U.S. Environmental Protection Agency
NDWAC LEAD AND COPPER WORKING GROUP

November 11-12, 2014

Location:
Cadmus Corporate Office
1555 Wilson Blvd. Suite 300
Arlington, VA 22209

MEETING SUMMARY

Meeting Objectives/Desired Outcomes:

- *Share follow up ideas and questions concerning webinars.*
- *Provide input on questions related to lead service line replacement.*
- *Plan next steps.*

A. Welcome, Introduction, Meeting Objective and Agenda

Ms. Gail Bingham, the meeting facilitator from RESOLVE, welcomed everyone to the fourth meeting of the National Drinking Water Advisory Committee (NDWAC) Lead and Copper Rule Working Group (hereafter referred to as the "LCRWG" or "Group").[1]

Mr. Eric Burneson, from the Office of Ground Water and Drinking Water (OGWDW), thanked the LCRWG for their time and commitment. He explained that the full NDWAC met during the week of November 10th. LCRWG members, Marilyn Christian and Chris Wiant, also serve on the full NDWAC and did a wonderful job updating the full NDWAC on the Group's progress. The full NDWAC are anxious to see the report and plan to hold a spring meeting to consider the Group's recommendations. Mr. Burneson reminded the Group of the roles and responsibilities of the LCRWG and the full NDWAC. The LCRWG provides recommendations to the full NDWAC. The NDWAC is the chartered federal committee and will consider the recommendations made by the LCRWG and transmit a report to the EPA Administrator.

Mr. Burneson added that this November meeting focuses on lead service line replacement (LSLR). He explained that lead service lines (LSLs) represent the most significant source of lead exposure in drinking water. The current rule requires LSLR when corrosion control treatment (CCT) is not effective at reducing lead levels to or below the lead action level (AL) of 0.015 mg/L. The current LSLR program has resulted in partial LSLR (PLSLR) when homeowners do not agree to have their portion replaced. The Science Advisory Board (SAB) stated that although evidence was limited, there may be no benefit to

[1] See Attachment A for a list of the LCRWG members and meeting presenters, Attachment B for a list of the meeting attendees, and Attachment C for a copy of the meeting agenda.

PLSLR. The SAB also stated that PLSLR may cause some harm from short-term elevations in lead levels. EPA has provided the Group with several options in the primer for revising the LSLR requirements and related questions in the agenda. He added that the LCRWG should not feel constrained by these options, and that EPA welcomes additional suggestions and creative solutions. He expressed his appreciation for the constructive and solution-oriented discussions provided by the Group and their common goal of public health protection.

Ms. Bingham described the handouts, which included the LSLR primer, the meeting agenda, a handout prepared by one of the LCRWG members on sample invalidation and public comments from Earthjustice.[2] She asked the Group to provide her with electronic versions of the handouts that they plan to distribute during the meeting and materials referenced in those handouts for posting on Google Drive. Ms. Bingham went through the agenda before turning to Lisa Christ for a summary of the November webinar on LSLR.

B. Summary of Lead Service Line Replacement Webinar

Lisa Christ, EPA OGWDW, provided a summary of each of the November 5, 2014, webinar presentations on LSLR. During that webinar[3]:

- Jeff Kempic, EPA OGWDW, talked about the studies presented to the SAB for their review in 2011. The studies provided lead concentrations from drinking water samples before and after partial and full LSLR from Glasgow, Scotland; Newport News, VA; Oakland, CA; Washington, DC; and Cincinnati, OH. The SAB concluded in their September 28, 2011 report that PLSLR is associated with elevated drinking water lead levels for some period of time after replacement, suggesting the potential for harm rather than benefit. The lead levels stabilize over time, sometime to levels below and sometime at levels similar to those prior to PLSLR. He also explained limitations to the studies (e.g., some samples were not tied to mandatory LSLRs; some studies used first-draw versus profile samples; some locations had high lead due to seeding from lead-rich iron and/or manganese scale).

- Mike Schock, EPA Office or Research and Development (ORD), talked about studies that were available after the SAB's review from Madison, WI; Halifax, Nova Scotia; Montreal, Quebec; and Saskatoon, SK. He noted that these showed a more positive effect from full LSLR. He discussed the percentage lead by weight in pipe scale particulates, which is greater than that in soil and dust. He also discussed critical factors for consideration regarding particulate lead.

- Jerry Ellis, EPA OGWDW, went over current LSLR requirements. He explained the trigger for LSLR and the requirement for systems to annually replace at least 7% of the initial number of

[2] See Attachment D for the LSLR primer. See Attachment E for Comments Regarding Lead and Copper Rule Long-Term Revisions: Issues Regarding Lead Service Line Replacement from Jennifer C. Chavez, Earthjustice. November 11, 2014.

[3] The webinar recording, presentations for, and questions raised during this webinar can be found at: https://epa.connectsolutions.com/p7oudyj7z1a/.

LSLs in their distribution system. He talked about three ways to meet the 7% annual replacement rate: (1) test-out provision; (2) PLSLR requirements in which the system replaces the portion of the LSL that they own; and (3) full LSLRs in which the entire LSL (including the private portion) is replaced. He discussed the notification requirements to consumers for PLSLR; possible notification requirements for infrastructure replacements, which currently are not subject to the rule; and the regulatory history of the definition of control. Mr. Ellis summarized the potential rule changes being considered by EPA.

- Paul Niman, Massachusetts Department of Environmental Protection, summarized full versus PLSLR requirements, situations in which they occur and how the definition of control has impacted different communities. He described how one community passed legislation transferring the ownership of the entire service line to the home owner. He also talked about the environmental justice concerns of LSLRs, noting that many LSLs are located in areas where low income or minority families reside; the need to improve public education (PE); funding options; his state's perspectives of LSLR; and recommendations.

- Bill Maier and Angie Goodman, Lansing Board of Water & Light (Lansing BWL) in Lansing, MI, talked about their voluntary LSLR program and noted that they have never had a lead action level exceedance (ALE). Lansing took ownership of all water service lines in 1927. In 2004, Lansing BWL asked customers to self-identify LSLs. Lansing developed a ten year replacement program in cooperation with combined sewer overflow (CSO) projects (the timeframe was expanded to 2017 due to slowdown in the CSO program). Mr. Maier discussed factors that affect costs: coordination with street projects, material costs, meter location and ownership and crew mobilization and record-keeping. Lansing BWL engaged customers through outreach (e.g., bill stuffers, open houses), LSLR notification and during emergency repairs. He shared Lansing's strategies to reduce lead exposure that included: Ask customer to do a seven minute flush following an extended period of no flow, offer a free filter to all customers served by LSLs, have contractors flush the new line after LSLR and ask customers to flush out unscreened faucets. He identified five big hurdles to implementing LSLR: gaining access, no easements, replacement through wall board, yard restoration and budget. Lansing has spent $34 M since 2004. LSLs are replaced as a capital project and rate payers share costs.

- Joe Grande, Madison Water Utility in Madison, WI, talked about Madison's LSLR program. His city started with about 11,000 LSLs. His water system had a lead ALE in 1992 and requested LSLR in lieu of CCT due to Clean Water Act (CWA) implications of using phosphate-based treatment. The Wisconsin Department of Natural Resources required the program to be enforceable through adoption of a city ordinance. Madison overcame major obstacles in obtaining approval from the city council for a full LSLR program, which was initiated in 2001 and completed by January 1, 2011. They prioritized replacement of schools and child care facilities, locations with confirmed ALEs and properties regularly serving > 20 people. They used direct mailing of lead educational materials, provided regular communication with customers and conducted follow-up sampling after LSLR. They also provided financial assistance up to 50% (at a cap of $1,000 per replacement), low interest loans and a low income assistance program. On average, they spent $3,600 for full LSLR and homeowners paid about $700. He attributed their

success to the adoption of a city ordinance; financial incentives for compliance; flexibility and cooperation of staff; limited number of private contractors; and great communication across the board (utility staff, other city department, private contractors and homeowners).

- Satu Haase-Webb, an historian and D.C. resident, described her personal experience with LSLR in DC. She talked about notification and LSLR conducted by DC Water. Ms. Haase-Webb indicated that the information she received about LSLR did not include the limitations of point-of-use (POU) devices in removing high levels of lead or any message about the public health urgency (e.g., no warning about potential for spikes following LSLR, no warning that water should not be consumed until after test results arrived). She requested that her portion of the LSLs be replaced, which did not occur until several weeks after DC Water replaced the utility side. She found the health care professionals she contacted were not knowledgeable about the health effects of lead from PLSLRs. She stated that consumers are making poor decisions about full LSLR because information is inadequate and provided the following recommendations to allow for more informed decisions: (1) deliver the message in a more effective way (e.g., provide message in separate mailings, door handles and bright colors worked well); and (2) offer to assist with LSLR. She provided other recommendations that included prohibiting PLSLR, types of financial assistance and making information publically available.

The LCRWG had the following questions and observations related to the November webinar:

- One member noted that the DC Water experience launched positive steps in the drinking water community. The PE suggestions from the webinar were good, particularly suggestions around urgency, specificity and not letting the message get lost in bureaucratic language). *(See Section C.6.b for the LCRWG's discussion about improving PE and messaging.)*

- One member had thought that full LSLR was the best approach, but was struck by the SAB's finding that full LSLR may result in spikes. Another underscored the point made on the webinar that LSLs are the greatest source of lead and would be a great first step. She also noted that Madison's case was complicated by seeding[4] but it resolved over time. Mr. Burneson explained that the SAB did not provide unequivocal endorsement of full LSLR because of seeding of downstream piping (e.g., galvanized piping). He added that Mike Schock's presentation included other studies that suggested full LSLR may be more effective than indicated in the studies reviewed by the SAB. One member noted that there has been recent research about potential follow up after LSLR that include how to manage lead from seeding.

- Another member clarified a statement made in Paul Niman's presentation regarding a community that defined ownership such that they did not own any portion of the LSLs. He explained that the town was recognizing what they always thought was the case and not avoiding LSLRs. In fact, the town has an ongoing LSLR program for full LSLR.

[4] The term "seeding" in this conversation refers to lead which is deposited in (typically non-leaded, such as galvanized) premise plumbing. These pipes then can be a source of lead in water even after upstream sources of lead (such as a lead service line) have been removed.

- One member added that the Lead and Copper Rule (LCR) is the only rule that does not have a quantitative benchmark for measuring effectiveness. He asked how to measure effectiveness (e.g., how much lead have we removed?). In response, Mr. Burneson explained that LCR monitoring requirements do not measure exposure. We can point to the number of public water systems (PWSs) that have installed CCT, replaced LSLs, or delivered PE but we cannot translate it to exposure.

C. Implications of LSLR in Context of the Entire Rule

Ms. Bingham reminded the group about the ten options listed below that EPA is considering for LSLR and which are detailed in the primer. Mr. Burneson noted that the intent is not to pick one option, many could work together and none are meant to be mutually exclusive.

- Eliminate PLSLR.
- Eliminate the test-out provision.
- Delay mandatory LSLR until after re-optimization.
- Retain enforceable annual replacement requirements.
- Require PWSs to provide filter pitchers.
- Facilitate an elective full LSLR program.
- Expand the definition of control similar to 1991 rule.
- Require notification to residents impacted by mandatory LSLR.
- Require notification to residents impacted by infrastructure LSLRs including emergency repairs.
- Require flushing guidance for residents impacted by LSLs.

The LCRWG discussed several of these options, which are organized under the following subtopics:

1. Role of LSLR in the Revised LCR.
2. Eliminating PLSLR.
3. 7% Annual LSLR Requirement.
4. Test-out Provision.
5. Measures to Address Temporary Elevated Lead Levels.
6. Obstacles to and Suggestions for Promoting Full LSLR.
7. Implementation and Enforceability Considerations.

Specific discussions are provided under each subtopic.

1. Role of LSLR in the Revised LCR

The Group provided the following comments on the role(s) and/or purpose(s) of including the LSLR in the revised LCR:

- The goal of LSLR should be to remove all LSLs.
- LSLR should not result in a situation that provides more lead exposure. It should make lead from the LSL less likely to be found in the consumer's drinking water.

One member noted that, in addition to the removal of LSLs, the plumbing up to the tap must be included to successfully remove all lead sources, adding that the LCR is not really a treatment technique rule because the water supply cannot make treatment changes to address lead at the household level.

Another member suggested that the Group consider where systems should be in the future (e.g., in 30 years) in which ideally no system has partial or full LSLs. With this in mind, systems over time may be able to eliminate their in-home compliance sampling for lead because a lot of the lead in plumbing will be replaced. Systems will not be driven to use increased CCT because LSLR will no longer be triggered by a lead ALE. Instead, in-home sampling would be offered to customers with LSLs or partial LSLs (PLSLs). In response:

- Mr. Burneson agreed that the vision of future is an important perspective. However, it is important to remember that in the interim people are drinking the water, and we need requirements that are enforceable and protective during that time.
- One member stated that more immediate measures also are needed before the rule revisions become effective in the next five years or so and asked whether EPA could require PE messaging about LSLR sooner.

2. Eliminating PLSLR

The LCRWG discussed the pros and cons of eliminating the requirement for a system to conduct a PLSLR when property owners do not agree to have their LSLs replaced. They offered the following comments:

- One member stated that PLSLRs should not be allowed for infrastructure replacements, except in very limited situations. Another member responded that in some circumstances, such as an emergency repair or failure of an LSL, PLSLRs may be the only option available to the water utility. He added that a homeowner's refusal to get his/her LSL replaced should not impede necessary infrastructure repairs and improvements if a system has done its best to try to achieve full LSLR.
- One member asked if a homeowner did not agree to have his/her portion replaced, could the system use PVC during the main replacement to avoid deposition downstream and galvanic corrosion. In response, Mr. Schock indicated that plastic may help, but there would still be lead

released from the physical disturbance. Aggressive corrosion control would still be needed with partially-replaced LSLs.

3. 7% Annual LSLR Requirement

Mr. Burneson and Mr. Schock provided background on the minimum 7% annual LSLR rate in the current LCR. In response to a question about the rationale for the 7% number, they noted that 15 years was determined to be a reasonable time to achieve LSLR of all LSLs based on expert evaluation, which translated to an annual replacement rate of 7%. Systems were required to estimate their starting LSL inventory in 1991 in order to develop their sampling plans. Ms. Bingham asked the Group if any were inclined to eliminate the 7% annual mandatory LSLR rate. The Group provided the following responses:

- Several members did not see the benefit of the 7% replacement rate because it does not promote full LSLR. Instead systems have conducted PLSLRs or use the "test out" provision *(discussed in Section C.4 below)* to meet this target. Some expressed support for a long-term LSLR program in which all LSLs are removed over many years.
- One member noted that the 7% annual replacement rate can be overwhelming if a system has many LSLs and suggested that replacement should be based more on percentage of capital budget.
- Another did not think systems could replace LSLs faster than the current 7% annual replacement rate.

4. Test Out Provision

Most members indicated that they did not support the "test out" provision[5] because if met, it does not result in physical replacement of an LSL, and thus, does not advance the goal to remove lead exposed to water. Other comments included:

- The test out provision is not relevant if the minimum annual replacement requirement of 7% is removed and the current LSLR program is replaced with a long-term LSLR program.
- Another member asked the state of understanding regarding variability associated with monitoring lead levels at LSLs when the rule was promulgated in 1991. In response, Mr. Schock indicated that data showed some variability, but he did not believe that the test out provision underwent technical scrutiny.

5. Measures to Address Temporary Elevated Lead Levels

The Group discussed the following measures that systems and/or customers can take to address temporarily elevated lead levels following LSLR:

[5] Under the current rule, a system is not required to replace an individual lead service line if the lead concentration in all service line samples from that line are ≤ 0.015 mg/L (the lead action level).

- One member suggested that systems should monitor lead levels at homes where LSLRs have occurred. Another added that this monitoring can be used to develop a knowledge base about lead levels following LSLRs.

- Others suggested that individuals with LSLs receive education before, during and after mandatory or infrastructure LSLRs. The information must adequately explain the health risks of LSLs and PLSLRs and protective measures they can take.

- Members discussed whether systems should provide filters to customers following LSLRs.

    - One member noted that pitcher-style filters have successfully been used in Providence, RI for both mandatory and infrastructure replacements.

    - Others expressed some reservations for the following reasons: (1) Providing filters sends a mixed message that the water being delivered by the utility is not safe; (2) For this reason, flushing may be preferable; (3) Multiple point-of-use (POU) filters may be needed because people, especially children, do not drink from the just the kitchen tap; (4) Homeowners will rely on someone else to maintain the filters, and they will accumulate lead and (5) Six months may not be long enough to provide filters to address lead spikes resulting from PLSLRs.

