Lead Levels in Drinking Water at Salisbury Community School, Salisbury, VT

Molly Costanza-Robinson, Ph.D* and Gabrielle Davis
Dept. of Chemistry & Biochemistry; Program for Environmental Studies, Middlebury College, Middlebury, VT. *Prof. of Environ. Chemistry, mcostanz@middlebury.edu
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SUMMARY

Lead in drinking water was determined for all water outlets (n = 35) at Salisbury Community School (SCS) in Salisbury, VT. Samples were collected according to the U.S. Environmental Protection Agency (EPA) guidance document *3Ts for Reducing Lead in Drinking Water in Schools*. First draw (FD) and flush (FL) samples were collected, acidified (pH<2), and turbidity verified to be <1 NTU prior to Pb determination. Lead concentrations in FD samples were evaluated relative to three standards: the administrative (not health-based) 15-ppb EPA action level for residential water, the health-based 1-ppb American Academy of Pediatrics (AAP) safety recommendation for drinking fountains in schools, and the anticipated Vermont state action level for drinking water in schools of 3 ppb. FL samples were used to determine the likely source of any lead in the water.

All outlets produced FD samples with detectable lead, but roughly half (46%) were at 1 ppb or lower and, therefore, met the AAP recommended safety level. A source sample and health office shower exceeded the EPA action level (15 ppb) but are considered a *low* and *medium priority* for remediation, respectively, because they are not in use for any regular purpose. Four kitchen sinks had lead levels that exceeded the anticipated VT action level and the AAP safety level (2-7 ppb) and are considered a *highest priority* for remediation due to their intended use for consumption or food preparation. An additional 11 classroom and bathroom sinks exceeded the AAP safety level and/or anticipated Vermont action level (2-12 ppb) and are considered a *high priority* for remediation due to their convenience and accessibility for consumption. Finally, two utility sinks located within custodial closets (5 ppb) are considered a *low priority* for remediation due to their inaccessibility for consumption. Testing suggests that the predominant source of lead is the fixtures or their immediate connections, rather than more distal pipes or the incoming water supply.

Recommended permanent remedial actions include replacing fixtures with “lead-free” fixtures/solder with follow-up testing to verify remediation efficacy or removing outlets entirely. Additionally, we recommend that SCS communicate the findings of this work and remediation updates with the school community, as well as post this report and remediation updates in a readily accessible location (e.g., school website). A sample letter describing the results for a general audience is provided.

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BACKGROUND

Lead exposures derive from a variety of sources including dust from older lead-based paint, soil contamination from earlier leaded gasoline, and water contamination from leaded pipes, solder, and fixtures [1]. Dust from leaded paint is believed to be the dominant source of lead exposure, but the EPA estimates that ~20% of lead exposure is through drinking water [2]. Health effects of lead include irreversible developmental neurotoxicity [3], disruption of the endocrine and reproductive systems [4], and gastrointestinal and cardiovascular issues [5]. Even at low levels (<5 µg-Pb/dL-blood), lead has been known to decrease IQ scores [3]. Because of the health risks posed by lead, including that it can bioaccumulate, the U.S. Environmental Protection agency has set a non-enforceable health standard (Maximum Contaminant Level Goal, MLCG) for lead in drinking water of zero [2]. While no level of lead exposure is considered to be safe for anyone, lead exposure is a particular concern in children. Whereas children absorb >50% of Pb that they ingest, adults absorb ~35-50% [6]. Furthermore, lead's chemical similarity to calcium promotes uptake into children's bones, which can leach out over time and serve as a long-term source of Pb exposure [7]. The American Academy of Pediatrics recommends a maximum lead level in drinking water of 1 µg/L (referred to as "ppb" or "part-per-billion") [8]. Because developing children spend much of their time at school and the effects are largely irreversible, exposure to lead through drinking water in schools is a critical issue [9, 10].

In 1991, the United States Environmental Protection Agency (EPA) established the Lead and Copper Rule, which requires public water suppliers to monitor for lead in drinking water and set an action level for the concentration of lead in drinking water to 15 ppb and a maximum contaminant level *goal* of 0 ppb [11]. If lead concentrations exceed 15 ppb in more than 10% of customer taps sampled, public water suppliers must take action to control corrosion and inform the public about steps they should take to protect their health. Importantly, this action level is used administratively to evaluate anti-corrosion measures and is not a health-based standard. The American Academy of Pediatrics has issued a health-based recommendation that water fountains in schools not deliver water exceeding 1 ppb lead [8]. Currently, schools are not required to test for lead in drinking water unless they rely on a private water supply and serve more than 25 people daily [12]. This results in water being tested for lead in only ~8-11% of schools nationwide [13]. Previous national legislative efforts, including those by former Vermont Senator Jim Jeffords, to direct the EPA to require states to develop school testing programs and to address any problems found have been unsuccessful. While municipal water must be tested for lead at the site of distribution and at a small number of end-user (typically residential) outlets, lead can leach into the water at various points within the system, including from lead-containing pipes, solder, and individual outlet fixtures. The federal 1986 Safe Drinking Water Act limited the use of lead pipes and lead-containing solders in new drinking water systems, where "lead free" was defined as less than "0.2% lead for solders and fluxes and not more than 8% lead for pipes and pipe fittings" [14]. The amount of lead allowed in "lead-free" products installed after 2010 in Vermont [15] and after 2014 nationally was reduced 33-fold by redefining "lead free" as products in which wetted surfaces of a pipe contain a weighted average of ≤0.25% lead and the wetted surfaces of solder and flux contain a weighted average of ≤0.2% lead. The 2011 federal revision also exempted from lead-free requirements certain products that are used exclusively for non-potable uses "such as

