

December 30, 2024

School District 70
4690 Roger St
Port Alberni, BC
V9Y 3Z4

Attention: Alex Taylor

Reference: Potable Water Lead Testing – John Howitt Elementary

Introduction

Island EHS Ltd has collected eighteen (18) water samples from tap / bottle filling stations at **John Howitt Elementary**, located at 3867 Marpole Street, Port Alberni, BC. The purpose of the sampling is to evaluate potential lead exposure risk from water consumed from the tap / bottle-filling stations. The samples were collected on December 11d, 2024, and we report the following.

Sampling Methodology

Sampling locations were selected by the client. All samples were taken from cold water lines.

The lead samples were collected using the methodology taken from “Guidelines on Evaluating and Mitigating lead in Drinking Water Supplies, Schools, Daycares & Other Buildings” (published April 2019 by the British Columbia Health Protection Branch), using the Random Daytime Sampling method. A 125mL First Draw sample was followed by a 125mL sample taken after a 30-second flush. This methodology was conducted to determine if a 30-second flush is sufficient to reduce the lead concentrations to below the Maximum Acceptable Concentration (MAC).

The samples were collected in an appropriate bottle supplied by an accredited laboratory. The samples were chilled and immediately submitted to the testing laboratory and tested for lead.

Samples were analyzed by the Island EHS in-house laboratory, using procedures based on methods recommended by the American Public Health Association (APHA) and the US Environmental Protection Agency (US-EPA) (EPA 200.9). Our laboratory is accredited by CALA to ISO/IEC 17025:2017 standards. Results were compared to the latest edition of the Canadian Drinking Water Quality Guidelines (CDWQG) published by Health Canada’s Water Quality and Health Bureau.

Results

Table 1: Lead concentration from tested locations for First Draw and Flushed Sampling, compared to the Maximum Allowable Concentration (MAC) for Lead (0.005 mg/L).

Sample Location	MAC ¹ (mg/L)	Random Daytime Sample (mg/L)	Comments
01-S 01-F	0.005	0.0008 0.0012	Classroom 10
02-S 02-F	0.005	0.0015 0.0020	Classroom 9
03-S 03-F	0.005	0.0007 0.0019	Staff Room
04-S 04-F	0.005	<0.0006 <0.0006	Corridor 100 – Water Fountain
05-S 05-F	0.005	0.0016 0.0009	Childcare
06-S 06-F	0.005	0.0023 0.0050	Washroom 110
07-S 07-F	0.005	0.0377 0.0044	Gym – Washroom
08-S 08-F	0.005	0.0161 0.0133	Gym – Water Fountain
09-S 09-F	0.005	0.0350 0.0080	Gym – Changing Room

¹ MAC = Maximum acceptable concentrations
Results in **RED** indicate values that exceed the CDWQG

Full analytical results can be found in Appendix A.

Locations of the samples can be found in Appendix B.

Discussion

The school is supplied by the municipal potable water distribution system. According to the BC Health Protection Branch, “Lead is usually not found in drinking water when it leaves the treatment plant. Instead lead tends to leach out of pipes and fixtures in buildings...” Until 1989, the BC Building Code did not have provisions for restricting the use of lead-containing materials in potable water lines. Under the Canadian Standards Association (CSA) B125.1 standard, plumbing, fitting and fixtures produced as recently as 2012 that were considered “lead-free” could contain as much as 8% lead by weight. Since 2012, the maximum percent of lead in fixtures that are considered “lead-free” is 0.25%.

Conclusions and Recommendations

Of the nine (9) locations from which water samples were collected by Island EHS on December 11, 2024, within John Howitt Elementary, located at 3867 Marpole Street, Port Alberni, BC, three (3) locations (07 - Gym – Washroom, 08 - Gym – Water Fountain, 09 - Gym – Changing Room) were found to have an average lead concentration which exceeded the maximum acceptable concentration (MAC) in the first draw bottles. Three (3) locations (06 - Washroom 110, 08 - Gym – Water Fountain, 09 - Gym – Changing Room) were above the MAC after a 30 second flush.

This indicates that there is a source of lead in the pipes and/or fixtures. The results for most sampling locations indicate that a daily 30-second flush before using the water for drinking or cooking should be sufficient to reliably reduce the concentration of lead to below the MAC, however, for the three (3) locations which exceeded the maximum acceptable concentration even after a 30 second flush, additional measures should be considered.

As the drinking water locations are accessible by children, it is important to note that lead mitigation should be focused on engineering controls (e.g., plumbing replacement and filter installation) rather than administrative controls (e.g., signage) wherever possible. This is because not only are children most vulnerable to health effects related to lead, but they are also less likely than adults to read and follow directions.

