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MEMORANDUM

TO: Dr. Carmen Ayala
State Superintendent of Education

FROM: Brian Cox, P.E.
Plumbing and Water Quality Program Manager

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Director, IDPH

DATE: December 21, 2020

SUBJECT: Improving Water Quality in Illinois Schools: Lead In Water Testing and *Legionella* Prevention

I. Purpose

Children, faculty, and other building occupants' exposure to lead and opportunistic pathogens in schools is preventable through public awareness, education, and risk management strategies implemented by school districts or chief school administrators, or their designees. The purpose of this memorandum is to provide recommendations to improve water quality in Illinois schools.

II. Testing Requirements

Public Act 099-0922 took effect January 17, 2017 and required all schools constructed on or before January 1, 2000 to test all "sources of potable water" for lead and submit the results to the Illinois Department of Public Health (IDPH) by December 31, 2018. This Act also directed IDPH to determine if it is necessary and appropriate to protect public health to require schools constructed in whole or in part after January 1, 2000 to conduct testing for lead from sources of potable water. To that end, this memorandum provides a recommendation for all schools constructed in whole or in part before January 4, 2014, to sample all sources of potable water as defined in the Plumbing License Law ([225 ILCS 320/35.5](#)) for lead in water, if they have not already done so.

This recommendation is made in consideration of a review of lead in water sampling results submitted to IDPH which confirmed that 88% of the schools submitting data, have detected lead in at least one source of potable water. Additionally, the Reduction of Lead in Drinking Water Act, enacted by Congress in 2011, which took effect January 4, 2014, modified the definition of "lead free" by significantly lowering the allowable lead content in "lead free" plumbing materials. Taking these factors into consideration and understanding that testing is the only way to confirm the presence of lead in water, IDPH recommends those schools constructed prior to January 4, 2014 to conduct testing for lead from all sources of potable water.

III. Testing, Communication, and Mitigation for Lead in Water

Testing for lead in water should be conducted in accordance with the sample collection procedures outlined in the IDPH publication, "Sampling Water Drinking Guidance" found on IDPH's "Lead in Water" website, <http://dph.illinois.gov/topics-services/environmental-health-protection/lead-in-water>. IDPH recommends that all

lead in water sampling results be posted to both the school's website and communicated directly to students' legal guardians via email or letter. The Centers for Disease Control and Prevention (CDC) does not recognize any known level of lead to be safe for children. Therefore, a mitigation plan should be developed and implemented for all sources of potable water which have detectable levels of lead. Mitigation strategies should be developed using the resources and publications on the aforementioned webpage and using United States Environmental Protection Agency (USEPA)'s 3T's toolkit: <https://www.epa.gov/ground-water-and-drinking-water/3ts-reducing-lead-drinking-water-toolkit>. Effectiveness of mitigation strategies should always be validated through subsequent testing.

IV. Flushing of Plumbing System

The Department is aware stagnation in water supply systems can degrade water quality by contributing to increased concentrations of lead in water and promoting the growth of bacteria, such as *Legionella*, in large, complex plumbing systems.

Flushing is a recognized best practice to reduce stagnation in existing plumbing systems. Schools can improve and maintain water quality by utilizing flushing as a routine practice. Flushing is particularly important during extended absences including school breaks and after weekends. Reductions in normal water use can create hazards for returning occupants including lead contamination. For the purpose of improving and maintaining water quality in schools, IDPH recommends schools develop and implement a routine flushing program that includes a protocol for flushing duration and frequency and maintain records of flushing activities.

Flushing involves opening taps and letting the water run to remove water that has been stagnant or standing in the interior pipes and/or the outlets. According to the USEPA, proper flushing for lead concerns starts with identifying the plumbing fixtures furthest from the water service line on each floor or wing and allowing these fixtures to run for at least 10 minutes and then systematically flushing all remaining plumbing fixtures. For information on flushing procedures please visit USEPA's 3T's Flushing Best Practices Fact Sheet (https://www.epa.gov/sites/production/files/2018-09/documents/flushing_best_practices_factsheet_508.pdf).

V. Legionella and Water Management

Legionella is a naturally occurring bacteria that can become a public health concern in humanmade building water systems, such as large plumbing systems, decorative fountains, and cooling towers. CDC states there is no known safe level of *Legionella* in building water systems. Periods of reduced operation and reductions in normal water use in devices and plumbing systems due to seasonal use and school breaks in school buildings can increase the risk for growth and spread of *Legionella* and other biofilm-associated bacteria.

IDPH recognizes that large plumbing systems and other devices on school premises, such as cooling towers, should have water management programs to reduce the risk of *Legionella* growth and spread. Water management programs identify hazardous conditions and take steps to minimize the growth and transmission of *Legionella* and other waterborne pathogens in building water systems.

IDPH recommends all schools develop and implement water management programs which consider industry standards and the CDC Toolkit, [Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings](https://www.cdc.gov/legionella/wmp/toolkit/index.html) (<https://www.cdc.gov/legionella/wmp/toolkit/index.html>). The CDC toolkit is a practical guide on how to implement industry standards by identifying areas or devices in buildings where *Legionella* might grow or spread. For more resources and training on water management planning, please refer to the CDC's Prevention with Water Management Programs website (<https://www.cdc.gov/legionella/wmp/index.html>).

VI. Summary of Recommendations

The Illinois Department of Public Health offers the following comments and recommendations:

- 1.) Schools constructed in whole or in part from January 2, 2000 through January 4, 2014 should conduct lead in water testing for all “sources of potable water” as defined by the Illinois Plumbing License Law (“the Law”; 225 ILCS 320/35.5).
- 2.) Any “school building” constructed prior to January 2, 2000 that has not conducted lead in water testing and submitted results to IDPH in accordance with the requirements of the Law, must do so immediately.
- 3.) All schools should develop and implement a mitigation plan for all sources of potable water which have detectable levels of lead. Follow-up sampling should be performed to validate mitigation measures.
- 4.) All schools should flush their water supply system after extended absences to improve and maintain water quality.
- 5.) All schools should develop and implement comprehensive water management programs to address the growth and spread of *Legionella* in large plumbing systems and devices on school premises.
- 6.) All plumbing, as defined by the Law, is required to be installed and inspected by persons licensed and registered in accordance with the Law. Any unlicensed or unregistered individual(s) performing plumbing may be subject to fines and penalties outlined in Sections 29 and 29.5 of the Law.
- 7.) All school districts or chief school administrators, or their designees, should request and retain copies of all plumbing inspection reports to ensure all plumbing installations are in compliance with the Illinois Plumbing Code (77 Ill. Adm. Code 890).

If you have any questions about lead in water, please contact the IDPH Plumbing and Water Quality Program at dph.leadh2o@illinois.gov.

If you have any questions about general water quality, *Legionella*, or plumbing requirements, please contact the IDPH Plumbing and Water Quality Program at dph.plumbing@illinois.gov.