

The Aurora Report

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IN THIS ISSUE

- Lead in Schools' Drinking Water.....Pg. 1
- Chemical Donations and Other Stuff....Pg. 2
- Notes from the Inspector.....Pg. 3
- Upcoming Training.....Pg. 4

Lead in Schools' Drinking Water – Bad News/Good News

Five years ago, in 2014, high levels of lead created a toxic water crisis in Flint, Michigan, which became a national story—yet there is currently no federal requirement for schools to test drinking water for lead. The issue is left to the states, and many do not require public schools to test drinking water taps.

A new study by researchers at the Harvard T.H. Chan School of Public Health revealed some statistics, among them:

- 44% of nearly 11,000 schools had at least one sample test positive for lead.
- Only 15 of the 25 states in the Harvard study have laws or funding allocations for testing water in schools. Few states provide funding for lead testing and remediation through school drinking water programs.
- In Atlanta, more than half of the public schools have high levels of lead, with some more than 15 times the federal limit for drinking water systems. The study showed, however, that this is a national public health crisis, with lead contamination in school drinking water spanning the entire country, from urban to suburban to rural.

Without federal oversight, there is a wide range of action levels for lead contamination at the states, from 5 parts per billion (ppb), an FDA action level for bottled water, to 20 ppb. The World Health Organization warns that there is no known level of lead exposure that is considered safe; even low levels of lead exposure have been linked to learning problems in children. Lead is a neurotoxin that lowers IQ scores and has been linked to aberrant behavior and violence. Sources of lead include corrosion or leaching of lead-bearing pipes, solder, facets, and other fixtures.

So, what's the good news? California, as usual, is on the leading edge of change. A law enacted in October of 2017 put California among only seven states and the District of Columbia that require schools to test their drinking water for lead. Thousands of schools have already performed the testing from drinking fountains, sinks, and other sources. The law requires that schools shut down or replace lead-contaminated fixtures if lead concentrations are **higher than 15 ppb**, the limit set by the U.S. EPA. Several organizations believe this is still too lenient, such as the American Academy of Pediatrics.

Schools are required to notify parents and guardians if levels test above 15 ppb. Each school needs to test from 1-5 of its frequently-used water outlets (regardless of how many fixtures it has). One round of testing must be completed by **July 1, 2019**. The law exempts (1) schools built or modernized since 2010, (2) schools already testing their water, and (3) private schools.

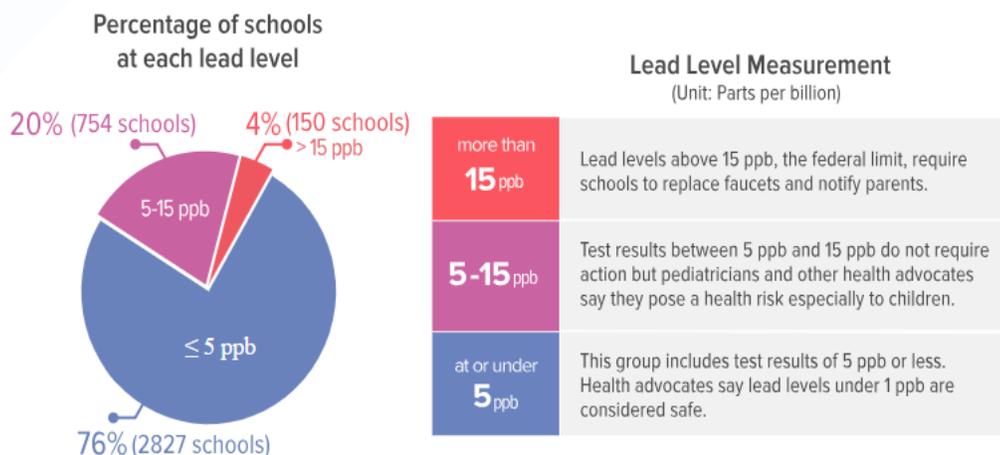


Another piece of good news is that local water utilities are required to provide free water tests (but districts can commission their own tests). \$9.5 million in grant money is available for schools in disadvantaged communities to repair or replace water fixtures. (Continued on Page 2)



