

House Committee on Education

HB 2142 – Get the Lead Out of School Drinking Water Act

Kansas Department of Health & Environment Testimony

February 14, 2023

Chairman Thomas and Members of the Committee:

Lead is a strong neurotoxin that impacts ability of children to learn and thrive and it is an important public policy to limit it in all drinking water systems. The goal of our testimony today is to provide the Committee with some background on lead in drinking water, federal regulatory requirements that will soon be in effect and suggested changes to HB 2142.

In addition to water, there are other sources of lead exposure that can contribute to high blood lead levels in children, including lead paint, dust containing lead particles and clothing contaminated from industrial areas. Our epidemiologist has no documented cases of high blood lead levels due to consumption of drinking water. An investigation I was involved with in Saline county identified contaminated clothing from parents working at an industrial site as the source of high blood lead levels in their children.

In Kansas, lead does not naturally occur in sources of drinking water. The primary source of lead in drinking water is lead service lines or connectors. When no lead service lines or connectors are present the most common source of lead is brass or chrome-plated brass faucets and plumbing with lead solder. Lead enters drinking water when water lines and plumbing materials that contain lead are exposed to corrosive water.

The U.S. Environmental Protection Agency (EPA) published the Lead and Copper Rule (LCR) in 1991. The 1991 LCR did not set a maximum contaminant (MCL) for lead, instead an action level of 15 parts per billion (ppb) was established to primarily address water corrosivity. All community and non-transient, non-community water systems, including self-supplied schools, must comply with the rule. If the 90th percentile result is at or above 15 ppb, the public water supply system must take action to reduce the corrosivity of the water that is provided to customers. If the action level continues to be exceeded the public water supply system may be required to replace lead service lines in the distribution system in addition to corrosion control treatment. The priority for sampling under the LCR is single family homes with lead service lines. Schools served by a regulated public water supply system are not required to be sampled under the 1991 LCR, schools that are stand-alone, self-supplied public water systems were required to sample under the LCR using the same sampling protocols as a community water system.

The LCR has had several revisions since the 1991 rule was published. The most recent and significant revision was published in January 2021 shortly before the transition from the Trump to the Biden administration. The new rule is the Lead and Copper Rule Revisions (LCRR). The LCRR for the first time, requires public water supply systems to conduct lead sampling at schools and child-care facilities that they serve if they were constructed prior to January 1, 2014 (40 CFR 141.92).

The LCRR requires public water supply systems to sample at least 20% of the schools and child-care facilities they serve each year for 5 years. After the initial 5-year monitoring period the public water supply system must conduct sampling upon request of the school or child-care facility. Stand-alone schools that are also public water supply systems are exempt from the school sampling requirements of the LCRR because they sample as a public water supply. Kansas has 16 schools that are stand-alone public water supply systems.

In closing, KDHE has six areas of concern that we would ask the Legislature to consider as we partner with you to limit lead exposure:

1. Conflicting action levels between the federal drinking water regulation of 15 ppb versus the 1 ppb in HB 2142 creates confusion and distrust. KDHE is not aware of any state that has a level set at 1 ppb, which is the minimum detection level for the analytical method. Two numbers, one for schools and child-care facilities and one for all other water system customers will be confusing for consumers and places a disproportionate burden on schools. The EPA is currently reviewing the LCRR for additional revision and it is anticipated that the action level will be lowered to 10 ppb. **The action level for HB 2142 should be consistent with federal drinking water regulations and meet expectations for drinking water for the rest of the community.**
2. HB 2142 duplicates the monitoring required at schools and child-care facilities required by the LCRR.
3. The implementation timeline is problematic for KDHE. HB 2142 requires KDHE to have program regulations in place on or before January 1, 2024. The regulatory process, especially starting from scratch, can take 2-3 years.
4. Implementing the legislation to over 1600 school buildings and 650-plus institutional child-care facilities will impose a large fiscal cost to KDHE to ensure compliance with State law on top the requirements of the LCRR. Additionally, schools will incur substantial costs to replace premise plumbing because of exceedances of the stringent 1 ppb standard established in this legislation. All federal funding opportunities would be explored; however, federal funding programs are subject to annual appropriations and may not be consistent from year to year..
5. HB 2142 provides enforcement authority but does not provide authority to assess civil penalties for non-compliance. The KDHE drinking water program rarely imposes civil penalties. We first try to bring non-compliant water systems back into compliance with training and technical assistance, reserving civil penalties as a last resort. We would take the same approach with schools required to sample under HB 2142. To be effective KDHE needs the authority to assess civil penalties for the most egregious non-compliers. Civil penalties should be deposited in the get the lead out of school drinking water grant fund created by HB 2142.
6. KDHE will need cooperation from the Department of Education to identify schools that will be required to sample under HB 2142.