    - Regu Regunathan from the Water Quality Association provided additional information on filters. He explained that ZeroWater Technology makes the only pitcher-style filter that has been certified by NSF International under the new Standard 53 to remove dissolved lead up to 150 ppb and is also certified to remove particulate lead. He suggested that the Group also consider the use of POU filters that connect to the faucet because more brands are available that meet the new standard and these filters are relatively inexpensive ($30 to $40 for the product). In addition, both pitcher-style and POU filters have an indicator light to tell the consumer when the filter needs to be changed.

- Members discussed the use of flushing (of several types) to reduce lead levels after LSLR:

    - Some members supported premise flushing after LSLR regardless of whether customers are provided filters.

    – One member noted that based on her research, flushing works well when it is a one-time thing (i.e., after LSLR), but not as a longer-term solution to reduce lead exposure, because people will not flush on a regular basis.

    - Members noted that David Cornwell's flushing study and the Water Research Foundation's flushing guidance will be released soon. A hard copy, which is available in the AWWA journal, was provided to participants. Steve Via (AWWA) clarified that the David Cornwell's study focuses on initial flushing after LSLR to minimize lead levels right after LSLR (as opposed to ongoing flushing to reduce lead exposure). Miguel Del Toral (EPA Region 5) added that this study found that rather than flush the outside tap, whole home flushing was most effective at reducing lead levels following LSLR.

- Another noted that the LSLR activities by the water system should not stop with flushing. Other steps should be considered to address the remaining lead sources in the home (i.e., seeding of internal galvanized plumbing from the LSL).

- Another noted that customers also need flushing guidance to minimize lead exposure after full LSLRs and PLSLRs that may happen during infrastructure improvements.

- One member suggested using a national website to provide information on proper flushing and installation of filters and to let the utilities or customers decide which they prefer.

6. <u>Obstacles to and Suggestions for Promoting Full LSLR</u>

The LCRWG discussed obstacles to full LSLR which include the following:

- The current LSLR requirement is only a "hammer" for forcing systems to have effective CCT when there is an ALE. As a result, linking LSLR requirements to CCT did not make LSLR something that systems considered in their long-term planning.

- A successful LSLR program that fully engages the customer takes significant planning to allow for upfront stakeholder input, adequate time and allocation of resources and homeowner participation. This type of well-planned LSLR program be done in the time frame of the current rule.

- Under the current rule, systems also can stop LSLR when they no longer have a lead ALE for two consecutive monitoring periods. Depending on when this occurs, a system may not have been replacing LSLs for very long and, in any case, does not encourage a sustained LSLR program.

- Homeowners and systems may not know the location of LSLs, especially PLSL replacements that have occurred.

- Some homeowners do not want to have their LSLs replaced due to a number of factors including: inability to pay, inadequate understanding of the public health risks from LSLs, greater interest in spending money to conserve water to reduce their water bill and not wanting their lawns or basements disturbed.

- Landlords may be disinterested in replacing LSLs on their rental properties.

- Health care professionals do not sufficiently understand the risk of lead exposure from drinking water sources.

- Many towns will not be able to pass local ordinances that they control the entire LSLs, as was done in Madison and Lansing, and EPA cannot mandate this requirement on water systems.

The Group provided specific suggestions on ways to promote full LSLR that included: (1) assisting homeowners to determine if they have an LSL; (2) improving education for those with an LSL; (3) improving education for and building partnerships with health care professionals/federal agencies; (4)

parallel LSLR and CCT programs, and (5) funding and other measures. Discussions pertaining to each of these areas are provided in more detail below.

a. Assisting Homeowners in Determining if they have an LSL

As a first step, the Group discussed the importance of the homeowner being aware of an LSL on their property:

- One member provided a handout to the Group, "How Feasible is it for Homeowners to find out if they have Lead Service Lines?" The handout addressed four main topics:

    1. *What does a pipe made of lead look like?* LSLs materials: are dull gray in color; will turn to a shiny metal after easily being scraped; will not stick to a magnet; have swollen and rounded joints; and make a dull thud when struck. Test kits are available for lead paint that should work to identify a lead pipe with a clean surface.

    2. *Who can identify pipes that are made of lead?* Plumbers, inspectors, utility representative and an educated consumer can test for lead.

    3. *Where would inspections be made?* Inspections can be done at the water meter (may be inside or out), at the connection to the shutoff or water main, or at the backflow preventer.

    4. *Opportunities to check for lead pipe.* People can check for lead pipe during real estate transaction, plumbing repairs/changes, home remodeling, backflow prevention, fire prevention, service line leaks and repairs and during water main repairs and replacements.

- Members also discussed the following ideas to alert new homeowners that their home has an LSL:

    - Include information about the presence of the LSL and possibly results from the last lead and copper sampling round in the new customer hookup packet provided by the water system.

    - Record the presence of an LSL on the deed (similar to radon which is part of the real estate transaction).

    - Include as part of the title check, a notice that an LSL was not replaced.

    - Change real estate transfers and plumbing codes to require documentation of an LSL on a property deed or disclosures of LSLs. In response, Leslie Darman (EPA Office of General Counsel) explained that under the Safe Drinking Water Act (SDWA), EPA may not be able to mandate these requirements but can require a PWS to notify new and old customers that they have an LSL.

- A member suggested collaborations with public health and housing authorities to understand if LSLs are present.

b. Improving Education for Those with an LSL

The Group discussed the importance of improved consumer education, how to change people's behaviors to want LSLRs and ways to compel LSLRs in situations where consumers do not want them. Specific comments included:

- One member added that not only customers but PWSs and boards/decision makers must want full LSLR for it to happen.

- One member discussed a handout that he and another member created called, "Public Education and Notification Elements for Lead in Drinking Water." It covers health risks (the current language is too technical), forms of lead in water (particulate, soluble), sources of lead in water, identification of service line materials, health-protective actions and additional information. This education would not be tied to a lead ALE.

- The same member suggested developing a national website that would provide educational materials (e.g., how to identify an LSL) in different formats (e.g., video). This would provide a way for systems, health care professionals and private well owners to get information in a consistent and visual way, and would allow them to post recommendations (e.g., how other cities are handling LSLR). He added that utilities would have difficulties putting this information together.

- Many members agreed with the need for improved consumer education. Additional comments included suggestions to:

  - Deliver PE before, during and after LSLR.

  - Change the current messaging so that customers do not feel like they are on their own, with the utility only being responsible up to the property line (i.e., clarify the shared responsibility of the system and the homeowner in replacing the LSL).

- One member provided a handout, "Communicating about Lead Service Lines: A Guide for Water Systems Addressing Service Line Repair and Replacement." The document was mentioned during the webinar and developed by AWWA. It provides ways water systems can encourage LSLR. One of the webinar presentations provided a link to this presentation. Steve Via (AWWA) pointed out that the link references an older version of the document and that the handout contains updated information from their 2014 document.

- Members discussed ways to encourage and compel full LSLR that included:

  - Providing funding to homeowners to remove their LSLs *(see Section C.6.e for specific funding suggestions)*. One member noted that it would be more effective for a system to help homeowners replace their portion of the LSL instead of giving them the option to replace it. Otherwise, the homeowner may decide to spend money on bottled water in lieu of LSLR.

- Add possible drinking water lead sources to a home inspector's list of things to do prior to a real estate transaction.

- Providing a staged education process for customers with LSLs. The first step would be to contact the homeowner about the importance of full LSLR that includes multiple notification methods (email, text, mail). It may also include enlisting public health professionals (e.g., pediatric environmental health specialty units (PEHSU)) to provide one-on-one interactions with individuals to understand why they do not want the replacement and to try to change their minds. If the homeowner refuses, it has public health implications for the community, and we should still try to define an approach to achieve full LSLR.

- Taking a step-by-step approach, escalating the effort to get homeowner agreement to replacement of the full LSL. First, the system determines the location of LSLs to determine their target audience. Next the system reaches out to the homeowner with information and incentives. If that doesn't work, the utility should take a stronger approach, with more incentives, and/or possibly imposing rates such as a surcharge for extra work that they have to do. Last steps could be to deny service, put a lien on the property, or condemn it. By having the policy laid out for the customer, every step is the customer's choice. Several members commented on an escalation policy and provided additional comments:

    - Many supported the idea of an escalation policy including a suggestion that EPA require systems to develop a plan that includes deadlines for specific actions but not to mandate the steps.

    - Some thought shutting off the water to be an appropriate last step because the system is not delivering safe water.

    - Others indicated discomfort in shutting of the water for a customer that does not want his/her LSL replaced. Specific comments included:

        - The customers will not understand why a system is cutting off their water for failure to replace their portion of the LSL after years of providing them water.

        - There are health risks associated with cutting off water.

        - The Group needs to think how to properly explain this shift in thinking to protect utilities from getting sued (e.g., acknowledging our missteps in allowing PLSLR, one-on-one communication with consumers and getting other citizens involved).

        - The end point may need to differ depending on the circumstance or populations (e.g., not shutting off the water for an elderly couple but possibly putting a lien on the home).

c. Improved Education for and Building Partnerships with Health Care Professionals and Federal Agencies

Several LCRWG members discussed the need for better education for health care professionals regarding lead in drinking water that includes potential impacts from PLSLRs. Specific comments included:

- Contacting Denver Water to see if their outreach to local health professionals, as required in the 2007 Short-term Revisions to the LCR, was effective. The 2007 revisions required systems to contact local health departments (LHDs) with the goal of obtaining a list of community-based organizations that should receive PE materials. The idea was that if consumers received information and then spoke to health professional they would get similar information.

- Looking at lead paint and dust programs and how they are successful in educating health practitioners. Currently, people go to health care professionals and they are not being informed about lead in drinking water.

- Providing additional background on possible lead in drinking water beyond what is required under the rule to health care professionals. A member noted that public health departments are more active regarding a pathogen, but have authority to intervene when there is a danger of lead poisoning.

- Providing ongoing education about lead in drinking water to the health care community that is not tied to a lead ALE. The message should include testing for drinking water, information about LSLs, the need for blood lead levels (BLL) testing for groups that are not typically tested (i.e., pregnant women, formula-dependent infants and infants < 12 months), and what to do if you are pregnant or recently have given birth.

- Developing two sets of materials: "baseline" information and urgent communications (e.g., when a system has a lead ALE).

Members also discussed the importance of developing stronger partnerships with health care professionals and other federal agencies including:

- More explicit partnership arrangements (e.g., memorandum of understanding)

- Greater involvement from top-level managers within federal agencies, such as the Centers for Disease Control (CDC) and Prevention and the U.S. Department of Housing and Urban Development (HUD) to make these partnerships effective.

- Work with CDC to expand the Healthy Homes and Lead Poisoning Prevention Program to include lead in drinking water.

Mr. Burneson encouraged the Group to provide specific recommendations on how EPA can more effectively work with other agencies. He added that Office of Children's Health Protection has been involved with the Heathy Homes Initiative and his office has been talking to HUD about LSLs.

d. Parallel LSLR and CCT Programs

The LCRWG discussed "decoupling" the LSLR requirement from CCT and essentially creating two parallel programs as follows:

- The LSLR program would be conducted regardless of whether the system has a lead ALE. It would include on-going steps to find and fully replace existing LSLs (full and partial) and to educate consumers with LSLs to reduce risk. The program would target replacement of all LSLs over some long-term time period.

- One member noted the importance of incentives for water systems. EPA is doing a good job with incentives on storm water control. People are thinking about things differently to get to where we want to be, which is better than holding a hammer.

- One member suggested allowing systems to forego in-home tap sampling as an incentive for replacing all of their LSLs. A second member clarified that the rule would not abandon in-home tap sampling, but reconsider using it for an ALE and the basis as a trigger for additional action. The utility would still offer in home sampling as part of PE. Even in that case, the sample could come up low when it is really high and is not the final word on exposure. A third member responded that if LSLs are targeted for sampling, doesn't that tell you what is going on in the home? Mr. Del Toral responded that lead levels can change over time and that one sample is insufficient to indicate a homeowner's potential risk of exposure to lead.

- The CCT program would allow for degrees of re-optimization that should be framed in a series of steps to try to determine the problem (e.g., used a different chemical vendor, power outage) and whether optimal water quality parameters (OWQPs) need to be adjusted before the system hires a consultant for a full re-optimization study.

Members raised some questions about possible disadvantages of decoupling CCT and LSLR:

- Would some systems still view LSLR as punitive because even if they have good CCT, they would be required to replace all LSLs?

- If we move from the current LSLR program to requiring wholesale LSLR, would customers need an explanation why the system has gone from meeting all standards to massive LSLRs and why it was okay to have LSLs in place all of these years?

e. Funding and Other Measures

The LCRWG discussed the issue of funding assistance for homeowners to replace their portion, for systems to establish and operate the program and for states to oversee it. Suggestions for funding options to replace the homeowner's portion of the LSL included:

- Increasing State Revolving Fund (SRF) dollars from Congress by 0.1%. This money could be set aside for a matching fund for LSLR and could be the beginning of putting an LSLR program in place. One member noted that SRF funds are not available to all for-profit PWSs.

- Funding for homeowners including HUD, Section 8 funding; community grant block program; and no interest loans that put a lien on the building that are not repayable until property transfer (used in Rhode Island and some HUD-funded program).

- A betterment charge when an improvement is made; however, this option will not be available to all municipal water departments.

- Differential rates for those with LSLs. One member noted that the public service commissions would have to approve this first. Others noted that it may not be easy to determine which areas have LSLs because neighborhoods that originally were served exclusively by LSLs may over time have some homes where the LSLs were replaced.

- A special surcharge for everyone within a system for infrastructure replacements.

- Establishing a grant pool where funds could be taken from other programs or other funding sources. A member noted that a water system needs the funding upfront before replacing the customer's LSLs or it is basically loaning money.

- Investigating if a tax break could be provided to homeowners to replace LSLs. In Massachusetts, people can take a tax break of $1500 to replace lead paint.

  In response to some of these suggestions, Leslie Darman indicated that she did not think that EPA has the authority in SDWA to suggest how to handle a rate or billing issue.

One member stated that the need for resources is not limited to homeowners but applies to systems and states so they can implement the rule. Another member responded that he did not want to develop a rule that is limited by the inability for the Group and EPA to solve the resource problems. He also discussed the importance of considering the entire cost of a requirement to determine where to most effectively spend money (e.g., allocate some dollars to the state to review LSLR implementation plans).

A member suggested providing bonus money to plumbers to discover and remove PLSLs as part of a long-term LSLR program. He noted that prior to making a service call, some plumbers are checking Boston's website that shows the location of LSLs and asking customers if they can remove the LSL when they fix the plumbing problem.

7. <u>Implementation and Enforceability Considerations</u>

Mr. Burneson asked the Group as they are constructing suggestions to think of enforceability and interim milestones because 30 years for complete LSLR may be too long. The revisions must be enforceable, which requires a definitive action by the system in a defined time frame that oversight agency can use to assess compliance. The Group discussed the following implementation and enforcement considerations:

- One member asked if the Group can consider a toolbox as a compliance mechanism to provide flexibility. In response, Mr. Burneson stated that under the Long-Term 2 Enhanced Surface Water Treatment Rule, systems were triggered into different *Cryptosporidium* removal

requirements. There was a toolbox with that allowed flexibility, which was enforceable and had exposure reduction levels with which EPA could be comfortable. He indicated that flexibility for the LCR revisions can work as long as it is enforceable.

- A member noted that one of the goals for the revision is to streamline the rule. However, the more flexibility the rule provides to address LSLs, the more difficult it is to implement, which puts more pressure on enforcement entities.

- We need to consider how to get homeowners to report important information to the system that includes instances where they have found or replaced an LSL without assistance from the system.

- To have an effective LSLR program, we need to implement it and oversee it. We need to consider how we are going to count LSLRs and track them.

- We need to remember that LSLR programs may not be the same in different communities depending on how politically proactive or economically or technically advanced they are.

The Group discussed whether the rule should include distinctions based on a system's size. Specific comments included:

- We should keep in mind that small systems will not have the same capabilities as large systems. The rule must include requirements that all utilities can successfully implement.

- Very small systems have limitations and will need to be told what to do and be provided a template. For PE, they will need a handout or a website with information. They will not be able to develop a plan to provide LSL incentives, sit down one-on-one with their customers to discuss the advantages of LSLR or to provide financing to replace the private portion of an LSL.

- We should consider waivers for small systems that do not have LSLs. Ms. Christ clarified that the current rule allows systems to conduct lead and copper tap monitoring every nine years (i.e., a monitoring waiver) if they can demonstrate they have no lead- or copper-containing materials.

- Many towns built after World War II do not have LSLs and therefore, LSLR will not apply to many systems. We could consider a certification process to document locations without LSLs.

- Instead of going to each house to find LSLs, a small system could tell people what to do if they encounter an LSL.

- We have been discussing WQP monitoring for all systems. For small systems with non-corrosive water, we need to consider the burden to the system and to the state. One possibility is to require some periodic WQP monitoring but to not have the state sets OWQPs.

