

Task Force Comments on Flint’s Residential Drinking Water Lead & Copper Sampling Instructions

EPA received the draft of Flint’s Residential “Drinking Water Lead & Copper Sampling Instructions” for comment from Jim Sygo, MDEQ, on November 13, 2015. Below are comments from EPA’s Flint Safe Drinking Water Task Force.

General

It should be clearly stated that these sampling instructions are for LCR compliance monitoring – from now on without the pre-flushing.

Specific Comments

1. The Task Force agrees with the removal of pre-flushing.
2. In the "Dear Resident" cover paragraph, we suggest changing the text "...provide a more accurate gauge of the amount of lead exposure...", because though this is a much better representation of the water intended to be captured by the LCR, it DOES NOT REPRESENT EXPOSURE. We suggest: “The new method is designed to provide a more accurate gauge of lead levels at the tap under normal household use using the current regulatory sampling requirements.” We recommend that when the residents are sent their results, that it includes an explanation that the result does not represent lead exposure and that first draw samples have been found to underestimate lead levels in direct contact with a lead service line. It is recommended that customers continue to use the water filters that have been provided to minimize lead exposure.
3. Item 1 needs to require that samples be unfiltered/untreated. Samples may be taken from either a kitchen or bathroom faucet commonly used for drinking, provided the faucet used has no filter attached or the filter has been bypassed. Instructions need to be provided on how to bypass the faucet mount filters that have been distributed. Other home treatment devices must be bypassed too. If the resident has questions about how to bypass a treatment device, they should call the water supply.

Depending on which Flint and MDEQ feel would be more easily understood by residents, the following are two potential alternatives to current Item 1 that would ensure only untreated/unfiltered samples are collected:

Alternative 1

Select an unfiltered/untreated faucet in the KITCHEN or BATHROOM that is commonly used for drinking. DO NOT use a faucet that has a filter attached to it unless you bypass the filter. DO NOT use a faucet that is connected to a home water treatment device (like a water softener, iron filter, reverse osmosis) unless you bypass the home water treatment device. DO NOT sample from a laundry sink or a hose spigot as these samples cannot be used by your utility.

Alternative 2

- 1: Does the kitchen tap have a faucet mount filter or a reverse osmosis unit on it? If NO, go to 1a. If YES, go to 1b.
 - a) Select a faucet in the KITCHEN or BATHROOM that is commonly used for drinking. DO NOT use a faucet that is connected to a home water treatment device (like a water softener, iron filter, reverse osmosis) unless you bypass the home water treatment device. DO NOT sample from a laundry sink or hose spigot as these samples cannot be used by your utility.
 - b) Select a BATHROOM faucet that is commonly used and does not have a treatment device attached to it. DO NOT use a faucet that is connected to a home water treatment device (like a water softener, iron filter, reverse osmosis) unless you bypass the home water treatment device. DO NOT sample from a laundry sink or hose spigot as these samples cannot be used by your utility.

There should be a question on the form asking if the resident has installed a faucet mount filter, so this can be recorded (see suggested change to 4C in comment 6 below). [Note: Installing the faucet mount filter would require the removal of the faucet's aerator. Does MDEQ know if the faucet mount filters being used have an aerator screen in the unit?]

4. On Item 2, the LCR currently has no upper limit on standing time, and we have published research data showing that under normal usage conditions, lead release may not have even reached equilibrium at 12 hours. The minimum of 6 hours stagnation time is used rather than a longer time so as not to discourage people from volunteering to take lead and copper samples. Therefore, for consistency with the text of the rule, we recommend just leaving it at "Wait at least 6 hours..." We understand it's not useful to collect from totally inappropriate conditions, such as vacant houses and immediately after extended vacations, but the introductory paragraph clarifies that it represents the water they would "typically drink." If it is necessary to have a maximum stagnation time, then we recommend that you use a maximum of 24 hours which is consistent with the approach that was discussed with the National Drinking Water Advisory Council Working Group as an option in 2014.

5. Again in Item 2, there must be an instruction to not use the water anywhere in the house during the stagnation period. Depending on the house plumbing configuration and pipe inside diameter (ID), using other taps, toilets, bathtubs, dishwashers, etc. may draw water from the zone of plumbing captured in a 1 liter sample. That will usually cause a low bias to the results, by bringing in fresh water. Only rarely is LSL water brought precisely into that volume captured by the sample. So, instructions need to be clear about no water use in the house.

6. Recommended language for Item 4C (for inventory purposes and to verify that the sample was unfiltered/untreated):

- Does this faucet have a faucet mount filter such as the lead filters provided to the community? Yes/No

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- If Yes, was the faucet mount filter bypassed during the sampling? Yes/No
- Is this faucet connected to a reverse osmosis unit? Yes/No
 - If Yes, was the reverse osmosis unit bypassed during the sampling? Yes/No
- Does the house have a home treatment device, such as a water softener or iron removal device or any other type of water treatment? Yes/No
 - If Yes, please describe _____
 - Was this home treatment device in use during sampling or the day before sampling? Yes/No

7. In our experience, and in the experience of other utilities who try to use the LCR monitoring data to assess effectiveness of their treatment for the control of lead release, the form should ask for the resident to note the approximate time of last use of that faucet from which the sample is taken, as well as the time the bottle is filled. Since the typical 6-12 hour period is not really at equilibrium in most cases, soluble lead could differ by a substantial amount from a 6 hour standing sample to, say, a 10 or 12 hour standing sample. When interpreting the data, that is good to know.

8. Not covered by the questions, but a recommendation we need to make, is to suggest that there is good research evidence that higher flow rates are the typical conditions for when consumers turn their faucets on. More particulate lead can be eroded in some circumstances, so using a wide-mouth bottle allows a much more representative sample to be collected for the conditions of consumer use. Our understanding is that MDEQ furnishes the bottles, so we recommend to change the type of bottle provided. The furnished bottles with the smaller mouth can only be filled without splashing at flow rates that are much lower than what someone normally uses to fill glasses, coffee pots, pots for cooking, etc.

These changes should be made to all of the sampling recommendations or instructions from MDEQ to all systems, not just Flint.