Testing for Lead in School Drinking Water 2023 Annual Report

Pursuant to Public Law 2019, Ch. 158

Prepared by:
Drinking Water Program
Maine Center for Disease Control and Prevention
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List of Acronyms

(See Glossary for Definitions)

ACRONYM	TERM
DWP	Drinking Water Program
LCR	Lead Copper Rule
Pb	Symbol for lead on the periodic table
RFP	Request for Proposals
SDWA	Safe Drinking Water Act
SWDF	State Subsurface Wastewater Disposal Fee Fund
EPA	US Environmental Protection Agency
WIIN	Water Infrastructure Improvements for the Nation Act

Executive Summary

Public Law 2019, chapter 158, *Act To Strengthen Testing for Lead in School Drinking Water* requires Maine's public and private K-12 schools to test the schools' water fixtures used for drinking or culinary purposes. In June 2021, the Maine Legislature approved the final adoption of the Department's major substantive rule to implement the law *(Lead Testing In School Drinking Water Rule, 10-144 CMR Ch 234).*

The Maine Center for Disease Control and Prevention Drinking Water Program (Maine CDC DWP) developed a program to assist schools in meeting their testing requirements under PL 2019, c. 158. Because this legislation did not allocate additional funding to implement the testing and barred the transfer of sampling costs to schools, external funding was needed. The DWP obtained federal grants through the Water Infrastructure Improvements for the Nation (WIIN) Act and obtained funds through the State Subsurface Wastewater Disposal Fee Fund (SWDF). This funding will cover the cost of sample bottles, sample bottle shipment, lead (Pb) water analysis, outreach, training, and education.

Sampling began on October 1, 2021 and continued until December 31, 2022. For schools that did not meet this deadline for their initial samples, the DWP provided technical assistance on a case-by-case basis, with a final deadline of June 30, 2023. Additional investigatory and post-mitigation samples were submitted up until that deadline as well. The WINN Act grant funding and the contract with A&L Laboratories ended on June 30, 2023. The DWP was unable to pay for sample analysis after that point.

Background

In May 2019, the Maine Legislature passed and Governor Mills signed Public Law 2019, chapter 158, *An Act To Strengthen Testing for Lead in School Drinking Water* (the Act), requiring, to the extent the Department provides the necessary resources so that no additional expenditures from local revenue is needed, all public and private K-12 schools in Maine to test all their water fixtures used for drinking or culinary purposes. (22 MRS § 2604-B.) Prior to the mandate, only schools that provided drinking water from their own source (groundwater or surface water) would have been required to test for lead (Pb) in their drinking water under federal regulation. Schools that received drinking water from a water utility were not previously required to test for lead.

In 1991, the US Environmental Protection Agency (EPA) published the Lead and Copper Rule (LCR) under the Safe Drinking Water Act (SDWA). The purpose was to minimize the corrosive potential of water and thereby reduce the amount of dissolved and particulate lead present in water. The LCR characterizes the corrosive potential of water, but its purpose is not to identify plumbing that may contain lead. As a result, not all fixtures within a school building would have been tested under the LCR.

When lead is present in drinking water, it usually is a result of lead leaching from pipes and plumbing fixtures inside a building or facility, and not from the water source itself. Lead can be found in brass fixtures and fittings, or in solder used on copper plumbing. Before 1987, solder that contained lead was commonly used to join copper pipes, and as recently as 2014, plumbing fixtures could contain up to 8% lead. In most cases, the issue is not system-wide, but specific to the fixture identified.

