

**Report of the
Small Business Advocacy Review Panel
on EPA's Planned Proposed Rule to
Public Water System Requirements:
Long-term Revisions to the Lead and Copper Rule,
October 2012**

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1. INTRODUCTION

This report is presented by the Small Business Advocacy Review Panel (SBAR Panel or Panel) convened for the proposed rulemaking on the lead and Copper Rule that is currently being developed by the U.S. Environmental Protection Agency. Under section 609(b) of the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), a Panel is required to be convened prior to publication of the initial regulatory flexibility analysis (IRFA) that an agency may be required to prepare under the RFA. In addition to EPA's Small Business Advocacy Chairperson, the Panel will consist of the Acting Director of the Standards and Risk Management Division of the EPA Office of Ground Water and Drinking Water, the Administrator of the Office of Information and Regulatory Affairs within the Office of Management and Budget, and the Chief Counsel for Advocacy of the Small Business Administration.

This report includes the following:

- Background information on the proposed rule being developed;
- Information on the types of small entities that would be subject to the proposed rule;
- A description of efforts made to obtain the advice and recommendations of representatives of those small entities; and
- Summary comments of the representatives will be included in final documents once the Panel has reviewed the proposed options.

Section 609(b) of the RFA directs the Panel to report on the comments of small entity representatives and to make findings on issues related to elements of an IRFA under section 603 of the RFA. Those elements of an IRFA are:

- A description of, and where feasible, an estimate of the number of small entities to which the proposed rule will apply;
- A description of projected reporting, record keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements and the type of professional skills necessary for preparation of the report or record;
- An identification, to the extent practicable, of all other relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule; A description of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities; and
- Any significant impacts of the proposed rule on small entities. This analysis shall discuss any significant alternatives such as:
 - the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
 - the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;
 - the use of performance rather than design standards; and
 - an exemption from coverage of the rule, or any part thereof, for such small entities.

Once completed, the Panel report is provided to the agency issuing the proposed rule and is included in the rulemaking record. The agency is to consider the Panel's findings when completing the draft of the proposed rule. In light of the Panel report, and where appropriate, the agency is also to consider whether changes are needed to the IRFA for the proposed rule or the decision on whether an IRFA is required.

The Panel's findings and discussion will be based on the information available at the time the final Panel report is drafted. EPA will continue to conduct analyses relevant to the proposed rule, and additional information may be developed or obtained during the remainder of the rule development process. Any options identified by the Panel for reducing the rule's regulatory impact on small entities may require further analysis and/or data collection to ensure that the options are practicable, enforceable, environmentally sound, and consistent with the Safe Drinking Water Act and its amendments.

2. BACKGROUND

The Safe Drinking Water Act (SDWA) is the core statute addressing drinking water at the Federal level. Under SDWA, EPA sets public health goals and enforceable standards for drinking water quality. The Lead and Copper Rule (LCR) was promulgated in 1991 and requires water systems to minimize lead and copper in drinking water, primarily by reducing water corrosivity and preventing the leaching of these metals from the premise plumbing and drinking water distribution system components.

In 2000, EPA promulgated minor revisions to the LCR. These minor revisions (also known as the Lead and Copper Rule Minor Revisions, or LCRMR) streamlined requirements, promoted consistent national implementation, and in many cases, reduced burden for water systems. One of the provisions of the LCMR required States to report the 90th percentile to EPA's Safe Drinking Water Information System (SDWIS) database for all water systems serving 3,300 or more persons. States must report the 90th percentile value for water systems serving less than 3,300 persons only if the water system exceeds the action level. The new reporting requirements became effective in 2002.

In 2004, EPA published minor corrections to the Lead and Copper Rule to reinstate text that was inadvertently dropped from the rule during previous revisions. In addition, EPA undertook a number of activities to help identify needed actions. EPA collected and analyzed lead concentration data and other information required by regulations, carried out review of implementation in states, held four expert workshops to further discuss elements of the regulations, and worked to better understand local and state efforts to monitor for lead in school drinking water, including a national meeting to discuss challenges and needs.

In 2007, EPA promulgated a set of short-term regulatory revisions and clarifications. The goals of the revisions were to strengthen implementation of the LCR in the areas of monitoring, treatment, customer awareness, and lead service line replacement, and to improve compliance with the public education requirements. Public education helps to ensure drinking water consumers receive meaningful, timely, and useful information needed to help them limit their exposure to lead in drinking water. In developing the 2007 revisions, EPA identified several regulatory changes which required additional data collection, research, analysis, and stakeholder involvement.

EPA’s goal for the long-term revisions is to improve the health of individuals by reducing exposure to lead and copper in drinking water, by making substantive changes based on topics that were identified in the 2004 National Review, and to improve the effectiveness of the LCR by streamlining requirements.

The following sections: define small entities; explain which small entities are subject to regulation; outline EPA’s key outreach activities to date; and explain areas of the rule within which EPA is considering revisions, along with key questions for input from small entities.

3.0 OVERVIEW OF REVISIONS UNDER CONSIDERATION

Through Agency review and stakeholder input, a broad range of program improvements have been suggested. From these, EPA identified those which could only be addressed through regulation change, and further limited to those which would provide the most protective impact. The following is a listing of regulatory revisions currently being considered and evaluated by EPA, and is not final at this time.

3.1 Sample Site Collection Criteria

Water systems are required to sample for lead and copper at homes that are likely to have plumbing materials that contain lead. Generally, those single-family homes with lead service lines are prioritized first (Tier 1), multi-family homes with either full or partial lead service lines are prioritized second (Tier 2), and residences with copper pipes with lead solder are prioritized third (Tier 3).

The LCR established a tiering system for prioritizing the selection of sampling sites based on the likelihood of finding the highest lead levels. EPA established three tiers for community water systems (CWSs) and two for non-transient non-community water systems (NTNCWSs), with Tier 1 being the highest priority. Systems must use all Tier 1 sites if available. If systems cannot identify enough Tier 1 sites to meet their minimum sampling requirements, they must select Tier 2 sites, followed by Tier 3 sites, and then representative sites. Note that Tier 3 sites are currently only applicable to CWSs.

Tier	CWSs	NTNCWSs
Tier 1	Collect samples from SFRs*: <ul style="list-style-type: none"> • with copper pipe and lead solder (50/50 mix of both types of sites) installed after 1982 (<i>but before the effective date of the State’s lead ban</i>), or with lead pipes; and/or • Are served by LSLs. <i>*Tier 1 samples can be collected from MFRs if they represent at least 20% of structures served by the water system.</i>	Collect samples from buildings: <ul style="list-style-type: none"> • with copper pipe and lead solder installed after 1982 (<i>but before the effective date of the State’s lead ban</i>), and/or • are served by LSLs.

Table 1: Current Lead and Copper Site Selection Criteria		
Tier	CWSs	NTNCWSs
Tier 2	Collect samples from buildings and MFRs: <ul style="list-style-type: none"> • with copper pipe and lead solder installed after 1982, or with lead pipes; and/ or • are served by LSLs. 	Collect samples from buildings with copper pipe and lead solder installed before 1983.
Tier 3	Collect samples from SFRs with copper pipes with lead solder installed before 1983.	N/A
<p>Representative Sample: If a CWS or NTNCWS cannot collect enough samples from tiered sites, it must collect them from sites where the plumbing is similar to that used at other sites served by the water system (§141.86(a)(5)).</p> <p>Acronyms: LSL = lead service line; MFR = multi-family residence; N/A = not applicable; SFR = single family residence.</p>		

The LCR requires CWSs to collect samples at taps from residences that have lead pipes and/or are served by a LSL, and/or from sites that have copper pipes with lead solder installed after 1982 (but before the effective date of the State’s lead ban). The rationale for the LCR site selection criteria was to prioritize sites with the greatest likelihood of having the highest lead levels at the time the rule was promulgated in 1991. Of the two contaminants, lead produces more serious, longer-lasting health effects for the broadest population. Lead can cause a variety of adverse health effects. In babies and children, exposure to lead can result in delays in physical and mental development, along with slight deficits in the attention span and learning abilities. In adults, it can cause increases in blood pressure. Adults who are exposed to lead over many years could develop kidney problems or high blood pressure.

