet or fixture. At very high levels, lead may be difficult to remediate. To permanently remove an outlet from service, you should turn off the water to the fixture, physically remove it and then properly dispose of the fixture to ensure that it is not reinstalled elsewhere.

3 Consider further lead sampling to understand need for fixture replacement or plumbing updates.

For locations that are necessary for drinking water or food preparation, properly addressing the source of lead exposure is imperative. The 2011 Reduction of Lead in Drinking Water Act (effective in 2014) requires that only "lead-free" materials be used in new plumbing and plumbing repairs. Consider the age of your facility and the age of the specific outlet's fixture. Age of fixture and building may be helpful information in determining the likelihood of lead exposure coming from old fixtures or interior plumbing. If lead is present in most of your sample results, there is a potential that the source of lead is within the building's interior plumbing, and additional sampling is recommended.

To investigate whether the source of lead may be the fixture, interior plumbing or possibly even a lead service line, additional sampling may help. "Investigative" sampling or involves collecting a "flush" sample at locations where initial sampling showed elevated lead levels. These samples collect water from further back in the plumbing and can help indicate where lead may be coming from. A flush sample is collected after water has sat unused for at least eight hours and then run for 30 seconds. Public schools and child care programs enrolled in the Get the Lead Out of Drinking Water Program are eligible to receive free sample analysis for this investigative sampling. To request additional bottles to investigate the potential source of lead, please contact info@gettheleadoutnh.org or call (603) 506-6469.

Flush-draw sample results below 5 ppb may indicate that the lead source is from the fixture and not interior plumbing. Appendix D and Appendix E include information on how to collect flush draw samples and use these results in your remediation strategy.

Please note: Additional sampling alone is not remediation. Resampling and getting a lower result does not correct the source of lead and is not accepted as a remediation plan.

4 Consider installing a filtered water bottle filling station.

Water bottle filling stations are devices that dispense refrigerated drinking water from a bottle filling dispenser and a water fountain dispenser, which does not require a bottle to drink.

Bottle filling stations should be regularly cleaned to maintain sanitary conditions and should include an indicator light or other mechanism that is activated when it is time to change the filter. Most are designed to remove lead or have additional filter attachments to remove lead from drinking water.

5 Consider retrofitting the existing unit with a filter certified to remove lead.

Filters can be considered if other options to remove lead have been unsuccessful and a solution is needed while more long-term solutions are implemented. Filters should be certified to remove lead via and meet NSF/ANSI 53 and 42 standards. Filter styles include under-sink, in-line, refrigerator and faucet-mounted. Under-sink and faucet-mounted styles may work best for classroom or kitchen faucets. In-line filters may work best for drinking fountains.

Filters **must** be replaced on a regular basis. If they are not replaced, the water outlet will continue to be a source of lead exposure. For proper filter maintenance, please follow manufacturer instructions. Please note that in addition to sampling after filter installation, NHDES may recommend additional sampling several months after operation to confirm the filters are still working effectively and to help establish the frequency with which the filters should be changed.

6 Combine multiple remediation strategies to address the source of lead most effectively.

In some instances, combining remediation techniques can be effective. Examples of this may be adding an under-sink filter and replacing a fixture.

Resample After Remediation

To ensure that remediation actions are effective in reducing lead exposure, it is required that each drinking water outlet be resampled after plumbing corrections (e.g., adding a new fixture, installing a new drinking fountain) or filter installations have been completed. There are many ways for lead to enter drinking water, so it is important to ensure that remediation actions properly addressed the source of lead.

After completing plumbing work, a water outlet should be "conditioned" before resampling. To condition an outlet, run the water for 20 minutes. After running the water, remove the aerator (the small end piece on the faucet with a mesh screen disk) and clean it using soapy water. Make sure to remove any sediment that may have dislodged during plumbing work. NHDES also recommends using the outlet periodically for a few days for non-consumptive purposes prior to resampling.

To resample a remediated outlet, collect one first-draw sample from the tap after water has sat unused for at least 8 hours, but no more than 18 hours. Public schools and child care programs enrolled in the Get the Lead Out of Drinking Water Program are eligible to receive free sample analysis. To request resample bottles, please contact info@gettheleadoutnh.org or call (603) 506-6469 or complete and return the sample bottle request file included with your exceedance notification email.

If the resample result shows elevated lead, the source of lead has not been addressed and could include interior plumbing or lead solder. Please see the Remediation Decision Tree above and Appendix C for more information on other sources of lead and ways to address lead in drinking water. The Get the Lead Out Team can provide technical assistance and help outline next steps; please contact info@gettheleadoutnh.org or call (603) 506-6469.

