Part III: Mitigation Strategies

Guidance for Illinois child care facilities to comply with new Department of Children and Family Services (DCFS) requirements and reduce lead in water

November 19, 2018
What will you learn?

- Update on new rule requirements
- What is mitigation?
- What to do before your test results arrive
- What to do when your test results arrive
- Mitigation options
- Case studies
Rule requirements
New licensing standards

New standards apply to licensed day care homes, day care centers, and group day care homes serving children “under 6 years of age and housed in a building constructed on or before January 1, 2000.” The new standards require you to:

- Test drinking water sources for lead; have samples analyzed by an IEPA or IEPA-certified lab
- Post test results in the facility and submit them to your Licensing Office
- Develop a mitigation plan for drinking water sources that test at 2.01 ppb or greater
- Make your mitigation plan available to parents and submit it to your local Licensing Office
- Implement interim measures “to ensure a safe drinking water supply during mitigation”
- Conduct follow-up testing under the following scenarios:
  - When lead is found during initial testing. In this case, retesting is required no later than six months after the completion of the mitigation plan AND one year after the completion of the mitigation plan
  - After a change to the plumbing in the facility (e.g., new water heater, replaced water service lines)
- Complete a lead safety training with instruction on the mitigation plan and impact of lead exposure
New licensing standards

Important updates:

- Water sources that need to be tested = “any faucet used to obtain water for drinking or food preparation for day care operations. Water sources include, but are not limited to, sinks, bathtubs, hoses, drinking fountains, bubblers, and refrigerator or freezer water or ice dispensers.”

- Any test performed by an IEPA or IEPA certified laboratory is acceptable, no matter when it was done, as long as your water profile hasn’t changed significantly since then.

- If the test results are 2.01 ppb or more, the provider has 120 days after receiving the test results to submit the test results AND a mitigation plan (if required) to DCFS.

- Successful mitigation = two consecutive tests of lower than 2.01 ppb

- Effective date of the new rules is January 1, 2019

- Testing deadline is no longer 11/30/2018
What is mitigation?
What is mitigation?

- What do we mean?
  - Those activities or processes undertaken to reduce the level of lead in water below 2.01 ppb
Elements of a Mitigation Plan

- Required if any sample is 2.01 ppb or greater

- Written plan shall include:
  - A list of each drinking water source tested at 2.01 ppb or greater
  - Interim measures taken to ensure safe water supply
  - Planned mitigation strategies licensee will take to reduce lead levels to 2 ppb or lower at each fixture
  - Planned start and completion dates of mitigation plan
  - 6 month and 1 year retesting dates

- Plan required until permanent measures implemented and two consecutive tests show no levels at 2.01 ppb or greater
What to do before your test results arrive
Know the potential sources of lead in water

- **Fixture**: Lead in first draw sample
- **Internal plumbing**: 30 second flush sample
- **Lead service line**: Cannot determine from sampling results. Conduct visual inspection.
Determine if you have a Lead Service Line:

- Determine if you have a lead service line by contacting the water supplier and checking the line as it enters the building.

- If you have an LSL,
  - You should plan on replacing it at the first opportunity. It can be a major undertaking that involves coordinating with the utility.
  - Until you replace it, you should take special precautions described at end of presentation (see slide 32).

Download the factsheet to learn more about LSL replacement.
Routine actions to reduce lead:

Regardless of lead results, facilities should incorporate the following routine actions into their operating procedures:

- Aerator cleaning with vinegar
- Use cold water when cooking and drinking because hot water may contain higher lead levels.
- Avoid drinking from hose bibs
What to do when your test results arrive
Reminder: What your sample results will look like