irrigation, outdoor watering or any other uses where the water is not anticipated to be used for human consumption," as well as other products, including shower or water distribution main gate valves ≥2 inches in diameter [14]. Because of shifting "lead free" definitions, exemptions from lead-free requirements, and uncertainty regarding individual pipe and fixture composition and installation dates, direct testing of water from each outlet is the only way to understand the potential for lead exposure through drinking water.

Data from the U.S. Center for Disease Control and Prevention (CDC) in 2016 indicate that ~8% of Vermont children have blood lead levels that exceed Vermont's 5 µg/dL (microgram-per-deciliter) standard [16]. Approximately, 150 Vermont schools who are on their own drinking water supply regularly test some water outlets, but few schools have ever had all of their outlets tested. In 2017, the Vermont Department of Health (VDH) and Agencies of Education and Natural Resources launched a pilot project to test all drinking water outlets in 16 Vermont public schools that are on municipal water supplies [17]. Results of that pilot showed substantial differences across schools in the frequency of lead detection and in lead levels [18]. Schools ranged from having 0% up to 54% of outlets exceeding the EPA action level for lead, and from 3-88% of outlets exceeding AAP 1-ppb safety level.[1] In response to the VDH pilot and with the support of the Governor, the Vermont legislature took up a bill (S.40 An Act Related to Testing and Remediation of Lead in the Drinking Water of Schools and Childcare Facilities) in 2019 to require testing of school drinking water for lead. The Senate unanimously passed S.40 in February 2019, which includes a 3-ppb lead action level; the House is considering the bill. In the current draft of the bill, the sampling reflected in this report would be accepted as having fulfilled the requirements of testing, but the samples would need to be reanalyzed by a certified laboratory.

Salisbury Community School (SCS) receives water through its own well and serves more than 25 people; consequently, it tests a handful of outlets for lead every three years [19]. Under Vermont state law, SCS is also specifically required to tests water for lead in early education (preschool) classrooms. The current study represents the first-time lead levels have been tested in water from all outlets at SCS.

METHODS

Site Description

Salisbury Community School (SCS) is located in the town of Salisbury, VT and provides pre-kindergarten through 6th grade instruction [20]. SCS is part of the Addison Central School District, which oversees public schools in the area. SCS was constructed in 1997 with minor renovations since then. Any replacement of fixtures and other water infrastructure was performed in compliance with the lead-free requirements of the 1986 Safe Drinking Water Act. We worked with ACSD Facilities Manager, Eric Warren, on the study design, including completion of a plumbing questionnaire and mapping of flow paths.[2] All water outlets in the school (n = 35) were mapped by location and type. Outlets sampled at SCS included a source sample, sinks (conventional and floor/utility), water fountains, bottle fillers, kitchen sprayers, and a shower (**Figure 1**). Mapping included noting the flow path of water from the initial water entry point to the school. Knowledge of the water flow path is critical to the integrity of water sampling, as outlets need to be sampled in sequence from upstream to

[1] The AAP health-based recommendation is made specifically for water fountains, but would reasonably be applied to any outlet used for direct consumption by children. Information regarding use of outlets for consumption was not publicly available for statewide pilot.

[2] EPA Plumbing Profile Questionnaire can be found on p 96 of (EPA 2006), and includes questions regarding pipe and fixture type and composition, building age, and dates of renovation, among other information.

downstream to avoid inadvertent flushing of pipes and fixtures prior to sampling. We did not independently verify information provided to us regarding plumbing and water flow in the school.

