

Water Safety Work Group Report
May 31, 2019

Introduction

Montgomery County Public Schools (MCPS) has been focused on lead in drinking water since 2004 when it conducted voluntary system-wide testing and remediation in all facilities. In March 2018, the Maryland Department of the Environment (MDE) established regulations requiring all Maryland schools to test for lead in water with a remediation action level of 20 parts per billion (ppb). To comply with the MDE regulation, over 13,000 drinking water outlets in MCPS schools and facilities were tested for lead concentration between February and June 2018. The test results for 238 fixtures (1.8%) were found to be above the action level of 20 ppb. These fixtures were immediately removed from service and remediated in accordance with the MDE regulations. Other elements of the MCPS drinking water program include daily flushing of all drinking water outlets and retesting on a three year cycle.

In December 2018, MCPS formed a Water Safety Work Group, composed of experts from a number of agencies and community stakeholders. The charge to the work group was to explore industry best practices and develop recommendations for providing even greater water safety across our district, with a specific focus on lead. Examining lower lead action levels was an important area of discussion by the work group. The work group benchmarked the action levels of other states and localities, and found that the most progressive jurisdictions adopted an action level of 5 ppb. The group also examined the current test result data to identify factors that may contribute to lead levels in water, developing recommendations and priorities for future efforts.

New Montgomery County legislation to reduce the action level for lead from 20 ppb to 5 ppb will become effective in August 2019. New legislation enacted by the State of Maryland will become effective June 1, 2019, establishing 5 ppb as a goal for lead in drinking water in schools. To be proactive, MCPS removed from service any drinking water outlet with test results above 5 ppb. This report presents additional recommendations for consideration in the following three categories:

- I. Steps to Lower the MCPS Action Level to 5 ppb
- II. Flushing
- III. Education and Communication to Parents and Guardians

The report appendices provide a list of definitions, an overview of the analysis of the system-wide water testing data collected in 2018, and links to relevant references and resources.

Work Group Recommendations

The work group charge was to develop recommendations for improving the MCPS Drinking Water Program, with a specific emphasis on reducing lead levels. The work group met monthly from December, 2018, through May, 2019 to examine and discuss several categories of inquiry, using industry best practices and analysis. Work group documents are available on the MCPS Drinking Water Program website. The work group has distilled its analysis and discussions into the following recommendations for MCPS practices and procedures:

Category I: Steps to Lower the MCPS Action Level to 5 ppb

1. Replace the 22 water coolers with test results exceeding 5 ppb with filtered bottle filling stations, based on criteria such as location and usage patterns.
2. Replace the one icemaker with test results above 5 ppb.
3. Remove from service the 261 bubblers with test results greater than 5 ppb. Develop a plan and funding request for replacement, prioritizing the classrooms serving younger children.
4. Place “Water for washing hands, Do not drink” signs near faucets that are not intended as primary drinking sources, but with test results greater than 5 ppb.
5. Confirm there is at least one drinking water outlet with test results of less than 5 ppb available for:
 - a. Kitchens
 - b. Food and Consumer Science (FACS) classrooms
 - c. Teacher break/work rooms
 - d. Special education classrooms
 - e. Athletics
 - f. Concession stands
6. Gather input from teachers/nurses through survey/focus group to:
 - a. Determine whether signage or complete shutoff is preferred for faucets that are not drinking water outlets
 - b. Identify best practices for personal water bottle usage
7. Seek to identify alternative fixture types/manufacturers that have consistently lower lead levels; consider adopting new NSF/ANSI standard for “drinking fixtures for schools” once finalized.

Category II: Flushing

1. Continue flushing drinking water outlets daily
2. Establish program of best practices for flushing classroom drinking water outlets. Continue implementing and improving a system for reporting/monitoring the status of daily flushing
3. Consider a program for whole building flushing after extended periods of non-use
4. Enhance training provided to staff on flushing procedures

Category III: Education and Communication to Parents and Guardians

1. Simplify and improve communications:
 - a. Ensure communication is clear and concise
 - b. Review other school systems' communications and incorporate as applicable
 - c. Translate parent/legal guardian notification letters into multiple languages

2. For communications of future test results, provide additional information in parent/legal guardian letters, including:
 - a. Executive Summary of all results
 - b. Explanation that the action level of 5ppb is not a health-based standard
 - c. Educational materials on how to minimize exposure to lead in drinking water at home and school
 - d. Active hyperlink for web page to the MCPS Drinking Water Program in letter
 - e. Information on risks and other sources of lead exposure
 - f. Information on who to contact about health concerns
 - g. Recommendation that parents contact school if they don't know their child's classroom number
 - h. All information required by regulations

