Assisting Schools and Child Care Facilities in Addressing Lead in Drinking Water
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Assisting Schools and Child Care Facilities in Addressing Lead in Drinking Water

EXECUTIVE SUMMARY

The American Water Works Association (AWWA) is committed to providing information that helps water suppliers in their role as guardians of public health. Exposure to lead at schools and child care facilities is an issue of growing concern to EPA and some states.

Lead is a significant public health issue. Over the past several decades significant steps were taken to reduce lead from a variety of sources: fuel, paint, air pollution, and plumbing components. Drinking water utilities are also doing their part to reduce lead exposure. Community water systems actively manage and monitor the drinking water they provide to control corrosivity, and thereby reduce the potential to leach lead from household plumbing. Some water systems take additional measures like purchasing low-lead / no-lead distribution system components and others have proactive lead service line replacement programs. Steps also have been taken to identify and reduce lead exposure in schools, but recent events suggest that additional attention may be appropriate in some school and child care facilities.

School and child care administrators are responsible for limiting lead exposure in their facilities, but some water suppliers may be in a position to provide valuable assistance by working with local health departments, schools and child care facilities. We hope you find the information provided in this document helpful as you consider your utility’s ability to inform or assist school and child care facilities in the communities you serve.

The following compares and contrasts EPA’s guidance to schools and child care facilities under the Lead Contamination Control Act (LCCA) and the Lead and Copper Rule (LCR). It also provides a brief overview of what is entailed in monitoring for lead in schools and child care facilities and the process for undertaking remediation. This report describes a range of assistance utilities can provide to schools and child care facilities based on local needs and resources. Most importantly, it identifies key points of coordination, and provides basic information that the utility can use in communicating about lead in drinking water.

While, this report was prepared with a focus on U.S. regulations, the report premise and suggestions are generally applicable. We hope that this document will be useful to our water supplier members in Canada, Mexico, and other countries.
Assisting Schools and Child Care Facilities in Addressing Lead in Drinking Water

INTRODUCTION

Lead is a significant public health issue, and it is not only a drinking water issue. Other potentially more significant sources of lead include paint and dust. In addition, schools face numerous other environmental challenges. Consequently, EPA and the Department of Education encourage schools to think of building design, maintenance, and remediation holistically (http://cfpub.epa.gov/schools/). While schools and child care administrators bear the responsibility for minimizing lead exposure in their facilities, some water suppliers may be in a position to provide valuable assistance by collaborating with local health departments, schools and child care facilities to help facility administrators better understand how to monitor for and manage lead in drinking water at their facilities.

Overview

The issue of lead in drinking water has returned to the national spotlight after a decade of relative calm. Most water utilities have been very successful in implementing effective corrosion control programs and complying with the requirements of the Lead and Copper Rule (LCR). In spite of this, utilities are facing renewed regulatory, legislative and public scrutiny, attributable largely to the discovery of elevated levels of lead in tap water in a few high-profile communities. Lead exposure in schools is only one aspect of this scrutiny, but it has received considerable attention.

The reduction of lead exposure in schools and child care facilities is the responsibility of the administrators of those facilities. This responsibility includes, but is not limited to, minimizing lead levels in the drinking water system within the facility. Water utilities are not legally responsible for the lead levels in the water systems of schools and child care facilities unless the facility maintains its own supply and is classified by the state as a public water system.

A lead-in-drinking-water problem may be identified by a community’s health department, school system, an individual school or child care facility, or the general public. By being prepared for this issue, the utility can better respond to inquiries and, where appropriate, develop more effective collaborations with schools and child care facility managers.
Health Effects

Lead builds up in the body over time and can cause damage to the brain, red blood cells and kidneys. According to the Centers for Disease Control (CDC), of all people, young children face the most danger from exposure to lead because their growing bodies absorb lead more easily than adults' bodies. For children 5 years old and younger, lead levels of 10 micrograms or more in a deciliter of blood can damage a child's ability to learn.

How Lead Can Get Into Drinking Water

A child’s greatest exposure to lead is typically from contaminated paint, dirt and dust. However, lead in drinking water can contribute to overall lead exposure. Lead contamination is rarely found in sources of drinking water such as rivers, wells and reservoirs at significant concentrations. It’s almost never present in water leaving a treatment plant or traveling through mains. However, lead enters drinking water as a result of corrosion, as water comes into contact with lead pipes, lead service connections, solder and plumbing fixtures.

Community water systems are required under the LCR to control the corrosivity of water. Ninety-six percent of community water systems comply with the LCR.¹

Lead may be present in school and child care plumbing systems, water coolers, bubblers, and drinking fountains. The amount of lead found in the tap water depends on the plumbing materials present, the pH of the water and other water quality factors.

Recognizing the importance of minimizing lead exposure in schools and child care facilities, the U.S. Congress passed the Lead Contamination Control Act (LCCA) of 1988. The LCCA provided information for repairing or replacing lead-lined water coolers and guidance to schools and child care facilities on methods to test and reduce lead exposure in drinking water.

The LCCA caused many school systems and child care facilities to evaluate lead in water coolers and plumbing during the early 1990s, and the LCCA remains the regulatory vehicle for management of lead in drinking water in these facilities. Compliance with the LCCA on the part of schools is voluntary, in sharp contrast to the mandated provisions of the Lead and Copper Rule (LCR), which applies to public water systems. Differences between the LCCA guidance and the LCR requirements are a source of confusion, and, at times, misinformation in the media and the public. It is essential that utility personnel have a thorough understanding of the differences between the two rules and an awareness of lead in drinking water issues in schools and child care facilities in their communities. Toward that end, this document:

1. Summarizes the provisions of the LCCA guidance and the LCR requirements and highlights the distinguishing differences.

2. Describes the steps school systems and child care facilities may take to effectively manage lead levels in the water supplies in their facilities.

3. Provides drinking water suppliers with information and tools they may use to assist school and child care administrators in addressing lead in drinking water.

¹ Summary of lead action level exceedances for medium (3,300-50,000) and large (>50,000) public water systems, USEPA, http://www.epa.gov/safewater/lcrmr/lead_data.html
REGULATORY REQUIREMENTS
A Comparison of the Lead Contamination Control Act Guidance Manual and Lead and Copper Rule Requirements

Regulatory Background
The Safe Drinking Water Act (SDWA) is the legislation that addresses lead in public drinking water. The LCCA and the LCR work together to minimize lead in drinking water. The goal of the LCR is to minimize lead and copper in drinking water, primarily by reducing water corrosivity. The LCR sets specific requirements for public drinking water systems. This is in sharp contrast to the LCCA, which addresses lead exposure at individual outlets in schools. The LCCA resulted in federal guidance applicable to schools and child care facilities, but it did not set regulatory requirements.

Some states have adopted rules and requirements beyond these national statutes and rules. Consequently, the primacy agency for state rules and, in most instances the local health departments, are the critical points of contact on the issue of lead in schools.

The Lead Contamination Control Act
The LCCA was signed into law in November 1988. This law was intended to reduce exposure to lead from all sources, including lead in school drinking water supplies. The LCCA required:

1. A recall of drinking water coolers with lead-lined tanks;
2. Prohibition of the sale and manufacturing of any drinking water cooler that was not “lead-free”;
3. Development of guidance to educational agencies and schools including child care facilities on sampling and testing protocols; and

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EPA Guidance Under SDWA and LCCA
Failing to meet requirements specified in state and federal regulations results in violations, and their associated fines and penalties. In addition to setting regulatory requirements EPA provides technical information and advice through guidance. EPA guidance is not compulsory, but it is provided with the intent of assisting the recipients to achieve national public health objectives and where there are related regulatory requirements, achieve compliance with those requirements.

EPA is now in the process of updating its guidance documents for public drinking water systems (i.e., LCR guidance), and for schools and child care facilities (i.e., LCCA guidance).

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2 LCCA defined “lead-free” to mean “not more than 8 percent lead; except that no drinking water cooler which contains any solder, flux, or storage tank interior surface which may come in contact with drinking water shall be considered lead free, if the solder flux, or storage tank interior surface contains more than 0.2 percent lead.”
A school is ...

Section 1461 of SDWA defines "school" to mean generally any elementary school or secondary school and any kindergarten or day care facility.

(3) Local educational agency. – The term "local educational agency" means-
(A) any local educational agency as defined in section 198 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 3381),
(B) the owner of any private, nonprofit elementary or secondary school building, and
(C) the governing authority of any school operating under the defense dependent's education system provided for under the Defense Dependent's Education Act of 1978 (20 U.S.C.921 and following).

4. Public notification of the availability of lead testing results.

In 1994, EPA developed a guidance manual entitled "Lead in Drinking Water in Schools and Nonresidential Buildings". The Guidance Manual offers: background information about the sources and health effects of lead; descriptions of how lead gets into drinking water; a description of the regulation of lead in drinking water; guidance for developing plumbing profiles and sampling plans, and remedies when elevated lead levels are observed. The Guidance Manual is available on the EPA Office of Ground Water and Drinking Water’s website at: www.epa.gov/safewater/Pubs.

“Schools” vs “Child Care Facilities”

Sampling protocols for lead in drinking water at child care facilities are the same as those for schools.

EPA required states to develop water-testing programs for schools. However, in 1996, a federal court determined that such a federal regulatory program couldn’t be imposed on states. EPA interpreted this decision as prohibiting the agency from mandating water testing in schools. Consequently, where school and child care facility lead sampling is done, it is voluntary unless it is undertaken to comply with state regulations. In the spring and summer of 2004, EPA compiled information on individual state LCCA activities. This information is available at http://www.epa.gov/safewater/lcrmr/.