**First draw**: If tests positive for lead there is probably lead in that fixture

**30 second flush**: If tests positive for lead there is probably lead in the internal plumbing

<table>
<thead>
<tr>
<th>Sample #</th>
<th>Sample ID</th>
<th>Method</th>
<th>Parameter</th>
<th>Level Detected</th>
<th>EPA Standards</th>
<th>Units</th>
<th>LRL</th>
<th>Date Sampled</th>
<th>Date Analyzed</th>
</tr>
</thead>
<tbody>
<tr>
<td>749331</td>
<td>1_ORML_S1: Boy's Restroom-Faucet</td>
<td>200.8</td>
<td>Lead</td>
<td>ND</td>
<td>15</td>
<td>ug/L</td>
<td>1</td>
<td>9/10/2018 8:05:00 AM</td>
<td>09/12/2018</td>
</tr>
<tr>
<td>749332</td>
<td>1_ORML_S2: Boy's Restroom-Faucet</td>
<td>200.8</td>
<td>Lead</td>
<td>3</td>
<td>15</td>
<td>ug/L</td>
<td>1</td>
<td>9/10/2018 8:05:00 AM</td>
<td>09/12/2018</td>
</tr>
<tr>
<td>749333</td>
<td>1_2C5L_S1: Classroom 5-Faucet Left</td>
<td>200.8</td>
<td>Lead</td>
<td>7</td>
<td>15</td>
<td>ug/L</td>
<td>1</td>
<td>9/10/2018 7:59:00 AM</td>
<td>09/12/2018</td>
</tr>
<tr>
<td>749334</td>
<td>1_2C5L_S2: Classroom 5-Faucet Left</td>
<td>200.8</td>
<td>Lead</td>
<td>ND</td>
<td>15</td>
<td>ug/L</td>
<td>1</td>
<td>9/10/2018 7:59:00 AM</td>
<td>09/12/2018</td>
</tr>
</tbody>
</table>
If any of your sample results are 2.01 ppb or greater, implement interim action/s to ensure your children are provided with safe drinking water.

Post test results in a visible location at your home or facility; share them with your local licensing office.

Develop a mitigation plan if any of your results are 2.01 ppb or greater.
To help you investigate and mitigate sources of lead, utilize the **EPA’s 3Ts Guidance** or contact your local water utility or school district for advice. Mitigation strategies are also discussed on slides 19-33.

Make your mitigation plan available to parents and your local licensing office.
Management Approach – Receiving the Results

What to do if all results are **less than 2.01 ppb**:  
- Celebrate! You are only obligated to conduct more testing if you alter the plumbing.  
- No mitigation plan is needed  
- Make your test results available to parents, staff, and DCFS  
- As a best practice, adopt routine actions to reduce lead (slide 12)
Management Approach – Receiving the Results

What to do if some samples are **2.01 ppb or greater**:  
- Take immediate action to ensure children are supplied with safe drinking water  
- Share test results with parents, staff, and DCFS. Also share immediate actions taken and any long term mitigation actions already planned  
- Develop a mitigation plan and share it with DCFS, parents and staff  
  - If all 30-second samples are 2 ppb or less (which is common), focus on the fixtures.  
  - If any 30-second samples are 2 ppb or greater, the situation is more complicated: **read 3Tts closely** and contact water utility for guidance.
Mitigation Options
## Mitigation Options

### Mitigation Options for Fixtures at 2.01 ppb or greater

<table>
<thead>
<tr>
<th>Immediate</th>
<th>Interim</th>
<th>Permanent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post signs</td>
<td>Filters</td>
<td>Fixture Replacement</td>
</tr>
<tr>
<td>Notice to parents and staff</td>
<td>Manual Flushing Before Use</td>
<td>Lead Service Line Replacement</td>
</tr>
<tr>
<td>Remove from service and/or adopt interim measure</td>
<td>Whole System Flushing</td>
<td>Automatic/Mechanical Flushing</td>
</tr>
<tr>
<td></td>
<td>Bottled Water</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Immediate mitigation actions may also be considered interim actions under the rule*
Immediate Action: “Do not drink water” signage

Immediate Action: Place signage at problem fixture indicating it is not to be used for drinking water

✓ **Pros**: Low cost/no cost; easy to implement

➢ **Cons**: Requires behavior change; temporary solution; need to find another drinking water source
Immediate Action: Shut off or permanently disconnect problem fixture/s

**Pros:** No cost solution; easy to implement

**Cons:** Need to find another source of drinking water

Shut water off to the problem fixture and tape off the handle to ensure it remains closed.
Immediate Action: Notice to Parents and Staff

Immediate Action:
Communicate with parents early and often about test results and any immediate action/s you take to reduce lead in water

✓ **Pros**: Builds trust with parents and staff; provides important public health info.

➢ **Cons**: Takes time, but worth the effort!
Interim Measure: Filters

Interim Action: Install an NSF/ANSI 53 filter that is certified to reduce lead at problem faucets

- **Pros**: Ensures lead levels are low
- **Cons**: Requires regular and timely filter replacement; can be expensive; may require a plumber to install

What does NSF certified mean?
This means a product such as a faucet, water cooler, or filter adheres to strict standards to reduce lead. Learn more about NSF certification
Interim Measure: Filter types

Undersink filter*
Faucet mount
Counter top*
Fridge filter
Water pitcher
Bottle filler*

*Installation may require assistance from a plumber

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Interim Measure: Manual flushing before use

**Interim Action:** Train staff to start each day with a 30 second flush at each fixture (i.e. run the water). Also train staff to make a habit of flushing each fixture for 5 seconds before each use.