3. MCPS Drinking Water Testing Program web page enhancements, including:
 - a. Information about Water Safety Work Group
 - b. Link to educational information from the Washington Suburban Sanitary Commission (WSSC)
 - c. Link to Lead in Schools FAQ from MDE
 - d. Laboratory Results Spreadsheet (as reported to MDE on an annual basis)

MCPS Water Safety Work Group Members

Harold Chase	NSF International, Legislative Director
Sean Gallagher	Montgomery County Public Schools (MCPS), Assistant Director, Department of Facilities Management
Dr. Travis Gayles	Department of Health and Human Services (DHHS), Health Officer
Nasser Kamazani	Montgomery County Government (MCG), Senior Engineer, Department of Environmental Protection (DEP)
Teresa Lloyd	MCPS, Environmental Specialist
Rebecca Morley	Montgomery County Council of PTAs (MCCPTA), Chair, Safe Water Committee
Brian Mullikin	MCPS, Team Leader, Environmental and Indoor Air Quality Services
Peter Park	MCPS, Team Leader, Systemwide Safety Programs
Tim Rule	Maryland Department of the Environment (MDE), Safe Drinking Water Act Implementation
Jin Shin	Washington Suburban Sanitary Commission (WSSC), Division Manager, Water Quality
Laura Stewart	MCCPTA, Vice President of Advocacy
Lynne Zárate	MCPS, Director, Division of Maintenance

Appendix 1: List of Definitions/Acronyms

Action level: The level of lead, which if exceeded, requires the school to complete steps including remedial action, notification, and follow-up sampling

ANSI: American National Standards Institute

Bubbler: A drinking fountain that provides non-refrigerated water, usually located in classrooms

Cooler: A drinking fountain that provides cold water, equipped with a refrigerated reservoir. Water coolers are typically located in school hallways

Drinking water outlet: A water fixture that is used for drinking or food preparation; includes all bubblers, water coolers, and faucets that are used for drinking or food preparation

Flushing: The process of opening a valve to allow water flow through the plumbing to remove particles that may have accumulated

MCPS: Montgomery County Public Schools

MDE: Maryland Department of the Environment

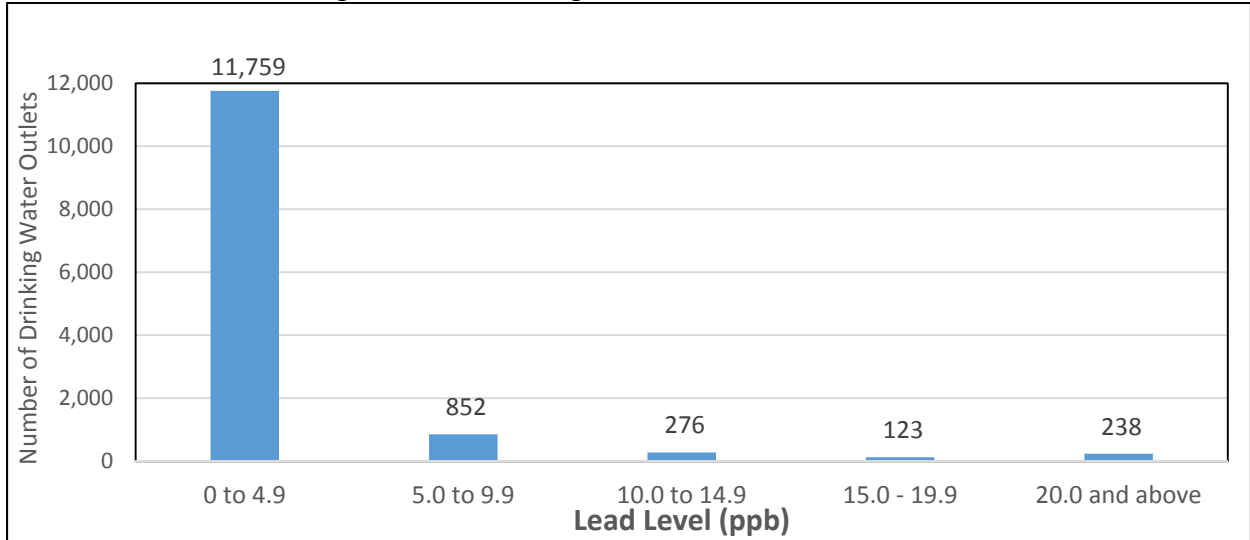
PPB: Parts per billion (equivalent to micrograms per liter)

Public Water System: 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 for at least 60 days a year. A public water system may be publicly or privately owned. The public water systems that supply water to MCPS facilities include Washington Suburban Sanitary Commission (WSSC), the City of Rockville, and the Town of Poolesville.