Sampling Protocol

The LCCA guidance includes a sampling protocol, which recommends collection of a 250 milliliter (mL) “morning, first-draw water sample” (e.g., sampling after an 8 to 18-hour stagnation period). In so doing, the LCCA guidance targets the “first draw” water from the sampling point in an attempt to represent worst-case water consumed by students. This contrasts with the LCR sampling protocol, which requires collection of a one-liter “first-draw” sample (e.g., sampling after a 6- to 8-hour stagnation period). The LCR samples represent the contribution of internal plumbing to lead levels. The difference in the LCCA guidance and LCR sampling protocols can lead to a great deal of confusion and thereby increase the challenge of accurately describing the resulting data to decision-makers and stakeholders.

Additional Samples If Initial Samples are Elevated

The LCCA guidance recommends that samples be taken after a 30-second flush at those sampling locations with initial lead levels greater than 0.020 mg/L (20 ppb). Most states have adopted the 0.020 mg/L (20 ppb) recommended trigger level
for follow-up actions, while several have opted for 0.015 mg/L (15 ppb) (the LCR Action Level). Consequently, it is important to understand how individual states administer their programs and to maintain an open dialogue with state regulators regarding program implementation.

**Public Education**

When schools and child care facilities conduct monitoring for lead in drinking water, EPA recommends that they:

1. Make available a copy of the sampling results for “inspection by the public, including teachers, other personnel, and parents.”

2. Notify relevant parent, teacher, and employee organizations that sampling program results are available.

Table 1 on page 7 briefly summarizes the provisions of the LCCA guidance; Appendix A provides a more detailed summary.

**Remediation**

Addressing lead in drinking water may require both short- and long-term solutions. Decisions for one remedy over another will be based on such factors as likelihood of success, availability of water, cost, and staffing requirements.

Some examples of remedies are listed in Appendix I. More detailed explanations, including information about advantages and disadvantages, are in EPA’s LCCA guidance.

**The Lead and Copper Rule**

The LCR, finalized in June 1991 and later amended in January 2000, applies to public water systems. Under the LCR, no more than 10 percent of samples from a public water system may exceed the rule’s Action Levels, 0.015 mg/L (15 ppb) for lead and 1.3 mg/L for copper.

When the Action Level is exceeded, specific follow-up steps include corrective action to implement optimized corrosion control and public notification. The LCR provisions apply to water suppliers that serve schools and child care facilities. If an individual school or child care facility supplies or treats its own water supply, it is considered a public water system and must comply with the rule provisions. Additional information about the LCR is available on the EPA Office of Ground Water and Drinking Water’s website at: [http://www.epa.gov/safewater/lead/index.html](http://www.epa.gov/safewater/lead/index.html)

At present the LCR is applicable to community water systems and non-transient non-community water systems. Some schools and child care facilities that have their own water supply are, therefore permitted public water systems. In these instances, the facility is also subject to the applicable provisions of the LCR.

The LCCA guidance targets material remediation

<table>
<thead>
<tr>
<th>Types of Public Water Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Community Water System</strong> (CWS): A public water system (PWS) that supplies water to at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.</td>
</tr>
<tr>
<td><strong>Non-Transient Non-Community Water System</strong> (NTNCWS): A PWS that regularly supplies water to at least 25 of the same people at least six months per year, but not year-round. Some examples are schools, factories, office buildings, and hospitals that have their own water systems.</td>
</tr>
<tr>
<td><strong>Transient Non-Community Water System</strong> (TNCWS): A PWS that does not regularly serve at least 25 of the same persons over six months per year. Examples are places such as a gas station or campground where people do not remain for long periods of time</td>
</tr>
</tbody>
</table>
while the LCR is focused on reducing the corrosivity of delivered water. These two control strategies complement one another, but their differing approaches may also complicate public education efforts. Table 1 summarizes other distinguishing features of the LCCA guidance and LCR requirements for lead management.

**The Lead Ban**

Amendments to the Safe Drinking Water Act (SDWA) banned the use of lead pipes, solder, and flux effective June 1986 in drinking water plumbing. Therefore, any plumber, general contractor, etc. who used lead solder, pipe or flux after that date is in violation of federal law.

Prior to the 1996 amendments, the SDWA required faucets and other plumbing fixtures to contain no more than 8 percent lead. The 1996 amendments to the Safe Drinking Water Act (SDWA) required EPA to establish a performance standard to govern the leaching of lead from endpoint devices intended to dispense water for human consumption. The EPA selected Section 9 of *ANSI/NSF Standard 61: Drinking Water System Components-Health Effects* as this performance standard. After August 6, 1998, it was unlawful for any pipe or plumbing fitting or fixture that is not "lead free" to be introduced into commerce.

**Plumbing Materials**

Plumbing materials purchased for use in schools and child care facilities should comply with the lead ban, and meet ANSI/NSF standards or more stringent lead content requirements.

Prior to the 1996 amendments, the Safe Drinking Water Act required faucets and other plumbing fixtures to contain no more than 8 percent lead. The 1996 amendments retained the 8 percent lead content requirement and further mandated that faucets, drinking fountains and other drinking water dispensing devices meet the performance-based lead leaching requirements of ANSI/NSF Standard 61, Section 9.
Table 1. Summary of Distinguishing Features of the Lead Contamination Control Act Guidance and the Lead and Copper Rule Requirements

<table>
<thead>
<tr>
<th>Feature</th>
<th>Lead Contamination Control Act Guidance</th>
<th>Lead and Copper Rule Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sampling Sites</td>
<td>Each cold water tap in a facility</td>
<td>Cold water taps in high risk homes/buildings</td>
</tr>
<tr>
<td>“First Draw” Sample Size</td>
<td>250 mL</td>
<td>1000 mL</td>
</tr>
<tr>
<td>Stagnation Period</td>
<td>Morning, first-draw water sample” (e.g., sampling after an 8 to 18-hour stagnation)</td>
<td>“First-draw” sample (e.g., sampling after a 6- to 8-hour stagnation period)</td>
</tr>
<tr>
<td>Action Level</td>
<td>0.020 mg/L at each cold water tap</td>
<td>0.015 mg/L in 90% of taps</td>
</tr>
<tr>
<td>Action(s), if Lead Limit Exceeded</td>
<td>Additional samples recommended; suggests remedial measures</td>
<td>Mandatory corrective actions such as public education, lead service line replacement, increased monitoring and corrosion control treatment</td>
</tr>
<tr>
<td>Sampling Schedule</td>
<td>None specified</td>
<td>Initially, two 6-month monitoring periods; Reduced monitoring – June through September each year or once per three years</td>
</tr>
<tr>
<td>Certified Laboratory Requirement</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Public Notification Requirements</td>
<td>Make results available in the administrative offices of the local educational agency; must notify parents, teachers, and employee organizations of the availability of results</td>
<td>Must present data in annual Consumer Confidence Report. Full notification required only if Action Level is exceeded.</td>
</tr>
</tbody>
</table>
LEAD IN SCHOOLS AND THE WATER SUPPLIER

Under the LCCA guidance, school and child care administrators are responsible for taking steps to minimize exposure to lead in drinking water at their facilities. These facilities can obtain technical assistance from local health departments, but as the local water supplier, you may be in a position to provide information that facilitates appropriate action in the communities you serve.

Getting Prepared

To communicate effectively with health departments, school, and child care administrators about lead in drinking water, you may choose to first provide a clear presentation of your utility’s actions related to this issue. If you effectively demonstrate the steps taken to reduce lead at the tap in the community water supply, you affirm your utility’s commitment to public health. You also provide the technical information necessary for future discussions on lead in school drinking water.

Compiling and reviewing the following information is a worthwhile investment of time:

1. Review your utility’s LCR compliance status.
   • Do you have a description of your program to maintain optimized corrosion control (OCC)?
   • What are your monitoring requirements and what is your compliance record with the LCR Action Level?
   • When is compliance monitoring occurring?
   • Do you have a summary of pertinent data in an easily-understood format that can be provided to the school or child care facility staff?

2. Review or develop your utility’s service line and meter data for discussions with school and child care administrators.
   • Are there lead service lines or compound meters with lead components leading to school or child care facilities?

Determine how the LCCA is administered in your state and locally. In most communities, the local health department is the key agency in identifying and prioritizing risks to public health. It is also the oversight agency most likely to provide direction to schools on lead issues. Opening a discussion with the local health department provides an opportunity to exchange information and identify shared priorities. Key questions include:

1. What is the status of state regulations arising from the LCCA?
2. What actions have been taken to-date?
   • What notifications, requests, or guidance has been distributed to
schools and/or child care facilities?

- What actions are already underway by local school board, town, city or county governing bodies, or the facility administrators?

**Communication**

When compatible with public health agency activities, utilities may choose to communicate directly about lead in drinking water with schools and child care facilities in communities they serve.

**Agency Perspective**

Some states are already actively encouraging community water systems to interact with schools and child care facilities. These efforts reflect a national effort by U.S. EPA to promote such local dialogues.

It is important to keep your utility’s governing body informed about the issue of lead in drinking water, your utility’s compliance record with the LCR, and your state’s response to the issue of lead in school and child care drinking water. Also, before assistance is offered, carefully identify the costs and benefits of such assistance and be assured of the governing body’s policy and financial support.

