

January 27, 2025

School District 70
4111 Wood Avenue,
Port Alberni, BC
V9Y 5E8

Attention: Alex Taylor

Reference: Potable Water Lead Testing – Wood Elementary

Introduction

Island EHS Ltd has collected twenty-two (22) water samples from tap / bottle filling stations at **Wood Elementary**, located at 4111 Wood Avenue, Port Alberni, B.C. 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 January 16, 2025 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	0.0035 0.0017	Main floor - Washroom
02-S 02-F	0.005	0.0007 <0.0006	Main floor – Staff Washroom
03-S 03-F	0.005	<0.0006 <0.0006	Main floor – 103 Office
04-S 04-F	0.005	0.0011 0.0018	Main floor – Classroom 3
05-S 05-F	0.005	<0.0006 <0.0006	Main floor – Classroom 2
06-S 06-F	0.005	<0.0006 <0.0006	Main floor – Classroom 5
07-S 07-F	0.005	<0.0006 <0.0006	Main floor – Classroom 7
08-S 08-F	0.005	0.0028 0.0019	Main floor – Classroom 8
09-S 09-F	0.005	0.0063 <0.0006	Main Floor – Annex SE
10-S 10-F	0.005	0.0006 0.0008	Main Floor – 115 Kitchen
11-S 11-F	0.005	0.0068 0.0013	Main Floor – Annex NW

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 twenty-two (22) locations from which water samples were collected by Island EHS on January 16, 2025, within Wood Elementary, located at 4111 Wood Avenue, Port Alberni, BC, two (2) locations (09 - Main Floor – Annex SE, and 11 – Main Floor - Annex NW) were found to have an average lead concentration which exceeded the maximum acceptable concentration (MAC) in the first draw bottles. No locations 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 the two 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.

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*
- 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. Run each tap that is used for consumption for at least 30 seconds, or until cold.
- 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.



Adam Proust
Occupational Hygiene Technician
Field Investigation & Report



Ashlee McGiffin
Senior Occupational Hygienist
Report Review

**Appendix A:
Analytical Results**

Lead in Drinking Water Report



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	Wood Elementary	Report Date	1/24/2025
Collection Date	1/16/2025	Analysis Date	1/23/2025
Received by Lab	1/17/2025	PO	
Collected By	SM	Notes	

Analysis Summary: Stagnant/Flush

Sample #	WE01	Result (mg/L)	0.0035	Stagnant
Location	Main Floor - Washroom	Result (mg/L)	0.0017	Flush
Sampling Time	6:05 AM	Comments		
Sample #	WE02	Result (mg/L)	0.0007	Stagnant
Location	Main Floor - Staff Washroom	Result (mg/L)	<0.0006	Flush
Sampling Time	6:06 AM	Comments		
Sample #	WE03	Result (mg/L)	<0.0006	Stagnant
Location	Main Floor - 103 Office	Result (mg/L)	<0.0006	Flush
Sampling Time	6:07 AM	Comments		
Sample #	WE04	Result (mg/L)	0.0011	Stagnant
Location	Main Floor - Classroom 3	Result (mg/L)	0.0018	Flush
Sampling Time	6:08 AM	Comments		
Sample #	WE05	Result (mg/L)	<0.0006	Stagnant
Location	Main Floor - Classroom 2	Result (mg/L)	<0.0006	Flush
Sampling Time	6:09 AM	Comments		
Sample #	WE06	Result (mg/L)	<0.0006	Stagnant
Location	Main Floor - Classroom 5	Result (mg/L)	<0.0006	Flush
Sampling Time	6:10 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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Received by Lab	1/17/2025	PO	
Collected By	SM	Notes	