In short, the intentions of HB 2142 to protect children from exposure to lead are good, but by duplicating the ongoing efforts of utilities mandated by the LCRR and establishing a significantly lower standard to trigger costly action, it may lead to unintended consequences that can be avoided through additional information, strategic planning, and partnership. Attached to this testimony are two fact sheets published by EPA that provide more detail about the Lead and Copper Rule requirements that you may find useful as references as you consider HB 2142.

Lead and Copper Rule:

A Quick Reference Guide for Schools and Child Care Facilities that are Regulated Under the Safe Drinking Water Act



This document is designed for schools and child care facilities that meet the definition of a public water system and therefore must comply with the Lead and Copper Rule (LCR) requirements. The guidance contained in this document does not substitute for EPA's regulations, nor is it a regulation itself. This reference guide provides an overview of the requirements but does not contain all of the details you will find in the LCR. Compliance is based on the actual rule language. States and local governments can impose additional requirements.

OVERVIEW OF THE RULE

Schools and child care facilities that have their own water supply and are considered non-transient, non-community water systems (NTNCWSs) are subject to the Lead and Copper Rule (LCR) requirements.

The LCR was developed to protect public health by minimizing lead and copper levels in drinking water. The most common source of lead and copper in drinking water is corrosion of plumbing materials. Plumbing materials that can be made with lead and copper include pipes, solder, fixtures, and faucets.

The LCR established an action level of 0.015 mg/L (15 ppb) for lead and 1.3 mg/L (1300 ppb) for copper based on the 90th percentile level of tap water samples. This means no more than 10 percent of your samples can be above either action level. If lead or copper levels are found above the action levels, it does not signal a violation but can trigger other requirements that include water quality parameter (WQP) monitoring, corrosion control treatment (CCT), source water monitoring/treatment, public education, and lead service line replacement. An explanation of how to calculate the 90th percentile level is provided on page 3 of this guide.

HEALTH RISKS OF LEAD AND COPPER

CHILDREN

Children are especially susceptible to lead and copper exposure because their bodies absorb these metals at higher rates than the average adult. Children younger than six are most at risk due to their rapid rate of growth. Exposure to high levels of lead can cause damage to the brain, red blood cells, and kidneys. Exposure to even low levels of lead can cause low IQ, hearing impairment, reduced attention span, and poor classroom performance. Exposure to high levels of copper can cause stomach and intestinal distress, liver or kidney damage, and complications of Wilson's disease in genetically predisposed people.

Because children spend so much time in school and child care facilities and their bodies are developing rapidly, it is important to provide safe drinking water to avoid health problems linked to lead or copper exposure.

ADULTS

High lead levels in adults have been linked to increased blood-pressure. Pregnant women and their fetuses are especially vulnerable to lead exposure since lead can significantly harm the fetus, causing lower birth weight and slowing down normal mental and physical development.

SOURCES OF LEAD AND COPPER IN DRINKING WATER

When lead and copper are found in tap water it is typically due to leaching from internal plumbing materials. If the water is too corrosive, it can cause lead or copper to leach out of the plumbing materials and enter the drinking water.

The potential for leaching increases the longer the water is in contact with the plumbing components. School water supplies tend to have extended periods of no water use (e.g., overnight, weekends, holidays, summer) that increase the likelihood of elevated lead levels at the tap.

LEAD AND COPPER TAP SAMPLING REQUIREMENTS

KEY POINTS

- “First draw” samples must be collected.
- Samples must be collected after the water has had time to sit in the pipes for at least 6 hours.
- If either action level is exceeded, water quality parameter (WQP) and source water sampling may be required.
- The number of lead and copper or WQP samples collected depends on the daily population served by the school or child care facility (see Table 1).
- Lead and copper samples must be collected every 6 months, unless the system qualifies for reduced monitoring (see Table 2).
- Samples for subsequent rounds of monitoring must be collected from the same sites used in the initial round.