Members also asked the following questions related to small systems:

- How CCT requirements apply based on a system's size. Mr. Burneson explained that CCT is required for all systems serving > 50,000 and only for those serving ≤ 50,000 if they have lead or copper ALE.

- Whether small systems tend to have more copper than lead issues since they are generally ground water systems. One member noted that in the Northeast, copper is a bigger problem. Mr. Schock indicated that he has heard both lead and copper can be a problem because of solder and brass and lack of pH control. He added that elevated copper may be more prevalent than we know because the current sampling protocol does not target copper.

- Whether a state could threaten to take a small system's permit to make them do LSLR. Members indicated that if the permit was taken, many times the water system folds and the property could be condemned, or the state or public commission could report a receiver for the property and assets. Another added that a receiver typically will not have money to fix things in the system and will just keep it operating.

D. Implementation Questions Concerning Shared Responsibilities and Equitable Allocation of Costs and Benefits

1. Definition of Control

Ms. Christ provided background on the issue of control. She explained that in the 1991 rule EPA, interpreted "control" more broadly and required systems to replace the entire LSL up to the building inlet, unless they could demonstrate to the State they controlled less than the entire LSL. The original 1991 rule also included a rebuttable presumption that the water system controlled the entire LSL if it had: (1) the authority to set standards for construction, repair, or maintenance of the service lines; (2) authority to replace, repair or maintain the service lines; or (3) ownership of the serviced line. The presumption was the subject of legal challenge, and the Court Ruled that EPA did not provide adequate notice of the definition of control and opportunity for comments. EPA revised the rule in 2000 to define control to mean ownership. As a result, drinking water systems are only required to replace the portion of the LSL it owns and to offer to replace at the customer's expense, the portion not owned by the system – and this definition has resulted in PLSLRs.

Mr. Burneson noted that the SDWA gives EPA the authority to regulate PWSs and distribution facilities under their control. He asks the Group that EPA is not to focus on the legal aspects of redefining control because ultimately the courts will have to make that decision. Instead with the goal of full LSLR in mind, EPA is asking for recommendations about the policy and feasibility of defining control differently. In addition, h noted redefining control does not necessarily define who pays for the replacement but may specify that the utility has authority to compel homeowners to pay for the replacement.

- One member thought that expanding the definition of control could result in more full LSLRs. A problem with the current definition is that it sends the message that PWSs are not responsible for the LSL from the property line to the home, and that it is up to the homeowner to decide to

do it. She asked the Group to keep in mind the concept of a general "public purpose doctrine"[6], which may allow for the use of public funds for LSLR.

- A member indicated that redefining control could help consumers replace PLSLs that have resulted from 20 years of mandatory replacements and infrastructure replacements.

- A member recommended, when allowed, that communities pass ordinances in which the entire LSL is replaced at no charge to the resident and putting that requirement into plumbing codes. He added that we will also need some performance measures. Another member noted that we cannot pass a rule based on passing local ordinances because we cannot require it. However, we can include the idea of using ordinances on our list of recommendations outside of SDWA.

- Several members did not support a change in definition for the following reasons:

  - It is unlikely to promote full LSLR in a responsible timeframe because of the wide differences in state and local ordinances and legal authorities regarding the definition of control. It will result in a different set of delays and confusion.

  - We should not remove the customer's responsibility for LSLR because it could decrease the consumer's perception of shared responsibility for safe water.

  - It would confound the issue of who pays.

  - It would complicate wholesale contracts because wholesalers would be interpreted as also owning the distribution system because they are part of the wholesaler's control. Another member suggested that the wholesale company could use a rebuttable presumption to identify what it does not control. The definition could include elements of control but not include repairs.

  - It raises questions of how a utility could explain that it controls an entire LSL but not a copper one.

  - It may require an easement to be established on the property in order for the system to replace the privately-owned LSL portion.

2. <u>Environmental Justice</u>

Mr. Burneson explained that EPA is required under Executive Order (EO) 12898[7] to look for disproportionate impacts of new regulations. EPA identified LSLR as a possible provision with

[6] In her written public comments to EPA, Jennifer C. Chavez from Earthjustice noted that courts in some states recognize a general public purpose doctrine. Although the application of the doctrine may vary by state, in general a public purpose "has for its objective the promotion of public health, safety, morals, security, prosperity, contentment, and the general welfare of the community." Thus, a public purpose could possibly be met even when payments are made to individuals.

disproportionate impacts because of the ability to pay. EPA is required to consult and assess impacts and identify options for mitigating this impact. Note that EPA did not identify CCT as having an environmental justice issue because all individuals served by the system benefit from this treatment. The Group provided the following input on environmental justice:

- One member suggested that revisions to the LCR mandate full LSLR, considering implications of the Civil Rights Act (CRA) of 1964 and the requirement that EPA not cause disproportionate impact on minorities.

- Another noted that the issue of environmental justice includes low income as well as race. Although the CRA has more "legal teeth", EO 12898 focuses more directly and more broadly on environmental justice. She did not view environmental justice as a hammer but as an opportunity to equitably protect public health and to avoid creating two tiers of drinking water systems that provide different levels of public health protection.

- Other members indicated that the full cost of LSLR (or in some instances failure to replace LSLs) include: physical LSLR, CCT, nutrient pollution and wastewater treatment from phosphate-based CCT, societal costs for children with elevated BLL, development and dissemination of information that allows for informed decisions regarding LSLR and state oversight. One member provided a handout, "Online Accessibility of Lead-Related Information", which includes a recommended list of information to be made available to consumers on-line (i.e., lead-in water levels, water quality, public education/communication documents, service line inventory and service line ownership documents).

- One member suggested assisting individuals with applying for funding because this process may be confusing, or they may not have access to a computer to complete an on-line application.

- Another suggested using an affordable housing approach so costs for LSLR do not become a significant portion of median household income (MHI).

- Mr. Burneson clarified that EPA cannot write a rule that indicates how systems or homeowners will obtain funding for LSLR. In the current rule, a system is not required to bear the cost of replacing the privately-owned portion of the LSL.

Members and EPA discussed the concept of requiring systems to develop a plan to deal with environmental justice that could be approved by the state. Other comments included:

- Mr. Burneson noted that any options including a plan can include some local discretion but needs an enforceable milestone or verifiable action.

[7] Executive Order 12898 (59 FR 7629, February 16, 1994) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission. Agencies must do this by identifying and addressing as appropriate any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

- Some members noted the rule should establish some requirements for these plans (e.g., checklist). Otherwise, systems will submit very specific local plans that will complicate and compromise the state's ability to adequately review these plans.

Several members thought that financial support would solve a lot of environmental justice issues. They also discussed several of the suggestions for promoting full LSLR, which are described in Section C.6. Another member suggested using a certain BLL as a driver for LSLR.

E. Infrastructure Replacements, Repairs and Disturbances of LSLs

The Group discussed infrastructure replacements and provided the following comments:

- We need to recognize that PLSLR are being done when systems have emergency repairs, but we want to discourage PLSLRs to the greatest extent practicable.

- Members discussed the requirement to provide notification to consumers for infrastructure replacements. One member recommended that notification about an infrastructure replacement be done in a timely fashion but may differ based on whether it is in response to an emergency or planned replacement. The information should encourage full LSLRs, and include actions to mitigate temporary spikes, such as aggressive flushing and possibly the provision of a pitcher-filter or POU device.

- States would find it overwhelming to receive information on everything a system is doing regarding its distribution system work. As an alternative, EPA could require systems to maintain on-site records and make them available for state inspection. Larger systems could provide on-line information where PLSLR or full replacements are occurring.

- One member noted that once the system started its program, it would have records, plans and maps. Infrastructure replacements should be reported to the state as part of meeting its ultimate goal of no LSLs.

- One member suggested that on the day a system conducts an emergency repair, it must also ask affected homeowners if they want their LSL replaced and request they sign a document or waiver if they refuse. If the homeowner will not sign the waiver, the system could document in a file the day the customer was contacted. Another member thought that trying to require homeowners to sign something and return it to the water system is not practical.

F. Other Topics - WQP Monitoring versus In-Home Sampling

The Group discussed a topic from an earlier meeting on the use of in-home versus water quality (WQP) monitoring:

- One member noted that the LCR is a treatment technique rule that requires systems to install CCT under certain conditions. This member suggested using WQP monitoring instead of ALE as a driver for CCT.

- One member explained that the advantage of WQPs is that his staff collects it and therefore, he has control of where, when, how and what we do with the data. Systems can use that information to manage their treatment. Whereas, there would be risks associated with changing treatment based on a high lead sample at a single home, particularly given the variability in sampling results.

- Other members questioned if all systems are currently collecting WQP samples. Mr. Kempic clarified that systems serving ≤ 50,000 are not required to collect WQPs unless they had an ALE.

- Other members did not support using WQPs in lieu of in-home sampling for the following reasons:

    - WQPs cannot be used to predict lead release in someone's home. Mr. Schock agreed this is true for systems with LSLs because scales on pipes are complex and lead release cannot be predicted based on pH and alkalinity alone. He added that in the absence of LSLs, it is much easier to relate WQPs to lead release.

    - Based on what we know today, many systems that do not have an ALE are likely to have one if the sampling protocol is based on a sample from the LSL. The member suggested keeping the lead ALE trigger and the possibility that a system conduct CCT and/or implement a proactive LSLR program.

    - Relying solely on WQP monitoring and eliminating in-home tap sampling would miss the contribution of particulate lead.

    - Small water systems may not be monitoring for WQPs unless they have an ALE.

G. Public Comments

One individual presented public comments on Day 1 and another on Day 2 of the meeting. Each is summarized below.

1. Day 1 – Public Comments

Paul Swartz (Water Alliance) focused on the ideas of justice, innovation and new ways of counting benefits. He has been reflecting on how to do things within the current approach and beyond it, some of which extend beyond SDWA. He asked the Group to think about the best solutions for those individuals who are the most vulnerable and have the fewest resources. He added that many cities have a lot of people that cannot afford LSLR. He provided the following suggestions:

- Have HUD, CDC and EPA come together and look at zero-lead communities or neighborhoods. How can these communities help other communities with lead?

- Consider all possible sources of lead that include not only paint, soil and dust but also drinking water.

- Get more information about new filters, media and approaches considered by ORD.

- Consider if there is a model for the system of the future 30 or 40 years from now. If one does not exist, allow room in the rule for adaptive- and scientific-based management in the rule.

- Consider including language similar to the storm water and CSO rules that allow experimentation and test it on a small scale.

- Consider the full costs and benefits. The CWA and SDWA are constrained by legal outcomes that must be obtained when thinking about cost and benefits. For example, under the CWA, the costs and benefits of CSOs cannot consider air benefits. This similar type of accounting constricts us from getting the best benefits.

- Do not allow PLSLR. We don't want to use the law to misdirect capital programs and funding.

2. Day 2 – Public Comments

Lon Couillard, Milwaukee Water Works, agreed that LSLs should be removed. However, he asked the Group to keep in mind when considering the removal all of LSLs that some test results from the LSLs are below 15 ppb. He noted that not all LSLs will have elevated lead levels.

H. Looking Ahead to Next Meeting

1. Straw Document and Schedule

Ms. Bingham noted that the Group has discussed five topics during the first four meetings: CCT, sample site selection, sampling protocol, PE and LSLR. She explained that she will take the meeting summaries to pull together a straw draft of possible recommendations to include in the group's report for discussion at the next meeting. She presented and the LCRWG agreed to the following schedule:

- December 10, 2014: Deadline for LCRWG to provide additional input, which can include big picture thoughts that pull ideas together, suggestions for organizing the straw draft (including table of contents), and specific recommendations (e.g., sample invalidation)

- January 20, 2015: First straw draft. She noted that the Group will work through this document at the February 2015 meeting. The straw draft will include options where members have made different suggestions, where applicable.

- Feb 5 & 6, 2015: Meeting 5. This meeting will focus on the recommendations the Group wishes to make and include a discussion of the sample invalidation proposal sent prior to this meeting. The overall goal will be to get as much agreement on recommendations on all topics as possible (at least in principle). Outstanding important issues may be handled by smaller groups via conference calls, who will bring a proposal back to larger group.

- Mid-March 2015: Revised straw draft.

- April 2015: Meeting 6. Goal is to agree on the report. If there is agreement on recommendations during Meeting 5, the Group will work on the language during Meeting 6. If there is no consensus on an issue, she recommended presenting options with pros and cons instead of preparing a minority report.

- Apr/May 2015: Final report.

Ms. Bingham recommended waiting to schedule any conference calls until after the Group has seen the draft straw document because they will have language to which they can react. The rationale will be important for the Group's consensus. One member indicated that a webinar format is useful for these conference calls.

Based on questions from the Group, Ms. Bingham and EPA provided the following clarifications:

- The Group does not need to wait until the February meeting to provide input on the straw draft, but emails should be limited to clarification questions, indicate parts of the draft the Group likes or to offer new ideas. It can be confusing to try to negotiate changes to options by email.

- If members have technical questions, they are asked to send an email to the LCR working group email to ensure everyone gets the same information. EPA will ensure that technical questions are forwarded to the applicable expert(s).

- Ms. Bingham will send any relevant documents with the straw draft to the LCRWG.

- EPA wants big picture integration and detail but also wants it to be read. Target length is 20 to 30 pages but if a topic necessitates more information, the document can be longer.

- Ms. Bingham indicated that she does not necessarily plan to use the structure of the original white paper as a template for the straw draft but to possibly start with some of the principles articulated in the Group's discussions so far, e.g. the importance of full LSLR. One member suggested starting with the purpose of the LCR.

2. <u>Other Considerations or Cross-Cutting Issues</u>

Ms. Bingham asked if there are other considerations or cross cutting issues that would affect the straw documents or other meetings. In response:

- A member pointed out that the Group has discussed using copper binning that sorts water systems by water aggressiveness and members may have different thoughts now since the early meetings. Another noted another area of discussion was the separation of lead and copper and placing LSLR and CCT on parallel paths.

- A member noted that the first meeting on CCT was the only one that was not preceded by a webinar. He indicated that the Group was provided a lot of information in a short time on this

very technical subject and the Group did not provide any options on this topic. He asked how the Group could circle back. In response:

- Ms. Bingham asked the members to think about CCT input they want to provide in their input on the straw draft. She also suggested including time at the beginning of the February 2015 meeting to discuss CCT.

- Ms. Christ added that the Group discussed whether LSLR and CCT should be de-coupled as well as re-optimization. She noted that if LSLR and CCT are pursued on parallel paths, the questions are different than if the sequential path approach is maintained.

- A member re-iterated his vision for a water system of the future. With the replacement or passivation of lead- and/or copper-containing materials, CCT or re-optimization will no longer be driven by lead or copper. If a system has LSLs, the goal is to remove LSLs. We allow the system to apply its resources toward LSLR and to use CCT for controlling general metals release as opposed to CCT for lead control. This will allow for lower phosphate usage and eliminate the need for in-house lead and copper tap monitoring.

- Another member provided his view on how to improve the CCT requirements. The system monitors for water chemistry and stability as a baseline. Guidance or the rule provides ways to manage or use that data (control plotting) more effectively. Systems may need to re-evaluate their CCT if they make significant changes to their sources or treatment (but we should ensure that the list of significant changes in the rule are still the most appropriate ones). If a system has an excursion of an OWQP, the rule allows the system to take simpler steps (e.g., talk to the operator) to try to identify the cause of the problem before requiring re-optimization (e.g., desktop, coupons). We could also include a higher level of re-optimization in which a system that has removed a lot of LSLs, would review their treatment to see if it is still appropriate.

- The Group is talking about different kinds of re-optimization. The question initially posed by EPA asked about allowing re-optimization prior to requiring LSLR. However, if the Group is talking about parallel tracks, CCT is no longer the trigger for LSLR.

- If we are recommending the removal of all LSLs, sampling to find the highest lead from LSLs falls off in importance. Measuring impact of exposure is something the Group really did not address.

- Another member asked how the system could determine if CCT or OWQPs are set in an effective way if there is no in-home sampling. In response, one member noted that other members are not suggesting eliminating in-home sampling but questioning its purpose if PE and LSLR are no longer linked to an ALE.

I. Wrap-up and Next Steps

Mr. Burneson closed the meeting by acknowledging the Group's dedication to public health protection and thanking them for their time and dedication.