The lead solder date requirement was based on a study in which lead leaching from solder was found to decline after 5 years¹. Therefore, samples collected from more recently soldered copper pipes would be expected to have higher lead results. Twenty years have passed since lead solder was banned in all jurisdictions. Although EPA revised the LCR in January 2000 (65 FR 1950) and October 2007 (72 FR 57781), the Agency has not revised the tiering criteria. Many studies published after the 1991 promulgation of the LCR indicate that brass and other metallic premise plumbing materials may be a more significant immediate and long-term source of lead and copper in drinking water than originally believed, especially in newer homes (Sandvig, et al., 2008; Kimbrough, 2007; Kimbrough, 2001; Elfland et al., 2010; Lytle and Schock, 1997). Because leaded plumbing materials and components will likely continue to be in service for many years to come, they may provide at least as significant an ongoing source of lead contamination as the leaded solder joints prioritized as Tier 3 in the Current Rule (i.e., those installed prior to 1983).

Current scientific evidence still supports the prioritization of LSLs as Tier 1 and Tier 2. However, the 1991 tiering criteria are unclear whether they included both full and partial LSLs.

¹ Based on first-draw samples collected from homes with a construction age ranging from less than 1 year to more than 20 (USEPA, 1991a).

In addition, some systems may have conducted partial lead service line replacement (PLSLR) and mistakenly removed those sites from the sampling pool. The magnitude and duration of elevated tap water lead levels following PLSLR may be influenced by the extent of the disturbance of the LSL, as well as any countermeasures taken to offset the effects of the disturbance on the quantity and characteristics of the deposits within the LSL and downstream plumbing materials; the chemistry of the local water supply, including treatment to control corrosion; biological activity within the distribution system and internal plumbing; localized corrosion; and other factors.

Because lead leaching from solder has been shown to decrease after five years (USEPA, 1988), lead levels in samples collected from sites containing copper pipe with lead-solder installed during 1983 through 1988 may be similar to lead levels from sites with older lead-solder and copper pipes. As a result of the decreases in the lead levels from the original sources of lead considered in the 1991 rulemaking and the increased understanding of corrosion mechanisms and sources of lead from the studies conducted since the 1991 rulemaking, EPA is undertaking a re-evaluation of the tiering criteria.

EPA is revisiting these criteria to examine whether they still target the sites most likely to have the highest lead levels. Because the LCR is a treatment technique rule, sites are selected to assess performance of systems' corrosion control treatment, not to assess exposure. EPA is evaluating whether the sites likely to have the highest lead concentrations in 1991 are still the appropriate sites to monitor to assess the effectiveness of corrosion control treatment. EPA is considering revising the site selection criteria to create two separate tiering structures, one for systems with LSLs and another for systems without LSLs.

Table 2: A Potential New Lead and Copper Sample Site Selection Criteria		
Tier	CWSs and NTNCWSs <i>with</i> Lead Service Lines	CWSs and NTNCWSs <i>without</i> Lead Service Lines
Tier 1	Sample from SFRs served by full or partial LSLs or contain lead interior plumbing.	Sample from SFRs with known metallic plumbing components.*
Tier 2	CWSs: Sample from buildings, including MFRs, served by full or partial LSLs or with lead interior plumbing. NTNCWSs: Sample from structures, including MFRs, served by full or partial LSLs or with lead interior plumbing.	CWSs: Sample from buildings, including MFRs, with known metallic plumbing components* NTNCWSs: Sample from structures, including MFRs, with known metallic plumbing components.*
Tier 3	CWSs: Sample from buildings, including MFRs, with known metallic plumbing components.* NTNCWSs: Sample from structures, including MFRs, with known metallic plumbing components*	Sample from representative sites throughout the distribution system.
*Metallic plumbing components include lead or brass plumbing components and copper pipes		

Table 2: A Potential New Lead and Copper Sample Site Selection Criteria		
Tier	CWSs and NTNCWSs with Lead Service Lines	CWSs and NTNCWSs without Lead Service Lines
with lead solder.		
Acronyms: LSL = lead service line; MFR = multi-family residence; SFR = single family residence.		

The 1991 LCR sample site selection criteria directed systems to sample from locations that were most likely to have high concentrations of lead and copper in drinking water, with lead being the priority. The lead solder date requirement, which EPA is now contemplating removing was based on interest in giving water systems a large enough pool of sites from which to collect samples where leaching of lead from solder was considered to remain a high risk, for systems with and without lead pipes. However, the target pool was also expected to reflect corrosion control effectiveness towards copper pipe, since at that time the sample sites would have captured copper pipes approximately five to eight years old. Independent international research has since shown that copper release is systematically higher in newer plumbing (Edwards, et al., 2001b, Hidmi and Edwards, 1999, Kimbrough, 2001, Kimbrough, 2007, Kirmeyer, et al., 1994a, Lagos, 2001, Lagos, et al., 2001, Merkel, et al., 2002, Powers, 2001, Rajaratnam, et al., 2002, Schuerman, et al., 2000, Wagner, 1988). Thus, high levels of lead are most likely to be found in older piping, while high levels of copper are likely to be found in new piping. Because the current site selection criteria prioritize lead, copper may be underrepresented in tap sampling currently required by the LCR; therefore, to better capture sites at higher risk for elevated copper, *EPA is evaluating whether to monitor at separate sites for copper. EPA is considering requiring public water systems to conduct copper monitoring at separate sampling sites more likely to have elevated copper levels, such as those with copper pipes less than three years old.*

EPA is also considering a copper monitoring waiver which would allow systems with water qualities not considered aggressive to copper to eliminate copper monitoring. This copper waiver would exempt systems (those without CCT) from monitoring for copper unless they had a source or treatment change and would reduce costs for systems that can demonstrate water qualities which are unlikely to leach copper. The detection of copper contaminated drinking water in homes that are more than a year old may be associated with a naturally corrosive water supply (Knobeloch et al. 2003). The Agency is evaluating State monitoring data which suggests that water with pH greater than 7 and an alkalinity of less than 250 mg/l CaCO₃ may be an appropriate measure for evaluating water to be aggressive to copper. Those systems which can demonstrate, through water quality samples, that their water qualities are not aggressive to copper, could be exempted from collecting copper tap samples under the LCR.

EPA estimates that if the sampling site criteria are changed, all small systems will be required to re-evaluate their current sampling sites, and many may be required to identify and sample from new sites.

3.2 Lead Sampling Protocol

The current LCR sampling protocol requires water systems to collect one-liter, first-draw samples from taps in selected households for testing. However, for households with Lead Service

Lines (LSL), the first-draw sample does not capture the volume of water that is from the LSL. In the households with LSLs, the water that has remained in the LSL for a period of time is likely to have the highest lead levels. Some sampling instructions include recommendations to flush the tap prior to the start of the stagnation period. Pre-stagnation flushing may lower first draw lead levels.

Currently, all CWSs and NTNCWSs must collect lead and copper tap samples. Transient, non-community water systems are not subject to the lead and copper regulations. The frequency of the monitoring and number of samples to be collected and analyzed is based primarily on a system size and its tap water monitoring results.

Systems must collect a minimum number of samples from sites based on system size indicated in Table 3.

Table 3: Minimum Number of Lead and Copper Tap Samples for Systems		
System Size	No. of Samples Standard Monitoring	No. of Samples Reduced Monitoring
>100,00	100	50
10,001-100,00	60	30
3,301-10,000	40	20
501-3,300	20	10
101-500	10	5
≤ 100	5	5

Lead and copper monitoring can be divided into two broad categories:

- **Standard monitoring** encompasses all monitoring other than reduced monitoring. Standard monitoring is currently conducted at six-month intervals. Both initial monitoring (required of all systems) and follow-up monitoring (corresponds to the two consecutive six-months after a system completes the installation of corrosion control and is only required for systems that install treatment) are a type of standard monitoring. After the State sets OWQPs, systems must monitor semi-annually, and collect the standard number of samples until they qualify for reduced monitoring.
- **Reduced monitoring** corresponds to monitoring that occurs at a reduced frequency and a reduced number of sample locations. Systems can reduce the frequency of monitoring to annually beginning in the calendar year immediately following the end of the second consecutive six-month monitoring period during which samples are below the action level. Under reduced monitoring, systems may collect from a reduced number of sites. If results exceed the 90th percentile levels, systems may be required to conduct more frequent monitoring.