Appendix 2: Data Analysis

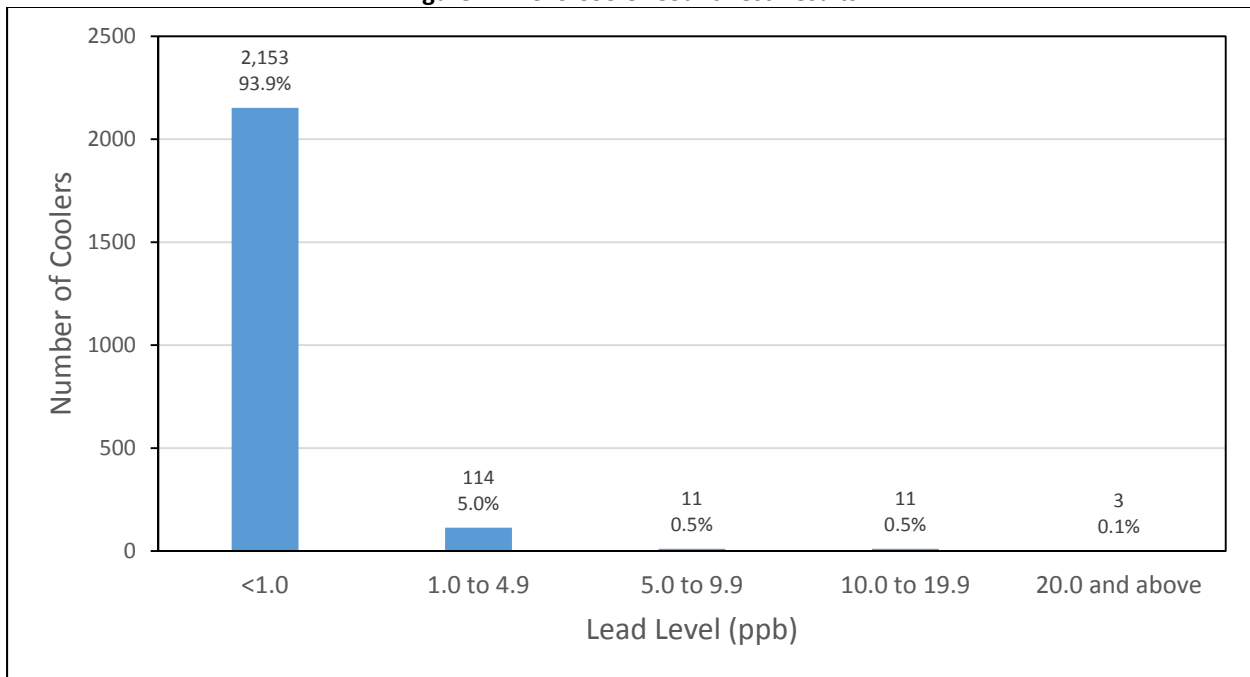
During 2018, MCPS tested more than 13,000 drinking water outlets for lead content. Figure 1 shows the results, categorized by the concentration of lead. Data showed that 88.8% of the fixtures were less than 5 ppb, 1.8% were above 20 ppb, and 9.4% were between 5-20 ppb.