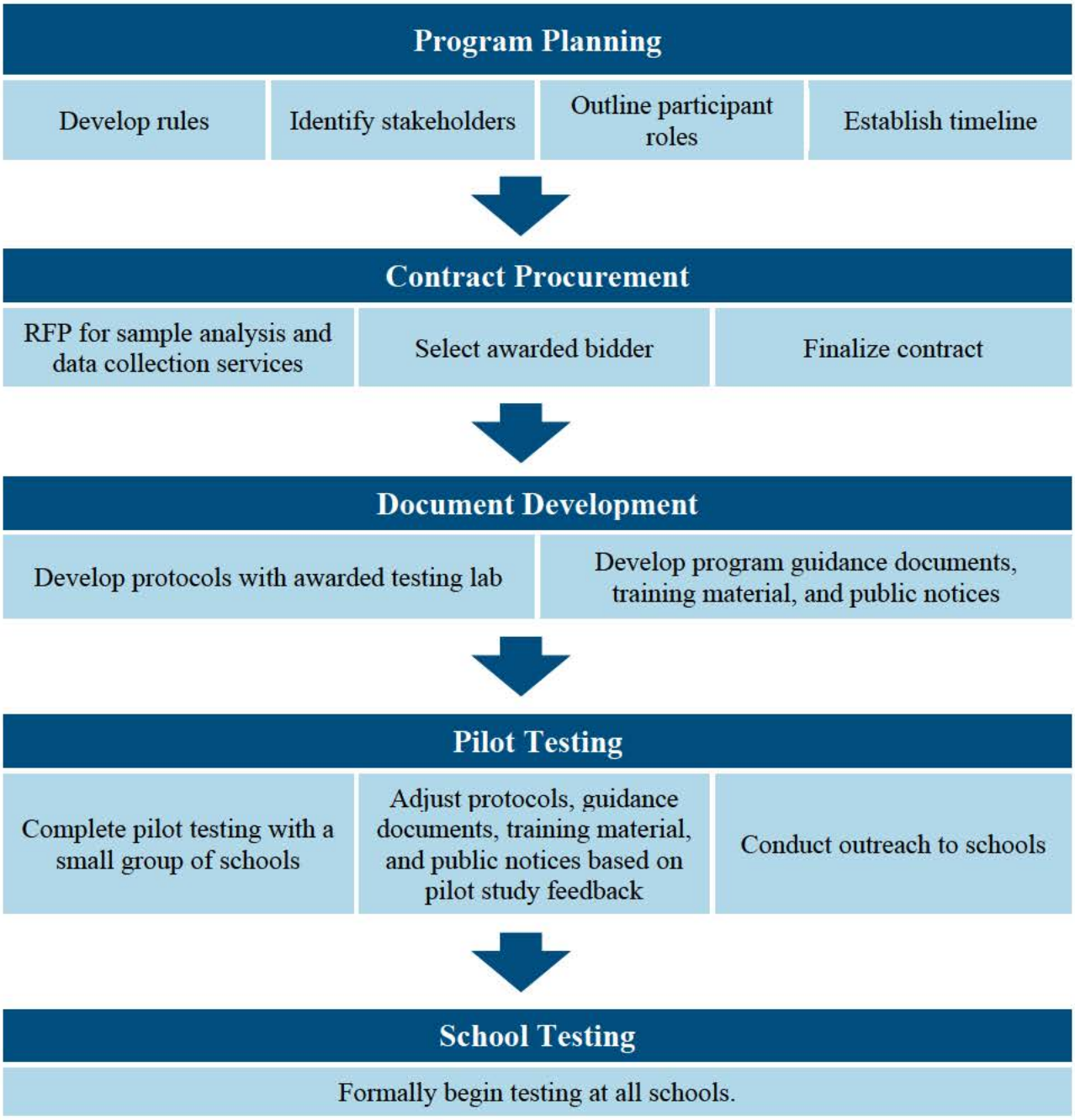
Although the presence of lead in drinking water is a concern for everyone, younger children are particularly vulnerable, because they absorb more lead, compared to older children and adults. A young child's brain is still developing and is more easily harmed by lead. Effects on young children can include learning disabilities and behavioral problems. For older children and adults, ongoing lead exposure can damage the brain, nervous system, kidneys, and cause high blood pressure.

Lead is rarely from the water supply itself. Rather, there are three primary sources of lead in water:

1. Service lines (i.e. the pipe that runs from the building to the street or to the well)
2. Internal plumbing of a building (i.e. pipes, fittings, etc.)
3. Fixtures (i.e. faucets, drinking water fountains, etc.)

Program Overview

The Drinking Water Program planned and executed the school lead testing as follows:



Program Funding and Costs

In accordance with the statute, the Department is prohibited from requiring a school to expand or modify its activities so as to necessitate additional expenditures from local revenue. Testing costs associated with 22 MRS § 2604-B were funded using grants under the WIIN Act and from funds from the SWDF.