Analysis Summary: Stagnant/Flush

Sample #	WE07	Result (mg/L)	<0.0006	Stagnant
Location	Main Floor - Classroom 7	Result (mg/L)	<0.0006	Flush
Sampling Time	6:11 AM	Comments		
Sample #	WE08	Result (mg/L)	0.0028	Stagnant
Location	Main Floor - Classroom 8	Result (mg/L)	0.0019	Flush
Sampling Time	6:12 AM	Comments		
Sample #	WE09	Result (mg/L)	0.0063	Stagnant
Location	Main Floor - Annex SE	Result (mg/L)	<0.0006	Flush
Sampling Time	6:13 AM	Comments		
Sample #	WE10	Result (mg/L)	0.0006	Stagnant
Location	Main Floor - 115 Kitchen	Result (mg/L)	0.0008	Flush
Sampling Time	6:14 AM	Comments		
Sample #	WE11	Result (mg/L)	0.0068	Stagnant
Location	Main Floor - Annex NW	Result (mg/L)	0.0013	Flush
Sampling Time	6:15 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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Quality Control Report

	Result	Unit	Limits	Pass/Fail?
Duplicate	6	Rel. % Diff	0 - 15 %	PASS
LFM	95	% Recovery	85-115%	PASS
LRB	<0.0006	mg/L	<0.0132 mg/L	PASS
LFB	91	% 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.