Lead in Schools' Drinking Water – Continued

Results from the last two years of testing at 3,700 schools (1/3 of the state's 10,600 total) are shown in this graphic from EdSource:



Note: *Private schools are not required to test their water but can opt to do so. The database includes 174 of the state's nearly 3,000 private schools.
Data Source: State Water Resources Control Board, Los Angeles Unified School District, Oakland Unified School District, San Diego Unified School District.
Graphic by Yuxuan Xie and Justin Allen.

EdSource

A searchable lead test results database is located at:

<https://edsources.org/2018/search-lead-in-school-water/602783>

Aurora ESI is experienced in sampling drinking water for schools and industry. Give us a call at (855) 500-2374 or email us at info@auroraesi.com to inquire about our drinking water sampling and evaluation services.



Chemical Donations and Other Stuff, or the Gifts That Keep on Giving . . . Trouble!

Free stuff is good, right? Not always, and not when it comes to chemicals and other science-related donations. Many schools have received offers of chemical donations from other schools, private individuals, and businesses, such as chemical suppliers, seemingly with good intentions. Some teachers have even purchased chemicals that ended up in the school's (and district's) chemical inventories. Donations can include paints, lab chemicals, even specimens (more on that in a minute). These donations are usually made to and accepted by individual staff members, sometimes without the knowledge of the school administration, much less the district. In many cases, there is no immediate need, but the items are accepted in anticipation of some future day use.



However, accepting donated chemicals and specimens has resulted in serious compliance issues for schools. In the past days of lighter regulation, before Right-to-Know and other major laws were passed, it was common for schools to have vast stores of un-inventoried, undocumented, and unlabeled chemicals and specimens, for which provenance or origins were unknown. Lack of labeling, storage, availability of Safety Data Sheets (SDSs), and regulatory reporting meant that in many schools, these types of chemicals and specimens were disposed as waste at considerable cost.

Sometimes unwanted publicity has resulted, as in the case of a Florida high school's discovery of a fetus in a mason jar of formalin. Somehow leaked to the press in 2013, this story horrified many, although such "specimens" were common in the first half of the 20th century, when college and even high school students studied human embryos and fetuses. (Continued on Page 3)



Chemical Donations and Other Stuff, or the Gifts That Keep on Giving . . . Trouble! (cont.)

As in the case of the Florida fetus, many of these specimens were given to instructors by retiring science teachers who had used them in the classroom as teaching aids for many years or even decades. The modern-day disposal of human remains is regulated by states, and the absence of a provenance or knowledge of origins creates a huge problem when trying to legally and humanely remove such specimens, regarded as pathological waste, from schools.

Does your district have a chemical donation policy? Teachers should be instructed that such donation offers, even of something as seemingly innocuous as paint or art supplies, must be directed to the district environmental health and safety department. Teachers should never accept donations of chemicals or specimens on their own, and should notify the district immediately if they discover a cache of chemicals or specimens that appear old or whose origin is unknown. Aurora ESI has helped schools deal with this problem historically and in the recent past. We can provide confidential expertise in this delicate matter.

Inspector Field Notes...

In this issue, Shanah Kirkwood, one of our senior health and safety inspectors, gives her observations concerning common science laboratory mishaps, and what teachers can do to prevent them.



One thing I have learned about Aurora ESI is that for our school district clients, laboratory safety is critical, not only for the students' safety, but also for staff. Science teachers are in a unique position being able to advocate for laboratory-based instruction in K-12 classrooms, while providing students (and future teachers) with valuable information about their responsibilities and the potential consequences of their actions. However, fear of legal liability may inhibit a teacher's enthusiasm for classroom laboratory work, if he or she fears taking on liability for student injuries arising from laboratory experiments. There are some guidelines outlined in the *California Science Safety Handbook* (2014) that can, if followed, alleviate most of these fears. Below are some of the more common mishaps that occur in school science laboratories and how to prevent them. I encourage you to discuss or flow these down to the science teachers in your district so that they are aware of what can happen if they are not vigilant in the laboratory.