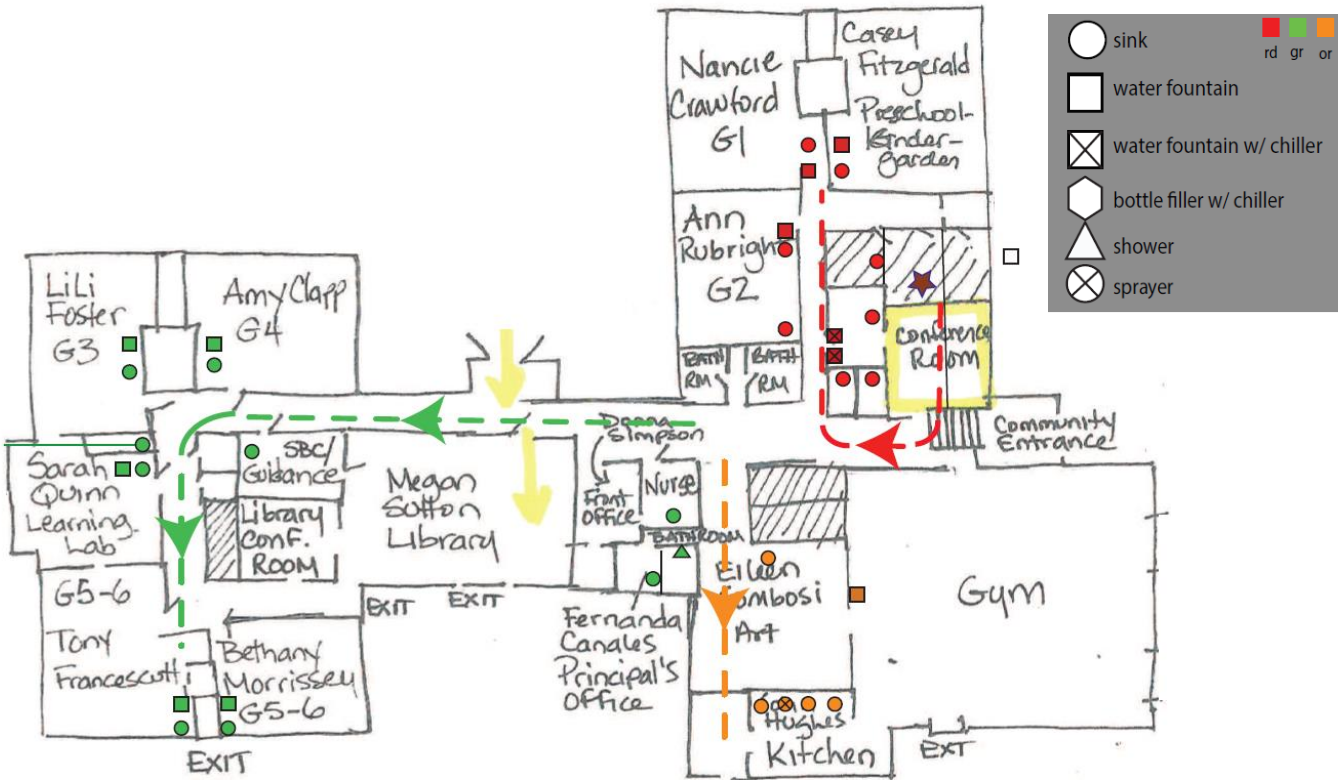

Figure 1. Salisbury Community School floor plan showing water flow paths (arrows) and water outlet (sample) locations, with colors representing main branch lines. The location of water input to the school is in the marked with a star. Marker shapes indicate fixture type. The sample-naming scheme associated with outlets is provided in (**Appendix A**). The floor plan with outlet locations labeled by Outlet ID is provided in **Appendix B**.

Sample Collection

Water was sampled on a Saturday morning (January 12, 2019) during the regular school year and prior to any use for the day.[3] Water should ideally sit stagnant in the pipes and fixtures for least 8 h, but no more than 12 h before collection.[4] Water samples were collected in certified clean HDPE Nalgene bottles (250 mL).[5] Two types of samples were collected: first draw (FD) and flush samples (FL) (**Table 1**). The two types of samples collectively provide information on the source of lead in the water and therefore, on appropriate remediation measures. First draw (FD) samples were obtained by collecting the first 250 mL of water from each outlet. After all FD samples were collected, FL samples were obtained by flushing water out of the outlets for 30 seconds and then collecting another 250 mL. Two field blanks were collected at Middlebury College the day before sample collection using ultra-purified water and were exposed to the sampling conditions of SCS. The sample naming scheme and

[3]The U.S. EPA (2006) recommends against sampling during holidays or periods of time that the school is not in regular use in order to avoid collecting samples that have non-representative high levels of lead.

[4] Some outlets are used infrequently and had likely been sitting for longer than 8-12 h. We considered this to be in keeping with the goals of the EPA guidance in that our samples are representative of what a student might encounter at that particular outlet on a given day.

[5] School samples are smaller than the 1-L sample collected by public water suppliers for compliance with the Lead and Copper Rule. A smaller sample is more effective at identifying the sources of lead at an outlet because lead sample is also more representative of water per serving consumed by a child. (EPA 2006)

SCS floor plan showing outlet locations labeled by outlet ID are provided in **Appendix A** and **B**, respectively.

Table 1. Types, descriptions, and rationale for samples collected.

Sample Type	Description and Rationale
First Draw (FD)	First 250 mL of water to exit outlet after sitting stagnant in pipes for 8-12 hours (see footnote 2 on p. 3). Provides information on Pb in the drinking water from all sources, including water coming in to the school, water pipes, and the outlet fixtures and connections.
Flush (FL)	First 250 mL of water to exit outlet after sitting stagnant in pipes for 8-12, having taken a FD sample, and *subsequently having been flushed for 30 seconds*. Provides information on Pb in the drinking from all sources *excluding* the outlet fixtures and immediate connections (i.e., from more distant connections, pipes, and/or incoming water).