Establish Routine Practices

It is important to establish routine practices to reduce lead exposure at your facility. These practices are important even for drinking water outlets with low or no lead detection. While some of these practices may be effective in reducing lead exposure, they will not remove the source of lead exposure altogether.

- **Use and Maintain Filters.** Regularly replace filter cartridges according to manufacturer instructions.

- **Implement Flushing Routines.** Flush drinking water outlets regularly, especially if they have not been used for six hours or more. Flushing refers to running the water from the outlet to "flush" stagnant water that has been sitting in the interior pipes and outlets. The longer water sits stagnant, the more lead may leach from plumbing materials. The best time to flush outlets is first thing in the morning, before using the water for drinking or food preparation. Flush time vary by outlet type, but it is recommended to run the water until it reaches a uniform temperature. For water coolers with a tank, this may require up to 15 minutes. While large facilities may not have resources to flush every morning, consider prioritizing outlets that are used for large volumes of consumption (such as kitchen food prep sinks). Routine flushing practices should also be conducted after long periods of stagnation, such as holiday breaks or summer vacation. The EPA has established guidance for *Ensuring Drinking Water Quality in Schools During and After Extended Closures.*

Lessons from Lead Sampling

During a lead sampling program, 16 "flush draw" samples were collected from kitchen outlets that had "first draw" test results at or above 15 ppb. Flush samples are collected after the water has run for 30 seconds. 13 of the 16 flush samples were below the laboratory's detection limit.

Although flushing is not a solution to remediating lead in drinking water and should not be used for outlets that test at or above 15 ppb, flushing can be an effective practice to reduce lead exposure immediately prior to use.

- **Clean Aerators.** Consider adding a few new routines to your facility's regular cleaning schedule. Sinks with aerators (the removable mesh screens at the end of the fixture) may collect debris that. includes lead particles. Similarly, water coolers and drinking fountains sometimes have strainers that also trap lead. Aerators and strainers should be cleaned regularly to avoid contaminants building up in the fixture.

- **Communicate Routines.** Creating a routine is most effective if everyone at the facility understands and participates. Use child friendly signage with picture examples to communicate those certain outlets are for handwashing only.

- **Complete Three Rounds of Sampling.** House Bill 1421 (July 2022) requires facilities to complete three rounds of sampling by June 30, 2024. There must be at least six months between each round. Lead levels can change over time; it is important to complete all rounds of sampling

Appendix A: “Do Not Drink” and “Handwash Only” Signs

DO NOT DRINK

OR USE FOR FOOD PREP

ELEVATED LEAD HAS BEEN DETECTED

DO NOT DRINK

OR USE FOR FOOD PREP

THIS SINK IS FOR
HAND WASHING ONLY

Please do not drink or use for food prep

THIS SINK IS FOR
HAND WASHING ONLY

ELEVATED LEAD HAS BEEN DETECTED

Please do not drink or use for food prep

Appendix B: EPA Filter Identification Guide

EPA United States Environmental Protection Agency

A Consumer Tool for Identifying Point of Use (POU) Drinking Water Filters Certified to Reduce Lead

Point of Use Filters

Point of use, or POU, drinking water filters are used to remove impurities from water at the point that it is actually being used. Although there are others, the POU filters covered in this document are those used in filtration systems that are attached directly to water faucets, inserted into refrigerators for water dispensers and ice makers, or inserted into water pitchers and bottles.


Faucet Filter Device


Refrigerator Filter


Pitcher with Filter


Bottle with Filter

How do I know if a POU filter has been certified to reduce lead?

There are several American National Standards Institute (ANSI) accredited third-party certification bodies that evaluate POU drinking water filters for lead reduction. Each has a registered trademark that is used on certified products.

Certification bodies require their mark and a statement indicating testing against **NSF/ANSI Standard 53 along with a claim of lead reduction**. We recommend that you also look for filters tested against **NSF/ANSI Standard 42 for particulate reduction (Class I)***.

The table below provides the certification bodies' approved marks and the text that indicates a filter has been certified for lead reduction capabilities. Some filters can be certified by more than one certification body and have multiple certification marks.