The client may wish to consider the following suggestions to further address lead water service pipes:

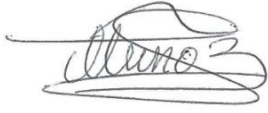
- Replace as much as possible of the plumbing pipes, fixtures and fittings between the water main and the tap itself for the locations that were found to have exceedances, or
- Re-testing the three (3) locations which exceeded the maximum acceptable concentration even after the 30 second flush after a longer flushing period (i.e., five (5) minutes instead of thirty (30) seconds); or
- Disconnect the three (3) locations which exceeded the maximum acceptable concentration, even after the 30 second flush, and replace with water cooler units; or
- Where practicable, install in-line filters just before point of use. Ensure the filters are certified to NSF/ANSI 53 for reduction of contaminants that cause health effects. The filters must be changed on a schedule recommended by the manufacturer,
- Employ a flushing program once a suitable flushing time has been determined,
- Affix permanent signage directing users to alternate water sources such as water coolers or filtered water, to remind users to adequately flush the lines (“run until cold”) prior to drinking, or to indicate that the water is not potable; and
- Advise occupants to use cold water for cooking and drinking, even after flushing the pipes. Lead in pipes moves more readily into hot water than into cold water.

Following implementation of select recommendations, additional sampling should be conducted at all locations that exceeded the Guideline to ensure that levels are no longer in exceedance. As part of this testing, it is recommended that biannual testing for lead be conducted on campus on sources where potable water is consumed. Following implementation of this recommendation and subsequent results this could be reduced to annual testing from select locations.


Limitations

This report has been prepared in accordance with established Industrial Hygiene practices. It is intended for the exclusive use of School District 70 to assist in the assessment of the drinking water quality in the sampled locations. The use of this document for any other purposes is at the sole risk of the users.

Island Environmental Health & Safety Ltd.



Sandy Munoz de la Nava
Occupational Hygiene Technician
Field Work and Report



Ashlee McGiffin
Senior Occupational Hygienist
Report Review

**Appendix A:
Analytical Results**



Island Environmental Health and Safety
 201 - 990 Hillside Avenue
 Victoria B.C, V8T 2A1
 (778)406-0933
admin@islandehs.ca

Certificate of Analysis

Client Name	School District 70	Report #	61711
Site Address	3867 Marpole Street	Report Date	12/20/2024
Collection Date	12/11/2024	Analysis Date	12/20/2024
Received by Lab	12/16/2024	PO	
Collected By	SM	Notes	

Analysis Summary: Stagnant/Flush

Sample #	1	Result (mg/L)	0.0008	Stagnant
Location	Classroom 10	Result (mg/L)	0.0012	Flush
Sampling Time	6:30 AM	Comments		
Sample #	2	Result (mg/L)	0.0015	Stagnant
Location	Classroom 9	Result (mg/L)	0.0020	Flush
Sampling Time	6:31 AM	Comments		
Sample #	3	Result (mg/L)	0.0007	Stagnant
Location	Staff Room	Result (mg/L)	0.0019	Flush
Sampling Time	6:33 AM	Comments		
Sample #	4	Result (mg/L)	<0.0006	Stagnant
Location	Corridor 100 - Water Fountain	Result (mg/L)	<0.0006	Flush
Sampling Time	6:35 AM	Comments		
Sample #	5	Result (mg/L)	0.0016	Stagnant
Location	Childcare	Result (mg/L)	0.0009	Flush
Sampling Time	6:37 AM	Comments		
Sample #	6	Result (mg/L)	0.0023	Stagnant
Location	Washroom 110	Result (mg/L)	0.0050	Flush
Sampling Time	6:38 AM	Comments		

Notes

Results are compared to the latest Canadian Drinking Water Quality Guideline (CDWQG), published by Health Canada

Results in **green** are below the CDWQG limit of 0.005 mg/L

Results in **red** are at or above the CDWQG limit of 0.005 mg/L

Analysed using EPA 200.9



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Certificate of Analysis

Client Name	School District 70	Report #	61711
Site Address	4690 Roger Street	Report Date	12/30/2024
Collection Date	12/12/2024	Analysis Date	12/20/2024
Received by Lab	12/16/2024	PO	
Collected By	SM	Notes	

Analysis Summary: Stagnant/Flush

Sample #	7	Result (mg/L)	0.0377	Stagnant
Location	Gym - Washroom	Result (mg/L)	0.0044	Flush
Sampling Time	6:42 AM	Comments		
Sample #	8	Result (mg/L)	0.0161	Stagnant
Location	Gym - Water Fountain	Result (mg/L)	0.0133	Flush
Sampling Time	6:44 AM	Comments		
Sample #	9	Result (mg/L)	0.0350	Stagnant
Location	Gym - Changing Room	Result (mg/L)	0.0080	Flush
Sampling Time	6:45 AM	Comments		

Island Environmental Health & Safety Ltd.