Table 1: Lead and Copper Tap and WQP Tap Monitoring

School or Child Care Facility Daily Population Served	Number of Lead and Copper Tap Sample Sites		Number of WQP Tap Sample Sites	
	Standard	Reduced	Standard	Reduced
10,001 - 50,000	60	30	10	7
3,301 - 10,000	40	20	3	3
501 - 3,300	20	10	2	2
101 - 500	10	5	1	1
≤ 100	5	5	1	1

Table 2: Criteria for Reduced Lead and Copper Tap Monitoring

<i>Can monitor...</i>	<i>If...</i>
Annually	<p>The 90th percentile is less than both action levels (ALs) for 2 consecutive 6-month monitoring periods; or</p> <p>Optimal water quality parameter specifications are met for 2 consecutive 6-month monitoring periods and the primacy agency approves.</p>
Triennially (every 3 years)	<p>The 90th percentile is less than both ALs for 3 consecutive years of monitoring; or optimal water quality parameter specifications are met for 3 consecutive years of monitoring and the primacy agency approves; or</p> <p>The 90th percentile lead levels are ≤ 0.005 mg/L and 90th percentile copper levels are ≤ 0.65 mg/L; or</p> <p>The system is deemed to have optimized corrosion control by meeting the copper action level and showing:</p> <ul style="list-style-type: none"> • for 2 consecutive 6-month periods that the difference between the lead 90th percentile tap water level and the highest lead source water sample is less than the Practical Quantitation Limit for lead; or • the highest source water lead level is below the Method Detection Level and the 90th percentile tap water lead level is ≤ the Practical Quantitation Limit for lead for 2 consecutive 6-month periods.
Once every 9 years	The school or child care facility population is ≤ 3,300, the system meets monitoring waiver criteria, and a waiver is approved by the primacy agency.

CALCULATING THE 90TH PERCENTILE FOR LEAD AND COPPER

If you collect 5 samples...	rank the results from the lowest to the highest value, and then average the two highest results. This value is the 90 th percentile.
If you collect 10 samples...	rank the results from the lowest to the highest value, numbering each from 1 to 10. The 9 th value is the 90 th percentile.
If you collect 20 or more samples...	rank the results from the lowest to the highest value, numbering each from 1 up to the number of samples taken. Multiply the number of samples taken by 0.9. The resulting number is the value that is the 90 th percentile. <i>Example calculation:</i> 20 samples x 0.9 = 18. The 18 th value in a ranked set of sample values is the 90 th percentile.

COMPLIANCE REQUIREMENTS IF ACTION LEVEL IS EXCEEDED

KEY POINTS

Four compliance areas must be addressed within certain time frames following an action level exceedance:

- Public education
- Water quality parameter (WQP) monitoring
- Source water monitoring and source water treatment
- Corrosion control treatment (CCT)

Contact your primacy agency in the event of an action level exceedance to ensure you follow the required steps. Failure to do so may result in a compliance violation.

Public Education within 60 Days

When the AL for lead is exceeded, a water system must issue public education print materials (no public education is required if only the copper AL is exceeded). (See Appendix A for an example public education poster.)

- Display informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system; and
- Distribute informational pamphlets and/or brochures on lead in drinking water to each person served by the system.

You have the option of using the alternative mandatory language provided in §141.85(a)(2) or using the original language now contained in §141.85(a)(1). You do not need State approval before using this alternative language.

Public Education Requirement	Poster	Pamphlet	Compliance Letter to State
Within 60 days of exceedance ¹	✓	✓	
Every 12 months for as long as exceedance occurs	✓	✓	
Within 10 days after the end of each period in which public education was required			✓

¹Applies first time action level is exceeded, and applies any subsequent time that a system exceeds the lead action level when it is not already providing public education.

Water Quality Parameter Sampling within same Lead and Copper monitoring period

Collect water quality parameter (WQP) tap samples.

- See Table 1 for number of samples required.
- WQP samples are collected at taps and at each entry point to the distribution system.
- WQPs include: pH, alkalinity, calcium, and in the initial sample, conductivity and temperature as well. If treatment is currently installed, other parameters may also be included depending on the treatment type.
- After follow-up monitoring, the primacy agency will set a range of optimal WQPs.

