



Drinking Water Sampling Following Lead Service Line Replacement

Office of Water Quality

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Description:

This Fact Sheet is to provide sampling guidance for Public Water Systems (PWSs) after replacing lead service lines. This is for systems replacing the entire lead service line, because IDEM does not endorse partial service line replacements. Partial lead service line replacements could temporarily increase lead levels in drinking water.

- Per 327 IAC 8-2-1(51), a lead service line (LSL) means a service line made of lead that connects the water main to the building inlet and any lead pigtail, gooseneck, or other fitting that is connected to the lead line. In some cases the service line may go inside the building.

Schematic of Residential Water Service Line



Health Impacts of Lead:

- Lead can cause serious health problems if too much enters your body.
- It can cause damage to the brain and kidneys, and it can interfere with the production of red blood cells that carry oxygen to all parts of your body.
- The greatest risk of lead exposure is to infants, young children, and pregnant women.
- Scientists have linked the effects of lead on the brain with lowered IQ in children.

Communicating Prior to Lead Service Line Replacement:

- Lead service lines should be identified through review of historical inventory data and at least one method of field data collection such as identification at the meter pit.
- After identification of the lead service lines, residents that will be affected by the lead service line replacements should be notified at least 45 days prior to the replacement. Below is information the utility should include in the notification to affected residents.
 1. Information on the health concerns of lead and how lead service lines can be a source of lead in drinking water including possible increase in lead concentrations due to disturbances of the lead service lines.
 2. Information on the replacement work being done including date of replacement and who will be completing the work along with contact information.
 3. Steps residents can take to reduce exposure during and after the lead service line replacement.
 4. Steps residents should take post lead service line replacement in order to flush the system prior to follow-up sampling.
 5. Contact information for the utility for additional information.
- Refer to AWWA document *Communicating About Lead Service Line: A Guide for Water Systems Addressing Service Line Repair and Replacement* for additional guidance. (See Additional Information below)
- The utility will then complete the work of replacing the whole lead service line. Again, IDEM does not endorse partial service line replacements.
- The utility and residents will complete flushing of the water and complete follow-up sampling.
- All follow-up test results are to be distributed to the residents.

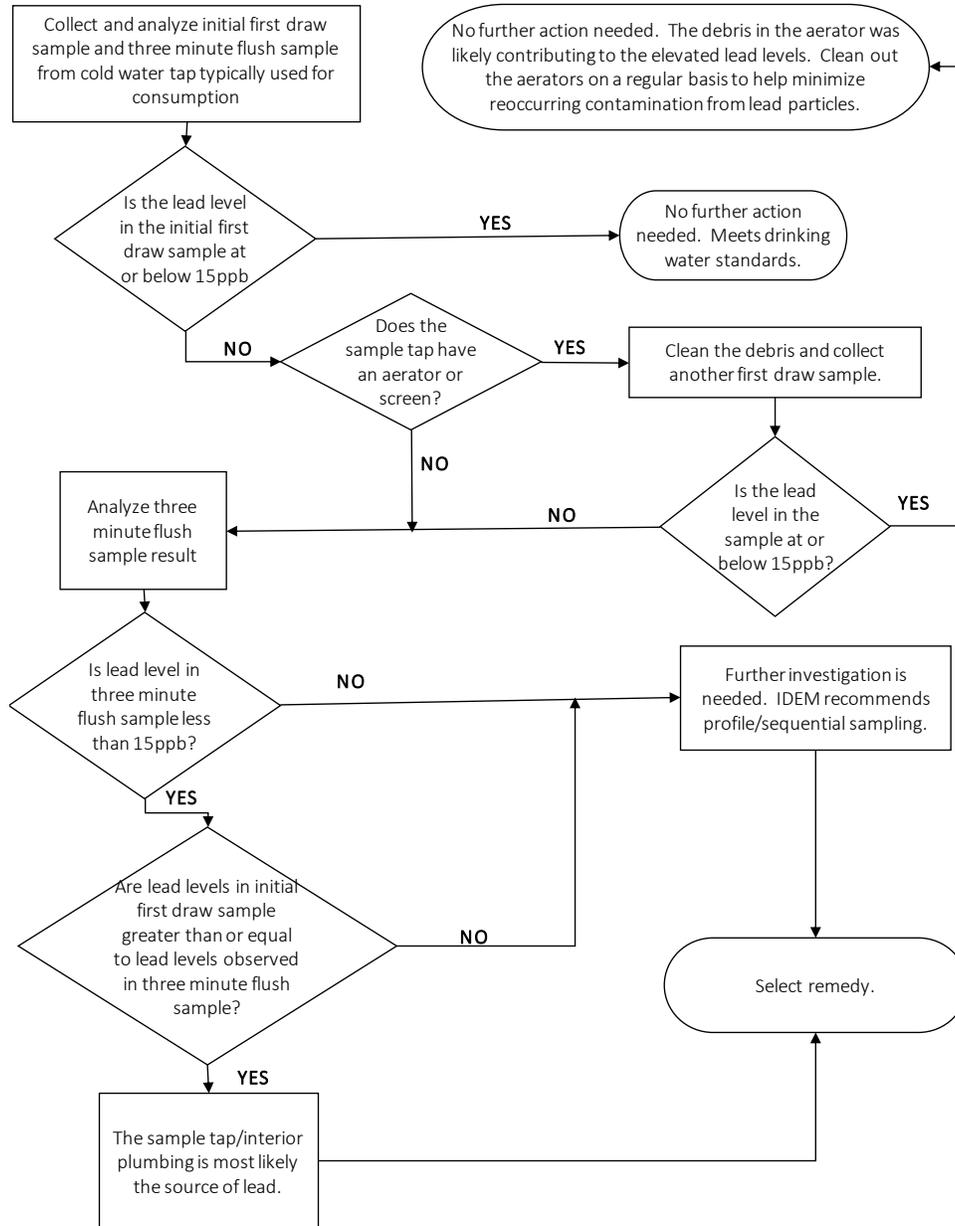
Drinking Water Testing Following Lead Service Line Replacement:

- IDEM's Drinking Water Branch recommends testing the water after replacing a lead service line to determine lead levels in the drinking water. It is important to understand that lead may still exist in home plumbing, and could be disturbed during service line work. This is why IDEM recommends flushing high velocity water through the pipes to remove particulates. The following steps should be taken after replacing a LSL.
 1. The utility needs to immediately flush the water from an outside connection (such as a hose-bib) to remove any particles in the service line and near point-of-entry. The service line flush needs to be at full velocity for at least 10 minutes.
 2. The customer needs to remove all aerators then flush all interior plumbing for at least 30 minutes prior to using the water.
 3. A first draw and a 3 minute flush sample should be collected a few days after normal water usage. The sample needs to be collected from a **cold** water tap that is typically used for consumption. **A one liter first draw sample collected during the compliance period may be used to calculate compliance. For this type of follow up sampling, IDEM recommends PWSs use a sample bottle less than one liter for first draw samples.** Any one liter first draw Lead and Copper sample collected during the monitoring period has to be used to calculate the 90th percentile for Lead and Copper. 327 IAC 8-2-36(c)(3).
 4. All drinking water samples need to be submitted to a certified drinking water laboratory that is certified by the Indiana State Department of Health (ISDH) to perform lead testing. The list of certified drinking water labs can be found at the following website: <https://www.in.gov/isdh/24859.htm>. The laboratory must be certified for lead. **A one liter first draw sample collected during the compliance period may be used to calculate compliance. A sample bottle less than one liter is suggested to be used for first draw samples. It is critical to know that a first draw sample may count for compliance purposes if it is a one liter sample, collected from a location that meets the Lead and Copper Rule sample site criteria, 327 IAC 8-2-37(a), and is collected during the compliance monitoring period. Please contact IDEM with any questions about sample bottle size or questions about samples that may qualify as compliance samples.**
 5. All lead drinking water sampling results need to be delivered to your customer within 30 days from the time you receive the results from the laboratory. If the sample result is above the Action Level (AL), IDEM recommends you notify the customer within 24 to 48 hours for outstanding customer service. IDEM may request verification that the customer was served notice within 48 hours for samples that exceeded lead AL.
 6. All sampling results must be kept on record by the public water system. The records need to show sample locations, sample results, collection date, the date lab reported results to public water system, and the date results were sent to customer. A summary of the sampling results needs to be submitted to IDEM.
 7. IDEM recommends collecting another first draw non-compliance lead drinking water sample after a month of normal water usage. **A One liter first draw sample collected during the compliance period may be used to calculate compliance. A sample bottle less than one liter is suggested to be used for first draw**

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- If any first-draw sample results are above the AL, then the results should be compared to the three minute flush sample results. If the three minute flush sample is below AL, then the source of lead is most likely internal plumbing. The public water system needs to provide further education to the resident about possible sources of lead and further investigation if needed.

Sample Strategy Flowchart



Possible Remedy Options

- Periodically remove and clean the faucet aerator and run the water while removed to eliminate debris.
- Identify and replace plumbing fixtures containing lead including brass faucets, fittings, and valves and copper pipes with lead solder.
- NSF/ANSI 53 certified home water treatment device to remove lead.
- Have a licensed electrician check your wiring. The home electrical system may be attached to the service line or elsewhere in the plumbing which can accelerate corrosion.

Additional Information:

- For more information on communicating lead service line replacement, please refer to AWWA document at <https://www.awwa.org/portals/0/files/resources/publicaffairs/pdfs/finaleadservicelinecommguide.pdf> .
- For more information on lead in drinking water, please visit IDEM's website at <https://www.in.gov/idem/6968.htm> .
- For questions and concerns, please contact IDEM's Office of Water Quality, Drinking Water Branch at (317) 234-7430 or (800) 451-6027.