

Flint Safe Drinking Water Task Force Comments on MDEQ Draft Protocol for Collecting Water Samples at Schools for Lead Analysis

EPA received the latest draft of MDEQ's "Protocol for Collecting Water Samples at Schools for Lead Analysis" for comment from Liane Shekter-Smith on October 19, 2015. Below are comments from EPA's Flint Safe Drinking Water Task Force.

General

There is an understandable urgency to assess the situation in schools, but an equally important consideration should be the ability to assess whether progress is being made over time as treatment is introduced and monitored. It is critically important that everyone understand how to collect samples from the different types of outlets, how to interpret the sample results (i.e., what the results mean and what they don't mean) and how to effectively communicate the results to the public.

Additionally, there is always confusion over what threshold lead levels should be used and what the numerical sampling results mean. It is very important that everyone involved in the sampling and communication have proper training so that accurate information is provided to the public from the beginning. EPA's recommendation is that training be provided by ORD as soon as possible to the health department and others that are involved before the school sampling begins. It would also be good to provide the same entities an overview on corrosion and corrosion control so that the objectives of the sampling and capabilities/limitations of the treatment are properly understood by all.

Sampling protocol

The proposed end-point sampling is useful and can provide information on whether end-point devices should be replaced. Relying solely on the proposed sampling to evaluate the safety of the water in the plumbing overall is not possible. It is essential to have proper baseline data from throughout the school plumbing, not just the endpoints, to assess the risk as well as the progress of treatment. The best sampling protocol for that would be sequential sampling conducted at 2 or 3 locations in each school. The sequential sampling results would enable an ongoing assessment of the effectiveness of treatment throughout the plumbing network over time. This type of an assessment is not possible to do with single samples. Certainty is very important at this stage.

Timing of Sample Collection

If the purpose of the sampling is to identify the sources of lead in the plumbing system and also to identify potential exposure, the timing of the sample collection is important. Do the schools have a program to flush all drinking water consumption taps and coolers and bubblers on the first day back in school after weekends, vacations, etc.? If they do not, the sampling will miss the worst potential exposure for the first few kids drinking the water.

The proposed timing in the protocol indicates that samples should not be collected followed an extended stagnation, such as a weekend. This limitation is more appropriate for samples collected from residences as this does not reflect normal household use. MDEQ should consider collecting samples on different days of the week to get an idea of the conditions throughout the

week. Samples from one or some of the locations taken on Monday mornings would represent the ‘worst-case’ lead levels found under normal conditions that the children would be exposed to as the water routinely stagnates in the plumbing each weekend that school is in session. Collecting samples during this time would provide more consistent ‘worst-case’ data under normal usage for evaluating the effectiveness of remedial efforts. Samples could then be taken on a Wednesday and on a Friday under different water use conditions.

On-Site Assessment

The protocol should state that the assessment should record any model number of faucets, valves, etc. that are accessible to inspection, with digital photos included, if possible. Some might be behind walls, but others may be just under sinks, bubblers, etc. This is important in identifying and interpreting the 125 mL samples. If potential brass devices are seen that would not be captured in the 125 mL sample, they should be noted, or an option added to include a 2nd sequential sample for the first draw, if appropriate.

The On-site Assessment should also identify if there is any water treatment being done in the building, i.e., POU or POE.

The second bullet under Step 1 asks about buildings built after 1986 and whether lead-free plumbing and solder was used. Keep in mind that the definition of lead-free was revised in 1996 and again in 2011. Most, if not all, 1986 brass/bronze plumbing fittings and fixtures would fail to meet the current lead-free requirements.

Under Step 5 – Prior to Sample Collection, there is a recommendation to flush the taps the afternoon prior to sampling because drinking water has not been consumed from them for several weeks. This seems to be equated with no use, which may apply to the water coolers and bubblers if shut off, but may not apply to kitchen taps (dish/pot cleaning) and bathroom taps (hand washing). Also, the instruction to school personnel should specify how many minutes to run the tap the day before sampling rather than “several minutes”.

Sampling Volumes

Two sequential small volume samples at the beginning is preferable, just to have a better idea of the detail of multiple sources of lead in the proximity of the outlet. It sometimes would save a trip back to collect more samples if there is a high hit in the one sample. If you do the 125 mL only, the identification of plumbing fittings and fixtures in the On-site Assessment will help identify potential sources of lead in the case of a high hit.