In order to help them answer questions from the general public, utility personnel should also be informed about health risks associated with lead in drinking water and your utility’s compliance record. Your utility’s compliance status should be communicated to customers through your Consumer Confidence Report and other available means (i.e., website, newsletters, etc.).

**Planning**

Communication efforts on lead in school drinking water require thoughtful planning. The following questions may be helpful in structuring your approach:

1. What is the potential scope of the issue? Is there likely to be a widespread problem with lead in drinking water based on your current water quality, LCR history, status of LCCA activities, the number and age of facilities or other factors?

2. What is the likelihood that your customers understand the issues associated with lead in drinking water?

3. What personnel and informational resources will be needed to assist schools and child care administrators?

**Reaching Out**

When engaging health departments, schools (public, private, or parochial), and child care facilities on the topic of lead in water, water suppliers should keep in mind that many school systems took action more than a decade ago when the LCCA was first signed into law. If the school or child care facility or system integrated appropriate practices into its operation and maintenance programs, it is less likely to face significant lead challenges.

If a utility decides to reach out to health departments, schools, or child care facilities on the issue of lead in drinking water, a simple phone conversation may be enough to initiate the appropriate action steps. However, a brief letter may be more effective.

Initial letters sent to these facilities and agencies should clearly state the issue at hand and serve to open a dialogue on this issue. A sample letter is provided in Appendix B.

Correspondence with the highest level of authority at the school or child care facility or system usually encourages the widest distribution within the organization. In situations where it is not clear who are the most appropriate recipients, contact
the school or school system. Correspondence is typically most effective if combined with follow-up contact.

Identifying all of the child care facilities in a community can be quite challenging. Appendix C provides several resources that are available to find these facilities.

**Identifying Child Care Facilities**

State licensing and registration programs for child care providers are the most centralized sources of information on child care facilities.

**Examples of Possible Utility Assistance**

Utilities have a wide range of expertise and resources available to assist schools and child care facilities in their responsibility to minimize exposure to lead in drinking water. While your utility must decide what level of assistance is appropriate, you may consider a range of opportunities for collaboration. Table 2 on page 12 illustrates a range of possible interactions with schools, child care facilities, and local health departments, but it is by no means all encompassing. Innovative utilities, schools, and local health departments will undoubtedly identify additional ways to work together.

**Health Department**

Health departments are responsible for balancing risk and costs of reducing risks in their community and may determine that current actions are appropriate. A utility's first contact should be through the Health Department before contacting schools and any future actions should be guided by the Health Department.

Due to the complexity of lead in drinking water issues and the number of facilities that may be involved, utilities may incur significant costs in assisting schools and child care facilities. Before offering assistance, utilities should ensure that their governing boards concur with such commitments.
Table 2: Opportunities for Collaboration

Help the School / Child Care Understand the Source of Lead in Drinking Water
A school or child care facility administrator may benefit from a better understanding of how lead leaches from facility plumbing. As a utility, you may choose to provide information on water quality factors affecting the water’s corrosivity. You may also explain your corrosion control program to affirm your utility’s commitment to minimizing lead exposure at the tap. Simply providing your Consumer Confidence Report (CCR) may be helpful.

Developing a Sampling Plan
Water quality sampling is a familiar task for drinking water suppliers, but not for most schools and child care facilities. Some utilities have informed appropriate school staff about the critical elements of a sound sampling plan. Those elements include identifying and tracking sample locations, proper timing of sample events, sampling protocols and management of sample results.

Proper Sample Collection
Proper sampling technique is essential to obtaining correct lead sample results. Some utilities have assisted school systems and child care facilities in proper sampling protocols. This assistance may include direct participation in training events or a train-the-trainer technical assistance strategy.

Laboratory Services
Water suppliers may provide information on lab services needed for processing lead samples. Assistance in this area has taken a number of forms, including explaining the appropriate analytical methods, identifying certified laboratories and assisting in selection of laboratory services. In some cases, utilities have provided analytical services through their in-house laboratories.

Reviewing Results and Options to Control Lead Exposure
As a water supplier, you may have personnel available to interpret sample results and identify cost-effective control solutions. Utility staff is trained in the basic issues of corrosion chemistry and hydraulics. They also have practical experience operating water distribution facilities, flushing pipe networks, installing automated valves, and employing other procedures unfamiliar to most school and child care personnel.

Utility Assistance in a Targeted Evaluation Effort
In school districts with multiple buildings dedicated to teaching, the water utility may offer support in evaluating lead levels in a limited or targeted group of facilities. For example, the utility might help a school system develop a pilot approach to evaluating its facilities. If successful, the school staff would then apply that approach to other facilities. The utility may also assist in identifying the characteristics of buildings that make them especially vulnerable to elevated levels of lead in the drinking water.

Large-Scale Involvement in Lead Action Plan
Depending on local circumstances (especially governance), a water utility may choose to become deeply involved in addressing school system or child care facility lead action plans. For example, the utility may be an active participant in a stakeholder-based school decision-making process that also includes the local health department.
MANAGING LEAD LEVELS AT THE TAP IN SCHOOLS AND CHILD CARE FACILITIES

School and child care facility administrators face a large portfolio of environmental and public health concerns. Consequently, some schools employ comprehensive programs to assure compliance with environmental and public health standards. Lead paint, dust abatement, and other lead exposure reduction measures may already be ongoing through a lead poisoning prevention program. Where possible, lead in drinking water should be managed in the context of a multi-media program. Whether such a program exists or not, steps can be taken to assess lead levels in water at drinking water fountains, bubblers, and other outlets.

School systems and child care facilities that already have taken steps to control lead in their facilities and maintain a regular monitoring program are much better positioned to manage lead in drinking water than those confronting the issue for the first time. Addressing lead in drinking water, when elevated levels are identified within a facility, typically involves an initial investment in physical changes to a facility, the introduction of new maintenance practices, and the establishment of an ongoing monitoring program for lead levels.

A facility with an ongoing lead poisoning prevention program that addresses tap water may need little interaction with its water supplier beyond routine communications. However, a facility in which management of lead exposure has not consistently focused on water may need to initiate an Action Plan and consequently may have a greater interest in interacting with the drinking water utility.

Action Plans are typically initiated in a phased manner, during which the school or child care facility:

1. Reviews previous efforts to remove leaded materials, implement lead control strategies, etc.
2. Conducts targeted monitoring (if recent monitoring data are not available) to determine if lead levels appear to be elevated.
3. Develops a detailed Action Plan based upon available information.

An Action Plan to address lead in drinking water must address both technical and communication concerns. Appendix D is an overview of the basic components of such a plan. This overview is supplemented with materials in the appendices (E – K) that water suppliers may provide to school and child care facility managers to inform and assist them in developing their Action Plans.

The components of the Action Plan should be structured to yield an assessment of the situation, a determination of the need for remedial action, development of a remediation strategy, execution of the remediation strategy, and finally, assessment of remediation strategy’s effectiveness. More specifically, the plan should incorporate the following elements:
A process for school and child care facility administrators to undertake to evaluate lead levels in drinking water within their facilities is well described in EPA guidance *Lead in Drinking Water in School and Nonresidential Buildings* and *Sampling for Lead in Drinking Water in Nursery Schools and Day Care Facilities* and is summarized in Figure 1.

**Figure 1**

Managing Lead Levels in the Water Supply of Schools & Child Care Facilities

Evaluate information from recent sampling

- For sample results where lead < 0.020 mg/L (20 ppb) ppb
  - Continue with current program

- For sample results where lead > 0.020 mg/L (20 ppb) ppb
  - Don't know
    - Evaluate current information
    - Plumbing profile
    - Sampling plan
    - Sampling and analysis
    - Assess results
    - Communicate with stakeholders
    - Remediation
    - Assess effectiveness of response
Consumers and the media do not always understand how lead enters drinking water, and they are often confused about the water supplier’s role in reducing exposure at the tap. However, since lead in drinking water is a water quality issue, the water supplier will often be sought out as the most knowledgeable voice in the ongoing public discussion. Utilities are providing their communities an important service when they proactively communicate potential risks, help the community understand relevant issues, and provide available assistance to school and child care administrators. In providing this service utilities help to ensure that well-reasoned measures are taken to protect public health.
APPENDIX A. RULES AND GUIDANCE ON LEAD IN DRINKING WATER

Lead Contamination Control Act

- This Act resulted in a recall of drinking water coolers with lead-lined tanks and a prohibition on the sale and manufacturing of any drinking water cooler that was not lead-free.

- Defines a “lead free water cooler” as “a drinking water cooler, that each part or component of the cooler which may come in contact with drinking water contains not more than 8 percent lead, except that no drinking water cooler which contains any solder, flux, or storage tank interior surface may contain more than 0.2 percent lead.”

- Provides guidance to educational agencies and schools on sampling and testing protocols.

- Sets minimum requirements for notifying the public about lead observations in schools and childcare facilities.

- Requires water samples to be analyzed by a laboratory approved by the state.

- Additional information regarding Lead Contamination Control Act implementation is available through the Internet (http://www.epa.gov/safewater/lcrmr/pdfs/report_lcmr_schoolssummary.pdf)

Lead and Copper Rule

- This regulation applies to waters systems, including schools and child care facilities that provide their own water supplies.

- The Lead and Copper Rule provides a framework for utilities to a) determine if their corrosion control program is effective at limiting lead exposure; b) take additional steps to protect public health; c) and ensure consumers are notified if the utility finds lead above the Action Level in the community.

