FACT SHEET

EPA's Final Lead and Copper Rule Improvements
Technical Fact Sheet: Corrosion Control Treatment
October 2024

The final Lead and Copper Rule Improvements (LCRI) revises several elements of the corrosion control treatment (CCT) treatment technique approach to improve public health protection. This fact sheet summarizes the updates in CCT and water quality parameter (WQP) requirements in the final LCRI, including new requirements in response to individual lead sample results greater than the new action level of 0.010 mg/L.

What is optimal corrosion control treatment (OCCT)?

Optimal corrosion control treatment is defined as the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while ensuring that the treatment does not cause the water system to violate any national primary drinking water regulations.

Community water systems (CWSs) serving 3,300 or fewer people and all non-transient non-community water systems (NTNCWSs) have additional compliance alternatives to CCT if they exceed the lead action level of 0.010 mg/L. See the LCRI Small Systems Fact Sheet for a summary of small system flexibilities.

What are optimal water quality parameters (OWQPs)?

A minimum value or range of values designated by the State for each of the key parameters for the optimal corrosion control treatment, such as pH, alkalinity and inhibitor concentration for systems that are required to meet OWQPs to demonstrate that they have OCCT. The minimum value or range of values for the key parameters are set at both entry points to the distribution system and at locations in the distribution system.

What are the updated CCT requirements?

Water systems must install or re-optimize OCCT if they exceed the new lead action level of 0.010 mg/L unless they meet the criteria in Update 2 below or are allowed to defer OCCT as provided in Update 1 below. The final LCRI includes several updates to the CCT requirements to improve flexibility, address technical challenges, streamline the requirements, and protect public health. These are described below.

Update 1: Systems with lead and/or galvanized requiring replacement (GRR) service lines can ***defer*** installing or re-optimizing OCCT if they replace 100 percent of their lead and GRR service lines in five years or less at a minimum annual rate. By the end of the replacement period, no lead, GRR, or unknown service lines can remain in the inventory. To be eligible, the system must:

- Replace lead and GRR service lines at a minimum annual rate calculated in accordance with LCRI requirements in order to replace all service lines in five years or less.
- If OCCT is present, maintain OCCT and meet OWQPs designated by the State during the replacement period.

Keep In Mind:

Systems deferring OCCT installation or re-optimization do not need to conduct a CCT study, but need to meet all other rule requirements including public notification, public education, and if applicable, public education following multiple action level exceedances, including making filters available.

Systems with OCCT must continue to operate and maintain existing OCCT while using this deferral option.

Update 2: Systems with OCCT:

- Are required to re-optimize OCCT ***only once*** after November 1, 2027 following a lead or copper action level exceedance as long as they continue to operate and maintain OCCT and meet their OWQPs designated by the State.
- Must re-optimize OCCT again if they exceed the lead action level after replacing all of their lead and GRR service lines.
- May be required to re-optimize if required by the State at any time including from a modification of a State treatment determination of OCCT or upon adding a new source or long-term treatment change.

Update 3: All systems without CCT that have started to install CCT must continue to install OCCT if they exceed the lead action level regardless of future 90th percentile lead.

Update 4: Systems with lead service lines serving more than 10,000 people, and other smaller sized systems required by the State that exceed the lead action level, must conduct ***pipe rig/loop studies using harvested lead service lines*** from their distribution systems to assess the effectiveness of CCT options on the existing pipe scale. Metal coupon tests can be used as a screen to reduce the number of options evaluated in the pipe rig/loop studies to the current water quality and at least two additional treatment options. This applies to systems with and without CCT. All other systems that conduct a study have the option of choosing among pipe loop/rig tests, metal coupon tests, partial system tests, and/or evaluation of analogous systems.

***Update 5*:** All systems with OCCT that exceed the lead action level can make an existing treatment modification based on a previous CCT study if approved by the State. In this case, a new CCT study is not required, unless required by the State.

Water systems must comply with revised CCT requirements of the final LCRI starting with ***the first round of tap monitoring*** after November 1, 2027.

What are the WQP monitoring updates under the LCRI?

The final LCRI contains the following updates to the WQP monitoring requirements to protect public health and ensure that CCT is operated as designed:

***Update 1*:** Systems serving 10,001 to 50,000 people with OCCT must now conduct regular WQP monitoring, just as systems serving more than 50,000 people are required to do so, except those with a 90th percentile lead level at or below the lead practical quantitation limit (PQL) of 0.005 mg/L that are also sampling at or below the copper action level.

