May 4, 2020

Dr. Thomas Armitage, Designated Federal Officer, armitage.thomas@epa.gov
Science Advisory Board, U.S. Environmental Protection Agency

Re: Comments to EPA's Science Advisory Board on Proposed Lead and Copper Rule Revisions

Dear Dr. Armitage and the Science Advisory Board:

Healthy Babies Bright Futures (HBBF) appreciates the opportunity to comment as the Science Advisory Board (SAB) considers the Environmental Protection Agency's (EPA's) proposed revisions to the Lead and Copper Rule (LCR) published in the November 13, 2019th Federal Register at 84 Fed. Reg. 61684.

HBBF is an alliance of scientists, nonprofit organizations and donors working to create and support initiatives that measurably reduce exposures to neurotoxic chemicals in the first thousand days of development.

In partnership with Virginia Tech, HBBF has facilitated lead-in-water testing in more than 800 homes since 2016, in 320 communities across 45 states, through at-cost test kits that interested households can purchase online.[1] Virginia Tech's laboratory tests three samples from each home, a first-draw sample collected after a minimum 6-hour stagnation period, and two samples collected after flushing for 45 seconds and 5 minutes. Our comments draw from results of those tests that reveal shortcomings in EPA's proposed LCR revisions:

Reliance on first-draw samples will miss high lead levels, including exceedances of the Trigger Level and Action Level.

The LCR requires that water utilities base their lead exposure reduction plans on test results from a small number of individual homes at risk for high lead levels. Sampling protocols specify collection of a one-liter sample after water has sat stagnant for a minimum of six hours. This provision was not changed in EPA's proposed revisions. Our data suggest that this practice will underestimate exposures for a community. ***It will miss higher lead levels in later flush samples, including exceedances of EPA's proposed Trigger Level (10 ppb) and its Action Level (15 ppb):***

- Twenty-eight percent of homes tested in our program showed the highest lead levels in flush samples, not the first draw.
- Thirty-one percent of homes with a Trigger-Level exccedance and 32 percent of homes with an Action-Level exceedance topped those levels in flush samples, not the first draw sample.

We have urged EPA to adopt sampling protocols that require both first-draw and flush samples to solve this problem.

[1] Healthy Babies Bright Futures 2020. Lead in Drinking Water Program. https://hbbf.org/lead-drinking-water.

A household (health-based) action level is urgently needed to guide decisions on water quality in individual homes; it was not included in the LCR revisions. This need has been succinctly summarized by the Environmental Defense Fund:

> *EPA's National Drinking Water Advisory Council (NDWAC) recommended that the agency develop [a household action level] to help parents, in consultation with their pediatrician and public health agency, decide whether to invest in a filter for the water they use to make up their child's infant formula.*
>
> *Without a health-based number, people are mistakenly using EPA's current "lead action level" of 15 parts per billion (ppb) as the level below which no action is needed. The problem is that this level has no relation to the health risk.*[2]

HBBF's testing program finds significant numbers of homes with lead levels above EPA's Action Level and more protective limits. Where these levels are exceeded, parents need to know if the water is safe to serve their families. Among 800 homes tested nationally:

- Forty-four percent had lead above the American Academy of Pediatrics' recommended limit of 1 ppb[3] in at least one of the three samples collected
- One in five homes (20 percent) had lead in excess of Denver Water's 3 ppb limit that triggers free filters and replacement cartridges for households with formula-fed infants.[4]
- One in six homes (16.1 percent) had lead in excess of EPA's 3.7 ppb limit corresponding to an increase of 0.5 ug/dL blood lead for a bottle-fed infant.[5]
- One in eight homes (12.4 percent) had lead exceeding Canada's legal limit of 5 ppb.
- One in 17 homes (5.9%) exceeded EPA's proposed Trigger Level of 10 ppb.
- One in 26 homes (3.8 percent) exceeded EPA's Action Level of 15 ppb.

High lead levels are surpringly common in newer homes, not just older homes. In our testing program, one of every 20 homes built after 1986 had at least one water sample over 5 ppb (4.7%). One in 6 of those homes had lead over 2 ppb for one or more samples (16.8%).

These numbers point to the urgency of action to remove lead from drinking water systems and to educate all families in the meantime about how to protect against lead's harmful effects.

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[2] Environmental Defense Fund (EDF) 2016. Household Action Level for Lead in Water: EPA Needs to Release Health-based Estimate. http://blogs.edf.org/health/2016/03/25/lead-hal/.

[3] American Academy of Pediatrics. 2017. Council on Environmental Health. Prevention of Childhood Lead Toxicity. Pediatrics. 2017 Aug;140(2). http://pediatrics.aappublications.org/content/140/2/e20171490.long.

[4] Denver Water 2019. Denver Water's Lead Reduction Program Plan. Complete plan and appendices available at: https://www.denverwater.org/your-water/water-quality/lead/lead-reduction-program/comment.