Action Items from the NDWAC LCR Working Group Meetings

Row	Action Item	Responsibility[1]
	ACTION ITEMS FROM NOVEMBER 11 AND 12 MEETING	
1	Provide electronic versions of handouts and other document for posting on Google Drive.	LCRWG
2	Contact Denver Water regarding the effectiveness of their public education to the health care community.	EPA
3	Post Dave Cornwell's flushing study to Google Drive when it becomes available.	Dave Cornwell/EPA
4	Send EPA March 2014 version of "Communicating about Lead Service Lines: A Guide for Water Systems Addressing Service Line Repair and Replacement" for posting on Google Drive	Steve Via/EPA
6	Confirm that the FACA process allows for the meeting of subgroups of the LCRWG via conference calls to develop proposals on a few issues for the entire LCRWG.	EPA
7	Provide RESOLVE with additional input for the straw document (e.g., table of contents, plan for a comprehensive program, details on specific topics such as CCT).	LCRWG
8	Submit questions to the LCR email box that will be addressed by EPA experts.	LCRWG/EPA
9	Distribute November meeting summary.	Cadmus/EPA/RESOLVE
	OUTSTANDING ACTION ITEMS FROM SEPTEMBER 18 AND 19 MEETING (Numbering reflects September 2014 Action Item List)	
1	Incorporate LCRWG comments on May meeting summary and post final summary on EPA's website and on the Google Drive.	RESOLVE/Cadmus/EPA
4	Revise the operational protocol mission statement per September's discussion.	RESOLVE
5	Determine the extent of EPA's authority to mandate systems to provide public access to monitoring data, possibly as part of PE requirements.	EPA
6	Distribute September meeting summary.	Cadmus/EPA/RESOLVE
7	Send doodle request for fifth meeting for late January or early February.	RESOLVE
9	Provide the LCRWG with a list of information that should be publically available.	Yanna Lambrinidou

OUTSTANDING ACTION ITEMS FROM MAY 29 AND 30 MEETING (Numbering reflects May 2014 Action Item List)		
9	Provide speaker from OECA on Next Gen compliance.[2]	EPA
11	Provide estimate of the number of systems that may qualify for a copper waiver.	EPA
OUTSTANDING ACTION ITEMS FROM MARCH 25 AND 26 MEETING (Numbering reflects March 2014 Action Item List)		
10	If available, provide additional, existing background materials to LCRWG: Lead level trends for some Massachusetts systems	Steve Estes-Smargiassi
11	Assess availability of other requested information/conduct analysis as needed. How many large, medium and small systems are estimated to be required to re-optimize (i.e., how many will exceed the lead/copper action level) under new rule?	EPA

Acronyms: µg/L = micrograms per liter; ALE = action level exceedance; CCT = corrosion control treatment; FACA = Federal Advisory Committee Act; IEUBK model = Integrated Exposure Uptake Biokinetic model; LCR = Lead and Copper Rule; LCRWG = LCR Working Group; LSLR = lead service line replacement; NDWAC = National Drinking Water Advisory Council; OECA = Office of Enforcement and Compliance Assurance; PE = public education.

Notes:

[1] Unless otherwise stated, EPA refers to the Standards and Risk Management Division (SRMD).
[2] The request for a speaker was reiterated during the November 2014 meeting. EPA has posted some material on the Google drive and will discuss implications of Next Gen compliance for the LCR with the working group.

List of Attachments

- Attachment A – List of Lead and Copper Rule Working Group Members and Meeting Presenters
- Attachment B – List of Attendees
- Attachment C – Final Meeting Agenda
- Attachment D – Lead Service Line Primer
- Attachment E – Comments Regarding Lead and Copper Rule Long-Term Revisions: Issues Regarding Lead Service Line Replacement from Jennifer C. Chavez, Earthjustice. November 11, 2014

ATTACHMENT A

Fourth NDWAC Lead and Copper Working Group Meeting

List of Lead and Copper Rule Working Group Members and Public Commenters

November 12 and 13, 2014

NDWAC LCR Working Group
Christina Baker: Deputy Public Counsel, Office of the Public Counsel, State of Missouri
Leon Bethune, Director, Director of Office of Environmental Health, Boston Public Health Commission
Gary Burlingame: Laboratory Director, Philadelphia Water Department
Marilyn Christian: Manager, Environmental Health Programs, Harris County Public Health
Matthew Corson: Manager, Environmental Compliance, American Water
Derrick Dennis: Water Quality Unit Supervision, Office of Drinking Water, State of Washington
Stephen Estes-Smargiassi: Director of Planning, Massachusetts Water Resources Authority
Hector Gonzalez, Director Health Department, Laredo, Texas[1]
Yanna Lambrinidou, Parents for Non-toxic Alternatives
Thomas G. Neltner: National Center for Healthy Housing[2]
John Sasur Jr.: Three Rivers Fire District, Massachusetts
Robert C. Steidel: Director Department of Public Utilities, City of Richmond Virginia
June Swallow: Chief, Division of Water Quality, Rhode Island Department of Health
Lynn Thorp: National Campaigns Director, Clean Water Action
Chris Wiant: President, Caring for Colorado[1]
Nse Obot Witherspoon: Executive Director, Children's Environmental Health Network
EPA Office of Ground Water and Drinking Water
Eric Burneson: Division Director, Standards and Risk Management Division
Lisa Christ: Branch Chief, Targeting and Analysis Branch
Public Commenters
France Lemieux, Health Canada
Dave Lipsky, New York Department of Environment
Peter Mott, Public
Regu Regunathan, Water Quality Association
Paul Schwartz, Water Alliance
Robert Weed, Copper Development Association
Meeting Facilitator: Gail Bingham, RESOLVE

[1] These members were unable to attend the meeting.

[2] Formerly with National Resources Defense Council.

ATTACHMENT B

Fourth NDWAC Lead and Copper Working Group Meeting

List of Attendees

November 12 and 13, 2014

First Name	Last Name	Affiliation
John	Arnett	Copper & Brass Fabricators Council
Christina	Baker	MO Office of Public Council/National Association of State Utility Consumer Advocates
Leon	Bethune	Boston Public Health Commission
Scott	Biernat	Association of Metropolitan Water Agencies
Gail	Bingham	RESOLVE
Charles	Brunton	EPA
Gary	Burlingame	Philadelphia Water Dept
Eric	Burneson	EPA
Lisa	Christ	EPA
Marilyn	Christian	HCPHES/NACCHO
Matt	Corson	NAWC/American Water
Megan	Cottrel	Beacon
Lon	Couillard	Milwaukee Water Works
Leslie	Darman	EPA
Miguel	Del Toral	EPA
Derrick	Dennis	Association of State Drinking Water Administrators
Lisa	Donahue	EPA
Laura	Dufresne	Cadmus
Jerry	Ellis	EPA
Stephen	Estes-Smargiassi	AWWA/MWRA
Glenn	Farber[1]	EPA
Erik	Helm	EPA
Anne	Jaffe Murray	Cadmus
Jeff	Kempic	EPA
Carol	King	EPA
Andy	Kireta Jr.	Copper Development Association
Yanna	Lambrinidou	Parents for Nontoxic Alternatives
France	Lemieux	Health Canada
Frank	Letkiewicz	Cadmus
Christopher	Lindsay[1]	IAMPO
Suril	Mehta	EPA
Tom	Neltner	National Center for Healthy Housing
Darrell	Osterhoudt	Association of State Drinking Water Administrators
Amanda	Palleschi	Inside EPA

First Name	Last Name	Affiliation
Lisa	Ragain[2]	Metropolitan Washington Council of Governments
Regu	Regunathan	Water Quality Association
Erin	Ress[2]	American Water Works Association
George	Rizzo	EPA Region 3
Alan	Roberson[2]	American Water Works Association
Ty	Russell[1]	EPA
John	Sasur	Three River Water Dept/NRWA
Mike	Schock	EPA
Paul	Schwartz	Water Alliance
Nicole	Shao	EPA
Lameka	Smith	EPA
Francine	St. Denis	EPA
Bob	Steidel	City of Richmond, VA / AMWA
June	Swallow	RI Department of Health
Jim	Taft[1]	Association of State Drinking Water Administrators
Lynn	Thorp	Clean Water Action
Steve	Via	American Water Works Association
Robert	Weed	Copper Development Association
Nse	Witherspoon	Children's Environmental Health Network

[1]Attended the November 11, 2014 session only.

[2]Attended the November 12, 2014 session only.

ATTACHMENT C

U.S. Environmental Protection Agency

NDWAC LEAD AND COPPER WORKING GROUP

The Cadmus Group, Inc.
1555 Wilson Blvd., Suite 300 | Arlington, VA 22209
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November 12-13, 2014

Final Meeting Agenda

Meeting Objectives/Desired Outcomes:

- **Share follow up ideas and questions concerning webinars;**
- **Provide input on questions related to lead service line replacement; and**
- **Plan next steps.**

Advance materials: LCR White Paper; Lead Service Line Replacement primer; see also technical references and other materials on Google Drive: https://drive.google.com/folderview?id=0B-3D2NT30pQDaFlGTTJnTWxmZ0k&usp=sharing#list

Wednesday November 12th, 2014

8:45-9:00 Informal gathering

9:00-9:45 Welcome, Introductions, Meeting Objectives/Agenda, Materials and Logistics

Advance materials: Proposed agenda

Welcome: Eric Burneson, Director, Standards and Risk Management Division, Office of Groundwater and Drinking Water Introductions: Gail Bingham, *facilitator*

9:45-10:45 Discussion: Follow up on Key Points from Webinar

Objectives: Recap topics covered by speakers on the lead service line replacement webinar. Address any unanswered or follow up questions. Share "take-aways."

Highlights: Lisa Christ, Office of Groundwater and Drinking Water Discussion

10:45-11:00 BREAK

11:00-12:15 Discussion: Lead Service Line Replacement: Implications in Context of the Entire Rule

Objectives: Provide initial input on questions posed in the white paper and on the webinar about lead service line replacement. Initial ideas will be included in the meeting summary for members to reflect upon and consider for inclusion in the final report.

Suggested Discussion Questions:

- What should be the role(s) and/or purpose(s) of including LSLR in a revised Lead and Copper Rule? What options should be considered in addition to those listed on the agenda so far, and why? *[Pros and cons of these options will be discussed in more depth throughout the meeting.]*

12:15-1:30 LUNCH *[on your own]*

1:30-1:45 Public Comment

1:45-3:00 Discussion: Lead Service Line Replacement: Options/Considerations for Mandatory Lead Service Line Replacement

Objectives: Provide initial input on questions posed in the white paper and on the webinar. Initial ideas will be included in the meeting summary for members to reflect upon and consider for inclusion in final report.

Suggested Discussion Questions:

- When optimization does not bring lead levels under the action level how should systems reduce exposure from LSLs in a way that protects public health, is feasible and assures equitable protection among the system's users?
- Has the seven percent annual LSLR requirement been an effective part of the LCR and, if so, what has been achieved? How does it impact compliance tracking and enforcement? If PLSLR requirements were to be eliminated, what other options could accomplish similar results?
- Should EPA consider another percentage requirement for LSLRs instead of 7%? If so, what? What would be the impact on incentives for treatment optimization?
- What measures might a PWS and/or its customers employ to address temporarily elevated lead levels during the times of exposure when LSRL and/or re-optimization is occurring?
- What are the pros and cons of requiring water systems to provide impacted owners and residents with a NSF/ANSI 53 certified pitcher-filter or other treatment unit that removes lead before the system begins any LSLR?

3:15-3:30 BREAK

3:30-4:30 Discussion: Lead Service Line Replacement: Options/Considerations for Mandatory Lead Service Line Replacements *[continued]*

Objectives: Provide initial input on questions posed in the white paper and on the webinar. Initial ideas will be included in the meeting summary for members to reflect upon and consider for inclusion in final report.

Suggested Discussion Questions:

- What are the pros and cons of eliminating the requirement to do a partial LSLR when the property owner does not agree to pay for the replacement of the portion of the LSL on private property after the action level has been exceeded?
- What are the pros and cons of eliminating the "test out" provision?
- If PLSLRs and "test outs" are no longer allowed, then how might a water system obtain a sufficient number of agreements from owners and residents to achieve full LSLRs at an annual rate of at least seven percent?

4:30-5:00 Open Discussion

5:00 ADJOURN FOR THE DAY

Thursday, November 13th, 2014

8:45-9:00 Informal gathering

9:00-9:15 Review Day Two Agenda

Objective: Reflections from Day One and confirm agenda for today.

9:15-10:45 Discussion: Lead Service Line Replacement: Implementation Questions Concerning Shared Responsibilities and Equitable Allocation of Costs and Benefits

Objectives: Provide initial input on questions posed in the white paper and/or by NDWAC WG members. Initial ideas will be included in the meeting summary for members to reflect upon and consider for inclusion in final report.

Suggested Discussion Questions:

- Would water systems be more likely to achieve greater LSLRs with an expanded definition of control? What would result if EPA does not change the definition of control?
- If the definition of control is expanded beyond ownership and the water system is required to replace the entire LSL, including any portion on private property, how can costs be allocated equitably?
- What are the environmental justice concerns associated with LSLRs? How can an even distribution of benefits be achieved, to avoid either disproportionate health or economic impacts?

10:45-11:00 BREAK

10:45-12:15 Discussion: Infrastructure Replacements, Repairs and Disturbances of LSLs

Objectives: Provide initial input on questions posed in the white paper and on the webinar. Initial ideas will be included in the meeting summary for members to reflect upon and consider for inclusion in final report.

Suggested Discussion Questions:

- What options should be considered in the LCR revisions for reducing exposure during routine or emergency infrastructure replacements and repairs or other disturbances of an intact LSL?
- For example, what are the pros and cons of requiring issuance of educational material describing the potential health risks associated with drinking water during these activities?
    - If so, who should issue the notice?
    - Who should be the target audience?
    - What should be the message, frequency and the method of delivery?

12:15-1:30 LUNCH *[on your own]*

1:30-1:45 Public Comment

1:45-2:45 Discussion: Looking Ahead to the Next Meeting

Objectives: Identify and provide initial input on considerations that will help put the synthesis and discussion of the "straw" compilation of possible recommendations in context. Discuss preparations for February meeting

Suggested Discussion Questions:

- What distinctions based on system size should be considered? e.g.
    - How can States best regulate and help small systems remove lead service lines? Where are the barriers?
    - Do small systems know if they have LSLs or not?
    - How easy or hard is it for small systems to take in home first-draw lead samples?
    - Can small systems take water quality parameter samples? What barriers do they encounter?
    - Do small systems install OCCT? How?
    - How do small systems educate or communicate about lead to their customers?
- Other considerations members suggest should be taken into account in organizing a straw compilation of possible recommendations?
- What will be the process for developing the recommendations?
- Confirm February meeting date.

2:45-3:00 Wrap up and Next Steps

3:00 ADJOURN MEETING

ATTACHMENT D

Lead Service Line Replacement Primer

I. Introduction

The purpose of this document is to examine the science and policy issues regarding the highest contributing source of lead found in plumbing materials, which are lead service lines (LSLs). Presented in this document are the existing Lead and Copper Rule (LCR) requirements for lead service line replacement (LSLR), select issues of concern to EPA and options for revising the rule.

II. Regulatory History

The Safe Drinking Water Act defines the term "public water system" as:

*"…a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves at least twenty-five individuals. Such term includes (i) any collection, treatment, storage, and distribution facilities **under the control of** the operator of such system and used primarily in connection with such system, and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system." The Safe Drinking Water Act does not define the term control. Further, the Act's legislative history does not contain any guidance as to what Congress intended by the use of the term "control".*

In the current lead and copper rule, when a system exceeds the lead action level, EPA requires water systems to replace only that portion of the lead service line that it owns. This is based on EPA's current interpretation of the term "control" in the definition of public water system as limited to ownership. In the original Lead and Copper Rule, promulgated in June 1991, EPA interpreted "control" more broadly and required systems to replace the entire lead service line up to the building inlet, unless the system demonstrated to the State that it controls less than the entire service line. The 1991 LCR included a rebuttable presumption that a water system controls the entire lead service line if, as defined by state statues, municipal ordinances, public service contracts or other applicable legal authority, the system has: (1) authority to set standards for construction, repair or maintenance of the service line; (2) authority to replace, repair or maintain the service line; or (3) ownership of the service line.

EPA's regulation establishing the presumption of control was the subject of a legal challenge. The Court found that EPA had not provided adequate notice of the definition of control and accordingly, remanded the matter to the Agency. (Am. Water Works Ass'n v. E.P.A., 40 F.3d 1266, 1274 (D.C. Cir. 1994)). The Court did not rule on the merits of EPA's definition of control.

On remand, EPA proposed in 1996 a revised definition of control that would require water systems to replace the portion of the line that they own, as well as any additional portion which the system has the authority to replace, in order to protect the quality of water delivered to the user. So that the rule would be self-implementing, EPA also proposed to not include either the rebuttable presumption of control or the requirement for systems to affirmatively document to the state that they do not control the entire service line. The Agency solicited comments, specifically regarding the degree to which systems may have the authority to replace the privately-owned portions of LSLs. EPA also solicited comments regarding the option of only requiring replacement of the portion of the line owned by the water system, explaining that such an approach would further simplify implementation of the rule because the division in ownership between the system and the user would be clear to all parties. In the final rule promulgated in 2000, EPA elected to define control to mean ownership. This was to eliminate confusion, and to avoid delays with implementation of the rule. As a result, under the current rule, a water system

is only required to replace the portion of the lead service line it owns, and to offer to replace, at the customer's expense, the portion of the line that the system does not own.

