Anoka-Hennepin Area Public Schools

MANAGEMENT PLAN

FOR

LEAD IN DRINKING WATER

Anoka-Hennepin Area Public Schools

LEAD IN DRINKING WATER MANAGEMENT PLAN

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The purpose of this Lead in Drinking Water Management Plan is to ensure that the Anoka-Hennepin Area Schools are in compliance with Minnesota State Statute 121A.335, the Lead Contamination Control Act of 1988 and the Safe Drinking Water Act - Lead and Copper Rule and to ensure that the drinking water within our schools is safe for the occupant's consumption. This Management Plan has been developed following the Minnesota Department of Health's guidance document "Reducing Lead in Drinking Water: A Manual for Minnesota's Schools".

1.1 Legal Background and Requirements

The Lead Contamination Control Act (LCCA) of 1988

This law applies to all schools, whether they purchase water from a water utility (i.e. city or rural water) or they supply their own water (i.e. well). The intent of the LCCA is to identify and reduce lead in drinking water at schools and day care facilities. It relies on voluntary compliance by individual schools and school districts. The United States Environmental Protection Agency (EPA) developed guidelines to assist schools in reducing lead in drinking water. In the 1994 document, "Lead in Drinking Water in Schools and Non-Residential Buildings," the US EPA recommended a lead limit of 5 ppb for school drinking water, based on 250 ml first draw samples. The MDH document "Reducing Lead in Drinking Water: A Manual for Minnesota's Schools" is based on the US EPA's document and the requirements of the LCCA.

The Safe Drinking Water Act (SDWA), Lead and Copper Rule

This law applies only to schools that provide their own water supply. Compliance with the Lead and Copper Rule is mandatory for those schools that supply their own water. Under the Lead and Copper Rule, no more than ten percent (10%) of the samples from a school's drinking water taps may exceed the lead "action level" of 15 ppb. The "action level" is the level at which action must be taken to protect the public health. If the "action level" is exceeded, the school is legally required to take action. A one liter (1000ml), first draw, cold water sample is used for monitoring under the Lead and Copper Rule.

Minnesota State Statute 121A.335 (2017)

Requires public and charter schools to have a plan for efficiently and accurately testing for lead in drinking water using the model plan developed by MDE and MDH or by adopting an alternative plan.

Under the statute, by July 1, 2024 school districts must:

- Adopt the model plan or develop and adopt an alternative plan to accurately and efficiently test for lead in school buildings serving students from prekindergarten to grade 12.
- Create a schedule for testing that includes all school district buildings and charter schools serving students where there is a source of water that may be consumed by students (used in cooking or directly by drinking). Each tap must be tested at least once every five years. Testing must have begun by July 1, 2024 and complete testing of all buildings serving students must be done within five years.
- Make the results of testing available to the public to review and notify the parents and guardians of the availability of the information.

2.0 Lead in Schools

2.1 Why is lead a health hazard?

Lead is a toxic material, known to be harmful to human health if ingested or inhaled. Lead in the body can damage the brain, kidneys, nervous system and red blood cells. Children, infants, pregnant women and their unborn children are especially vulnerable to lead. In children, lead has been associated with impaired mental and physical development, as well as hearing problems. The harmful effects of lead in the body can be subtle and may occur without any obvious signs of lead poisoning.

Blood lead levels as low as 10 micrograms per deciliter (ug/dL) are associated with harmful effects on children's learning and behavior. In 1997, the Centers for Disease Control and Prevention (CDC) estimated that 890,000 children in the United States had blood lead levels greater than or equal to 10 ug/dL. Reducing any and all sources of exposure to lead can help reduce the number of children with elevated blood lead levels.

2.2 How are children exposed to lead?

Lead in the environment

Children can be exposed to lead in many ways. Before action was taken to reduce lead in the environment, it was used in paint, gasoline, plumbing components, and many other products. Children may be exposed to lead in such sources as: lead-based paint found pre-1978 housing, lead contaminated dust and soil, drinking water, and lead containing materials used in adult occupations and hobbies. It is important to consider all these sources when determining a child's overall exposure to lead, because several lower amounts of lead may potentially add up to a significant total exposure.

Lead in Drinking Water

Drinking water is not typically the primary source of lead exposure for children, but it can contribute to total lead exposure. Reducing the amount of lead in drinking water is an important part of reducing a child's overall exposure to lead in the environment.

Common Sources of Lead

Lower doses

Drinking Water
Air

Higher doses

Lead-contaminated household dust
Dust and chips from exterior lead-based paint removal
Dust and chips from interior lead-based paint removal
Lead-contaminated soil
Industrial sources of lead
Lead-contaminated materials used in adult occupations or hobbies

2.3 Why is lead a special concern for schools?

Children are more vulnerable to lead

Amounts of lead that won't hurt adults can slow down the normal physical and mental development of growing bodies. Growing children will also more rapidly absorb any lead they consume. In addition, children at play come into contact with more sources of lead – such as dirt and dust – than do adults.

Water use patterns at schools

The "on-again, off-again" water use patterns of most schools can result in elevated lead levels in drinking water. Water remains stagnant in plumbing overnight, over a weekend, or during a vacation is in longer contact with plumbing materials and may therefore contain higher levels of lead.

