

South Lyon Community Schools
Lead and Copper Testing Program

Program Goal

To reduce exposure to lead and copper in all district potable water sources.

Current Status of Program

Given all of the press regarding the Flint water crisis and communication from the Michigan Department of Environmental Quality (MDEQ) and the Environmental Protection Agency (EPA) that all end users should also test their water supply, SLCS began to conduct testing almost immediately and have continued to test and take any corrective actions that are necessary.

Our consultant, Arch Environmental Group, Inc., has completed “first draw” sampling for lead and copper at approximately 431 potable water sources since March, 2016. Additionally, Arch Environmental Group has collected over 100 follow-up “flush” and follow-up “first draw” samples from these sources. A “first draw” sample is the collection of water from an outlet that is the first to come out of the tap after a period of inactivity. A follow-up “flush” sample is the collection of water from an outlet where the water has run for a period of time based on the outlet type, which can provide additional information regarding upstream plumbing.

Sampling of potable drinking water locations has been completed at Bartlett ES, Brummer ES, Centennial MS, Dolsen ES, The Early Childhood Center, Hardy ES, Kent Lake ES, Millennium MS, Sayre ES, South Lyon East HS, and South Lyon HS. Salem Elementary School, currently under construction, will be scheduled for sampling at a later date.

To date, all follow-up “flush” samples have reported lead and copper levels below the EPA Action Levels of 15 ug/L for lead and 1300 ug/L for copper. However, there have been some locations where the “first draw” samples exceeded Action Levels. For all locations where elevated lead levels were reported, the associated fixture has been replaced with a new “lead-free” fixture. In some cases, the follow-up “first draw” samples still reported lead content above the EPA Action Level following fixture replacement. The elevated lead levels identified in the follow-up “first draw” samples indicate that the connecting piping, upstream piping, brass plumbing, lead solder joints, and mixer valves may potentially need replacement with lead-free materials. Elevated lead levels in follow-up “first draw” samples may also indicate that additional individual flushing of the new fixtures is needed, or that main pipe flushing is needed following multiple fixture replacement. Any of these locations that are drinking fountains or bubblers have been taken off-line, or in the case of faucets, marked “hand wash only”, until all corrective action is taken (i.e., repaired/replaced, passed all water testing).

At this time we are currently conducting remediation activities at following outlets (replacement of fixtures for lead, or flushing for copper):

SCHOOL	LEAD	COPPER
Bartlett ES	One (1) Location	NONE
Brummer ES	Two (2) Locations	NONE
Centennial MS	NONE	NONE
Dolsen ES	Two (2) Locations	NONE
Early Childhood Center	NONE	NONE
Hardy ES	NONE	NONE
Kent Lake ES	Two (2) Locations	NONE
Millennium MS	NONE	Two (2) Locations
Sayre ES	One (1) Location	One (1) Location
Salem ES	Not Sampled Yet	Not Sampled Yet
South Lyon East HS	One (1) Location	NONE
South Lyon HS	NONE	NONE

We have tested all potable locations throughout the district, with the exception of Salem ES. It should be noted that all renovated classrooms have been outfitted with new “lead-free” fixtures as part of the construction program.

As an additional precaution, and as a good practice for all public and private water users (schools, homes, businesses, etc.), we continue to have staff run each potable water location for a minimum of 30 seconds at the beginning of each day, prior to the first use. Additionally, we shall continue to use only cold water for food preparation.

So, in summary:

- All “flush” samples taken to date have been below the EPA Action Levels for lead and copper.
- The vast majority of “first draw” samples have been below the EPA Action Level for lead and copper.
- All “first draw” samples that exceeded the EPA Action Level for lead have resulted in the replacement of the related fixture. In the majority of cases, fixture replacement has resulted in samples testing below the EPA Action Level with a follow up “first draw” test and reduced the exposure to lead.
- All “first draw” samples that exceeded the EPA Action Level for copper have been placed on a flushing program. Flushing locations the locations with high copper levels will reduce copper exposure and encourage line coating. Line coating over time will permanently reduce copper levels.
- **The remaining fixtures that were replaced and still tested above the EPA Action Level have been either taken off-line (in the case drinking fountains) or marked “hand wash only” (for faucets).** These remaining locations are receiving additional corrective action to ensure they will all be below the EPA Action Level before being returned to normal use.

Once all issues have been addressed, we will continue to conduct random testing throughout the school district each and every year. Please see the link below for all testing activities to date. This link will be updated as additional reports are added.

[Arch Environmental Testing Reports](#)

Additional Information

Action Levels

The Lead and Copper Rule (LCR) is a treatment technique rule. Instead of setting a maximum contaminant level (MCL) for lead or copper, the rule requires public water systems to take certain actions to minimize lead and copper in drinking water. These actions reduce water corrosivity and prevent the leaching of these metals from the premise plumbing and drinking water distribution system components. The Action Level for lead is 0.015 mg/L or 15 ug/L (15ppb). The Action Level for copper is 1.3 mg/L or 1300 ug/L (1300 ppb).

Well versus Municipal Water Sources

Both Brummer Elementary and Salem Elementary derive their water source from a well system. As required by owners of well systems, we have continually performed required sampling for these sites.