Sample Preparation and Lead Analysis

After collection, samples were placed in a cooler and within 48 hours were acidified to 0.5% (1.25 mL trace-metal grade HNO_3) for preservation. After 16 h or more, sample turbidity was verified to be <1 NTU and acidity pH<2. Two samples had high turbidity and their reported lead level are considered low estimates of actual total lead.[6] Samples were analyzed for lead using inductively coupled plasma mass spectrometry, manufacturer-recommended conditions, and conventional quality control and quality assurance methods.[7] Lead concentrations are reported to the nearest part-per-billion (ppb, i.e., µg-Pb/L-water) for samples at/above the limit of quantification (LOQ, 0.5 ppb); as <0.5 ppb for samples with detectable lead below the LOQ; and as non-detect (n.d.) for samples with lead levels below the limit of detection (0.1 ppb)

A health-based prioritization of outlet remediation (highest, high, or moderate priority) is made based on the measured lead levels in FD samples and the potential use of the outlet for consumption or cooking. Lead levels are evaluated relative to three standards: the administrative (not health-based) EPA action level for lead of 15 ppb, the American Academy of Pediatrics health-based safety standard for school water fountains of 1 ppb, and the anticipated Vermont state action level for drinking water in schools of 3 ppb.

RESULTS & DISCUSSION

Lead Level Summary

Water from 35 outlets was sampled, including collecting one FD and one FL sample from each outlet. FD samples are used to evaluate lead exposures, while FL samples are used to evaluate the potential source of any lead found. Complete sample data are provided in **Appendix C**. Summary results for FD samples are shown in **Figure 2**. All outlets produced FD samples with detectable lead, but in roughly half the cases, the lead was at 1 ppb or lower and, therefore, meets the AAP recommended safety level. Two outlets produced FD samples that exceeded the EPA action level, while 17 additional outlets exceeded either the AAP safety level (>1 ppb) or both the AAP and the anticipated VT action level (>3 ppb). Locations of outlets that exceed the AAP or other guidelines are shown in **Figure 3**. The potential health concerns posed, and therefore, the prioritization of outlets for

[6] The FD sample from the source (RD01) and a classroom sink (RD07) had high turbidity (2-3 NTU) that was not reduced upon acidification and extended time. These samples were filtered (0.2 µm nylon) prior to lead determination and, therefore, represent lower limits for their actual total lead concentration.

[7] Reliability was ensured by use of a 7-point calibration (r^2>0.999) with use of internal standards; analysis of field and calibration blank samples; analysis in triplicate (±10%); and Pb recovery for a National Institutes of Standards and Technology certified reference material (±10%) after every 10 samples.

remedial action, depend on the measured lead concentration and the potential use of the outlet for direct consumption.

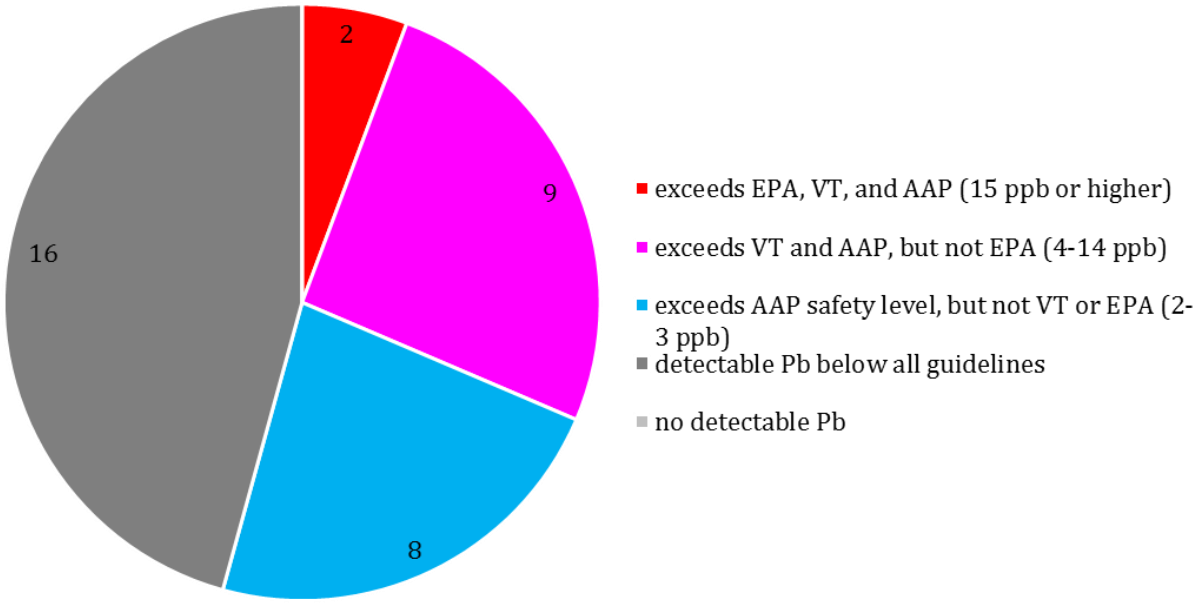

Figure 2. Summary of lead levels in Salisbury Community School FD samples. Numbers represent the number of outlets producing FD samples in each lead concentration category.

Two outlets produced a FD sample that exceed the administrative EPA action level of 15 ppb: the source (RD01, >267 ppb) and the health office shower (GN02, 41 ppb). Both outlets had not been used in recent memory, accounting for their high lead levels. The source sample had high turbidity (i.e., particulate matter) that was not reduced upon acidification and extended time. Because lead may be contained within the undissolved particulate and only the dissolved fraction is measured, 267 ppb is considered a lower limit for its actual lead concentration. High turbidity samples are often associated with infrequent use/flushing of the fixture and proximate pipes. Because neither outlet is used for consumption, they are considered as *low (source) and medium (shower) priority* for remedial actions.