The Current Rule does not specify when, during each six-month monitoring period (January through June; July through December), a system must conduct its lead and copper tap

monitoring. Because lead levels tend to be higher during warmer months, a sample collected during the colder months may underestimate the lead levels that may be present during warmer months of the year. Under the worst-case scenario, a system could be at or below the lead action level of 0.015 mg/L during colder months and above the action level during warmer months. An exceedance of a lead action level triggers additional monitoring; adjustment or installation of corrosion control treatment (CCT); public education; and possibly, lead service line replacement (LSLR). Under this worst-case scenario, a system would not be required to undertake these additional protective measures to minimize consumer's exposure to lead.

EPA is considering revising standard monitoring from two six-month periods, to one annual period of June through September. This potential change would ensure that systems are sampling during the warmest months of the year, when lead levels are expected to be higher. This provision would reduce burden to water systems and Primacy Agencies by eliminating one round of monitoring while maintaining or improving the level of public health protection, because systems will be sampling during the warmer months when elevated levels are most likely to occur. In some instances, this may result in additional systems exceeding the lead action level, triggering additional actions under the LCR.

EPA is also contemplating revising the sampling procedures for systems with LSLs. Instead of taking a first-draw, 1-liter sample, these systems may be required to collect a sample that is representative of the water residing in the LSL during the stagnation period. EPA is considering requiring systems to instruct samplers to waste between 3-7 liters of water from the tap before sampling. This sample would then be collected after the specified volume (e.g., 5 liters) of water has passed through the tap following the stagnation period. EPA is also considering allowing water systems to develop sampling instructions based upon site specific information to collect service line samples (profile sampling or plumbing system evaluation) with state approval.

Some system sampling instructions include recommendations to flush the tap and/or remove and clean the aerator prior to the start of the stagnation period. Pre-stagnation flushing and aerator removal may lower first draw lead levels. ***EPA is contemplating prohibiting water systems' from instructing samplers to remove and clean the aerator or flushing the tap prior to the stagnation period.***

EPA estimates that if lead sampling protocols are changed, all small systems will be required to re-assess their sampling protocols, and some small systems will need to revise their sampling instructions.

3.3 Public Education for Copper

Currently, there are no public education materials provided on the health risks of copper exposure, or steps consumers can take to reduce the risk of exposure. ***EPA is evaluating whether materials should be provided to consumers for copper. EPA is also evaluating the target audience for any materials that might be developed (new homes versus system-wide). The Agency is considering requiring copper outreach materials for systems exceeding the copper action level, and at new copper construction sites.***

Outreach materials could explain the potential health effects of elevated copper, the likelihood of copper levels being higher at new copper sites, and actions that the consumer can take to reduce their exposure to copper.

EPA estimates that if public education is required for copper, small systems with copper service lines would be required to develop and distribute public education materials for copper to households.

3.4 Measures to Ensure Optimal Corrosion Control Treatment

A key provision of the LCR requires water systems to sample for State designated optimal water quality parameters (OWQPs). OWQPs are measurable indicators which help systems determine if they are maintaining optimal corrosion control treatment. Corrosion control treatment techniques are means specified in the rule, such as pH adjustment and the addition of corrosion inhibitors (i.e., orthophosphate) that promote the formation of insoluble scales that prevent lead and copper from leaching from pipes into the drinking water. Having proper OWQPs is the method by which EPA, States, and water systems can know whether water characteristics are in the ideal range for their corrosion control methods.

After water systems recommend OWQPs, it is up to the States to approve them. Currently, OWQP ranges may not be set as tightly as need to effectively control lead and copper corrosion for those systems that continue to exceed the lead and copper action levels. *EPA is evaluating whether to require systems exceeding the lead AL to re-optimize corrosion control treatment, before being triggered into LSLR, and if that re-optimization process should be more prescriptive.*

The re-optimization process would be similar to the current optimization process and would include requirements for systems to:

- Conduct a CCT study (if required by the State),
- Adjust existing CCT,
- Conduct follow-up monitoring, and
- Operate the treatment in compliance with OWQPs.

However, *EPA is considering a number of revisions to the corrosion control study requirements that make targeted improvements to the current process.*

- *Expand scope of study for systems with LSLs* to include system-wide assessment of factors that may limit OCCT.
- *Allow the State and/or EPA to tailor study requirements* for systems without LSLs.
- *Require systems using orthophosphate to evaluate higher doses* and those systems not using orthophosphate to study its use for their system.
- *Allow Non Transient Non Community Water Systems (NTNCWSs) serving fewer than 10,000 people to install Point of Use (POU) treatment units in lieu of CCT.*

EPA is considering the use of POU treatment units in lieu of OCCT for NTNCWSs serving fewer than 10,000 people. A POU treatment device is defined under 40 CFR 141.2 as a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that tap. EPA does not consider pitcher filters to be POU devices. SDWA 1412.b.4.E.requires that POU be owned, controlled and maintained by the public water system or by a person under contract with the water system to ensure proper operation and maintenance and each POU device

must be equipped with mechanical warnings to ensure operators are notified of operational problems. POU devices must also be certified as in compliance with ANSI standards for lead and copper removal. EPA believes it may be more feasible for NTNCWSs to own, operate and maintain the POU devices installed in the facilities which they own and operate. EPA requests input from SERS as to whether Small Community Water Systems should have the option of owning, controlling and maintaining POU devices each of the customers/consumers served by the system.

EPA is also considering requiring systems that are triggered into corrosion control steps to continue routine monitoring for lead and copper at the taps and routine WQP monitoring until the system has completed all corrosion control steps and the State and/or EPA has designated OWQPs. Under the Current Rule, a system that exceeds an action level is required to install CCT, but may cease conducting lead and copper tap and WQP while it is evaluating and installing CCT. Regular monitoring during this timeframe will provide additional information to the systems and states to ensure that the proper treatment is installed and fully optimized.

3.5 Lead Service Line Replacement (LSLR)

Currently, water systems that exceed the lead action level after the installation of OCCT are compelled to undertake lead service line replacement. These systems must annually replace at least seven percent of the initial number of LSLs in their distribution system. Systems can discontinue LSLR if they no longer exceed the action level for two consecutive monitoring periods. Water systems can “test out” a LSL from replacement if all samples from the LSL are at or below the lead action level. “Tested-out” LSLs do not have to be physically replaced and count towards the seven percent replacement requirement as well as partial or full removal of the line.

Systems are required to replace the portion of the LSL that they own. Often, the system’s ownership stops at the homeowner’s property line. In those situations where the system does not own the entire LSL and it is not prohibited from replacing the customer’s line by State, local or common law, the system must offer to replace the owner’s portion at his or her expense. If the owner elects not to have his or her portion replaced, the system is not required to replace the privately-owned portion. This is referred to as a partial lead service line replacement (PLSLR).

To perform a PLSLR the water system must:

- Provide notification to affected residents 45 days prior to the PLSLR that includes: information on possible elevated short-term lead levels and measures to minimize exposure; and an offer to collect a sample that is representative of the water in the partially-replaced LSL.
- Collect a representative LSL sample for lead analysis at each residence that requests it within 72 hours of the replacement.
- Notify owners and residents of the LSL sample results within 3 business days of receiving the results.

Studies have shown that PLSLR may result in temporary elevations in lead levels at the tap for some period of time following replacement, and may continue to contribute to lead levels measured at the tap in the long-term (Boyd, et al., 2004; USEPA, 2011a).

These elevations in lead levels can last days, weeks, months or longer. EPA asked the Science Advisory Board (SAB) to evaluate the current scientific data regarding the effectiveness of PLSLR. The SAB found, “the quantity and quality of the available data are inadequate to fully determine the effectiveness of PLSLR in reducing drinking water lead concentrations. The available data have 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. Several key conclusions from the SAB report are quoted below:

“The SAB evaluated a study from the Centers for Disease Control and Prevention (CDC) that examined associations between childhood blood lead levels (BLLs) and PLSLR. BLLs are used as biomarkers for lead exposure. The results suggest that there is a potential for harm (i.e. higher BLLs) resulting from PLSLR, and provide no evidence of a demonstrable benefit from PLSLR on reductions in childhood BLLs in the short term (e.g., within approximately one year). The available scientific evidence regarding BLLs and PLSLRs, while limited to this study, does not support the use of PLSLR as an effective or safe measure to reduce short-term Pb exposure of those served by lead service lines. The long term (e.g., over a period of years) relationship between PLSLRs and childhood BLLs cannot be determined from this publication.