Entry Point to Distribution System Monitoring within 6 months	<p>System must:</p> <ul style="list-style-type: none"> Collect samples at each entry point to the distribution system. (You may want to use the same sampling points designated for chemical sampling – check with your primacy agency.) Make a recommendation for source water treatment.
Corrosion Control Treatment	<p>within 6 months: Recommend optimal corrosion control treatment.</p> <p>within 18 months: Complete corrosion control treatment study if required by primacy agency.</p> <p>within 24 months: Install corrosion control treatment after primacy agencies has determined appropriate treatment.</p> <p>within 36 months: Monitor WQP at entry points for 2 consecutive 6-month periods.</p>

COMPLIANCE REQUIREMENTS IF ACTION LEVEL EXCEEDANCE CONTINUES

KEY POINTS	<p>If the system continues to exceed the AL after installation of corrosion control treatment or source water treatment there are two additional compliance areas:</p> <ul style="list-style-type: none"> Lead service line monitoring Lead service line replacement <p>Contact your primacy agency for further assistance if installation of corrosion control treatment or source water treatment does not end AL exceedances.</p>
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DEFINITIONS

90 th Percentile	The highest concentration of lead or copper in tap water that is exceeded by 10 percent of the sites sampled during a monitoring period. This value is compared to the lead action level (AL) to determine whether an AL has been exceeded. (See “Calculating the 90 th Percentile” above for instructions.)
Action Level (AL)	The concentration of lead or copper in tap water which determines whether a system may be required to install corrosion control treatment, collect water quality parameter samples, collect source water samples, replace lead service lines, and/or deliver public education about lead. The action level for lead is 0.015 mg/L or 15 ppb. The action level for copper is 1.3 mg/L or 1300 ppb.
Corrosion Control Treatment (CCT)	Water treatment generally in the form of chemical addition meant to reduce the corrosivity of the water.
Entry Point to the Distribution System	An entry point to the distribution system is a point after any treatment is applied, but before water reaches the first consumer. Because this location is often used for sampling, it is ideal to have a dedicated sampling tap which is inaccessible for drinking purposes.
First Draw Sample	A tap water sample taken after water has been standing motionless in plumbing pipes for a period of time and is collected without flushing the tap. Approximately 8 hours is an ideal amount of time to let the water sit before collecting a first draw sample, a minimum of 6 hours is required.
Method Detection Limit (MDL)	The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero.
Optimal Water Quality Parameters	Ranges or minimums set by the primacy agency that indicate a system’s CCT is operating at a level to most effectively minimize lead and copper concentrations at user’s taps.
Practical Quantitation Limit (PQL)	The concentration that can be reliably measured within specified limits during routine laboratory operating conditions using approved methods. The PQL for lead is 0.005 mg/L. The PQL for copper is 0.050 mg/L.
Water Quality Parameters (WQPs)	A set of water qualities or characteristics used to help systems and states determine what levels of CCT would work best for the system and whether this treatment is being properly operated and maintained over time. WQPs include: pH, alkalinity, calcium, conductivity, and temperature. If treatment is currently installed, other parameters such as orthophosphate and silica may also be included depending on the treatment type.

LEAD in Drinking Water

HEALTH EFFECTS OF LEAD

Lead is found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery porcelain and pewter, and water. Lead can pose a significant risk to your health if too much of it enters your body.

Lead builds up in the body over many years and can cause damage to the brain, red blood cells and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that won't hurt adults can slow down normal mental and physical development of growing bodies. In addition, a child at play often comes into contact with sources of lead contamination - like dirt and dust - that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.



LEAD IN DRINKING WATER

Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase a person's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. EPA estimates that drinking water can make up 20 percent or more of a person's total exposure to lead.

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA) and (a)

are concerned about lead in your drinking water. Some drinking water samples taken from this facility have lead levels above the EPA action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water (mg/L). Under Federal law we are required to have a program in place to minimize lead in your drinking water by (b)

This program includes:

- 1) Corrosion control treatment (treating the water to make it less likely that lead will dissolve into the water);
- 2) Source water treatment (removing any lead that is in the water at the time it leaves our treatment facility); and
- 3) A public education program.