- **Pros:** Low cost/no cost; easy to implement
- **Cons:** Requires a behavior change; temporary solution

Tip: Measure is only effective if 30 second flush samples are < 2.01 ppb

Place signage above faucets to remind staff about when and how long to flush
Interim Measure: Whole system flushing

**Interim Action:** Conduct a daily, whole system flush at all drinking water faucets to reduce lead.

- **Pros:** Low cost/no cost; can be implemented immediately; good if an LSL is present
- **Cons:** Lead levels may increase over the course of the day at unused fixtures; time intensive; wastes water
Whole System Flushing Instructions
(Adapted from EPA’s 3T’s Guidance)

- **Faucet/s furthest away from service line**: On each floor and wing of your building, locate the faucet furthest away from the service line that is not used for drinking (e.g., laundry faucet). Turn it on and let it run for 10 minutes.

- **Drinking water fountains without refrigeration**: Let the water run for 30 seconds to 1 minute (ensure water is cold).

- **Drinking water fountains with refrigeration**: Let the water run for 15 minutes

- **Kitchen faucet/s**: Let the water run for 30 seconds to 1 minute (ensure water is cold)

Permanent Measure: Faucet/fountain replacement

Permanent Action: Hire a licensed plumber to replace your faucet or fountain with one that is NSF/ANSI 61 certified.

✓ Pros: Long-term solution to eliminate lead source

➢ Cons: Lead levels may temporarily increase post replacement; upstream fitting or valve may also be source of lead; larger upfront cost

EDF and Elevate recommend prioritizing faucet replacement if your first draw sample is > 10 ppb. Flush your new faucet/s for several weeks before use and/or install a temporary filter.
Permanent Measure: Automatic/mechanical flushing

Permanent Action: Hire a professional to install a device at the end of pipes or on water valves that automatically flushes water at pre-determined times to reduce lead levels

- **Pros**: Reduces lead levels automatically
- **Cons**: Wastes water; may be prudent to retest every 5 years; larger upfront cost
Permanent Measure: Lead service line replacement

Permanent Action: If your facility is connected to a lead service line, work with a licensed plumbing contractor to replace your entire lead pipe (from the building to the water main).

- **Pros:** Removes largest contributor of lead in water (when present)
- **Cons:** May be cost prohibitive

Before replacing your lead pipe, contact your local water utility to see if they offer any resources to assist with replacement.

See [webinar 1](#) for more detail on determining if your facility has an LSL.
What to do if you are unable to replace your LSL

**Short Term Action**: If you unable to replace the LSL right away, keep the following tips in mind:

- Conduct a whole system flush at the start of each day. This helps ensure the water sitting in the service line is flushed out of the system.

- Install filters at drinking water faucets or use water pitchers with filters that are NSF-53 certified. Ensure you regularly change your filters according to the manufacturer’s instructions.
**Interim Action:** If you have lead in water at multiple faucets, and other mitigation options are not feasible, consider providing bottled water.

- **Pros:** Ensures lead levels are low
- **Cons:** Cost; waste; subject to Department approval; ensure it meets state and FDA standards
Case study
Elevate Energy and EDF tested the drinking water from 146 different fixtures.

- At 4 different child care buildings
- Serving nearly 600 children in Chicago
- 2 child care facilities required lead in water remediation

- We replaced 1 lead service line at a childcare facility
- We replaced 13 faucets with new NSF-61 certified faucets
- And installed 1 undersink filter that is NSF-53 certified for lead removal

The pilot’s remediation efforts reduced all lead levels at drinking water outlets to 2 ppb or below.

