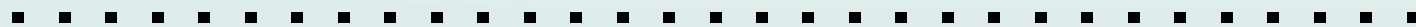


Action on Lead in Drinking Water

Office of Drinking Water & Manitoba Public Health



The Manitoba Association of School Business Officials (MASBO)
February 6, 2019

Stephen Yeo, Office of Drinking Water, Manitoba Sustainable
Development



Introduction

- Review of the national guideline for lead in drinking water has been completed.
- Health impacts at lower levels of lead exposure than were previously understood.
- Infants and young children are most at risk.
- Reduce exposure from all sources as much as possible.
- Manitoba municipal water supplies and well-water sources are below the national guideline for lead in drinking water in all cases. The source of lead exposure is lead service lines, lead fixtures and lead solder.

Introduction

- Provincial strategy is underway to address lead in drinking water.
- Schools and daycare facilities a priority.
- Manitoba Public Health and the Office of Drinking Water are requesting all school divisions take steps to address lead in drinking water.
- Goal is to complete testing within 2 years.



Introduction

Provincial and International Initiatives

- USA – mainly voluntary monitoring, reporting and fixture replacement
- Ontario – law required reporting, corrective actions, record keeping and public disclosure
- Quebec – water system is required by law to sample at schools
- BC – required testing, reporting and mitigation strategies

Introduction

- Lead may leach into the water from:
 - older lead service lines (typically pre-1950);
 - older plumbing fixtures such as fountains and taps;
 - lead solder used with copper plumbing (typically pre- 1989)



Planning your lead control program

- Plumbing profile
- Sampling procedures
- Corrective actions
- Communication plan
- Prioritize primary schools and those with attached daycares



Plumbing inventory profile

- Determine if a lead service line exists
- Type of internal plumbing material used (copper, PEX, etc.)
- Age of the building and plumbing system
- Floor plan of building to map location of fixtures (water fountains, taps)
 - Record location of each fountain or faucet
 - The type of fixture
 - Age and serial number of the fixture (if possible)



Example of a Plumbing Inventory Form

School Division: XYZ School Division

Lead Service Line: No

School: ABC School K – 8

Year Built: 1980 (38 yrs.)