FUNDING SOURCE	AMOUNT
USEPA WIIN Grant (2019)	$406,000
USEPA WIIN Grant (2020)	$331,000
USEPA WIIN Grant (2021)	$330,000
SWDF	Up to $40,000

The WIIN grant guidelines stipulate that funds can only be used to perform testing, outreach, training, and provide community education. Funds cannot be used for abatement/mitigation or to reimburse schools for routine lead sampling, as required under the Safe Drinking Water Act (SDWA). In addition, grant funds can only be used for schools that are:

(1) A Local Education Agency, as defined in the Elementary and Secondary Education Act of 1965 (20 U.S.C. §7801);
(2) A Tribal Education Agency, as defined in the National Environmental Education Act (20 U.S.C. §5502);

Because grant funds cannot be used for testing at private schools, funds under the State SWDF were used to cover sampling costs for private schools.

Funding was used to cover the cost of sample bottles, sample bottle shipment, lead water analysis, outreach, training, and education. An independent laboratory, A&L Laboratory, was awarded a contract for lead water analysis and data collection services at a cost of $21 per sample. Before the program began, it was estimated that 9,200 samples from over 700 schools will be collected as part of this program.

The testing protocol established followed the EPA's 3Ts guidance for school testing, which is a requirement of the WIIN Act grant.

Program Activity

Public Law 2019, chapter 158 requires the Department to submit an annual report to the joint standing committee of the Legislature having jurisdiction over health and human services. Reporting requirements include the number of schools tested for lead, the guidance issued schools to reduce lead exposure, the number of schools that engaged in abatement or mitigation and the methods of abatement or mitigation used (22 MRS § 2604-B sub-§ 5).

Due to when the data was pulled, the data below may not include tests results that came later in the month of December 2023.

In 2023, 62 schools tested for lead and were issued guidance for lead exposure reduction, and 114 schools reported abatement or mitigation activities.

REPORTING ITEMS FOR 2023	COUNT
Number of Schools Tested for Lead in 2023	62
Number of Schools Issued Lead Guidance for Abatement/Mitigation in 2023	62
Number of Schools that Engaged in Abatement or Mitigation in 2023	114

Since the beginning of the program, 99% of all K-12 schools in Maine (713 out of 723 total schools- the total number of schools being refined from initial database estimates) tested for lead and were issued guidance for lead exposure reduction, and 493 schools reported abatement or mitigation activities.

REPORTING ITEMS FOR ENTIRE SAMPLING PROGRAM	COUNT
Total Number of Schools Tested for Lead	713
Total Number of Schools Issued Lead Guidance for Abatement or Mitigation	713
Total Number of Schools that Engaged in Abatement or Mitigation	493

Since the beginning of the program, a total of 30,051 lead samples have been collected in Maine's K-12 schools. Therefore, more schools tested more taps than originally anticipated, and more schools engaged in investigatory sampling than predicted. The sample types are identified below.

SAMPLE TYPES	COUNT
Initial Samples	21,385
Confirmation Samples	3,930
30-Second Flush Sample	3,848
Post-Remediation Sample	633
Source Sample	154
Unidentified Sample	100
Replacement sample	1
Total Lead Samples	30,051

In June 2021, *Resolve, Regarding Legislative Review of Chapter 234: Lead Testing in School Drinking Water Rule* was enacted. The adoption of the major substantive rule by the Department lowered the limit at which the Drinking Water Program recommends that lead exposure reduction should occur to 4 parts per billion (ppb) from the previous limit of 15 ppb. In implementing the rule, the Department may not require a school to expand or modify its activities so as to necessitate additional expenditures from local revenue.

Of the 30,051 samples taken, 2,658 samples were over the 4 ppb exposure reduction recommendation limit. This represents approximately 9% of the total samples taken that exceeded 4 ppb.

SAMPLES EXCEEDING 4 PARTS PER BILLION	COUNT
Total Number of Samples Taken	**30,051**
Total Number of Samples Exceeding 4 ppb	2658
Percentage of Samples Exceeding 4 ppb	9%

Guidance on remediation and mitigation was issued to all schools with their sample results, in accordance with the US EPA's 3Ts guide for lead sampling at schools. The table below indicates how many schools are engaging in a particular type of remediation/mitigation. Each school may be engaging in more than one type.