Certification Mark(s)	
NSF, NSF, Independently Certified NSF *Product Listing Directory: info.nsf.org/Certified/DWTU/*	Tested and Certified Water Quality Under Industry Standards, Tested & Certified WQA Independently *Product Listing Directory: wqa.org/Find-Products#/*
IAPMO R&T, UPC, C IAPMO *Product Listing Directory: pld.iapmo.org/*	UL Certified, Health Effects Performance US File No. *Note: For UL, text must be located underneath the mark. The File No. is a unique product identification number.* *Product Listing Directory: database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.html*
C SA US Drinking Water NSF/ANSI 42; C SA US Drinking Water NSF/ANSI 53 *Product Listing Directory: csagroup.org/testing-certification/product-listing/*	**Text for NSF/ANSI Standards 42 & 53 next to certification marks:** • Example text on packaging: *Tested and Certified by (name of certification body) against NSF/ANSI Standards 42 and 53 for the claims specified on the Performance Data Sheet.* • Some companies may indicate lead removal in the text, or might simply state NSF/ANSI 53 or NSF/ANSI 42 above or below the mark.

Is certification required for POU drinking water filters?

There is no mandatory federal requirement for the use of POU drinking water filters or for testing or third-party certification under the Safe Drinking Water Act. However, consumers can increase their level of confidence by purchasing filters that have been tested by an accredited third-party certification body or bodies for lead reduction and particulate reduction (Class I) capabilities against both NSF/ANSI Standards 42 and 53.

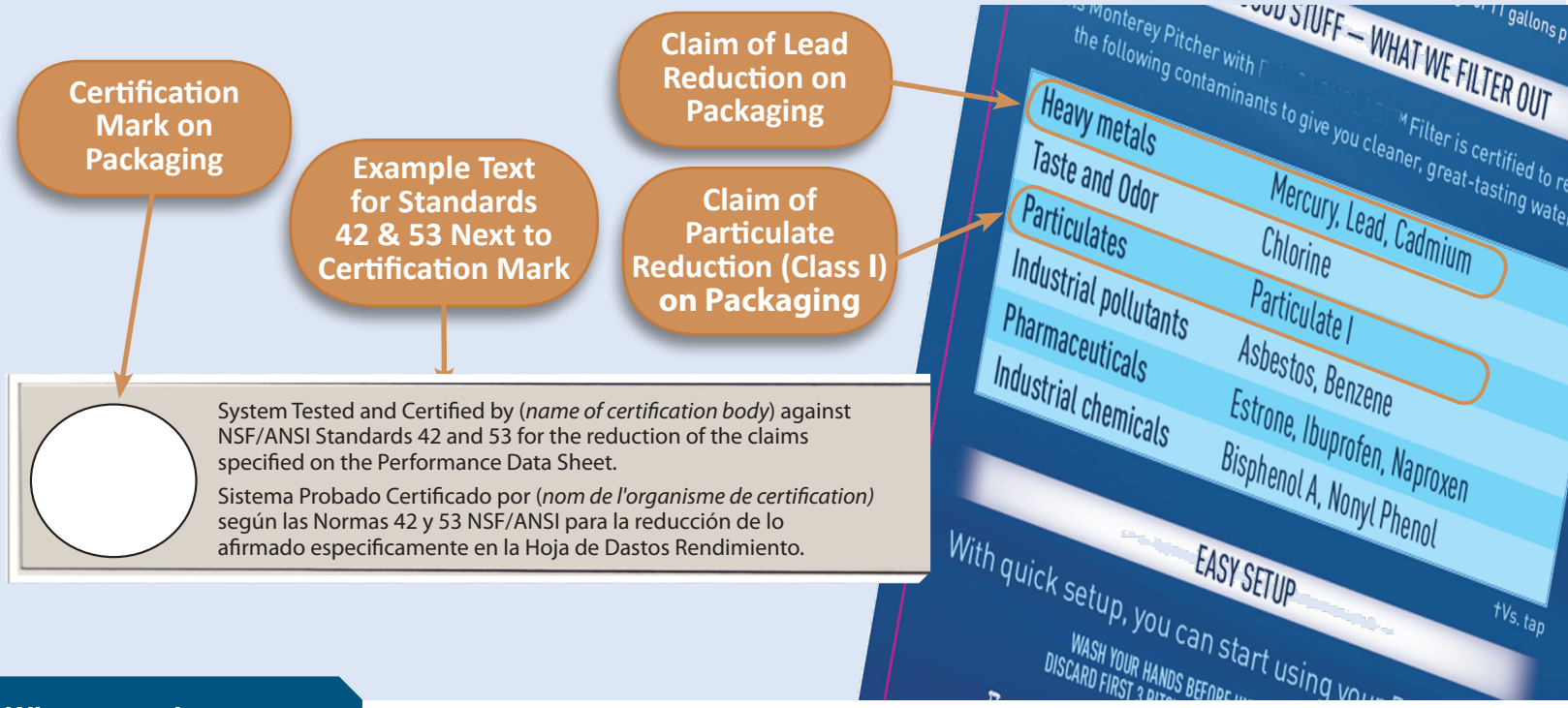
**Although particulate reduction (Class I) is for aesthetic effects, it is being suggested since some particulates can contain lead.*

Disclaimer: This document is for informational purposes only. Any mention of trade names or commercial products does not constitute EPA endorsement or recommendation for use.