The remainder of school buildings are part of a municipal system. Bartlett, ECC, Sayre, CMS, MMS and SLHS are all on the City of South Lyon water system. Dolsen, Kent Lake, Hardy and SLEHS are on the Lyon Township system. The lead content of these two municipal systems are well below EPA Action Level of 15 ug/L for lead and below the EPA Action Level of 1300 ug/L for copper. Click on either of the links below to open the municipal reports.

[Lyon Township Water Report](#)

[City of South Lyon Water Report](#)

Systemic issues versus isolated issues

First and foremost, we may all remember that it is a good idea to always run water for a little while prior to consuming water. While this advice has always been there, as a society we seldom practiced it. The MDEQ and EPA have stated that one of the best steps that can be taken to reduce lead exposure is to allow water to run prior to consuming. The exception to this rule is when the whole water system/water source exceeds the action limit of 15 ug/L. With miles and miles of piping in a typical municipal system, letting a faucet run is not likely to reduce high lead levels. This is the scenario that occurred in Flint. It was a system wide (systemic) problem.

In SLCS we know that the water coming into our schools - whether it is our two wells at Brummer and Salem, or the municipal system from Lyon Township or the City of South Lyon - is below EPA Action Levels of 15 ug/L for lead and 1300 ug/L for copper. Therefore, in the event of a high reading, the culprit would likely be a faucet/fixture or other piping upstream in the building. As of this time, we believe all higher readings are related to site-specific faucets/fixtures or valves within a few feet of the faucets.

"First Draw" samples versus "Flush" samples

A "first draw" is a sample of water that has stood motionless in the plumbing pipes for at least eight hours, typically overnight (it is recommended to not exceed 24 hours) and is collected without flushing the tap. A "flush" sample can be collected at the same time as a "first draw" or at a later date. The "flush" sample should be taken before a facility opens and before any water is used. This sampling approach is designed to analyze the lead content of the water in the plumbing behind the wall. The EPA recommends that sampling be completed during the school year, and preferably not after vacations, weekends or holidays because the water would have remained stagnant for too long and would not represent water used for drinking on a typical weekday. Since much of our testing occurred during the summer when excessive stagnation can occur, it is possible some of the elevated readings are related to the lack of continuous use of building water.

When "lead-free" is not "lead-free"

While it seems crazy in hindsight, 2004 EPA regulations regarding "lead-free" fixtures still allowed potable fixtures to contain up to 8.00% lead. So, while businesses and consumers thought they were buying lead free fixtures, it was not the case. One of the ironies of this entire situation is the fact that new construction prior to 2014 could actually have higher lead levels than older construction, since the lead in older construction may have worked its way out of the system. In 2014, section 1417 of the Safe Drinking Water Act (SDWA) establishes the definition for "lead-free" as a weighted average of 0.25% lead calculated across the wetted surfaces of a pipe, pipe fitting, plumbing fitting, and fixture and 0.2% lead for solder and flux. All new fixtures for Pearson Elementary and all replacement fixtures for locations that exceeded the 15 ug/L lead Action Level have been under this new regulation.

"Potable" versus "Non-Potable" Lead Free Exceptions

The Act prohibits the "use of any pipe, any pipe or plumbing fitting or fixture, any solder, or any flux, after June 1986, in the installation or repair of (i) any public water system; or (ii) any plumbing in a residential or non-residential facility providing water for human consumption, that is not lead free." One exemption is for "pipes, pipe fittings, plumbing fittings, or fixtures, including backflow preventers, that are used exclusively for non-potable services, such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption." This exemption impacted SLCS when a newly installed hand wash sink, part of the whole-kitchen replacement at Sayre Elementary, was inadvertently tested. The follow-up "first draw" sample significantly exceeded the 15 ug/L Action Level for lead, which made no sense, as it was a new fixture. It turns out the vendor, who indicated all fixtures would

meet the new EPA regulation, provided a fixture that did not need to meet the lead free requirements because the sink was considered non-potable and therefore exempt. We have made it clear to all of our vendors and contractors that ALL new faucets and fixtures MUST meet the current EPA Safe Drinking Water Act lead free standards regardless of fixture usage.

Regulatory Information

On August 1, 2016, the MDEQ provided the Version 3.0 Quick Guide for Drinking Water Sampling for Lead and Copper at Schools and Child Care Providers on Community Water Supplies. The Quick Guide states that the 15 ug/L is not a health standard, and the MDEQ recommends take action if the lead concentration is above 5 ug/L. The EPA has not changed their action level from the 15 ug/L, and the Michigan Lead and Copper Rule Reform indicates that a phase reduction in the lead level from 15 ug/L to 10 ug/L by 2020 for regulated facilities that fall under the Lead and Copper Rule.

Further Reading

<https://www.epa.gov/dwreginfo/lead-and-copper-rule>

<http://www.nsf.org/services/by-industry/water-wastewater/municipal-water-treatment/nsf-ansi-standard-61/>

<http://www.cdc.gov/healthywater/drinking/>

<https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100LVYK.txt>

<https://www.epa.gov/ground-water-and-drinking-water>

<https://www.epa.gov/ground-water-and-drinking-water/drinking-water-activities-kids-and-teachers>