Outlets that produced FD lead levels that exceeded the AAP recommendation and the anticipated Vermont action level included two kitchen sinks (4 ppb), a classroom sink (7 ppb), three bathroom sinks (9-12 ppb), and two utility sinks contained in custodial closets (5 ppb). The kitchen outlets are considered as a *highest priority* for remediation because of their use in food preparation. The classroom and bathroom sinks are considered a *highest priority*, given that although they are not intended for use for consumption they are readily available and convenient for such use by children and staff. The utility sinks are not accessible by children and regular staff and are considered a *low priority* for remediation.

Seven classroom sinks and one kitchen sink produced FD samples at 2 ppb, slightly exceeding the AAP safety level. As described above, the kitchen and classroom sinks are considered as *highest* and *high priorities*, respectively, for remediation. Priority outlets for remediation are summarized and appropriate remedial actions are discussed below in the *Summary & Recommendations* section.

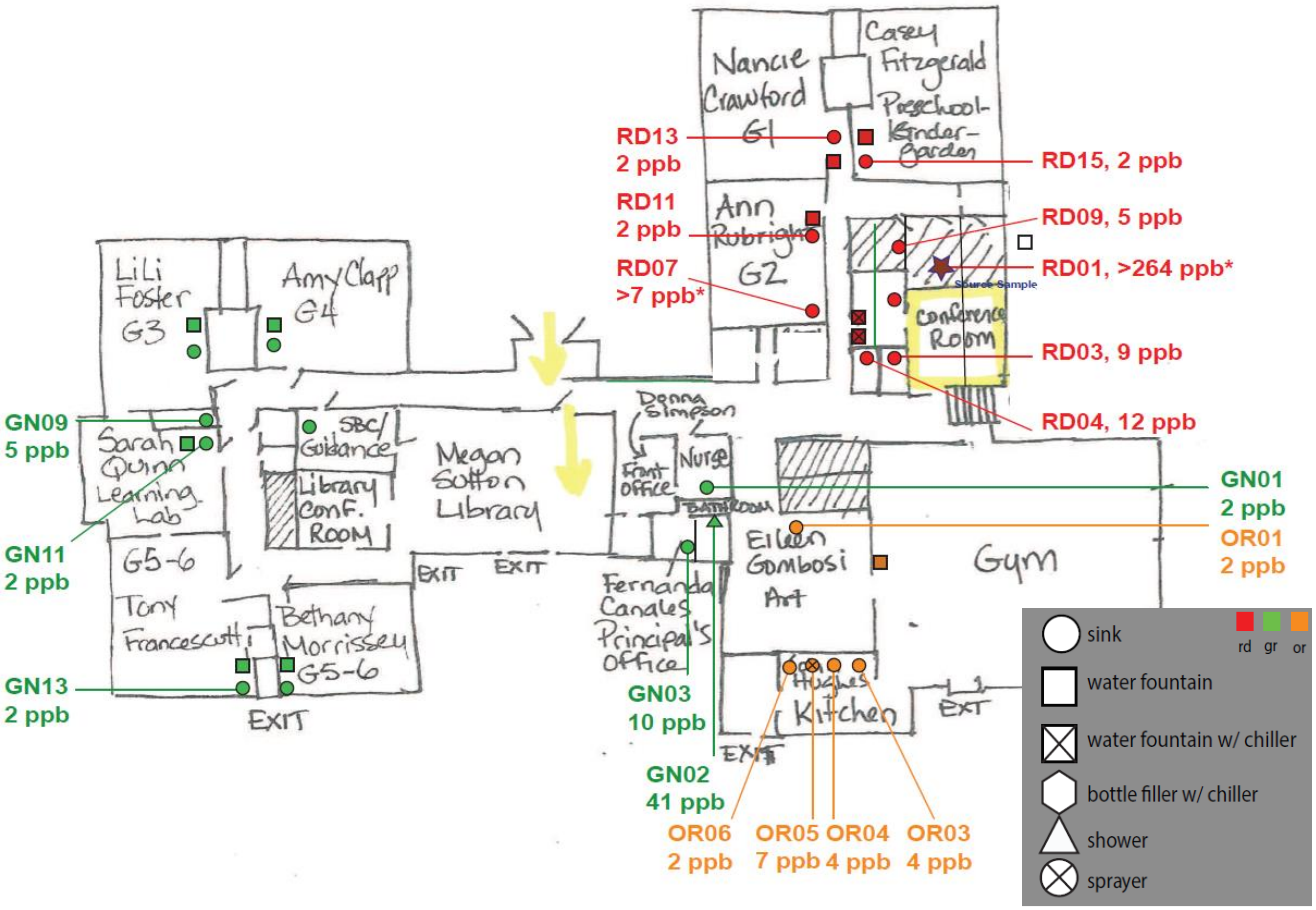

Figure 3. Floor plan showing locations and lead levels for Salisbury Community School outlets that exceeded the American Academy of Pediatrics recommended safety level of 1 ppb or other guidelines.