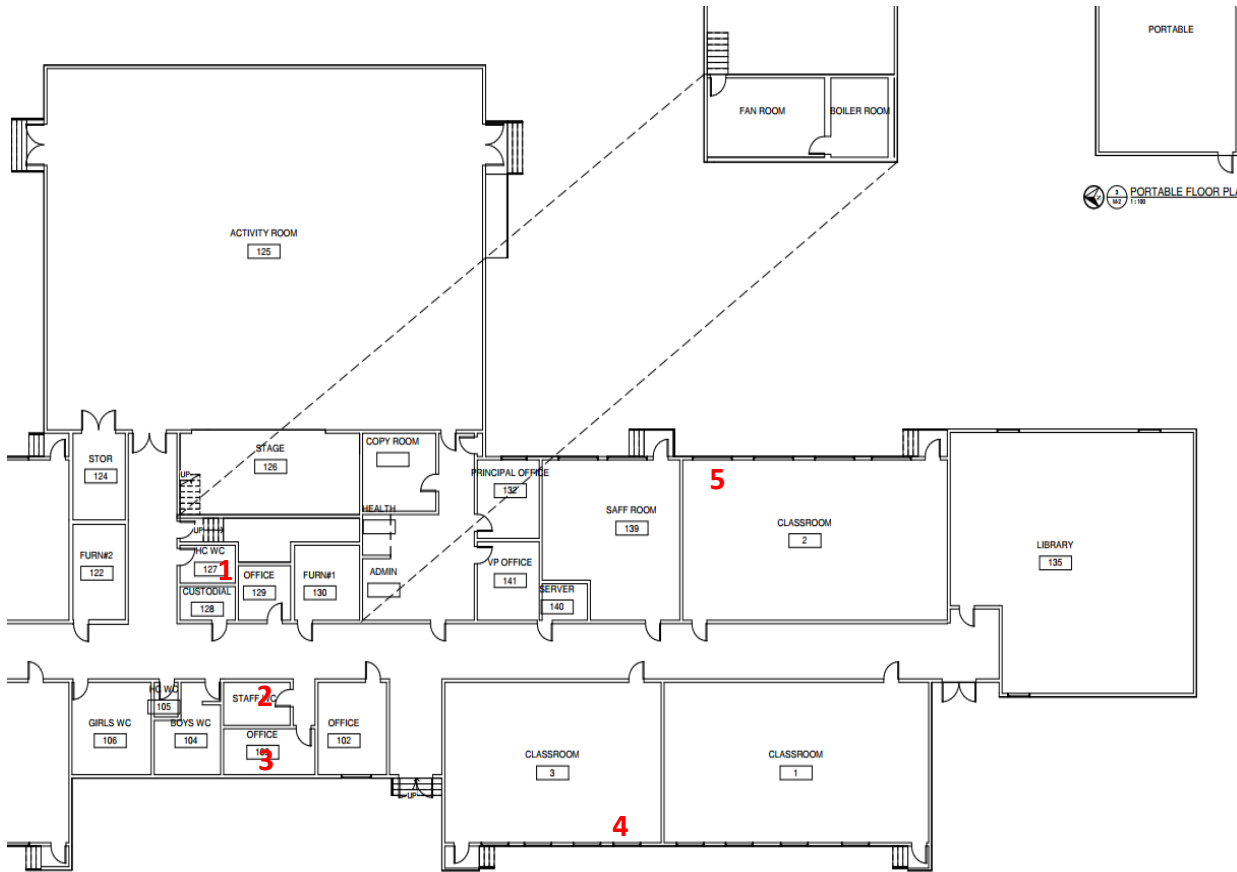


Laura Martin
 Laboratory Analyst

End of Report

**Appendix B:
Sample locations**


Wood Elementary – South Main Floor Plan



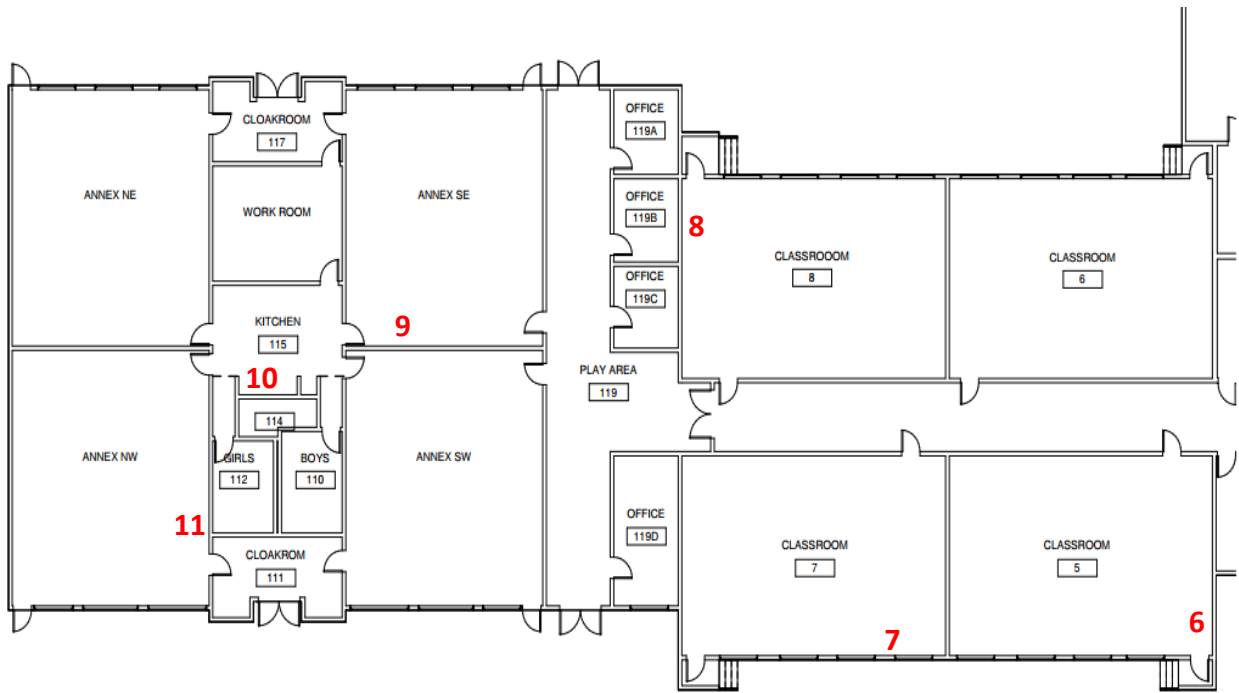
LEGEND:

XX Water Sample Location



Project 61711	Date of Issue January 2025
Lead in water testing Sample Locations	
Prepared for: School District 70 – Pacific Rim Sampling Site: 4111 Wood Avenue, Port Alberni, BC	
Not to Scale	 Island EHS <small>Water & Environmental Health & Safety Ltd.</small>

Wood Elementary – North Main Floor Plan



LEGEND:
 XX Water Sample Location



Project 61711	Date of Issue January 2025
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Lead in water testing
Sample Locations

Prepared for:
School District 70 – Pacific Rim
 Sampling Site:
4111 Wood Avenue, Port Alberni, BC

Not to Scale	
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