- The Lead and Copper Rule is based on a "treatment technique" requirement in which the lead Action Level is a trigger -- the Action Level is not health based.

- Monitoring under the LCR takes place at worst-case sampling locations. Samples are taken from water standing overnight in homes where lead pipe or lead solder is present.

- If more than 10% of tap water samples taken in LCR monitoring exceed the action level of 0.015 mg/L (15 ppb) water systems must take additional steps to reduce corrosivity (i.e., improve corrosion control, lead service line replacement).

- If more than 10% of tap water samples taken in LCR monitoring exceed the action level of 0.015 mg/L (15 ppb) water systems must notify area residents via newspapers, radio, TV and other means.

- Additional information regarding the Lead and Copper Rule is available through the Internet (http://www.epa.gov/safewater/lcrmr/lead_data.html)
### Summary of Key Elements of the Lead Contamination Control Act

<table>
<thead>
<tr>
<th>Organization</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>States and Local Governments</td>
<td>Provide for the dissemination of EPA's guidance document and testing protocol and the list of water coolers that are not lead-free Establish a program to assist local educational agencies in testing for and remedying lead contamination in drinking water from coolers and other sources of lead contamination at schools Make available lead testing results in the administrative offices of the local educational agency for inspection by the public, including teachers, other school personnel and parents Notify parents, teachers and employee organizations of the availability of lead testing results Repair, replace, permanently remove, or render inoperable water coolers that are not lead-free and that are located in schools, unless the coolers are tested and found to not contribute lead to drinking water</td>
</tr>
<tr>
<td>Environmental Protection Agency (EPA)</td>
<td>Publish a list of each brand and model of water cooler that is not lead-free, including a list of the brand and model of water coolers with a lead-lined tank and distribute the list to States Publish a guidance document and testing protocol to assist schools in determining the source and degree of lead contamination in school drinking water supplies and in remedying the contamination.</td>
</tr>
<tr>
<td>EPA and State Primacy Agencies</td>
<td>Publish and make available to the public, upon request, a list of laboratories certified by EPA or the State, to conduct analyses of lead in drinking water</td>
</tr>
<tr>
<td>Consumer Product Safety Commission</td>
<td>Issue an order requiring manufacturers and importers of water coolers with lead-lined tanks to repair, replace, or recall and provide a refund for such coolers</td>
</tr>
<tr>
<td>Water cooler manufacturers, importers, others</td>
<td>Do not sell any drinking water cooler, listed by EPA or any cooler that is not lead free*, including a lead-lined cooler.</td>
</tr>
</tbody>
</table>

* A lead free water cooler is defined as “a drinking water cooler, that each part or component of the cooler which may come in contact with drinking water contains not more than 8 percent lead, except that no drinking water cooler which contains any solder, flux, or storage tank interior surface may contain more than 0.2 percent lead.”
Cooler Information

The LCCA, an amendment to the Safe Drinking Water Act, was signed into law on October 31, 1988. The potential for water supply coolers to supply lead to drinking water in schools and day care facilities was a principal focus of the legislation. The LCCA mandated the Consumer Product Safety Commission (CPSC) to order the repair, replacement or recall and refund of drinking water coolers with lead-lined water tanks. In addition, the LCCA called for a ban on the manufacture or sale in interstate commerce of drinking water coolers that are not lead-free. Civil and criminal penalties were established for violations of this ban. A consent agreement calls on cooler manufacturer Halsey-Taylor to provide a replacement or refund program that addresses all the coolers listed as well as "all tank-type models of drinking water coolers manufactured by Halsey-Taylor". Halsey-Taylor agreed to notify the public of replacement and refund program for all tank type models. Contact: Halsey-Taylor, 2222 Camden Court, Oak Brook, IL 60523, (630) 574-3503.

Water Coolers With Other Lead Components

EBCO Manufacturing

All pressure bubbler water coolers with shipping dates from 1962 through 1977 have a bubbler valve containing lead. The units contain a single, 50-50 tin-lead solder joint on the bubbler valve. Model numbers for the coolers in this category are not available.

The following models of pressure bubbler coolers produced from 1978 through 1981 contain one 50-50 tin-lead solder joint each:

- CP3  DP15W  DPM8  7P  13P  DPM8H  DP15M  DP3R
- DP8A  DP16M  DP5S  C10E  PX-10  DP7S  DP13SM  DP7M
- CP5  WTC10  CP5M  CP10  13PL  DP7MH  DP7WD  DP13M-60
- EP5F  DP5F  DP14M  DP20  SP12N  CP10-50  DP15MW  DP3R
- DP10F  CP3H  DP13S  CP3-50  DP7SM  DP8AH  DP10X  DP3RH
- CP3M  DP7WM

Halsey-Taylor

Lead solder was used in these models of water coolers manufactured between 1978 and the last week of 1987:

- WMA-1  SCWT/SCWT-A  SWA-1  DC/DHC-1
- S3/5/10D  BFC-4F/7F/4FS/7FS  S300/500/100D

The following coolers manufactured for Haws Drinking Faucet Company (Haws) by Halsey-Taylor from November 1984 through December 18, 1987, are not lead-free because they contain 2 tin-lead solder joints. The model numbers:
Halsey-Taylor Water Coolers with Lead-Lined Tanks

The following six models have one or more units in the model series with lead-lined tanks:

WM8A  WT8A  GC10ACR  GC10A  CG5A  RWM13A

The following models and serial numbers contain lead-lined tanks:

WM14A Serial No. 843034  WM14A Serial No. 843006
WT11a Serial No. 222650  WT21A Serial No. 64309550
WT21A Serial No. 64309542  LL14A Serial No. 64346908
APPENDIX B. SAMPLE UTILITY LETTER TO SCHOOLS AND CHILD CARE FACILITIES

[Date]

[Superintendent of Schools]

[Address]

Dear [Superintendent]:

Exposure to lead poses a serious health risk to children, particularly those 5 years of age and younger. While the majority of children’s lead exposure comes from sources such as soil contamination, dust, or paint chips, lead in drinking water can be a contributing factor to overall lead exposure.

Lead is not a common contaminant in drinking water when it is distributed from the water treatment plant to customers. However, lead may enter water after coming into prolonged contact with a building’s pipes and plumbing fixtures.

As you may know, there are 3 major regulations that speak to minimizing lead in drinking water.

- The Lead and Copper Rule requires water utilities to control the corrosivity of its water.
- The Lead Contaminant Control Act (LCCA) addresses lead-free components in water coolers and provides guidance for schools and child care centers on sampling, analytical protocols, and public availability of the information.
- The Safe Drinking Water Act addresses the maximum lead content and leaching potential of plumbing material and fixtures.

We have included a summary of the results from our Lead and Copper Rule sampling over the past few years. Similar information is included in our annual Consumer Confidence Report mailed to all residences in the May/June timeframe each year.

We have attached the EPA brochure “Is there Lead in the Drinking Water?” which is part of the agency’s Lead-Free Drinking Water in Schools Program. It gives an overview of the issue with website links and phone numbers for additional information.

We hope you find this information helpful. If you would like to discuss this further, or have any questions, please call [Name of water utility representative] at [Water utility representative’s telephone number].

Sincerely,

[Water Utility Manager]

cc: [Local public health officials]

Enclosures
APPENDIX C. IDENTIFICATION OF SCHOOLS AND CHILD CARE FACILITIES

Listed below are resources that can assist utilities in identifying the schools and child care facilities within their service area.

- The Local Board of Education
- The state licensing office – a particularly useful resource in identifying child care facilities
- Child care information services as provided by the local government
- Child welfare advocacy groups
- The local health department
- Fire and police departments
- The water utility’s billing system database
- The water utility’s cross-connection control database
- The local telephone book/yellow pages (and equivalent web-based phone books)
APPENDIX D. SUMMARY OF STEPS IN A FACILITY ACTION PLAN

Develop a Plumbing Profile

A plumbing profile can help to determine if lead is likely to be a problem in the facility. It will also assist in prioritizing the sampling locations that are believed to pose the greatest risk. In the context of developing a plumbing profile, school and child care administrators should ensure that water coolers recalled under the LCCA are repaired or removed. In addition, they should understand the community’s water and know what steps are already being taken to reduce the potential for lead to enter drinking water. A sample plumbing profile is provided in Appendix E.

Plumbing Profile

By identifying what materials are used in facility plumbing, it is possible to determine if monitoring is needed and if so where it would be most effective.

Develop a Sampling Plan and Sampling Protocol

A sampling plan is essential to obtaining high-quality data that characterize the levels of lead found in the school or child care facility’s water supply. These data will form the basis on which to make remediation decisions. It is important for all involved to emphasize that the success of the Action Plan hinges upon a good sampling plan. The sampling plan should incorporate the following components:

- A prioritized list of sampling points to be included in the sampling effort, drawing on the results of the plumbing profile. Of highest priority should be those faucets/taps where water is either consumed or used for food preparation.
- A written sampling protocol that answers the following questions:
  - What should be the volume of the “first-draw” samples? The EPA Guidance Manual recommends a 250 mL sample.
  - How long is the period of stagnation prior to sample collection? In most instances, this ranges from 8 to 18 hours, with absolutely no water use during that period if possible.
  - How will location codes be assigned to each sampling point? Each sampling point should be labeled with a location code.
  - Which certified laboratory will perform the lead analysis?
  - How will samples be shipped to the laboratory?
  - What detailed record keeping form will be used? The form should include at a minimum: type of sample (i.e., first flush); date of sample collection; time of sample collection; name of sampler; sample location code; the manufacturer of the tap / outlet (bubbler, cooler, faucet, etc.); the model number of the tap / outlet; the name of the building from which the sample was collected. An example recordkeeping form is provided in Appendix H.
Data Management

For an assessment of monitoring results to be meaningful, a sound data management system must be established in the Action Plan and followed diligently during monitoring and reporting. Data management should be appropriate to the scale of the monitoring effort (i.e., managing data for a single structure need not be as elaborate as a data system for an entire school system). If lead contamination is found, sample records and test results will assist in pinpointing the sources of the problem and indicate possible remediation measures.