EPA/600/F-18/335 | December 2018

Certification Marks, Standards Text, and Claims of Reduction on Filter Packaging

Certification marks are detailed in the Table on Page 1. Examples of certification marks, NSF/ANSI Standards 42 and 53 text, and claims of lead reduction and particulate reduction (Class I) as found on product packaging are shown below.



Where are the certification marks and Standards text located?

The certification marks can be found on the filter or on the smallest container in which the filter is packaged. NSF/ANSI Standards 42 and 53 text will be located under or near a certification mark. If lead reduction and particulate reduction (Class I) are not specifically mentioned in the text, information can be found in a table on the packaging, on the performance data sheet located inside the filter packaging or on the manufacturer's website, or in the certifier's online product listing directory (see links in the table on Page 1).

Performance Data Sheet Inside Filter Packaging or on Websites

Claims of lead reduction and particulate reduction (Class I) not included on the filter packaging can typically be found on the performance data sheet located inside the filter box or other packaging (example below), or on the manufacturer's website.

Claim of Lead Reduction

Claim of Particulate Reduction (Class I)

SUBSTANCE	Overall Percent Reduction	Influent Challenge Concentration	U.S. EPA Level*/NSF Maximum Permissible Product Water Concentration
NSF/ANSI Standard 53 – Health Effects			
Lead pH 6.5	99.5%	150±15 ppb	10 ppb
Lead pH 8.5	99.6%	150±15 ppb	10 ppb
Mercury pH 6.5	95.5%	6±0.6 ppb	2 ppb
Mercury pH 8.5	95.9%	6±0.6 ppb	2 ppb
Cadmium pH 6.5	97.4%	30±3 ppb	5 ppb
Cadmium pH 8.5	99.2%	30±3 ppb	5 ppb
Benzene	93.5%	15±1.5 ppb	5 ppb
Asbestos	>99%	55000000±45000000 Fibers/L	99%*
NSF/ANSI Standard 401 – Emerging Compounds/Incidental Contaminants			
Bisphenol A†	95.5%	2000±400 ppt	300 ppt
Estrone†	96.4%	140±28 ppt	20 ppt
Ibuprofen†	94.9%	400±80 ppt	60 ppt
Naproxen†	96.4%	140±28 ppt	20 ppt
Nonyl phenol†	93.5%	1400±280 ppt	200 ppt
NSF/ANSI Standard 42 – Aesthetic Effects			
Chlorine	97.4%	2.0±0.2 ppb	50%*
Particulate Reduction Class I	99.6%	>10000 particles/mL	85%*

* NSF Minimum Percent Reduction Requirement.

† Valid for the following systems: Ultramax Jet Black (OB24), Space Saver (OB21), Amalfi (OB32), Grand Color Series (OB36), Pacifica (OB41), Capri (OB43), Mini Plus (OB44), Marina (OB47), Monterey (OB50), and Wave (OB53).

These systems have been tested according to NSF/ANSI 401 (for applicable systems), 42 and 53 for reduction of the substances listed. The concentration of each of the indicated substances in water entering the systems was reduced to a concentration less than or equal to the permissible limit for water leaving the systems, as specified in NSF/ANSI 401, 42 and 53.

Additional Information

- EPA's Lead in Drinking Water Website: epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water
- Understanding NSF/ANSI Standard 53: workingpressuremag.com/understanding-nsf-ansi-53/

Questions?