Source of Lead in Water

FL samples had lower lead levels as compared to their associated FD sample, with all but two meeting the AAP safety level upon flushing. These low FL concentrations suggest that the predominant source of the lead in FD samples is the outlet fixtures or immediate connections (e.g., solder), rather than incoming water or pipes within the school. The two FL samples that exceeded the AAP safety level were the source and shower samples, representing outlets that had not been flushed in recent memory. We anticipate that additional flushing would further reduce lead levels in water from these outlets.

SUMMARY & RECOMMENDATIONS

Most outlets produced FD samples with detectable lead, with about half of them, nevertheless, meeting the AAP safety level. Several kitchen sinks exceeded the EPA action level and are considered a *highest priority* for remediation based on lead levels and use in food preparation (**Table 2)**. The high lead levels in the source and shower samples were considered a *low* and *medium priority*, respectively, for remediation because they are not used for consumption and, in the case of the source sample, neither students nor regular staff have access to the outlet.

Table 2. Summary of Salisbury Community School outlets that exceeded the EPA or anticipated Vermont action level or AAP recommended safety level (i.e., "priority outlets"), with prioritization for remediation based on lead level and likelihood and frequency of use for consumption.

Priority level	Concern	Rationale	Outlet ID	Outlet type & location	First Draw (ppb)	Flush (ppb)
Highest	First draw exceeds anticipated VT action level and AAP safety level	Likely or intended use for consumption or food preparation	OR05	Kitchen sprayer	7	3
			OR03	Kitchen sink	4	1
			OR04	Kitchen sink	4	1
	First draw exceeds AAP safety level	Potential use for consumption or food preparation	OR06	Kitchen hand wash sink	2	1
High	First draw exceeds anticipated VT action level and AAP safety level	Accessible & convenient use for consumption	RD04	Bathroom sink, near conference room	12	1
			GN03	Health office bathroom sink	10	1
			RD03	Bathroom sink, near conference room	9	1
	First draw exceeds AAP safety level		RD07	G2 classroom sink	>7[a]	1
			RD11	G2 classroom sink	2	1
			RD13	G1 classroom sink	2	1
			RD15	Pre-K + K classroom sink	2	1
			GN01	Health office sink	2	1
			GN11	Learning lab sink	2	1
			GN13	G5-6/Franscescutti classroom sink	2	1
			OR01	Art classroom sink	2	1
Medium	First Draw Exceeds EPA action level	High levels with some potential for consumption	GN02	Health office shower	41	16
Low	First Draw Exceeds EPA action level	Virtually no student/staff access; low potential use for direct consumption	RD01	Source outlet in mechanical room	>264[a]	5
	First draw exceeds AAP safety level and anticipated Vermont action level		RD09	Utility sink in custodial closet	5	1
			GN09	Utility sink in custodial closet	5	1

[a] sample was filtered due to high particulate even after acidification and extended time; provisional value is considered to be a lower limit for the actual total lead concentration

Results suggest that the predominant source of the lead in the FD samples is the outlet fixtures or immediate connections (e.g., solder), rather than incoming water or pipes within the school.

We recommend that SCS pursue the following *permanent* remediation approaches for priority outlets:

1) replace with "lead-free" fixture/solder <u>or</u> remove the outlet entirely

2) if replaced, verify remediation efficacy via follow-up lead testing

Until the priority outlets are permanently remediated, we suggest the following *temporary* approaches:

1) disconnect water supply to priority outlets, if at all possible
2) If priority outlets are needed for non-consumption uses, place signage instructing against its use for consumption or food preparation and with educational outreach regarding the policy and its rationale

Finally, we recommend that SCS communicate the findings of this work and remediation updates with the school community, as well as post this report and remediation updates in a readily accessible location (e.g., school website). A draft letter describing the results for a general audience is provided as **Appendix D**.