Assessing the Results

The analytical results should be evaluated with an established benchmark level\(^3\) or point of reference. The LCCA guidance suggests 0.020 mg/L, but some states have chosen other levels. Sampling points with lead levels that exceed the benchmark should be considered candidate sites for either re-sampling (in order to confirm the results), removal from service, or remediation.

Action in Response to Findings - Develop a Solution

The analytical results may reveal situations that require further investigation. For example, if a child care facility exhibits elevated levels of lead, a thorough investigation of plumbing materials in that facility may be warranted. Preparation for investigative efforts should be planned in advance of the initial sampling program, so that a thorough investigation can be completed in a timely manner. Preparations should include but need not be limited to:

1. Identifying how investigation efforts will be prioritized and resources allocated.
2. Preparing staff or contractors to evaluate coolers, fixtures and other factors that might contribute to lead levels at a sampling location.

3. Identifying staff and setting protocols for running water through the outlet and re-sampling.
4. Preparing communication materials to convey results and education materials to parents, students, and staff.
5. Determining what alternative sources of drinking water to provide until remediation is complete.

Lead in drinking water can be a complex problem, and there is no single approach that is suitable for addressing all situations, rather solutions are very site-specific. Decisions will need to be based on the age and condition of a facility’s plumbing, the nature of the water supply, testing results and sources of lead contamination. A common immediate action is to immediately remove from service any tap / outlet where elevated lead levels are observed until appropriate remediation measures are identified and instituted. When a tap / outlet is taken out of service, appropriate signage should be displayed until it is remediated.

When lead risks are identified, facility managers must find short- and long-term solutions. Short-term control measures may include:

- Cleaning debris from faucet screens,
- Measures to reduce galvanic corrosion (e.g., dielectric unions, paint or polymer coatings, etc.)
- Maintenance programs to assure adequate turnover of water in the facility’s pipes,
- Removing outlets from use, and
- Providing bottled water.

More permanent fixes may include:

- Replacing taps, bubblers, coolers, faucets, or other outlets,
- Correcting improper grounding of electric wiring,
- Installing point-of-use devices,
- Installing corrosion control devices, and

\(^3\) Like the LCR the LCCA guidance refers to this benchmark level as an “action level.”
Removing lead service lines.

Appendix I contains a detailed list of potential control measures and remedies that water suppliers may want to discuss with school and child care administrators.

Follow-Up Samples and Follow-Through

Upon undertaking steps to control lead levels in schools and child care facilities, it is important to test for lead levels to make sure that remediation has been effective. Follow-up sampling should be appropriately timed to allow for passivation to occur. Sampling conducted immediately following remedial measures may result in unrepresentative lead levels.

As noted previously, ongoing monitoring over time is important to ensure that control measures remain effective and that facility operators retain focus on managing lead levels. Maintaining an ongoing awareness of lead in water within the facility management program can facilitate continued reduction of lead levels over time and avoid the recurrence of conditions that might contribute to elevated lead levels. Appendix J includes a maintenance log sheet that can be used for ongoing management of lead in facility plumbing. Also, periodic re-sampling for lead levels in facilities on at least a screening study basis is appropriate to maintain control of lead management.

Communicating on Lead in Schools and Child Care Facilities

Because school and child care administrators are responsible for limiting lead exposure at the tap, they are typically the appropriate entities to communicate on lead in drinking water at their facilities. However, water suppliers are likely to have a role as well. In many cases, parents and the media will look to the drinking water supplier for information about:

- How lead gets into the drinking water supply at the tap,
- What steps are being taken by the water supplier to control lead in drinking water, and
- What consumers can do to reduce their own and their children’s lead intake.

Water utilities that make this information available before a problem exists are likely to have more credibility in the eyes of the public in the event of a lead contamination event. Web-based fact sheets, consumer confidence reports, media backgrounders and brochures provide consumers with valuable information to protect their health. They are also valuable tools in a water supplier’s overall risk communications strategy. AWWA also has materials available to utilities for this purpose (see Appendix L for example materials). Developing a collaborative communications program on lead in schools with the local health department, schools and child care facility administrators can be of assistance to all parties.

Water suppliers can provide significant support to school and child care administrators as they communicate with consumers through public meetings or with media through news conferences or briefings. Communications are more likely to be clear and consistent when they come from a unified source.

Important Elements in a Communications Strategy

Lead in drinking water can be an emotionally charged issue. An effective communications strategy is critical to explain potential risks, describe technical solutions and build trust among parents, school and child care officials, local health department officials, and water suppliers. Utilities that choose a cooperative, hands-on approach to public communications are better positioned to effectively communicate on this issue with their communities.

Public health agencies and drinking water suppliers can provide information that builds a technical foundation for school communications. For example, state and local public health agencies are responsible for ensuring compliance with the LCR and assisting facility managers in
implementing the LCCA and associated guidance. The local or state health agency possesses expertise and credibility in the area of risk management. Water suppliers deliver non-corrosive water to control lead leaching and have a detailed understanding of delivered water quality. Regardless of the level of participation by the water supplier, a communications strategy on lead in school drinking water should incorporate:

- Defined goals or objectives for the communications efforts.
- Identification of primary and secondary target audiences, including school management, staff, parents and wider school community; local policy makers; advocacy organizations, and media.
- Risk communication to concerned stakeholders.
- Clearly defined messages to be repeated in communications.
- Identification of available communications tools, including, but not limited to, web sites, school newsletters, letters to parents, public meetings, press releases and news conferences.
- Identification of potential language barriers.
- A timeline for key public communications moments, including just before a sampling program begins, after results of testing are obtained, and when solutions are made public.
- Information to media that defines relevant issues and communicates the control strategy.

### Engaging Partners in the Action Plan

Water suppliers are one in a wide range of partners who may be available to assist school and child care administrators in their lead control strategies. Local health departments and state primacy agencies are key partners both for the water supplier and school and child care facilities. Whether lead in schools is addressed in a proactive or a reactive mode, most successful case studies suggest that the school or child care leadership benefit from expert third-party voices. The level of involvement among these partners varies, but they may include:

- Local building and plumbing inspection staff
- Teachers organizations
- Parental organizations
- Active community organizations
- Local government (i.e., city, county, town)

In some situations, school and child care facilities may benefit from consultant support. Examples might include assistance from laboratory services, engineering firms and communication experts.

In some school or child care settings the facility administrator may organize a stakeholder committee process. In some instances, the local drinking water utility will participate as a technical resource. The choice and scale of such an effort will reflect the local situation and the size of the school.
APPENDIX E. SAMPLE FACILITY PLUMBING PROFILE

When a detailed facility plumbing profile is needed, answering the following questions can provide useful insights into whether lead is present in a facility’s plumbing, and if so, in what portions of the plumbing.

- When was the facility built?
- Have new buildings or additions been added? If so, when were they added? If built since 1986, was lead-free plumbing and solder used?
- When were the most recent plumbing repairs made and where were they located?
- From what material is the service line made?
- From what materials are the facility’s potable water pipes made and what is their location? What materials were used to solder the potable water pipes in the system?
- Are brass fittings, faucets or valves used in the facility? Note locations.
- How many bubblers, icemakers, water coolers and kitchen taps are located in the facility? Where are they located?
- What brands and models of water coolers are in the facility? Where is their location?
- Do the faucets have accessible screens, and have they been cleaned?
- Can any signs of corrosion, such as leaks, rust-colored water or stains be detected?
- Is any electrical equipment grounded to water pipes?
- What do the records of previous water testing show?

It may be advisable to consult with a local plumbing expert as you answer these questions.
APPENDIX F. UNDERSTANDING THE SIGNIFICANCE OF PLUMBING PROFILE

**When was the facility constructed?** Plumbing before 1930 is most likely to contain lead. Between 1920 and 1950, galvanized pipes were used for plumbing. After 1930, copper generally replaced lead. Up until the late 1980s, lead solders were typically used to join copper pipes. The lead-free requirements of the 1986 Safe Drinking Water Act banned lead solder with more than 0.2% lead and plumbing with more than 8% lead. Buildings did not have to be built with certified "lead-free" fixtures until 1997.

**Are there new buildings and additions?** New buildings are unlikely to have lead pipes, but they are likely to have copper pipes with solder joints. Buildings built prior to 1986 are likely to have joints made of lead solder. Some brass fittings, although they contain less than 8% lead in alloy, may still contribute a significant amount of lead to drinking water.

**When were plumbing repairs made?** Corrosion is a result of the chemical reaction between water and pipes. Known as galvanic reaction, this can be vigorous in new piping until a protective layer is built up. After about five years, the reaction usually slows down, and lead enters the water as a result of more typical corrosion. If water supplied to a facility is corrosive, lead can remain a problem regardless of the age of the plumbing.