Notes

Results are compared to the latest Canadian Drinking Water Quality Guideline (CDWQG), published by Health Canada

Results in **green** are below the CDWQG limit of 0.005 mg/L
 Results in **red** are at or above the CDWQG limit of 0.005 mg/L
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Quality Control Report

	Result	Unit	Limits	Pass/Fail?
Duplicate	8	Rel. % Diff	0 - 15 %	PASS
LFM	101	% Recovery	85-115%	PASS
LRB	<0.0006	mg/L	<0.0132 mg/L	PASS
LFB	87	% Recovery	85-115%	PASS

Duplicate: Paired analysis of two portions of the same sample. Used to evaluate the variance in the measurement and homogeneity of the sample.

Laboratory Fortified Matrix (LFM): A client sample that has been fortified with a known amount of analyte. Used to evaluate matrix effects.

Laboratory Reagent Blank (LRB): A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Laboratory Fortified Blank (LFB): A blank matrix to which a known amount of analyte is added. Used to verify instrument calibration.

Results relate only to the items tested

This report is issued by Island EHS,
 accredited by CALA to ISO/IEC 17025:2017
 standards for the scope of testing.

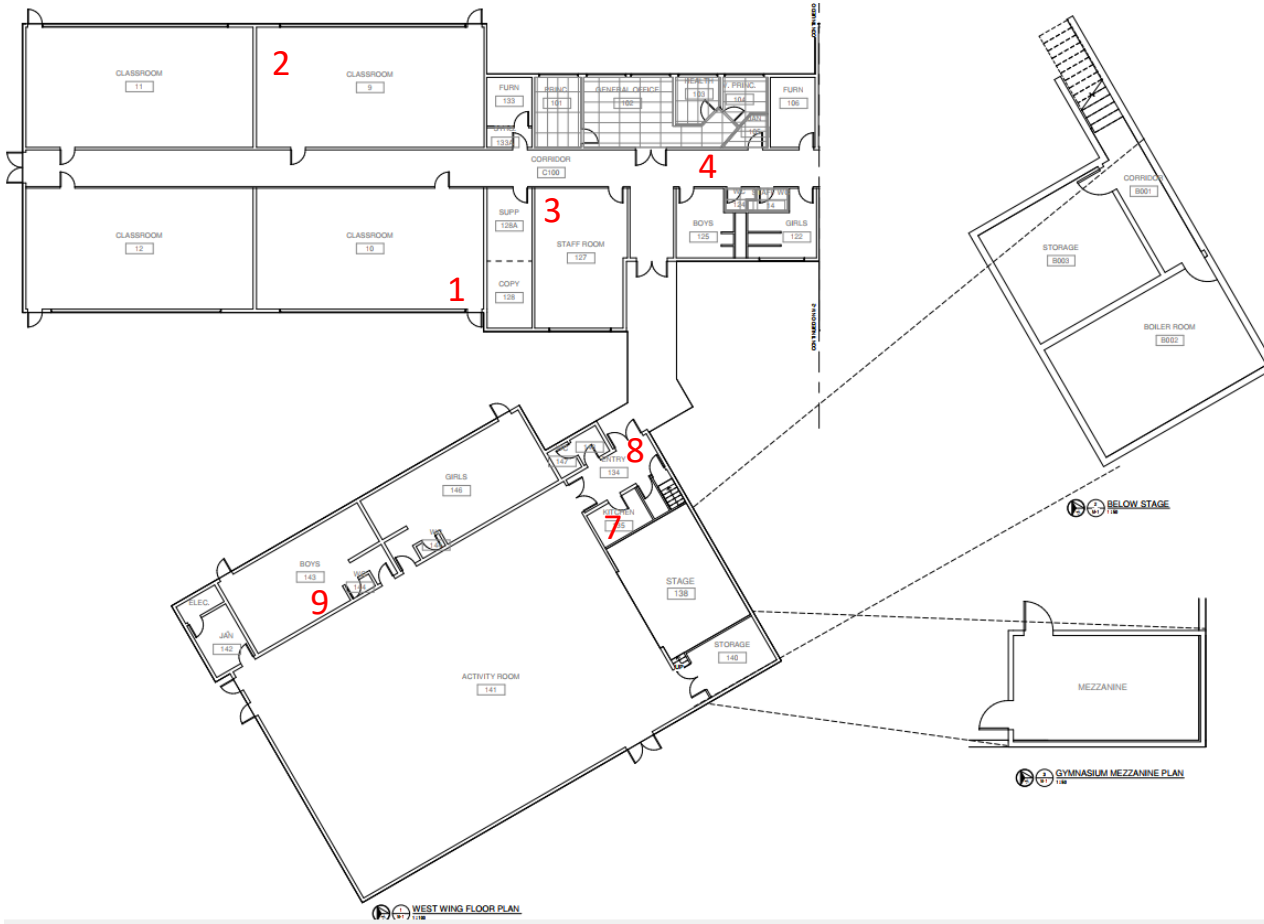


Laura Martin
 Laboratory Analyst

End of Report

**Appendix B:
Sample locations**

John Howitt Elementary – West Wing Floor Plan



LEGEND:
 XX Water Sample Location



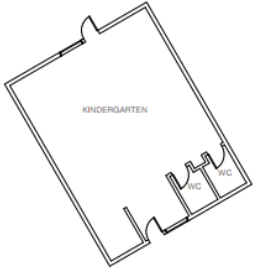
Project 61711	Date of Issue December 2024
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Lead in water testing
 Sample Locations

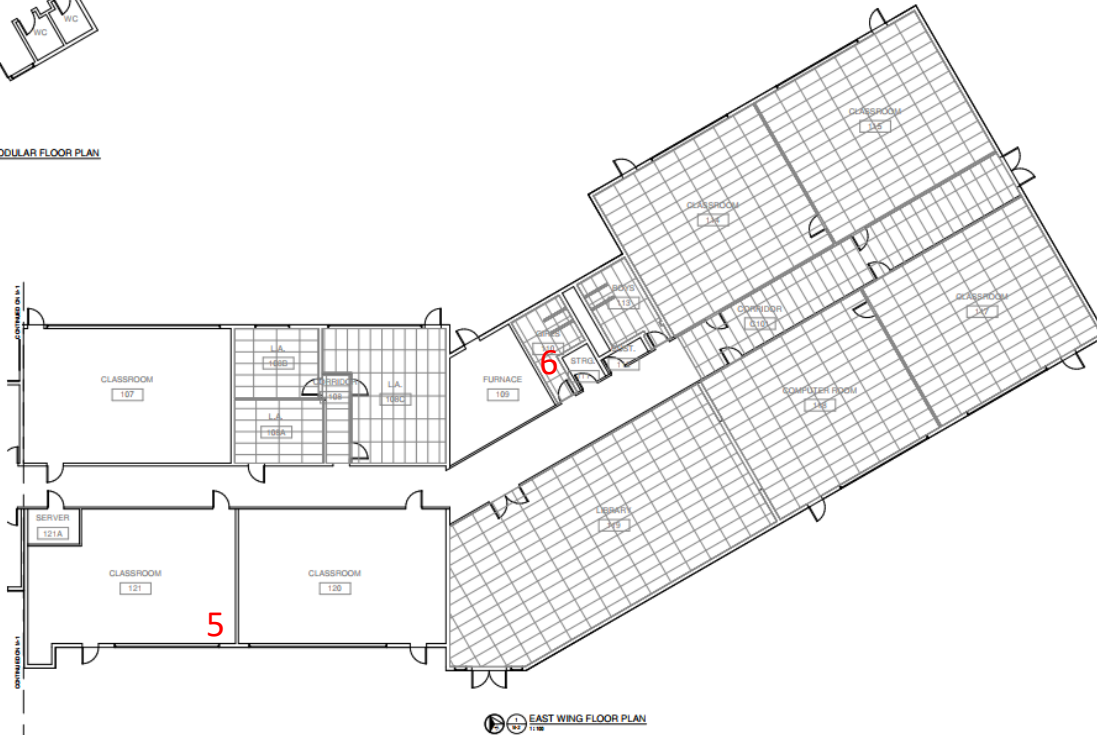
Prepared for:
School District 70 – Pacific Rim
 Sampling Site:
3867 Marpole St, Port Alberni, BC

Not to Scale

John Howitt Elementary – West Wing Floor Plan



KINDERGARTEN MODULAR FLOOR PLAN
1118



EAST WING FLOOR PLAN
1118

LEGEND:

XX Water Sample Location



Project 61711	Date of Issue December 2024
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Lead in water testing
Sample Locations

Prepared for:
School District 70 – Pacific Rim
Sampling Site:
3867 Marpole St, Port Alberni, BC

Not to Scale	
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