Drinking Water Requirements for States and Public Water Systems

3Ts for Reducing Lead in Drinking Water: Testing

3Ts Toolkit

- 3Ts for Reducing Lead in Drinking Water
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Where to sample?

Any outlet for potable water is a potential source of drinking water. Some outlets are regularly used by students and staff for drinking, cooking, or making coffee. Others, like a mop sink in a utility closet, may rarely be used for consumption.

With limited funds, prioritize sampling sites based on potential use and risk. Also, consider that actual use can change over time. For example, few may drink from an art room sink, but that room's use may change.

EPA recommends the following sites as priority sites:

High priority:

- Drinking fountains, both bubbler and water cooler style
- Kitchen sinks
- Classroom combination sinks and drinking fountains
- Home economic rooms sinks
- Teacher's lounge sink, nurse's office sink
- Classroom sinks in special education classrooms
- Any sink known to be or visibly used for consumption (for example, coffee maker or cups are nearby)

Never use hot water for drinking or cooking. Lead leaches more easily into hot water than into cold water. The water may also sit in contact with lead components in a hot water tanks. Consider conducting educational outreach to food preparation staff and appropriate teachers.

Medium priority:

- Classroom sinks (potential for cups used for drinking, classroom cooking projects)
- Bathroom faucets (children may drink from these)

Low priority:

- Utility sinks and hose attachments, unless used to fill water jugs (for example, for sports team practice)
- Hot water outlets

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Before you sample

Is the school served by a public water system (PWS) or is the school its own PWS?
Schools served by a PWS can implement a voluntary lead reduction program. Please see EPA's new 3Ts tool kit and guidance materials.

Know the school's source of water:

EPA's action level is 15 parts per billion (ppb) for lead for PWSs.

For schools that receive water from a PWS, obtain a copy of the most current lead test results.* Water characteristics and test results can help you interpret your sampling results. Ask if the water is optimized for corrosion control. Also ask if the PWS has a corrosion control permit. This information will assist determination of the appropriate remedies to any lead problems.

* PWSs are required to distribute, every July, a Consumer Confidence Report that contains this information.

Check for recalled water coolers:

Certain Halsey-Taylor water coolers were recalled by the Consumer Product Safety Commission in 1990. They were manufactured with lead-lined tanks. Other coolers had other lead-containing parts or lead solder.

- EPA Fact Sheet Lead in Drinking Water Coolers (PDF)
  (2 pp, 135 K, About PDF) EPA 810-F-90-021, February 1990

Develop a sampling plan:

A written sampling plan is highly recommended. It will clarify procedures for any personnel who are involved in the sampling program.

- Conduct a pre-sampling inspection.
- Identify each outlet that will be tested for lead.
- Check aerators for debris; clean if necessary.
- Make note of cooler make and model.
- Note any locations where electrical wires are grounded to water pipes.
- Identify locations of recalled water coolers.

Code each outlet using a system that will allow you to identify each unique outlet by:

- Location
- Type
- Other relevant characteristic

Example of a coding system

A drinking water bubbler (DW) on the 2nd floor (02) of the middle school (MID), the 15th outlet counted, might be coded as MID- 02- DW-015.

Coding examples can include:

- DW= drinking water bubbler
- WC = water cooler (chiller unit)
- CF = classroom faucet
- KC = kitchen faucet, cold

- KH = kitchen faucet, hot
- EC = home economics room, cold
- EH = home economics room sink, hot
- BF = bathroom faucet
- NS = nurse's office sink
- SC = service connector

In addition to the unique outlet code, a unique sample identifier is necessary if more than one sample will be taken from an outlet. A flush sample would also require a unique identifier.

The first draw (P) and flush (F) samples taken for the above outlet would be MID- 02- DW-015-P-01 and MID- 02- DW-015-F-01.

- P = primary (first draw) sample
- F = flush
- 01 = first sample
- 02 = second sample

The coding should be identified on a site map and a narrative that describes the location.

Communicate your plans

Be open about goals to avoid confusion and communication breakdowns at a later stage. Communicate to maintenance staff, teachers, parents, and students about the plan and their roles.

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How to sample?

Basic sampling protocol: This is an overview of the sampling procedures. A more detailed protocol is contained in EPA's guidance document 3Ts for Reducing Lead in Drinking Water in Schools: Revised Technical Guidance. People who are planning a sampling program should refer to this document.

- Determine which outlets will be sampled. Determine priorities and code outlets appropriately.
- Outlets must be inactive for at least 6 to 8 hours before testing. (Overnight is best.)
- Take a "first draw" 250 ml** sample at each outlet. A "first draw" is the water that is the first to come out of the tap after the period of inactivity.
- If lead is suspected throughout system, take a 30 second "flush" sample from outlet(s).
- Send samples to a laboratory which is certified to test lead in drinking water.

** This protocol differs from the 1 liter sample required by the Lead and Copper Rule for PWSs. Because the protocol differs, these tests neither replace nor interfere with sampling requirements under the Lead and Copper Rule.

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Sample results:

Draw samples of 250 ml to test whether the fixture and piping is contributing lead. If samples results are greater than 20 ppb, conduct follow up sampling. A follow up could be a flush sample, to pinpoint the source of the lead.

What do the data mean?

EPA's recommended action level for lead in drinking water is 20 parts per billion (ppb). This is equivalent to micrograms per liter (µg/L).

The data from the laboratory may be expressed in milligrams per liter (mg/L).

How do we fix the problem?

Solutions to lead problems need to be made on a short-term and a permanent basis. Routine practices can also be used to reduce possible exposure to lead. Consider using routine practices and short-term measures while waiting for test results. Decisions for one remedy over another will be based on such factors as:

- Cost
- Likelihood of success
- Availability of water

- Staffing requirements

Routine Practices:

- Clean debris from accessible screens (aerators) frequently. Clean and inspect periodically.
- Thoroughly flush holding tanks to remove sediment.
- Use only cold water for food and beverage preparation in kitchens and cooking classes.
- Placard bathroom sinks with notices that water should not be consumed. Use pictures if there are small children using the bathroom.

Short-term measures:

- Flush the pipes: Let the water run to bring in fresh water that has not been standing in the pipes. Do this over a night or weekend. Flushing times can vary based on the plumbing configuration. It also depends on whether your facility has lead service lines. If you are unsure of the appropriate flushing time, contact your water utility.
- Provide bottled water. Confirm that the source of bottled water is lead-free.

Permanent remedies:

First obtain an understanding of your water supply, including water characteristics. Also understand the lead conditions in the facility as a result of testing. Then examine permanent remedies and select the most appropriate to the situation.

- Install corrosion control devices for individual buildings, known as point-of-entry devices.

- Install point-of-use devices that control lead at the tap.
- Find alternate grounding for electrical wires that are grounded to water pipes.
- Replace lead service line and other lead pipes.
- Replace outlets where there is localized contamination with new, certified components. EPA recognizes NSF Standard 61, Section 9 as a performance standard. It limits leaching of lead into the drinking water. The standard regulates devices that dispense water for human ingestion.
- In California, Proposition 65 established "safe harbor levels." It established maximum allowable daily levels for chemicals that cause reproductive toxicity, including lead.
- Additional information

Additional Resources

- How to Collect a Sample (PDF) (2 pp, 72 K)

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