Update 2*:** The final LCRI provides States with the authority to set ***additional WQPs beyond those specified in the rule, and to require any system with OCCT to conduct WQP monitoring more frequently and/or for more parameters than those required by the rule.

Update 3: Systems serving 10,000 or fewer people without CCT that exceed the lead or copper action level must conduct WQP monitoring for two consecutive six-month tap monitoring periods beginning the ***month immediately following*** the tap monitoring period in which the action level was exceeded, instead of during the same six-month period, as required under the LCR.

What are water systems required to do if a single tap sample exceeds 0.010 mg/L for lead?

The final LCRI contains requirements for systems when a single tap monitoring sample exceeds the lead action level of 0.010 mg/L, referred to as a **Distribution System and Site Assessment (DSSA)**. The DSSA requirements are summarized in Steps 1 through 3 below.

Step 1: CCT Assessment. Within five days of receiving a lead tap sample result > 0.010 mg/L, **systems with CCT** must sample at a WQP site that is on the same size water main in the same pressure zone and located within a half mile radius of the site. If the water system does not have an existing WQP site that meets these requirements, the system must add a new WQP site that meets those requirements. For rural and small systems with CCT, it may be necessary to conduct the WQP sampling at the site that exceeded 0.010 mg/L to assess the water quality if the next closest tap sample location is outside a half mile radius.

For systems required to meet OWQPs, sites added under Step 1 must be added to the WQP site monitoring plan. Sites must be added until the system exceeds ***twice*** the standard minimum number of required distribution system WQP sites, as shown in Table 1 below.

Table 1: Number of Required WQP Distribution Sites on Standard Monitoring

System Size (number of people served)	Minimum number of WQP sites
≤100	1
101 – 500	1
501 – 3,300	2
3,301 – 10,000	3
10,001 – 100,000	10
>100,000	25

For example, the number of WQP sites is capped at 20 for a system serving 10,001 to 100,000 people. When a system exceeds twice the number of sites, the State has discretion to determine if these additional newer sites can better assess the effectiveness of OCCT and whether to remove existing sites during sanitary survey evaluation of OCCT.

Systems must collect DSSA samples at WQP sites, in addition to the WQP samples required to meet OWQPs.

If a **water system does not have CCT**, the system ***is not required*** to collect these corrosion control assessment samples, as described in Step 1.

Step 2. Site assessment. Within 30 days of receiving the tap sampling results, water systems must collect and analyze a follow-up sample for lead. These follow-up samples may use different sample volumes or different sample collection procedures to assess the source of elevated lead levels than those used for compliance samples. Samples collected for this purpose must be submitted to the State but cannot be included in the 90th percentile calculation. If water systems are unable to collect a follow-up sample at a site, the system must provide documentation to the State within the first 10 days following the end of the applicable tap monitoring period in which an individual sample exceeded 0.010 mg/L, explaining why the system is unable to collect a follow-up sample.

Step 3. Evaluate results and system treatment recommendation. Within six months after the end of the tap sampling period in which the site(s) exceeded 0.010 mg/L for lead, water systems must: 1) evaluate the results of tap and WQP sampling to determine if either localized or centralized adjustment of the OCCT or other distribution system actions are necessary; and 2) submit the recommendation to the State.

Keep In Mind:

- CCT modification may not be necessary to address every exceedance of 0.010 mg/L. Other distribution system actions may include flushing to reduce water age.
- Water systems must note the cause of the elevated lead level, if known from the site assessment, in the recommendation to the State as site-specific issues can be an important factor in why water systems do not recommend any adjustment of CCT or other distribution system actions.
- If a water system is in the process of optimizing or re-optimizing OCCT in response to a lead action level exceedance, the system does not need to submit a treatment recommendation for DSSA.

Additional Resources

For detailed guidance on CCT and requirements under the LCR, see EPA's OCCT Evaluation Technical Recommendations Document, available here: https://www.epa.gov/dwreginfo/optimal-corrosion-control-treatment-evaluation-technical-recommendations. In addition, EPA has developed a suite of fact sheets that provide additional information on the final LCRI, available at: https://www.epa.gov/dwreginfo/lead-and-copper-rule-improvements-supporting-materials.