III. Current Rule Requirements

A. Inventory of Lead Service Lines

All water systems were required by the original LCR to complete a materials evaluation of their distribution system in order to fulfill the sample site selection tier criteria outlined in 40 C.F.R. §141.86 (a). Systems with LSLs have to identify enough sites so that 50 percent of their samples for each monitoring period come from sites served by a LSL. Only systems triggered into LSLR have to specifically identify the initial number of LSLs in their distribution system and identify the portion(s) owned by the system (§141.84(b)(1)). Prior to promulgation of the LCR, AWWA estimated the total number of LSLs in the United States to be approximately 12 million (Michelle Frey, 1989). Over the past 20 years, towns and cities have implemented service line replacement programs driving down the total number of LSLs. More recent estimates by USEPA indicate that the remaining number of service lines (total full and partials) in the United States is roughly 10.3 million.

B. Replacement Rate of at least 7%

A LSLR program is required if there is a lead action level exceedance, and the water system has already installed corrosion control and/or source water treatment. The start of the replacement program begins the first day following the end of the monitoring period in which the action level was exceeded. No later than 12 months after the water system exceeds the lead action level, it must provide the State with documentation of its completed materials evaluation, the total number of lead service lines in its distribution at the time of the lead action level exceedence, and a schedule for annually replacing at least 7% of its service lines. For water systems to meet the minimum 7% annual replacement requirement, they may do partial replacements, replace the entire lead service line, or deem a lead service line "replaced" through testing by using the optional test-out provision of §141.84 (c). To test-out a lead service line, a water system takes samples from the actual lead service line as described in 40 C.F.R. §141.86(b)(3) and if all sample results are 15 µg/L or less, the line can be considered replaced and counts toward the 7% annual replacement requirement. This is commonly known as a "test-out". If a water system is currently below the action level and exceeds again in the future, it must put those lines that had previously tested-out back into the sampling pool to be reevaluated. If those lines are tested again, all samples from those lines must be 15 µg/L or less in order to be counted towards replacement.

The 7% replacement rate is based on a 15-year program. However, systems that meet the lead action level in two consecutive six-month monitoring periods can stop their lead service line replacement program at that point. If a water system stops a replacement program and begins the program during a future year, the updated inventory (including lines previously deemed "replaced" through testing) to be replaced would be divided by the remaining number of years within that 15-year timeframe. For water systems that have reached the end of a 15-year replacement program, the State will develop a schedule for replacing or retesting lines that were previously tested-out under the replacement program when/if the system exceeds the lead action level in the future. The State has discretion to place the water system on a shorter lead service line replacement program.

The following is an example of how to calculate the annual rate based on the 15-year program:

Example: Annual 7% Replacement Rate Calculation

- System has 5,000 total lead service lines at start of the replacement program
- System replaces 7% of the initial number of lines for three years = 350 lines physically replaced each year (no lines were deemed "replaced" through testing) = 1050 total lines replaced

- System stops replacing lead service lines since system's 90th percentile is below the lead action level for two consecutive six month monitoring periods
- System exceeds the lead action level in a future year and resumes the replacement program
- System is now required to replace 329 service lines per year, which represents the updated inventory (5,000 initial lines – 1050 lines physically replaced) divided by 12 (remaining number of years in the 15-year program)

C. Customer Notification

If a water system owns the entire length of the lead service line, it is required to replace the full line. In cases where the water system does not own the entire length of the service line, the water system must notify the owner or the owner's authorized agent prior to starting the replacement program. The water system must tell the owner or authorized agent that it will replace the portion of the service line it owns and offer to replace the portion of the line the system does not own at the owner's expense. At least 45 days prior to conducting a partial replacement of a LSL, the water system must provide notice to residents of all housing or occupants of buildings served by the line, which explains that they may experience a temporary increase of lead levels in their drinking water, along with guidance on measures they can take to minimize their exposure. This same type of notification may be provided in fewer than 45 days if the partial line replacement is the result of an emergency repair.

D. 72-hour Follow-up Sample Following Partial Replacement

When a system performs a partial LSLR under the rule, it is required to gain access to the home within 72 hours to take a sample from the service line (at the system's expense). The system must provide the results to the owner of the property and resident(s) served by the line within three business days of receiving the sampling results. If the site served by the LSL is a multifamily residence, the water system has the option to post the sample results in a common area where it can easily be seen by everyone. The purpose of this sampling is to communicate to the resident at the site that lead levels may be elevated, and may persist for a period of time. Water systems must report the results of the 72-hour sampling to the State within the first ten days of the month following the month in which the system receives the laboratory results.

E. Annual Reporting to the State Primacy Agency

After each year of the water system's LSLR program, the system must submit a report to the State primacy agency which describes the progress of the program. A water system must report that it has replaced 7% of the number of LSLs in its distribution by conducting full or partial replacements and/or testing-out lines through sampling. Included in this report are the number of service lines that were scheduled for replacement and the actual number and location of each line replaced. In addition, if any LSLs were sampled, the systems must include the water lead concentration, date, location, and sampling method used.

IV. Science Advisory Board Review of Effectiveness of Partial Lead Service Line Replacement and National Drinking Water Advisory Council 2011 Recommendations

A. Science Advisory Board Review

EPA asked the Science Advisory Board (SAB) to evaluate the current scientific data regarding the effectiveness of partial lead service line replacement (PLSLR) with respect to five issues: (1) associations between PLSLR and blood lead levels in children; (2) lead tap water sampling data before and after PLSLR; (3) comparisons between partial and full LSLR; (4) PLSLR techniques; and (5) the impact of galvanic corrosion. The SAB deliberated and sought input from the public at meetings held on March 30 and 31, 2011 and during a public conference call on May 16, 2011. SAB's final report, entitled "SAB

Evaluation of the Effectiveness of Partial Lead Service Line Replacements" was transmitted along with a memorandum to the EPA Administrator on September 28, 2011.

That cover memorandum noted that:

"…The SAB finds that the quantity and quality of the available data are inadequate to fully determine the effectiveness of PLSLR in reducing drinking water lead concentrations. The small number of studies available had major limitations (small number of samples, limited follow-up sampling, lack of information about the sampling data, limited comparability between studies, etc.) for fully evaluating PLSLR efficacy. Nevertheless, despite these limitations, the SAB concluded that PLSLRs have not been shown to reliably reduce drinking water lead levels in the short-term, ranging from days to months, and potentially even longer. Additionally, PLSLR is frequently associated with short-term elevated drinking water lead levels for some period of time after replacement, suggesting the potential for harm, rather than benefit during that time period. Available data suggest that the elevated tap water lead levels tend to then gradually stabilize over time following PLSLR, sometimes at levels below and sometimes at levels similar to those observed prior to PLSLR." (SAB Report, 2011).

The SAB also examined data on full LSLR and noted: "In studies of full LSLR and PLSLR, the evaluation periods have been too short to fully assess differential reductions in drinking water lead levels. With this caveat, full LSLR appears generally effective in reliably achieving long-term reductions in drinking water lead levels, unlike PLSLR. Both full LSLR and PLSLR generally result in elevated lead levels for a variable period of time after replacement. The limited evidence available suggests that the duration and magnitude of the elevations may be greater with PLSLR than full LSLR." (SAB Report, 2011).

B. National Drinking Water Advisory Council 2011 Recommendations

In December of 2011, based on a review of available information at the time, including the SAB report, the National Drinking Water Advisory Council (NDWAC) recommended that EPA not require either partial or full LSLR. Also, the council urged EPA to issue immediate guidance on the possible negative health impacts related to compliance with the current LSLR provisions of the LCR. In addition, the council recommended that EPA consider suspending enforcement of the LSLR requirements. NDWAC was supportive of notifying homeowners about all replacements of LSLs for any reason (*e.g.*, those associated with water main repair or routine infrastructure replacements), not just those required by the LCR.

V. Options for Lead Service Line Replacement Provisions of the LCR

The options listed in Section V are described individually, however a combination of options could work together.

A. Lead Service Line Replacement – Options for Consideration

(1) Eliminate Partial Lead Service Line Replacement

In response to SAB and NDWAC recommendations, EPA is considering an option to eliminate the requirement to perform a PLSLR when the property owner does not agree to pay for the replacement of the portion of the LSL on private property after the action level has been exceeded. Full LSLR would be required by the LCR if the water system owns the entire LSL, or the property owner agrees to pay for the replacement on the private side.

(2) Eliminate the "test-out" provision

EPA is considering revisions to the LCR that would not allow a water system to "test-out" a lead service line as described in 40 CFR §141.84 (c). Studies conducted since the initial LCR was promulgated have shown that lead levels within a LSL can be highly variable (Del Toral et al., 2013; HDR Engineering, 2009;

Sandvig et al., 2008; Schock and Lytle, 2010). In addition, there are many factors that can affect lead release, and lead levels can change due to physical disturbances of the line and changes in water chemistry.

(3) Delay Mandatory LSLR Requirement Until after CCT Re-optimization

Under the current rule, water systems that exceed the lead action level must start the LSLR program after installing optimal corrosion control treatment. Many systems installed optimal corrosion control treatment under the LCR in the 1990s, so they currently start the LSLR program immediately after the lead action level exceedance. EPA is considering revising the monitoring protocols for systems with lead service lines which may affect the sampling results and change the number of systems that must optimize corrosion control and/or conduct LSL replacement. Thus, EPA is considering allowing water systems time to re-optimize their treatment prior to requiring LSLR. EPA envisions this additional time would give water systems the opportunity to run any necessary studies needed to fully assess their system, including simultaneous compliance issues, and determine the best treatment options for their system.

(4) Retain an Enforceable Annual Percentage LSLR Requirement

Under this option, a water system would be required to conduct full replacement of 7% of the LSLs in its distribution system per year, or an alternative annual percentage if the system meets certain criteria. EPA is considering allowing a system to meet an alternative percentage in a particular year if the system certifies in writing it has contacted all owners/residents in the inventory and cannot find a sufficient number of owners/residents that agree to have their privately owned portion of the LSLs replaced. This option would be impacted depending on whether and how EPA revises the definition of control for LCR purposes.

Under this option, EPA would not limit a system's ability to choose from various strategies to meet the 7% LSLR requirement. Water systems could be as creative as they would like, which may include increased notification to property owners or utilizing financial resources like Drinking Water State Revolving Funds if allowed by the State.

EPA is considering retaining an enforceable LSLR metric to help drive the long-term removal of LSLs and maintain accountability and transparency. The Agency also recognizes it may be more challenging for systems to meet the minimum 7% annual LSLR requirement in light of other possible changes to the LCR (*e.g.*, no longer allowing partial LSLRs, removing the test-out provision), which is why EPA may also allow a system to remove less than 7% in a particular year if it satisfies specific criteria. This option may also be coupled with more robust notification requirements, which may facilitate more LSLRs.

(5) Require water systems to provide impacted owners and residents with a NSF/ANSI 53 certified pitcher-filter unit that removes lead before the system begins any LSLRs

One potential option would be for water systems with a lead action level exceedance to provide flow-through pitcher filters that are certified to meet NSF/ANSI standards to remove lead and replacement filters to all households/buildings served by a service line that is entirely or partially made of lead. The replacement filters would have to be provided to consumers on an ongoing basis, typically every three months, until the water system is below the lead action level. The success of this option is driven by the consumer's willingness to use the pitcher instead of taking water from the tap for consumption. This choice is a temporary solution that does not permanently address the major source of lead in drinking water, which is the service line.

(6) Elective Full Lead Service Line Replacement Program

A potential alternative (option) for some systems might be to include provisions that would facilitate 'elective' full LSLR programs under the LCR in lieu of the triggered Optimal Corrosion Control

Treatment/mandatory LSLR requirements. Under this approach, systems that choose to remove all LSLs can do so in a structured and planned fashion to remove the lead source. An elective LSLR program can have advantages over a triggered LSLR program, including the ability to properly plan and take advantage of cost efficiencies by combining planned infrastructure work with LSLR, which could result in a cost savings for some water systems.

(7) Expand the Definition of Control Similar to What was Included in the 1991 LCR to Facilitate Full LSLRs

EPA's current rule requires a system to replace only the portion of the service line it owns. EPA is considering requiring a system to also replace the portion of the service line it does not own, but over which it may otherwise have authority. Given the exposure risk associated with partial replacements and the burden placed on homeowners who want full service line replacement but have no way to pay for removal of their portion of the line, the Agency is exploring an option with a broader definition of control in conjunction with other changes that would facilitate a LSLR program that is equitable for all residents. A LSLR program which prioritizes full LSLR, including measures to protect residents from any elevations of lead after replacement, would be an effective way to permanently remove the lead source and associated lead exposure. Water systems that are above the action level, may have residents who cannot afford to pay to have the privately owned portion of their service lines replaced, or be tenants in a home with an owner unwilling to pay for the replacement. This makes them vulnerable to potentially high levels of lead being released from these service lines. It is important to note that a change in definition of control alone does not solve the issue of cost of replacement for the property owner. EPA's rule does not and would not include requirements related to how public water systems would cover the expense of replacing lead service lines.

(8) Notification to Residents Impacted by Mandatory Lead Service Line Replacement

EPA is considering a requirement to provide a consumer notice to residents or occupants at the site prior to conducting a full LSLR as part of a LSLR program required by the LCR. The purpose of the consumer notice would be to communicate important information to the resident about the service line replacement work. For example, consumers could be educated about the possibility of being exposed to elevated levels of lead following the replacement. In addition, the water system could include directions on how to flush water in the service line immediately following the replacement work to clear the plumbing of particulates.

(9) Notification for Residents Impacted by Infrastructure Replacements, Including Emergency Repairs

Public water systems must undertake infrastructure maintenance and repair activities on a routine basis. During the course of these activities, LSLs are often disturbed and/or partially replaced. The number of LSLs that are affected during the course of routine infrastructure work is much greater than the number of LSLs affected by the triggered LSLR requirements under the LCR. Infrastructure replacements are not subject to the LCR, and there are currently no notification or other regulatory requirements for systems that conduct partial or full lead service line replacement in the course of conducting infrastructure maintenance or repairs. Therefore, under the existing rule a water system is not required to provide any type of notification to residents about the line replacement work it conducts and the associated risk of lead exposure. EPA is considering revising the rule to require a water system to provide the property owner a written notice at least 45 days before beginning the infrastructure replacement and as soon as possible for emergency repairs. The written notice could provide essential information on actions consumers can take to reduce possible health risks, to help them understand why full LSLR is important, and steps they can take to get their portion of the line replaced, if desired. Some examples of what could be included in the notice are the following: (1) a description of work planned and timing; (2) a statement that residents may experience an increase in lead levels in their drinking water for an

unknown period of time following service line replacements; (3) if timing permits, an offer to replace the service line on private property at the owner's expense; (3) a description of flushing directions on how to clear the service line of particulates after the service line has been replaced; (4) estimated costs of replacement and any financing options available to the owner for the replacement; and (5) a contact number for residents to call if they want to have their portion of the LSL replaced in the future. EPA is also considering whether to require systems to include the number and location of infrastructure replacements, including partial replacements resulting from emergency repairs to the State.

(10) Flushing Guidance for Residents Impacted by Lead Service Line Replacement

Studies in systems with LSLs have shown that current flushing practices may be ineffective at lowering lead levels and may actually increase the risk to residents. As such, different flushing instructions may be appropriate for homes with LSLs as compared to homes without LSLs (Del Toral et al., 2013). EPA is considering another option to have community water systems, once they have begun a LSLR program, to perform a one-time flushing study on family residences based on majority of the housing stock (*e.g.*, single-family, multi-family). The system would then have to develop system-specific daily home flushing guidance. This guidance would be included as part of the system's public education materials delivered to residents required by 40 C.F.R. §141.85.

B. Funding Consideration for Lead Service Line Replacement

The Drinking Water State Revolving Fund

The Safe Drinking Water Act, as amended in 1996, established the Drinking Water State Revolving Fund (DWSRF) to make funds available to drinking water systems to finance infrastructure improvements. The program also emphasizes providing funds to small and disadvantaged communities and to programs that encourage pollution prevention as a tool for ensuring safe drinking water. While EPA cannot prescribe how loan or grant funds from the DWSRF must be used in State programs, lead service line replacement projects, regardless of the ownership of the property on which the pipe is placed, may be funded by a State's DWSRF as long as the loans are made to an eligible entity and all other requirements of the DWSRF are met (USEPA Memorandum, 2012).