“The SAB evaluated several studies of tap water lead levels both before and after PLSLR. The weight of evidence indicates that PLSLR often causes tap water lead levels to increase significantly for a period of days to weeks, or even several months. There are insufficient data to reliably predict whether the tap water lead level will significantly increase following a PLSLR in a given home or distribution system, the extent to which it will increase, or how long the increase will persist.

“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.

“Studies examining PLSLR techniques (e.g., cutting techniques, flushing) did not provide definitive information on the impact that these techniques could have on lead release. The studies that examined different cutting techniques are limited by sample size and do not clearly demonstrate a significant difference between the cutting methods. Line flushing appears to provide some benefit, but the time to realize the benefit (flushing for up to several weeks)

precludes any likely practical implementation of this technique. The SAB finds that the development of a Standard Operating Procedure for PLSLR is premature.

“Galvanic corrosion associated with PLSLR poses a risk of increased lead levels in tap water by increasing the corrosion rate and/or increasing the chance that corroded lead will be mobilized. This risk may persist for at least several months and is very difficult to quantify with currently available data. Insertion of a lead-free dielectric eliminates galvanic corrosion at the new pipe junction by breaking the electrical circuit between the new and old pipes, but it has no effect on depositional corrosion. The SAB concludes that insertion of a dielectric will likely reduce lead levels in tap water, but it cannot confidently estimate the magnitude of the reductions because the contribution of galvanic corrosion and depositional corrosion to drinking water lead levels has not been quantified.”

In summary, the SAB found the available information is broadly suggestive that PLSLR may pose a risk to the population, due to the short-term elevations in drinking water lead concentrations.

Possible Revisions

EPA is contemplating several revisions to mandatory LSLR requirements. Each revision under consideration is described below. The potential revisions apply for as long as the system is subject to LSLR requirements.

- ***Delay Mandatory LSLR Requirement until after CCT Re-optimization.*** EPA is considering delaying mandatory LSL requirements until after systems have re-optimized their CCT (see Section 6.4 for further discussion)
- ***Eliminate Partial LSLR.*** In situations when owners/residents cannot or will not pay to replace the line on private property, systems would be required to leave the entire LSL undisturbed.
- ***Revise the Seven Percent Replacement Requirement.*** Under this potential revision, systems would no longer be required to replace seven percent of LSLs in their distribution systems each year. Instead, systems would be required to make a replacement offer through a consumer notice to at least 10 percent of homeowners served by a LSL in its distribution system per year and to fully replace only those lines where a consumer agrees to replace their portion of the line.
- ***Eliminate follow up sampling of LSLRs.*** EPA is also considering removing the requirement for systems to collect a LSL sample within 72 hours following a PLSLR, and is considering enhanced requirements for the content of the notice that systems provide to residents of households where LSLRs are performed, including guidance on flushing their taps and cleaning their aerators. Systems could be required to perform a study to determine the appropriate length of time for the residents to flush their taps.
- ***Provide a Pitcher-filter or Other Treatment Unit Prior to LSLR.*** Prior to beginning LSLR, systems must provide a pitcher filter (or other POU treatment unit) and one replacement filter, with instructions for its use, to the resident. The unit and filter must be certified to meet NSF/ANSI standards for lead removal.

3.5.1 Definition of Control

EPA's current interpretation of the term control is limited to ownership. But in the original Lead and Copper Rule, promulgated in June 1991, EPA established a broad definition of control as it applies to lead service lines in the distribution system that included: (1) authority to set standards for construction, repair or maintenance of the line; (2) authority to replace, repair or maintain the service line; or (3) ownership of the line. The definition of control proposed in 1991 included a rebuttal presumption. It was presumed that a water system had control over the entire service line (up to the building inlet) unless the system demonstrated to the satisfaction of the State, in a letter submitted under §141.90 (e)(4), that it does not have any control over the entire line (as defined by state statutes, municipal ordinances, public service contracts or other applicable legal authority).

EPA's definition of control was the subject of a legal challenge and was remanded to the Agency because EPA had not provided adequate notice and an opportunity to comment on that definition (72 F.R. 16348 at 16356, U.S. EPA, 1996x; *Am. Water Works Ass'n v. E.P.A.*, 40 F.3d 1266 (D.C. Cir. 1994)). 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. EPA also proposed to remove the rebuttal presumption from the original rule, no longer requiring systems to report documentation to the state that they don't have control over 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 to eliminate any confusion and avoid any delays with implementation of the rule. As a result, under the current rule, a water system only has to bear the cost of replacing the portion of the lead service line it owns.

EPA is considering revisions to the definition of control to include the portion of the service line not currently owned by the system, but may otherwise be under the control of the system because it has the authority to repair, replace, or maintain the line. This possible revision would expand the definition of service lines under the control of water systems in a manner similar to the 1991 LCR, to require greater full replacements.

3.6 Reduction of Lead in Drinking Water Act of 2011

The Reduction of Lead in Drinking Water Act ("the Act") was signed on January 4, 2011 and will be effective on January 4, 2014. It amends Section 1417 of the Safe Drinking Water Act (SDWA) in a few important ways. First, the Act changes the definition of "lead-free" under SDWA by reducing the lead content from 8% to a weighted average of not more than 0.25% in the wetted surface material. Second, the Act creates exemptions to the prohibitions on the use and introduction into commerce provisions for pipes, pipe fittings, and plumbing fittings and fixtures that are not "lead-free."

EPA intends to revise the regulations to include the new SDWA definition of lead free plumbing materials in the regulations. EPA also intends to clarify how best to distinguish plumbing

materials that are exempt from the requirements because they “*are used exclusively for non-potable services such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption.*”

One option could be that unless products are used exclusively for non-potable purposes, they would have to meet the “lead-free” requirements. Another interpretation of this language is that both potable and non-potable versions could be made, but only if the non-potable products are clearly labeled as not for potable applications. EPA is also considering regulatory revisions that could address third-party certification, and defining the extent of the repair use prohibition in the act.

4. APPLICABLE SMALL ENTITY DEFINITIONS

The Regulatory Flexibility Act (RFA) defines small entities as including “small businesses,” “small governments,” and “small organizations” (5 USC 601). The RFA references the definition of “small business” found in the Small Business Act, which authorizes the Small Business Administration to further define “small business” by regulation. The SBA defines small business by size standards using the North American Industry Classification System (NAICS) (13 CFR 121.201). The RFA also authorizes an agency to adopt an alternative definition of “small business” “where appropriate to the activities of the Agency” after consultation with the SBA and opportunity for public comment. Pursuant to 5 USC 601(3), EPA has previously established an alternative small entity definition for traditional, stationary public water systems as “a public water system that serves 10,000 or fewer people” (*See* EPA’s Consumer Confidence Reports regulation, 63 FR 44511, August 19, 1998). For the context of this SBREFA impact assessment, a small water system is any system that serves fewer than or equal to 10,000 persons. This is consistent with the SBA Office of Advocacy agreement with the EPA alternative definition used for most drinking water regulations. Small water systems affected by the rule (**bold**) may include PWSs in the following categories:

- *Community Water System (CWS) - a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents*
 - *Ex: towns and cities, universities, etc. with their own water systems for residents*
- *Non-community Water System (NCWS) - a public water system that is not a community water system. A non-community water system is either a “transient non-community water system” or a “non-transient non-community water system.”*
 - *Transient non-community water system (TNCWS) - a non-community water system that does not regularly serve at least 25 of the same persons over six months per year.*
 - *Ex: restaurants, parks, etc., with their own water systems*
 - *Non-Transient Non-community Water System (NTNCWS) - a public water system that is not a community water system and that regularly serves at least 25 of the same persons over six months per year. (Ex: schools, factories, etc., with their own water systems)*

5. SMALL ENTITIES THAT MAY BE SUBJECT TO THE PROPOSED REGULATION

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

The RFA provides default definitions for each type of small entity. Small entities are defined as: (1) a small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any "not-for-profit enterprise which is independently owned and operated and is not dominant in its field." However, the RFA also authorizes an agency to use alternative definitions for each category of small entity, "which are appropriate to the activities of the agency" after proposing the alternative definition(s) in the Federal Register and taking comment (5 U.S.C. 601(3) - (5)). In addition, to establish an alternative small business definition, agencies must consult with SBA's Chief Counsel for Advocacy.