Fire

It's all fun and games until someone ignores the Bunsen burner! When dealing with hot surfaces, practice and review the procedures to minimize fires. Make sure all flammable materials in the lab are properly sealed and stored and be sure to train students to inspect burners for any leaks to prevent sudden flares.



Burns

Handling hot items hastily without the proper tools can result in serious heat burns. Teach students how to properly use tongs, water baths, and other cooling equipment, and stress the importance of never touching hot surfaces with a bare hand. Chemical burns can occur when protective gloves are not used when handling chemicals. Students must be instructed on the importance of treating chemicals with respect and caution, measuring them carefully, and using only approved containers for transferring and containing them.



Cuts and Scrapes

When using sharp tools for dissection, students should receive instruction in how to handle blades safely. In addition, when disposing of sharp items, such as broken glass, needles, or razor blades used for cutting lab materials, be sure that students know to wrap these items carefully before carrying to the broken glass container or other approved disposal container.

Contamination

Before and after interacting with any foreign substances, students should thoroughly wash their hands. They should have donned lab aprons, gloves, and glasses or goggles as needed. Leaving the lab with bacteria, tissue, or other potentially harmful substances on their skin or clothes can result in

(Continued on Page 4)



Inspector Field Notes - Continued

contamination of desks or lunch tables, causing illness and other complications. For this reason, eating, drinking, applying cosmetics, adjusting contact lenses, and chewing gum should be prohibited in labs, including classroom labs, and chemical storerooms.

Inhalation

Accidentally inhaling gases in a poorly-ventilated space can cause headaches, nausea, and even fainting. Teachers should show students the proper procedures for opening windows, using ventilation fans, and measuring the amount of gas emissions in a room to ensure their safety.

Spills and Breaks

Spilling liquids and dropping glass beakers is typically the result of not following procedures and rushing. Teachers should emphasize the importance of moving carefully through each step of the lab to avoid any hasty actions. They should be educated about the potential dangers that can result from spilling chemicals and breaking glass in the lab, as well as clean-up procedures in the event of a spill or break.



Spending time on safety rules is a hallmark of a successful science classroom. The *Science Safety Handbook* can help in establishing a safe laboratory. Using the SSHB in conjunction with proper training and continuous maintenance and management of your program will help ensure that your schools are providing the safest environment possible for students and instructors, reducing liability while teachers serve as examples to the next generation of science professionals. – Shanah Kirkwood, Senior Environmental Specialist



QUESTION OF THE QUARTER This new feature pays rewards – a \$25 Starbucks gift certificate if you can answer the Question, the answer of which is somewhere in the pages of this *Aurora Report*:
What are 5 things no one should be doing in a lab or chemical storeroom?



Be the first to send the answer to info@auroraesi.com – if multiple right answers come in same time period, all will be entered into a drawing for the card. Winners and nonwinners notified of answer and results.

UPCOMING TRAINING

Aurora ESI's upcoming school training sessions per location are listed below. Cost is per person. Be certain to contact your School Program Coordinator at (855) 500-2374 to reserve your seat. Classes sell out fast!

COURSE	San Francisco 150 Executive Park Blvd San Francisco, CA	Oakland 220 Fourth Street Oakland, CA	Martinez 601 Ferry Street Martinez, CA	Sacramento 3009 Douglas Blvd Roseville, CA
Lab Safety Training	August 20	August 21	August 22	August 23
Hazardous Waste Generator Training	August 27	August 28	August 29	August 30
HazCom Training	August 27	August 28	August 29	August 30

Coming next... The *3Q2019 Aurora Report* will focus on **Hazardous Waste**

Cradle to Grave – do you know where yours is right now?