**What material is used in the service line?** Historically lead piping was used in some communities for service lines that join buildings to public water supplies. Lead pipes are dull gray in color and may be easily scratched by a metal object. Lead pipes can be a major source of lead contamination. Galvanized pipes are gray and usually fitted together with threaded joints. Copper pipes are red-brown in color. Corroded portions may show green deposits. Plastic pipes should meet NSF International Standards for drinking water.

**Are brass fittings, faucets or valves used in your facility?** Brass is composed of two metals, commonly copper and zinc. Brass fittings used in drinking water taps / outlets often contain up to 8% lead. This is considered "lead-free" under the Safe Drinking Water Act. Contamination may still take place. The amount of lead that will leach from brass products with less than 8% lead is dependent upon the corrosiveness of the water and the processes employed in manufacturing the products. New brass may leach higher levels of lead until it passivates.

**Type of taps / outlets used for drinking water?** Components of the system, lead solders and lead in brass may all be sources of lead.

**What are the brands and models of water coolers?** Water coolers may be a major source of lead contamination. Under the Lead Contamination Control Act of 1988, water coolers with lead-lined tanks are considered to be imminently hazardous consumer products, and manufacturers and importers are to repair, replace or recall these coolers. Limits for solder, flux, and storage tank interior surfaces in contact with drinking water may not contain more than 0.2% lead. Other parts of water coolers that may come in contact with drinking water are not to contain more than 8% lead. The law attaches criminal and civil penalties for the manufacture and sale of water coolers containing lead.

**Do faucets have accessible screens and when were they cleaned?** Lead-containing sediments that are trapped on screens can be a source of significant contamination. Sediments may need to be tested, and screens should be cleaned frequently.
Are there signs of corrosion? Corrosion may indicate high levels of lead, copper and iron in the water.

Is electrical equipment grounded to water pipes? Electric current traveling through the ground wires may accelerate the corrosion of interior plumbing containing lead. DO NOT remove the wires from the pipes unless a qualified electrician installs an alternative grounding system. Improper grounding of electrical equipment may cause severe shock.

When was the water in your facility tested for contaminants? Results of water quality testing can provide clues about the corrosiveness of the water. If your facility operates its own water supply, such tests can help you decide on effective treatment approaches.
APPENDIX G. EXAMPLE SAMPLING PROTOCOL

Presented below are the general procedures for collecting samples of water for lead testing. Some environmental service providers and environmental laboratories will provide on-site sampling. Sampling by school or child care personnel is also an option. All personnel who assist in sampling should be adequately trained in proper sampling procedure, including site-specific record-keeping requirements. The following is a generic sample collection protocol.

Sample Containers

Obtain sample containers from the laboratory that will be performing the lead analysis.

<table>
<thead>
<tr>
<th>Caution</th>
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</thead>
<tbody>
<tr>
<td>Only use containers from a certified laboratory.</td>
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</table>

Sample Collection

Be certain to carefully follow the instructions provided by the laboratory.

1. Collect all water samples before the facility opens for the day and any water usage occurs.

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<thead>
<tr>
<th>Caution</th>
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<tbody>
<tr>
<td>Do not rinse the sample containers before filling.</td>
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</table>

2. The water must have sat in the pipes for at least 8 hours and not more than 18 hours before a sample is taken.

3. Do not collect samples after vacations, weekends or holidays.

4. Collect a 250-milliliter sample in the container provided by the laboratory from each outlet of interest without wasting any water before sampling the outlets.

5. Assign a unique sample identification number to each sample. Record that number on the recordkeeping form.

6. Accurately complete the recordkeeping form immediately following the collection of each sample. **Accurate information about the sample is essential.**

7. Ship the sample as instructed.
## APPENDIX H. EXAMPLE RECORDKEEPING FORM

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<tr>
<th>Name of Laboratory Used</th>
<th></th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Lead Concentration (mg/L)</th>
<th></th>
</tr>
</thead>
</table>

## NOTES:

---

30 ASSISTING SCHOOLS AND CHILD CARE FACILITIES ADDRESS LEAD IN DRINKING WATER
APPENDIX I. RESPONSE ACTIONS TO BE USED AFTER HIGH LEAD LEVELS ARE FOUND

Control Measures

Clean debris from all accessible screens frequently. If sediment is found in faucet screens, have the sediment tested by a laboratory and continue to clean screens frequently.

Use only cold water for food and beverage preparations in cafeterias and cooking classes. Hot water will dissolve lead more quickly than cold water and is therefore more likely to contain increased lead levels.

Turn off water to the tap / outlet using available valves or by capping the water line to taps / outlets where elevated levels of lead are identified. When taking this approach, the facility must continue to meet applicable codes for availability / accessibility of drinking water within the facility.

EPA guidance, Lead in Drinking Water in Schools and Non-Residential Buildings, provides specific recommendations for assuring adequate turn over of water in facility plumbing (see pages 31 and 32 of the guidance document). The following is a brief summary of that guidance.

- Flush the piping system in the facility.

  First-flush water that has been in contact with the facility plumbing for more than six hours should not be consumed. Flushing involves opening all suspect taps / outlets every morning before the facility opens and letting the water run for a period of time to clear water standing in the interior pipes and taps / outlets.

  Locate the tap / outlet farthest from the service line on each wing and floor; open the tap / outlet wide and let the water run for 10 minutes. For precise results, calculate the volume of the plumbing and flow rate -- exact determinations likely require assistance from a plumber or engineer.

  Open all valves at all drinking water fountains without refrigeration units and let the water run for one minute.

  Let the water run on refrigerated water fountains for 15 minutes. Because of the long time period required, routine flushing of these units may not be practical. Replacing them with lead-free units may be necessary.

  Open all kitchen taps / outlets (and any other taps /outlets used for drinking and/or cooking purposes) and let water run for one minute.

- Consider providing bottled water. This can be an expensive alternative. If this is the selected option, obtain a written statement from the bottled water distributor guaranteeing that the bottled water meets FDA and state standards.

  If provided, procedures on the use and care of dispensers/bottles must be developed and implemented. A very good source of information on this topic (and other topics related to lead in schools) can be found on the website of the Massachusetts Department of Environmental Protection at: http://www.mass.gov/dep/brp/dws/lead.htm. Taking steps
such as using disposable bottles or refillable bottles that have been properly cleaned are essential to assuring a safe water supply.

Long-Term Remedies

There are a number of long-term actions that might reduce or eliminate sources of lead contamination that originate in a facility's plumbing. The results of testing will provide information that will help determine which treatment options will be most appropriate for individual circumstances.

While flushing individual or all taps / outlets may be a long-term solution, it does involve a potential for wasting water, which is particularly of concern in communities that are seeking to encourage conservation. While it is a quick and easy method, with nothing to install, flushing can be time-consuming for staff. There is also a risk of forgetting that the water is flowing. This process would also require that someone be responsible for follow-up to ensure that procedures are properly followed and are effectively reducing lead levels.

Time-operated solenoid valves can be installed to automatically flush the main pipes. However, these solenoids are not practical for flushing water coolers. Water coolers can be flushed continuously, using a needle valve, a drain and an air gap or flushed manually.

If the source of lead contamination is localized or limited to a few taps / outlets, replacing the taps / outlets might be the most practical solution. A tap / outlet may be replaced with a new one if the existing tap / outlet is suspected to be the contamination source. Metallic fixtures, even new ones, may contain up 8% lead and still be recognized as "lead-free". If you choose a solution that requires work by a plumber on any part of the facility's plumbing system, make sure the plumber uses only "lead-free" solders and materials. The SDWA of 1986 requires only "lead-free" materials be used in new plumbing and plumbing repairs.

Water that is soft or acidic can be treated to make it less corrosive. Corrosion control devices for individual buildings are commercially available. Installation of corrosion control treatment is generally not recommended because of the degree of operator skill and maintenance required. Further installation of treatment may redefine the facility as a “Public Water System,” which makes it subject to SDWA regulations. Carbon, sand, cartridge filters and water softeners will not prevent corrosion.

Lead levels can be reduced at the tap / outlet. Reverse osmosis and distillation units are commercially available and can be effective at removing lead. These devices do make water corrosive and should be used only when placed at the tap / outlet. Facility managers should obtain information about these devices by writing or calling: National Sanitation Foundation International (NSF), 789 Dixboro Road, P.O. Box 130140, Ann Arbor, MI 48113-0140, (800) 673-6275. The device should be approved as meeting NSF Standard 53, NSF Standard 58 or the equivalent. It must be installed, operated, and maintained in accordance with manufacturer's recommended procedures. Proper operation and maintenance is essential.