ACKNOWLEDGEMENTS

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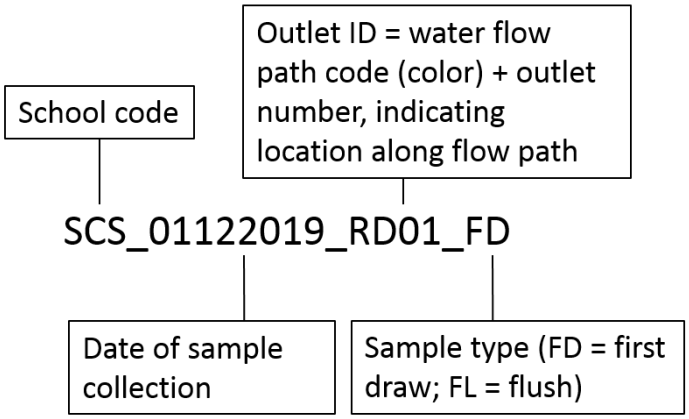
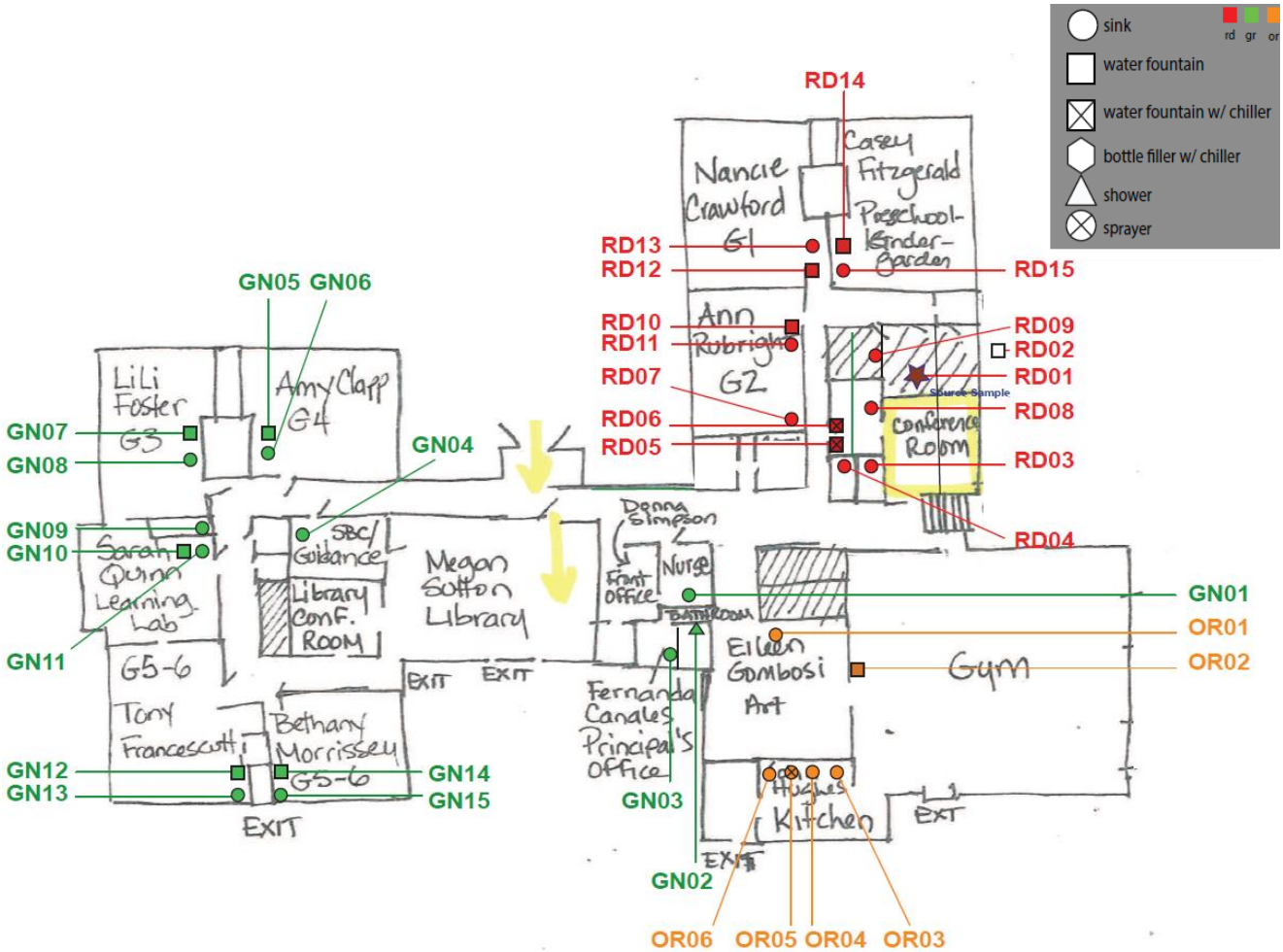
Appendix A – Sample Naming Scheme

Samples collected at SCS were assigned unique sample IDs as presented below. The IDs are composed of the school code, sampling date, flow path identification, outlet ID, and the type of sample.



Appendix B – SCS Floor plan showing Outlet Locations and Outlet IDs



Appendix C – Complete Lead Concentration Results for SCS

Samples were collected as described in the Methods; sample names are as described and located in **Appendix A** and **B**, respectively. Lead concentrations are reported in parts-per-billion (ppb, i.e., µg-Pb/L-water) for samples at/above the limit of quantification (LOQ, 0.5 ppb); as <0.5 ppb for samples with detectable lead below the LOQ; and as non-detect (n.d.) for samples with lead levels below the limit of detection (i.e., <0.1 ppb). Samples that exceed the EPA action level are shown in red; those that exceed the anticipated Vermont action level, but not the EPA level, are shown in pink; those that exceed only the AAP safety level are shown in blue.