- For questions about a filter: *Contact the product manufacturer or see the product listing directories listed on the first page.*
- For questions about this document: *Send an email to latham.michelle@epa.gov or shah.manthan@epa.gov.*

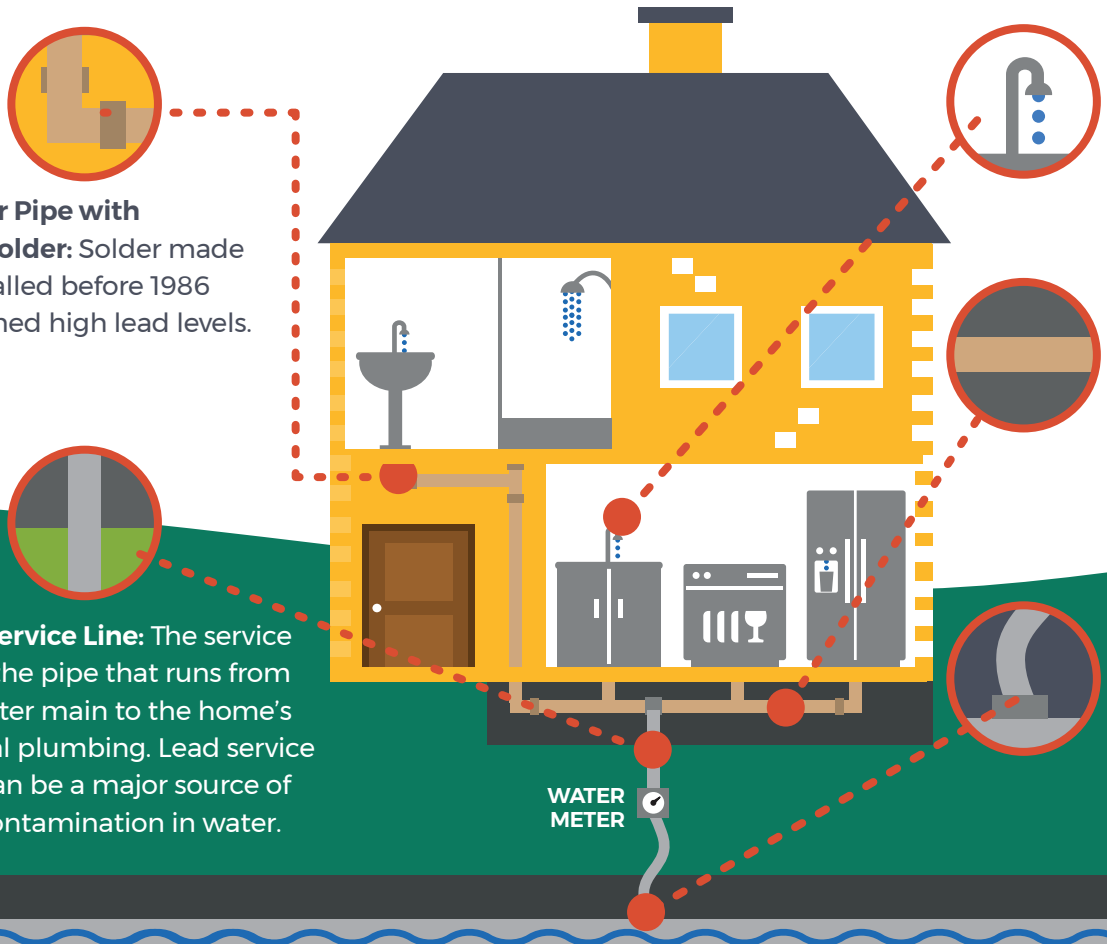
Disclaimer: This document is for informational purposes only. Any mention of trade names or commercial products does not constitute EPA endorsement or recommendation for use.

Appendix C: EPA Flyer on Sources of Lead in Drinking Water and Ways to Reduce Exposure

EPA

CONCERNED ABOUT LEAD IN YOUR DRINKING WATER?

Sources of **LEAD** in Drinking Water



Copper Pipe with Lead Solder: Solder made or installed before 1986 contained high lead levels.

Faucets: Fixtures inside your home may contain lead.

Galvanized Pipe: Lead particles can attach to the surface of galvanized pipes. Over time, the particles can enter your drinking water, causing elevated lead levels.

Lead Service Line: The service line is the pipe that runs from the water main to the home's internal plumbing. Lead service lines can be a major source of lead contamination in water.

Lead Goose Necks: Goose necks and pigtails are shorter pipes that connect the lead service line to the main.

Reduce Your Exposure To Lead

Use only cold water for drinking, cooking and making baby formula. *Boiling water does not remove lead from water.*

Regularly clean your faucet's screen (also known as an aerator).

Consider using a water filter certified to remove lead and know when it's time to replace the filter.

Before drinking, flush your pipes by running your tap, taking a shower, doing laundry or a load of dishes.

To find out for certain if you have lead in drinking water, **have your water tested.**

Replace Your Lead Service Line

Water systems are required to replace lead service lines if a water system cannot meet EPA's Lead Action Level through optimized corrosion control treatment.

Replacement of the lead service line is often the responsibility of both the utility and homeowner.