Exhibit 1. The Universe of "Small" PWSs Subject to Possible Rule Revisions				
System size (number of people served)	CWS (total universe = 51,642)		NTNCWS (total universe = 18,390)	
	Number	% of all CWSs	Number	% of all NTNCWSs
3,301-10,000	4,871	(9%)	131	(0.7%)
501-3,300	13,820	(27%)	2,624	(14%)
25-500	28,796	(56%)	15,616	(85%)
Total	47,487	(92%)	18,371	(99.9%)
Source: The federal version of EPA's Safe Drinking Water Act Information System (SDWIS/Fed), current through June 30, 2009.				

For purposes of assessing the impacts of potential revisions to the LCR, EPA considered small entities to be public water systems (PWSs) serving 10,000 or fewer people. As required by the RFA, EPA proposed using this alternative definition in the Federal Register, (63 FR 7605, February 13, 1998), requested public comment, consulted with the SBA, and finalized the alternative definition in the Consumer Confidence Reports rulemaking, (63 FR 44511, August 19, 1998). As stated in that Final rule, the alternative definition would be applied to future drinking water regulations.

Any potential revisions to the LCR would apply to all PWSs that are currently subject to the LCR: community water systems (CWSs) and non-transient non-community water systems (NTNCWSs), including those serving fewer than 10,000 people. By definition, systems with populations smaller than 25 people or fewer than 15 service connections are not considered PWSs and are therefore not subject to SDWA requirements. In addition, potential revisions to the LCR will not affect transient non-community water systems, because these systems are not subject to the LCR requirements. Exhibit 1 provides the number of CWSs and NTNCWSs, for the size categories of 25-500, 501-5,500, and 3,301-10,000 people served. The percentage of the total number of CWSs or NTNCWSs that each of these categories comprise is also provided.

Small CWSs comprise 92% of the inventory of CWSs and the small NTNCWSs comprise 99.9% of the inventory of NTNCWSs.

6. SUMMARY OF SMALL ENTITY OUTREACH

In June 2011, EPA began an informal outreach process to potential Small Entity Representatives (SERs) as part of the pre-panel planning process. EPA looked for representatives from different types of small systems (CWS and NTNCWS), in different ownership categories (public, private, coop), well distributed throughout the US. EPA also looked for a range of experience including management or operation of single systems and experience with a broad range of small system types and issues.

EPA has been conducting outreach to the entire stakeholder community and is committed to working with and consulting its stakeholders on this important public health initiative. One of the mechanisms by which EPA works with its stakeholders is through the National Drinking Water Advisory Council (NDWAC). The Council, comprised of members of the general public, state and local agencies, and private groups concerned with safe drinking water, advises the EPA Administrator on drinking water policy, programs, guidance, and rules. The Office of Ground Water and Drinking Water (OGWDW) consulted with the NDWAC on July 21-22, 2011, in San Francisco, CA. The purpose of this consultation was to provide, updates on the LCR long-term regulatory revisions and solicit feedback on the regulatory options under consideration.

The Science Advisory Board (SAB), established in 1978 by congress, provides council to EPA on scientific technical matters regarding EPA's national drinking water standards. The SAB's principal mission includes reviewing the quality and relevance of the scientific and technical information being used or proposed as the basis for Agency regulations. OGWDW formally charged SAB to review and provide advice regarding recent studies examining the effectiveness of partial lead service line replacements. The SAB held a public meeting on this review on March 30-31, 2011 in Washington, DC and held conference calls on May 16, 2011 and July 19, 2011.

On March 3, 2011, a meeting was held in Washington D.C. to address environmental justice considerations for several drinking water regulatory efforts. EPA provided information on the lead and copper rule and provisions of the rule that the Agency is considering revising. EPA also solicited input from the public regarding ways in which the Agency could further consider Environmental Justice concerns in the LCR revision process.

In October, 2010, EPA staff met with the National Tribal Water Council to discuss the potential impacts of the LCR long-term revisions on tribal governments and to gauge tribal interest regarding further consultation on this regulation. EPA staff also met with the National Tribal Caucus in January 2011 as a part of continued consultation with the tribal governments. In these meetings, EPA provided an overview of the rule, an overview of the potential changes, discussed how these changes might impact tribal water systems, and solicited feedback regarding the potential regulatory revisions. Additionally, EPA will conduct a National consultation call with tribal governments on the LCR to continue our dialogue with tribal governments on the proposed regulatory revisions.

On November 4, 2010, in Philadelphia, PA, EPA held a general stakeholder meeting to provide information to stakeholders regarding LCR potential revisions. EPA made presentations on provisions of the rule that the Agency is considering revising including sample site selection, tap sampling procedures, testing in schools, and lead service line replacement. The Agency discussed available information and options under consideration.

In October of 2008, EPA also held a 2-day stakeholder meeting in Washington, D.C., on issues that could potentially require regulatory revisions to the existing Lead and Copper Rule. EPA presented summaries of the scientific data that the Agency had compiled on these issues. The purpose of this meeting was to gather stakeholder input on the information EPA had compiled to inform consideration of potential future revisions on the LCR.

EPA's Outreach Meeting with Potential Small Entity Representatives (pre-panel) – July 17th, 2012: On July 17, 2012, EPA held a two hour meeting with potential SERs for this SBAR Panel and invited representatives from OIRA and SBA Office of Advocacy. On July 3rd, EPA sent materials to the potential SERs to inform this conversation via email. A list of the materials shared with the potential SERs during this outreach meeting are contained in Appendix A. Written comments were solicited and were later summarized and shared with the Panel.

A summary of those comments received from the potential SERs are included in the discussion of the SER comments in [Section 8](#) of this document. Written comments received from the pre-panel phase, and comments from the September panel outreach meeting are contained in Appendix B.

7. SMALL ENTITY REPRESENTATIVES (SER)

Sixteen SERs were selected to participate in the Small Business Advocacy Review Panel via a self-nomination process which began on 6/28/2011 and ended on 7/12/2011. Registration for the self-nomination process was conducted via an EPA website where the process and qualifications were explained. The SERs for the official Panel process are listed in the following table

Small Business Advocacy Review Panel SER List: Lead and Copper Rule Regulatory Revisions

Name (State)	PWS category and Size	Affiliation / position / experience
1. Jireh Swift Billings (VT)	Small systems Serves 1,800	Woodstock Aqueduct CO in Woodstock, VT
2. Janet E. Andersen (NY)	Small Systems Twin Lakes Water Works, NY, 90 homes (366 customers)	Volunteer on the Water Works board of directors, and also a volunteer operator.
3. John Scheltens (SD)	J. Scheltens & Associates	Represents City of Hot Springs, SD
4. Alex Vanegas (VA)	Small System 7, 080 residents with 2,318 residential and 298 commercial water and sewer connections	Assistant Director of Public Works for the Town of Purcellville, VA.
5. Jim Gilles (MN)	Small System 978 Connections and serve approx 3,000 people	Director of Public Works for the City of Lakeland. Water system supplies water to Lakeland, Lakeland Shores and St. Croix Beach.
6. Mary Lou White (CA)	Small System 20 service connections and population of approx. 30	Resident and volunteer certified water operator grade 1 for Richardson Beardsley Park Inc.
7. Charles Van Der Kolk, (MI)	Population Served: 7,526	Water supervisor for the city of Zeeland, MI Board of Public Works. It is a municipally owned water and electric utility serving the City of Zeeland, Michigan and its surrounding community. The water utility purchases its water at wholesale from the City of Holland, Michigan and operates its own distribution system consisting of approximately 50 miles of water main.
8. Randy Wynn (IN)	Small System Population Served: 6,7000	Plant Operator and Forman of the Rochester Water Department.
9. John Leach (ME)	Small System Population Served: 3,300	Superintendant of the South Berwick Water District. The South Berwick Water District supplies the people of South Berwick and portions of Berwick, Maine.
10. John West (VT)	Small systems	WSI Environmental Services - contract O&M for twenty small systems throughout Vermont

Name (State)	PWS category and Size	Affiliation / position / experience
11. Michael Sienkiewicz (PA)	Small system	Managing partner of Lebanon Valley MHC (Land Lease Community) 70 connections when full 150-225 residents
12. Herbert Spencer (PA)	Pennsylvania Rural Water Association	
13. George Hanson (MD)	Small system	Chesapeake Water Association – a non-profit water cooperative
14. Rusty Reeves (LA)	Louisiana Rural Water Association	
15. Pat McCool (KS)	Kansas Rural Water Association	
16. John Sasur (MA)	Small system	Water Superintendant of Three Rivers Fire District

8.0 SUMMARY OF COMMENTS FROM SMALL ENTITY REPRESENTATIVES

This outreach was held to solicit feedback from SERs on potential small entity implications of revisions to the LCR under consideration. As described in [Section 6](#) above, the EPA conducted outreach to Potential SERs by sending preliminary, pre-panel information on July 3rd a panel outreach package on August 29, 2012, and by conducting two teleconferences, July 17th (pre-panel outreach), and September 12th, 2012 (full panel meeting). A total of seven SERs participated in the full panel meeting along with representatives from the Small Business Administration Office of Advocacy and the Office of Management and Budget Office of Information and Interagency Affairs. EPA's Office of Policy presented an overview of the SBREFA process and explanation of the planned rulemaking. EPA's Office of Groundwater and Drinking Water presented technical background regarding the 1991 Lead and Copper Rule and reviewed potential revisions to the LCR.