Figure 1: MCPS Drinking Water Outlets 2018 Test Results



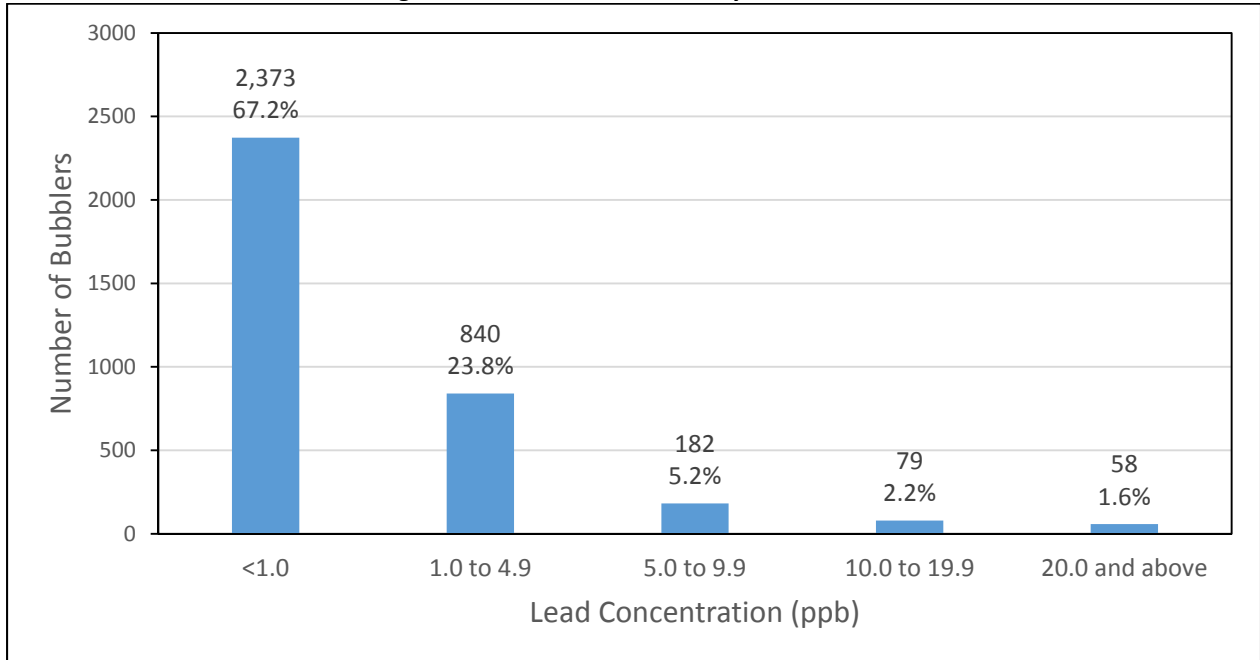
The work group focused its attention on water coolers and bubblers, because they are the drinking outlets most commonly used by students and staff. Water coolers are refrigerated water fountains typically found in hallways; bubblers are smaller, non-refrigerated drinking fixtures, typically found in elementary classrooms. Figure 2 shows the data for hallway coolers. Almost 94% of coolers were less than 1 ppb and 99% were less than 5 ppb.

Figure 2: MCPS Cooler Count Test Results



As can be seen in Figure 3, more than 67% of bubblers had test results below 1 ppb and 91% were below 5 ppb.

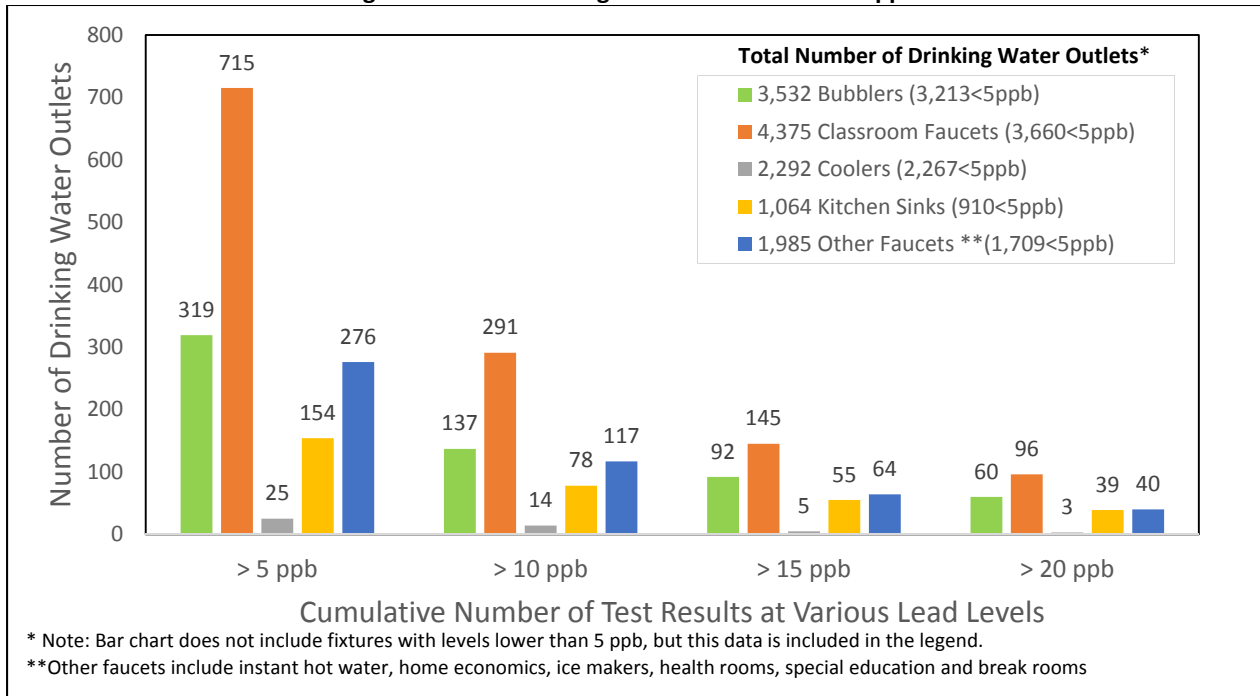
Figure 3: MCPS Bubbler Count by Test Results