Homeowners can contact their water system to learn about how to remove the lead service line.

Identify Other Lead Sources In Your Home

Lead in homes can also come from sources other than water. If you live in a home built before 1978, you may want to have your paint tested for lead. **Consider contacting your doctor to have your children tested if you are concerned about lead exposure.**

For more information, visit: **epa.gov/safewater**

Appendix D: Sample Collection Instructions

Get the Lead Out of Drinking Water
Reducing lead exposure at schools and child care programs

QUESTIONS?

info@gettheleadoutnh.org

(603) 506-6469
M – F, 7 AM to 4 PM

How to Collect Water Samples for Lead Testing

STATE-REQUIRED FOR LICENSED CHILD CARE PROGRAMS AND SCHOOLS

HB1421 requires facilities to test drinking water for lead three times by June 30, 2024. This document provides instructions on how to properly collect water samples.

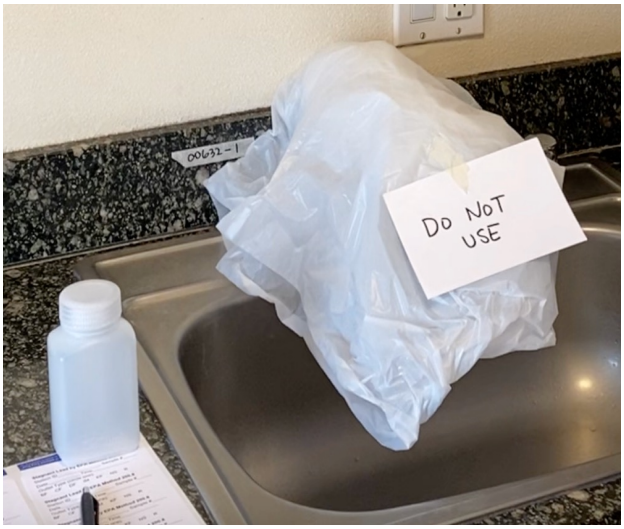
Before collecting samples, make sure you have the materials listed below:

- Instructions (this document)
- 250 mL sample bottles and bottle labels
- Pre-paid return shipping label (if applicable)
- Chain of Custody (COC) form (provided by laboratory)
- Pen
- Plastic bags (optional)
- "Do Not Use" signs (optional)

Prepare for Sampling

Water must sit stagnant in the pipes before collecting samples.

Cover the outlet with a plastic bag and sign to communicate to your community that the location can not be used. Water cannot be used for between 8 to 18 hours before collecting samples. After sampling, you can remove the bag and sign.



Video instructions are available online. Scan the QR code or visit the NHDES YouTube page.

Get the Lead Out of Drinking Water

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Collect First Draw Routine Samples

Water cannot be used for between 8 to 18 hours prior to collecting samples. Typically, samples are collected first thing in the morning after water has sat unused overnight. Before collecting samples, make sure this requirement has been met.

1. Open a 250 mL sample bottle with clean hands. Line up the bottle under the faucet and be ready to collect the first stream of water that comes out. Do NOT run the water prior collecting samples.

2. Turn on the cold water and fill up the bottle to the neck. Leave some space near the top. Tightly secure the cap. Be careful not to overfill the bottle.

3. Complete the bottle label with correct information and fill out the COC form.

4. Repeat for every outlet (e.g., drinking fountain, classroom sink, kitchen faucet) that you plan to sample. **Only fill up one bottle at each location.**

Label Samples and Complete Paperwork

Labeling each bottle and completing the Chain of Custody (COC) form helps the laboratory keep track of your samples. You will need to complete a row on the COC form for every sample you collect. For every sample, write down the date and time the sample was collected. After collecting all samples and completing/signing the paperwork, return the samples to the laboratory as soon as possible.

Stagnant Lead by EPA Method 200.8
Outlet ID_____ Flush?_____
Date_____ Time_____
Outlet Type (circle one):
BF CF DF IM KF NS R

If you completed an outlet inventory, label the Outlet ID to match your COC form and inventory.

Get the Lead Out of Drinking Water
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Collecting a Flush Sample After Receiving Initial Results

For locations where sample results show elevated lead, collecting a "flush" sample can help investigate whether the source of lead is within the fixture, interior plumbing, or other plumbing components.

To collect a flush sample, first make sure water from the outlet where elevated lead was detected has not been used for between 8 to 18 hours. Then, turn on the water for 30 seconds. When the timer reaches 30 seconds, collect the flush sample.

