American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

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March 22, 2011

Mr. Aaron Yeow
Designated Federal Officer
Science Advisory Board Drinking Water Committee
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Mr. Yeow:

The American Academy of Pediatrics (AAP), a non-profit professional organization of 60,000 primary care pediatricians, pediatric medical subspecialists, and pediatric surgical specialists dedicated to the health, safety, and well-being of infants, children, adolescents, and young adults, would like to take this opportunity to strongly encourage the Environmental Protection Agency (EPA) Science Advisory Board Drinking Water Committee to recommend an immediate moratorium on partial lead service line replacements.

In 1991, the EPA adopted the landmark Lead and Copper Rule (LCR), which mandated water chemistry and infrastructure practices that reduce lead and copper leaching from plumbing materials. The LCR has made an important contribution to the reduction of the percent of U.S. children with blood lead levels greater than 10 mcg/dL (the CDC "level of concern"), which stood at approximately 1% of the U.S. population in 2007.

The LCR requires that water utilities monitor tap water for lead levels, using a specific sampling scheme. If water lead levels are higher than 0.015 mg/L in more than 10% of samples (an "exceedance"), specific actions are required:

- The utility must begin source water monitoring and treatment.
- The utility must optimize corrosion control
- Within 60 days of the exceedance., the utility must deliver public education that informs customers about the health effects of lead and measures that will reduce their exposure to lead.
- The utility must begin replacement of lead service lines according to a set schedule if source water treatment and/or corrosion control optimization do not eliminate the problem.

The requirement to replace lead service lines is based on two assumptions:

- The majority of replacements would be "complete" or "full" lead service line replacements because water utilities would “receive consent to remove any privately controlled portions [of lead lines] since it is in homeowners’ interest to remedy completely this source of lead in their drinking water;” and
- Removal of part of a lead service line is preferable to leaving the line intact.

At the time the LCR was written, utilities had little experience with coordinating lead service line replacements with homeowners. In the 19 years since the LCR was written, the effects of partial lead service line replacement on water lead levels have become better understood, and several studies have shown significantly elevated water lead levels following partial replacement. Typically, these elevated lead levels occur as spikes that can persist for months, and cannot be identified with reasonable certainty using the sampling schemes recommended by the LCR. Exacerbating the problem is the fact that few homeowners choose to replace their portion of the service line at the same time utilities replace the public portion. These issues and assumptions bear careful examination, and should provide a significant impetus for EPA to remove from the LCR the partial lead service line replacement requirement.

Many homeowners do not replace their portion of the lead service line. Typically, utilities own the pipe from the water main to the property line and can only replace the portion they own. According to a 2004 survey of water utilities, the cost of replacing the privately owned portion of the water line can range from $450 to $10,000, an expense which many homeowners cannot bear. As a result of this expense and other factors such as inconvenience and poor access to the property, complete replacement of lead service lines has proven difficult and rare. While there are few reliable estimates of the number of full lead service line replacements, in two cities with extensive lead service line replacements due to noncompliance with the LCR (Washington, DC and Providence, RI) only 18% and 1% of residents, respectively, chose to replace their portion of the service line.

Partial replacement of lead service lines is not preferable to leaving the line intact. There is considerable evidence that, under certain conditions, partial lead service line replacements cause persistent, often intermittent, elevated water lead levels. Some of these elevations are caused by cutting the pipe, which creates lead particles that can be carried to the tap by the water flow. Other water lead level spikes are caused by disturbing the lead scale that has accumulated on the inside of the pipe, pieces of which can also flow to the tap. A third source of lead in water is caused by replacing sections of lead pipe with copper, which creates a galvanic cell (i.e., a battery). The galvanic reaction can cause release of lead into the water as the lead pipe corrodes. The EPA is aware of the issue, and recently gave permission to halt partial lead service line replacements in the Rhode Island communities of Providence and Cranston because of persistently elevated water lead levels following partial replacements. Research by Centers for Disease Control and Prevention scientists published this month based on 63,854 children from Washington, DC, demonstrated that the risk of an elevated blood

lead level for a child is not diminished by living in a home with a partially-replaced lead service line compared a child living in a home with an intact lead service line, and that it is more likely that the partial replacement increases the risk of an elevated blood lead level about 40%. Thus, there is no benefit and there likely is harm from this activity that costs thousands of dollars per home.

Much research is needed, but no research is planned or funded by the EPA. While the EPA is developing major revisions to the LCR, agency officials have cited a lack of reliable data upon which to base proposed changes. Unfortunately, the EPA has not pursued or supported studies of the effects of partial lead service line replacement on water lead levels. Unanswered questions that must be studied include:

- the length of time water lead levels are elevated following partial service line replacement;
- water conditions that increase or decrease the likelihood of elevated water lead level;
- ways to reduce the potential for exposure; and
- safer alternatives to partial lead service line replacements, including full lead service line replacements, lining pipes with epoxy, and the additional cost and financing mechanisms to achieve full replacements.

Many homes and children are affected. Living in a home with a partially replaced lead service line significantly increase a child's risk for elevated blood lead levels, as compared to a home with an intact lead service line or no lead service line. The scope of the problem could be substantial: approximately 3-5 million US homes have lead service lines, 94 million homes have lead-soldered plumbing fixtures, and nearly every home has leaded-brass plumbing fixtures. At the time the LCR was written, the EPA estimated that lead-contaminated water could account for 5-50% of children's total lead exposure and for more than 85% of total lead exposure for formula-fed infants, and that the proportional contribution of lead in water to overall exposure was expected to increase as other sources of lead declined. Furthermore, compliance with the LCR is not the only reason lead service lines are replaced. Service lines may be replaced when streets are repaved or as part of infrastructure upgrades. Homeowners and utilities face the same cost challenges when lead pipes are replaced in those situations.

Waiting for the revised Lead and Copper Rule to be issued will mean that many children could be permanently harmed by ingesting lead through their water supply. This situation represents a public health emergency, with a potentially significant impact. The AAP strongly recommends:

- An immediate moratorium on ALL partial lead service line replacements. This includes replacement of lead service lines required by the Lead and Copper Rule, as well as lead service lines replaced for any other reason. This moratorium should continue until definitive data on the short- and long-term effects of partial lead service line replacement have been obtained and reviewed by experts,

including persons independent of the EPA and the water industry. Until these data are obtained:

- If a lead service line must be replaced, for instance, when a line is broken, water utilities should offer to pay for complete replacement of lead pipe. If full lead service line replacement is not possible, or homeowners will not give permission to have their portion of the service line replaced, utilities must:
  - In the clearest language possible, provide homeowners accurate and complete information about the potential of problems from elevated lead in water when partial replacement of lead pipe is performed. This information should include the adverse health effects of ingesting water with high lead levels, with special emphasis on vulnerable populations such as children and pregnant women.
  - Offer to pay for installation of NSF-rated lead filters on the kitchen faucet, or pitcher filters, and instruct homeowners in their proper use and replacement.

- An immediate, appropriately funded, research and data collection effort to understand the short- and long-term effects of partial lead service line replacement. In this context, long-term means at least one year. Until this research is completed, and strategies that are safer for health identified and implemented, partial lead service line replacement should continue to be banned.

The American Academy of Pediatrics appreciates your attention to this pressing matter. If we may provide further information or assistance, please contact Cindy Pellegrini in our Washington, DC office at 202/347-8600.

Sincerely,

O. Marion Burton, MD FAAP
President

OMB:cp