Develop an alternative grounding scheme for electrical wires attached to internal plumbing systems to avoid acceleration of corrosion by electrical currents.
APPENDIX J. EXAMPLE MAINTENANCE CHECKLISTS

Maintenance Checklist

Name of Facility: ____________________________________________________________
Address: ___________________________________________________________________
____________________________________________________________________________
Contact Name: _______________________________________________________________
Phone #: __________________________

<table>
<thead>
<tr>
<th>ACTIVITY TO BE EVALUATED</th>
<th>Yes</th>
<th>NO</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plumbing Related to Drinking Water Fixtures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plumbing survey has been conducted?</td>
<td></td>
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<tr>
<td>Alterations made to existing plumbing system?</td>
<td></td>
<td></td>
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<tr>
<td>Certified components/materials used?</td>
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<tr>
<td>Licensed plumber for the installation/modifications/alterations?</td>
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<tr>
<td>Drinking/cooking outlets flushed at the start of each school day?</td>
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<tr>
<td>Drinking Fountains</td>
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<tr>
<td>Drinking fountains checked for known lead-containing models?</td>
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<tr>
<td>Drinking fountains on the list of known lead-containing models removed?</td>
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<tr>
<td>Collection/testing of water samples for lead has been implemented?</td>
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<tr>
<td>Remedial actions implemented for fountains exceeding the action limit?</td>
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<tr>
<td>Fountains exceeding the action limit after remedial actions removed?</td>
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<tr>
<td>Cafeteria (if applicable) and Cooking Classes (if applicable)</td>
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<tr>
<td>Faucets included in a regularly scheduled sampling/testing program?</td>
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<tr>
<td>Only cold water is used for preparing foods and beverages?</td>
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<tr>
<td>Bottled Water (if used) Water (if used)</td>
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<tr>
<td>Bottled water is a substitute for devices taken out of service?</td>
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<tr>
<td>Bottled water supplier approved by Arizona Department of Health?</td>
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<tr>
<td>Bottled water stored in a safe, secure area?</td>
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<tr>
<td>Dispensers cleaned regularly?</td>
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<tr>
<td>Record Keeping</td>
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<tr>
<td>Drinking Water Testing/Quality Records in a centralized and clearly labeled file?</td>
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</table>

Evaluation of Results: (check all that apply)

☐ School in compliance
☐ Treatment units planned (Start Date: ___/___/___)
☐ Additional testing needed (Start Date: ___/___/___)
☐ Bottled water proposed (Start Date: ___/___/___)
☐ Flushing proposed (Start Date: ___/___/___)
☐ Educational notice for parents and school proposed (Start Date: ___/___/___)
☐ Other actions planned (Start Date: ___/___/___)

**Manual Flushing Log**

**Lead And Copper Remediation**

Name of School: 

Address of School: 

Location of Flushing Device Within School: 

Month: 

<table>
<thead>
<tr>
<th>Day</th>
<th>Duration of Flush</th>
<th>Operator’s Name (Please Print)</th>
<th>Operator’s Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>31</td>
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</tbody>
</table>

**Name of Operator/ or Authorized Personnel Conducting Flushing:**

Print Name ___________________________  Sign Name ___________________________

**NOTE:** Use one log per flushing location. It is the responsibility of the school’s principal to ensure that this log and/or a copy of it is kept on file at all times.

Source: Massachusetts Department of Environmental Protection. Lead in Schools, April 2004.

34 ASSISTING SCHOOLS AND CHILD CARE FACILITIES ADDRESS LEAD IN DRINKING WATER
APPENDIX K. EPA BROCHURE “IS THERE LEAD IN THE DRINKING WATER?”

How does lead get into water?

Lead enters the water (“leaches”) through contact with the plumbing.

Lead leaches into water through:
- Corrosion of
  - Pipes
  - Solder
  - Fixtures and Faucets (brass)
  - Fittings
- Particles caught in aerators

Water characteristics, such as pH, hardness and temperature, affect the amount of leaching.

Why should we test the water?

Lead is a health risk to infants and children.

Exposure to lead is a significant health concern, especially for pregnant women, young children and infants whose growing bodies tend to absorb more lead than the average adult. Drinking water is one possible exposure route for lead. A dose of lead can have a big effect on a little body, especially an infant whose diet is mostly liquid.

The longer water remains in contact with leaded plumbing, the more opportunity exists for lead to leach into the water. Facilities with prolonged periods of no water usage, such as schools and day care centers, may have elevated lead concentrations in the water.

Many children spend a significant part of their days at school or in a child care facility. The fixtures that provide water for consumption, including drinking, cooking lunch, and preparing juice and infant formula, should be tested.

Testing is the only way to confirm if lead is present or absent. Lead solder with more than 0.2% lead and plumbing with more than 3% lead were banned in 1987. Buildings did not have to be built with certified “lead-free” fixtures until 1987. Even new, certified components can leach some lead.

Water System tests do not give the whole picture.

Most water systems test for lead as a regular part of water monitoring. These tests give a system-wide picture but do not reflect conditions at a specific drinking water outlet.
HOW DO WE PARTICIPATE IN THE LEAD-FREE DRINKING WATER PROGRAM?

- Develop a sampling plan.
- Take water samples.
- Use a certified lab to analyze water samples.
- Replace outlets with lead-free components, as necessary.

EPA's guidance, "Lead in Drinking Water in School and Nonresidential Buildings" and "Sampling for Lead in Drinking Water in Nursery Schools and Day Care Facilities," can help schools and day cares achieve lead-free drinking water. Obtain these documents through www.epa.gov/safewater/Pubs.

See the site for more tools to help achieve lead-free drinking water: www.epa.gov/safewater/ead/schools/rdcs2.htm

HOTLINES AND INFORMATION

National Lead Information Center:
800-426-LEAD
EPA Safe Drinking Water Hotline:
800-426-4791
Drinking Water Information:
www.epa.gov/safewater/ead
Plumbing Standards:
www.nsf.org

WHAT CAN I DO TO REDUCE LEAD RISK AT MY HOME?

- After the water is stagnant for several hours, flush pipes until you feel the temperature change before cooking, drinking, or brushing teeth.
- Use only cold water for cooking and drinking. Never cook or mix infant formula using hot water.
- Have your water tested.

IS THERE LEAD IN THE DRINKING WATER?

You can reduce the risk of lead exposure from drinking water in educational facilities.

Lead-Free Drinking Water
In Schools and Day Cares

Printed on 100% recyclable/recyclable paper.
APPENDIX L. QUESTIONS AND ANSWERS – LEAD IN DRINKING WATER

Q: How does lead get into water?

A: Lead generally enters drinking water after contact with a building’s plumbing system. Lead may be present in the components of the plumbing system such as lead solder, brass fixtures and lead pipes. The amount of time the water is in contact with the lead components of the plumbing system is typically the factor that contributes most significantly to the amount of lead in the water supply.

Q: Why should we test the water?

A: The only way to determine how much lead is present in the drinking water in your facility is to have the water tested for lead.

Q: Why is lead a health concern?

A: Lead is a toxic material that is known to be harmful to humans if ingested or inhaled. Lead can cause damage to the brain, kidneys, nervous system and red blood cells. Children, infants, pregnant women and their unborn children are especially vulnerable to the harmful effects of lead. Lead has been associated with impaired mental and physical development in children.

Q: How are children exposed to lead?

A: Children can be exposed to lead from a number of sources, including lead-based paints in housing built prior to 1978, lead-contaminated dust and soil and drinking water. Drinking water typically is not the primary source of exposure to lead for children.

Q: Why is lead a special concern for schools and child care facilities?

A: Children are more vulnerable to the effects of lead exposure. Growing children will also absorb the lead that they consume more rapidly than adults. In addition, children at play may come into contact with more sources of lead, such as dirt and dust, than adults.

Q: At what level does the U.S. EPA recommend taking action on lead results from water in schools?

A: The U.S. EPA recommends taking action if lead levels in drinking water in schools at 20 parts per billion or greater.
STRAIGHT Talk

Lead in Water

The U.S. Environmental Protection Agency (EPA) notes that “the greatest exposure to lead is swallowing or breathing in lead paint chips or dust.” However, while lead is rarely present in water coming from a treatment plant, it can enter tap water through corrosion of some plumbing materials. 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, pregnant women, and their unborn babies.

- Since 1992, all public drinking water systems are required to regularly test a sample of high-risk homes for lead at the tap.
- If the results from lead testing exceed the EPA “action level” of 15 parts per billion in more than 10 percent of homes tested, individual water utilities are required to notify area residents via newspapers, radio, TV, and other means.
- In instances of high lead levels in water, the most common sources are lead-based solder used to join copper pipe, faucets made of brass and chrome-plated brass, and in some cases, pipes made of lead that connect a home to the water main.
- In 1986, Congress banned the use of solder containing more than 0.2% lead and restricted the lead content of faucets, pipes, and other plumbing materials.

Concerned residents can take several steps to limit possible exposure:
- You can’t see, smell, or taste lead in your water. Testing at the tap is the only way to measure the lead levels in your home or workplace. If you choose to have your tap water tested, be sure to use a properly certified laboratory. Testing usually costs between $20 and $100.
- Flushing your water tap clears water from your plumbing and home service line to ensure you are getting drinking water from the main, where lead is rarely present. Let the water run from the tap until it is noticeably colder (this may take two minutes or more) before using it for cooking or drinking. Flushing the tap is particularly important when the faucet has gone unused for more than a few hours.

(Continued)
Some home treatment devices remove lead, but not all do. Before you purchase a home treatment device, you should verify the manufacturer’s claims. A good resource to assist you is NSF International = www.nsf.org. Once a treatment device is installed, make sure it is properly maintained.

Use only cold water for cooking or drinking. Lead leaches more easily into hot water than cold water. Boiling water DOES NOT remove lead.

Consult with your family doctor or pediatrician to receive a blood test for lead and learn more about the health effects associated with exposure.
Issue Backgrounder
Lead in Drinking Water

Where does lead come from?

- Lead is a naturally occurring metal that was used regularly in a number of industrial capacities for most of the 20th century. We no longer use lead in many of these products, but lead from older products remains.
- The U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control (CDC) report that lead paint (and the contaminated dust and soil it generates) is the leading source of lead exposure in older housing. Lead has been used as a component of paint, piping (including water service lines), solder, brass, and until the 1980s, as a gasoline additive.