If you have any questions about how we are carrying out the requirements of the lead regulation please call us at (c)

This poster also explains the simple steps you can take to protect yourself by reducing your exposure to lead in drinking water.

HOW LEAD ENTERS OUR WATER

Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join

copper pipe, brass and chrome-plated brass faucets, and in some cases, pipes made of lead that connect houses and buildings to water mains (service lines). In 1986, Congress banned the use of lead solder containing greater than 0.2% lead, and restricted the lead content of faucets, pipes and other plumbing materials to 8.0%.

When water stands in lead pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first water drawn

from the tap in the morning, or later in the afternoon if the water has not been used all day, can contain fairly high levels of lead.

STEPS YOU CAN TAKE to Reduce Exposure to Lead in Drinking Water

1. **FLUSH YOUR SYSTEM.** Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six hours. The longer water resides in plumbing the more lead it may contain. Flushing the tap means running the cold water faucet for about 15-30 seconds. Although toilet flushing or showering flushes water through a portion of the plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your health. It usually uses less than one to two gallons of water.

2. **USE ONLY COLD WATER FOR COOKING AND DRINKING.** Do not cook with, or drink water from the hot water tap. Hot water can dissolve more lead more quickly than cold water. If you need hot water, draw water from the cold tap and then heat it.

3. **USE BOTTLED WATER.** The steps described above will reduce the lead concentrations in your drinking water. However, if you are still concerned, you may wish to use bottled water for drinking and cooking.



FOR MORE INFORMATION

YOU CAN CONSULT a variety of sources for additional information:

Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include:

- (d) at (e) can provide you with information about your facility's water supply; and
- (f) at (g) or the
- (h) at (i) can provide you with information about the health effects of lead.

Lead and Copper Rule: A Quick Reference Guide

Overview of the Rule	
Title ¹	Lead and Copper Rule (LCR) ² , 56 FR 26460 - 26564, June 7, 1991
Purpose	Protect public health by minimizing lead (Pb) and copper (Cu) levels in drinking water, primarily by reducing water corrosivity. Pb and Cu enter drinking water mainly from corrosion of Pb and Cu containing plumbing materials.
General Description	Establishes action level (AL) of 0.015 mg/L for Pb and 1.3 mg/L for Cu based on 90 th percentile level of tap water samples. An AL exceedance is not a violation but can trigger other requirements that include water quality parameter (WQP) monitoring, corrosion control treatment (CCT), source water monitoring/treatment, public education, and lead service line replacement (LSLR).
Utilities Covered	All community water systems (CWSs) and non-transient non-community water systems (NTNCWSs) are subject to the LCR requirements.

Public Health Benefits	
Implementation of the LCR has resulted in	<ul style="list-style-type: none"> ▶ Reduction in risk of exposure to Pb that can cause damage to brain, red blood cells, and kidneys, especially for young children and pregnant women. ▶ Reduction in risk of exposure to Cu that can cause stomach and intestinal distress, liver or kidney damage, and complications of Wilson's disease in genetically predisposed people.

Major Monitoring Provisions	
Lead and Copper Tap	
Applicability	▶ All CWSs and NTNCWSs.
Standard	<ul style="list-style-type: none"> ▶ CWSs and NTNCWSs must collect first-draw samples at taps in homes/buildings that are at high risk of Pb/Cu contamination as identified in 40 CFR 141.86(a). ▶ Number of samples is based on system size (see Table 1). ▶ Systems must conduct monitoring every 6 months unless they qualify for reduced monitoring.
Reduced	▶ See Table 1 for sample number and Table 2 for criteria.

Water Quality Parameter (WQP)	
Applicability	<ul style="list-style-type: none"> ▶ Systems serving > 50,000 people. ▶ Systems serving ≤ 50,000 during monitoring periods in which either AL is exceeded.
Standard	<ul style="list-style-type: none"> ▶ WQP samples at taps are collected every 6 months. ▶ WQPs at entry points to distribution system (EPTDS) are collected every 6 months prior to CCT installation, then every 2 weeks.
Reduced	▶ See Table 1 for sample number and page 2 for criteria. Does not apply to EPTDS WQP monitoring.