VI. References

Code of Federal Regulations Title 40 Protection of Environment, Part 141 §§141.84, 141.85 and 141.86.

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EARTHJUSTICE

ALASKA CALIFORNIA FLORIDA MID-PACIFIC NORTHEAST NORTHERN ROCKIES
NORTHWEST ROCKY MOUNTAIN WASHINGTON, D.C. INTERNATIONAL

Appendix E: November 11, 2014

Via email to: LCRWorkingGroup@epa.gov
National Drinking Water Advisory Council
Lead and Copper Rule Working Group

Via U.S. Mail to:
Environmental Protection Agency
Office of Groundwater and Drinking Water
Mail Code: 4601M
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: Lead and Copper Rule Long-Term Revisions: Issues Regarding Lead Service Line Replacement

To whom it may concern,

Earthjustice strongly recommends that EPA restore the broad interpretation of "control" for purposes of lead service line replacement that EPA previously adopted in the 1991 Lead and Copper Rule. As detailed below, the narrower "ownership" approach to lead service line replacement that was adopted under the 2000 revisions to the Lead and Copper Rule has failed to achieve the fundamental goals of the rule. Rather than fostering removal of lead from public drinking water infrastructure, the ownership approach fostered extensive *partial* lead service line replacements that have been shown to aggravate conditions that cause lead to leach from pipes into water, causing at least a temporary increase in health risks to people served by the affected service lines.[1] The ownership approach may also encourage public water systems to embrace a very narrow interpretation of their own control of service lines that further undermines public health and the goal of removing sources of lead from the distribution system. The current long-term revision process presents an opportunity to address these

[1] U.S. EPA, Office of the Administrator Science Advisory Board, Evaluation of the Effectiveness of Partial Lead Service Line Replacements, September 28, 2011, p. 10 (available at http://yosemite.epa.gov/sab%5Csabproduct.nsf/964CCDB94F4E6216852579190072606F/$File/EPA-SAB-11-015-unsigned.pdf) (last visited Oct. 28, 2014).

shortcomings and get back on track toward fulfilling the public health goals of SDWA and the Lead and Copper Rule.[2]

BACKGROUND

Health hazards of lead exposure and the history of using lead in drinking water infrastructure

Lead is a dangerous poison that adversely impacts nearly every system in the body. No level of lead has been found to be safe for humans, and lead is particularly harmful to developing fetuses and children. People have known of the human health hazards associated with lead for many years, dating back to first century Romans.[3] The early focus on lead hazards tended to center on extreme acute exposure and severe poisoning events. But since the 1970s more evidence has emerged which establishes "a causal association between very small increments in blood lead – from 0.5 to 3 [micrograms of lead per deciliter of blood (μg/dL)] – and highly significant increases in blood pressure, risks of atherosclerosis, and premature death due to cerebrovascular disease and stroke."[4] Health harms associated with blood lead levels in this range also include impairment of a growing child's neurodevelopment including attention deficit disorder, learning disabilities, disruptive behavior, and a range of sociopathic behaviors including delinquency and drug use.[5]

U.S. regulatory responses to this hazard have been slow and incomplete due in part to lack of political will, and in part to intentional obfuscation by dating at least as far back as the 1920s when, for example, the Ethyl Gas Corporation deceived the public about dangers of leaded gasoline.[6] Consequently, while information about the hazards of leaded gasoline became widely known in the 1920s, it was not until the 1990s that Congress mandated that lead be removed from U.S. gasoline supplies. Similarly, lead-based paint continued to be used in homes until the late 1970s.

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[2] Among other things, EPA's goal for the Lead and Copper Rule Long-Term Revisions process is to "[r]emove sources of lead in the distribution system; encourage optimization of [corrosion control treatment] to prevent lead leaching; address environmental justice concerns associated with [lead service line replacement]; and maintain and enhance enforceability of the LCR. EPA, LCR Long-term Revisions White Paper, available at: http://water.epa.gov/drink/ndwac/upload/lcrwgmeetsumaxd32514.pdf (last visited 10/23/14).

[3] Jack Lewis, *Lead Poisoning: A Historical Perspective*, EPA Journal (May 1985), available at http://www2.epa.gov/aboutepa/lead-poisoning-historical-perspective (last visited Oct. 28, 2014);

[4] See Testimony of Dr. Ellen K. Silbergeld, *Lead Exposure in D.C.: Prevention, Protection and Potential Prescriptions* (June 15, 2010) at 3, and studies cited therein. http://web.jhu.edu/administration/gcpa/govt_affairs/federal/images/pdfs/Silbergeld_lead_exposure_6.15.10.pdf (last visited Oct. 28, 2014).

[5] *Id*.

[6] Robert N. Proctor, PhD, review of *Deceit and Denial: The Deadly Politics of Industrial Pollution*, N. Engl. J. Med. 2003; 348:2696-2697 (June 26, 2003).

Amid this background of knowledge about the hazards of lead, lead pipes have continued to be used in public water systems that deliver drinking water to homes and businesses. Water is carried from a treatment facility to the communities it serves via large water mains, and then flows into individual buildings through smaller "service lines." While corrosion can cause lead from any part of this distribution system to leach into tap water, this memorandum focuses on lead service lines. Lead service lines were commonly used until the mid-1950s,[7] although municipalities may have continued installing them up until 1986 when they were banned. In 1991 EPA estimated that there were at that time "about 10 million lead service lines/connections in the United States and that about 20 percent of all public water systems [had] some lead service lines/connections within their distribution system."[8] EPA's current estimates indicate that there are still roughly 10.3 million full or partial lead service lines in the United States.[9]

In at least one city, the utility and local government were aware of potential risks to public health due to the presence of lead service lines in their systems, but did nothing to remedy the problem.[10]

Regulatory history

The Safe Drinking Water Act ("SDWA"), 42 U.S.C. 300f et seq., requires EPA to set standards for drinking water quality, including maximum levels for contaminants that may have an adverse effect on the health of persons. SDWA applies to every public water system ("PWS") in the United States. A PWS is defined as "a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves at least twenty-five individuals." 42 U.S.C. § 300f (4)(A).

EPA published the Lead and Copper Rule in 1991 in response to Congress' 1986 amendments to the Safe Drinking Water Act.[11] EPA had originally contemplated setting a

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[7] DC Water and Sewer Authority, Understanding Lead and Water website ("In the U.S., lead service pipes were installed until the mid-1950s. Older properties may still have lead service pipes, which connect the water main in the street to household plumbing.") http://www.dcwater.com/lead/default.cfm (last visited Oct. 28, 2014).

[8] *Maximum Contaminant Level Goals and National Primary Drinking Water Regulations for Lead and Copper*, 56 Fed. Reg. 26460, 26466 (June 7, 1991) (hereafter "1991 Lead and Copper Rule" or "1991 LCR"). EPA based its estimate on a survey by the American Water Works Association.

[9] U.S. EPA, Lead Service Line Replacement Primer for Nat'l Drinking Water Advisory Comm. Lead and Copper Rule Working Group (Oct. 22, 2014).

[10] We are aware of one such instance. Prior to enacting the D.C. Water and Sewer Repair and Compensation Act of 1976, the District of Columbia Council considered but rejected Bill No. 1-18, which would have imposed a requirement "to undertake a study regarding the hazards associated with the use of lead pipes throughout the water distribution system."

[11] 1991 Lead and Copper Rule, 56 Fed. Reg. at 26460. Before 1991, under an interim rule published by EPA in 1975, the maximum contaminant level for lead was 0.050 milligrams per liter. *Id.* at 26463.

maximum contaminant level of zero for lead in drinking source water, but in the final 1991 rule EPA agreed with commenters who "argued that setting [a maximum contaminant level] for levels in source water in addition to the treatment technique requirements for corrosion by-products would result in unnecessary confusion among the public and the regulated community."[12] Instead of setting a maximum contaminant level, EPA adopted a final rule "consisting solely of a treatment technique that seeks to remedy all sources of lead and copper contamination caused by both corrosion and contaminated source water." *Id*. EPA also established a maximum contaminant level *goal* of zero, and stated that "[t]he goal of [the] rule is to provide maximum human health protection by reducing the lead and copper levels at consumers' taps to as close to the [maximum contaminant level goal] as is feasible."[13]

The treatment technique requirements include corrosion control treatment, source water treatment, lead service line replacement, and public education. The rule requires the PWS to monitor a specified number of sites depending on the size of the system.[14] Treatment techniques are triggered if samples show an exceedance of the "lead action level" under the rule, which is "exceeded if the level of lead in more than 10 percent of the targeted tap samples is greater than 0.015 mg/L (90th percentile)."[15] If the action level is exceeded and the system has already installed corrosion control or source water treatment, the PWS must undertake a lead service line replacement program to annually replace "at least 7 percent of the initial number of lead service lines in its distribution system."[16]

Prior to revisions adopted in 2000, the 1991 rule required that a PWS replace the entire portion of the lead service line over which the PWS has control. The rule established a presumption that a PWS controls the entire service line unless the PWS demonstrated that it lacked any of the forms of control recognized by the rule, which included "authority to set standards for construction, repair, or maintenance of the line, authority to replace, repair, or maintain the service line, or ownership of the service line."[17] A PWS that controlled only part of a service line was required to replace only the portion of the service under its control, and was required to offer to replace the private portion of the service line at the expense of the private lot owner.[18]

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[12] *Id*., 56 Fed. Reg. at 26472.

[13] *Id*., 56 Fed. Reg. at 26478.

[14] 40 C.F.R. § 141.86(d)(2).

[15] *Id*.; 40 C.F.R. § 141.80(c)(1).

[16] *Id*. § 141.84(a), (b)(1).

[17] 1991 Lead and Copper Rule previously codified at 40 C.F.R. §§ 141.84(d), 141.84(e) (1991) ("(d) A water system shall replace the entire service line (up to the building inlet) unless it demonstrates to the satisfaction of the State under paragraph (e) of this section that it controls less than the entire service line… (e) A water system is presumed to control the entire lead service line (up to the building inlet) unless the system demonstrates… that it does not have any of the following forms of control over the entire line[]: authority to set standards for construction, repair, or maintenance of the line, authority to replace, repair, or maintain the service line, or ownership of the service line.").

[18] *Id.*

Following revisions adopted by EPA in 2000, the current version of the Lead and Copper Rule only requires the PWS to replace the portion of the service line that the PWS owns.[19] EPA adopted the "ownership" approach based in part on speculation that "the broader definition of 'control'... could result in unintended delays and other complications."[20] The current rule does not address how ownership of service lines is to be determined or what form of proof of non-ownership a PWS is required to provide, if any. Similar to the 1991 rule, for any portion of the service line that the PWS does not own the rule requires the PWS to notify the abutting lot owner that the PWS is going to replace the portion of the service line that it owns, and requires the PWS to offer to replace the portion of the line on private property at the property owner's expense. If a homeowner is unwilling or unable to pay for replacing the portion of the service line inside their property boundary, a PWS can undertake only a partial lead service line replacement.

Public commenters in 1996 and 1998 "expressed concern about the possible adverse health effects associated with partial replacement" of lead service lines, citing case studies showing that "replacing only part of the service line could actually increase the lead levels at the tap because of galvanic action, the disruption of the protective coating on the inside of the pipe and the entry of particulate lead to the supplied water."[21] EPA "confirmed that lead levels at the tap, will in some instances, increase immediately after partial replacement of the LSL," but without supporting data EPA opined that "over the long run, lead levels will decrease below the pre-replacement levels."[22] EPA also stated that "the temporary rise in lead levels indicates not only the presence of lead materials in [lead service lines], but also poor corrosion control," and surmised that "potential for temporary increases in lead levels will be minimal for those systems where corrosion control has been fully implemented and optimized as required by the Rule."[23]

EPA did not assess the affordability of full service line replacement for private lot owners, or address disparate impacts of the rule upon lower-income property owners and non-owner residents. However, EPA speculated that "many systems required to replace [lead service lines] will receive consent to remove any privately-owned portions since it is in the homeowners' interest to completely remove this source of lead in their drinking water."[24]

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[19] 2000 Lead and Copper Rule Revisions, 65 Fed. Reg. at 1950, 1966 (Jan. 12, 2000) (stating that "EPA has eliminated the 'control' terminology from the Rule" and "revise[d] §141.84(d) to require the water system to replace only the portion of the [lead service line] that it owns.").

[20] *Id.* at 1963.

[21] *Id.*, 65 Fed. Reg. at 1964.

[22] *Id*.

[23] *Id*.

[24] *Id*. at 1964-65.

ANALYSIS

EPA must restore the broad interpretation of "control" for the lead service line replacement requirement in order to realize the goals of the Lead and Copper Rule. The "ownership" approach raises serious public health and equity concerns because it requires private property owners to pay for replacing any portion of the service line that the PWS claims is not publicly owned. The rule therefore significantly increases the likelihood of partial service line replacements for properties where the owners are unable or unwilling to pay the substantial cost of replacing the portion of line within private property boundaries.[25] For example, between October 2002 and September 2003, DC Water was required to replace 1,615 lead service lines to satisfy the requirement in 40 C.F.R. § 141.84(b) that at least seven percent of the initial number of lead service lines be replaced annually.[26] In total, 1,626 service lines were affected by DC Water's replacement program. Of these, only 79 involved full lead service line replacements, while 306 involved partial replacement.[27] The rest were "tested out" and therefore deemed to be "constructive replacements."[28]

EPA predicted in 2000 that "[c]onfusion could result from different perceptions of the precise scope of the system's legal authority, and resolution of such disputes could require the intervention of the State in a potentially time-consuming process."[29] But the same could be said regarding the potential for confusion about the scope of the PWS's ownership. The disincentive for conducting full service line replacements can be exacerbated where a PWS or municipality adopts a narrow interpretation of its ownership of lead service lines.

1. The current rule incentivizes PWSs to claim that private property owners own the portion of the service line in the public space.

Statements and surveys of PWS officials raise cause for concern that utilities and local governments may be attempting to minimize their mandatory duties under the Lead and Copper Rule by asserting that the entire service line, from the main to the building inlet, is owned by private property owners. Successfully asserting that the entire service line is owned by the private property owner could enable a PWS to avoid the mandatory duty to replace lead service lines. We are not aware of any active effort to require lot owners to pay the full cost of

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[25] *See* D.C. Appleseed Center, *Lead in the District of Columbia Drinking Water: A Call for Reform*, December 2004, p. 33. *Available at* http://www.dcappleseed.com/wp-content/uploads/2013/09/leadreport3.pdf (emphasis added) (last visited 10/31/14) (estimating that costs of replacing service lines on private property are approximately $2,500 per home).

[26] Administrative Order for Compliance on Consent, Docket No. SDWA-03-2004-0259DS, p. 4 (2004).

[27] *Id.* at 7.

[28] A "test out" occurs when the lead concentration of all samples from a particular line contain less than or equal to 0.015 mg/L. Under 40 C.F.R. § 141.84(c) this is deemed a "constructive replacement," and counts toward the seven percent annual replacement requirement. The Lead and Copper Rule long-term revision may address questions regarding the accuracy of "test out" protocols.

[29] 2000 Lead and Copper Rule Revisions, 65 Fed. Reg. at 1963 (citing comments on EPA's April 1996 proposed rule revisions).

full service line replacements. This does not eliminate our concern, since the mandatory duties for lead service line replacement under the current Lead and Copper Rule turn on ownership. Absent a mandatory federal duty, individual water consumers are left at the mercy of local policy. A national public health law that depends on local policy is not adequately protective, and raises serious environmental justice concerns regarding for communities that lack adequate political representation.

Washington, D.C.'s PWS provides the most prominent example. According to public reports, DC Water has recently publicly asserted that private property owners in the District own the entire service line from the water main to the tap.[30] Indeed, language on DC Water's website was altered in 2012 in a manner that could be construed that way. Until March 2012, the website stated simply: "To encourage pipe replacement on private property, DC WASA is offering homeowners the chance to replace their lead service pipe at the same time that contractors replace the lead pipe on public property."[31] The website now reads:

> Each year, DC Water replaces lead service pipes in conjunction with scheduled infrastructure upgrades…. During these projects, DC Water replaces water service pipes in public space, including the replacement of any existing lead service pipes, and will offer to coordinate the replacement of the water service pipe on private property, at the owner's expense…. *The water service pipe connects the water main in the street to your household plumbing. The water service pipe is owned by the property owner*. However, under certain conditions such as construction projects, DC Water is authorized to repair, maintain or renew the portion of the service pipe in public space. Maintenance of the portion of the service pipe on private property is the exclusive responsibility of the property owner.[32]

If DC Water is now publicly taking the view that the entire service line from the main to the building is owned by private lot owners, this stance could reflect a troubling nationwide trend occurring quietly behind the scenes, as evidenced by a recent report:

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[30] Sheila Kaplan and Corbin Hiar, *How an EPA Project Backfired, Endangering Drinking Water With Lead* (Aug. 8, 2012) (quoting DC Water's legal counsel: "'Questions were raised as to who is responsible for doing what in public space, whether or not the property owner is responsible. Are they responsible for doing everything, if they do their own half?'" DC Water's legal counsel "declined to say who raised the questions. He said he researched the history of the relevant codes, and found that an 1896 statute passed by Congress *gave property ownership of the entire line, from the water main to the tap, to the property owner*. The District of Columbia enacted revisions in 1977, [he] said, to 'maintain, renew and replace the portion in public space.' [He] said the D.C. City Council's policy is that the utility will still pay to replace the public portion of the service line, but that his review of the law says the D.C. code, 'did not transfer ownership.'") (emphasis added).