Why is lead a health concern?

- 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, pregnant women and their unborn babies. Amounts of lead that won't hurt adults can slow down normal mental and physical development of children, particularly those under 6 years old.
- At high levels of contamination, lead can damage adults' kidneys and reproductive systems. And at extremely high levels, lead poisoning can cause mental retardation, coma, convulsions and death.
- A child at play can come into contact with sources of lead contamination — such as dirt, dust and paint chips — 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.
- For more information on lead contact the visit www.cdc.gov or contact Jennifer Sarginson of the CDC's Lead Poisoning Prevention Branch at (404) 498-0894.

Where does lead in drinking water come from?

- Lead contamination is rarely found in sources of water such as rivers, wells and reservoirs. It's almost never present in water leaving a treatment plant or traveling through water mains.
- EPA estimates that 10 to 20 percent of human lead exposure may come from drinking water, and infants who consume mostly mixed formula may receive 40 to 60 percent of their lead exposure from drinking water.
- The most common sources of lead in drinking water are lead-based solder used to join copper pipe, faucets made of brass and chrome-plated brass, and in some cases, pipes made of lead that connect a home to the water main (service lines).
• Lead enters drinking water as a result of corrosion, as water comes into contact with lead materials over a period of time. If standing water is in contact with lead materials for several hours, the water may accumulate lead levels that are of concern.
• Water providers adjust their treatment procedures to achieve “optimized corrosion control,” which significantly reduces the amount of lead leaching into the water.

What is the Lead and Copper Rule?
• The Lead and Copper Rule provides a framework for utilities to a) determine if their corrosion control program is effective at limiting lead exposure; b) take additional steps to protect public health; c) and ensure consumers are notified if the utility finds lead above the action level in the community.
• The Lead and Copper Rule is based on a “treatment technique” requirement in which the lead action level is a trigger – the action level is not health based.
• Monitoring under the LCR takes place at worst-case sampling locations as samples are taken of water standing overnight in homes where lead pipe or lead solder is present.
• If the results from lead testing exceed the EPA “action level” of 15 parts per billion in more than 10 percent of homes tested, individual water utilities are required to notify area residents via newspapers, radio, TV and other means.
• EPA’s most recent data confirms that the elevated lead levels in Washington, D.C., are not common nationwide. More than 96 percent of utilities reporting data do not exceed the 15-parts-per-billion action level for lead.
(http://www.epa.gov/safewater/lcrml/lead_data.html)

How is the water community responding to issues of lead in drinking water?
• The drinking water community supports the thorough examination of the situation in Washington, D.C. and the Lead and Copper Rule, which EPA is now undertaking.
• The American Water Works Association has testified before U.S. Congressional committees about this subject. Testimony is available at: http://www.awwa.org/Advocacy/govstaff/legislative/leg_test.cfm
• EPA is hosting a series of workshops to further study all aspects of lead in drinking water, including recent sessions on public communication of lead issues and lead in schools.
• The American Water Works Association has convened working group of utility professionals examining the lead in drinking water issue and identifying best practices.

How can consumers protect themselves from lead in drinking water?
While water providers have taken steps to limit lead in drinking water, consumers can take the following steps if concerned about lead exposure:

• Find out about lead testing results in their community. Each utility’s annual Consumer Confidence Report contains information on lead monitoring conducted under the Safe Drinking Water Act. If they do not have a Consumer Confidence Report, they can contact their utility for a copy.
• You can’t see, smell or taste lead in your water. Testing at the tap is the only way to measure the lead levels in your home or workplace. If consumers choose to have their tap water tested, they should use a properly certified laboratory (they can call their utility to obtain a list). Testing usually costs between $20 and $100.
• Flushing the water tap is a simple method to help avoid high lead levels. Flushing clears water from the plumbing and home service line to ensure the drinking water comes from the main, where lead is rarely present. Let the water run from the tap until it is noticeably colder (this may take two minutes or longer) before using it for cooking or drinking. Flushing the tap is particularly important when the faucet has gone unused for more than a few hours, because the longer water resides in home plumbing, the more lead it may contain.

• Flushing the tap may not be effective in reducing lead levels in high-rise buildings. If those consumers are concerned about lead in their drinking water, they should talk to their landlord or consult their local health department about ways to minimize exposure.

• Use only cold water for cooking or drinking. Lead leaches more easily into hot water than cold water. Boiling water DOES NOT remove lead.

• A licensed plumber can determine if a home contains lead solder, lead pipes or pipe fittings that contain lead. A plumber can also determine if a home has a lead service line connecting home plumbing to the community water system’s water main. The presence of these materials does not mean lead is in the water, but that the potential for lead in the water exists.

• Make sure that repairs to copper piping do not use lead solder.

• Some home treatment devices remove lead, but not all do. Before purchasing a home treatment device, consumers should verify the manufacturer’s claims. A good resource is NSF International (www.nsf.org). Once a treatment device is installed, make sure it is properly maintained. Using bottled water is also an alternative. (Information on the lead levels in bottled water is available from bottled water manufacturers.)

• Consult with the family doctor or pediatrician to receive a blood test for lead and learn more about the health effects associated with exposure. CDC recommends all children be tested for lead.

Overview of Awwa Research Foundation (AwwaRF) Lead Research

The water community has been studying corrosion control and its impact on lead in drinking water for many years. Below is a list of studies from AwwaRF, a member-supported, international, nonprofit organization that sponsors research to enable water utilities, public health agencies, and other professionals to provide safe and affordable drinking water to consumers.

One of the most important lessons learned from the AwwaRF research conducted on lead and copper corrosion is that every utility’s lead and copper corrosion challenges are unique to that utility’s source water quality, treatment train, and distribution system configuration and materials. There is no standard “recipe” for lead and copper corrosion control that every utility can apply regarding treatment strategies, corrosion control strategies, or distribution system management.
Areas of AwwaRF Research:
Corrosion Control Effects on Water Quality and Corrosion
Distribution system Water Quality Changes Following Corrosion Control Strategies (2000)
A General Frame Work for Corrosion Control Based on Utility Experience (1997)
Role of Phosphate Inhibitors in Mitigating Lead and Copper Corrosion (2001)

Treatment Process Effects On Lead and Copper Corrosion
Optimizing Chloramine Treatment (Currently in publication)
Disinfectant Decay and Corrosion: Laboratory and Field Studies (2004)

Specific Water Chemistry Effects on Lead and Copper Corrosion
Corrosion and Metal Release for Lead Containing Plumbing Materials (1999)

Tools to Help Utilities Manage Lead and Copper Corrosion Issues
Development of a Pipe Loop Protocol for Lead Control (1994)
Post-Optimization Lead and Copper Monitoring Strategies (2004)
Lead Pipe Rehabilitation and Replacement Techniques (2000)
Lead Control Strategies (1990)

Contact AWWA Public Affairs for more information
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APPENDIX M. SOURCES OF INFORMATION

There is a significant body of information on the topic of dealing with lead in the drinking water supply of schools and child care facilities. Following is a partial listing of useful reference materials and the website address at which the materials can be accessed.

**Websites**

*Lead*

**American Water Works Association**
http://www.awwa.org/

**American Water Works Association Research Foundation**
http://www.awwarf.org/research/TopicsAndProjects/Resources/SpecialReports/Corrosion/index.aspx

**Centers for Disease Control**
CDC Childhood Lead Poisoning Prevention Program
http://www.cdc.gov/nceh/lead/about/program.htm

CDC Childhood Lead Poisoning Surveillance
http://www.cdc.gov/nceh/lead/surv/surv.htm

**National Child Care Association**
http://www.nccanet.org/

**National Rural Water Association**
http://www.nrwa.org/

**U.S. Environmental Protection Agency**

4. Lead in Drinking Water in School and Nonresidential Buildings –
http://www.epa.gov/safewater/Pubs

Sampling for Lead in Drinking Water in Nursery Schools and Day Care Facilities --
http://www.epa.gov/safewater/Pubs

Lead in Drinking Water –
http://www.epa.gov/safewater/lead/index.html

Lead in Schools and Child Care Centers
http://www.epa.gov/safewater/lead/schoolanddcts.htm

Lead in Drinking Water Coolers
http://www.epa.gov/safewater/consumer/lead_app-a_86-95.pdf

Sampling for Lead in Drinking Water in Nursery Schools and Child Care Centers

4 Website addresses change over time. In particular, U.S. EPA program effort will likely result in changes to website addresses later this year.
5 U.S. EPA is currently revising this guidance manual. Revised guidance will be forthcoming in 2005 or 2006.
6 Ibid.
Guidance Manual - “Lead in Drinking Water in Schools and Nonresidential Buildings”

Controlling Lead in Drinking Water for Schools and Child Care Centers: A Summary of State Programs

Implementation of the Lead and Copper Rule

Individual State Programs (Examples)

Arizona Department of Environmental Quality
A Manual for Assessing Lead In Drinking Water in Arizona Schools and Day Care Facilities

Massachusetts Department of Environmental Protection
Lead and Copper in Schools –

Minnesota Department of Health
Reducing Lead in School Drinking Water

Plumbing Standards

NSF International

Hotlines:

National Lead Information Center:  800-424-LEAD

EPA Safe Drinking Water Hotline:  800-426-4791

Ibid.