[5] Environmental Protection Agency (EPA). 2017. Proposed Modeling Approaches for a HealthBased Benchmark for Lead in Drinking Water. https://www.epa.gov/sites/production/files/2017-01/documents/report_proposed_modeling_approaches_for_a_health_based_benchmark_for_lead_in_drinking_water_final_0.pdf, with results summarized in Appendix E of https://www.epa.gov/sites/production/files/2017-10/documents/lcr_peer_review_summary_report_final_10-25-17_508.pdf.

A household (health-based) action level is urgently needed to protect bottle-fed infants.

A household action level will help parents and pediatricians decide whether a home's drinking water is safe, particularly for the estimated 640,000 infants who are exclusively formula-fed every year.[6] We encourage the SAB to advise EPA to expedite issuing these health-based limits.

An independent peer review of EPA's draft proposal on approaches to develop such a limit identified a number of needed improvements to ensure that risks are not underestimated.[7] For example, one reviewer noted that water consumption rates assumed for formula-fed infants and 1-year-old children are particularly low. Simple calculations based on standard exposure factors show, for example, that a 3-month-old infant consumes 0.94 L/d water in reconstituted powdered formula, on average. EPA's proposed approach assumes just 68 percent of that amount (0.64 L/d).[8]

Other basic gaps in EPA's Proposed LCR Revisions

Mandatory reporting of lead tests: We support the recommendations of Cynthia Giles, former Assistant Administrator for EPA's Office of Enforcement and Compliance Assurance (2009-2017), to require mandatory reporting of lead tests by utilities and states. We urge the SAB to take her recommenations to heart:

> *The nation cannot continue to base its lead in drinking water program on information that is known to be so profoundly unreliable. EPA has identified the solution – mandatory electronic reporting by drinking water systems into a data base shared by EPA and states – but inexplicably fails to adopt it. This omission is a fatal flaw in the proposed rule.*[9]

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[6] Based on: 16.8 percent of infants are exclusively formula-fed, according to CDC's 2018 Breastfeeding Report Cart (https://www.cdc.gov/breastfeeding/data/reportcard.htm); 3.79 million births annually (2018), from CDC's Births and Natality data at https://www.cdc.gov/nchs/fastats/births.htm.

[7] EPA 2017, op. cit.

[8] - Average weight for 3-month-old = 13.4 lb (https://www.cdc.gov/growthcharts/who/girls_length_weight.htm and https://www.cdc.gov/growthcharts/who/boys_length_weight.htm).
- Energy requirement, age 0-6 months: 52.5 kcal/lb/day (https://www.merckmanuals.com/professional/pediatrics/care-of-newborns-and-infants/nutrition-in-infants#v1076566).
- Daily energy requirement for 3-month-old = 52.5 kcal/lb/day*13.4 lb = 703.5 kcal.
- Formula caloric density: 20 kcal/oz (https://www.aafp.org/afp/2009/0401/p565.html).
- Daily formula volume consumed by 3-month-old = 703.5 kcal / 20 kcal/oz = 35.18 oz.
- Volume fraction of reconstituted formula that is water = 88.9% (24 ounces of water makes 27 ounces of formula - https://similac.com/baby-feeding/formula/how-to-make-bottle#article-section-8).
- Volume of water consumed daily by 3-month-old = 35.18 oz * .889 = 31.28 oz water * 0.03 L/fl oz = 0.94 L.

[9] Giles, C. 2020.Comments on the agency's proposed revisions to its Lead and Copper Rule in the National Primary Drinking Water Regulations, 84 Fed. Reg. 61,684; Docket No. EPA–HQ–OW-2017-0300. https://yosemite.epa.gov/sab/sabproduct.nsf/E915780BA98A76C2852585420037AC0C/$File/Giles+LCR+comment+2-4-20.pdf.

LSL removal scope and timeline: As noted previously by HBBF and other commenters, EPA's proposed revisions extend the timeline for LSL removal by two decades, from the current 14-year mandate (7% of lines replaced each year) to a 33-year timeline (3% per year). It also fails to consider lead sections like goosenecks and pigtails as indicative of LSLs, even though they can be major sources of lead particles in drinking water. It fails to require removal of lead in the vast majority of systems where limited sampling fails to identify Action Level exceedances. These rollbacks and gaps would guarantee decades of continued risk for infants and young children, who are particularly vulnerable to lead's impacts. The rollbacks also violate the Safe Drinking Water Act's (SDWA) anti-backsliding provision, which requires that any EPA revision of drinking water regulations "maintain, or provide for greater, protection of the health of persons" (Section 1412(b)(9)). We urge the SAB to advise EPA to close these gaps.

Denver Water's model program: We support Denver Water's provisions[10] focusing on bottle-fed infants, partnering with local community groups and healthcare providers in public outreach, and providing families with free testing, filters and cartridges until all LSLs are replaced. That model, extended nationally and included in the LCR revisions, would provide significant benefits to U.S. families.

We appreciate your consideration of these comments. The LCR revisions represent a significant opportunity for public health protection. We hope that the SAB can help inspire EPA to strengthen what has been proposed.

Sincerely,

Jane Houlihan
Research Director

Charlotte Brody
National Director

[10] Denver Water, op. cit.