Table 1: Lead and Copper Tap and WQP Tap Monitoring

Size Category	System Size	Number of Pb/Cu Tap Sample Sites ³		Number of WQP Tap Sample Sites ⁴	
		Standard	Reduced	Standard	Reduced
Large	> 100K	100	50	25	10
	50,001 - 100K	60	30	10	7
Medium	10,001 - 50K	60	30	10	7
	3,301 - 10K	40	20	3	3
Small	501 - 3,300	20	10	2	2
	101 - 500	10	5	1	1
	≤ 100	5	5	1	1

³ With written State approval, PWSs can collect < 5 samples if all taps used for human consumption are sampled.

⁴ Two WQP tap samples are collected at each sampling site.

Table 2: Criteria for Reduced Pb/Cu Tap Monitoring

Annual	<ol style="list-style-type: none"> 1. PWS serves ≤ 50,000 people and is ≤ both ALs for 2 consecutive 6-month monitoring periods; or 2. Any PWS that meets optimal WQPs (OWQPs) and is ≤ Pb AL for 2 consecutive 6-month monitoring periods.
Triennial	<ol style="list-style-type: none"> 1. PWS serves ≤ 50,000 people and is ≤ both ALs for 3 consecutive years of monitoring; or 2. Any PWS that meets OWQP specifications and is ≤ Pb AL for 3 consecutive years of monitoring; or 3. Any PWS with 90th percentile Pb and Cu levels ≤ 0.005 mg/L and ≤ 0.65 mg/L, respectively, for 2 consecutive 6-month monitoring periods (i.e., accelerated reduced Pb/Cu tap monitoring).
Every 9 years	PWS serves ≤ 3,300 people and meets monitoring waiver criteria found at 40 CFR 141.86(g).

Lead Consumer Notice	
Within 30 days of learning the results, all systems must provide individual Pb tap results to people who receive water from sites that were sampled, regardless of whether the results exceed the Pb AL, as required by 40 CFR 141.85(d).	
Consumer Confidence Report (CCR)	
All CWSs, irrespective of their lead levels, must provide an educational statement about lead in drinking water in their CCRs as required by 40 CFR 141.154. Must be in 2008 CCR (due July 1, 2009) if EPA is Primacy Agency, State adopts the rule by reference automatically, or adopts during 2008. Otherwise, this statement is required in the 2009 CCR (due July 1, 2010).	

¹This document provides a summary of federal drinking water requirements; to ensure full compliance, please consult the federal regulations at 40 CFR 141 and any approved state requirements.

² The June 1991 LCR was revised with the following Technical Amendments: 56 FR 32112, July 15, 1991; 57 FR 28785, June 29, 1992; 59 FR 33860, June 30, 1994.

It was subsequently revised by: the LCR Minor Revisions, 65 FR 1950, January 12, 2000; and the LCR Short-Term Revisions, 72 FR 57782, October 10, 2007.



Treatment Technique and Sampling Requirements if the AL is Exceeded⁵

⁵ Based on 90th percentile level. Multiply number of valid samples by 0.9 (e.g., 10 samples x 0.9 = 9; thus, use 9th highest Pb and Cu test result to compare to AL). For 5 samples, average 4th and 5th highest results. For < 5 samples, use highest result.

Water Quality Parameter (WQP)

Applicability	Refer to page 1.
Parameters	<ul style="list-style-type: none"> ▶ pH, alkalinity, calcium (<i>initial only, unless calcium carbonate stabilization is used</i>), conductivity (<i>initial monitoring only</i>), orthophosphate (<i>if inhibitor is phosphate-based</i>); silica (<i>if inhibitor is silicate-based</i>), and temperature (<i>initial monitoring only</i>).
Frequency	<ul style="list-style-type: none"> ▶ Systems installing CCT, must conduct follow-up monitoring for 2 consecutive 6-month periods. ▶ WQP tap monitoring is conducted every 6 months, EPTDS monitoring increases to every 2 weeks. ▶ After follow-up monitoring, State sets OWQP specifications that define optimal CCT.
Reduced Tap Monitoring	<ul style="list-style-type: none"> ▶ Collect reduced number of sampling sites (see Table 1) if meet OWQPs for 2 consecutive 6-month periods. ▶ Collect reduced number of sampling sites at reduced frequency if meet OWQPs for: <ul style="list-style-type: none"> - 6 consecutive 6-month monitoring periods can monitor annually; - 3 consecutive years of annual monitoring can monitor triennially.