[31] *Id.*

[32] DC Water, Lead Service Pipe Replacements website, available at: http://www.dcwater.com/lead/pipe_replacement.cfm (last visited Oct. 28, 2014) (emphasis added) (copy on file).

> According to a survey of 90 utilities of varying sizes and from different regions, published in a 2008 report by the industry-funded [American Water Works Association] Research Foundation and EPA, "77 percent of utilities responding claimed ownership of the service line from the main to the curb stop [property line] …." Yet … three years later, the water association conducted another survey, which found that of its 805 respondents, 69 percent said they did not own any of the lead service line.[33]

The implications of these two surveys are unclear in part because the second survey covered many more respondents, and also because it is unclear whether the respondents to the first survey were included in or were representative of the respondents in the later survey. If the surveys reflect a nationwide trend of PWSs adopting a narrow interpretation of their ownership of service lines, it starkly illustrates a serious flaw with the ownership approach. Allowing PWSs to adopt policies or interpret local laws in a way that undermines the goals of the Lead and Copper Rule could have grave consequences for public health and environmental justice.

While we do not think there is strong legal support for the view that private property owners in the District of Columbia own the service lines under public space, there can be no question that DC Water's claims regarding ownership raise complicated legal questions. It is easy to see why individual private property owners would be at a severe disadvantage when confronted by a PWS' assertion that the private owner owns the entire service line, particularly property owners or residents with no financial resources or access to legal representation. Placing these complex questions at the center of the lead service line replacement program does nothing to foster removal of lead from systems, and is completely at odds with EPA's primary justification for adopting the ownership approach in the first place. Further, issues of practicality and fairness counsel strongly against a policy that would allow any PWS to avoid its duty to protect public health by claiming that the PWS does not own any portion of a lead service line.

The current discussion is the latest in a history of disputes over the fairness of requiring property owners to pay for service lines over which they have almost no practical control. A group of private property owners in the District challenged the 1896 Drainage Act in a case that reached the U.S. Supreme Court, *D.C. v. Brooke*, 214 U.S. 138 (1909). While the Act was upheld, the Court's opinion in that case serves to highlight the unfairness of requiring private property owners to pay for replacing the dangerous lead service lines that serve their homes. The court explained that Congress has the power to establish a uniform system which a property owner *must* conform to.[34] The Court added that the lot owner could not avoid connecting to the District's system by arguing that the owner had "adopted a system of his own" that was better than the one prescribed by the District under the Drainage Act.[35] Not only did the law compel

[33] *See* Kaplan, cited above. We were not able to find results of any more recent PWS surveys regarding ownership of service lines.

[34] *D.C. v. Brooke,* 214 U.S. at 148.

[35] *Id.*

lot owners to conform to a deficient water system, it now requires them to personally bear the costs of its replacement with a non-deficient system. Since lot owners have no control over service line specifications, it is particularly unjust to require them to pay for damage stemming from a state's or municipality's choice of a hazardous material.[36]

In the District of Columbia, the unfairness of the current rule is most acute with respect to service lines that were installed after 1976. Among the several bills that were considered by the D.C. Council as alternatives for revising the D.C. Drainage Act of 1896, Bill No. 1-18 directed the mayor "to undertake a study regarding the *hazards associated with the use of lead pipes* throughout the water distribution system," and "report to the Council his findings and recommendations including his statement [of] estimated costs and projected time periods required to perform any corrective measures."[37] The Council *refused* to incorporate this provision into the final version of the bill enacted on December 30, 1976.[38] To require lot owners to bear the cost of replacement of defective pipes that were prescribed by the municipality where the municipality had knowledge of their potential defects and did nothing to prevent their installation is nothing less than egregious.

2. Determining ownership of service lines is far more complex and difficult than determining a PWS has control over service lines.

DC Water's statements disclaiming service line ownership appear to rest primarily upon an 1896 Act adopted by the U.S. Congress to "provide for the drainage of lots in the District of Columbia" ("1896 Drainage Act").[39] The 1896 Drainage Act has been subject to several revisions, and the current version is set forth at D.C. Code § 8-201, *et seq.* The 1896 Drainage Act required all property lots that were situated on a street where there was a public sewer, and that contained a building used as a dwelling, factory, business, or animal shelter, to be connected with the sewer and water main.[40] The 1896 Act specified that the work must be "done in accordance with the regulations governing plumbing and house drainage in [the] District."[41] The Act made failure to connect a misdemeanor punishable by a daily fine, and it provided that if the owner of the lot could not be located it would be the duty of the District to make the connection, with the expense "assessed as a tax against such lot."[42] DC Water's theory seems to be that because property owners in 1896 were required to pay to install the full length of the

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[36] See *Horton v. Inhabitants of N. Attleboro*, 302 Mass. 137 (1939) (holding that a PWS was negligent and responsible to injury caused for consumer who was poisoned by lead leached into drinking water through lead service line installed according to the PWS specifications).

[37] *See* Committee Report on Bill 1-65 at 13, 18, discussing Title IV, sec. 401(b) of Bill No. 1-18 (emphasis added).

[38] *Id*. at 18.

[39] 29 Stat. 125, ch. 206 (May 19, 1896), amended by 64 Stat. 393, ch. 513 (Aug. 1, 1950), now codified at D.C. Code § 8-201 *et seq*.

[40] 1896 Drainage Act §§ 1, 2.

[41] *Id.* § 2.

[42] *Id.* §§ 3, 4.

service line serving their property, the current property owners now own the service lines in both private and public space.

Statutes and ordinances like the 1896 Drainage Act are more appropriately viewed as analogous to an exaction,[43] or impact fee.[44] These mechanisms are used to require property owners to contribute financially to improvements that are made in the public way for the public good, but they do not create an ownership interest in the public improvements themselves. To argue that the lot owner owns the public portion of the service line just because they were required to pay for it is akin to arguing that the property owner owns the public parks or wetlands they were required to pay for as a condition for developing their property. In fact, it has been held that a municipality *cannot* give away its rights in the public way. One treatise on the law of municipalities affirms this principle, stating that "[o]ne who builds a private sewer in a public street, with the city's permission, it has been held, does not own the sewer. A city, it has been said, cannot give away its rights in the public streets."[45]

DC Water may also be relying on the legislative history of amendments to the 1896 Drainage Act, the Water and Sewer Repair and Compensation Act of 1976.[46] The Committee Report for the 1976 amendments[47] recites a legal opinion offered by the District of Columbia's legal counsel who took the view that, under legal arrangements that existed before the 1976 Drainage Act, "once connection is made, the property owner is deemed the owner of such

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[43] "Exactions" are "various dedications and conditions, but also fees or charges for off-site improvements, service capacity expansion, or facilities. Typical exactions include water and sewer facilities, other utilities or other facilities, off-site street improvements, parks, public resource access, public safety, wetlands protection, and flood control." 1 Subdivision Law and Growth Mgmt. § 6:20 (2d ed.).

[44] Impact fees are similar: "[i]mpact fees are a popular type of exaction used to finance the incremental cost of improvements to those public facilities and services necessitated by new development. Impact fees have been upheld as a means of requiring developers to pay for improvements to roadways and other municipal facilities, such as stormwater collection systems and water and sewer systems." State and Local Government Land Use Liability § 18:2.

[45] 11 McQuillin Mun. Corp. § 31:9 (3d ed.) and cases cited therein. The context makes clear that the term "sewer" refers to service lines or other connections, not to an entire sewage system. *See also City of Shawnee v. Thompson*, 275 P.2d 323, 324 (Ok., 1954) ("The permission given by the city to plaintiff to build the sewer line did not give plaintiff a franchise for the use of the city streets for a private sewer. The city cannot give away its rights in the public streets. *The sewer here constructed was intended to be and did become an integral part of the city system*...") (emphasis added).

[46] D.C. Council Act 1-187 § 2, D.C. Law 1-98 (December 30, 1976) (effective March 29, 1977), now codified at D.C. Code § 8-205(b). The 1976 Act "provide[d] that the District of Columbia shall be responsible for the repair and maintenance of water service pipes and building sewers connecting lots with water mains and the public sewer." Under the 1976 amendments, DC Water is authorized to "perform maintenance or repair work on private property, in which case, the cost, including overhead expense, shall be paid by the property owner." However, private property owners are only charged for the cost of repairs on public property if the repairs were made necessary by the property owner or tenant's negligence. Id.

[47] Report to the D.C. Council from the Committee on Transportation and Environmental Affairs regarding Bill 1-65 ("Committee Report on Bill 1-65"). Bill no. 1-65 was vetoed by District's Mayor and replaced by the D.C. Council with Bill no. 1-319, which was "principally derived" and "substantially similar" to bill no. 1-65. Committee Report on Bill 1-65 at 4.

pipes."[48] This statement was "predicated on the theory that 'lateral water feeders or service pipelines from water mains in public space to private residences belong to the property owner *as an appurtenance to realty*.'"[49] However, under longstanding common law principles of property rights, an "appurtenance" does not necessarily bring with it an ownership interest, and is more commonly used to refer to easements, rights of access, or other similar privileges.[50] An appurtenance can be (and most often is) something incorporeal, such as a privilege or right that passes with the land to subsequent owners.[51] In other words, even if property owners and subsequent purchasers retain the *privilege* of using the service line in public space in order to draw water from a main, this does not mean that the physical materials are the personal property of the lot owner.

DC Water may be relying on the theory that a service line is a "fixture" to the private property, which is a similar but narrower concept than an "appurtenance." Under longstanding common law of property conveyances, fixtures are articles such as fences, paving stones, or buildings that are annexed or affixed to real estate such that they become part of the property.[52] However, a service line is as much affixed to a PWS' water main as it is to the private property, and there is no reason to focus on one connection while ignoring the other. Moreover, this theory runs contrary to the District's definition of "property line," which is contained within the District's law regarding service line connections: "'Property line" means *the line beyond which a private property owner has no legal or vested property rights in any fronting or abutting public space* or street….'"[53] The definition is unambiguous. Because private property owners have *no* legal rights to property beyond the line that marks the end of their property and the beginning of the public space, they cannot be said to own the service line in public space.[54]

The foregoing discussion is greatly simplified, but should be sufficient to illustrate why DC Water's attempt to disclaim ownership of service lines in the public space lacks a strong legal basis. Nonetheless, it serves as an example of the sort of claim that could be made by major PWSs across the country. Resolving such claims would be difficult, slow, and inefficient—and

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[48] *Id*. at 3.

[49] *Id.* (Emphasis added).

[50] An appurtenance is "[s]omething that belongs or is attached to something else." Black's Law Dictionary (9th ed. 2009) (citing as an example: "the garden is an appurtenance to the land.")

[51] *See* Herbert Thorndike Tiffany's treatise on real property law, 4 Tiffany Real Prop. § 998 (3d ed.); An appurtenance is "[s]omething that belongs or is attached to something else," citing as an example: "the garden is an appurtenance to the land.")

[52] A "fixture" is "an article which was once a chattel, but which, by being physically annexed or affixed to the realty, has become an accessory to it and part and parcel of it…. The character of the personal property attached to the real estate is determined at the time that the property is attached to the real estate." 35A Am. Jur. 2d Fixtures § 1.

[53] D.C. Code § 8-205(a)(2), (3), and (4) (emphasis added).

[54] "Real property" is not defined in the District's drainage provisions under D.C. Code, § 8-205. The Real Property Title of the D.C. Code sets forth a broad definition: "The words 'real property' mean every estate or right, legal or equitable, present or future, vested or contingent in lands, tenements, or hereditaments located in whole or in part within the District." D.C. Code § 42-1101.

would engender just the kind of delay and confusion that EPA said it meant to avoid in adopting the ownership rule in 2000.

3. Retaining the ownership-based rule undermines the purpose of the Lead and Copper Rule.

In its final 2000 rule EPA stated that "[i]n practice, EPA believes that many systems required to replace [lead service lines] will receive consent to remove any privately-owned portions since it is in the homeowners' interest to completely remove this source of lead in their drinking water."[55] However, by focusing on "consent" EPA elided over the most significant barriers to obtaining widespread homeowner participation: inability or unwillingness of homeowners to pay.[56] Nowhere in EPA's rule were questions of affordability addressed.

The choice in 2000 to focus on ownership rather than control has done nothing to reduce confusion and delay. If anything it exacerbated complications and erected new hurdles on the path toward eliminating drinking water lead contamination. In D.C., for example, the new rule substituted a *one-party compulsory* requirement with a *multiple-party cooperation-based* mechanism, encompassing more than a hundred thousand actors.[57] EPA's efficacy rationale was not served by exponentially increasing the number of parties to the transaction. Consequently, the new regime increased replacement-related complications and brought the replacement of private property service lines to a near-standstill:

> Perhaps *the most important complication* facing WASA's lead service line replacement program is that ownership of lead service lines in the District of Columbia is shared… Through the length of WASA's lead service line replacement program, beginning in fiscal year 2003 and running through the first quarter of fiscal year 2008, of the 14,260 lead service lines replaced in public space, only 2,128 homeowners replaced the private portion of their lead service line.[58]

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[55] 2000 Lead and Copper Rule Revisions, 65 Fed. Reg. at 1964-65.

[56] This phenomenon may have been exacerbated by ineffective public education about the risks of lead service lines. EPA staff reviewed DC Water's public education and outreach activities that occurred in response to elevated lead levels in the District's drinking water during 2002 and 2003, and published their findings and recommendations on April 30, 2004. Among other things, EPA found that among the District residents surveyed, only half had an "immediate sense of the urgency of the situation," which "was conveyed in the news rather than by WASA outreach directly." EPA, Recommendations for Improving the Washington DC Water and Sewer Authority Lead in Drinking Water Public Education Program, available at: http://www.epa.gov/dclead/pep_recommendations.htm#2 (last visited on 10/31/14).

[57] See U.S. Census Bureau, State and County Quick Facts, District of Columbia, *available at* http://quickfacts.census.gov/qfd/states/11000.html (last visited 10/31/14) (Number of non–multi-unit housing structures in D.C. was more than 114,000 in 2013.)

[58] The District of Columbia and Communities Nationwide Face Serious Challenges in Their Efforts to Safeguard Water Supplies, GAO-08-687T at 6-8 (April 15, 2008); *See also* GAO-05-344,Agencies Have Improved Coordination, but Key Challenges Remain in Protecting the Public from Elevated Lead Levels, Report to the Chairman,

Further, EPA's ownership rule could incentivize PWSs to adopt a novel interpretation of the term "ownership," or adopt a narrow interpretation of the extent of the PWS' ownership, in a manner that undermines the LCR's purpose. While EPA feared that requiring full service line replacement might cause delays, allowing a PWS to exempt itself from the replacement requirement could terminate service line replacement efforts altogether, leaving residents at the mercy of local policies or practices. The control-based replacement requirement is superior because it sets questions of ownership aside and requires a PWS to replace service lines if it has the authority to do so. By focusing on authority instead of ownership, the control-based approach also substantially reduces transaction costs because it does not require the *active* participation of multiple property owners.

By driving down private-property service line replacements, the current rule undermines the SDWA's purpose of protecting public health.[59] According to EPA's Science Advisory Board ("SAB"), "[t]he weight of evidence indicates that [partial lead service line replacement] often causes tap water lead levels to increase significantly for a period of days to weeks, or even several months."[60] These findings suggest that the practice of partial lead service line replacement has "the potential for harm, rather than benefit during that time period."[61] In addition, partial lead service line replacement does not result in a major reduction in observed lead levels in tap water.[62] Partial replacement can exacerbate plumbosolvency and give rise to

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Subcommittee on Environment and Hazardous Materials, Committee on Energy and Commerce, House of Representatives (March 2005), p. 4 (raising the same concerns as in 2005).

[59] Congress enacted the SDWA "to assure that water supply systems serving the public meet minimal national standards for protection of public health" (H.R. Rep. 93-1185, at 1 (1974), *reprinted in* 1974 U.S.C.C.A.N. 6454.)