EPA provided presentation and background materials to each of the potential SERs via email in advance of the September 12 teleconference. A list of materials shared with the SERs is listed in Appendix A. The following section represents comments from two teleconferences as well as written comments received. Written comments received from the SERs were distributed to all Panel members as they were received. The written comments received are attached in Appendix B of this report.

8.1 Number of Small Entities Affected

No comments were made pertaining to this category.

8.2 Potential Reporting, Recordkeeping, and Compliance Requirements

8.2.1 Sample Site Selection Criteria

Several SERs commented supporting the development of two separate tiering structures: one for systems with LSLs and another for non-LSL containing water systems.

Several SERs commented regarding sample site selection criteria for copper. They expressed concerns about creating separate sampling site selection criteria for copper given the state of the occurrence and health effects data available. Specifically, one SER was concerned that EPA does not have enough data on the occurrence of health effects in the population due to elevated copper levels in drinking water to justify the costs of separate sampling sites for copper. Another SER was concerned that separate sampling sites for copper would pose an unduly large record keeping and implementation burden on small systems to track construction and piping materials and continually update their sampling pool. Along these lines, a SER suggested to make this more feasible, perhaps the EPA could consider mandating that the locations for both lead and copper should be revisited every 10 or 15 years rather than a continuously rolling update of sample locations. Another SER suggested for systems without LSLs, EPA might consider asking for lead and copper samples from the same locations based on the date of copper piping replacement, if known.

One SER commented favorably on separate sample site selection criteria for LSL systems. However, other SERs also expressed concern that creating separate site selection criteria for systems with and systems without LSLs could cause confusion in implementation, and thus may potentially increase the overall implementation burden.

8.2.2 Lead Sampling Protocols

SERs noted that small systems often utilize homeowners to collect samples. These residents usually do not have a scientific or lab background, and thus in the absence of clear, simple sampling instructions, the potential for sampling error can be high. Several SERs thus suggested that the implementation steps for modified sampling procedures for LSL should be clearly described for residents to avoid further increasing the potential for sampling error. They further suggested that EPA consider resident samplers in designing any new sampling protocols, and allow flexibility enough for systems to write clear, accessible sampling instructions for resident samplers. For example, one SER noted that while there is a minimum stagnation time, without a maximum stagnation time, residents could draw a sample after a significant time without water use, such as after a vacation. This abnormally long stagnation time is not typical of normal use. The SER suggested that sampling instructions could encourage residents to maintain ‘normal household water use’ before starting the stagnation period.

8.2.3 Optimal Corrosion Control

Several SERs commented in support of re-optimization before triggering LSLR, but several had concerns. For example, one SER commented that the proposal was not clear enough to easily discern how long re-optimization for systems exceeding the AL would be required, and at what point that exceeding system would be triggered into LSLR. The SER asked whether re-optimization would apply to both lead and copper AL levels, and whether it would encourage the implementation of orthophosphate treatment and/or the use of higher levels of orthophosphate.

Another SER was concerned about the use of increased phosphorous-containing compounds on surrounding surface waters and questioned, for small surface water systems at least, whether additional orthophosphate may lead to difficulties meeting the Clean Water Act waste water discharge limits. Another SER noted that her water system serves a lake community with septic systems. The system the SER serves has estimated that orthophosphate use in her system would add an additional 50kg of bioavailable phosphorous to her waters annually. Thus, commented both SERs, EPA should allow, if not encourage, alternatives to orthophosphate to reduce lead and copper levels.

One SER asked that the potential rule revisions clarify how long systems exceeding the lead AL must continue monitoring OWQPs.

Another SER suggested that to best target limited small system resources, it would be best if re-optimization started with an assessment of current corrosion control treatment where it is in place (e.g., were the feeds working?, was the dose correct?, etc.); if treatment is in place but not effective, then assess how treatment might be modified; and if treatment needs to be installed or completely re-thought, then the system may complete a CCT study as reflected in initial LCR.

8.2.4 Public Education

Several SERs questioned whether the health effects of copper were large enough and occur frequently enough to warrant the cost of public education for all systems. One SER commented on needing clarity as to whether the potential revisions to copper PE would apply to all small systems, just to systems exceeding the copper action level, to new construction, or some combination. Another SER was concerned that copper PE requirements may cause confusion among his customers, as his system requires that consumers install copper.

One SER Suggested that the EPA should provide language for the CCR if a water system has copper test results above the 90% action level (AL), but did not support copper PE to new homes and new construction. The SER recommended any EPA mandated education language should be provided with reasonable clarity and in electronic format so that systems can readily include it in their materials and not incur separate mailing expenses. Several SERs suggested outreach. Outreach materials could explain health effects and various actions that consumers can take to reduce their exposure to copper.

SERs also commented that EPA should ensure that public notification was informative, not alarming. Several SERs were concerned that outreach literature could be alarming. However, the SERs recommend any new education material provided should be useful information but not unduly alarm recipients.

8.2.5 Lead Service Line Requirements

Several SERs were concerned about the potential revisions to the LSLR requirements, and suggested EPA provide clarification on the implementation details of the potential ten percent notification requirement (see [Section 3.5](#)). Another SER suggested that the notification of ten percent replacement to residential consumers served with an LSL and replacement of the fraction of that group of customers willing to work with the water system to pay their portion has appeal and should be costed out in a transparent manner.

Several SERs also expressed concerns regarding the definition of control to include the portion of the service line not currently owned by the system ([Section 3.5.1](#)). Several SER comments around this potential revision centered on concerns that EPA is making the water system responsible for repair of private property. One SER was concerned about the spillover effects of the change into other liabilities of her system. SERs were concerned that this potential change would unduly increase costs for their systems. One SER suggested that perhaps the EPA should consider requiring that the LSL not owned by the system be replaced when the property is transferred or sold.

One SER commented that an expanded definition of control to include (1) the authority to set standards for construction, repair or maintenance of the line; (2) the authority to replace, repair or maintain the service line; or (3) ownership of the line was too expansive. The SER expressed concern about the implications of this expanded definition potentially increasing system's liabilities for other unforeseen circumstances.

8.2.5.1 Point of Use Devices

One SER recommended that Non Transient Non Community Water Systems (NTNCWSs) serving fewer than 10,000 people should be allowed to install Point of Use (POU) treatment units in lieu of CCT. Another SER commented that there are a number of CWSs which have characteristics similar to NTNCWSs. As such, EPA should consider allowing POU in lieu of CCT for CWSs as well.

One SER suggested that the recommendation of an in-house filter or filtered pitcher is reasonable and inexpensive when measured against the benefits.

8.2.6 Reduction of Lead in Drinking Water Act of 2011

One SER recommended that EPA talk further with manufacturers and distributors from the August stakeholder meeting to get a better picture of the ramifications of the Act. Another SER commented that manufacturers and systems, especially small systems, will need to know about the Act and any potential actions EPA may take as soon as possible, and recommended public outreach. The SER recommended EPA issue guidance as soon as is possible. Several SERs commented on replacement parts for meters, and recommended that EPA not take actions which would require systems to purchase new meters to replace existing, repairable meters.

8.3 Related Federal Rules

No comments were made pertaining to this category.