Public Education (PE)

Applicability	▶ Systems that exceed the Pb AL (<i>not required if only the Cu AL is exceeded</i>).
Purpose	▶ Educates consumers about lead health effects, sources, and steps to minimize exposure.
Delivery Method	<ul style="list-style-type: none"> ▶ CWSs: deliver materials to bill-paying customers and post lead information on water bills, work in concert with local health agencies to reach at-risk populations (children, pregnant woman), deliver to other organizations serving "at-risk" populations, provide press releases, include new outreach activities from list in 40 CFR 141.85(a)(2)(vi), and post to Web site (CWSs serving > 100,000 only). ▶ NTNCWSs: posting and distribution to all consumers (can be electronic with State permission). Can apply to CWSs such as hospitals and prisons where population cannot make improvements.
Timing	<ul style="list-style-type: none"> ▶ Within 60 days <i>after end of monitoring period</i> in which Pb AL was exceeded if not already delivering PE.⁶ ▶ Repeat annually except: water bill inserts - quarterly; press releases - 2x/year, and Web posting - continuous. ▶ Can discontinue whenever ≤ Pb AL but must recommence if subsequently exceed Pb AL.

⁶State may allow extension in some situations. Also, State may require approval of message content prior to delivery.

Source Water Monitoring and Source Water Treatment (SOWT)

Applicability	▶ Systems that exceed Pb or Cu AL.
Purpose	▶ Determine contribution from source water to total tap water Pb and Cu levels and need for SOWT.
Timing	<ul style="list-style-type: none"> ▶ One set of samples at each EPTDS is due within 6 months of first AL exceedance. ▶ System has 24 months to install any required SOWT. ▶ State sets maximum permissible levels (MPLs) for Pb and Cu in source water based on initial and follow-up source water monitoring.
Standard	▶ Ground water PWSs monitor once during 3-year compliance periods; surface water PWSs monitor annually.
Reduced	▶ Monitor every 9 years if MPLs are not exceeded during 3 consecutive compliance periods for ground water PWSs or 3 consecutive years for surface water PWSs.

Corrosion Control Treatment (CCT)

Applicability	<ul style="list-style-type: none"> ▶ All large systems except those meeting requirements of 40 CFR 141.81(b)(2) or (b)(3). ▶ Medium and small systems that exceed either AL; may stop CCT steps if ≤ both ALs for 2 consecutive 6-month periods but must recommence CCT if subsequently exceed either AL.
Study	<ul style="list-style-type: none"> ▶ All large systems except as noted above. ▶ If State requires study for small or medium systems, it must be completed within 18 months.
Treatment	<ul style="list-style-type: none"> ▶ Once State determines type of CCT to be installed, PWS has 24 months to install. ▶ Systems installing CCT must conduct 2 consecutive 6 months of follow-up tap and WQP monitoring.
OWQPs	▶ After follow-up Pb/Cu tap and WQP monitoring, State sets OWQPs. <i>Refer to WQP section above.</i>

Lead Service Line Replacement (LSLR)

Applicability	<ul style="list-style-type: none"> ▶ Systems that continue to exceed the Pb AL after installing CCT and/or SOWT. ▶ Can discontinue LSLR whenever ≤ Pb AL in tap samples for 2 consecutive 6-month monitoring periods; must recommence if subsequently exceed.
Monitoring	<ul style="list-style-type: none"> ▶ Optional: Sample from LSL to determine if line must be replaced. If all samples are ≤ 0.015 mg/L, line is considered "replaced through testing"; must reconsider these lines if Pb AL is subsequently exceeded. ▶ Required: Sample from any LSLs not completely replaced to determine impact on Pb levels.
Replacement	<ul style="list-style-type: none"> ▶ Must replace at least 7% of LSLs annually; State can require accelerated schedule. ▶ If only portion of LSL is replaced, PWS must: <ul style="list-style-type: none"> - Notify customers at least 45 days prior to replacement about potential for increased Pb levels. - Collect samples within 72 hours of replacement and provide results within 3 days of receipt.

For additional information on the LCR

Call the Safe Drinking Water Hotline at 1-800-426-4791; visit the EPA Web site at <http://water.epa.gov/drink>; or contact your State drinking water representative.