TYPE OF REMEDIATION/MITIGATION	COUNT
Routine flushing *Flushing water throughout the entire building or a portion of the plumbing on a routine basis to remove stagnant water that may contain elevated lead*	69
Cleaning aerators *Removing and cleaning aerators on a routine basis to displace any lead containing particles*	23
Shutting off/Removing fixtures *Removing a fixture from service until more permanent remediation/mitigation measures can be implemented*	281
Installing Do-Not-Drink signs *Temporarily installing signs until more permanent remediation/mitigation measures can be implements, or installing permanent signs for fixtures whose primary purpose is not for consumption*	195
Providing Bottled Water *Temporarily providing bottled water until more permanent remediation/mitigation measures can be implemented*	35
Replacing fixture *Physically replacing the old fixture*	359
Installing a filter *Installing a filter that will remove lead from water*	119
Installing bottle fill station *Installing a filtered bottle fill station*	33
Addition of corrosion control chemicals *Hiring a contractor to install equipment to feed corrosion control chemicals into water to either passivate plumbing or decrease the water's corrosive capacity*	28
Infrastructure upgrades	14
Total	1,156

Conclusion

The School Lead Sampling Program has resulted in 99% of Maine schools sampling every drinking water tap used for consumption, totaling over thirty thousand individual samples. Out of the total number of samples, 9% exceeded the State limit of 4 parts per billion. All initial sample results are posted on the Maine CDC DWP's School Lead Testing webpage.

This effort has successfully identified school drinking water fixtures for mitigation and resulted in a reduction of lead exposure for Maine's schoolchildren. The DWP will continue to follow up with schools as it relates to compliance with *An Act To Strengthen Testing for Lead in School Drinking Water.*

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Glossary

Building: Any structure, facility, addition or wing of a school that may be occupied or used by children, students, and faculty or staff.

Corrosive Potential: The potential of water to dissolve plumbing material, which can lead to elevated Lead levels.

Environmental Protection Agency 3T's: Training, testing, and taking action. It provides tools for schools, childcare facilities, states, and water systems to implement a voluntary program for testing of lead in drinking water.

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First-Draw Sample: A lead water sample that is collected from an outlet where the water has sat motionless in the school's plumbing for a minimum of 8 hours.

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Fixture: Any faucet, spigot, or outlet that dispenses water, including drinking water fountains, bottle-fill stations, kitchen kettles, or any other fixture that dispenses water for the purpose of drinking or culinary purposes.

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Lead (Pb): A naturally occurring metal found in the earth's crust. When present in plumbing material, it can elevate lead levels in the plumbed water. Lead in water can either be dissolved or a particulate.

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Lead Copper Rule (LCR): The rule that regulates lead and copper in drinking water under the Safe Drinking Water Act and Maine's Water for Human Consumption Act (22 MRS Ch. 601).

Normal-Use Conditions: The term to describe how students, school staff, and/or faculty normally consume water from a fixture.

Public Water System (PWS): An entity that provides water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people per day for at least 60 days a year. A public water system may be publicly or privately owned. Public water systems include water districts, apartment buildings, businesses, or schools with their own well or surface water source, as well as restaurants, lodging facilities, campgrounds, and mobile home parks with their own wells or surface water sources.

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Safe Drinking Water Act (SDWA): A federal law that was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply.

School: A *public* school as defined in 20-A MRS §1 (24) or a *private* school as defined in 20-A MRS §1 (22).

State Subsurface Wastewater Disposal Fee Fund: A fund that is generated through fees collected by the Maine Subsurface Wastewater Unit, within the Maine CDC's Division of Environmental and Community Health.

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Water Infrastructure Improvements for the Nation (WIIN) Act: A federal law that authorizes the Lead Testing in School and Child Care Program Drinking Water Grant, which creates a voluntary program to

assist with testing for lead in drinking water at schools and childcare programs throughout the United States. In the program's inaugural launch in 2019, the grant included $43.7 million in funding.