2.4 How does lead get into drinking water?

Lead generally enters drinking water from a building's plumbing system. Lead may be present in various parts of the plumbing system (such as lead solder, brass fixtures, and lead pipes) and is picked up by the water passing through the plumbing system. The amount of lead, if any, in a plumbing system will depend on the age of the system and the materials from which the system was constructed.

The amount of contact time between water and any lead source is the greatest contributing factor to lead in drinking water. The longer water remains standing in the plumbing system, the greater the potential for it to absorb lead from any lead sources

present. For this reason, the lead concentration is at its highest when water has remained unused overnight or over a weekend. Additionally, factors such as water chemistry and temperature can affect the rate at which water absorbs lead.

2.5 How much lead in drinking water is too much?

The United States Environmental Protection Agency (US EPA) recommends that school drinking water not exceed 5 parts per billion (ppb) of lead.

3.0 What can be done to reduce lead levels in drinking water

3.1 *Use only cold water for drinking and food preparation*

Hot water is likely to contain higher levels of lead than cold water. Only water from the cold water tap should be used for drinking, preparing juice, mixing baby formula, or cooking. Boiling water will *not* remove the lead and may increase the concentration of lead in water.

3.2 *Flush taps before use*

The more time water has been standing in the plumbing system, the more lead it may contain. Running water at a tap, usually for 2-3 minutes, prior to using it for drinking or food preparation will often reduce lead levels in the water. Lead in drinking water is typically an "endpoint" problem, with the highest concentrations of lead near the tap. Flushing works by removing water with the most lead from the drinking water system.

3.3 *Test the water for lead*

The only way to determine how much lead is present in the drinking water at your school is to have the water tested for lead. Each tap or fixture providing water for drinking or cooking purposes should be tested for lead at least every five years. Corrective actions should be taken at taps with elevated lead levels.

4.0 How to Reduce Lead in School Drinking Water

4.1 Flush Taps

Flushing the drinking water taps (letting them run) often works to reduce lead in drinking water. Flushing consists of opening a tap or combination of taps to clear standing water that has been in contact with components of the plumbing system that may contain lead. A school's water system can be flushed in two ways: flushing individual drinking water taps, running the water for 2-3 minutes at each drinking water tap will, in most cases, remove water that has been in contact with lead-containing plumbing materials; flushing main pipes and then flushing individual drinking water taps.

4.2 Test Taps

Water from all taps used for drinking water or food preparation should be tested for lead, using “first draw” samples. “First draw” means that the samples are to be collected before the fixture is used or flushed during the day. US EPA recommends that water should sit in the pipes unused for at least 8 hours (but not more than 18 hours) before a sample is taken. Use only cold water for collecting lead sample.

Collecting the sample

- Sample size: 250 ml
- Analytical Laboratory: Only laboratories certified to analyze lead in drinking water should be used. A list of these laboratories is provided at the end of this document. The laboratory will provide you with sample bottles and instructions for submitting samples.

Interpreting first draw samples

- Make sure your results are in parts per billion (ppb).
- If lead is at or below 5 ppb, no flushing is required for the tap (except for schools using their own water supply with exceedances under the SDWA Lead and Copper Rule). The tap may continue to be used for drinking water and should be retested in five years.
- If lead exceed 5 ppb, initiate flushing and retesting.
- Test results more than five years old may not be valid. All taps should be sampled on a five year frequency or sufficient samples should be taken over time within a building to show consistent low readings.

4.3 Flushing and Retesting

Each tap that exceeds the 5 ppb lead standard is to be flushed in the morning and retested near lunchtime, just prior to the midday flushing. This is to determine if lead levels rise above 5 ppb during a four to six hour period of use.

If the midday test sample shows lead at or below 5 ppb, the tap can be used, but twice daily flushing must continue, unless another type of corrective action is implemented.

If the midday test result exceeds 5 ppb, flushing has not been effective. Either the flushing program should be altered and re-evaluated, or the tap should be taken out of service until a corrective action is taken. Once a corrective action is completed, the tap should be retested.

4.4 Other Corrective Actions

Further corrective actions need to be implemented when flush samples exceed 5 ppb. Corrective actions can also be taken to completely eliminate the need for flushing at any taps where first draw samples exceed 5 ppb. After a corrective action is implemented, the tap is to be retested to ensure the lead level is reduced to 5 ppb or less.

Options for corrective action:

- Remove tap from service: If the tap is seldom used, it may be disconnected from the water supply line and be removed.
- Replace tap: A tap can be replaced with a new one if the existing tap is suspected to be the source of contamination. Many metallic taps, even new ones, may contain lead which can contaminate the water.
- Replacement and repair: Replace suspected sources of lead, including lead pipe, solder joints, brass components and faucets.
- Point-of-use water treatment device: A point-of-use water treatment device may be installed at taps which are exceeding 5 ppb of lead. The device should be approved as meeting NSF Standard 53, NSF Standard 58, or an equivalent standard.

4.5 Reassessment

All taps affected by a corrective action should be retested after the corrective action has been implemented. A first draw sample should be taken.

If the analysis shows lead is at or below 5 ppb, no further action is required, as long as the corrective action remains in place. The next sample should be collected within 5 years.

If the analysis shows lead to be above 5 ppb, twice daily flushing is required, and 1) a midday sample is to be collected to determine if flushing is effective, or a new corrective action can be implemented followed by retesting.

5.0 APPENDICES