Water cannot be used for 8-18 hours before collecting the flush sample

Turn on a stopwatch, and let the water run until the timer reaches 30 seconds.

Collect the flush sample. Check the section on the bottle label and COC that says "Flush?"

Stagnant Lead by EPA Method 200.8
Outlet ID_____ Flush?_✓_
Date_____ Time_____
Outlet Type (circle one):
BF CF DF IM KF NS R

Resampling After Remediation

To make sure that the source of lead was addressed, a sample must be collected AFTER plumbing corrections or other remediation efforts have been completed. Follow the sampling protocol outlined on page 2 of this document. It is recommended to condition the outlet after remediation, prior to sampling again: remove the aerator (if present), run the water for 20 minutes, and then use the outlet for non-drinking water purposes for a few days. Then, resample following the protocol on page 2 of this document.

If the results from the second sample (the flush draw sample) are above 5 parts per billion (ppb), the source of lead may be interior plumbing materials. For assistance with interpreting results, please contact the Get the Lead Out team or download the program Remediation Guide at gettheleadoutnh.org.

Please note: *If follow-up sampling results show lower lead levels than initial sample results, outlets must still be remediated. Additional sampling is not remediation.*

Appendix E: Module 5 of EPA 3Ts and First Draw and Flush Sampling Scenarios

Module 5: Conducting Sampling and Interpreting Results

Communication Plan: Don't forget to communicate your plans to test your facility, and to prepare for communicating results. Results should be shared regardless of the lead level detected.

2-Step Sampling at the Tap

EPA recommends that schools and child care facilities conduct a 2-step sampling procedure to identify if there is lead in the outlet (e.g., faucet, fixture, or water fountain) or behind the wall (e.g., in the interior plumbing). These samples should be taken after an 8 to 18-hour stagnation period.

Please note that this section contains recommendations that are generalized for typical plumbing configurations. Appendix D contains details on types of fixtures and targeted sampling.

STEP 1
250-mL First-Draw Sample
Take a 250 mL first-draw sample at all taps used for consumption to identify potential lead in the fixture.

STEP 2
250 mL Flush Sample
If the result of Step 1 is high, take a 30 second flush sample to identify lead in the plumbing behind the fixture.

These samples can be taken in the same sampling event, which can reduce cost, and provide you with more information on lead levels. If not taking these samples at the same time, and elevated lead levels have been found in Step 1, the water should not be consumed while preparing to take the follow-up flush sample. More information on immediate steps is in the Taking Action Section.

Helpful Tip…

For further potential cost savings, you or lab can collect, preserve, and hold (but not analyze) the second sample at the same time the first sample is collected, then analyze only selected Step 2 samples based on review of the Step 1 results. Most commercial labs will "Hold" samples until the client advises to dispose (at nominal cost) or analyze those samples.

Step 1: Initial First-Draw Samples

Take first-draw samples from fixtures throughout the building that are used for human consumption. EPA strongly recommends that you collect these samples from all outlets used for drinking or cooking, prioritizing the high-risk outlets (i.e., fixtures that are known to or potentially contain lead and fixtures that are used most frequently). The plumbing profile will help pinpoint those high-risk fixtures and to prioritize sample collection.

Important: schools and child care facilities should not use sample results from one outlet to characterize potential lead exposure from all other outlets in their facility. This approach could miss localized lead problems that would not be identified.

The first-draw sample identified in Step 1 is representative of the water that may be consumed at the beginning of the day or after infrequent use. This protocol maximizes the likelihood that the highest concentrations of lead will be found because the first 250-mL sample is collected after overnight stagnation (the water sat in the pipes for at least 8 hours).

Procedures for initial outlet samples are shown below:

- All samples should be collected before the facility opens and before the fixtures have been used (EPA recommends an 8-18 hour stagnation period).
- One 250-mL sample should be taken at each fixture. Note this is a first-draw sample. Therefore, collect the sample immediately after opening the faucet or valve.
- Compare all sample results to prioritize follow-up sampling and remediation. Outlets with elevated lead levels should not be made available for consumption.

STEP 1

250-mL First-Draw Sample

Take a 250 mL first-draw sample at all taps used for consumption to identify potential lead in the fixture.

High Results Due to Particulate Lead

If initial first-draw sampling results reveal high lead levels in the 250-mL sample for a given outlet, a contributing source of the elevated lead levels could be the debris in the aerator or screen of the outlet. By cleaning the aerator or screen and retesting the water following the initial first-draw sampling procedures, you can identify whether or not the debris is contributing to elevated lead levels.