[60] U.S. EPA, Office of the Administrator Science Advisory Board, Evaluation of the Effectiveness of Partial Lead Service Line Replacements, September 28, 2011 p. 2 (available at http://yosemite.epa.gov/sab%5Csabproduct.nsf/964CCDB94F4E6216852579190072606F/$File/EPA-SAB-11-015-unsigned.pdf)

[61] *Id*. at 23. *See also* V. K. Chambers & M. D. Hitchmough, ECONOMICS OF LEAD PIPE REPLACEMENT – DATABASE DESCRIPTION (TMU 9030), FINAL REPORT TO THE DEPARTMENT OF THE ENVIRONMENT 75 (1992), *available at* http://dwi.defra.gov.uk/research/completed-research/reports/dwi0290.pdf; DC Water, Press Release, Lead Levels Decrease Dramatically in Retest of Two Homes with Highest Levels (Mar. 11, 2004), *available at* http://www.dcwasa.com/site_archive/news/press_release147.cfm ("Tests have shown that cutting the lead pipes, which occurs when homeowners do not replace the portion of the pipe on their property at the time WASA is replacing lead pipes, may result in significant short-term increases in lead concentrations."); Rebecca Renner, *Reaction to the Solution: Lead Exposure Following Partial Service Line Replacement*, ENVIRON HEALTH PERSPECT. 118(5): A202-A208 (2010), *available at* http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2866705/. ("Washington, DC abandoned an extensive and expensive lead service line replacement program in 2008 in part due to data indicating partial replacement caused higher levels of lead in drinking water for at least several months").

[62] Chambers & Hitchmough at 76. In fact, replacement of the total lead line (water main and service line) would more likely bring about a significant reduction in lead at the kitchen tap. *Id.*

increased and erratic levels of lead observed at the tap.[63] A study conducted in Washington, D.C. between November 2000 and December 2006 demonstrated that children living in homes with a lead service line were at increased risk of having higher blood lead levels than children living in homes without a lead service line.[64] Partial replacement of LSLs did not result in a decrease in the association between lead service line and elevated blood lead levels.[65] Partial replacement is therefore not a solution to lead level reduction.

In 2004, following a series of press reports regarding WASA's failure to adequately address the problem of lead in D.C. drinking water, District Councilmember Carol Schwartz, at the time chair of the Committee on Public Works and the Environment in D.C., asked the DC Appleseed Center for Law & Justice, Inc. ("Appleseed") to examine the effectiveness of the legal framework regulating lead in drinking water in D.C. The Appleseed report, which was prepared by the law firm of Weil, Gotshal & Manges LLP, recommended "prohibiting partial lead line replacement as this can exacerbate existing problems with leaching due to physical disturbance of the existing system, and potential creation of galvanic lead corrosion conditions."[66] Noting that "[u]nder WASA's first phase of partial lead line removal, only 14 homeowners have volunteered to incur the expense of removal of the portion of the lead line on private property,"[67] the authors of the report concluded that it would be preferable that "WASA bear the *full* costs of lead line replacement, including that portion on private property."[68] Indeed, full lead service line replacement is the only effective and reliable solution for achieving long-term reductions of lead levels in drinking water.[69] To have any hope of achieving the public health goals of the SDWA, EPA must exercise its regulatory authority to require full service line replacements.

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[63] *Id.* at 75 (stating that partial replacements using copper piping can result in creating a galvanic cell, which exacerbates plumbosolvency – an effect that can be persistent and annul any beneficial effects of the partial replacement); Renner, *supra*, at A202-A208 ("When copper water pipe is connected to lead water pipe, standard electrochemistry indicates the lead pipe should be more susceptible to galvanic corrosion. If corrosion is significant and long-lasting, it would significantly add to lead release.")

[64] Brown, M.J., et al., Association between children's blood lead levels, lead service lines, and water disinfection, Washington, DC, 1998–2006, at 7, Environ. Res. (2010), doi:10.1016/j.envres.2010.10.003.

[65] *Id.*

[66] D.C. Appleseed Center, *Lead in the District of Columbia Drinking Water: A Call for Reform*, December 2004, p. 54. *Available at* http://www.dcappleseed.com/wp-content/uploads/2013/09/leadreport3.pdf (emphasis added) (last visited 10/31/14).

[67] *Id*. at 50.

[68] *Id.* (emphasis added).

[69] U.S. EPA, Office of the Administrator Science Advisory Board, Evaluation of the Effectiveness of Partial Lead Service Line Replacements, September 28, 2011 p. 2 (available at http://yosemite.epa.gov/sab%5Csabproduct.nsf/964CCDB94F4E6216852579190072606F/$File/EPA-SAB-11-015-unsigned.pdf)

4. EPA's original rationale for adopting the "control" approach to foster full service line replacements remains valid today.

When EPA promulgated the control-based lead service line replacement requirement in 1991, it was aware that ownership of service lines is oftentimes divided between lot owners and the municipality.[70] However, EPA interpreted the SDWA as providing authority to require replacement of any portion of the line that the PWS *controls,* based on the statutory definition of a PWS as including "distribution facilities *under the control* of the operator."[71] EPA observed that many PWSs "retain authority to specify standards for construction, maintenance, and composition of service lines to be able to safeguard the integrity of the distribution system and, thereby to ensure the delivery of safe water to the consumer." *Id.* Because leaching lead threatens the quality, integrity and safety of drinking water, EPA believed that requiring PWSs to replace private service lines was "consistent with the underlying purpose of the SDWA to protect public health as well as with practices of the water supply industry designed to maintain the integrity of water distribution systems." *Id.* At the same time EPA's rule appropriately accounted for practical questions regarding access to private property: the duty to replace the private portion of service lines applied only in cases where the PWS retained "a right of entry to perform work deemed necessary." *Id.*

This is a reasoned approach that is entitled to deference by a reviewing court. EPA's interpretation of control is consistent with express congressional intent that EPA regulate "distribution facilities under the control of the operator" in a manner that protects public health. It therefore satisfies the analysis under Step One of *Chevron, USA v. NRDC*, 467 U.S. 837, 842-43 (1984). To the extent there is any ambiguity in the language of the definition, the broad control-based approach is a reasonable interpretation of the SDWA and is therefore entitled to deference under Step Two of *Chevron*.

Conversely, it would not be reasonable to retain the current ownership-based rule in light of the facts that have emerged after fourteen years of the rule's implementation. After considering public comments in 2000, EPA concluded that the ownership rule would avoid "unintended delays and other complications."[72] For this reason only EPA decided "to equate 'control' with 'ownership' in order to eliminate potential legal confusion and delays in implementing the Rule."[73] However, it is now apparent that EPA's rationale for the rule in 2000 has not held true.

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[70] 1991 Lead and Copper Rule, 56 Fed. Reg. at 26503 ("EPA acknowledges that ownership and/or control of lead service lines is often split between the public water system and the property owner. Depending on State law or regulations, or local ordinances, some public water systems control and/or own connections up to the property line, others control and/or own the service line and other connections up to the building (especially if the water meter is located inside the building), and still others control and/or own the service connections only up to the curb.")

[71] *Id.* 26504 (emphasis added); 42 U.S.C. § 300f(4)(A).

[72] *Id.*

[73] *Id.*

Nor does the history of litigation over the 1991 Lead and Copper Rule justify retaining the ownership approach. In response to a challenge by the American Water Works Association, the D.C. Circuit struck down EPA's definition of "control" in the final 1991 rule, solely on the grounds that "EPA failed to provide adequate notice that it would adopt a novel definition of control."[74] Any questions regarding the scope or meaning of "control" could be addressed in a new rulemaking that provides ample public notice to affected PWSs. To the extent there is any merit to the American Water Works Association's substantive allegations against the 1991 control rule – that EPA lacked authority to adopt a control-based rule, and that the definition was impermissibly vague because EPA did not indicate whether the rule created a right of entry on private property – EPA can address those issues in a new rulemaking.

5. Solutions exist to concerns about the practicability of a control-based requirement

In 2000 EPA considered comments from interested parties that supported a "limited definition that equates control with ownership."[75] Reasons varied. Some commenters argued that PWSs lack legal authority to replace service lines on private property, or that EPA lacks authority to impose a duty on PWSs to replace service lines on private property. Others raised concern about potential complications in obtaining lot owners' permission to perform work on private property and potential conflicts that might arise between utilities, homeowners and independent contractors.[76] Some of these arguments lack legal merit, others are practically solvable, and none should be accepted as a reason not to change the current service line replacement regime.

As an initial matter, the potential for confusion must be addressed in light of the legislative purpose underlying the public-health purpose of SDWA. Potential for confusion is only relevant if it might undermine the Act's goal and cannot readily be resolved. As discussed only briefly above, the question of service line ownership is not at all simple to answer because it is rooted deeply in several competing common law theories of property rights, disparate court

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[74] *Am. Water Works Ass'n v. E.P.A.*, 40 F.3d 1266, 1275 (D.C. Cir. 1994). The D.C. Circuit viewed EPA's definition of "control" as novel because "public water systems generally *own* only that part of the service line that underlies public property." *Id*. at 1274. (emphasis added). However, the proposed rule had clearly rebuttable presumption "that the water supplier owns *or controls* and therefore can replace, *the lead components up to the wall of the building served*." Drinking Water Regulations; Maximum Contaminant Level Goals and National Primary Drinking Water Regulations for Lead and Copper, 53 Fed. Reg. 31516, 318548 (Aug. 18, 1988). The court also reasoned that the only case to have interpreted the definition of "public water system" was a 1988 ruling of the Georgia Supreme Court interpreting the Georgia Safe Drinking Water Act, which was identical to the definition of a PWS under the SDWA, as "confining the regulatory authority to portions of the service line *not underlying private property*." *Am. Water Works Ass'n* at 1275, citing *Bass v. Ledbetter*, 257 Ga. 738, 363 (Ga. 1988) (emphasis added). But EPA's proposal clearly went beyond the Georgia court's interpretation by presuming that "lead components up to the wall of the building served" could be within a PWS's "control." Nonetheless, because EPA had given "control" a specific definition that was not articulated in the proposed rule, and had deviated from the Georgia court's interpretation of "PWS" under the state's law, the D.C. Circuit concluded that interested public could not "reasonably have anticipated the final rulemaking." *Am. Water Works* at 1275.

[75] 2000 Lead and Copper Rule Revisions, 65 Fed. Reg. at 1963.

[76] *Id*.

rulings, and state statutes. The question whether a PWS owns a service line is therefore much more difficult to answer than the question whether the same PWS has the authority to prescribe standards for lead service lines or to replace, repair, or maintain the portions of the service line under private property. The control test encompasses ownership, and can be informed by looking to current practice and policy rather than historical property transactions.

The only way an ownership rule might prevent confusion is by leaving the decision whether or not to replace portions of service lines solely in the hands of the PWS. This approach puts private property owners at a severe disadvantage. EPA should not trade a risk of confusion for a risk of obfuscation regarding the scope of a PWS's ownership of service lines.

~ ***Potential for "confusion or ambiguities" regarding a PWS's authority to replace service lines***

Claims of confusion about the scope of a PWS's control over service lines are not credible. As EPA noted in 1991, many systems retain authority to enter private property to conduct service line replacement. EPA referenced a study that "evaluated the extent of authority over service connections in publicly owned water systems in Boston, Chicago, Dallas, Denver, the District of Columbia, Los Angeles, New York, Pittsburgh, San Diego, and San Francisco, and other investor-owned utilities in various States," and found that "[i]n the majority of cases evaluated, the water system was found to retain access to virtually all property serviced by the system and to reserve the right to perform work on privately owned service lines (usually at the expense of the property owner). To varying degrees, most of the systems also require property owners to meet certain specifications relating to service line location, size, and material composition."[77]

Finally, there are practical solutions to concerns about authority or liability relating to full service line replacements. The simplest of these is to reimburse private property owners for expenditures incurred in replacing lead service lines. According to the American Water Works Association, successful programs may include customer reimbursement, providing credit to a certified plumber, and reducing the homeowner's property taxes through a one-time tax assessment.[78]

~ ***Concern about "using public funds to do work on private property***

Most states have constitutional provisions restricting the use of public funds to public purposes. In some states, courts recognized a general "public purpose doctrine," even in the

[77] 1991 Lead and Copper Rule, 56 Fed. Reg. at 26504.

[78] American Water Works Association, *Strategies to Obtain Customer Acceptance of Complete Lead Service Line Replacement*, 11 (2005), available at: http://www.awwa.org/Portals/0/files/legreg/documents/StrategiesforLSLs.pdf.

absence of such constitutional provision.[79] The application of this doctrine may vary from one state to another, but in general a public purpose "has for its objective the promotion of public health, safety, morals, security, prosperity, contentment, and the general welfare of the community."[80] The term "public purpose" is broad and should not be construed "in a narrow or restrictive sense."[81] Thus, a public purpose may be served even if it involves making payments to individuals.[82] The question to be determined is not whether an individual is benefitted by the actions of the state, because there is always a beneficiary when a state acts.[83]

A control-based replacement rule would meet this test because it furthers public health by providing safer drinking water, a clear public purpose. Any financial benefit to an individual property owner is incidental to the public purpose of protecting the public health. In addition, a rule fostering full lead service line replacement can substantially reduce the cost of corrosion control treatment, a significant public expense that may grow larger if EPA decides to revise sampling methods in light of evidence that current sampling protocols may underestimate the amount of lead in water that contacts a lead service line.[84]

The American Water Works Association has observed that "replacement of lead service lines would allow the utility to avoid significant drinking water and wastewater treatment costs that would otherwise have caused increases to the water and sewer rates of all utility customers."[85] The Association notes that utilities can therefore support public investments in

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[79] "The exercise of the spending power must be in the pursuit of the general welfare, and the appropriations of public funds must be for a public purpose." 63C Am. Jur. 2d Public Funds § 46; *see also Town of Beloit v. Cnty. of Rock*, 259 Wis.2d 37 (2003) ("although there is no specific language in the state constitution establishing the public purpose doctrine, this court has recognized that the doctrine is firmly accepted as a basic constitutional tenet mandating that public appropriations may not be used for other than public purposes").

[80] *Slawson v. Alabama Forestry Comm'n*, 631 So.2d 953, 956 (Ala. 1994); *Clifford v. City of Cheyenne*, 487 P.2d 1325, 1329 (Wyo. 1971); *Platte Valley Public Power & Irrigation Dist. v. Lincoln County*, 14 N.W.2d 202, 205 (Neb. 1944); *State ex rel. McClure v. Hagerman*, 98 N.E.2d 835, 838 (Ohio 1951); *Greensboro-High Point Airport Authority v. Johnson*, 226 N.C. 1, 15 (N.C. 1946); *State ex rel. Warren v. Nusbaum*, 59 Wis.2d 391, 423 (Wis. 1973); *City of Pipestone v. Madsen*, 287 Minn. 357, 366 (Minn. 1970).

[81] *Burkhardt v. City of Enid*, 771 P.2d 608, 610 (Okla. 1989); *Madison Cablevision, Inc. v. City of Morganton*, 325 N.C. 634, 646 (N.C. 1989); *Dannheiser v. City of Henderson*, 4 S.W.3d 542, 546 (Ky. 1999) (and cases cited therein).

[82] *See Ullrich v. Bd. of Cnty. Comm'rs of Thomas Cnty.*, 234 Kan. 782, 788-89 (Kan. 1984) ("The generally recognized rule is that a state legislature may appropriate public money or property for private individuals, if thereby the public welfare is promoted."); *see also Mountain Water Co. v. Montana Dept. of Public Service Regulation*, 919 F.2d 593, 601 (9th Cir. 1990) (upholding a requirement applicable to privately-owned water utilities "to help assure service line maintenance [and] redistribute the cost of service line maintenance among all customers.").

[83] *Bauer v. S.C. State Hous. Auth.*, 246 S.E.2d 869, 871 (1978) (upholding state program for funding programs to provide "sanitary and safe residential housing" for persons and families of low income).

[84] *See* NDWAC, Lead and Copper Rule Long-Term Revisions White Paper (March 2014); Del Toral, Porter, and Schock, *Detection and Evaluation of Elevated Lead Release from Service Lines: A Field Study*, Environ. Sci. Technol. 47, 9300–9307 (2013).

[85] American Water Works Association, *Strategies to Obtain Customer Acceptance of Complete Lead Service Line Replacement*, 9 (2005), available at: http://www.awwa.org/Portals/0/files/legreg/documents/StrategiesforLSLs.pdf.

replacing customer-owned service lines "by documenting direct costs that could accrue to all utility customers and less quantifiable ancillary costs that could accrue to the community as a whole if lead service lines were not replaced." *Id.*

CONCLUSION

Strong policy considerations support a control-based lead service line replacement. In its current form the service line replacement rule simply does not work. Experience has shown that the objectives of the SDWA and the Lead and Copper Rule can best be restoring the control approach that EPA adopted in its 1991 Lead and Copper Rule.

Please feel free to contact me if you have any questions or would like to discuss.

Sincerely,

/s/ Jennifer C. Chavez

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