8.4 Regulatory Alternatives

The regulatory alternatives are reflected in the SER comments above. These alternatives include:

- sample site collection criteria
- lead service line requirements
- optimal corrosion control
- public education for copper

9.0 REGULATORY FLEXIBILITY ALTERNATIVES

Pursuant to section 609(b) of the RFA, the Panel's most significant findings and discussion with respect to the issues related to sections 603(b)(3), (4), (5) and 603(c) of the RFA are summarized below. The Panel's findings are based on the information available at the time this report was drafted. EPA is continuing to conduct analyses relevant to the planned proposed rule, and additional information may be developed or obtained during this process and from public comment on the proposed rule. Any options the Panel identifies for reducing the planned rule's regulatory impact on small systems may require further analysis and/or data collection to ensure that the options are practical, enforceable, protective of public health, and consistent with the Safe Drinking Water Act.

For example, the SDWA requires that any revision of a National Primary Drinking Water Regulation (NPDWR) must at least maintain, or provide for greater, protection of the health of

persons. Treatment technique-based rules (like the LCR) are required to consider the feasible level of contaminant removal, and to publish an analysis of the health risk reduction benefits and costs likely to be experienced as a result of compliance with the treatment technique. At the time the EPA proposes a NPDWR, the Administrator must publish a determination as to whether the benefits of the regulation justify the costs.

9.1 Number and Types of Entities Affected

For a complete description and estimate of the small water systems to which the proposed revised rule will apply, see [Section 5](#). While NPWDRs apply to all drinking water systems, one SER commented that some of the potential changes to the sample site selection criteria might pose problems for the smallest water systems (those which serve fewer than 100 people), and suggested that EPA continue to investigate ways to minimize the impacts on these very small systems. The Panel notes that the current LCR already establishes different requirements based on system size and type, but recommends that EPA continue to evaluate whether it is appropriate to further differentiate LCR requirements based on the differences among small and large water systems.

9.2 Recordkeeping, Reporting, and Other Compliance Requirements

For any drinking water program, EPA must have assurances that the drinking water provided to the public will meet the health-based drinking water MCLs and treatment requirements. Historically, EPA drinking water requirements, including the current LCR, have included requirements for public water system recordkeeping and reporting. The current LCR includes reporting and recordkeeping requirements for monitoring results, public notification, and sampling results. At the same time, the Paperwork Reduction Act (PRA) requires that all reporting and recordkeeping requirements have practical utility and appropriately balance the needs of the government with the burden on the public. As EPA proceeds with any revisions to the requirements of the current LCR, EPA will also assess the need for revisions to reporting and recordkeeping requirements and will consider them in any estimation of the burden and benefits of the rule changes. EPA is committed to keeping paperwork requirements to the minimum necessary, and to fulfill its statutory obligations, as required by the PRA.

9.3 Related Federal Rules

There are currently national primary drinking water regulations for over 90 contaminants and rules for communicating with water system consumers through public notification and consumer confidence reports. The Panel notes that EPA's drinking water rules have all been developed with careful attention to the interaction between each new rule that requires treatment changes. The Panel recommends that EPA continue to ensure that any revisions to the LCR be coordinated with, and do not either duplicate or conflict with, the requirements of these other rules.

There are also states that have adopted numeric phosphorus criteria for rivers, lakes, streams, reservoirs and estuaries under the Clean Water Act (CWA) which can impact National Pollutant

Discharge Elimination System permit limits for phosphorus. One of the treatment techniques for controlling lead and copper corrosion is to add orthophosphate to drinking water, which may impact the phosphorus levels in the wastewater discharges from these communities. Therefore the Panel recommends EPA consider flexibility in the treatment requirements and allow systems to utilize treatments other than orthophosphate as a corrosion control technique.

The Panel notes that EPA's drinking water rules have all been developed with careful attention to the interaction between each new rule that requires treatment changes. The Panel recommends that EPA continue to ensure that any revisions to the LCR be coordinated with, and do not either duplicate or conflict with, the requirements of these other rules.

9.4 Regulatory Flexibility Alternatives

9.4.1 Sample site Selection Criteria

The 1991 LCR sample site selection criteria directed systems to sample from locations that were most likely to have high concentrations of lead and copper in drinking water, with lead being the priority. EPA is revisiting these criteria to examine whether they still target the sites most likely to have the highest lead levels. Specifically, as mentioned in [Section 3.1](#), EPA is evaluating whether to monitor at separate sites for copper. One SER suggested that, for systems without LSL, lead and copper sampling locations should be revisited every 10 or 15 years. This would reduce the burden of continually updating copper sampling sites for "new(er) copper" plumbing, and would encourage the re-evaluation of lead sampling sites. Another SER suggested that the record keeping and rolling sampling burden of a separate sampling pool for copper would be unduly high for small systems. Indeed, sampling separate sites for copper would require systems to have and maintain records of plumbing materials and construction permits such that they could continually update their sampling pool to include copper which is less than three years old.

The Panel agrees that the sample site selection criteria from the 1991 Rule should be revisited, and that EPA should consider changes to how the LCR directs systems to prioritize sampling sites. The Panel recommends that EPA: (1) Remove the date ranges and 50/50 mix requirement for copper pipes with lead solder. (2) Develop separate site selection criteria for systems with LSLs which prioritizes full and partial LSLs. (3) Assess the advantages and disadvantages of separate copper sampling sites on the reduction of health risk to consumers. The Panel recommends that EPA continue to evaluate the occurrence and distribution of elevated copper levels until such time as additional research and occurrence data demonstrate a substantial opportunity for health risk reduction.

9.4.2 Public Education for Copper

Currently, there are no public education materials provided on the health risks of copper exposure, or steps consumers can take to reduce the risk of exposure. As mentioned in [Section 3.3](#), EPA is evaluating whether education materials should be provided to consumers for copper. EPA is also evaluating the target audience for any materials that might be developed (new homes versus system-wide). The Agency is considering requiring copper outreach materials for systems exceeding the copper action level, and at new copper construction sites.

Several SERs commented that EPA should consider providing the public education materials for copper in the annual Consumer Confidence Report (CCR). One suggestion was to do this only for systems which exceed the action level for copper. Several SERs expressed doubt that a substantial public health danger has been demonstrated for copper such as to warrant the cost of public education and/or separate sampling sites.

The Panel recommends that EPA specify in the proposed rule to whom the water systems must distribute public education materials. Specifically, the Panel notes that several SERS were concerned about the unnecessary burden of copper public education for systems with low copper levels. The Panel recommends EPA develop options which focus the distribution of copper public education materials to customers within those systems which exceed the copper AL. The Panel recommends EPA consider providing template or sample language for copper public education materials and make it available electronically for download. The panel also recommends EPA consider allowing the public education materials to be included with information that is already being distributed to consumers, such as Consumer Confidence Reports or water bills.

Several SERs commented on the potentially high burden of tracking new construction and tracking materials used in construction, if copper public education were required for all new construction. Indeed, this would increase the record keeping burden for all small systems. The Panel recommends that EPA avoid developing options which require the tracking of new construction and renovation for purposes of copper public education, The Panel further recommends a non-regulatory approach for copper PE for systems that do not exceed the copper AL by encouraging systems to distribute consumer factsheets on copper for their customers. The Panel notes that flushing after water has stood unused for prolonged periods can reduce copper levels at the tap. Active outreach by water systems to the local community and plumbers could also inform the public.

9.4.3 Optimal Corrosion Control

EPA is evaluating whether to require systems to re-optimize corrosion control treatment, before being triggered into LSLR, and if that re-optimization process should require systems to consider specific treatment options. The “re-optimization” process is described in more detail in [Section 3.4](#) of this report.

The Panel recommends that EPA consider clarifying the timeframe for the re-optimization process in the proposal. One SER expressed concern that many small systems have monitored for WQPs for longer than necessary because of the time it took for their primacy agency to approve WQPs (sometimes a year or more, the SER noted). The panel further recommends that EPA include a deadline (a maximum time from WQP submission to approval) by which optimal water quality parameters will be set by the Primacy Agency. The Panel recommends that EPA develop options to allow flexibility in the re-optimization process for small systems to enable primacy agencies and small systems to investigate their implementation of the current optimization treatment process to determine if better implementation of the current treatment will correct the problem, before embarking on a comprehensive study of corrosion control optimization.

The Panel also recommends that EPA allow alternatives to orthophosphate to reduce the waste water discharge burden of phosphorous in those areas sensitive to phosphorous release.

9.4.3.1 Copper Waiver

EPA is also considering a copper monitoring waiver which would allow systems with water qualities not considered aggressive to copper to eliminate copper monitoring. This copper waiver could reduce costs for systems that can demonstrate water qualities which are unlikely to leach copper.