There were also 93 icemakers tested. Only one tested greater than 20 ppb, and one tested between 5-20 ppb.

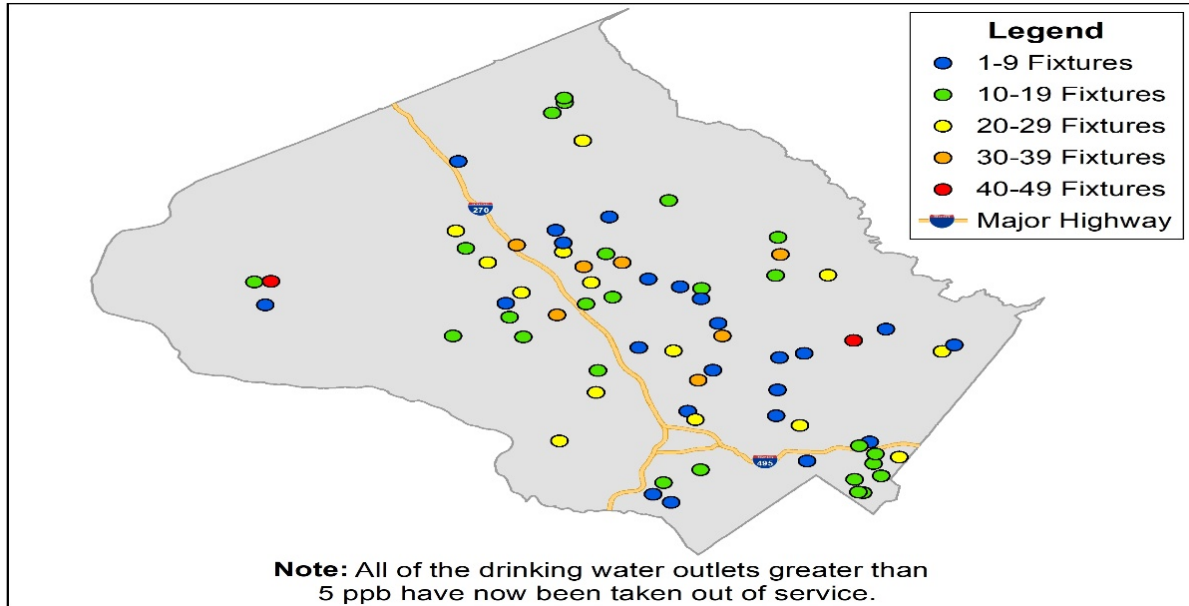
In Figure 4, the test results of all drinking water outlets with lead levels greater than 5 ppb were categorized by fixture type (bubbler, classroom faucet, hallway water coolers, kitchen sinks and other faucets).