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• We sampled all fixtures at 4 child care facilities

• At one facility, we found 10 fixtures with lead levels sampling >2 ppb
## Pilot case study: Test results

### What did we find?

<table>
<thead>
<tr>
<th>Location</th>
<th>First Draw</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom sink</td>
<td>5 ppb</td>
</tr>
<tr>
<td>Classroom sink</td>
<td>3 ppb</td>
</tr>
<tr>
<td>Classroom bathroom sink</td>
<td>91 ppb</td>
</tr>
<tr>
<td>Kitchen sink</td>
<td>3 ppb</td>
</tr>
<tr>
<td>Children’s restroom (girls)</td>
<td>4 ppb</td>
</tr>
<tr>
<td>Children’s restroom (girls)</td>
<td>31 ppb</td>
</tr>
<tr>
<td>Children’s restroom (boys)</td>
<td>15 ppb</td>
</tr>
<tr>
<td>Children’s restroom (boys)</td>
<td>89 ppb</td>
</tr>
<tr>
<td>Staff breakroom sink</td>
<td>27 ppb</td>
</tr>
<tr>
<td>Staff bathroom sink</td>
<td>75 ppb</td>
</tr>
</tbody>
</table>

In every case, lead levels were greater in the first draw sample than the 30 second flushed sample.

Suspected source of lead at each location = faucet
What immediate steps did we take?

- Immediately turned off each faucet testing >2 ppb
- Contacted a certified plumber to get an estimate for faucet replacement
- Communicated with the facility’s maintenance team

Shortly after receiving results, a certified plumber installed 10 new faucets meeting the NSF/ANSI 61 certification.
Pilot case study: Follow-up results

Several weeks following faucet replacement we resampled and found:

<table>
<thead>
<tr>
<th>Location</th>
<th>First Draw</th>
<th>Post Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom sink</td>
<td>5 ppb</td>
<td>1 ppb</td>
</tr>
<tr>
<td>Classroom sink</td>
<td>3 ppb</td>
<td>Non-detect</td>
</tr>
<tr>
<td>Classroom bathroom sink</td>
<td>91 ppb</td>
<td>Non-detect</td>
</tr>
<tr>
<td>Kitchen sink</td>
<td>3 ppb</td>
<td>Non-detect</td>
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<td>Non-detect</td>
</tr>
<tr>
<td>Staff bathroom sink</td>
<td>75 ppb</td>
<td>Non-detect</td>
</tr>
</tbody>
</table>
Pilot case study: Communication

- We provided each facility with:
  - A letter summarizing results and actions taken at each faucet testing > 2ppb
  - A document with the full results

<table>
<thead>
<tr>
<th>Outlet #</th>
<th>Sample Date</th>
<th>Sample Time</th>
<th>Sample Description</th>
<th>Lab test (ppb)</th>
<th>Aerator Cleaned?</th>
<th>Action &amp; Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>27-Aug</td>
<td>9:15</td>
<td>Classroom 102_First Draw</td>
<td>5</td>
<td>Yes</td>
<td>Faucet replaced. Clean aerator every six months.</td>
</tr>
<tr>
<td>1</td>
<td>27-Aug</td>
<td>9:15</td>
<td>Classroom 102_30 Second</td>
<td>ND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>19-Oct</td>
<td>7:05</td>
<td>Classroom 102_PostFaucetReplacement_First Draw</td>
<td>ND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>19-Oct</td>
<td>7:05</td>
<td>Classroom 102_PostFaucetReplacement_30 Second</td>
<td>ND</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Keep an eye out for templates that will be posted at [https://www.actforchildren.org/for-advocates/advocacy-events-webinars/](https://www.actforchildren.org/for-advocates/advocacy-events-webinars/)
Case study: Auto-flushing

• Facilities staff at Chicago Public Schools (CPS) invented an automatic system that controls flushing of drinking fountains called “Noah”

• Orr High School Pilot:
  • Before intervention: First draw samples averaged 45.65 ppb
  • After intervention: First draw samples averaged 0.84 ppb

• Learn more: [http://leadoutmfg.com/](http://leadoutmfg.com/)
Illinois government resources:

• Department of Children and Family Services (DCFS) Sunshine website on lead in water: https://sunshine.dcfs.illinois.gov/Content/Licensing/LeadTesting.aspx
• Illinois Department of Public Health (IDPH) resources for schools:
  • http://dph.illinois.gov/topics-services/environmental-health-protection/lead-in-water
• Illinois Department of Public Health (IDPH) lead mitigation strategies:

Additional lead in water resources:

• U.S. EPA resources on lead in drinking water:
  o Basic information on lead in water: https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water
  o EPA’s 3Ts guidance on lead in water testing in child care: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=20017JVA.txt
• Environmental Defense Fund: https://www.edf.org/health/lead-toxic-legacy
• Elevate Energy: https://www.elevateenergy.org/child-care-lead-in-water-testing-illinois/
• Factsheets for residents on lead in water:
  o http://ww2.wkkf.org/2016/digital/Water-FS-Homeowner4.pdf (English)
QUESTIONS?

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