SER comments largely supported a copper waiver for systems which can demonstrate non-aggressive water qualities. A waiver would reduce copper sampling burden for those systems which do not have elevated levels of copper. One SER commented that EPA could utilize past monitoring data to aid in copper monitoring waiver criteria. Indeed, EPA is utilizing copper monitoring data from States in its analysis. Another SER commented that the proposal could use clarity, and would be confusing to implement as written in [Section 3.1](#) of this report.

The Panel recommends that EPA specify the criteria for copper waivers to minimize implementation burden on small systems. The Panel also recommends that EPA develop a copper monitoring waiver for systems which can demonstrate that their water qualities do not encourage the leaching of copper. In addition, the Panel recommends that EPA complete the review of copper data which support the water quality parameters (pH greater than 7; alkalinity less than 250 mg/l CaCO₃) by which the copper waiver will be assessed, and submit the analysis of those data to independent experts for peer review.

9.4.3.2 POU in Lieu of CCT

EPA is considering the use of POU treatment units in lieu of OCCT for NTNCWSs serving fewer than 10,000 people. The SDWA specifies that POU devices must be, “owned, controlled, and maintained” by the system, and must be fitted with adequate warning devices such that the consumer would be immediately notified of malfunction. Typically, the Panel expects that a POU option is only practicable for those systems that have control over all of the taps within their system which are used for human consumption. These conditions on POU devices protect consumer’s health. While these conditions from SDWA usually make it feasible only for small NTNCWSs to utilize POU, because they are most likely to have control over their taps, one SER commented that there are CWSs which have many of the same characteristics of NTNCWSs (such as water systems that are operated by apartment complexes, colleges, or boarding schools), and therefore may choose to utilize POU devices in lieu of OCCT, if given the opportunity. The SER further suggested that only allowing NTNCWSs to utilize POU in the revisions would unnecessarily exclude these few CWSs, whereas larger CWSs would not find this option cost effective. As such, EPA should consider allowing POU in lieu of OCCT for CWSs as well.

The Panel recommends EPA develop options which allow CWSs to install POU in lieu of CCT in addition to NTNCWSs.

9.4.4 Sampling Procedures

The current LCR sampling protocol ([Section 3.2](#)) requires water systems to collect one-liter, first-draw samples from taps in selected households for testing. However, for households with

Lead Service Lines (LSL), the first-draw sample does not capture the volume of water that is from the LSL. In the households with LSLs, the water that has remained in the LSL for a period of time is likely to have the highest lead levels. Some sampling instructions include recommendations to flush the tap prior to the start of the stagnation period. Pre-stagnation flushing may lower first draw lead levels.

Several SER comments on these potential changes centered around the simplicity and ease of use of new sampling instructions. Because most small systems utilize customers as samplers, the instructions must be clear, simple, and easy to follow. Another SER commented that while there is a minimum stagnation time, without a maximum stagnation time, residents could draw a sample after a significant time without water use, such as after a vacation. This abnormally long stagnation time is not typical of normal use. The SER suggested that sampling instructions could encourage residents to maintain 'normal household water use' before starting the stagnation period.

The Panel recognizes the difficulties in obtaining consistent sample results from consumer's taps, and recommends EPA develop options which provide flexibility in revisions to the sampling protocols which allow systems to provide clear, understandable instructions to homeowners who will be taking lead and/or copper samples. For example, this could include the instruction to utilize normal household water use on the day preceding the sample. Specifically, the Panel recommends EPA consider a maximum stagnation time, in addition to the current six hour minimum requirement (to be included in the sampling instructions), and language instructing residents to continue normal water use up until the period of stagnation begins.

9.4.5 Lead Service Line Replacement

EPA is contemplating several revisions to mandatory LSLR requirements. Each revision under consideration is described in [Section 3.5](#) of this report and are summarized below. The potential revisions would apply for as long as the system is subject to LSLR requirements.

- ***Delay Mandatory LSLR Requirement until after CCT Re-optimization.*** EPA is considering delaying mandatory LSL requirements until after systems have re-optimized their CCT (see Section 6.4 for further discussion)
- ***Eliminate Partial LSLR.*** In situations when owners/residents cannot or will not pay to replace the line on private property, systems would be required to leave the entire LSL undisturbed.
- ***Revise the Seven Percent Replacement Requirement.*** Under this potential revision, systems would no longer be required to replace seven percent of LSLs in their distribution systems each year. Instead, systems would be required to make a replacement offer through a consumer notice to at least 10 percent of homeowners served by a LSL in its distribution system per year and to fully replace only those lines where a consumer agrees to replace their portion of the line.
- ***Eliminate follow up sampling of LSLRs.*** EPA is also considering removing the requirement for systems to collect a LSL sample within 72 hours following a PLSLR, and is considering enhanced requirements for the content of the notice that systems provide to residents of households where LSLRs are performed, including guidance on

flushing their taps and cleaning their aerators. Systems could be required to perform a study to determine the appropriate length of time for the residents to flush their taps.

- ***Provide a Pitcher-filter or Other Treatment Unit Prior to LSLR.*** Prior to beginning LSLR, systems must provide a pitcher filter (or other POU treatment unit) and one replacement filter, with instructions for its use, to the resident. The unit and filter must be certified to meet NSF/ANSI standards for lead removal.

One SER commented that there needs to be more clarity on how the potential changes to LSLR would be implemented. Another SER commented that notifying and offering to share the cost of replacement with ten percent of LSL customers was appealing, but those potential changes should be costed out in a transparent manner.

While the Panel agrees with the potential changes to LSLR outlined in [Section 3.5](#), the Panel recommends that EPA provide a transparent cost analysis of the potential changes to the LSLR requirements, and provide more clarity in the rule on how systems which repeatedly exceed the AL would carry out the potential revised LSLR requirements, specifically public notification.

The Panel recognizes that the effects of changing sampling protocols in the several different ways outlined earlier are not clearly known. It is likely, with changes to the LSL sampling protocols and site selection criteria EPA is considering, some systems not already exceeding under the current rule may exceed the lead AL and be triggered into LSLR as a result. The Panel is sensitive to the concerns that these LSLR requirements could be burdensome for small systems, particularly for very small systems. Therefore, the Panel recommends that EPA evaluate, in its cost analysis, the number of systems, by size category, expected to engage in LSLR due to AL exceedances resulting from changes in the LCR and assess the related cost impacts of those AL exceedances in light of the change from partial to full replacements.

9.4.5.1 Definition of Control

EPA's current interpretation of the term control is limited to ownership. But in the original Lead and Copper Rule, promulgated in June 1991, EPA established a broad definition of control as it applies to lead service lines in the distribution system that included: (1) authority to set standards for construction, repair or maintenance of the line; (2) authority to replace, repair or maintain the service line; or (3) ownership of the line.

EPA is considering revisions to the definition of control ([Section 3.5.1](#)) to include the portion of the service line not currently owned by the system, but may otherwise be under the control of the system because it has the authority to repair, replace, or maintain the line. This possible revision would expand the definition of service lines under the control of water systems in a manner similar to the 1991 LCR, to require greater full replacements.

SER comments around this potential revision centered on concerns that EPA was making the water system responsible for repair of private property. One SER was concerned about the spillover effects of the change into other liabilities of her system. Many SERs were concerned that this potential change would unduly increase costs for their systems. All of the SERs that commented on this potential revision expressed concern about changing the definition of control.

The Panel recommends that EPA consider other alternatives to achieving full LSLR, other than expanding the definition of control as outlined in [Section 3](#) of this report. This would be a reaffirmation of EPA's determination in the 2000 lead and copper rule, when EPA last considered this issue.

9.4.6 Reduction of Lead in Drinking Water Act of 2011

EPA intends to revise the regulations to include the new SDWA definition of lead free plumbing materials in the regulations. EPA also intends to clarify how best to distinguish plumbing materials that are exempt from the requirements because they *“are used exclusively for non-potable services such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption.”*

A SER commented that manufacturers and systems, especially small systems, will need to know about the Act and any potential actions EPA may take as soon as possible, and recommended public outreach. The SER recommended EPA issue guidance as soon as is possible. Several SERs commented on replacement parts for meters, and recommended that EPA not take actions which would require systems to purchase new meters to replace existing, repairable meters.

The Panel recommends that EPA promptly issue guidance on the Reduction of Lead in Drinking Water Act of 2011 in order to provide manufacturers, distributors, systems, and other affected parties with sufficient time to comply with the January 2014, effective date of the Act.