Figure 4: MCPS Drinking Water Outlets Above 5 ppb



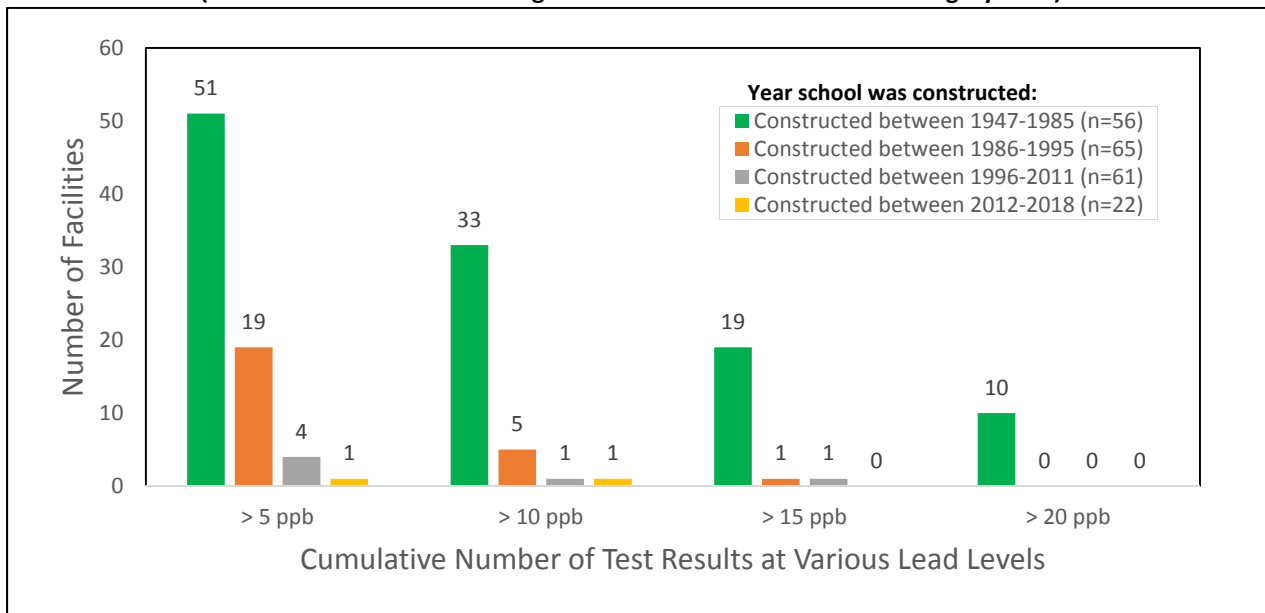
In Figure 5, the geographic distribution of the elevated test results were mapped. The location of schools with more than 10 percent of drinking water outlets testing above the proposed action level of 5 ppb are shown below. There does not appear to be any correlation between geographical location or distance from water distribution locations and elevated lead levels for these schools.

Figure 5: MCPS Schools with Greater Than 10% of Drinking Water Outlets above 5 ppb Action Level



In Figure 6, the elevated test results were compared with the age of the facility. This illustrates that, in general, the older schools tended to have more fixtures with elevated lead levels, and newer schools had fewer fixtures with elevated lead levels. This effect is likely related to the enactment of various drinking water regulations, which were initiated in 1986. Each age grouping represents a different period of drinking water regulation that progressively reduced exposure to lead. Therefore, one factor that contributes to elevated lead levels in water may be the age of construction of the school. Work will need to continue to evaluate the retesting data as fixture and pipe remediation is ongoing.

Figure 6: Number of MCPS Facilities Grouped by Lead Test Results and Age (where at least 10% of drinking water outlets tested above the category level)



Appendix 3: References and Resources

Maryland Regulations

https://mde.maryland.gov/programs/Water/water_supply/Documents/Maryland_Register_COMAR_26.16.07.pdf

Maryland House Bill 270 (2017)

http://mgaleg.maryland.gov/2017RS/Chapters_noln/CH_386_hb0270t.pdf

Maryland House Bill 1253 (2018)

http://mgaleg.maryland.gov/2019RS/Chapters_noln/CH_557_hb1253e.pdf

Maryland Senate Bill 611 (2018)

<https://legiscan.com/MD/text/SB611/id/1795645/Maryland-2018-SB611-Chaptered.pdf>

Montgomery County Council Bill 2-19, Health—Lead in Drinking Water—Schools

https://apps.montgomerycountymd.gov/ccllms/bill_details.aspx?doc=2598

MCPS Drinking Water web page

<https://www.montgomeryschoolsmd.org/departments/facilities/maintenance/services/water.aspx>

Harvard Report: Early Adopters: State Approaches to Testing School Drinking Water for Lead in the United States

https://cdn1.sph.harvard.edu/wp-content/uploads/sites/84/2019/01/Early-Adopters_State-Approaches-to-Testing-School-Drinking-Water-for-Lead-in-the-United-States_2019.pdf