School	Outlet ID	Outlet Type	Outlet Description/Location	First Draw Lead Conc (ppb)	Flush Lead Conc (ppb)
SCS	GN01	classroom/office sink	health office sink	2	1
SCS	GN02	other	health office shower	41	16
SCS	GN03	bathroom sink	health office bathroom sink	10	1
SCS	GN04	classroom/office sink	SBC/guidance office sink	1	1
SCS	GN05	water fountain or bottle filler	G4 classroom water fountain (on sink)	1	1
SCS	GN06	classroom/office sink	G4 classroom sink	1	1
SCS	GN07	water fountain or bottle filler	G3 classroom water fountain (on sink)	1	1
SCS	GN08	classroom/office sink	G3 classroom sink	1	1
SCS	GN09	utility sink	Utility sink in custodial closet	5	1
SCS	GN10	water fountain or bottle filler	learning lab water fountain (on sink)	1	1
SCS	GN11	classroom/office sink	learning lab sink	2	1
SCS	GN12	water fountain or bottle filler	G5-6/Francescutti classroom water fountain on sink	1	1
SCS	GN13	classroom/office sink	G5-6/Franscescutti classroom sink	2	1
SCS	GN14	water fountain or bottle filler	G5-6/Morrissey classroom water fountain on sink	1	1
SCS	GN15	classroom/office sink	G5-6/Morrissey classroom sink	1	1
SCS	OR01	classroom/office sink	art classroom sink	2	1
SCS	OR02	water fountain or bottle filler	water fountain in gym	1	1
SCS	OR03	kitchen sink or sprayer	kitchen sink	4	1
SCS	OR04	kitchen sink or sprayer	kitchen sink	4	1
SCS	OR05	kitchen sink or sprayer	kitchen sprayer	7	3
SCS	OR06	kitchen sink or sprayer	kitchen hand wash sink	2	1
SCS	RD01	source	source	>264[a]	5
SCS	RD02	water fountain or bottle filler	outdoor water fountain	*	*
SCS	RD03	bathroom sink	bathroom sink (near conference room)	9	1
SCS	RD04	bathroom sink	bathroom sink (near conference room)	12	1
SCS	RD05	water fountain or bottle filler	water fountain (near teachers' lounge)	1	1
SCS	RD06	water fountain or bottle filler	water fountain (near teachers' lounge)	1	1
SCS	RD07	classroom/office sink	G2 classroom sink	>7[a]	1
SCS	RD08	kitchen sink or sprayer	teachers' lounge sink	1	1
SCS	RD09	utility sink	utility sink in custodial closet	5	1
SCS	RD10	water fountain or bottle filler	G2 classroom water fountain on sink	1	1
SCS	RD11	classroom/office sink	G2 classroom sink	2	1
SCS	RD12	water fountain or bottle filler	G1 classroom water fountain on sink	1	1
SCS	RD13	classroom/office sink	G1 classroom sink	2	1

School	Outlet ID	Outlet Type	Outlet Description/Location	First Draw Lead Conc (ppb)	Flush Lead Conc (ppb)
SCS	RD14	water fountain or bottle filler	Pre-K/K classroom water fountain on sink	1	1
SCS	RD15	classroom/office sink	Pre-K/K classroom sink	2	1

[a] sample was filtered due to high particulate even after acidification and extended time; provisional value is considered to be a lower limit for the actual total lead concentration

Appendix D – Sample Letter to the SCS Community Regarding Study Results

We provide here a sample letter for sharing the study results with the school community.

Dear Parents,
As we shared earlier this year, Salisbury Community School (SCS) partnered with students and faculty researchers from Middlebury College to test all the sources of drinking water at SCS for lead, including water from water fountains, bottle fillers, sinks, and showers -- a total of 35 outlets.

Why is it important to screen to test the school's drinking water for lead?
Although most lead exposure occurs when people eat paint chips and inhale dust, the U.S. Environmental Protection Agency (EPA) estimates that up to 20% of lead exposure may come from drinking water. Even though the public water supply to the school meets EPA's lead standards, lead can still get into a school's drinking water. As water moves through a school's plumbing system, lead can leach into the drinking water from plumbing materials and fixtures that contain lead. Testing is the best way to know if there are elevated levels of lead in the school's drinking water.

What were the results of the study?
Roughly half of the outlets (46%) met the American Academy of Pediatrics (AAP) recommended safety level of 1 ppb for lead in school drinking water. A source sample and health office shower exceeded the EPA action level (15 ppb) but are considered a *low* and *medium priority* for remediation, respectively, due to their non-use by students. Four kitchen sinks delivered water that exceeded the AAP safety level (2-7 ppb) and are considered a *highest priority* for remediation due to their intended use for consumption or food preparation. An additional 11 classroom and bathroom sinks exceeded the AAP safety level (2-12 ppb) and are considered a *high priority* for remediation due to their accessibility and convenience for consumption. Finally, two utility sinks located within custodial closets (5 ppb) were considered a *low priority* for remediation due to their inaccessibility for consumption. Testing suggests that the predominant source of lead is the fixtures or their immediate connections, rather than more distal pipes or the incoming water supply.

What comes next?
We have accepted the researchers' recommendations that we:
(1) replace the kitchen sink sprayer with a new lead-free spray fixture
(2) verify remediation efficacy via follow-up lead testing after fixture replacement

[INSERT LANGUAGE ON TIMELINE FOR RESPONSE/IMPLEMENTATION AND OF FOLLOWUP AFTER CHANGES HAVE BEEN MADE/IMPLEMENTED]

Where can I get more information?
For more information regarding the testing project or sampling results:
- Call Bruce MacIntire at 802-382-1500
- Access the full report at [INSERT URL FOR ACCESSING THE FULL REPORT]

For information about the health effects of lead:
- Call the Health Department at 800-439-8550
- Visit http://healthvermont.gov/drinking-water/lead
- Visit http://healthvermont.gov/environment/children/prevent-lead-poisoning -parents

To request a drinking water test kit:
- Call the Health Department Laboratory at 802-338-4736 or 800-660-9997