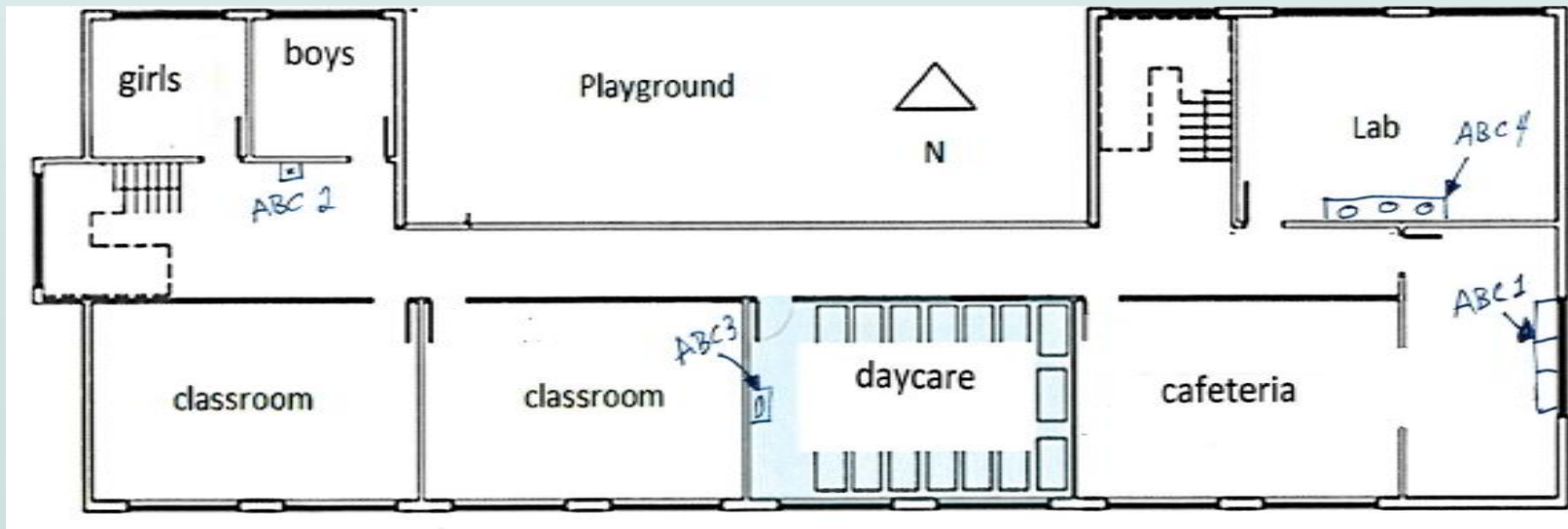
Building Number: 1 of 1

Plumbing Type: copper, some PEX

Fixture type	Year Manufactured	Make/Model/Serial Number	Location	Sample name	Sampling Priority
<i>Kitchen tap</i>	<i>1978</i>	<i>Moen/CP30</i>	<i>Cafeteria</i>	<i>ABC1</i>	<i>1st</i>
<i>Fountain</i>	<i>1975</i>	<i>EBCO Manufacturing /CP3</i>	<i>Beside boys washroom</i>	<i>ABC2</i>	<i>1st</i>
<i>Kitchen tap</i>	<i>1978</i>	<i>Moen/CP30</i>	<i>Attached Daycare</i>	<i>ABC3</i>	<i>1st</i>
<i>Lab tap</i>	<i>1978</i>	<i>Moen/CP30</i>	<i>Science Lab</i>	<i>ABC4</i>	<i>2nd</i>

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Select a laboratory

There are now three laboratories in Manitoba accredited to test for lead in drinking water in accordance with the national guideline:

- **ALS Environmental**, 12-1329 Niakwa Road East, Winnipeg
1-800-607-7555
- **Maxxam Analytics**, Unit D, 675 Berry Street, Winnipeg
1-866-800-6208
- **Horizon Lab**, 4055 Portage Avenue, Winnipeg
204-488-2035



Select a laboratory

- Contact the labs directly for cost estimates, supplies and additional information on sampling.
- Each fountain and tap will require two 125 mL wide-mouth sample bottles. One 1-L bottle for water entering building.
- Consider testing for copper at the same time.
- Results should be available in 1 to 4 weeks.



Lead sampling procedures

- Sample between June and October when the building is fully occupied and throughout the year
- Inform water supplier of sampling
- Take two 125 mL samples consecutively from each fixture
- Use a normal flow rate
- Do not flush water or remove any screens prior to sampling



Lead sampling procedures

Each 125 mL bottle should be labelled to clearly indicate:

- The fixture the samples were collected from,
- The order of sampling,
- Who collected the sample,
- Date and time the samples were collected.



A single 1-L sample should be taken nearest the school service connection.

Interpreting sample results

Results may indicate:

- Where no further action would be required.
- Where a flushing program should be considered.
- Where the source of the lead would likely be from the fixture.
- Where corrective actions should be targeted to the entire facility.
- Where the source is likely a lead service line.

Corrective actions

Immediate Actions for Elevated Lead Levels

- Deactivate the particular plumbing fixtures that exceed the limit.
- Alternate drinking water.



Corrective actions

Maintenance Solutions for Elevated Lead Levels

- Replace fixtures with new “lead-free” products.
- Replace lead pipes, if present.
- Point-of-use filters certified to remove lead.
- Check for grounding wires attached to water pipes.
- Reconfigure building plumbing to bypass sources of lead.
- Automatic flushing valves to reduce water stagnation.



Corrective Actions

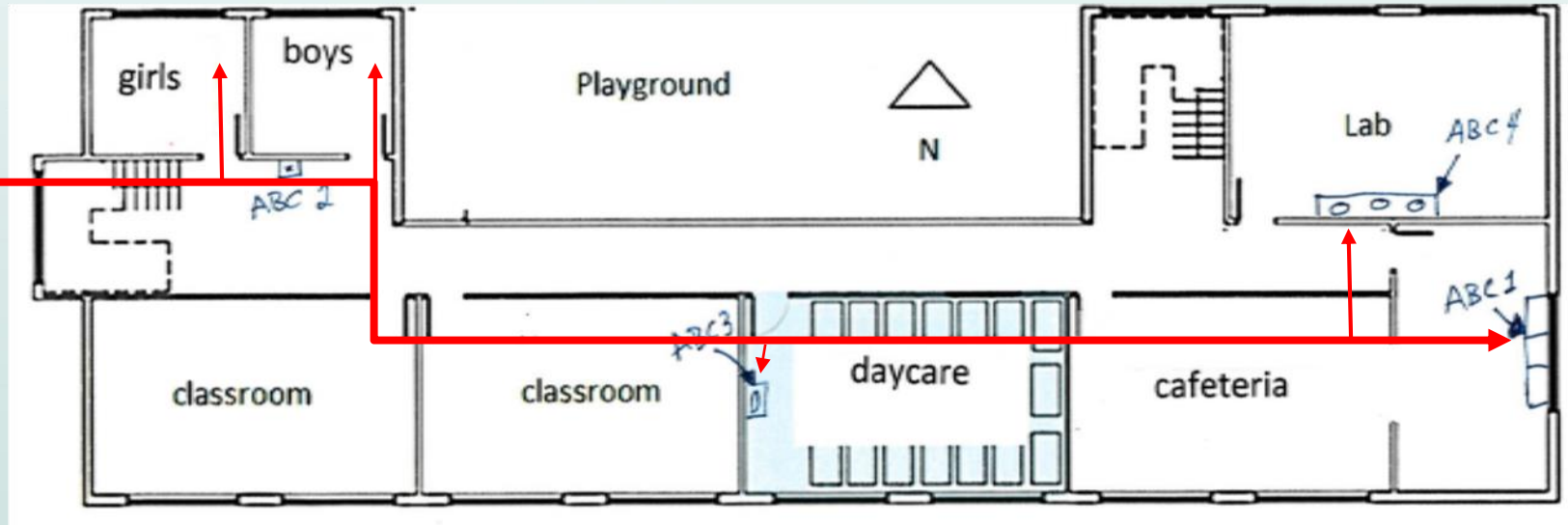
Precautionary operational solutions for reducing lead levels when lead is detected but below guideline:

- Initiate daily flushing programs.
- Clean faucet aerators regularly.
- Use only cold water for food and beverage preparation.
- Instruct students and staff to run the water briefly before drinking.
- Flushing after long periods of stagnation (after weekends and holidays).



Corrective actions

Plumbing Profile with Direction of Flow



Municipal Water
Main

Corrective actions

Plumbing Inventory with Results and Actions Taken

Fixture type	Year Manufactured	Make/Model /Serial Number	Location	Sample name	Sampling Priority	Date Sampled	Result (mg/L)	Action Taken
<i>Kitchen tap</i>	<i>1978</i>	<i>Moen/CP30</i>	<i>Cafeteria</i>	<i>ABC1</i>	<i>1st</i>	<i>Dec. 3 2018</i>	<i>0.003</i>	<i>Weekly flushing</i>
<i>Fountain</i>	<i>1975</i>	<i>EBCO Manufacturing /CP3</i>	<i>Beside boys washroom</i>	<i>ABC2</i>	<i>1st</i>	<i>Dec. 3 2018</i>	<i>0.009</i>	<i>Closed and re-sample</i>
<i>Kitchen tap</i>	<i>1978</i>	<i>Moen/CP30</i>	<i>Attached Daycare</i>	<i>ABC3</i>	<i>1st</i>	<i>Dec. 3 2018</i>	<i>0.015</i>	<i>Closed and re-place</i>
<i>Lab tap</i>	<i>1978</i>	<i>Moen/CP30</i>	<i>Science Lab</i>	<i>ABC4</i>	<i>2nd</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>

Communication plan

- Make results available.
- Inform parents, staff and students of corrective actions.
- Provincial and regional partners can assist to ensure information is accurate.
- May be as simple as a notice on the Division website:



Sample public notice on website

“XYZ School Division has begun sampling for lead in drinking water at each of our schools, prioritizing fountains and faucets used by students and staff. To date 52 samples have been taken and six samples exceeded the recommended limit for lead. Those plumbing fixtures of concern have been removed from service until such time that they are replaced. Each school continues to have an adequate number of fountains and filling stations that provide safe drinking water that has tested well below the guide limit for lead.

Regular ongoing testing for lead in drinking water will continue as part of our many routine health and safety programs.”

Next steps

- School divisions are responsible for maintaining their own records, including test results.
- The goal is to have all fountains and taps tested by the end of the 2020-2021 school year, starting with the most frequently used drinking water fountains.
- Dr. Housseini Coulibaly, Manager Research and Program Support, Office of Drinking Water at 204-945-7058 or housseini.coulibaly@gov.mb.ca
- Questions?

A Recent Success Story

Background:

- A large school division (>45 schools) became aware of the issue and took a proactive approach
- They began to sample for lead at the tap in each building
- Over half the buildings sampled had levels below actionable limits
- Remainder of schools put into categories based on how elevated results were, age of population served, etc.
- A detailed lead sampling program allowed them to successfully apply for additional emergency funding for infrastructure (i.e. plumbing upgrades, fixture replacement)

A Recent Success Story

Background:

- Flushing programs initiated in schools while permanent solutions were being sought
- Older portions of buildings targeted and water lines supplying fountains and taps for consumption were replaced; as well as older fountains
- Retesting after repairs confirmed the success or failure of the changes
- Replacement of plumbing and plumbing fixtures seen as primary means of remediation
- Installation of new water fill stations with lead removing filters considered an additional barrier

A Recent Success Story

All schools are now consistently testing below the maximum acceptable concentration for lead in drinking water

Lessons Learned:

- The knowledge and experience of staff plumbers is key to trouble shooting and choosing effective corrective actions
- Prioritize facilities for repairs and try to resolve one school at a time as opposed to a more scattered approach
- Pay attention to brass fittings and valves that contain lead
- Target branches first and consider replacing piping closest to fountains or taps where more elbows, tees and soldered joints tend to be

A Recent Success Story

Lessons Learned:

- By reducing the number of redundant fixtures (such as fountains), capital costs are reduced as well as reduced stagnation in rarely used fixtures and branches.
- Communication to staff, students and parents should also be proactive