Determining aerator/screen debris contribution:

Scenario 1: The initial sample result is 19 ppb; you decide to see if the aerator is contributing to lead in the water. After cleaning out the aerator, you take another first-draw sample. The results come back less than or close to the detection level (e.g., 1ppb). This result indicates that the debris in the aerator was likely contributing to elevated levels in the fixture. Continue to clean the aerator on a regular basis; continued use of the outlet should be acceptable. However, please note that without regular maintenance, this outlet may serve water with elevated lead levels.

Scenario 2: The initial sample result is 22 ppb; you decide to see if the aerator is contributing to lead in the water. After cleaning out the aerator, you take another first-draw sample. The second sample result is very close or equivalent to the 22 ppb sample. Since the initial sample and post-cleaning first-draw sample results are similar, the problem is likely not the aerator.

Scenario 3: The initial first-draw sample result is 60 ppb; you decide to see if the aerator is contributing to lead in the water. After cleaning the aerator, you take another first-draw sample. The post-cleaning sample result is 25 ppb. Although the results are lower, they are still high; this indicates that the aerator is likely a contributing source and that the outlet itself and/or the plumbing upstream of the aerator are contributing as well. If this situation occurs, the school should take this fixture offline, and continue with 2-step sampling, or consider the Detailed Fixture Evaluation in Appendix D to target the additional contributing sources.

* When taking a second first-draw sample, please remember to follow the same sampling procedure as the initial first-draw sample. Ensure that fixtures and outlets have been out of use for 8-18 hours, sampling before students arrive at the facility.

Picture of an aerator with particulate

Step 2: Follow-Up Flush Samples

If initial test results reveal elevated lead, follow-up flush testing described in Step 2 is recommended to determine if the lead contamination results are from the fixture or from interior plumbing components. Follow-up flush samples generally involve the collection of water from an outlet where the water has run for 30 seconds.

The purpose of Step 2 is to pinpoint where lead is getting into drinking water (i.e., fixtures versus interior plumbing) so that appropriate corrective measures can be taken.

Procedures for initial outlet samples are shown below:

- As with initial first-draw samples, follow-up flush samples are to be taken before a facility opens and before any water is used. For best results, flush samples from different outlets that are in close proximity should be collected on different days. For drinking fountains or other fixtures that are manifolded closely together, a single flush sample may be representative of the shared interior plumbing.
- The sampler should be careful to maintain a consistent rate of flow when collecting flush samples.
- Open up the tap and let the water run for 30 seconds. Then, take a 250mL sample. Make sure to label this sample bottle as the flush sample.

STEP 2

250 mL Flush Sample

If the result of Step 1 is high, take a 30 second flush sample to identify lead in the plumbing behind the fixture.

Sampling Dos and Don'ts

Do:

- Follow the instructions provided by the laboratory for handling sample containers to ensure accurate results.
- Assign a unique sample identification number to each sample collected. Use a coding scheme to help differentiate samples, and don't forget to label each sample bottle.
- Collect all water samples before the facility opens and before any water is used. The water should sit in the pipes unused for at least 8 hours but not more than 18 hours before a sample is taken.
- Learn how water flows in your facility. If there are multiple floors, it is typically recommended to sample from the bottom floor and continue up. Start sampling closest to the main and work away.

Don't:

- Remove aerators prior to sampling. Potential sources of lead may be missed if aerators are removed, since debris could be contributing to the lead in drinking water if particles containing lead are trapped behind aerator screens.
- Flush water prior to sampling, unless instructed to do so. Flushing can be a tool to improve water quality, especially after long holidays or weekends. However, flushing prior to sampling may cause results showing lower-than representative lead levels in the water. See **Flushing Best Practices Factsheet** for more information.
- Close the shut-off valves to prevent their use prior to sample collection. Minute amounts of scrapings from the valves can produce results showing higher-than-representative lead levels in the water.

Don't forget to maintain a record!

Recording sample information is critical to tracking and managing water quality year-over-year. Record sampling procedures, locations, and results.

Using Flush Samples to Inform Remediation

- If the initial first draw result is higher than the flush result, then the fixture (bubbler valve), the faucet, or solder may be contributing lead.

- If the flush sample (collected after a stagnation period followed by the water running for 30 seconds) is higher than the first draw sample, the lateral pipe or shut off valve may be contributing lead.

- If the flush sample is less than 5 ppb it is not likely that lead is being picked up from plumbing upstream of the outlet.

- If the flush sample is greater than 5 ppb then upstream plumbing could be contributing lead.

First Draw Sample

Flush Sample